JOB NO.: TCS00670/13

AGREEMENT NO. CE 45/2008 (CE)
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT (NO.12) – JULY 2014

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
13 August 2014	TCS00670/13/600/R0213v2		
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Version	Date	Remarks
1	8 August 2014	First Submission
2	13 August 2014	Amended according to IEC's comments on 11 August 2014

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14 August 2014

AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, N.T.

By Email & Post

Attention: Mr Simon LEUNG

Dear Sirs

Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Monthly EM&A Report (No. 12) – July 2014

With reference to the Monthly EM&A Report No. 12 for July 2014 (Version 2) certified by the ET Leader we received on 14 August 2014, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-404/2011/A.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995 8120 or by email to antony.wong@smec.com; or our Ms Winnie MA on tel. 3995 8138 or by email to winnie.ma@smec.com.

Yours faithfully
For and on behalf of
SMEC Asia Limited

FAXED 14 AUG 2014

Antony WONG
Independent Environmental Checker

cc	CEDD/BCP	-	Mr Pui Sang LI / Mr Eric CHAN / Mr William CHEUNG / Mr CM OR	by fax: 2714 0103
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
	SRJV	-	Mr Edwin AU	by email
	CW	-	Mr Daniel HO	by email
	DHK	-	Mr Raymond CHENG	by email
	AUES	-	Mr TW TAM	by email

EXECUTIVE SUMMARY

ES01 This is the **12th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 to 31 July 2014** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES02 To facilitate the project management and implementation, Liantang/Heung Yuen Wai Boundary Control Point and Associated Works of the Project is divided five CEDD contracts including Contract 2 (CV/2012/08), Contract 3 (CV/2012/09), Contract 4 (TCSS), Contract 5 (CV/2013/03) and Contract 6 (CV/2013/08).

ES03 Currently, the construction works has been undertaken for Contract 2, Contract 3 and Contract 5. Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Reporting Period	
		Number of Monitoring Locations to undertake	Total Occasions
Air Quality	1-hour TSP	**6**	**102**
	24-hour TSP	**6**	**30**
Construction Noise	$L_{eq(30min)}$ Daytime	**8**	**45**
Water Quality	Water sampling	**5**	**13(*)**
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	**Contract 2**	**4**
		Contract 3	**4**
		Contract 5	**5**

(*) Monitoring day

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES04 In the Reporting Period, no exceedance of air quality and construction noise was registered. However, two (2) Action Level and three (3) Limit Level exceedances for water quality monitoring were recorded. The summary of breach of environmental performance is shown below.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation Result	Corrective Actions
Air Quality	1-hour TSP	0	0	0	-	-
	24-hour TSP	0	0	0	-	-
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	-	-
Water Quality	DO	0	0	0	-	-
	Turbidity	0	**1**	**1**	• Exceedances on 10 and 12 Jul were not project related • Exceedances on 25 Jul is underway	NA
	SS	**2**	**2**	**2**		NA

ENVIRONMENTAL COMPLAINT

ES05 In this Reporting Period, one (1) environmental complaint about dust control which related to Contract 2 was lodged under the Project. Investigation for the complaint is underway and it will be reported in next Reporting Period.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES06 No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGE

ES07 No reporting changes were made in the Reporting Period.

SITE INSPECTION

ES08 In this Reporting Period, joint site inspection to evaluate the site environmental performance at ***Contract 2*** has been carried out by the RE, IEC, ET and the Contractor on **4, 11, 18 and 25 July 2014**. No non-compliance was noted.

ES09 In the Reporting Period, joint site inspection to evaluate the site environmental performance at ***Contract 3*** has been carried out by the RE, IEC, ET and the Contractor on **7, 16, 21 and 28 July 2014**. No non-compliance was noted.

ES10 In the Reporting Period, joint site inspection to evaluate the site environmental performance at ***Contract 5*** has been carried out by the RE, IEC, ET and the Contractor on **3, 9, 17, 24 and 31 July 2014**. No non-compliance was noted.

FUTURE KEY ISSUES

ES11 During rainy season, muddy water or other water pollutants from sites surface flow to local stream such as Kong Yiu Channel and Ma Wat Channel or public area will be key environment issue to pay attention. Water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should be fully implemented.

ES12 Construction noise would be a key environmental issue during construction work of the Project. Noise mitigation measures such as using quiet plants should be implemented in accordance with the EM&A requirement.

ES13 Special attention should also be paid on the potential construction dust impact since most of the construction sites are adjacent to villages. The Contractor should fully implement the construction dust mitigation measures properly.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Civil Engineering and Development Department is the Project Proponent and the Permit Holder of *Agreement No. CE 45/2008 (CE) Liantang / Heung Yuen Wai Boundary Control Point and Associated Works*, which is a Designated Project to be implemented under Environmental Permit number EP-404/2011/A issued on 28 October 2013.

1.1.2 The Project consists of two main components: Construction of a Boundary Control Point (hereinafter referred as "BCP"); and Construction of a connecting road alignment. Layout plan of the Project is shown in ***Appendix A***.

1.1.3 The proposed BCP is located at the boundary with Shenzhen near the existing Chuk Yuen Village, comprising a main passenger building with passenger and cargo processing facilities and the associated customs, transport and ancillary facilities. The connecting road alignment consists of six main sections:

1) Lin Ma Hang to Frontier Closed Area (FCA) Boundary – this section comprises at-grade and viaducts and includes the improvement works at Lin Ma Hang Road;
2) Ping Yeung to Wo Keng Shan – this section stretches from the Frontier Closed Area Boundary to the tunnel portal at Cheung Shan and comprises at-grade and viaducts including an interchange at Ping Yeung;
3) North Tunnel – this section comprises the tunnel segment at Cheung Shan and includes a ventilation building at the portals on either end of the tunnel;
4) Sha Tau Kok Road – this section stretches from the tunnel portal at Wo Keng Shan to the tunnel portal south of Loi Tung and comprises at-grade and viaducts including an interchange at Sha Tau Kok and an administration building;
5) South Tunnel – this section comprises a tunnel segment that stretches from Loi Tung to Fanling and includes a ventilation building at the portals on either end of the tunnel as well as a ventilation building in the middle of the tunnel near Lau Shui Heung;
6) Fanling – this section comprises the at-grade, viaducts and interchange connection to the existing Fanling Highway.

1.1.4 Action-United Environmental Services & Consulting has been commissioned as an Independent ET to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties. As part of the EM&A program, the baseline monitoring has carried out between **13 June 2013** and **12 July 2013** for all parameters including air quality, noise and water quality before construction work commencement. The Baseline Monitoring Report summarized the key findings and the rationale behind determining a set of Action and Limit Levels (A/L Levels) from the baseline data. Also, the Project baseline monitoring report which verified by the IEC has been submitted to EPD on **16 July 2013** for endorsement. The major construction works of the Project was commenced on **16 August 2013** in accordance with the EP Section 5.3 stipulation.

1.1.5 This is **12th** monthly EM&A report presenting the monitoring results and inspection findings for reporting period from **1** to **31 July 2014**.

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 *Project Organization and Construction Progress*
Section 3 *Summary of Impact Monitoring Requirements*
Section 4 *Air Quality Monitoring*
Section 5 *Construction Noise Monitoring*
Section 6 *Water Quality Monitoring*
Section 7 *Waste Management*

Section 8 *Site Inspections*
Section 9 *Environmental Complaints and Non-Compliance*
Section 10 *Implementation Status of Mitigation Measures*
Section 11 *Conclusions and Recommendations*

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 CONSTRUCTION CONTRACT PACKAGING

2.1.1 To facilitate the project management and implementation, the Project would be divided by the following contracts:

- Contract 2 (CV/2012/08)
- Contract 3 (CV/2012/09)
- Contract 4 (TCSS)
- Contract 5 (CV/2013/03)
- Contract 6 (CV/2013/08)

2.1.2 The details of each contracts is summarized below and the delineation of each contracts is shown in ***Appendix A***.

Contract 2 (CV/2012/08)

2.1.3 Contract 2 has awarded in December 2013 and construction work was commenced on 19 May 2014. Major Scope of Work of the Contract 2 is listed below:

- construction of an approximately 5.2km long dual two-lane connecting road (with about 0.4km of at-grade road and 4.8km of tunnel) connecting the Fanling Interchange with the proposed Sha Tau Kok Interchange;
- construction of a ventilation adit tunnel and the mid-ventilation building;
- construction of the north and south portal buildings of the Lung Shan Tunnel and their associated slope works;
- provision and installation of ventilation system, E&M works and building services works for Lung Shan tunnel and Cheung Shan tunnel and their portal buildings;
- construction of Tunnel Administration Building adjacent to Wo Keng Shan Road and the associated E&M and building services works; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 3 (CV/2012/09)

2.1.4 Contract 3 was awarded in July 2013 and construction work was commenced on 5 November 2013. Major Scope of Work of the Contract 3 is listed below:

- construction of four link roads connecting the existing Fanling Highway and the south portal of the Lung Shan Tunnel;
- realignment of the existing Tai Wo Service Road West and Tai Wo Service Road East;
- widening of the existing Fanling Highway (HyD's entrustment works);
- demolishing existing Kiu Tau vehicular bridge and Kiu Tau footbridge and reconstruction of the existing Kiu Tau Footbridge (HyD's entrustment works); and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 4 (Contract number to be assigned)

2.1.5 Contract 4 has not yet been awarded. The work of the Contract 4 includes provision and installation of Traffic Control and Surveillance System and the associated electrical and mechanical works for the Project.

Contract 5 (CV/2013/03)

2.1.6 Contract 5 has awarded in April 2013 and construction work was commenced in August 2013. Major Scope of Work of the Contract 5 is listed below:

- site formation of about 23 hectares of land for the development of the BCP;
- construction of an approximately 1.6 km long perimeter road at the BCP including a 175m long depressed road;

- associated diversion/modification works at existing local roads and junctions including Lin Ma Hang Road;
- construction of pedestrian subway linking the BCP to Lin Ma Hang Road;
- provision of resite area with supporting infrastructure for reprovisioning of the affected village houses; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 6 (CV/2013/08)

2.1.7 Contract 6 is still yet awarded. Major Scope of Work of the Contract 6 would be included below:

- construction of an approximately 4.6km long dual two-lane connecting road (with about 0.6km of at-grade road, 3.3km of viaduct and 0.7km of tunnel) connecting the BCP with the proposed Sha Tau Kok Road Interchange and the associated ventilation buildings;
- associated diversion/modification works at access roads to the resite of Chuk Yuen Village;
- provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village;
- construction of a pedestrian subway linking the BCP to Lin Ma Hang Road;
- provisioning of the affected facilities including Wo Keng Shan Road garden; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

2.2 PROJECT ORGANIZATION

2.2.1 The project organization is shown in ***Appendix B***. The responsibilities of respective parties are:

Civil Engineering and Development Department (CEDD)

2.2.2 CEDD is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by CEDD to audit the results of the EM&A works carried out by the ET.

Environmental Protection Department (EPD)

2.2.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Engineer or Engineers Representative (ER)

2.2.4 The ER is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors's, ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation
- Liaison with DSD, Engineer/Engineer's Representative, ET, IEC and the Contractor of the "Construction of the DSD's Regulaiton of Shenzhen River Stage 4 (RSR 4)" Project discussing regarding the cumulative impact issues.

The Contractor(s)

2.2.5 There will be one contractor for each individual works contract. The Contractor(s) should report to the ER. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Employ an Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of EM &A Facilitate ET's monitoring and site inspection activities
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.2.6 One ET will be employed for this Project. The ET shall not be in any way an associated body of the Contractor(s), and shall be employed by the Project Proponent/Contractor to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitably qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. The ET shall report to the Project Proponent and the duties shall include:

- Monitor and audit various environmental parameters as required in this EM&A Manual
- Analyse the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
- Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
- Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
- Audit environmental conditions on site
- Report on the environmental monitoring and audit results to EPD, the ER, the lEC and Contractor(s) or their delegated representatives
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
- Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
- Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
- Adhere to the procedures for carrying out complaint investigation
- Liaison with the client departments, Engineer/Engineer's Representative, ET, lEC and the Contractor(s) of the concurrent projects as listed under Section 2.3 below regarding the cumulative impact issues.

Independent Environmental Checker (IEC)

2.2.7 One IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 10 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:

- Provide proactive advice to the ER and the Project Proponent on EM&A matters related to

the project, independent from the management of construction works, but empowered to audit the environmental performance of construction

- Review and audit all aspects of the EM&A programme implemented by the ET
- Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
- Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
- Check compliance with the agreed Event / Action Plan in the event of any exceedance
- Check compliance with the procedures for carrying out complaint investigation
- Check the effectiveness of corrective measures
- Feedback audit results to ET by signing off relevant EM&A proforma
- Check that the mitigation measures are effectively implemented
- Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the ER and Project Proponent on a monthly basis
- Liaison with the client departments, Engineer/Engineer's Representative, ET, lEC and the Contractor(s) of the concurrent projects as listed under Section 2.3 below regarding the cumulative impact issues.

2.3 CONCURRENT PROJECTS

2.3.1 The concurrent construction works that may be carried out include, but not limited to, the following:

(a) Regulation of Shenzhen River Stage IV (Environmental Permit EP-430/2011);

(b) Building works and road works by contractors of Architectural Services Department (ArchSD) (Environmental Permit EP-404/2011/A);

(c) Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange – Contract No. HY/2012/06;

(d) Construction of cross-boundary vehicular and pedestrian bridges (total 5 numbers) across the Shenzhen River; and

(e) Construction of BCP facilities in Shenzhen.

2.4 CONSTRUCTION PROGRESS

2.4.1 In the Reporting Period, the major construction activity conducted under the Project is located in Contracts 2, 3 and 5 and they are summarized in below. Moreover, the master construction program of the Contracts 2, 3 and 5 is enclosed in ***Appendix C***.

Contract 2 (CV/2012/08)

The contract commenced in May 2014. In this Reporting Period, construction activities conducted are listed below:

- Project wide – Site installation
- Project wide –Asbestos Removal, Minor Structures Demolition and removal of boulders
- North Portal – Site formation works
- North Portal – Site investigation
- North Portal – Tree transplantation and felling work
- Mid Vent Portal – Slope stabilization
- Mid Vent Portal – Tunnel excavation
- Mid Vent Portal – Top heading canopies
- Mid Vent Portal – Site formation work
- South Portal – Temporary bridge foundation works
- South Portal –Tree transplantation and Remaining tree felling work
- South Portal – Site investigation works
- South Portal – Tree transplanting and felling work

Contract 3 (CV/2012/09)

The Contract commenced in November 2013. In this Reporting Period, construction activities conducted are listed below:

- Cable detection and trial trenches
- Tree Felling Works
- Pre-drilling works and piling works
- Bored pile and bored pile wall construction
- Slope upgrading works
- Noise barrier installation
- Waterworks
- Mini pile construction
- Diversion of DN1400
- Filling Works to existing stream
- Lay Dia.1050 storm drains
- Pile Cap
- Piling works for BridgeE
- Receiving & Jacking Pit
- Retaining Structure
- Road works at Fanling Highway
- Sewer works
- Soil nail construction

Contract 4 (Contract number to be assigned)

- The contract has not yet been awarded.

Contract 5 (CV/2013/03)

The Contract awarded in April 2013 and commenced on August 2013. In this Reporting Period, construction activities conducted are listed below:

- Preparation works for Depressed Road at BCP3
- Construction of Eastern pedestrian subway and pump room at Lin Ma Hang
- Construction of Western pedestrian subway and staircase at Lin Ma Hang
- Pile cap construction works at Bridge J
- Construction of retaining wall No.1
- Pipe Jacking for CLP cable across Kong Yuen River (pit no. 1 and 2)
- Preparation works for CLP cable ducting of 3 nos. of steel sleeve pipe across Kong Yuen River
- Drainage works at existing / proposed Lin Ma Hang Road
- Drainage works at BCP area
- Water works at existing / proposed Lin Ma Hang Road
- Formation Works at BCP Area
- Pruning/ felling/ transplanting of existing tree
- Environmental impact monitoring

Contract 6 (CV/2013/08)

- The contract has not yet been awarded

2.5 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

- Project Layout Plans of Contracts 2, 3 and 5
- Landscape Plan
- Topsoil Management Plan
- Environmental Monitoring and Audit Programme
- Baseline Monitoring Report (*TCS00690/13/600/R0030v3*) for the Project
- Waste Management Plan of the Contracts 3 and 5
- Contamination Assessment Plan (CAP) for Po Kat Tsai, Loi Tung and the workshops in

Fanling

- Vegetation Survey Report

2.5.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project of each contracts are presented in ***Table 2-1***.

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

Item	Description	License/Permit Status	
Contract 2			
1	Air pollution Control (Construction Dust) Regulation	Ref No.: 368864	31 Dec 2013
2	Chemical Waste Producer Registration	***North Portal*** Waste Producers Number: No. 5213-652-D2523-01	Valid from 25 Mar 2014
		Mid-Vent Portal Waste Producers Number: No. 5213-634-D2524-01	Valid from 25 Mar 2014
		South Portal Waste Producers Number: No. 5213-634-D2526-01	Valid from 9 Apr 2014
3	Water Pollution Control Ordinance - Discharge License	No.WT00018374-2014	Valid from 3 Mar 2014 to 28 Feb 2019
		No.: W5/1I389	Valid from 28 Mar 2014 to 31 Mar 2019
		No.: W5/1I390	Valid from 24 Mar 2014 to 31 Mar 2019 Surrendered, effective 19 June 2014
		No.: W5/1I391	Valid from 28 Mar 2014 to 31 Mar 2019
		No.: W5/1I392	Valid from 28 Mar 2014 to 31 Mar 2019
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7019105	Valid from 8 Jan 2014
5	Construction Noise Permit	GW-RN0268-14	Valid 24 Apr 2014 - 22 Oct 2014
		GW-RN0303-14	Valid 21 May 2014 - 6 Nov 2014
		GW-RN0432-14	Valid 11 Jul 2014 - 6 Jan 2015
		GW-RN0430-14	Valid 8 Jul 2014 - 29 Dec 2014
Contract 3			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 362101	Notification received by EPD on 17 Jul 2013
2	Chemical Waste Producer Registration	Waste Producers Number: No.:5113-634-C3817-01	Valid form 7 Oct 2013 till the end of Contract
3	Water Pollution Control	No.:WT00016832 – 2013	Valid from 28 Aug 13

Item	Description	License/Permit Status	
	Ordinance - Discharge License		to 31 Aug 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017914	Valid form 2 Aug 13 till the end of Contract
5	Construction Noise Permit	GW-RN0397-14	Valid on 29 Jun 2014 till 28 Dec 2014
		GW-RN0445-14	Valid on 28 Jul 2014 till 25 Jan 2015
Contract 5			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 359338	Notified EPD on 13 May 2013
2	Chemical Waste Producer Registration	Waste Producers Number No.: 5213-642-S3735-01	Valid form 8 Jun 2013 till the end of Contract
3	Water Pollution Control Ordinance - Discharge License	No.: W5/1G44/1	Valid from 8 Jun 13 to 30 Jun 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017351	Valid form 29 Apr 13 till the end of Contract
5	Construction Noise Permit	NA	NA

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

3.1.1 The Environmental Monitoring and Audit requirements are set out in the Approved EM&A manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of the Project.

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

3.2 MONITORING PARAMETERS

3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:

- Air quality;
- Construction noise; and
- Water quality

3.2.2 A summary of the monitoring parameters is presented in ***Table 3-1.***

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	• 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler.
Noise	• $L_{eq(30min)}$ in normal working days (Monday to Saturday) 07:00-19:00 except public holiday; and • 3 sets of consecutive $L_{eq(5min)}$ on restricted hours i.e. 19:00 to 07:00 next day, and whole day of public holiday or Sunday • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Water Quality	**In-situ Measurements** • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Water depth (m); and • Temperature (℃).
	Laboratory Analysis • Suspended Solids (mg/L)

3.3 MONITORING LOCATIONS

3.3.1 The designated monitoring locations as recommended in the *EM&A Manual* are shown in ***Appendix D***. As the access to some of the designated monitoring locations was questionable due to safety reason or denied by the landlords, alternative locations therefore have had proposed. The proposed alternative monitoring locations has updated in the revised EM&A Programme which verified by IEC and certified by ET Leader prior submitted to EPD on 10 July 2013. ***Table 3-2***, ***Table 3-3*** and ***Table 3-4*** are respectively listed the air quality, construction noise and water quality monitoring locations for the Project and a map showing these monitoring stations is presented in ***Appendix E***.

Table 3-2 Impact Monitoring Stations - Air Quality

Station ID	Description	Works Area	Related to the Work Contract
AM1a*	Garden Farm, Tsung Yuen Ha Village	BCP	Contract 5
AM2	Village House near Lin Ma Hang Road	LMH to Frontier Closed Area	Contract 5, Contract 6
AM3	Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village.	LMH to Frontier Closed Area	Contract 5, Contract 6

Station ID	Description	Works Area	Related to the Work Contract
AM4a	A village house located at about 160m east side of the original point AM4	LMH to Frontier Closed Area	Contract 6
AM5	Ping Yeung Village House	Ping Yeung to Wo Keng Shan	Contract 6
AM6	Wo Keng Shan Village House	Ping Yeung to Wo Keng Shan	Contract 6
AM7b[@]	Loi Tung Village House	Sha Tau Kok Road	Contract 2
AM8	Po Kat Tsai Village No. 4	Po Kat Tsai	Contract 2
AM9b#	Nam Wa Po Village House No. 80	Fanling	Contract 3

 # Proposal for the change of air quality monitoring location from AM9a to AM9b was submitted to EPD on 4 Nov 2013 after verified by the IEC and it was approved by EPD (EPD's ref.: (15) in EP 2/N7/A/52 Pt.10 dated 8 Nov 2013).
** Proposal for the change of air quality monitoring location from AM1to AM1a was submitted to EPD on 24 March 2014 after verified by the IEC. It was approved by EPD (EPD's ref.: (6) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).*
@ Proposal for the change of air quality monitoring location from AM7a to AM7b was submitted to EPD on 4 June 2014 after verified by the IEC. It was approved by EPD (EPD's ref.: (7) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

Table 3-3 Impact Monitoring Stations - Construction Noise

Station ID	Description	Works Area	Related to the Work Contract
NM1	Tsung Yuen Ha Village House No. 63	BCP	Contract 5
NM2	Village House near Lin Ma Hang Road	Lin Ma Hang to Frontier Closed Area	Contract 5, Contract 6
NM3	Ping Yeung Village House (facade facing northeast)	Ping Yeung to Wo Keng Shan	Contract 6
NM4	Wo Keng Shan Village House	Ping Yeung to Wo Keng Shan	Contract 6
NM5	Village House, Loi Tung	Sha Tau Kok Road	Contract 2, Contract 6
NM6	Tai Tong Wu Village House 2	Sha Tau Kok Rpad	Contract 2, Contract 6
NM7	Po Kat Tsai Village	Po Kat Tsai	Contract 2
NM8	Village House, Tong Hang	Fanling	Contract 2 Contract 3
NM9	Village House, Kiu Tau Village	Fanling	Contract 3
NM10	Nam Wa Po Village House No. 80	Fanling	Contract 3

Table 3-4 Impact Monitoring Stations - Water Quality

Station ID	Description	Coordinates of Designated / Alternative Location		Nature of the location	Related to the Work Contract
WM1	Downstream of Kong Yiu Channel	833 679	845 421	Alternative location located at upstream 51m of the designated location	Contract 5
WM1-Control	Upstream of Kong Yiu Channel	834 185	845 917	NA	Contract 5
WM2A	Downstream of River Ganges	834 204	844 471	Alternative location located at downstream 81m of the designated location	Contract 6

Station ID	Description	Coordinates of Designated / Alternative Location		Nature of the location	Related to the Work Contract
WM2A-Control	Upstream of River Ganges	835 270	844 243	Alternative location located at upstream 78m of the designated location	Contract 6
WM2B	Downstream of River Ganges	835 433	843 397	NA	Contract 6
WM2B-Control	Upstream of River Ganges	835 835	843 351	Alternative location located at downstream 31m of the designated location	Contract 6
WM3	Downstream of River Indus	836 324	842 407	NA	Contract 6
WM3-Control	Upstream of River Indus	836 763	842 400	Alternative location located at downstream 26m of the designated location	Contract 6
WM4	Downstream of Ma Wat Channel	833 850	838 338	Alternative location located at upstream 11m of the designated location	Contract 3
WM4–Control A	Kau Lung Hang Stream	834 028	837 695	Alternative location located at downstream 28m of the designated location	Contract 3
WM4–Control B	Upstream of Ma Wat Channel	833760	837395	Alternative location located at upstream 15m of the designated location	Contract 3

3.4 MONITORING FREQUENCY AND PERIOD

The requirements of impact monitoring are stipulated in *Sections 2.1.6, 3.1.5* and *4.1.6* of the approved *EM&A Manual* and presented as follows.

Air Quality Monitoring

3.4.1 Frequency of impact air quality monitoring is as follows:

- 1-hour TSP 3 times every six days during course of works
- 24-hour TSP Once every 6 days during course of works.

Noise Monitoring

3.4.2 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as "the restricted hours"), 3 consecutive $L_{eq(5min)}$ measurement will depended CNP requirements to undertake. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

Water Quality Monitoring

3.4.3 The water quality monitoring frequency shall be 3 days per week during course of works. The interval between two sets of monitoring shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

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*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve.

3.5.2 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.

3.5.3 All equipment to be used for air quality monitoring is listed in ***Table 3-5***.

Table 3-5 Air Quality Monitoring Equipment

Equipment	Model
24-Hr TSP	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A
1-Hour TSP	
Portable Dust Meter	Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter

Wind Data Monitoring Equipment

3.5.4 According to the approved 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:

1) The wind sensors should be installed 10 m above ground so that they are clear of obstructions or turbulence caused by buildings.
2) The wind data should be captured by a data logger. The data shall be downloaded for analysis at least once a month.
3) The wind data monitoring equipment should be re-calibrated at least once every six months.
4) Wind direction should be divided into 16 sectors of 22.5 degrees each.

3.5.5 ET has liaised with the landlords of the successful granted HVS installation premises. However, the owners rejected to provide premises for wind data monitoring equipment installation.

3.5.6 Under this situation, the ET proposed alternative methods to obtain representative wind data. Meteorological information as extracted from "the Hong Kong Observatory Ta Kwu Ling Station" is alternative method to obtain representative wind data. For Ta Kwu Ling Station, it is located nearby the Project site. Moreover, this station is located at 15m above mean sea level while its anemometer is located at 13m above the existing ground which in compliance with the general setting up requirement. Furthermore, this station also can be to provide the humidity, rainfall, and air pressure and temperature etc. meteorological information. In Hong Kong of a lot development projects, weather information extracted from Hong Kong Observatory is common alternative method if weather station installation not allowed.

Noise Monitoring

3.5.7 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s^{-1}.

3.5.8 Noise monitoring equipment to be used for monitoring is listed in ***Table 3-6***.

Table 3-6 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238 or Rion NL-31 or Rion NL-52
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer

3.5.9 Sound level meters listed above comply with the *International Electrotechnical Commission Publications 651: 1979 (Type 1)* and *804: 1985 (Type 1)* specifications, as recommended in TM issued under the NCO. The acoustic calibrator and sound level meter to be used in the impact monitoring will be calibrated yearly.

Water Quality Monitoring

3.5.10 DO and water temperature should be measured in-situ by a DO/temperature meter. The instrument should be portable and weatherproof using a DC power source. It should have a membrane electrode with automatic temperature compensation complete with a cable. The equipment should be capable of measuring:

- a DO level in the range of 0-20 mg/l and 0-200% saturation; and
- a temperature of between 0 and 45 degree Celsius.

3.5.11 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions accordingly to the APHA Standard Methods.

3.5.12 The instrument should be portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.

3.5.13 A portable, battery-operated echo sounder or tape measure will be used for the determination of water depth at each designated monitoring station as appropriate.

3.5.14 A water sampler e.g. Kahlsico Water Sampler, which is a transparent PVC cylinder with capacity not less than 2 litres, will be used for water sampling if water depth over than 0.5m. For sampling from very shallow water depths e.g. <0.5 m, water sample collection will be directly from water surface below 100mm use sampling plastic bottle to avoid inclusion of bottom sediment or humus. Moreover, Teflon/stainless steel bailer or self-made sampling buckets maybe used for water sampling. The equipment used for sampling will be depended the sampling location and depth situations.

3.5.15 Water samples for laboratory measurement of SS will be collected in high density polythene bottles, packed in ice (cooled to 4 ºC without being frozen), and delivered to the laboratory in the same day as the samples were collected.

3.5.16 Analysis of suspended solids should be carried out in a HOKLAS or other accredited laboratory. Water samples of about 1L should be collected at the monitoring stations for carrying out the laboratory suspended solids determination. The SS determination work should start within 24 hours after collection of the water samples. The SS analyses should follow the *APHA Standard Methods 2540D* with Limit of Reporting of 2 mg/L.

3.5.17 Water quality monitoring equipment used in the impact monitoring is listed in ***Table 3-7***. Suspended solids (SS) analysis is carried out by a local HOKLAS-accredited laboratory, namely *ALS Technichem (HK) Pty Ltd*.

Table 3-7 Water Quality Monitoring Equipment

Equipment	Model
Water Depth Detector	Eagle Sonar or tape measures
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or teflon/stainless steel bailer or self-made sampling bucket

Equipment	Model
Thermometer & DO meter	YSI PRO20 Handheld Dissolved Oxygen Instrument
pH meter	AZ8685 pH pen-style meter
Turbidimeter	Hach 2100Q
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-liter plastic cool box with Ice pad

3.6 MONITORING METHODOLOGY

1-hour TSP Monitoring

3.6.1 The 1-hour TSP monitor was a brand named "Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90^{o} light scattering. The 1-hour TSP monitor consists of the following:

(a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;

(b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and

(c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

3.6.2 The 1-hour TSP meter is used within the valid period as follow manufacturer's Operation and Service Manual.

24-hour TSP Monitoring

3.6.3 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:

(a.) An anodized aluminum shelter;

(b.) A 8"x10" stainless steel filter holder;

(c.) A blower motor assembly;

(d.) A continuous flow/pressure recorder;

(e.) A motor speed-voltage control/elapsed time indicator;

(f.) A 7-day mechanical timer, and

(g.) A power supply of 220v/50 Hz

3.6.4 The HVS is operated and calibrated on a regular basis in accordance with the manufacturer's instruction using Tisch Calibration Kit Model TE-5025A. Calibration would carry out in two month interval.

3.6.5 24-hour TSP is collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET keep all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25^{o}C, for six months prior to disposal.

Noise Monitoring

3.6.6 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels dB(A). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.

3.6.7 During the monitoring, all noise measurements would be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). $Leq_{(30min)}$ in six consecutive $Leq_{(5min)}$ measurements will use as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $Leq_{(15min)}$ in three consecutive $Leq_{(5min)}$ measurements would be used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.

3.6.8 Prior of noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking is performed before and after the noise measurement.

Water Quality

3.6.9 Water quality monitoring is conducted at the designated locations. The sampling produce with the in-situ monitoring are presented as below:

Sampling Procedure

3.6.10 A Digital Global Positioning System (GPS) is used to identify the designated monitoring stations prior to water sampling. A portable, battery-operated echo sounder is used for the determination of water depth at each station. At each station, water sample would be collected from 0.1m below water surface or the water surface to prevent the river bed sediment for stirring.

3.6.11 The sample container will be rinsed with a portion of the water sample. The water sample then will be transferred to the high-density polythene bottles as provided by the laboratory, labeled with a unique sample number and sealed with a screw cap.

3.6.12 Before sampling, general information such as the date and time of sampling, weather condition as well as the personnel responsible for the monitoring would be recorded on the field data sheet.

3.6.13 A 'Willow' 33-liter plastic cool box packed with ice will be used to preserve the water samples prior to arrival at the laboratory for chemical determination. The water temperature of the cool box is maintained at a temperature as close to 4^0C as possible without being frozen. Samples collected are delivered to the laboratory upon collection.

In-situ Measurement

3.6.14 YSI PRO20 Handheld Dissolved Oxygen Instrument is used for water in-situ measures, which automates the measurements and data logging of temperature, dissolved oxygen and dissolved oxygen saturation.

3.6.15 A portable AZ Model 8685 pH pen-style meter is used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1.

3.6.16 A portable Hach 2100Q Turbidimeter is used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU.

3.6.17 All in-situ measurement equipment are calibrated by HOKLAS accredited laboratory of three month interval.

Laboratory Analysis

3.6.18 All water samples analyzed Suspended Solids (SS) will be carried out by a local HOKLAS-accredited testing laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration no. 66). SS determination using *APHA Standard Methods 2540D* as specified in the *EM&A Manual* will start within 48 hours of water sample receipt.

3.7 EQUIPMENT CALIBRATION

3.7.1 Calibration of the HVS is performed upon installation and thereafter at bimonthly intervals in accordance with the manufacturer's instruction using the certified standard calibrator (TISCH Model TE-5025A). Moreover, the Calibration Kit would be calibrated annually. The calibration data are properly documented and the records are maintained by ET for future reference.

3.7.2 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment would be checked before and after each monitoring event. Annually calibration with the High Volume Sampler (HVS) in same condition would be undertaken by the Laboratory.

3.7.3 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.

3.7.4 All water quality monitoring equipment would be calibrated by HOKLAS accredited laboratory of three month intervals.

3.7.5 The calibration certificates of all monitoring equipment used for the impact monitoring program in the Reporting Period and the HOKLAS accredited certificate of laboratory are attached in ***Appendix F***.

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

3.8.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual, the air quality, construction noise and water quality criteria were set up, namely Action and Limit levels are listed in ***Tables 3-8, 3-9*** and ***3-10***.

Table 3-8 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AM1a	265	143	500	260
AM2	268	149		
AM3	269	145		
AM4a	267	148		
AM5	268	143		
AM6	269	148		
AM7b	275	156		
AM8	269	144		
AM9b	271	151		

Table 3-9 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NM1, NM2, NM3, NM4, NM5, NM6, NM7, NM8, NM9, NM10	When one or more documented complaints are received	75 dB(A)[Note 1 & Note 2]

Note 1: Acceptable Noise Levels for school should be reduced to 70 dB(A) and65 dB(A) during examination period

Note 2: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

Table 3-10 Action and Limit Levels for Water Quality

Parameter	Performance criteria	Monitoring Location				
		WM1	WM2A	WM2B	WM3	WM4
DO (mg/L)	Action Level	(*)4.23	(**)4.00	(*)4.74	(**)4.00	(*)4.14
	Limit Level	(#)4.19	(**)4.00	(#)4.60	(**)4.00	(#)4.08
Turbidity (NTU)	Action Level	51.3	24.9	11.4	13.4	35.2
		AND 120% of upstream control station of the same day				
	Limit Level	67.6	33.8	12.3	14.0	38.4
		AND 130% of upstream control station of the same day				
SS (mg/L)	Action Level	54.5	14.6	11.8	12.6	39.4
		AND 120% of upstream control station of the same day				
	Limit Level	64.9	17.3	12.4	12.9	45.5
		AND 130% of upstream control station of the same day				

Remarks:
(*) *The Proposed **Action Level** of Dissolved Oxygen is adopted to be used 5%-ile of baseline data*
(**) *The Proposed **Action & Limit Level** of Dissolved Oxygen is used 4mg/L*
(#) *The Proposed **Limit Level** of Dissolved Oxygen is adopted to be used 1%-ile of baseline data*

3.8.2 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 G.***

3.9 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.9.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

3.9.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4 AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 In the Reporting Period, construction works under the project have been commenced in Contracts 2, 3 and 5 and air quality monitoring was performed at ***6*** relevant designated locations as below:

- AM1a - Garden Farm, Tsung Yuen Ha Village;
- AM2 - Village House near Lin Ma Hang Road;
- AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village;
- AM7b – Loi Tung Village;
- AM8 - Po Kat Tsai Village;
- AM9b - Nam Wa Po Village House No. 80

4.1.2 The air quality monitoring schedule is presented in ***Appendix H*** and the monitoring results are summarized in the following sub-sections.

4.2 AIR QUALITY MONITORING RESULTS IN REPORTING MONTH

4.2.1 In the Reporting Period, a total of ***102*** events of 1-hour TSP and ***30*** events of 24-hours TSP monitoring were carried out and the monitoring results are summarized in ***Tables 4-1 to 4-6***. The detailed 24-hour TSP monitoring data are presented in ***Appendix I*** and the relevant graphical plots are shown in ***Appendix J***.

Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results – AM1a

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	39	2-Jul-14	11:29	43	43	42
10-Jul-14	29	8-Jul-14	10:43	123	93	92
16-Jul-14	28	14-Jul-14	10:48	21	19	21
22-Jul-14	110	19-Jul-14	11:19	59	60	55
31-Jul-14 *	85	25-Jul-14	10:23	130	23	19
		31-Jul-14	10:41	96	95	106
Average (Range)	**58 (28-110)**	Average (Range)		**63 (19-130)**		

**24-hr TSP monitoring was rescheduled from 28 Jul to 31 Jul due to power failure of HVS.*

Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results – AM2

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	64	2-Jul-14	12:43	36	33	34
10-Jul-14	66	8-Jul-14	10:38	107	97	134
16-Jul-14	58	14-Jul-14	10:40	27	19	17
22-Jul-14	107	19-Jul-14	11:04	66	66	64
28-Jul-14	116	25-Jul-14	10:14	38	38	25
		31-Jul-14	10:35	72	70	77
Average (Range)	**82 (52-116)**	Average (Range)		**57 (17-134)**		

Table 4-3 Summary of 24-hour and 1-hour TSP Monitoring Results – AM3

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	64	2-Jul-14	12:35	40	40	46
10-Jul-14	40	8-Jul-14	10:29	100	101	95

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
16-Jul-14	36	14-Jul-14	10:39	24	22	24
22-Jul-14	121	19-Jul-14	10:55	58	56	52
28-Jul-14	49	25-Jul-14	10:00	45	64	39
		31-Jul-14	10:23	55	52	62
Average (Range)	**62 (36-121)**	Average (Range)		**54 (22-101)**		

Table 4-4 Summary of 24-hour and 1-hour TSP Monitoring Results – AM7b

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	125	5-Jul-14	13:13	25	22	51
10-Jul-14	29	11-Jul-14	11:55	27	21	22
16-Jul-14	132	17-Jul-14	11:53	126	139	161
22-Jul-14	134	23-Jul-14	10:11	149	162	176
28-Jul-14	131	29-Jul-14	11:30	56	95	67
Average (Range)	**110 (29-134)**	Average (Range)		**87 (21 – 176)**		

Table 4-5 Summary of 24-hour and 1-hour TSP Monitoring Results – AM8

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	37	5-Jul-14	11:20	28	26	24
10-Jul-14	31	11-Jul-14	12:58	19	20	19
16-Jul-14	41	17-Jul-14	12:09	26	23	22
22-Jul-14	94	23-Jul-14	11:15	116	121	128
28-Jul-14	30	29-Jul-14	11:33	33	35	31
Average (Range)	**47 (30-94)**	Average (Range)		**45 (19 – 128)**		

Table 4-6 Summary of 24-hour and 1-hour TSP Monitoring Results – AM9b

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
4-Jul-14	29	5-Jul-14	9:59	31	29	30
10-Jul-14	32	8-Jul-14	9:49	143	122	105
16-Jul-14	28	14-Jul-14	10:07	26	19	15
22-Jul-14	91	19-Jul-14	13:36	51	43	51
28-Jul-14	41	25-Jul-14	10:56	38	14	20
		31-Jul-14	10:20	43	60	78
Average (Range)	**44 (28-91)**	Average (Range)		**51 (14-143)**		

4.2.2 During the Reporting Period, one (1) case of power failure of the HVS for 24-hour TSP monitoring was occurred at AM1a on 28 July 2014. The provision of power supply was rectified by the Contractor on 31 July and make up of sample was carried out on the same day.

4.2.3 As shown in ***Tables 4-1*** to ***4-6***, the 24-hour and 1-hour TSP monitoring results were below the Action/ Limit Level. No Notification of Exceedances (NOE) of air quality criteria or corrective action was therefore required.

4.2.4 The meteorological data during the impact monitoring days are summarized in ***Appendix K***.

5 CONSTRUCTION NOISE MONITORING

5.1 GENERAL

5.1.1 In the Reporting Period, construction works under the project have been commenced in Contracts 2, 3 and 5 and noise monitoring was performed at ***8*** relevant designated locations as below:

- NM1 - Tsung Yuen Ha Village House No. 63;
- NM2 - Village House near Lin Ma Hang Road;
- NM5 - Village House, Loi Tung
- NM6 - Tai Tong Wu Village House 2
- NM7 - Po Kat Tsai Village
- NM8 - Village House, Tong Hang;
- NM9 - Village House, Kiu Tau Village; and
- NM10 - Nam Wa Po Village House No. 80

5.1.2 The noise monitoring schedule is presented in ***Appendix H*** and the monitoring results are summarized in the following sub-sections.

5.2 NOISE MONITORING RESULTS IN REPORTING MONTH

5.2.1 In the Reporting Period, a total of **45** event noise measurements were carried out at the designated locations. The sound level meter was set in 1m from the exterior of the building façade including noise monitoring locations NM1, NM2, NM5, NM6, NM7, NM8 and NM9. Therefore, no façade correction (+3 dB(A)) is added according to acoustical principles and EPD guidelines. However, free-field status was performed at NM10. So, façade correction (+3 dB(A)) has added according to the requirement in this month. The noise monitoring results at the designated locations are summarized in ***Table 5-1.*** The detailed noise monitoring data are presented in ***Appendix I*** and the relevant graphical plots are shown in ***Appendix J***.

Table 5-1 Summary of Construction Noise Monitoring Results

Construction Noise Level ($L_{eq30min}$), dB(A)									
Date	**NM1**	**NM2**	**NM8**	**NM9**	**(*)NM10**	**Date**	**NM5**	**NM6**	**NM7**
2-Jul-14	57	61	-			5-Jul-14	59	61	66
5-Jul-14	-		57	65	72	11-Jul-14	61	60	65
8-Jul-14	53	61	59	56	66	17-Jul-14	61	62	63
14-Jul-14	49	60	59	55	63	23-Jul-14	58	63	64
19-Jul-14	49	57	60	54	66	29-Jul-14	53	62	64
25-Jul-14	55	61	58	55	71	-			
31-Jul-14	56	62	59	53	59				
Limit Level	**75 dB(A)**								

Remarks

(*) *façade correction (+3 dB(A) is added according to acoustical principles and EPD guidelines*

5.2.2 As shown in ***Table 5-1***, the noise level measured at the eight (8) designated monitoring locations were below 75dB(A). Furthermore, there was no noise complaints (Action Level exceedance) received by the RE, Contractor or CEDD in the Reporting Period. Therefore, no Action or Limit Level exceedance was triggered and no corrective action was required.

6 WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 In the Reporting Period, construction works under the project has been commenced in Contracts 3 and 5 and water quality monitoring was performed at 5 relevant designated locations as below:

- WM1 – Contract 5 working site downstream at Kong Yiu Channel;
- WM1 – Control – Contract 5 working site upstream at Kong Yiu Channel;
- WM4 – Contract 3 working site Downstream of Ma Wat Channel
- WM4 – Control A - Contract 3 working site Kau Lung Hang Stream
- WM4 – Control B - Contract 3 working site Upstream of Ma Wat Channel

6.1.2 The water quality monitoring schedule is presented in ***Appendix H***. The monitoring results are summarized in the following sub-sections.

6.2 RESULTS OF WATER QUALITY MONITORING

6.2.1 In the Reporting Period, a total of **13** sampling days were performed for water quality monitoring at Contracts 3 and 5. The key monitoring parameters including Dissolved Oxygen, Turbidity and Suspended Solids are summarized in ***Tables 6-1 and 6-2***. Breaches of water quality monitoring criteria are shown in ***Table 6-3***. Detailed monitoring database including in-situ measurements and laboratory analysis data are shown in ***Appendix I*** and the relevant graphical plot are shown in ***Appendix J***.

Table 6-1 Summary of Water Quality Monitoring Results for Contract 3

Date	Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)		
	WM4	WM4-CA	WM4-CB	WM4	WM4-CA	WM4-CB	WM4	WM4-CA	WM4-CB
2-Jul-14	7.78	7.24	5.95	19.2	5.2	11.8	14.0	2.5	6.5
5-Jul-14	9.38	6.65	5.38	9.9	5.3	8.6	7.0	3.5	9.5
8-Jul-14	5.72	7.48	5.22	19.6	6.2	11.6	16.5	4.0	14.5
10-Jul-14	5.93	7.69	5.95	66.0	25.6	56.4	**53.0**	12.0	35.5
12-Jul-14	7.03	7.85	7.54	72.7	28.8	63.8	***61.0***	10.5	50.0
14-Jul-14	8.11	6.25	5.26	37.6	18.5	31.8	19.5	5.0	12.0
17-Jul-14	6.88	6.39	5.04	16.9	8.7	14.7	9.0	6.0	11.0
19-Jul-14	7.27	7.40	6.37	32.2	9.5	14.2	25.0	8.0	11.5
21-Jul-14	7.89	7.58	6.02	16.0	5.3	17.2	9.0	4.0	15.0
23-Jul-14	8.13	7.76	6.53	13.2	4.3	14.8	11.0	4.5	15.0
25-Jul-14	7.89	7.44	6.11	24.7	7.3	12.3	21.0	2.0	9.0
29-Jul-14	8.12	6.98	6.57	24.6	5.9	8.4	17.0	4.0	7.0
31-Jul-14	8.29	7.19	7.30	13.1	3.6	7.4	3.5	2.0	5.0

Remark:

i. bold and underlined indicated Limit Level exceedance.

ii. bold and italic indicated Action Level exceedance

Table 6-2 Summary of Water Quality Monitoring Results for Contract 5

Date	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
	WM1	WM1-Control	WM1	WM1-Control	WM1	WM1-Control
2-Jul-14	5.49	6.09	42.1	22.8	40.5	10.5
5-Jul-14	7.34	6.99	17.7	13.6	22.5	4.5
8-Jul-14	8.26	7.89	28.0	15.1	32.5	4.0
10-Jul-14	7.03	6.53	45.8	17.8	**68.5**	4.5
12-Jul-14	7.03	6.90	**83.5**	41.1	45.0	12.5
14-Jul-14	6.68	6.69	45.5	29.9	43.5	5.5
17-Jul-14	6.96	6.17	47.7	25.0	36.5	6.0
19-Jul-14	5.31	5.17	over ranged	over ranged	499.0	560.5

Date	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
	WM1	WM1-Control	WM1	WM1-Control	WM1	WM1-Control
21-Jul-14	6.87	7.03	33.0	12.3	24.5	6.0
23-Jul-14	7.14	7.58	23.2	10.1	25.0	7.0
25-Jul-14	7.00	7.37	50.6	13.1	***58.0***	3.0
29-Jul-14	7.68	7.29	27.5	12.2	27.5	4.0
31-Jul-14	7.67	7.57	31.8	12.6	33.0	2.0

Remark:
i. bold and underlined indicated Limit Level exceedance.
ii. bold and italic indicated Action Level exceedance

Table 6-3 Breaches of Water Quality Monitoring Criteria in Reporting Period

Location	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit
WM1	0	0	0	**1**	**1**	**1**	**1**	**2**
WM4	0	0	0	0	**1**	**1**	**1**	**1**
No of Exceedance	0	0	0	**1**	**2**	**2**	**2**	**3**

6.2.2 In view of the monitoring results of Dissolved Oxygen (DO) at WM1 and WM4, all the measured results were higher than Action Level.

6.2.3 For turbidity and SS, three (3) and two (2) Action/ Limit Level exceedances were recorded at WM1 and WM4 respectively. The Notification on Exceedances (NOEs) were issued to all relevant parties upon confirmation the results. The investigation for the cause of exceedance was completed and submitted to relevant parties except for the exceedance on 25 July 2014. The investigation results are briefly e summarized in below.

Investigation for Exceedance at WM1 on 30 June 2014 (follow up for last Reporting Period)

6.2.4 Construction of Retaining Wall No.1 and Filling Work at BCP area were conducted on 30th June 2014, all the construction activities were land based and did not disturb the water environment. During the course of monitoring, a spot of surface muddy run-off was observed near WM1 after rain, however no other surface run-off was observed along the channel.

6.2.5 As advised by SRJV, the runoff area was not under SRJV's management on 30th June 2014, the muddy runoff was came from other construction project site instead of SRJV's Project site. In addition, as advised by the SRJV on 21st July 2014, the Contractor of other project had provided follow-up mitigation measures on the construction site.

6.2.6 According to Hong Kong Observatory recording, rainfalls were recorded on 1st July and 6th July 2014. In view of the subsequent monitoring results, no exceedances were recorded on the rainy weather condition, which demonstrated the muddy run-off resulted in exceedance on 30th June 2014 was an occasional incident.

6.2.7 Since it is confirmed that the surface runoff location was not under SRJV's management. It is concluded that the exceedance was a single incident case and it was not related to the works under the Project. SRJV was recommended to enhance the mitigation measures to prevent surface run-off from their site.

Investigation for Exceedances at WM1 on 10 July 2014

6.2.8 Construction of Retaining Wall No.1 and Filling Work at BCP area were conducted on 10th July 2014, all the construction activities were land based and did not disturb the water environment.

6.2.9 During the course of water sampling, no spots of muddy runoff were observed at both control and impact stations. According to the records by the Hong Kong Observatory, there was noticeable 16.9 mm of rainfall recorded on 10 July 2014. Moreover, some soil stains on the DSD maintenance access were observed by SRJV and the soil may be brought to the river course during rain.

6.2.10 Since water sampling was carried out after rainstorm, the elevated suspended solids were more likely due to riverbed disturbed by the rain. In view of the above circumstance, it is concluded that the exceedance was not due to works under the Project.

Investigation for Exceedances at WM1 on 12 July 2014

6.2.11 Construction of Retaining Wall No.1 and Filling Work at BCP area were conducted on 12th July 2014, all the construction activities were land based and did not disturb the water environment.

6.2.12 During the course of water sampling, no spots of muddy runoff were observed at both control and impact stations. According to the records by the Hong Kong Observatory, there was noticeable 23.3 mm of rainfall recorded at the day before monitoring (i.e., 11 July 2014). As advised by SRJV, muddy water was observed throughout the channel on 11 July 2014 as well.

6.2.13 In view of the above circumstance, the water quality in the channel was likely to be deteriorated after rainstorm on 11 July and backflow from Shenzhen River. There were no exceedances recorded in subsequent monitoring results under non-rainy weather. It is concluded that the exceedance was likely to rainfall and not due to works under the Project.

Investigation for Exceedances at WM1 on 25 July 2014

6.2.14 Notification of exceedance of SS was submitted to relevant parties upon laboratory results received on 5 August 2014. Investigation result for 25 July 2014 is underway and it will be reported next month.

Investigation for Exceedances at WM4 on 10 and 12 July 2014

6.2.15 According to site information provided by Chun Wo, construction works carried out on 10 and 12 July 2014 included the installation of DN750 Drainage Pipe close to impact station WM4.

6.2.16 According to the records by the Hong Kong Observatory, there was rain on 9, 10, 11 and 12 July 2014. Photo records taken by both ET and Chun Wo showed that the water quality was poor at the control station WM4-CB on 10 and 12 July 2014.

6.2.17 As water sampling was carried out during or after the rainstorm, it is likely that the water samples collected were influenced by rain such as rain and increase of river flow disturbed the riverbed. In view of the above, it was consider that the exceedances would be due to natural fluctuation and were not related to the works under the Project.

7 WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

7.2 RECORDS OF WASTE QUANTITIES

7.2.1 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.

7.2.2 The quantities of waste for disposal in this Reporting Period are summarized in ***Tables 7-1*** and ***7-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix L***. Whenever possible, materials were reused on-site as far as practicable.

Table 7-1 Summary of Quantities of Inert C&D Materials for the Project

Type of Waste	Contract 2		Contract 3		Contract 5		Total Quantity
	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location	
C&D Materials (Inert) (in '000m^3)	0	--	**3.596**	--	0	--	**3.596**
Reused in this Project (Inert) (in '000 m^3)	**0.0069**	--	**0.502**	--	0	--	**0.5089**
Reused in other Projects (Inert) (in '000 m^3)	**37.1170**	C5	0	--	0	--	**37.1170**
Disposal as Public Fill (Inert) (in '000 m^3)	**12.3368**	Tuen Mun 38	**3.094**	Tuen Mun 38	0	--	**15.4308**

Table 7-2 Summary of Quantities of C&D Wastes for the Project

Type of Waste	Contract 2		Contract 3		Contract 5		Total Quantity
	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location	
Recycled Metal (in '000m^3)	0	-	0	-	**2.01**	Licensed collector	**2.01**
Recycled Paper / Cardboard Packing (in '000m^3)	0	-	0	-	0	--	**0**
Recycled Plastic (in '000m^3)	0	-	**0.005**	Licensed collector	0	--	**0.005**
Chemical Wastes (in '000m^3)	0	-	**0**	-	0	--	**0**
General Refuses (in '000m^3)	**0.0558**	NENT	**0.165**	NENT	**0.11**	NENT	**0.3308**

8 SITE INSPECTION

8.1 REQUIREMENTS

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

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

The Contract 2

8.2.1 In the Reporting Period, joint site inspection for Contract 2 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **4, 11, 18,** and **25 July 2014**. No non-compliance was noted.

8.2.2 The findings / deficiencies of ***Contract 2*** that observed during the weekly site inspection are listed in ***Table 8-1***.

Table 8-1 Site Observations for Contract 2

Date	Findings / Deficiencies	Follow-Up Status
25 June 2014	• Exposed slope surfaces were observed at North Portal. The Contractor was reminded to cover exposed slopes with tarpaulin sheets to prevent surface runoff.	• Cut-off drainage and de-silting facility was installed to collect and treat the surface run-off before discharge into the public drainage.
4 July 2014	• No adverse environmental issue was observed during site inspection.	• NA
11 July 2014	• Muddy water discharge from the bypass channel was observed at North Portal. The contractor was requested to stop the discharge as soon as possible and make sure all the muddy water from site is treated before discharge. • Stagnant water cumulated at the site area at North Portal should be clean to prevent mosquito breeding.	• Sangbags were provided at both sides of the bypass channel and the muddy water from the bypass was treated by wastewater treatment facility before discharge. • Stagnant water was drained away to prevent mosquito breeding.
18 July 2014	• Bypass channel without fence off was observed at North Portal. The Contractor was requested to fence off the bypass channel to prevent muddy surface run-off contaminate the bypass water. Also the muddy water cumulated in the bypass channel should be clean.	• The slopes of the by-pass channel has been concreted and tarpaulin/geotextile have been added to protect the basin. A new bund has also been built to avoid muddy water to come into the clean water dam.
25 July 2014	• Tree inside the site area without label was observed at North Portal. The Contractor was reminded to provide proper label to identify the tree condition inside the site area.	• Tree survey will conduct by the Contractor in August 2014 and the label will be provided after that. (to be followed in next Reporting Period).

Date	Findings / Deficiencies	Follow-Up Status
	• Free-standing chemical container without drip tray was observed. The Contractor was reminded to provide drip tray to prevent leakage.	• Chemical container was removed.

The Contract 3

8.2.3 In the Reporting Period, joint site inspection for Contract 3 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **7, 16, 21 and 28 July 2014**. No non-compliance was noted.

8.2.4 The findings / deficiencies of ***Contract 3*** that observed during the weekly site inspection are listed in ***Table 8-2***.

Table 8-2 Site Observations for Contract 3

Date	Findings / Deficiencies	Follow-Up Status
7 July 2014	• The Contractor was reminded to ensure no dust trail at public access road and to cover the stockpile with tarpaulin sheet at SA11C. • The Contractor was reminded to cover the stockpile with tarpaulin sheet at SA11C. • The Contractor was reminded to ensure no dark smoke emit from plants at SA2. • The Contractor was reminded to place the free-standing chemical to drip tray at SA14.	• The Contractor was reminded to place the free-standing chemical to drip tray at SA14. • The stockpile was removed. • No smoke emission was observed. • The free-standing chemical was placed in drip tray.
16 July 2014	• The Contractor was reminded to clean the loose soil/ gravel along Tai Wo Service Road West regularly. • The Contractor was reminded to remove accumulated water in drip tray underneath the air compressor. (Bored Pile Wall).	• The loose soil/ gravel along Tai Wo Service Road West was cleaned. • The accumulated water in drip tray was removed.
21 July 2014	• The Contractor was reminded to place the free-standing chemical into drip tray at SA4 • The Contractor was reminded to ensure no smoke emitted from the air compressor at SA4.	• The free-standing chemical was removed. • No smoke was observed from the air compressor.
28 July 2014	• The Contractor was reminded to clean the stagnant water for mosquito breeding prevention at SA4.	• The stagnant water inside the pits of concrete blocks was removed and filled.

8.2.5 Moreover, the general housekeeping such as tidiness of weekly and cleaniness of daily should be maintained in accordance with the PS requirements.

The Contract 5

8.2.6 In the Reporting Period, joint site inspection for Contract 5 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **3, 9, 17, 24 and 31 July 2014**. No non-compliance was noted.

8.2.7 The findings / deficiencies of ***Contract 5*** that observed during the weekly site inspection are listed in ***Table 8-3***.

Table 8-3 Site Observations for Contract 5

Date	Findings / Deficiencies	Follow-Up Status
26 June 2014	• All C&D waste kept outside shall be removed for mosquito control. (on-going)	• All C&D waste were removed to maintain site cleanliness and to prevent mosquito breeding.
3 July 2014	• At location BCP1 near wheel washing bay, the Contractor was reminded to fence off the soakaway pit and provide notification label.	• The soakaway pit was fenced off and label was provided.
9 July 2014	• At LMH site office, muddy foodprints on pedestrian road was observed. The Contractor was reminded to clean regularly. • The Contractor was reminded to cover any open stockpile.	• Muddy footprints on the pedestrian road was cleaned. • Stockpile was covered with tarpaulin to minimise dust nuisance.
17 July 2014	• At the temporary bridge, surface runoff into the river was observed, however mitigation measures was provided immediately to minimise further runoff. The Contractor should maintain the mitigation measure to prevent surface runoff to public areas or river.	• Immediate corrective action was provided to minimise runoff. Further mitigation measures was provided to prevent surface runoff.
24 July 2014	• Over capacity at the wastewater treatment facility near the temporary bridge was observed. The Contractor should maintain and further improve the wastewater mitigation measure to prevent discharging muddy water to the channel.	• Corresponding mitigation measures such as using alum to the treatment facility was provided immediately in the morning of the site inspection. Moreover, the Contractor should maintain the efficiency of the wastewater treatment facility, such as silt removal, on a regular basis for the sedimentation pool.
31 July 2014	• In the works area at Lin Ma Hang Road, the Contractor should ensure no turbid water was discharged to public drainage. Appropratied treatment facility should be provided to treat the wastewater generated from the site. • The Contractor was reminded to clean up the silt in regular basis to maintian the efficiency of both de-sitling pool and wheel washing bays.	• The Contractor had removed the wastewater discharge pipe in the works area at Lin Ma Hang Road. • The Contractor had provided cleaning and maintenance for wheel washing bay.

8.2.8 Moreover, the general housekeeping such as tidiness of weekly and cleaniness of daily should be maintained in accordance with the PS requirements. Addition, regular basis cleaning the wheel washing bay is reminded. Furthermore, works at Bridge J Area, tree protected fences should be provided to protect all retained tree. Moreover, the Contractor was reminded setting up storage area as for all chemical waste dispose on site.

Other Contracts

8.2.9 Since the construction works at the Contract 4 and Contract 6 have not yet been commenced, no site inspection is performed for these Contracts.

9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

9.1.1 In the Reporting Period, no environmental summons and prosecution under the EM&A Programme was lodged for Contracts 2, 3 and 5.

9.1.2 One (1) environmental complaint related to Contract 2 was lodged under the Project and the details are summarized in the below sub-sections.

Complaint for Contract 2

9.1.3 Investigation for the complaint is underway and it will be reported in next Reporting Period.

9.1.4 The statistical summary table of environmental complaint is presented in ***Tables 9-1, 9-2*** and ***9-3***.

Table 9-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract No	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
19 May 2014 – 30 June 2014	Contract 2	0	**2**	**(2) Water Quality**
06 Nov 2013 – 30 June 2014	Contract 3	0	**2**	**(1) Construction Dust (1) Water Quality**
16 Aug 2013 – 30 June 2014	Contract 5	0	**1**	**(1) Construction Dust**
1 – 31 July 2014	Contract 2	**1**	**3**	**(2) Water Quality (1) Construction Dust**
	Contract 3	0	**2**	**(1) Construction Dust (1) Water quality**
	Contract 5	0	**1**	**(1) Construction Dust**

Table 9-2 Statistical Summary of Environmental Summons

Reporting Period	Contract No	Environmental Summons Statistics		
		Frequency	Cumulative	Complaint Nature
19 May 2014 – 30 June 2014	Contract 2	0	0	NA
06 Nov 2013 – 30 June 2014	Contract 3	0	0	NA
16 Aug 2013 – 30 June 2014	Contract 5	0	0	NA
1 – 31 July 2014	Contract 2	0	0	NA
	Contract 3	0	0	NA
	Contract 5	0	0	NA

Table 9-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract No	Environmental Prosecution Statistics		
		Frequency	Cumulative	Complaint Nature
19 May 2014 – 30 June 2014	Contract 2	0	0	NA
06 Nov 2013 – 30 June 2014	Contract 3	0	0	NA
16 Aug 2013 – 30 June 2014	Contract 5	0	0	NA
1 – 31 July 2014	Contract 2	0	0	NA
	Contract 3	0	0	NA
	Contract 5	0	0	NA

The Other Contracts

9.1.5 Since the construction works at the Contract 4 and Contract 6 have not yet commenced, no environmental complaint, summons and prosecution under the EM&A Programme are registered in the Reporting Period.

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.1 GENERAL REQUIREMENTS

10.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in ***Appendix M.***

10.1.2 All contracts under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by Contracts 3 and 5 in this Reporting Period are summarized in ***Table 10-1***.

Table 10-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	• Wastewater to be treated by the filtration systems i.e. sedimentation tank or AquaSed before to discharge.
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 breaking works • A cleaning truck was regularly performed on the public road to prevent fugitive dust emission
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 • Place noisy plants away from residence or school • Provide noise barriers or hoarding to enclose the noisy plants or works • 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.

10.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

10.2.1 Construction activities as undertaken in the coming month for the Project lists below:

Contract 2

- Project wide – Asbestos removal, minor structure demolition and removal of boulders
- Project wide – GI Field Works
- Mid Vent Portal – Adit Construction
- Mid Vent Portal – Tunnel excavation
- Mid Vent Portal – Top heading canopies
- North Portal – Site formation and slope stabilization works
- North Portal – Tree transplantation and remaining tree felling work
- South Portal – Temporary bridge foundation works (ramp, columns and main deck installation)
- South Portal – Tree transplantation and remaining tree felling works

Contract 3

- ADM3 installation
- Cable detection and trial trenches
- Pre-drilling works and piling works
- Catch fence installation

- Tree felling works
- Pile cap works
- Slope upgrading works
- Noise barrier works
- Laying of concrete pipe works
- Bored pile and bored pile wall construction
- Pier Construction
- Piling works for Bridge E
- Site formation
- Demolition of Huts
- Receiving & Jacking Pit
- Retaining Structure
- Road works at Fanling highway
- Sewer works
- Socket H-pile installation
- Soil nail construction
- Diversion of DN600 & DN1400
- Mini pile construction
- Trenchless excavation
- Waterworks

Contract 5

- Construction of retaining wall No.1
- Construction of retaining wall No. 2a & 2b
- Piling works at footbridge
- Construction of Western pedestrian subway at Lin Ma Hang
- Pipe jacking across Kong Yuen River
- Transplantation, Pruning/felling of existing tree
- Transplantation, Pruning/felling of existing tree
- Formation Works at BCP Area
- Construction of Depressed Road at BCP3
- Filing Works for ArcHD permanent office
- Construction of substructure and superstructure of Bridge J
- Water works at proposed and existing LMH Road
- Pipe Jacking for CLP cable across Kong Yuen River(pit no.2)
- Construction of Eastern pedestrian subway and pump room at Lin Ma Hang
- Construction of soil cement slope along BCP area
- Construction of superstructure of Bridge J
- Drainage works at BCP area

10.3 KEY ISSUES FOR THE COMING MONTH

10.3.1 Key issues to be considered in the coming month for Contracts 2, 3 and 5 include:

- Implementation of control measures for rainstorm;
- Regular clearance of stagnant water during wet season;
- 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;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;

- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

10.3.2 For other Contracts, no environmental issue is considered as these contracts have yet to commence.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

11.1.1 This is **12th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **31 July 2014**.

11.1.2 No 24-hour or 1-hour TSP monitoring results that triggered the Action or Limit Levels were recorded. No NOEs or the associated corrective actions were therefore issued.

11.1.3 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.

11.1.4 For water quality monitoring, a total five (5) Acton/ Limit Level exceedances in parameters of turbidity and SS were recorded. The Notification on Exceedances (NOEs) was issued to all relevant parties. Investigation findings concluded that the exceedances detected on 10 and 12 July 2014, were not due to the Project works. Furthermore, SS exceedance recorded at W1 on 25 July 2014 is underway as the laboratory result was received on 5 August 2014. The investigation findings will be reported in next Reporting Month.

11.1.5 No notification of summons or successful prosecution under the EM&A Programme of the Liantang/Heung Yuen Wai Boundary Control Point and Associated Works was received in the reporting period for Contract 2, 3 and 5.

11.1.6 In this Reporting Period, one (1) environmental complaint about dust control which related to Contract 2 was lodged under the Project. Investigation for the complaint is underway and it will be reported in next Reporting Period.

11.1.7 During the Reporting Period, four (4), four (4) and five (5) events of joint site inspection by the RE, IEC, ET and Main-contractor were carried out for Contracts 2, 3 and 5 respectively in accordance with the EM&A Manual stipulation. No non-compliance observed during the site inspection. The environmental performance of the Project of Contracts 2, 3 and 5 was therefore considered as satisfactory.

11.2 RECOMMENDATIONS

11.2.1 During wet season, muddy water or other water pollutants from site surface runoff into Kong Yiu Channel and Ma Wat Channel will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies should be fully implemented.

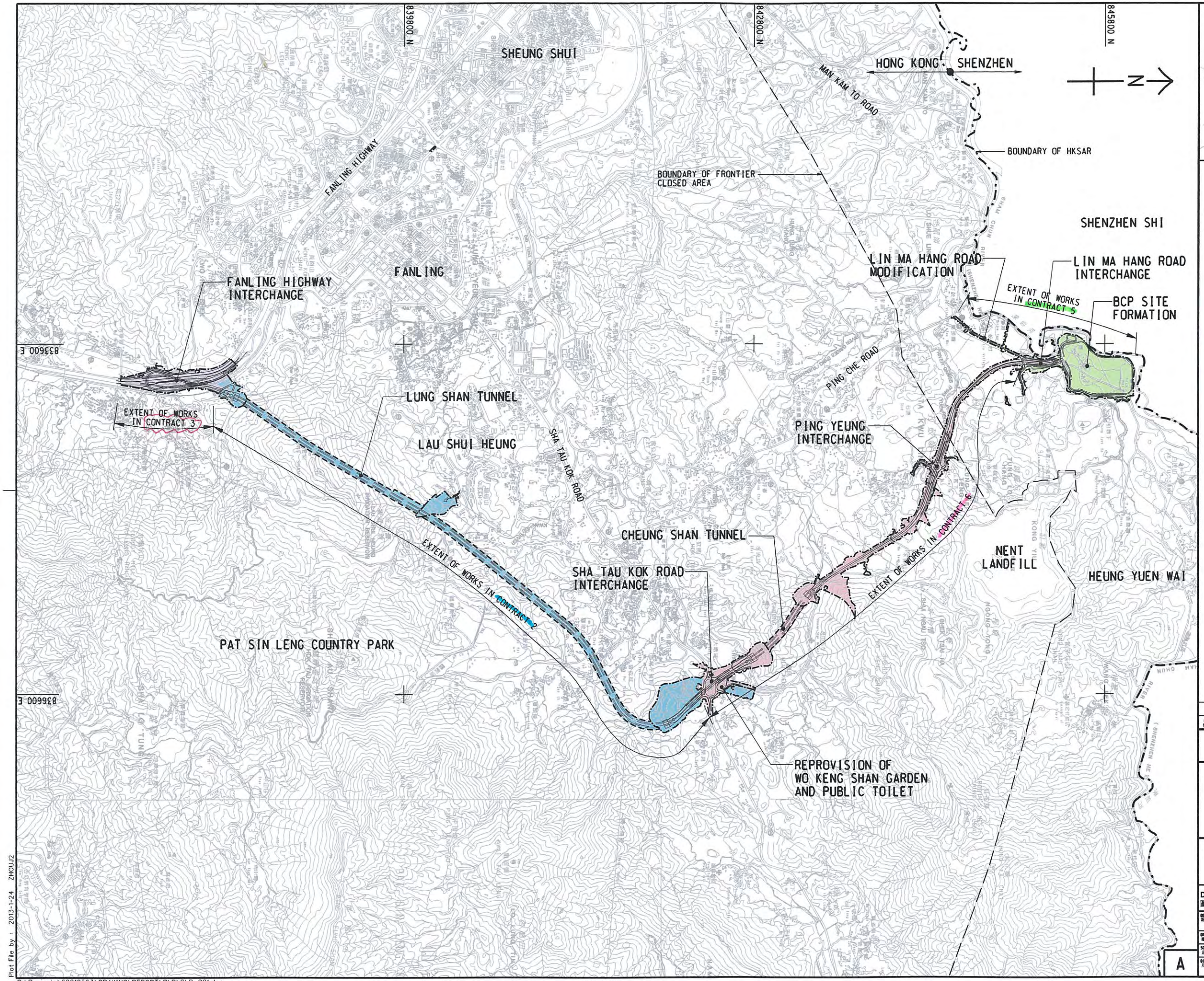
11.2.2 Special attention should also be paid on the potential construction dust impact since most of the construction sites are adjacent to villages. The Contractor should fully implement the construction dust mitigation measures properly.

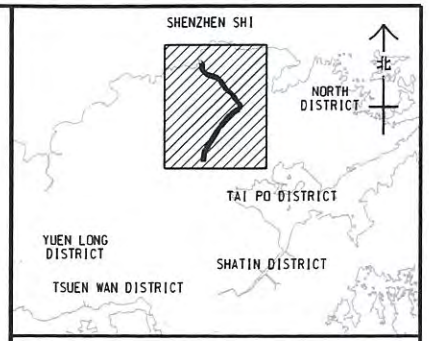
11.2.3 Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants or temporary noise barrier installation at the construction noise predominate area should be implemented as accordance with the EM&A requirement.

11.2.4 Furthermore, daily cleaning and weekly tidiness shall be properly performed and maintained. In addition, mosquito control should be kept to prevent mosquito breeding on site.

Appendix A

Layout plan of the Project





LOCATION PLAN
SCALE 1 : 30000

LEGEND:

- SITE BOUNDARY
- UNDERGROUND WORKS SITE BOUNDARY

REV. 修訂	DESCRIPTION 內容摘要	BY 由	CHECKED 審核	DATE 日期

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

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS (SITE FORMATION AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION

PROJECT LAYOUT PLAN

AECOM

DRG.NO. 圖紙編號 60212563/PLP/001

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 負責人
-	-	-
DRAWN BY 繪圖 ZJ	STATUS 階段	
SCALE 比例 A1 1 : 15000		
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

A

Plot File by : 2013-1-24 ZHOUJ2

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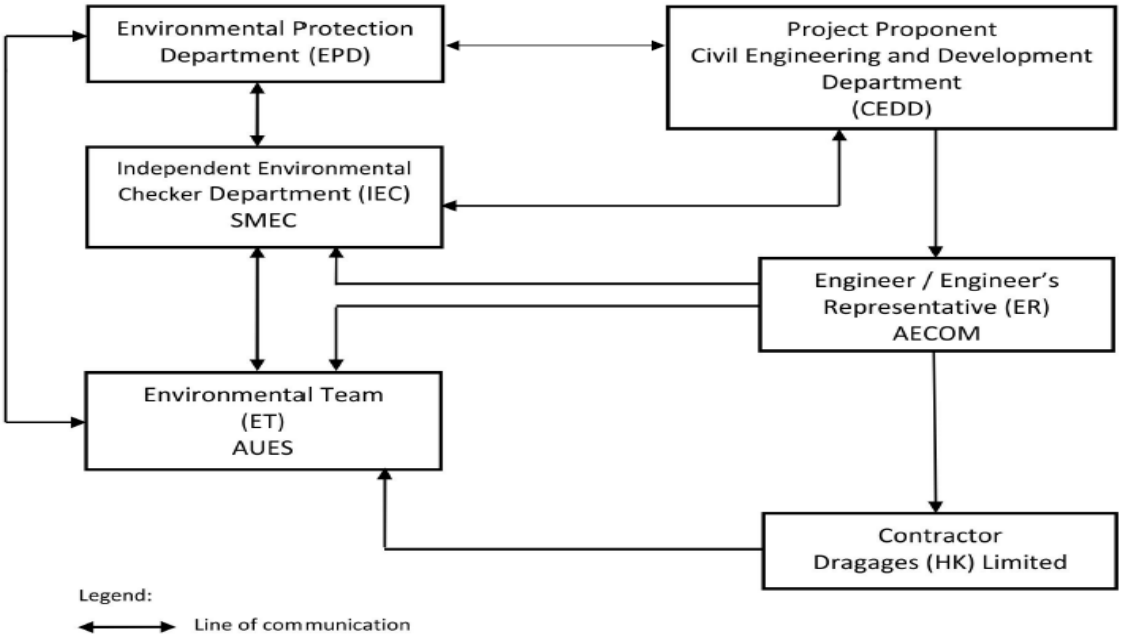
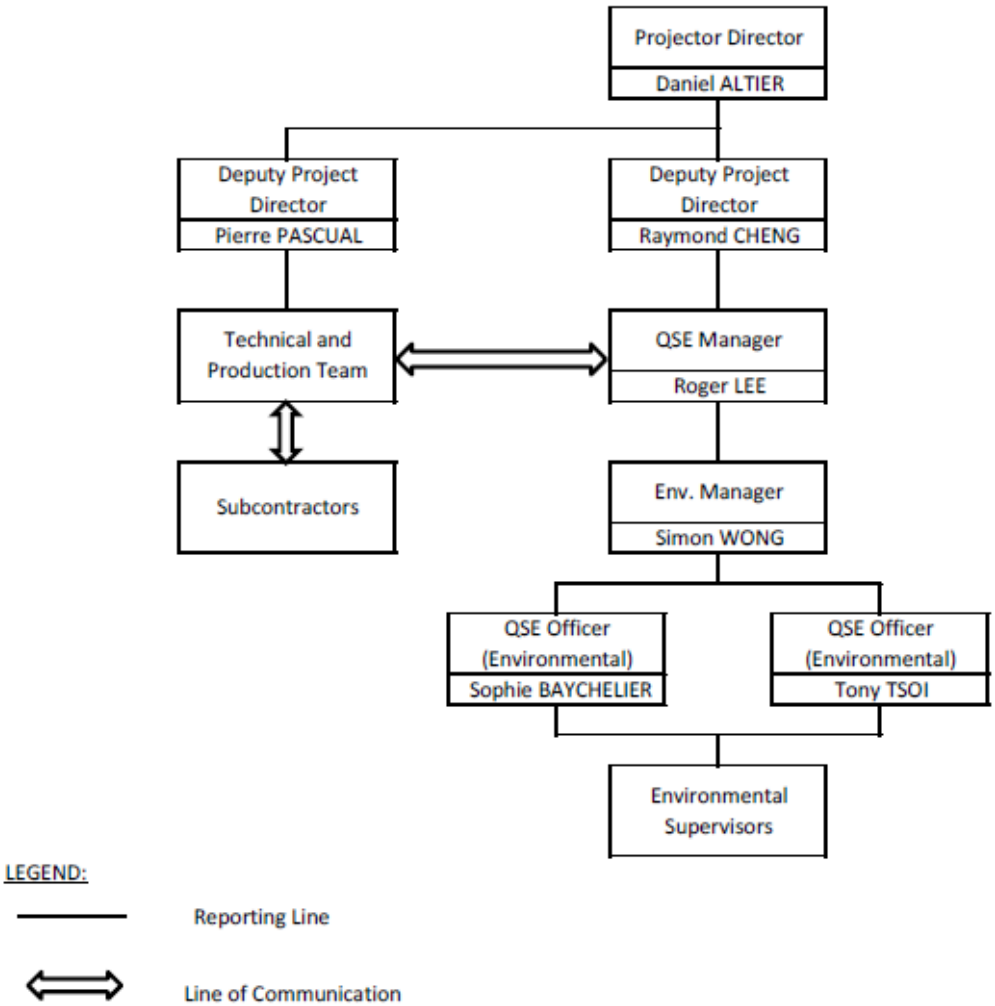
Appendix B

Organization Chart

Project Organization Structure



Structure Within Dragages (HK) Limited



Environmental Management Organization for Contract 2 - (CV/2012/08)

Contact Details of Key Personnel for Contract 2 - CV/2012/08

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Gregory Lo	2659 8810	2685 1155
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
DHK	Project Director	Daniel Altier	2171 3004	2171 3299
DHK	Deputy Project Manager	Raymond Cheng / Pierre Pascual	2171 3004	2171 3299
DHK	QSE Manager	Roger Lee	6293 8726	2171 3299
DHK	Environmental Manager (Environmental Officer)	Simon Wong	9281 4346	2171 3299
DHK	QSE Officer (Environmental)	Sophie Baycheuer	6321 5001	2171 3299
DHK	QSE Officer (Environmental)	Tony Tsoi	6028 5623	2171 3299
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

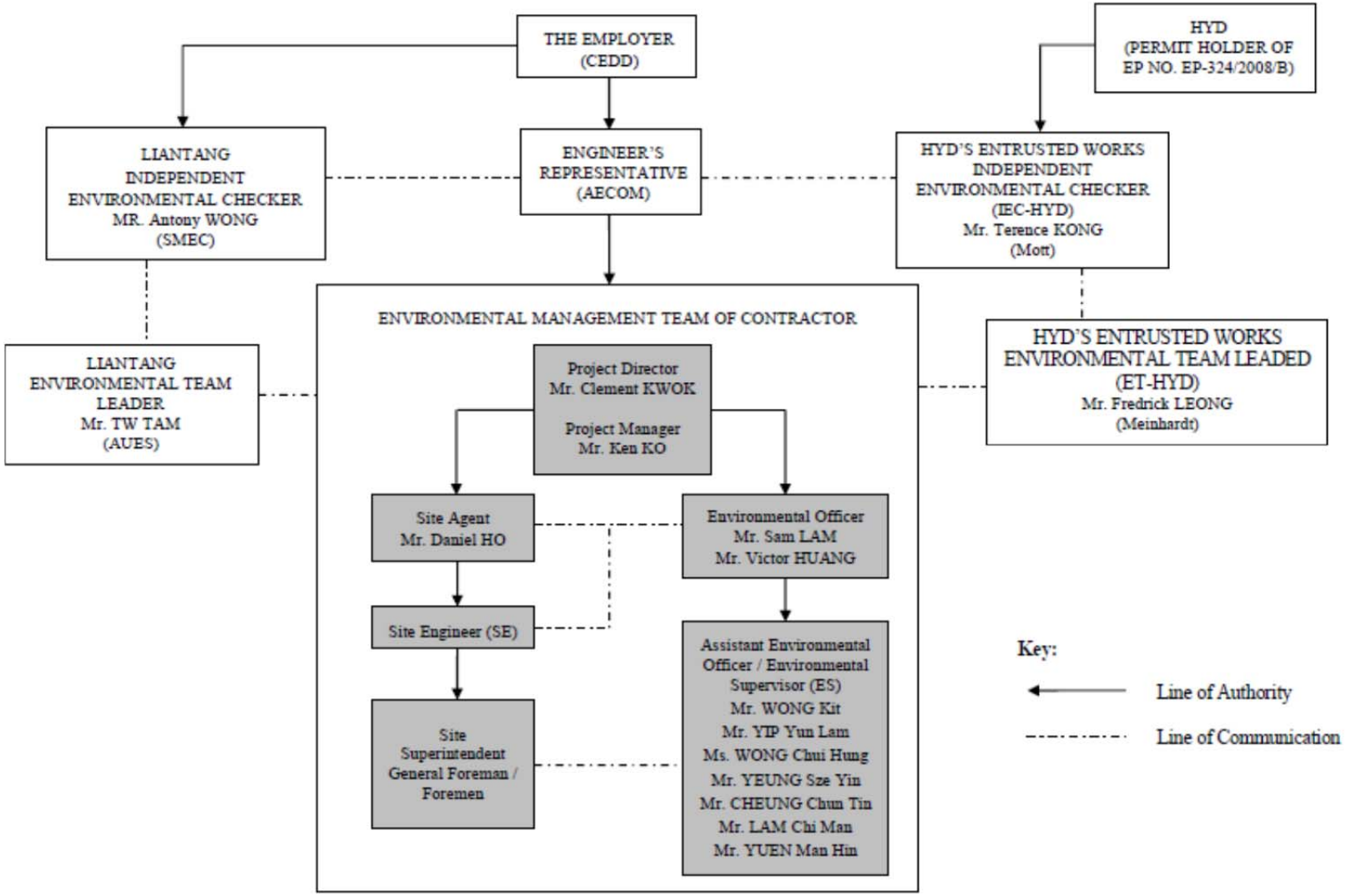
CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

DHK(Main Contractor) –Dragages Hong Kong Ltd.

SMEC (IEC) – SMEC Asia Limited

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



Environmental Management Organization for Contract 3 - CV/2012/09

Contact Details of Key Personnel for Contract 3 - CV/2012/09

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Alan Lee	2472 0212	2472 0132
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
Chun Wo	Project Director	Clement Kwok	3758 8735	2638 7077
Chun Wo	Project Manager	Ken Ko	2638 6136	2638 7077
Chun Wo	Site Agent	Daniel Ho	2638 6144	2638 7077
Chun Wo	Environmental Officer	Sam Lam/ Victor Huang	2638 6115	2638 7077
Chun Wo	Environmental Supervisor	Wong Kit	2638 6125	2638 7077
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

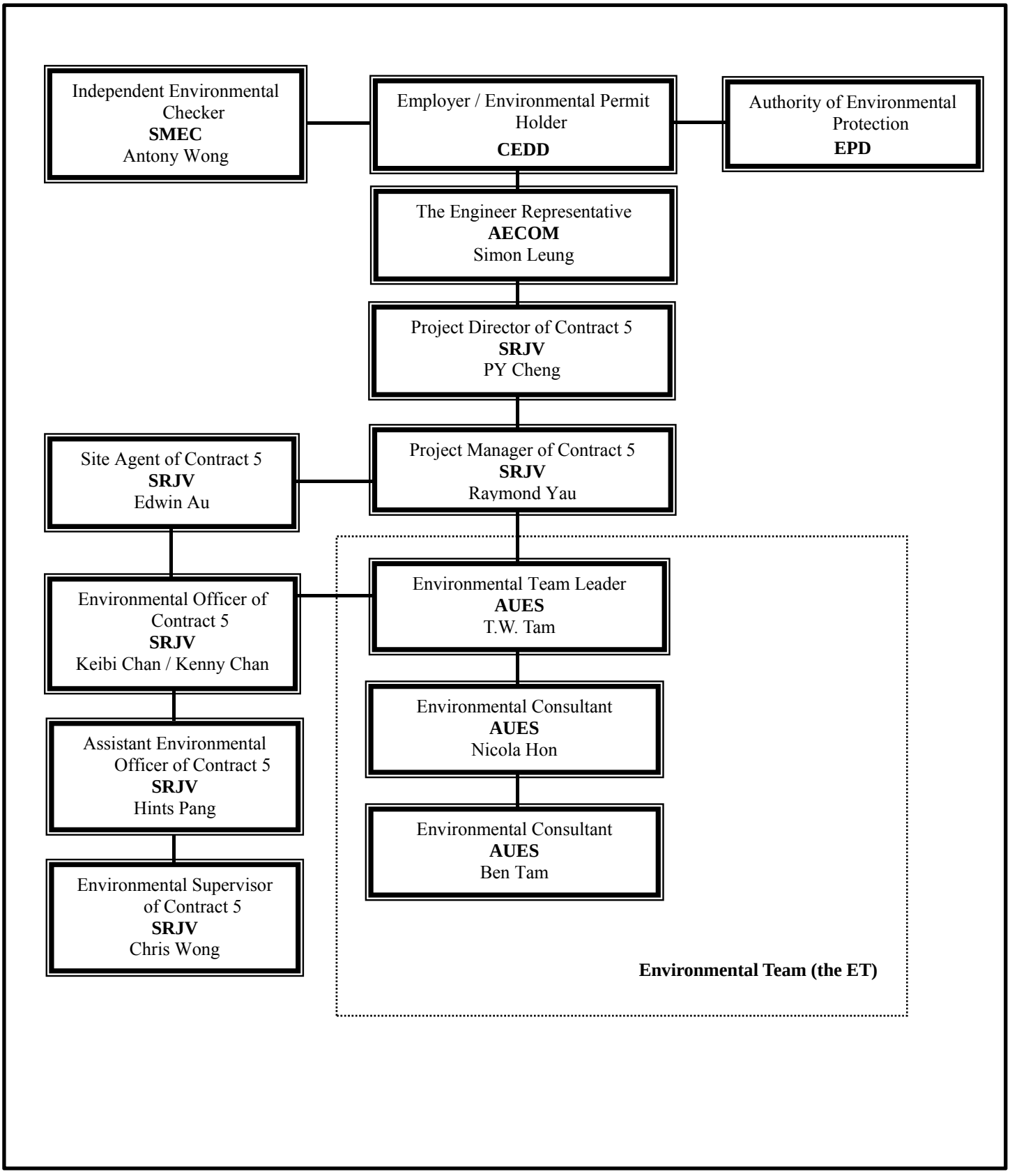
CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

Chun Wo (Main Contractor) – Chun Wo Construction Ltd.

SMEC (IEC) – SMEC Asia Limited

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



Environmental Management Organization – CV/2013/03

Contact Details of Key Personnel for Contract 5 - CV/2013/03

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
AECOM	Engineer's Representative	Simon Leung	2674 2273	3922 9797
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
SRJV	Project Director	PY Cheng	9023 4821	2403 1162
SRJV	Contract Manager	Raymond Yu	9041 1620	2403 1162
SRJV	Project Manager	Aaron Mak	9464 7095	2403 1162
SRJV	Site Agent	Edwin Au	9208 7329	2403 1162
SRJV	Environmental Officer	Chan Ng jhon-keibi / Kenny Chan	6090 0183	2403 1162
SRJV	Environmental Supervisor	Chris Wong	6387 4683	2403 1162
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

SRJV (Main Contractor) – Sang Hing Civil – Richwell Machinery JV

SMEC (IEC) – SMEC Asia Limited

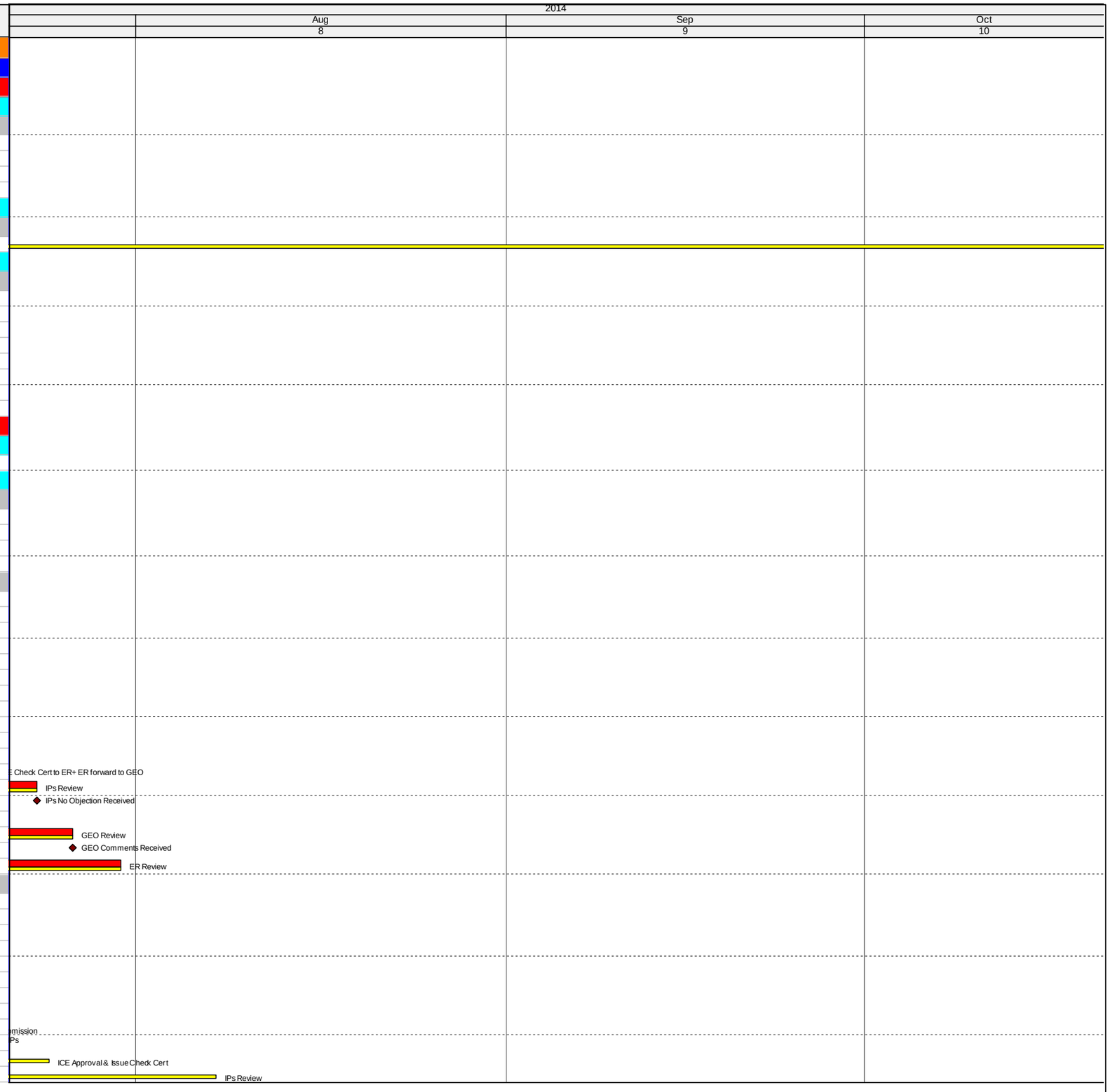
AUES (ET) – Action-United Environmental Services & Consulting

Appendix C

Master Construction Programme

Contract 2

Activity ID	Activity Name	BL Project Start	BL Project Finish
Total		01-Dec-13	18-May-15
LT/ HYW Initial Works Programme - Revision B_20-JUL-2014		01-Dec-13	18-May-15
2 General		19-Jan-14	13-Nov-14
Programme		19-Jan-14	30-May-14
Detailed Works Programme		19-Jan-14	30-May-14
A24050	*Detailed Initial Works Programme	19-Jan-14	19-Mar-14
A24060	Engineer's Approval of Initial Works Programme	20-Mar-14	18-Apr-14
A24065	Engineer's Comment for Detailed Initial Works Programme	19-Apr-14	09-May-14
A24070	Further Information for Detailed Initial Works Programme (if necessary)	10-May-14	30-May-14
Ground Investigation		13-Mar-14	13-Nov-14
GI Works		13-Mar-14	13-Nov-14
DSN018605	GI Field Works	13-Mar-14	13-Nov-14
Geotechnical Interpretative Report 1st Revision		14-Apr-14	12-Jun-14
DDA Submission		14-Apr-14	12-Jun-14
GIR2021960	Designer to Reply RtC + Update Submission	14-Apr-14	13-May-14
GIR2021970	Submit Updated DDA to ER/ ICE /IPs	14-May-14	
GIR2021980	ICE Approval & Issue Check Cert	14-May-14	27-May-14
GIR2021990	Submit ICE Check Cert to ER	28-May-14	04-Jun-14
GIR2022000	IPs Review	14-May-14	10-Jun-14
GIR2022010	IPs No Objection Received		10-Jun-14
GIR2022050	ER Review	16-May-14	12-Jun-14
GIR2022060	ER Approval with Condition Received		12-Jun-14
3 South Portal Area		01-Dec-13	18-May-15
3.0 South Portal Site Possession		20-Apr-14	20-Apr-14
A2470	LS2 (near South Vent. Demolition & Noise Barrier)	20-Apr-14	
3.2 South Portal Design Submission		17-Feb-14	26-Nov-14
South Portal: Temp. Bridge at LS1		19-Mar-14	15-Apr-14
DDA Submission		19-Mar-14	15-Apr-14
DSN01460	IPs No Objection Received		07-Apr-14
DSN01500	ER Review	19-Mar-14	15-Apr-14
DSN01510	ER Approval with Condition Received		15-Apr-14
South Portal: Site Formation		17-Feb-14	30-Jul-14
DDA Submission		17-Feb-14	30-Jul-14
DSN019800	Preparation of DDA Submission	17-Feb-14	17-Mar-14
DSN019810	Review & Comment by DHK	18-Mar-14	08-Apr-14
DSN019820	Designer prepare DDA	09-Apr-14	25-Apr-14
DSN019830	Formal Submission of DDA to ICE/IPs		25-Apr-14
DSN019840	Advanced Submission to ER		25-Apr-14
DSN019850	IPs'/ ER's Advance Comments/ICE Comments	26-Apr-14	30-May-14
DSN019860	Comments Received		30-May-14
DSN019870	Designer to Reply RtC + Update Submission	31-May-14	25-Jun-14
DSN019880	Submit Updated DDA to ER/ ICE /IPs	26-Jun-14	
DSN019890	ICE Approval & Issue Check Cert	26-Jun-14	10-Jul-14
DSN019900	Submit ICE Check Cert to ER+ ER forward to GEO	11-Jul-14	17-Jul-14
DSN019910	IPs Review	26-Jun-14	23-Jul-14
DSN019920	IPs No Objection Received		23-Jul-14
DSN019930	ER forward DDA to GEO (w/o ICE Cert.)	26-Jun-14	28-Jun-14
DSN019940	GEO Review	29-Jun-14	26-Jul-14
DSN019950	GEO Comments Received		26-Jul-14
DSN019960	ER Review	03-Jul-14	30-Jul-14
South Portal: Temp Support For Retaining Wall		01-Mar-14	13-Aug-14
DDA Submission		01-Mar-14	13-Aug-14
DSN03140	Preparation of DDA Submission for Temp Support (Sth.Portal) Retaining Wall	01-Mar-14	28-Mar-14
DSN03150	Review & Comment by DHK	29-Mar-14	23-Apr-14
DSN03160	Designer prepare DDA	24-Apr-14	12-May-14
DSN03170	Formal Submission of DDA to ICE/IPs		12-May-14
DSN03180	Advanced Submission to ER		12-May-14
DSN03190	IPs'/ ER's Advance Comments/ICE Comments	13-May-14	14-Jun-14
DSN03200	Comments Received		14-Jun-14
DSN03210	Designer to Reply RtC + Update Submission	16-Jun-14	10-Jul-14
DSN03220	Submit Updated DDA to ER/ ICE /IPs	11-Jul-14	
DSN03230	ICE Approval & Issue Check Cert	11-Jul-14	24-Jul-14
DSN03250	IPs Review	11-Jul-14	07-Aug-14



Primary Baseline
Critical Activity
Milestone

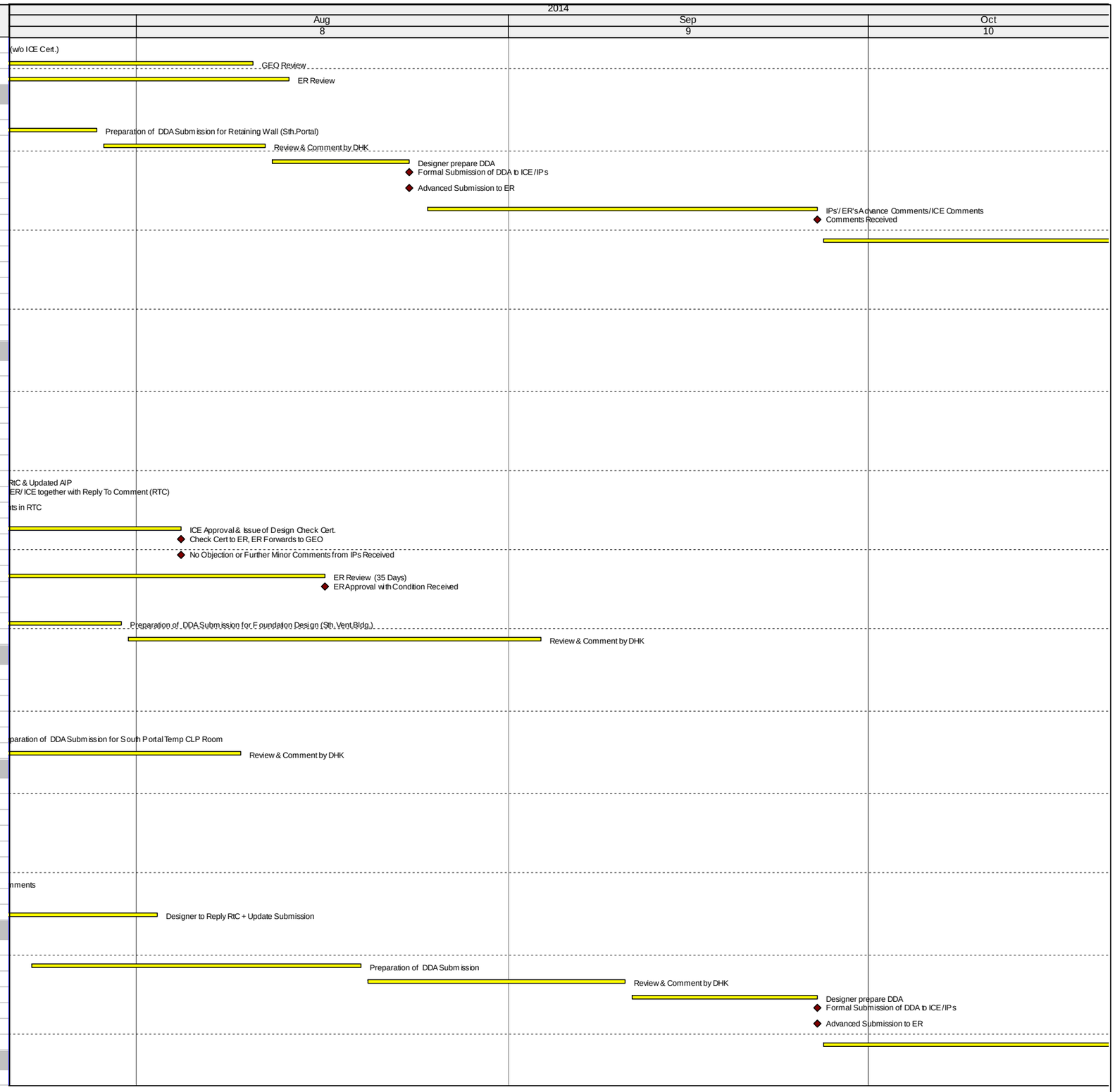
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
DSN03270	ER forward DDA to GEO (w/o ICE Cert.)	11-Jul-14	13-Jul-14
DSN03280	GEO Review	14-Jul-14	10-Aug-14
DSN03300	ER Review	17-Jul-14	13-Aug-14
South Portal: Permanent Retaining Wall		30-Jun-14	26-Nov-14
DDA Submission		30-Jun-14	26-Nov-14
DSN019440	Preparation of DDA Submission for Retaining Wall (Sth.Portal)	30-Jun-14	28-Jul-14
DSN019450	Review & Comment by DHK	29-Jul-14	11-Aug-14
DSN019460	Designer prepare DDA	12-Aug-14	23-Aug-14
DSN019470	Formal Submission of DDA to ICE/IPs		23-Aug-14
DSN019480	Advanced Submission to ER		23-Aug-14
DSN019490	IPs'/ ER's Advance Comments/ICE Comments	25-Aug-14	26-Sep-14
DSN019500	Comments Received		26-Sep-14
DSN019510	Designer to Reply RtC + Update Submission	27-Sep-14	23-Oct-14
DSN019520	Submit Updated DDA to ER/ ICE/ IPs	24-Oct-14	
DSN019530	ICE Approval & Issue Check Cert	24-Oct-14	06-Nov-14
DSN019550	IPs Review	24-Oct-14	20-Nov-14
DSN019570	ER forward DDA to GEO (w/o ICE Cert.)	24-Oct-14	26-Oct-14
DSN019580	GEO Review	27-Oct-14	23-Nov-14
DSN019600	ER Review	30-Oct-14	26-Nov-14
South Portal: Ventilation Buildings - Foundation Design		28-Apr-14	03-Sep-14
AIP Submission		28-Apr-14	16-Aug-14
DSN07650	Review & Comment by DHK	28-Apr-14	13-May-14
DSN07660	Designer Prepare AIP	14-May-14	19-May-14
DSN07670	Formal Submission of AIP to ICE/IPs (except GEO)		19-May-14
DSN07680	Advanced Submission of AIP to ER		19-May-14
DSN07690	Review & Comment by ER/ ICE/ IPs	20-May-14	21-Jun-14
DSN07700	Advance Comments from ER/ Comments from ICE/ IPs Received		21-Jun-14
DSN07710	Designer to Prepare RtC & Updated AIP	23-Jun-14	14-Jul-14
DSN07720	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		14-Jul-14
DSN07730	Reply to IPs Comments in RTC		14-Jul-14
DSN07740	ICE Approval & Issue of Design Check Cert.	15-Jul-14	04-Aug-14
DSN07750	Check Cert to ER, ER Forwards to GEO		04-Aug-14
DSN07760	No Objection or Further Minor Comments from IPs Received		04-Aug-14
DSN07800	ER Review (35 Days)	20-Jul-14	16-Aug-14
DSN07810	ER Approval with Condition Received		16-Aug-14
DDA Submission		10-Jul-14	03-Sep-14
DSN07820	Preparation of DDA Submission for Foundation Design (Sth.Vent.Bldg.)	10-Jul-14	30-Jul-14
DSN07830	Review & Comment by DHK	31-Jul-14	03-Sep-14
South Portal: Temp CLP Room		18-Feb-14	09-Aug-14
AIP Submission		18-Feb-14	27-Jun-14
SCLP207640	Preparation & Approval For CLP Room	18-Feb-14	27-Jun-14
SCLP207810	ER Approval with Condition Received		27-Jun-14
DDA Submission		28-Jun-14	09-Aug-14
SCLP207820	Preparation of DDA Submission for South Portal Temp CLP Room	28-Jun-14	19-Jul-14
SCLP207830	Review & Comment by DHK	21-Jul-14	09-Aug-14
South Portal: Temp Works For Mined Tunnelling		29-Mar-14	02-Aug-14
DDA Submission		29-Mar-14	02-Aug-14
DSN010510	Preparation of DDA Submission	29-Mar-14	30-Apr-14
DSN010520	Review & Comment by DHK	02-May-14	21-May-14
DSN010530	Designer prepare DDA	22-May-14	05-Jun-14
DSN010540	Formal Submission of DDA to ICE/IPs		05-Jun-14
DSN010550	Advanced Submission to ER		05-Jun-14
DSN010560	IPs'/ ER's Advance Comments/ICE Comments	06-Jun-14	09-Jul-14
DSN010570	Comments Received		09-Jul-14
DSN010580	Designer to Reply RtC + Update Submission	10-Jul-14	02-Aug-14
South Portal: Temp Works For D&B Tunnelling		23-Jul-14	31-Oct-14
DDA Submission		23-Jul-14	31-Oct-14
DSN010150	Preparation of DDA Submission	23-Jul-14	19-Aug-14
DSN010160	Review & Comment by DHK	20-Aug-14	10-Sep-14
DSN010170	Designer prepare DDA	11-Sep-14	26-Sep-14
DSN010180	Formal Submission of DDA to ICE/IPs		26-Sep-14
DSN010190	Advanced Submission to ER		26-Sep-14
DSN010200	IPs'/ ER's Advance Comments/ICE Comments	27-Sep-14	31-Oct-14
South Tunnel Permanent Lining		17-May-14	30-Aug-14
AIP Submission		17-May-14	30-Aug-14



Primary Baseline
Critical Activity
Milestone

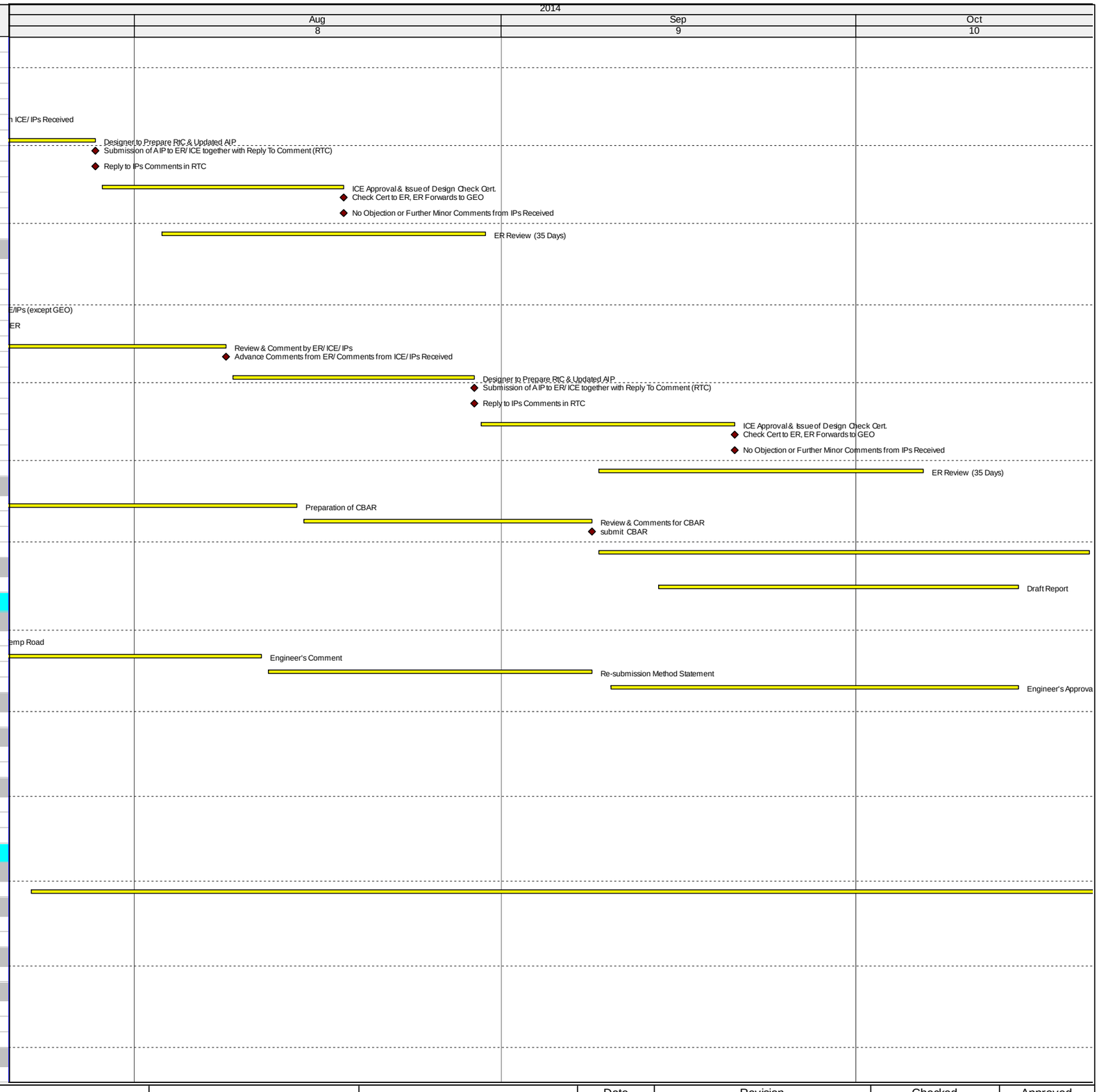
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 — A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
STPL1023350	Review & Comment by DHK	17-May-14	30-May-14
STPL1023360	Designer Prepare AIP	31-May-14	07-Jun-14
STPL1023370	Formal Submission of AIP to ICE/IPs (except GEO)		07-Jun-14
STPL1023380	Advanced Submission of AIP to ER		07-Jun-14
STPL1023390	Review & Comment by ER/ ICE/ IPs	09-Jun-14	07-Jul-14
STPL1023400	Advance Comments from ER/ Comments from ICE/ IPs Received		07-Jul-14
STPL1023410	Designer to Prepare RtC & Updated AIP	08-Jul-14	28-Jul-14
STPL1023420	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		28-Jul-14
STPL1023430	Reply to IPs Comments in RTC		28-Jul-14
STPL1023440	ICE Approval & Issue of Design Check Cert.	29-Jul-14	18-Aug-14
STPL1023450	Check Cert to ER, ER Forwards to GEO		18-Aug-14
STPL1023460	No Objection or Further Minor Comments from IPs Received		18-Aug-14
STPL1023500	ER Review (35 Days)	03-Aug-14	30-Aug-14
South Tunnel Internal Structures		14-Jun-14	06-Oct-14
AIP Submission		14-Jun-14	06-Oct-14
STIS1L1023350	Review & Comment by DHK	14-Jun-14	03-Jul-14
STIS1L1023360	Designer Prepare AIP	04-Jul-14	11-Jul-14
STIS1L1023370	Formal Submission of AIP to ICE/IPs (except GEO)		11-Jul-14
STIS1L1023380	Advanced Submission of AIP to ER		11-Jul-14
STIS1L1023390	Review & Comment by ER/ ICE/ IPs	12-Jul-14	08-Aug-14
STIS1L1023400	Advance Comments from ER/ Comments from ICE/ IPs Received		08-Aug-14
STIS1L1023410	Designer to Prepare RtC & Updated AIP	09-Aug-14	29-Aug-14
STIS1L1023420	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		29-Aug-14
STIS1L1023430	Reply to IPs Comments in RTC		29-Aug-14
STIS1L1023440	ICE Approval & Issue of Design Check Cert.	30-Aug-14	20-Sep-14
STIS1L1023450	Check Cert to ER, ER Forwards to GEO		20-Sep-14
STIS1L1023460	No Objection or Further Minor Comments from IPs Received		20-Sep-14
STIS1L1023500	ER Review (35 Days)	09-Sep-14	06-Oct-14
CBAR South Tunnel Sump & Cross Passages		18-Jul-14	20-Oct-14
A26040a	Preparation of CBAR	18-Jul-14	14-Aug-14
A26040b	Review & Comments for CBAR	15-Aug-14	08-Sep-14
A26040c	submit CBAR		08-Sep-14
A26040d	Engineer & IP's Approval for CBAR	09-Sep-14	20-Oct-14
Construction Impact Assesment - South Portal & South D&B Tunne		14-Sep-14	14-Oct-14
SC01140	Draft Report	14-Sep-14	14-Oct-14
3.3 South Portal Method Statement Submission		20-Dec-13	14-Oct-14
South Portal: Temporary Road		13-May-14	14-Oct-14
FL430	Prepare Method Statement for South Temp Road	13-May-14	09-Jul-14
FL440	Engineer's Comment	10-Jul-14	11-Aug-14
FL450	Re-submission Method Statement	12-Aug-14	08-Sep-14
FL460	Engineer's Approval	10-Sep-14	14-Oct-14
South Portal: Temporary Bridge		28-Apr-14	31-May-14
FL560	Engineer's Approval	28-Apr-14	31-May-14
South Portal: Site Installation		20-Dec-13	25-Feb-14
N21570	Prepare Method Statement of Site Installation	20-Dec-13	20-Jan-14
N21580	ER's Comment for Site Installation	21-Jan-14	25-Feb-14
South Portal: Demolition		17-Mar-14	11-Jun-14
SV2770	Engineer's Comment for Demolition Plan & Method Statement	17-Mar-14	15-Apr-14
SV2780	Prepare & Re-submit Demolition Plan & Method Statement	16-Apr-14	12-May-14
SV2790	Engineer's Approval for Demolition & Method Statement	13-May-14	11-Jun-14
3.5 South Portal Works		01-Dec-13	18-May-15
South Portal: CLP Substation		23-Jul-14	18-May-15
SCLP2075	Procurement of Transformers & Cable Laying (by CLP)	23-Jul-14	18-May-15
South Portal: Site Clearance & Hoarding		04-Mar-14	08-Apr-14
SV2160	Mobilization for Hoarding (Sth.Vent)	04-Mar-14	10-Mar-14
SV2165	Site Clearance & Hoarding	11-Mar-14	08-Apr-14
South Portal: Demolition		12-Jun-14	12-Jul-14
SV2840	Precautionary Measures	12-Jun-14	12-Jul-14
South Portal: Tree Transplant & Felling		21-Jan-14	22-Apr-14
SV2135	Tree Transplant	21-Jan-14	22-Apr-14
SV2145	Tree Felling for Bridge	21-Jan-14	04-Mar-14
SV2155	Tree Felling Remaining	05-Mar-14	01-Apr-14
South Portal: Utilities & Footpath Diversion		28-Mar-14	24-May-14
SV2590	Utilities (PCCW/ LV Cable/ Street Lighting) Diversion	28-Mar-14	22-Apr-14



Primary Baseline
Critical Activity
Milestone

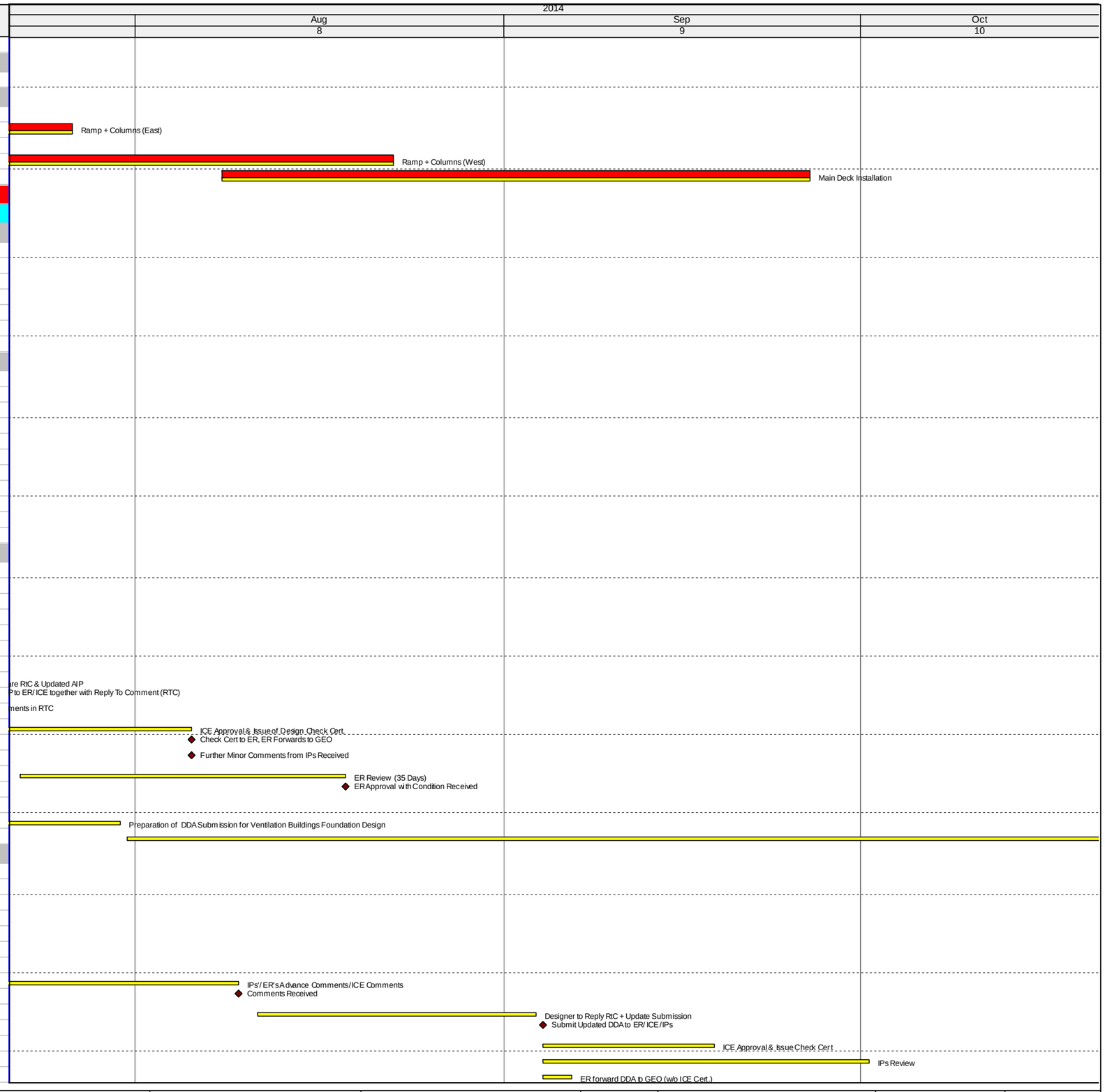
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 — A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
SV2595	Footpath Diversion (DSD Service Road)	24-Apr-14	24-May-14
South Portal: 132kV Diversion (South Portal)		01-Dec-13	20-Dec-13
SC01300	*CLP 132kV Diversion (by Others)	01-Dec-13	20-Dec-13
South Portal: Temp.Bridge (South Portal)		26-May-14	26-Sep-14
SV2620	Foundation works (East)	03-Jun-14	03-Jul-14
SV2625	Ramp + Columns (East)	04-Jul-14	26-Jul-14
SV2630	Foundation works (West)	26-May-14	04-Jul-14
SV2640	Ramp + Columns (West)	05-Jul-14	22-Aug-14
SV2650	Main Deck Installation	08-Aug-14	26-Sep-14
4 Middle Portal Area		17-Jan-14	03-Dec-14
4.2 Middle Portal Design Submission		17-Jan-14	23-Oct-14
Middle Portal: Site & Portal Formation		07-Mar-14	14-Apr-14
DDA Submission		07-Mar-14	14-Apr-14
DSN017090	IPs Review	07-Mar-14	03-Apr-14
DSN017100	IPs No Objection Received		03-Apr-14
DSN017130	GEO Review	10-Mar-14	06-Apr-14
DSN017140	GEO Comments Received		07-Apr-14
DSN017150	ER Review	17-Mar-14	13-Apr-14
DSN017160	ER Approval with Condition Received		14-Apr-14
Mid Vent Building - ELS		15-Apr-14	18-Jun-14
DDA Submission		15-Apr-14	18-Jun-14
DSN022870	Designer to Reply RtC + Update Submission	15-Apr-14	14-May-14
DSN022880	Submit Updated DDA to ER/ ICE /IPs	15-May-14	
DSN022890	ICE Approval & Issue Check Cert	15-May-14	28-May-14
DSN022900	Submit ICE Check Cert to ER+ ER forward to GEO	29-May-14	05-Jun-14
DSN022910	IPs Review	15-May-14	11-Jun-14
DSN022920	IPs No Objection Received		11-Jun-14
DSN022940	GEO Review	18-May-14	14-Jun-14
DSN022950	GEO Comments Received		14-Jun-14
DSN022960	ER Review	22-May-14	18-Jun-14
DSN022970	ER Approval with Condition Received		18-Jun-14
Mid Vent Building - Foundation		05-May-14	23-Oct-14
AIP Submission		05-May-14	18-Aug-14
DSN011780	Review & Comment by DHK	05-May-14	17-May-14
DSN011790	Designer Prepare AIP	19-May-14	24-May-14
DSN011800	Formal Submission of AIP to ICE/IPs (except GEO)		24-May-14
DSN011810	Advanced Submission of AIP to ER		24-May-14
DSN011820	Review & Comment by ER/ ICE/ IPs	26-May-14	23-Jun-14
DSN011830	Advance Comments from ER/ Comments from ICE/ IPs Received		23-Jun-14
DSN011840	Designer to Prepare RtC & Updated AIP	24-Jun-14	15-Jul-14
DSN011850	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		15-Jul-14
DSN011860	Reply to IPs Comments in RTC		15-Jul-14
DSN011870	ICE Approval & Issue of Design Check Cert.	16-Jul-14	05-Aug-14
DSN011880	Check Cert to ER, ER Forwards to GEO		05-Aug-14
DSN011890	Further Minor Comments from IPs Received		05-Aug-14
DSN011930	ER Review (35 Days)	22-Jul-14	18-Aug-14
DSN011940	ER Approval with Condition Received		18-Aug-14
DDA Submission		03-Jul-14	23-Oct-14
DSN011950	Preparation of DDA Submission for Ventilation Buildings Foundation Design	03-Jul-14	30-Jul-14
DSN011960	Review & Comment by DHK	31-Jul-14	23-Oct-14
Mid Vent Temp CLP Switch Room		17-Jan-14	04-Oct-14
AIP Submission		17-Jan-14	29-May-14
TSS3P207640	Preparation & Approval For CLP Room	17-Jan-14	29-May-14
TSS3P207810	ER Approval with Condition Received		29-May-14
DDA Submission		21-Jun-14	04-Oct-14
TSS3P207840	Designer prepare DDA	21-Jun-14	08-Jul-14
TSS3P207850	Formal Submission of DDA to ICE / IP s		08-Jul-14
TSS3P207860	Advanced Submission to ER		08-Jul-14
TSS3P207870	IPs'/ ER's Advance Comments/ ICE Comments	09-Jul-14	09-Aug-14
TSS3P207880	Comments Received		09-Aug-14
TSS3P207890	Designer to Reply RtC + Update Submission	11-Aug-14	03-Sep-14
TSS3P207900	Submit Updated DDA to ER/ ICE / IPs	04-Sep-14	
TSS3P207910	ICE Approval & Issue Check Cert	04-Sep-14	18-Sep-14
TSS3P207930	IPs Review	04-Sep-14	01-Oct-14
TSS3P207950	ER forward DDA to GEO (w/o ICE Cert.)	04-Sep-14	06-Sep-14



Primary Baseline
Critical Activity
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3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
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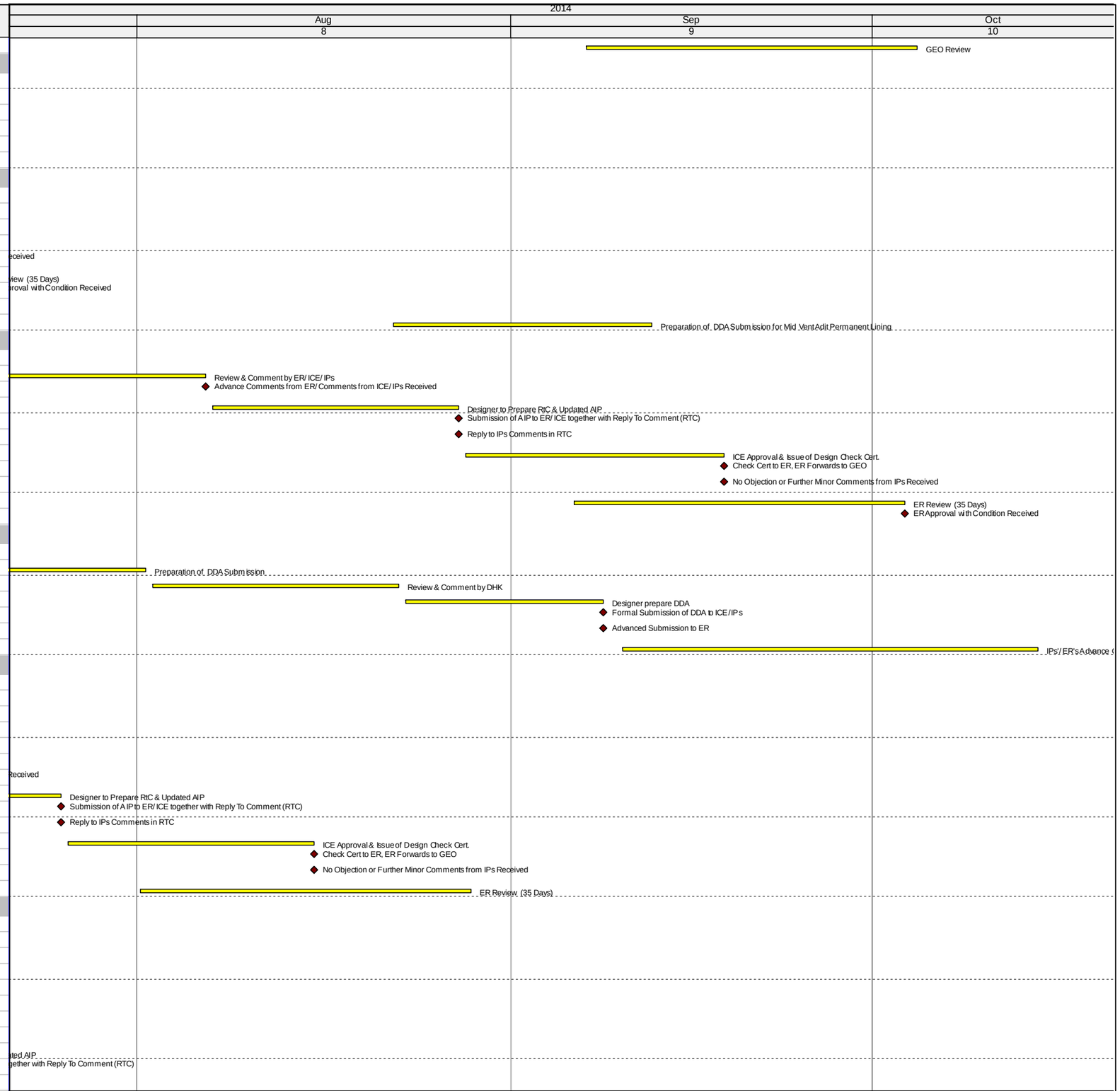
Activity ID	Activity Name	BL Project Start	BL Project Finish
TSS3P207960	GEO Review	07-Sep-14	04-Oct-14
Middle Portal: Temp Support for Mined and D&B Tunnelling		08-Apr-14	12-May-14
DDA Submission		08-Apr-14	12-May-14
DSN027020	IPs Review	08-Apr-14	05-May-14
DSN027030	IPs No Objection Received		05-May-14
DSN027060	GEO Review	11-Apr-14	08-May-14
DSN027070	GEO Comments Received		08-May-14
DSN027090	ER Approval with Condition Received		12-May-14
Mid Vent Adit Permanent Lining		23-May-14	12-Sep-14
AIP Submission		23-May-14	18-Jul-14
TSS33P207710	Designer to Prepare RtC & Updated AIP	23-May-14	13-Jun-14
TSS33P207720	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		13-Jun-14
TSS33P207730	Reply to IPs Comments in RTC		13-Jun-14
TSS33P207760	No Objection or Further Minor Comments from IPs Received		05-Jul-14
TSS33P207800	ER Review (35 Days)	21-Jun-14	18-Jul-14
TSS33P207810	ER Approval with Condition Received		18-Jul-14
DDA Submission		22-Aug-14	12-Sep-14
TSS33P207820	Preparation of DDA Submission for Mid Vent Adit Permanent Lining	22-Aug-14	12-Sep-14
Mid Vent Adit Internal Structure		05-Jul-14	03-Oct-14
AIP Submission		05-Jul-14	03-Oct-14
MVPIS13P207	Review & Comment by ER/ ICE/ IPs	05-Jul-14	06-Aug-14
MVPIS13P207	Advance Comments from ER/ Comments from ICE/ IPs Received		06-Aug-14
MVPIS13P207	Designer to Prepare RtC & Updated AIP	07-Aug-14	27-Aug-14
MVPIS13P207	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		27-Aug-14
MVPIS13P207	Reply to IPs Comments in RTC		27-Aug-14
MVPIS13P207	ICE Approval & Issue of Design Check Cert.	28-Aug-14	18-Sep-14
MVPIS13P207	Check Cert to ER, ER Forwards to GEO		18-Sep-14
MVPIS13P207	No Objection or Further Minor Comments from IPs Received		18-Sep-14
MVPIS13P207	ER Review (35 Days)	06-Sep-14	03-Oct-14
MVPIS13P207	ER Approval with Condition Received		03-Oct-14
Mid Vent Adit/Junction - Temp Works For D&B Tunnelling		05-Jul-14	14-Oct-14
DDA Submission		05-Jul-14	14-Oct-14
DSN024240	Preparation of DDA Submission	05-Jul-14	01-Aug-14
DSN024250	Review & Comment by DHK	02-Aug-14	22-Aug-14
DSN024260	Designer prepare DDA	23-Aug-14	08-Sep-14
DSN024270	Formal Submission of DDA to ICE/ IPs		08-Sep-14
DSN024280	Advanced Submission to ER		08-Sep-14
DSN024290	IPs'/ ER's Advance Comments/ ICE Comments	10-Sep-14	14-Oct-14
Mid Vent Adit/Junction Permanent Lining & Backfill		03-May-14	28-Aug-14
AIP Submission		03-May-14	28-Aug-14
MVPIL13P207(	Review & Comment by DHK	03-May-14	23-May-14
MVPIL13P207(	Designer Prepare AIP	24-May-14	30-May-14
MVPIL13P207(	Formal Submission of AIP to ICE/IPs (except GEO)		30-May-14
MVPIL13P207(	Advanced Submission of AIP to ER		30-May-14
MVPIL13P207(	Review & Comment by ER/ ICE/ IPs	31-May-14	04-Jul-14
MVPIL13P207	Advance Comments from ER/ Comments from ICE/ IPs Received		04-Jul-14
MVPIL13P207	Designer to Prepare RtC & Updated AIP	05-Jul-14	25-Jul-14
MVPIL13P207	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		25-Jul-14
MVPIL13P207	Reply to IPs Comments in RTC		25-Jul-14
MVPIL13P207	ICE Approval & Issue of Design Check Cert.	26-Jul-14	15-Aug-14
MVPIL13P207	Check Cert to ER, ER Forwards to GEO		15-Aug-14
MVPIL13P207	No Objection or Further Minor Comments from IPs Received		15-Aug-14
MVPIL13P207(	ER Review (35 Days)	01-Aug-14	28-Aug-14
Mid Vent Junction Internal Structure		28-Mar-14	14-Aug-14
AIP Submission		28-Mar-14	14-Aug-14
MVJIS13P207(	Preparation of AIP Submission for Mid Vent Junction Internal Structure (Cast In-Situ)	28-Mar-14	11-Apr-14
MVJIS13P207(	Review & Comment by DHK	12-Apr-14	09-May-14
MVJIS13P207(	Designer Prepare AIP	10-May-14	16-May-14
MVJIS13P207(	Formal Submission of AIP to ICE/IPs (except GEO)		16-May-14
MVJIS13P207(	Advanced Submission of AIP to ER		16-May-14
MVJIS13P207(	Review & Comment by ER/ ICE/ IPs	17-May-14	19-Jun-14
MVJIS13P207	Advance Comments from ER/ Comments from ICE/ IPs Received		19-Jun-14
MVJIS13P207	Designer to Prepare RtC & Updated AIP	20-Jun-14	11-Jul-14
MVJIS13P207	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		11-Jul-14
MVJIS13P207	Reply to IPs Comments in RTC		11-Jul-14



Primary Baseline
Critical Activity
Milestone

3-Months Rolling Programme - MPR7

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

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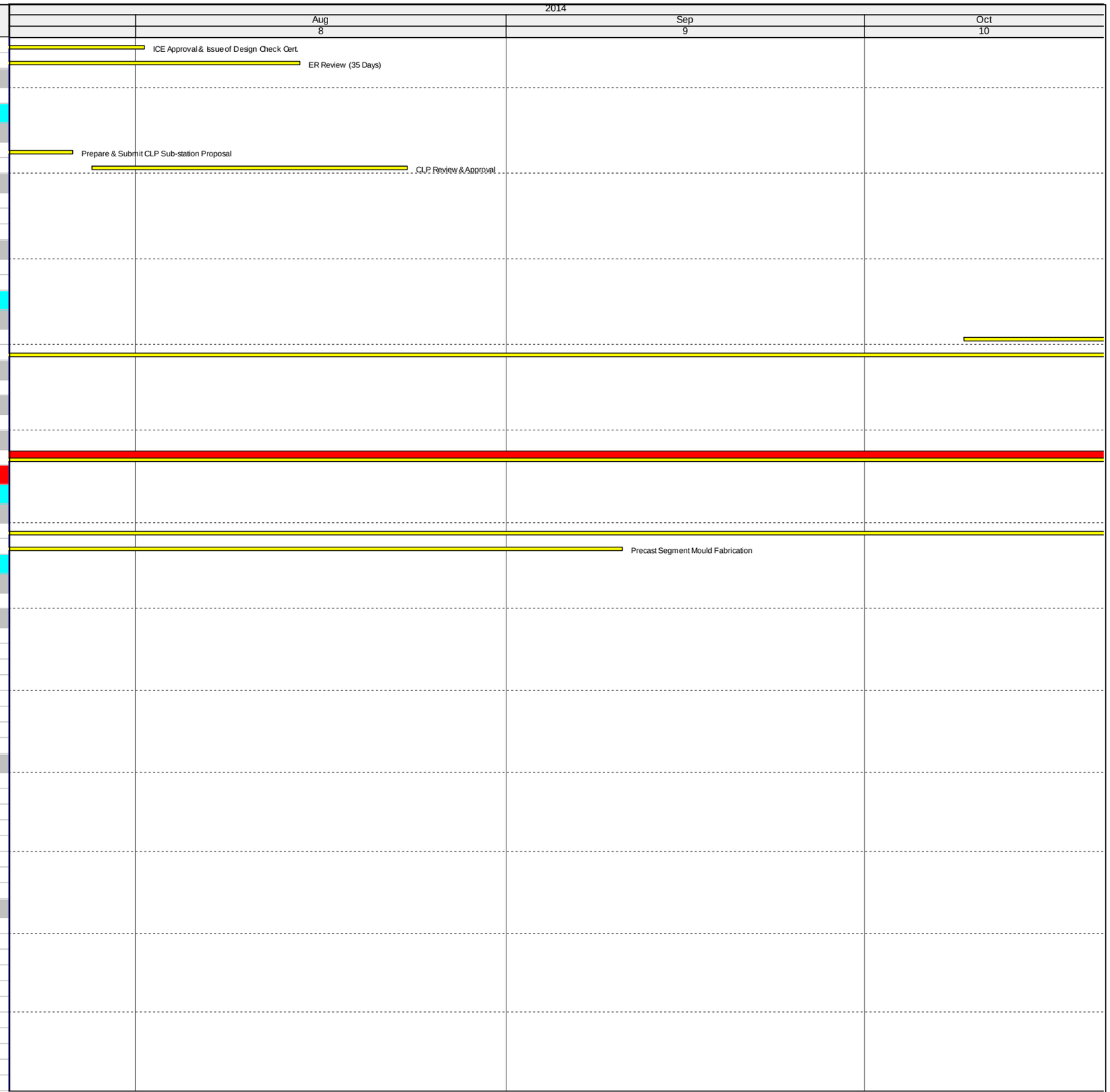
Activity ID	Activity Name	BL Project Start	BL Project Finish
MVJIS13P207	ICE Approval & Issue of Design Check Cert.	12-Jul-14	01-Aug-14
MVJIS13P207	ER Review (35 Days)	18-Jul-14	14-Aug-14
CBAR Mid Vent Adit		18-Feb-14	31-Mar-14
A26020d	Engineer & IP's Approval for CBAR (Mid Vent)	18-Feb-14	31-Mar-14
4.3 Middle Portal Method Statement Submission		20-Jan-14	23-Aug-14
Middle Portal: Temp.CLP Substation		28-Jun-14	23-Aug-14
TSS332020	Prepare & Submit CLP Sub-station Proposal	28-Jun-14	26-Jul-14
TSS332030	CLP Review & Approval	28-Jul-14	23-Aug-14
Middle Portal: Pipe Pile Works		20-Jan-14	26-May-14
A2290	Prepare Method Statement for Pipe Pile Works	20-Jan-14	19-Mar-14
A2300	Engineer's Comment	20-Mar-14	25-Apr-14
A2310	Re-submission Method Statement for Pipe Pile Works	26-Apr-14	26-May-14
Middle Portal: Portal Formation		28-Feb-14	14-Apr-14
A25470	Re-submission Method Statement for Portal Formation	28-Feb-14	15-Mar-14
A25480	Engineer's Approval	17-Mar-14	14-Apr-14
4.5 Middle Portal Works		07-Feb-14	03-Dec-14
Middle Portal: CLP Substation		07-Feb-14	03-Dec-14
TSS3P2060	Sub-station Structural Works	09-Oct-14	05-Nov-14
TSS3P2075	Procurement of Transformers & Cable Laying (by CLP)	07-Feb-14	03-Dec-14
Middle Portal: Site Formation		04-Mar-14	21-May-14
MV2800	Permanent Slope Stabilization	04-Mar-14	21-May-14
Middle Portal: Portal Construction		15-Apr-14	28-Jun-14
MV2480	Portal Formation	15-Apr-14	28-Jun-14
Adit Construction - Mid Portal		03-Jul-14	11-Nov-14
MV2490	Top Heading Canopies Ch3>Ch70	03-Jul-14	11-Nov-14
5 North Portal Area		13-Dec-13	04-May-15
5.1 North Portal Subcontract & Procurement		20-Jan-14	28-Feb-15
North Portal: TBM Procurement & Delivery		20-Jan-14	28-Feb-15
DSN027980	TBM Procurement, Fabrication & Delivery	20-Jan-14	28-Feb-15
N21400	Precast Segment Mould Fabrication	02-May-14	10-Sep-14
5.2 North Portal Design Submission		13-Dec-13	19-Nov-14
Engineeer and Contractor Site Offices		11-Feb-14	24-Feb-14
N21345	Engineer's Approval for Site Office	11-Feb-14	24-Feb-14
North Portal Site Formation		29-Mar-14	18-Jun-14
DDA Submission		29-Mar-14	18-Jun-14
DSN020740	IPs/ ER's Advance Comments/ ICE Comments	29-Mar-14	07-May-14
DSN020750	Comments Received		07-May-14
DSN020760	Designer to Reply RtC + Update Submission	08-May-14	19-May-14
DSN020770	Submit Updated DDA to ER/ ICE/ IPs	20-May-14	
DSN020800	IPs Review	20-May-14	16-Jun-14
DSN020810	IPs No Objection Received		16-Jun-14
DSN020860	ER Approval with Condition Received		18-Jun-14
North Portal: Temp Support for Retaining Wall		06-Mar-14	11-Apr-14
DDA Submission		06-Mar-14	11-Apr-14
DSN020170	IPs Review	06-Mar-14	02-Apr-14
DSN020180	IPs No Objection Received		02-Apr-14
DSN020200	ER forward DDA to GEO (w/o ICE Cert.)	06-Mar-14	08-Mar-14
DSN020210	GEO Review	09-Mar-14	05-Apr-14
DSN020220	GEO Comments Received		07-Apr-14
DSN020230	ER Review	15-Mar-14	11-Apr-14
DSN020240	ER Approval with Condition Received		11-Apr-14
North Portal: Permanent Retaining Wall		27-Mar-14	30-Apr-14
DDA Submission		27-Mar-14	30-Apr-14
DSN028950	Submission of DDA to ICE/ IPs		27-Mar-14
DSN028960	ICE Approval & Issue Check Cert	28-Mar-14	11-Apr-14
DSN028970	Submit ICE Check Cert to ER+ ER forward to GEO	12-Apr-14	22-Apr-14
DSN028980	IPs Review	28-Mar-14	24-Apr-14
DSN028990	IPs No Objection Received		24-Apr-14
DSN029000	Submission to ER		27-Mar-14
DSN029010	ER forward DDA to GEO (w/o ICE Cert.)	28-Mar-14	30-Mar-14
DSN029020	GEO Review	31-Mar-14	27-Apr-14
DSN029030	GEO Comments Received		28-Apr-14
DSN029040	ER Review	03-Apr-14	30-Apr-14



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

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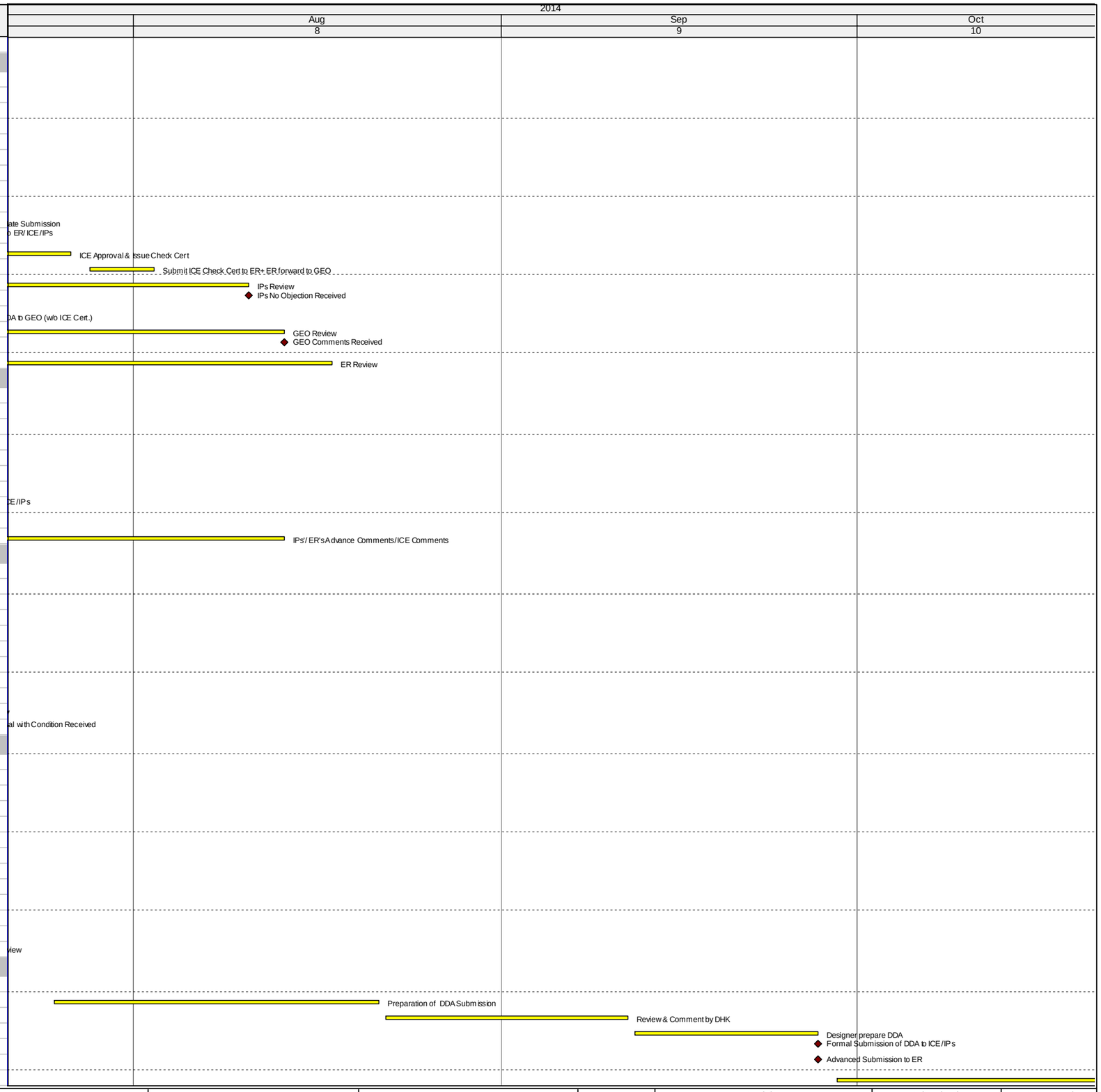
Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
DSN029050	ER Approval with Condition Received		30-Apr-14
North Portal: Ventilation Building - Foundation Design		29-Mar-14	17-Aug-14
AIP Submission		29-Mar-14	09-May-14
DSN013290	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		29-Mar-14
DSN013300	Reply to IPs Comments in RTC		29-Mar-14
DSN013330	No Objection or Further Minor Comments from IPs Received		24-Apr-14
DSN013370	ER Review (35 Days)	12-Apr-14	09-May-14
DSN013380	ER Approval with Condition Received		09-May-14
DDA Submission		15-May-14	17-Aug-14
DSN013440	IPs'/ ER's Advance Comments/ICE Comments	15-May-14	17-Jun-14
DSN013450	Comments Received		17-Jun-14
DSN013460	Designer to Reply RtC + Update Submission	18-Jun-14	12-Jul-14
DSN013470	Submit Updated DDA to ER/ ICE /IPs	14-Jul-14	
DSN013480	ICE Approval & Issue Check Cert	14-Jul-14	26-Jul-14
DSN013490	Submit ICE Check Cert to ER+ ER forward to GEO	28-Jul-14	02-Aug-14
DSN013500	IPs Review	14-Jul-14	10-Aug-14
DSN013510	IPs No Objection Received		10-Aug-14
DSN013520	ER forward DDA to GEO (w/o ICE Cert.)	14-Jul-14	16-Jul-14
DSN013530	GEO Review	17-Jul-14	13-Aug-14
DSN013540	GEO Comments Received		13-Aug-14
DSN013550	ER Review	14-Jul-14	17-Aug-14
North Portal: Temp.CLP Substation (near Sha Tau Kok interchange		13-Dec-13	13-Aug-14
AIP Submission		13-Dec-13	03-May-14
DSN029060	Preparation of AIP Submission for Temp.CLP Substation (Near STK interchange)	13-Dec-13	03-May-14
DSN029230	ER Approval with Condition Received		03-May-14
DDA Submission		05-May-14	13-Aug-14
DSN029240	Preparation of DDA Submission for Temp.CLP Substation (Near STK interchange)	05-May-14	03-Jun-14
DSN029250	Review & Comment by DHK	04-Jun-14	24-Jun-14
DSN029260	Designer prepare DDA	25-Jun-14	11-Jul-14
DSN029270	Formal Submission of DDA to ICE/IPs		11-Jul-14
DSN029280	Advanced Submission to ER		11-Jul-14
DSN029290	IPs'/ ER's Advance Comments/ICE Comments	12-Jul-14	13-Aug-14
North Tunnel Curved Section - N/B & S/B - Temp Works for Mined T		14-Apr-14	17-Jul-14
DDA Submission		14-Apr-14	17-Jul-14
CPTTS11305	IPs'/ ER's Advance Comments/ICE Comments	14-Apr-14	16-May-14
CPTTS11315	Comments Received		16-May-14
CPTTS11325	Designer to Reply RtC + Update Submission	17-May-14	11-Jun-14
CPTTS11335	Submit Updated DDA to ER/ ICE /IPs	12-Jun-14	
CPTTS11345	ICE Approval & Issue Check Cert	12-Jun-14	25-Jun-14
CPTTS11355	Submit ICE Check Cert to ER+ ER forward to GEO	26-Jun-14	03-Jul-14
CPTTS11365	IPs Review	12-Jun-14	09-Jul-14
CPTTS11375	IPs No Objection Received		09-Jul-14
CPTTS11415	ER Review	20-Jun-14	17-Jul-14
CPTTS11425	ER Approval with Condition Received		17-Jul-14
North Tunnel Curved Section - N/B & S/B - Temp Works for D&BTu		01-Apr-14	18-Jul-14
DDA Submission		01-Apr-14	18-Jul-14
DSN1275	Designer prepare DDA	01-Apr-14	14-Apr-14
DSN1285	Formal Submission of DDA to ICE/IPs		14-Apr-14
DSN1295	Advanced Submission to ER		14-Apr-14
DSN1305	IPs'/ ER's Advance Comments/ICE Comments	15-Apr-14	17-May-14
DSN1315	Comments Received		17-May-14
DSN1325	Designer to Reply RtC + Update Submission	19-May-14	12-Jun-14
DSN1335	Submit Updated DDA to ER/ ICE /IPs	13-Jun-14	
DSN1345	ICE Approval & Issue Check Cert	13-Jun-14	26-Jun-14
DSN1355	Submit ICE Check Cert to ER+ ER forward to GEO	27-Jun-14	04-Jul-14
DSN1365	IPs Review	13-Jun-14	10-Jul-14
DSN1375	IPs No Objection Received		10-Jul-14
DSN1415	ER Review	21-Jun-14	18-Jul-14
North Tunnel Curved Section Southbound Temp Segmental Lining		25-Jul-14	01-Nov-14
DDA Submission		25-Jul-14	01-Nov-14
FL2013390	Preparation of DDA Submission	25-Jul-14	21-Aug-14
FL2013400	Review & Comment by DHK	22-Aug-14	11-Sep-14
FL2013410	Designer prepare DDA	12-Sep-14	27-Sep-14
FL2013420	Formal Submission of DDA to ICE/IPs		27-Sep-14
FL2013430	Advanced Submission to ER		27-Sep-14
FL2013440	IPs'/ ER's Advance Comments/ICE Comments	29-Sep-14	01-Nov-14



Primary Baseline
Critical Activity
Milestone

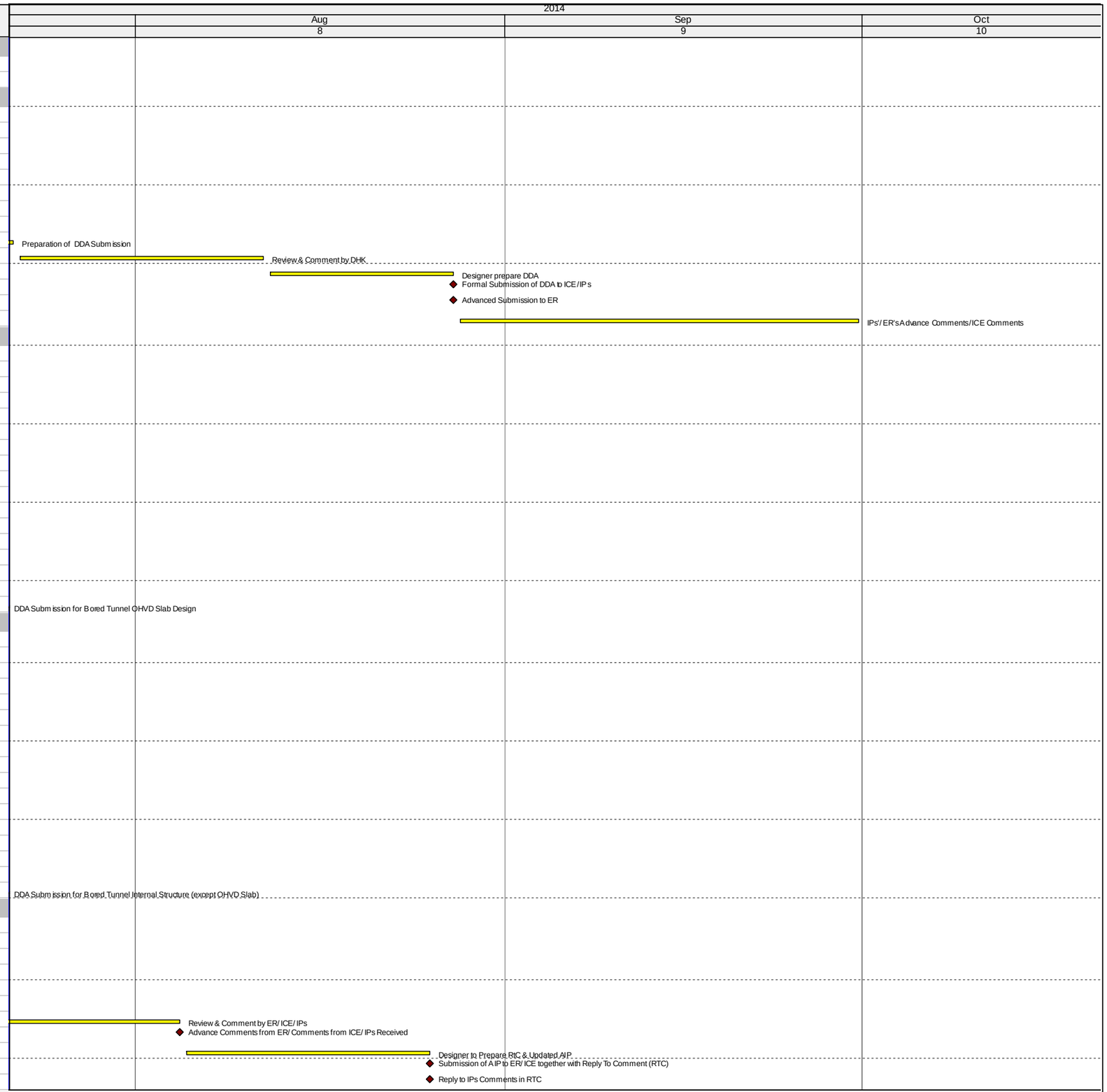
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
Bored Tunnel Space Proofing & Sight Assessment		07-Apr-14	07-Apr-14
AIP Submission		07-Apr-14	07-Apr-14
DSN023760	Approval from ER/ Comments from ICE/ IPs Received		07-Apr-14
Bored Tunnel Segmental Lining		25-Apr-14	30-Sep-14
AIP Submission		25-Apr-14	21-Jun-14
DSN05550	Designer to Prepare RtC & Updated AIP	25-Apr-14	17-May-14
DSN05560	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		17-May-14
DSN05570	Reply to IPs Comments in RTC		17-May-14
DSN05600	No Objection or Further Minor Comments from IPs Received		09-Jun-14
DSN05640	ER Review (35 Days)	25-May-14	21-Jun-14
DSN05650	ER Approval with Condition Received		21-Jun-14
DDA Submission		23-Jun-14	30-Sep-14
DSN05660	Preparation of DDA Submission	23-Jun-14	21-Jul-14
DSN05670	Review & Comment by DHK	22-Jul-14	11-Aug-14
DSN05680	Designer prepare DDA	12-Aug-14	27-Aug-14
DSN05690	Formal Submission of DDA to ICE/IPs		27-Aug-14
DSN05700	Advanced Submission to ER		27-Aug-14
DSN05710	IPs'/ ER's Advance Comments/ICE Comments	28-Aug-14	30-Sep-14
Bored Tunnel OHVD Slab		13-Mar-14	16-Jul-14
AIP Submission		13-Mar-14	24-Jun-14
BTIS2LR10132	Review & Comment by DHK	13-Mar-14	26-Mar-14
BTIS2LR10132	Designer Prepare AIP	27-Mar-14	02-Apr-14
BTIS2LR10132	Formal Submission of AIP to ICE/IPs (except GEO)		02-Apr-14
BTIS2LR10132	Advanced Submission of AIP to ER		02-Apr-14
BTIS2LR10132	Review & Comment by ER/ ICE/ IPs	03-Apr-14	12-May-14
BTIS2LR10132	Advance Comments from ER/ Comments from ICE/ IPs Received		12-May-14
BTIS2LR10132	Designer to Prepare RtC & Updated AIP	13-May-14	20-May-14
BTIS2LR10132	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		20-May-14
BTIS2LR10133	Reply to IPs Comments in RTC		20-May-14
BTIS2LR10133	ICE Approval & Issue of Design Check Cert.	21-May-14	28-May-14
BTIS2LR10133	Check Cert to ER, ER Forwards to GEO		28-May-14
BTIS2LR10133	No Objection or Further Minor Comments from IPs Received		11-Jun-14
BTIS2LR10133	ER Review (35 Days)	28-May-14	24-Jun-14
BTIS2LR10133	ER Approval with Condition Received		24-Jun-14
DDA Submission		25-Jun-14	16-Jul-14
DSN0000	Preparation of DDA Submission for Bored Tunnel OHVD Slab Design	25-Jun-14	16-Jul-14
Bored Tunnel Internal Structure (except OHVD Slab)		13-Mar-14	16-Jul-14
AIP Submission		13-Mar-14	24-Jun-14
BTIS1LR10132	Review & Comment by DHK	13-Mar-14	26-Mar-14
BTIS1LR10132	Designer Prepare AIP	27-Mar-14	02-Apr-14
BTIS1LR10132	Formal Submission of AIP to ICE/IPs (except GEO)		02-Apr-14
BTIS1LR10132	Advanced Submission of AIP to ER		02-Apr-14
BTIS1LR10132	Review & Comment by ER/ ICE/ IPs	03-Apr-14	12-May-14
BTIS1LR10132	Advance Comments from ER/ Comments from ICE/ IPs Received		12-May-14
BTIS1LR10132	Designer to Prepare RtC & Updated AIP	13-May-14	20-May-14
BTIS1LR10132	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		20-May-14
BTIS1LR10133	Reply to IPs Comments in RTC		20-May-14
BTIS1LR10133	ICE Approval & Issue of Design Check Cert.	21-May-14	28-May-14
BTIS1LR10133	Check Cert to ER, ER Forwards to GEO		28-May-14
BTIS1LR10133	No Objection or Further Minor Comments from IPs Received		11-Jun-14
BTIS1LR10133	ER Review (35 Days)	28-May-14	24-Jun-14
BTIS1LR10133	ER Approval with Condition Received		24-Jun-14
DDA Submission		25-Jun-14	16-Jul-14
DSN023160	Preparation of DDA Submission for Bored Tunnel Internal Structure (except OHVD Slab)	25-Jun-14	16-Jul-14
Bored Tunnel/ D&B Tunnel Transition - Headwall Structure (N/B & S		09-May-14	29-Sep-14
AIP Submission		09-May-14	29-Sep-14
FL2LR105480	Preparation of AIP Submission	09-May-14	04-Jun-14
FL2LR105490	Review & Comment by DHK	05-Jun-14	24-Jun-14
FL2LR105500	Designer Prepare AIP	25-Jun-14	02-Jul-14
FL2LR105510	Formal Submission of AIP to ICE/IPs (except GEO)		02-Jul-14
FL2LR105520	Advanced Submission of AIP to ER		02-Jul-14
FL2LR105530	Review & Comment by ER/ ICE/ IPs	03-Jul-14	04-Aug-14
FL2LR105540	Advance Comments from ER/ Comments from ICE/ IPs Received		04-Aug-14
FL2LR105550	Designer to Prepare RtC & Updated AIP	05-Aug-14	25-Aug-14
FL2LR105560	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		25-Aug-14
FL2LR105570	Reply to IPs Comments in RTC		25-Aug-14



Primary Baseline
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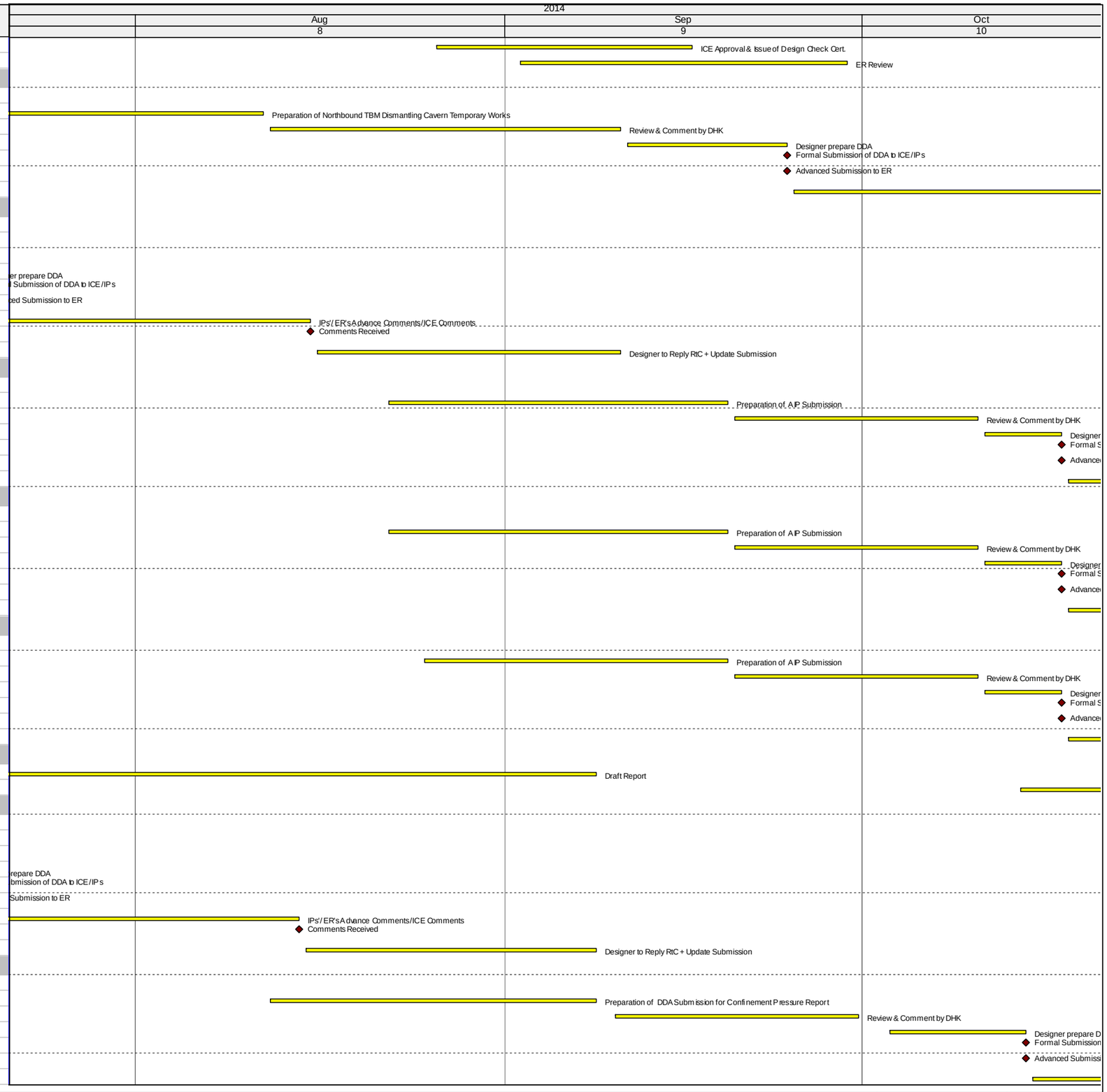
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 — A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
FL2LR105580	ICE Approval & Issue of Design Check Cert.	26-Aug-14	16-Sep-14
FL2LR105640	ER Review	02-Sep-14	29-Sep-14
Northbound TBM Dismantling Cavern Temporary Works		11-Jul-14	24-Oct-14
DDA Submission		11-Jul-14	24-Oct-14
NDCTSS1TS1T	Preparation of Northbound TBM Dismantling Cavern Temporary Works	11-Jul-14	11-Aug-14
NDCTSS1TS1T	Review & Comment by DHK	12-Aug-14	10-Sep-14
NDCTSS1TS1T	Designer prepare DDA	11-Sep-14	24-Sep-14
NDCTSS1TS1T	Formal Submission of DDA to ICE/IPs		24-Sep-14
NDCTSS1TS1T	Advanced Submission to ER		24-Sep-14
NDCTSS1TS1T	IPs'/ ER's Advance Comments/ICE Comments	25-Sep-14	24-Oct-14
North Tunnel Curved Section Cross Passages - Temp Works		23-May-14	10-Sep-14
DDA Submission		23-May-14	10-Sep-14
CPETDBTS1TF	Preparation of DDA	23-May-14	13-Jun-14
CPETDBTS1TF	Review & Comment by DHK	14-Jun-14	04-Jul-14
CPETDBTS1TF	Designer prepare DDA	05-Jul-14	18-Jul-14
CPETDBTS1TF	Formal Submission of DDA to ICE/IPs		18-Jul-14
CPETDBTS1TF	Advanced Submission to ER		18-Jul-14
CPETDBTS1TF	IPs'/ ER's Advance Comments/ICE Comments	19-Jul-14	15-Aug-14
CPETDBTS1TF	Comments Received		15-Aug-14
CPETDBTS1TF	Designer to Reply RtC + Update Submission	16-Aug-14	10-Sep-14
Bored Tunnel Cross Passages Permanent Lining (Soft Ground)		22-Aug-14	19-Nov-14
AIP Submission		22-Aug-14	19-Nov-14
CPTL1013210	Preparation of AIP Submission	22-Aug-14	19-Sep-14
CPTL1013220	Review & Comment by DHK	20-Sep-14	10-Oct-14
CPTL1013230	Designer Prepare AIP	11-Oct-14	17-Oct-14
CPTL1013240	Formal Submission of AIP to ICE/IPs (except GEO)		17-Oct-14
CPTL1013250	Advanced Submission of AIP to ER		17-Oct-14
CPTL1013260	Review & Comment by ER/ ICE/ IPs	18-Oct-14	19-Nov-14
Bored Tunnel Cross Passages Permanent Lining (Rock)		22-Aug-14	19-Nov-14
AIP Submission		22-Aug-14	19-Nov-14
FL2L1013210	Preparation of AIP Submission	22-Aug-14	19-Sep-14
FL2L1013220	Review & Comment by DHK	20-Sep-14	10-Oct-14
FL2L1013230	Designer Prepare AIP	11-Oct-14	17-Oct-14
FL2L1013240	Formal Submission of AIP to ICE/IPs (except GEO)		17-Oct-14
FL2L1013250	Advanced Submission of AIP to ER		17-Oct-14
FL2L1013260	Review & Comment by ER/ ICE/ IPs	18-Oct-14	19-Nov-14
Bored Tunnel Cross Passages Internal Structures		25-Aug-14	19-Nov-14
AIP Submission		25-Aug-14	19-Nov-14
CPTLR105480	Preparation of AIP Submission	25-Aug-14	19-Sep-14
CPTLR105490	Review & Comment by DHK	20-Sep-14	10-Oct-14
CPTLR105500	Designer Prepare AIP	11-Oct-14	17-Oct-14
CPTLR105510	Formal Submission of AIP to ICE/IPs (except GEO)		17-Oct-14
CPTLR105520	Advanced Submission of AIP to ER		17-Oct-14
CPTLR105530	Review & Comment by ER/ ICE/ IPs	18-Oct-14	19-Nov-14
Bored Tunnel Confinement Pressure/ Settlement/ Front Face Stabi		10-Jul-14	27-Oct-14
FL2360	Draft Report	10-Jul-14	08-Sep-14
FL2370	Submit Report	14-Oct-14	27-Oct-14
Temp Pre-Cast Reinforced Box for TBM Segment Del in Curved Se		23-May-14	08-Sep-14
DDA Submission		23-May-14	08-Sep-14
FL2TDBTS1TF	Preparation of DDA	23-May-14	13-Jun-14
FL2TDBTS1TF	Review & Comment by DHK	14-Jun-14	03-Jul-14
FL2TDBTS1TF	Designer prepare DDA	04-Jul-14	17-Jul-14
FL2TDBTS1TF	Formal Submission of DDA to ICE/IPs		17-Jul-14
FL2TDBTS1TF	Advanced Submission to ER		17-Jul-14
FL2TDBTS1TF	IPs'/ ER's Advance Comments/ICE Comments	18-Jul-14	14-Aug-14
FL2TDBTS1TF	Comments Received		14-Aug-14
FL2TDBTS1TF	Designer to Reply RtC + Update Submission	15-Aug-14	08-Sep-14
Confinement Pressure Report		12-Aug-14	15-Nov-14
DDA Submission		12-Aug-14	15-Nov-14
FL2021890	Preparation of DDA Submission for Confinement Pressure Report	12-Aug-14	08-Sep-14
FL2021900	Review & Comment by DHK	10-Sep-14	30-Sep-14
FL2021910	Designer prepare DDA	03-Oct-14	14-Oct-14
FL2021920	Formal Submission of DDA to ICE/IPs		14-Oct-14
FL2021930	Advanced Submission to ER		14-Oct-14
FL2021940	IPs'/ ER's Advance Comments/ICE Comments	15-Oct-14	15-Nov-14



Primary Baseline
Critical Activity
Milestone

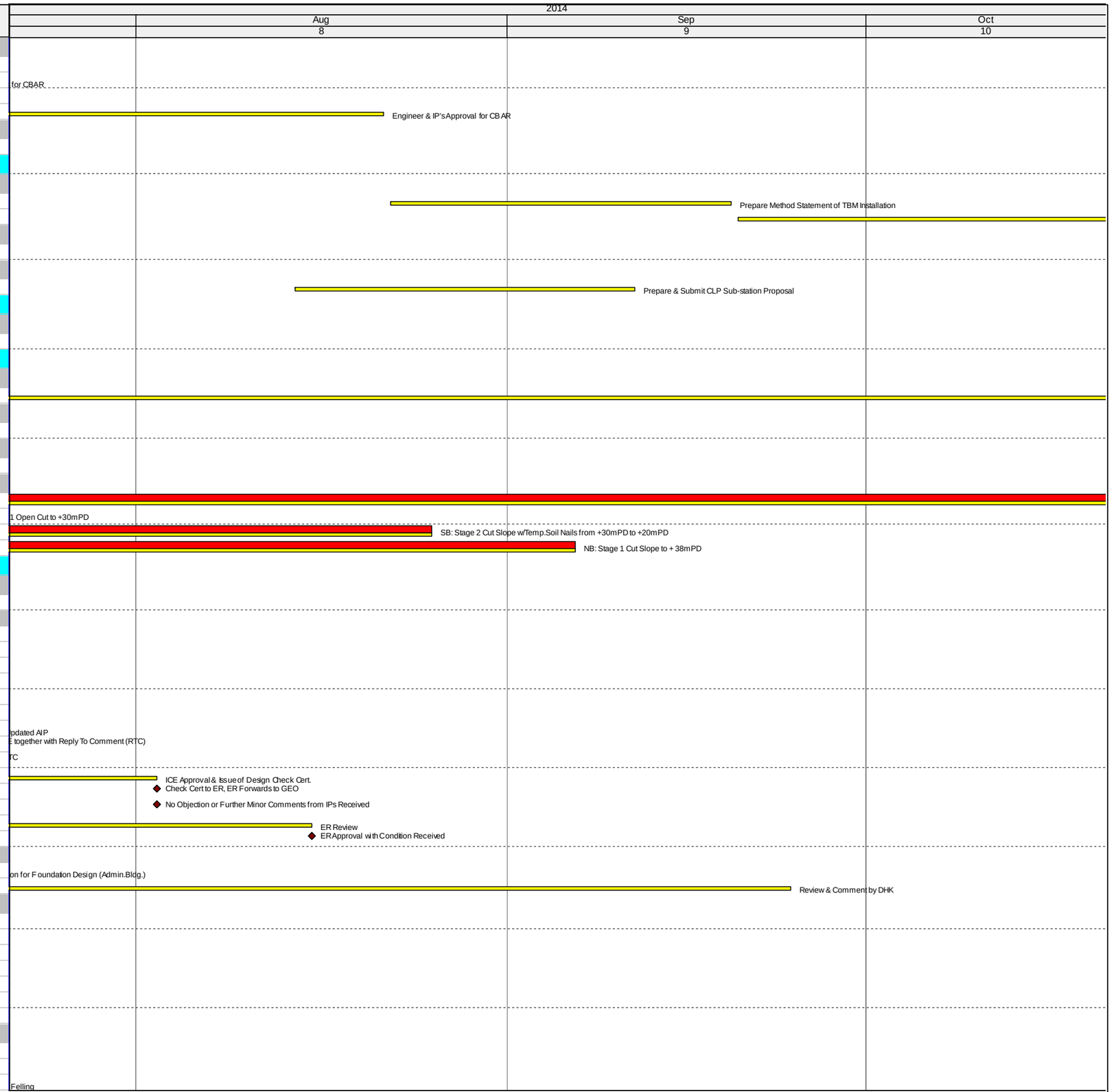
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
CBAR North Tunnels		17-May-14	21-Aug-14
A26030a	Preparation of CBAR	17-May-14	14-Jun-14
A26030b	Engineer & IP Review & Comments for CBAR	15-Jun-14	10-Jul-14
A26030c	submit Revised CBAR		10-Jul-14
A26030d	Engineer & IP'sApproval for CBAR	11-Jul-14	21-Aug-14
Construction Impact Assesment - North Portal & North D&B Tunne		14-May-14	15-Jun-14
SC01115	*Final Report	14-May-14	15-Jun-14
5.3 North Portal Method Statement Submission		14-Aug-14	10-Dec-14
North Portal: TBM Installation		22-Aug-14	24-Oct-14
N21550	Prepare Method Statement of TBM Installation	22-Aug-14	19-Sep-14
N21560	ER's Comment for Site Installation	20-Sep-14	24-Oct-14
North Portal: TBM Assembly		13-Nov-14	10-Dec-14
FL4875	Prepare & Submit Method Statement	13-Nov-14	10-Dec-14
North Portal: Temp.CLP Substation		14-Aug-14	11-Sep-14
N21020	Prepare & Submit CLP Sub-station Proposal	14-Aug-14	11-Sep-14
5.4 North Portal General Submission		17-Feb-14	17-Feb-14
North Portal: Condition Survey		17-Feb-14	17-Feb-14
SC01620	Submit Condition Survey (Nth.Portal) (within 8 weeks before GEO works)		17-Feb-14
5.5 North Portal Works		11-Feb-14	27-Feb-15
CLP Substation		04-May-14	27-Feb-15
N21075	Procurement of Transformers & Cable Laying (by CLP)	04-May-14	27-Feb-15
North Portal: Engineer's Principal Site Office & Contractor's Site O		25-Feb-14	28-Jun-14
N21355	Site Office Procurement & Erection	25-Feb-14	28-Jun-14
North Portal: Site Establishment		11-Feb-14	24-Feb-14
N20530	Hoarding/Fencing Erection & Site Installation	11-Feb-14	24-Feb-14
North Portal: Site Formation		29-Apr-14	07-Nov-14
N20495	Bulk Excavation for TBM & SIte Installation	29-Apr-14	07-Nov-14
N20515	SB: Stage 1 Open Cut to +30mPD	19-Jun-14	17-Jul-14
N20525	SB: Stage 2 Cut Slope w/Temp.Soil Nails from +30mPD to +20mPD	18-Jul-14	25-Aug-14
N20615	NB: Stage 1 Cut Slope to + 38mPD	18-Jul-14	06-Sep-14
5.6 Adminstration Building		21-Jan-14	04-May-15
5.62 Adminstration Building: Design Submission		02-May-14	24-Sep-14
Admin. Building - Foundation Design		02-May-14	24-Sep-14
AIP Submission		02-May-14	15-Aug-14
DSN015020	Review & Comment by DHK	02-May-14	15-May-14
DSN015030	Designer Prepare AIP	16-May-14	22-May-14
DSN015040	Formal Submission of AIP to ICE/IPs (except GEO)		22-May-14
DSN015050	Advanced Submission of AIP to ER		22-May-14
DSN015060	Review & Comment by ER/ ICE/ IPs	23-May-14	20-Jun-14
DSN015070	Advance Comments from ER/ Comments from ICE/ IPs Received		20-Jun-14
DSN015080	Designer to Prepare RtC & Updated AIP	21-Jun-14	12-Jul-14
DSN015090	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		12-Jul-14
DSN015100	Reply to IPs Comments in RTC		12-Jul-14
DSN015110	ICE Approval & Issue of Design Check Cert.	14-Jul-14	02-Aug-14
DSN015120	Check Cert to ER, ER Forwards to GEO		02-Aug-14
DSN015130	No Objection or Further Minor Comments from IPs Received		02-Aug-14
DSN015170	ER Review	19-Jul-14	15-Aug-14
DSN015180	ER Approval with Condition Received		15-Aug-14
DDA Submission		20-Jun-14	24-Sep-14
DSN015190	Preparation of DDA Submission for Foundation Design (Admin.Bldg.)	20-Jun-14	12-Jul-14
DSN015200	Review & Comment by DHK	12-Jul-14	24-Sep-14
5.64 Adminstration Building: General Submission		21-Jan-14	24-Jun-14
Adminstration Building: Tree Transplant & Felling		21-Jan-14	08-Apr-14
N21205	Tree Transplant/Felling Plan Submission & Approval	21-Jan-14	07-Apr-14
N21215	Tree Transplant/ Felling Permit Available	08-Apr-14	
Adminstration Building: Condition Survey		18-Jun-14	24-Jun-14
SC01355	Mobilization for Condition Survey (Admin.Bldg)	18-Jun-14	20-Jun-14
SC01365	Carryout Condition Survey (Admin.Bldg)	21-Jun-14	24-Jun-14
SC01375	Submit Condition Survey (Admin.Bldg) (within 8 weeks before GEO works)		24-Jun-14
5.65 Adminstration Building: Works		08-Apr-14	04-May-15
Adminstration Building: Site Formation		08-Apr-14	04-May-15
AD2000	Site Hoarding	31-Mar-15	04-May-15
AD2010	Tree Protection & Felling	08-Apr-14	15-Jul-14



Primary Baseline
Critical Activity
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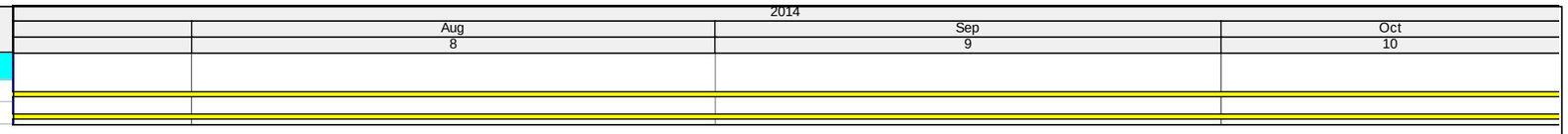
3-Months Rolling Programme - MPR7

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

Dragages HongKong 香港寶嘉 A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Activity ID	Activity Name	BL Project Start	BL Project Finish
6 Project Wide E&M Works		20-Jan-14	27-Feb-15
CS1030	Design Development	20-Jan-14	21-Nov-14
CS1040	Procurement Process	06-Mar-14	27-Feb-15



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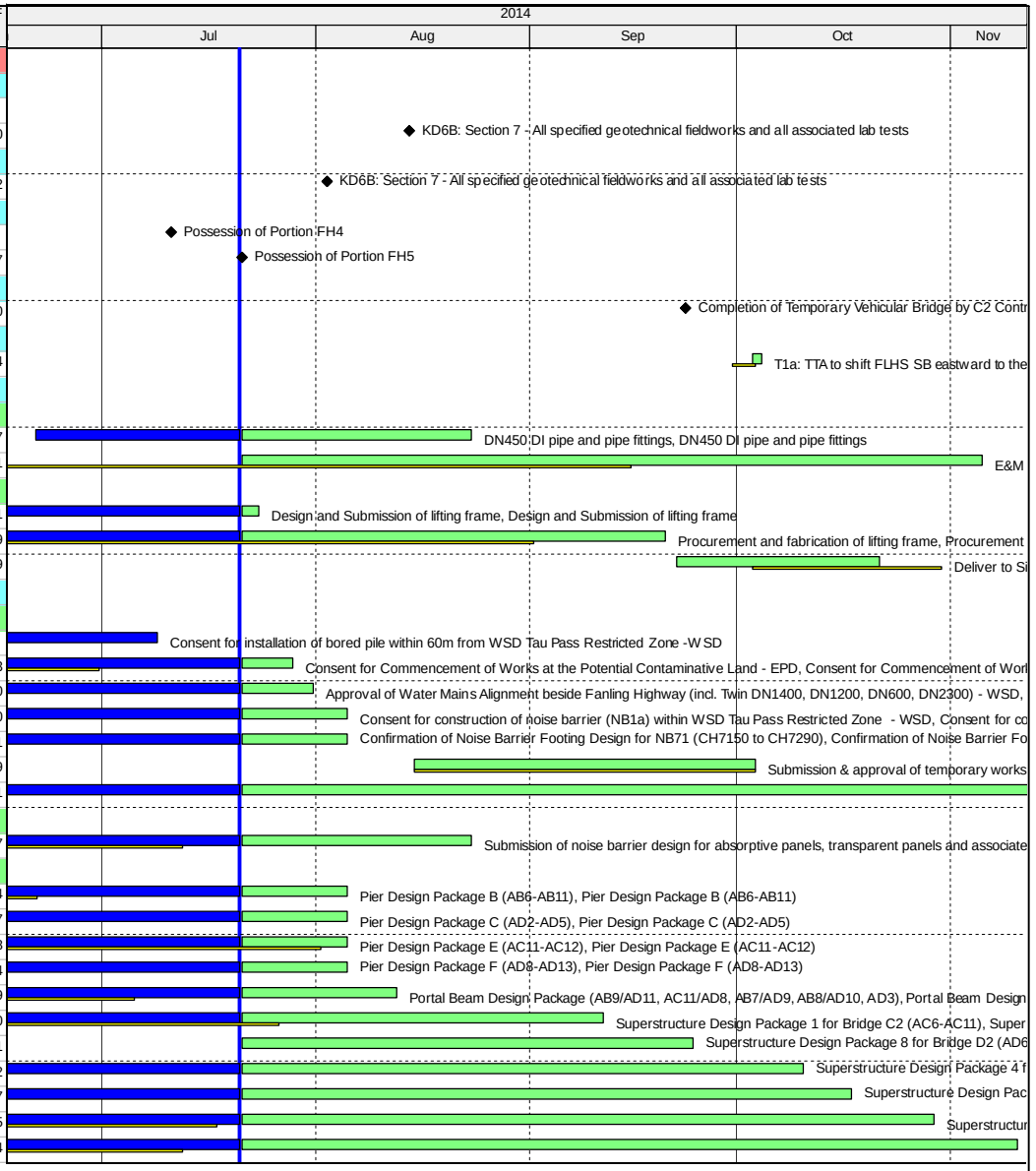
香港寶嘉 Dragages HongKong
A member of the Bouygues Construction group

Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-Jul-14	Monthly Report No.7		

Contract 3

Activity ID	Activity Name	OD	RD	Start	Finish	TF
3-Month Rolling Programme 2014-07-21						
Key Dates (Contractual)						
KD-0010	Commencement of Works	0	0	31-Jul-13 A		
KD-1000	KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests	0	0		14-Aug-14*	0
Key Dates (Forecast)						
KD-1005	KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests	0	0		02-Aug-14	12
Possession of Site						
PS-P04	Possession of Portion FH4	0	0	11-Jul-14 A		
PS-P05	Possession of Portion FH5	0	0	21-Jul-14*		57
Dependent Milestones from Other Contracts						
MS-0100	Completion of Temporary Vehicular Bridge by C2 Contractor	0	0		23-Sep-14*	0
Major Milestones and Events						
MS-2000A1	T1a: TTA to shift FLHS SB eastward to the widened pavement (shift 1 lanes)	2	2	03-Oct-14	04-Oct-14	4
Major Procurement & Delivery						
Water Supply Pipeworks						
MM-1050	DN450 DI pipe and pipe fittings	60	30	21-Jun-14 A	23-Aug-14	67
MM-1060	E&M equipment for the re-provisioned WSD Valve Control House	90	90	21-Jul-14	05-Nov-14	21
Precast Bridge Segment Lifting Frames and Precast Yard						
MM-2000	Design and Submission of lifting frame	160	3	23-Aug-13 A	23-Jul-14	61
MM-2020	Procurement and fabrication of lifting frame	60	53	05-May-14 A	20-Sep-14	29
MM-2040	Deliver to Site and assembly works	24	24	22-Sep-14	21-Oct-14	29
Design and Submissions						
Statutory Approval						
PRE-1230A	Consent for installation of bored pile within 60m from WSD Tau Pass Restricted Zor	90	0	15-Jan-14 A	09-Jul-14 A	
PRE-1400	Consent for Commencement of Works at the Potential Contaminative Land - EPD	60	7	15-Apr-14 A	28-Jul-14	153
PRE-1240	Approval of Water Mains Alignment beside Fanling Highway (incl. Twin DN1400, DN	45	10	19-Mar-14 A	31-Jul-14	220
PRE-1220	Consent for construction of noise barrier (NB1a) within WSD Tau Pass Restricted Z	45	14	09-Apr-14 A	05-Aug-14	130
PRE-1500	Confirmation of Noise Barrier Footing Design for NB71 (CH7150 to CH7290)	70	14	17-Apr-14 A	05-Aug-14	341
PRE-1040	Submission & approval of temporary works on nullah for construction of pad footing	40	40	15-Aug-14	03-Oct-14	99
PRE-1230B	Consent for installation of bored pile within 30m from WSD Tau Pass Restricted Zor	90	112	15-Jan-14 A	01-Dec-14	21
Method Statement and Design (Major) Approved by AECOM						
PRE-2020	Submission of noise barrier design for absorptive panels, transparent panels and as	60	30	11-Mar-14 A	23-Aug-14	257
Contractor's Alternative Design (AD) Submission & Approval						
PRE-4220	Pier Design Package B (AB6-AB11)	43	14	28-Nov-13 A	05-Aug-14	4
PRE-4230	Pier Design Package C (AD2-AD5)	31	14	28-Nov-13 A	05-Aug-14	57
PRE-4250	Pier Design Package E (AC11-AC12)	50	14	28-Nov-13 A	05-Aug-14	88
PRE-4260	Pier Design Package F (AD8-AD13)	50	14	20-Jan-14 A	05-Aug-14	4
PRE-4270	Portal Beam Design Package (AB9/AD11, AC11/AD8, AB7/AD9, AB8/AD10, AD3)	54	20	20-Jan-14 A	12-Aug-14	29
PRE-4330B	Superstructure Design Package 1 for Bridge C2 (AC6-AC11)	134	45	06-Mar-14 A	11-Sep-14	130
PRE-4340B	Superstructure Design Package 8 for Bridge D2 (AD6-AD8)	56	56	21-Jul-14*	24-Sep-14	311
PRE-4340A	Superstructure Design Package 4 for Bridge D1 (AD1-AD5)	110	68	07-May-14 A	10-Oct-14	182
PRE-4310D	Superstructure Design Package 6 for Bridge A4 (AA14-AA18)	108	74	16-May-14 A	17-Oct-14	247
PRE-4310A	Superstructure Design Package 9 for Bridge A1 (AA1-AA5)	118	84	16-May-14 A	29-Oct-14	415
PRE-4310C	Superstructure Design Package 3 for Bridge A3 (AA10-AA13)	158	94	04-Apr-14 A	10-Nov-14	204



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

Actual Work
Remaining Work
Summary Bar
Critical Remaining Work
Milestone
Project Baseline Bar

CEDD Contract No. CV/2012/09

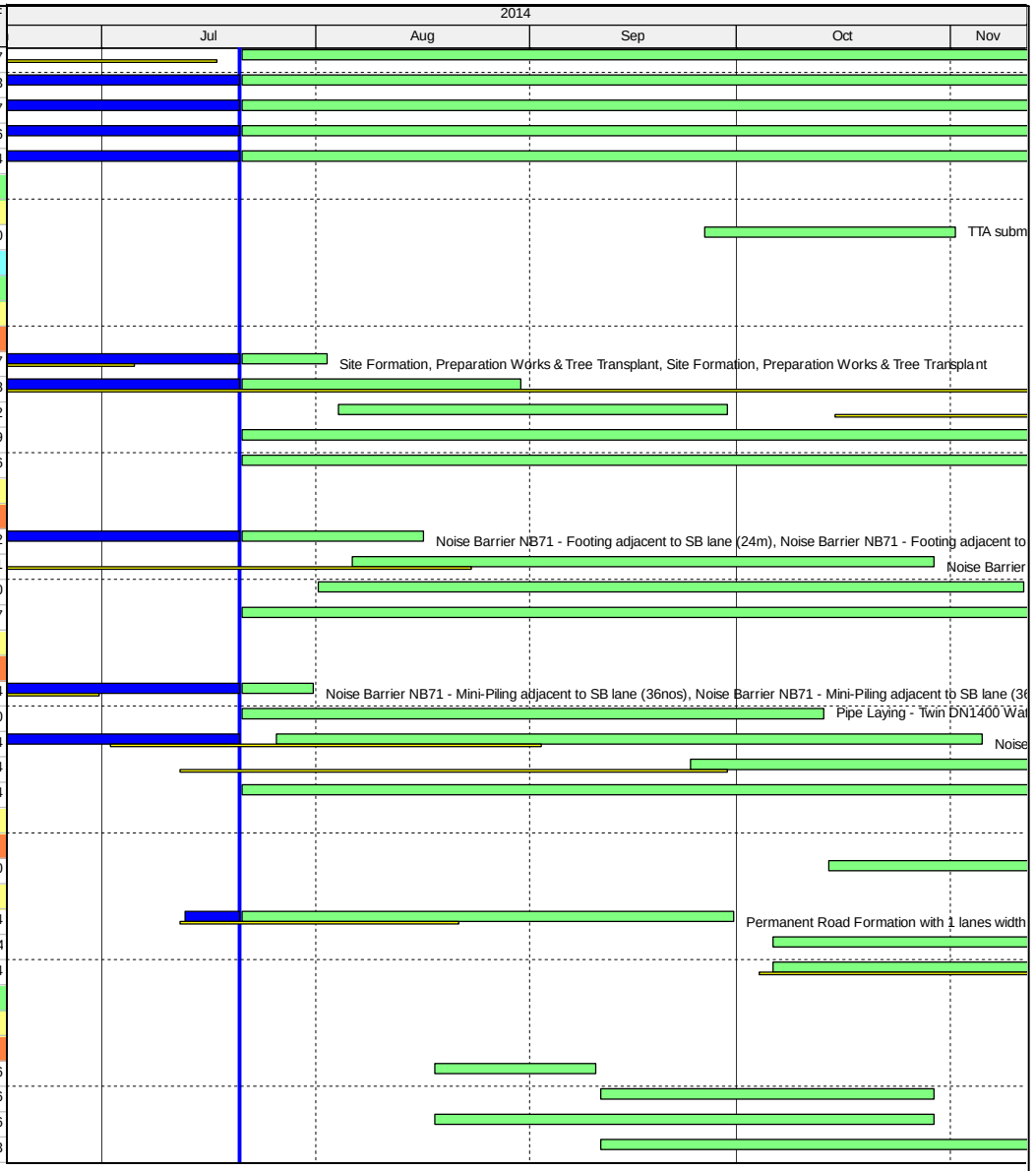
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2014-07-21

Date	Revision	Checked	Approved
23-Jul-14	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
PRE-4320A	Superstructure Design Package 11 for Bridge B1 (AB1-AB6)	103	103	21-Jul-14*	20-Nov-14	427
PRE-4310B	Superstructure Design Package 10 for Bridge A2 (AA6-AA9)	154	120	16-May-14 A	10-Dec-14	483
PRE-4330A	Superstructure Design Package 2 for Bridge C1 (AC1-AC5)	196	126	28-Mar-14 A	17-Dec-14	87
PRE-4320B	Superstructure Design Package 7 for Bridge B2 (AB7-AB12)	196	126	21-May-14 A	17-Dec-14	86
PRE-4340C	Superstructure Design Package 5 for Bridge D3 (AD9-AD14)	196	126	07-May-14 A	17-Dec-14	54
Temporary Traffic Arrangement (TTA) Submission and Approval						
TTA for Tai Wo Service Road East						
PRE-6220	TTA submission & approval - Scheme ER2 (shifting TWSR East westward towards F	30	30	26-Sep-14*	01-Nov-14	90
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)						
Fanling Highway South Portion between CH6935 and CH7470						
Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)						
At-Grade Roadworks (195m)						
FHW-1100	Site Formation, Preparation Works & Tree Transplant	65	12	12-Aug-13 A	02-Aug-14	67
FHW-1110	Noise Barrier NB6 and NB7 - Footing adjacent to SB lane (184m)	280	36	29-Mar-14 A	30-Aug-14	528
FHW-1160	Road Formation, Road Drainage, Kerb and Pavement (Eastern Side)	48	48	04-Aug-14	29-Sep-14	432
FHW-1110*	Pipe Laying - DN1200 Watermains (CHC) across Fanling Highway (total 80m for 2	275	258	09-Jun-14 A	06-Jun-15	49
FHW-1150*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m de	182	378	20-Feb-14 A	30-Oct-15	596
Fanling Highway Zone 2 between CH7130 and CH7290						
At-Grade Roadworks (160m)						
FHW-2110A	Noise Barrier NB71 - Footing adjacent to SB lane (24m)	70	24	17-Apr-14 A	16-Aug-14	342
FHW-2110B	Noise Barrier NB71 - Footing adjacent to SB lane (96m) (affected due to design cha	70	70	06-Aug-14	29-Oct-14	341
FHW-2120*	Pipe Laying - Twin DN1400 Watermains (CHE & G) along Fanling Highway (44m lo	85	85	01-Aug-14	11-Nov-14	290
FHW-2130*	Pipe Laying - DN1200 & DN600 Watermains (CHB & CHC) along Fanling Highway	95	294	26-May-14 A	21-Jul-15	517
Fanling Highway Zone 3 between CH7290 and CH7380						
At-Grade Roadworks (130m)						
FHW-3120	Noise Barrier NB71 - Mini-Piling adjacent to SB lane (36nos)	40	10	24-May-14 A	31-Jul-14	24
FHW-3140*	Pipe Laying - Twin DN1400 Watermains (CHE & F) along Fanling Highway (90m lo	90	70	07-Jun-14 A	13-Oct-14	160
FHW-3130	Noise Barrier NB71 - Footing adjacent to SB lane (130m) Including pile cap	109	85	23-May-14 A	05-Nov-14	24
FHW-3160	Road Formation, Kerb and Pavement (Eastern Side)	55	55	24-Sep-14	28-Nov-14	24
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (S	150	435	07-Jun-14 A	08-Jan-16	484
Fanling Highway Zone 4 between CH7380 and CH7470						
At-Grade Roadworks (90m)						
FHW-4120*	Pipe Laying - Twin DN1400 Watermains (CHE & CHG) along Fanling Highway (90r	155	155	14-Oct-14	27-Apr-15	160
Miscellaneous Works for Facilitating Traffic Diversion of Fanling Highway						
FHW-M-1010	Permanent Road Formation with 1 lanes width between CH6935 and CH7380 toge	62	61	13-Jul-14 A	30-Sep-14	4
FHW-M-1020	Permanent Road Formation with 3 lanes width between CH6935 and CH7130 (Eas	35	35	06-Oct-14	14-Nov-14	1404
FHW-M-1000	Demolition of Central Barrier & Make Good of Road Pavement for further Traffic Div	69	69	06-Oct-14	24-Dec-14	4
Fanling Highway North Portion between CH7470 and CH7925						
Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)						
Kiu Tau Footbridge Reprovision (East)						
FHW-5000B	KT-AB2 - Piling Works (4 nos of Pile)	20	20	18-Aug-14	10-Sep-14	136
FHW-5000D	KT-P3 - Piling Works (8 nos of Pile)	40	40	11-Sep-14	29-Oct-14	136
FHW-5000A	KT-AB1 - Piling Works (12 nos of Pile)	60	60	18-Aug-14	29-Oct-14	136
FHW-5010B	KT-AB2 - Pile Cap & Abutment	105	105	11-Sep-14	16-Jan-15	343



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2014-07-21

Date	Revision	Checked	Approved
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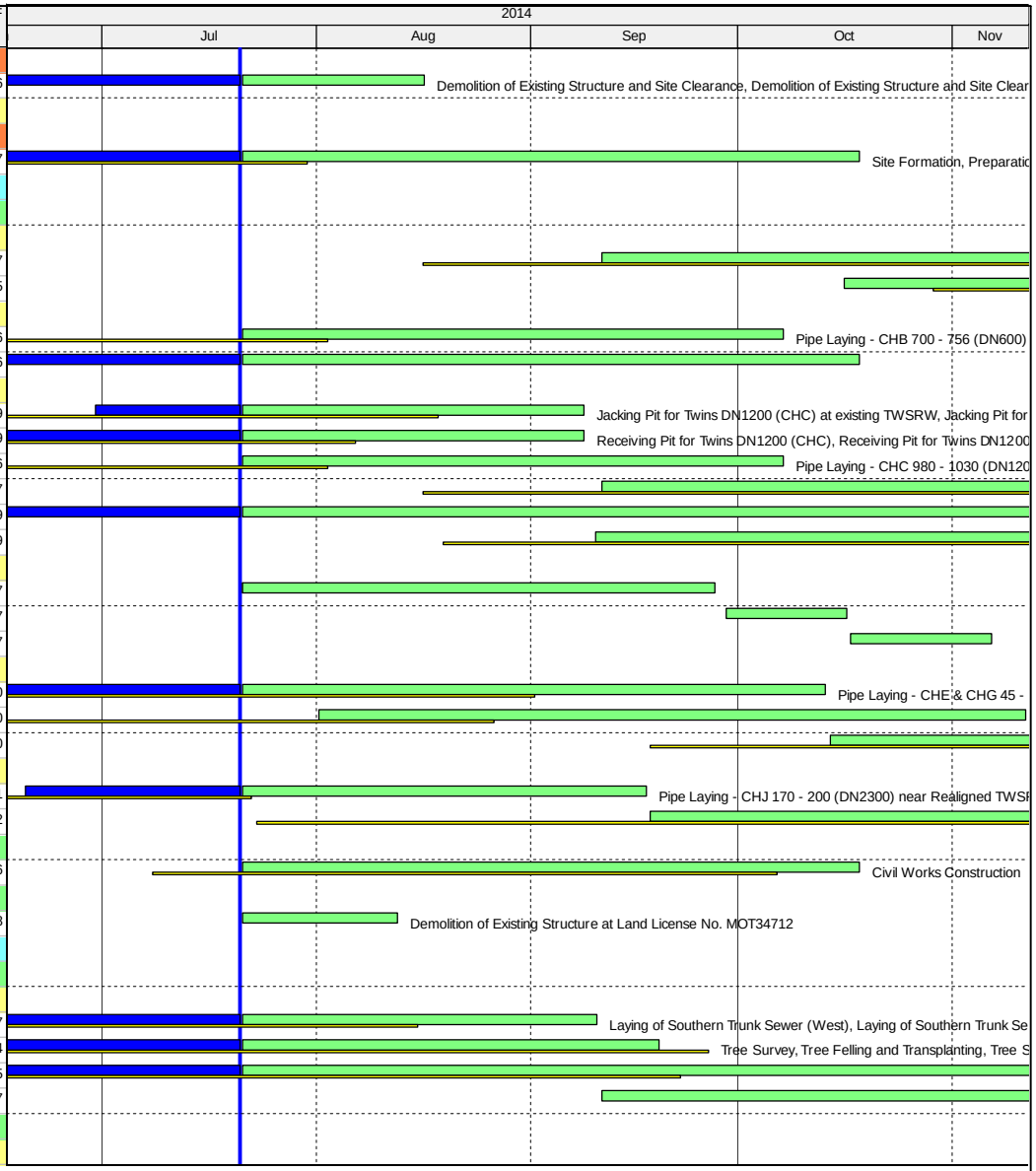
Activity ID	Activity Name	OD	RD	Start	Finish	TF
	At-Grade Road Works (130m)					
FHW-5100	Demolition of Existing Structure and Site Clearance	45	24	15-Apr-14 A	16-Aug-14	136
	Fanling Highway Zone 7 between CH7660 and CH7925					
	At-Grade Roadworks (265m)					
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	75	30-Aug-13 A	18-Oct-14	67
	Section II - Remainder of the Works (KD-3)					
	WSD Works					
	DN450 Fire Mains (CHA)					
WA-1000	Pipe Laying - CHA 0 - 60 (DN450) near Ext. TWSR West (Re-TWSRW: CH100 - 1	80	80	11-Sep-14	15-Dec-14	27
WA-1050	Pipe Laying - CHA 420 - 520 (DN450) near Realigned TWSR West (Re-TWSRW: (	70	70	16-Oct-14	08-Jan-15	25
	DN600 Water Mains (CHB)					
WB-1080	Pipe Laying - CHB 700 - 756 (DN600) near Realigned TWSR East (along Roundat	65	65	21-Jul-14	07-Oct-14	36
WB-1000	Pipe Laying - CHB 0 - 153 (DN600) near Fanling Highway S/B (FHW: CH7130-725	95	75	26-May-14 A	18-Oct-14	736
	DN1200 Water Mains (CHC)					
WC-1020	Jacking Pit for Twins DN1200 (CHC) at existing TWSRW	60	43	30-Jun-14 A	08-Sep-14	49
WC-1040	Receiving Pit for Twins DN1200 (CHC)	50	43	09-Jun-14 A	08-Sep-14	49
WC-1140	Pipe Laying - CHC 980 - 1030 (DN1200) near Realigned TWSR East (along Rounc	65	65	21-Jul-14	07-Oct-14	36
WC-1000	Pipe Laying - CHC 0 - 35 (DN1200) near Realigned TWSR West (TWSRW: CH10(	80	80	11-Sep-14	15-Dec-14	27
WC-1070	Pipe Laying - CHC 420 - 510 (DN1200) near Fanling Highway S/B (FHW: CH7290	150	140	07-Jun-14 A	06-Jan-15	769
WC-1030A	Excavation - CHC 100 - 155 (DN1200) across Fanling Highway by Trenchless Meth	169	169	10-Sep-14	11-Apr-15	49
	DN1400 Water Mains (CHD)					
WD-1000	Pipe Laying - CHD 0 - 60 (DN1400) near Fanling Highway S/B	59	59	21-Jul-14 A	27-Sep-14	517
WD-2000	Pressure Test for CHD	14	14	29-Sep-14	16-Oct-14	517
WD-2010	Cleaning, Sterilization & CCTV Inspection	18	18	17-Oct-14	06-Nov-14	517
	Twin DN1400 Water Mains (CHE & CHG)					
WE-1010	Pipe Laying - CHE & CHG 45 - 135 (Twins DN1400) near Fanling Highway S/B (FH	90	70	07-Jun-14 A	13-Oct-14	160
WE-1000	Pipe Laying - CHE & CHG 0 - 45 (Twins DN1400) near Fanling Highway S/B (FHW	85	85	01-Aug-14	11-Nov-14	290
WE-1020	Pipe Laying - CHE & CHG 135 - 225 (Twins DN1400) near Fanling Highway S/B (F	155	155	14-Oct-14	27-Apr-15	160
	DN2300 Water Mains and Leakage Collection System (CHJ & CHKA/CHK)					
WJ-1040	Pipe Laying - CHJ 170 - 200 (DN2300) near Realigned TWSR East (along Rounda	55	50	20-Jun-14 A	17-Sep-14	51
WJ-1030	Pipe Laying - CHJ 100 - 170 (DN2300) near Realigned TWSR East, 70m long & 3n	75	75	18-Sep-14	16-Dec-14	52
	Kau Lung Hang Valve Control & Telemetry House Reprovision					
VCTH-1000	Civil Works Construction	75	75	21-Jul-14*	18-Oct-14	36
	Demolition of Existing Structures					
DE-1010	Demolition of Existing Structure at Land License No. MOT34712	20	20	21-Jul-14	12-Aug-14	48
	Stage 1A - Realignment of Tai Wo Service Road West (KD-7)					
	TWSRW Zone 1 betweeen CH100 and CH155					
	At-Grade Roadworks					
TWSRW-1130	Laying of Southern Trunk Sewer (West)	95	44	23-Apr-14 A	10-Sep-14	27
TWSRW-1100	Tree Survey, Tree Felling and Transplanting	81	52	16-Oct-13 A	19-Sep-14	84
TWSRW-1120	Noise Barrier NB4 - Footing adjacent to Realigned TWSR West (70m)	85	104	12-Apr-14 A	21-Nov-14	55
TWSRW-1140*	Pipe Laying - DN450 & DN1200 Watermains (CHA & CHC)	80	80	11-Sep-14	15-Dec-14	27
	TWSRW Zone 2 betweeen CH155 and CH280					
	At-Grade Roadworks					



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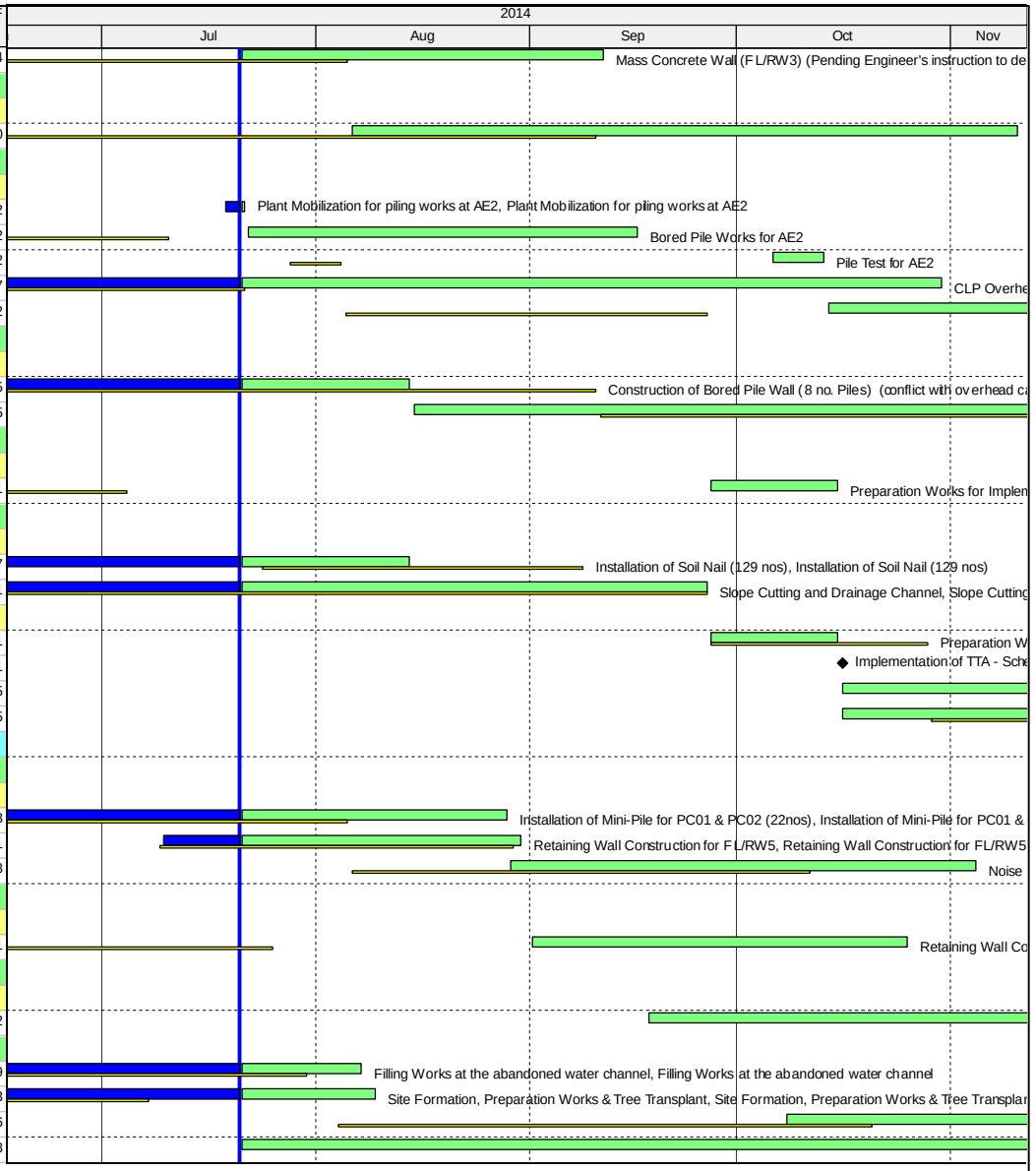
Activity ID	Activity Name	OD	RD	Start	Finish	TF
TWSRW-2100	Mass Concrete Wall (FL/RW3) (Pending Engineer's instruction to delete the Works)	45	45	21-Jul-14	11-Sep-14	114
TWSRW Zone 3 betweeen CH280 and CH315						
At-Grade Roadworks						
TWSRW-3100	Noise Barrier NB1a - Footing adjacent Realigned TWSR West (31m)	80	80	06-Aug-14	10-Nov-14	130
TWSRW Zone 4 betweeen CH315 and CH376						
Construction of Bridge E						
TWSRW-4020A	Plant Mobilization for piling works at AE2	2	1	19-Jul-14 A	21-Jul-14	132
TWSRW-4030B	Bored Pile Works for AE2	48	48	22-Jul-14	16-Sep-14	132
TWSRW-4040B	Pile Test for AE2	7	7	06-Oct-14	13-Oct-14	132
TWSRW-4000B	CLP Overhead 11KV Cable Diversion at Area B (Phase 2)	140	85	04-Nov-13 A	30-Oct-14	27
TWSRW-4050B	Pile Cap for AE2	45	45	14-Oct-14	04-Dec-14	132
TWSRW Zone 5 betweeen CH376 and CH520						
Construction of Retaining Structures						
TWSRW-5050C	Construction of Bored Pile Wall (8 no. Piles) (conflict with overhead cable)	94	22	22-May-14 A	14-Aug-14	25
TWSRW-5050D	Construction of Remaining Portion of Bored Pile Wall at formation level	85	85	15-Aug-14	25-Nov-14	25
TWSRW Zone 6 betweeen CH520 and CH530						
At-Grade Roadworks						
TWSRW-6100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the e	14	14	27-Sep-14	15-Oct-14	21
TWSRW Zone 7 betweeen CH530 and CH640						
Construction of Retaining Structures						
TWSRW-7020	Installation of Soil Nail (129 nos)	40	22	10-Jun-14 A	14-Aug-14	57
TWSRW-7010	Slope Cutting and Drainage Channel	235	58	06-Dec-13 A	26-Sep-14	21
At-Grade Roadworks						
TWSRW-7100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the c	14	14	27-Sep-14	15-Oct-14	21
TWSRW-7110	Implementation of TTA - Scheme W3	0	0	16-Oct-14		21
TWSRW-7120*	Pipe Laying - DN450 Watermains (CHA)	70	70	16-Oct-14	08-Jan-15	25
TWSRW-7130	Road Drainage (incl. Zone 6 & Zone 7)	80	80	16-Oct-14	20-Jan-15	25
Stage N4A & N4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)						
TWSRE Zone 1 between CH100 and CH270						
At-Grade Roadworks						
TWSRE-1100	Installation of Mini-Pile for PC01 & PC02 (22nos)	66	34	16-May-14 A	28-Aug-14	98
TWSRE-1130	Retaining Wall Construction for FL/RW5	45	36	10-Jul-14 A	30-Aug-14	81
TWSRE-1110	Noise Barrier NB3 - PC01 & PC02 Pile Cap Construction	55	55	29-Aug-14	04-Nov-14	98
TWSRE Zone 2 between CH270 and CH380						
At-Grade Roadworks						
TWSRE-2020	Retaining Wall Construction for FL/RW6	45	45	01-Sep-14	25-Oct-14	81
TWSRE Zone 3 between CH380 and CH456						
At-Grade Roadworks						
TWSRE-3020B*	Pipe laying - DN2300 Watermains (CHJ) along Realigned TWSR East	75	75	18-Sep-14	16-Dec-14	52
Roundabout A, Slip Road and Access Road						
TWSRE-4010	Filling Works at the abandoned water channel	115	16	10-Mar-14 A	07-Aug-14	39
TWSRE-4000	Site Formation, Preparation Works & Tree Transplant	65	18	15-Apr-14 A	09-Aug-14	83
TWSRE-4070A	Roundabout A (Lower-Half) - Road Formation, Road Drainage, Kerb, Planter and F	64	64	08-Oct-14	20-Dec-14	36
TWSRE-4050B*	Pipe laying - DN2300 Watermains (CHJ) along Access Road A & Roundabout	91	144	20-Jun-14 A	10-Jan-15	48



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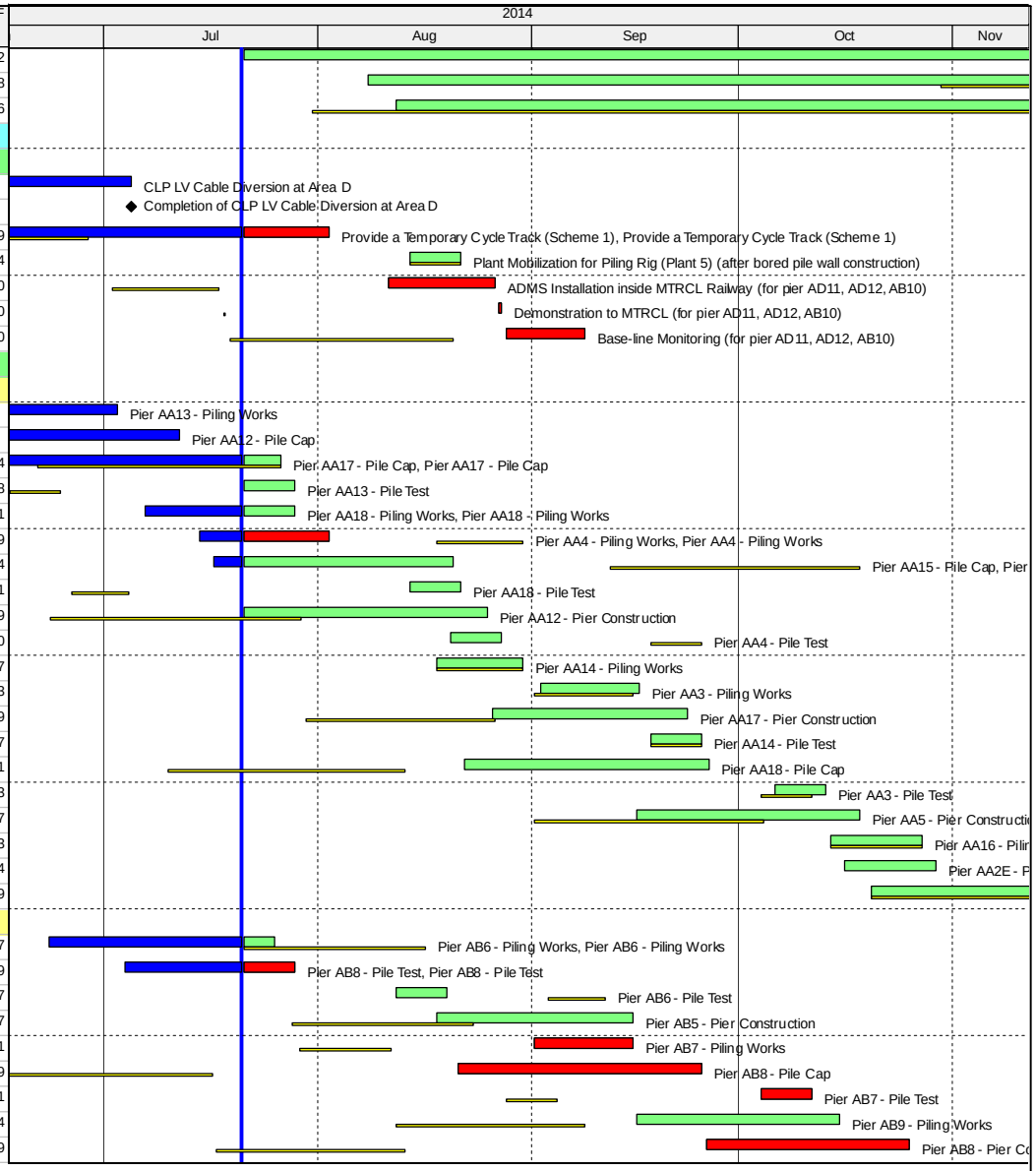
TWSRE-4050A*	Pipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Access Road A &	148	148	21-Jul-14	15-Jan-15	152
TWSRE-4060	Access Road A - Road Formation, Road Drainage, Kerb, Planter and Pavement	134	134	08-Aug-14	17-Jan-15	48
TWSRE-4030	Noise Barrier NB74 - Footing adjacent to Realigned TWSR East (72m)	166	166	12-Aug-14	06-Mar-15	36
Stage 1C - Viaduct Structure & TCSS Civil Provisions (KD-9)						
Preliminaries						
B-2010	CLP LV Cable Diversion at Area D	12	0	16-Apr-14 A	05-Jul-14 A	
B-2050	Completion of CLP LV Cable Diversion at Area D	0	0		05-Jul-14 A	
B-5000	Provide a Temporary Cycle Track (Scheme 1)	27	12	22-May-14 A	02-Aug-14	-69
B-3030	Plant Mobilization for Piling Rig (Plant 5) (after bored pile wall construction)	7	7	14-Aug-14*	21-Aug-14	84
B-1000A	ADMS Installation inside MTRCL Railway (for pier AD11, AD12, AB10)	14	14	11-Aug-14*	26-Aug-14	-10
B-1010A	Demonstration to MTRCL (for pier AD11, AD12, AB10)	1	1	27-Aug-14	27-Aug-14	-10
B-1020A	Base-line Monitoring (for pier AD11, AD12, AB10)	10	10	28-Aug-14	08-Sep-14	-10
Foundation & Pier Construction						
Bridge A						
BA-13-1000	Pier AA13 - Piling Works	24	0	19-May-14 A	03-Jul-14 A	
BA-12-1020	Pier AA12 - Pile Cap	30	0	05-Mar-14 A	12-Jul-14 A	
BA-17-1020	Pier AA17 - Pile Cap	30	6	10-May-14 A	26-Jul-14	64
BA-13-1010	Pier AA13 - Pile Test	7	7	21-Jul-14	28-Jul-14	88
BA-18-1000	Pier AA18 - Piling Works	12	7	07-Jul-14 A	28-Jul-14	1
BA-04-1000	Pier AA4 - Piling Works	12	12	15-Jul-14 A	02-Aug-14	-69
BA-15-1020	Pier AA15 - Pile Cap	30	27	17-Jul-14 A	20-Aug-14	4
BA-18-1010	Pier AA18 - Pile Test	7	7	14-Aug-14	21-Aug-14	1
BA-12-1030	Pier AA12 - Pier Construction	31	31	21-Jul-14*	25-Aug-14	39
BA-04-1010	Pier AA4 - Pile Test	7	7	20-Aug-14	27-Aug-14	140
BA-14-1000	Pier AA14 - Piling Works	12	12	18-Aug-14	30-Aug-14	27
BA-03-1000	Pier AA3 - Piling Works	12	12	02-Sep-14	16-Sep-14	173
BA-17-1030	Pier AA17 - Pier Construction	24	24	26-Aug-14	23-Sep-14	39
BA-14-1010	Pier AA14 - Pile Test	7	7	18-Sep-14	25-Sep-14	57
BA-18-1020	Pier AA18 - Pile Cap	30	30	22-Aug-14	26-Sep-14	1
BA-03-1010	Pier AA3 - Pile Test	7	7	06-Oct-14	13-Oct-14	173
BA-05-1030	Pier AA5 - Pier Construction (Twin Pier)	27	27	16-Sep-14	18-Oct-14	37
BA-16-1000	Pier AA16 - Piling Works	12	12	14-Oct-14	27-Oct-14	83
BA-02-2000	Pier AA2E - Piling Works	12	12	16-Oct-14	29-Oct-14	104
BA-14-1020	Pier AA14 - Pile Cap	30	30	20-Oct-14	22-Nov-14	39
Bridge B						
BB-06-1000	Pier AB6 - Piling Works	24	5	23-Jun-14 A	25-Jul-14	177
BB-08-1010	Pier AB8 - Pile Test	7	7	04-Jul-14 A	28-Jul-14	-19
BB-06-1010	Pier AB6 - Pile Test	7	7	12-Aug-14	19-Aug-14	177
BB-05-1030	Pier AB5 - Pier Construction	24	24	18-Aug-14	15-Sep-14	37
BB-07-1000	Pier AB7 - Piling Works	12	12	01-Sep-14	15-Sep-14	-21
BB-08-1020	Pier AB8 - Pile Cap	30	30	21-Aug-14	25-Sep-14	-39
BB-07-1010	Pier AB7 - Pile Test	7	7	04-Oct-14	11-Oct-14	-21
BB-09-1000	Pier AB9 - Piling Works	24	24	16-Sep-14	15-Oct-14	14
BB-08-1030	Pier AB8 - Pier Construction	24	24	26-Sep-14	25-Oct-14	-39



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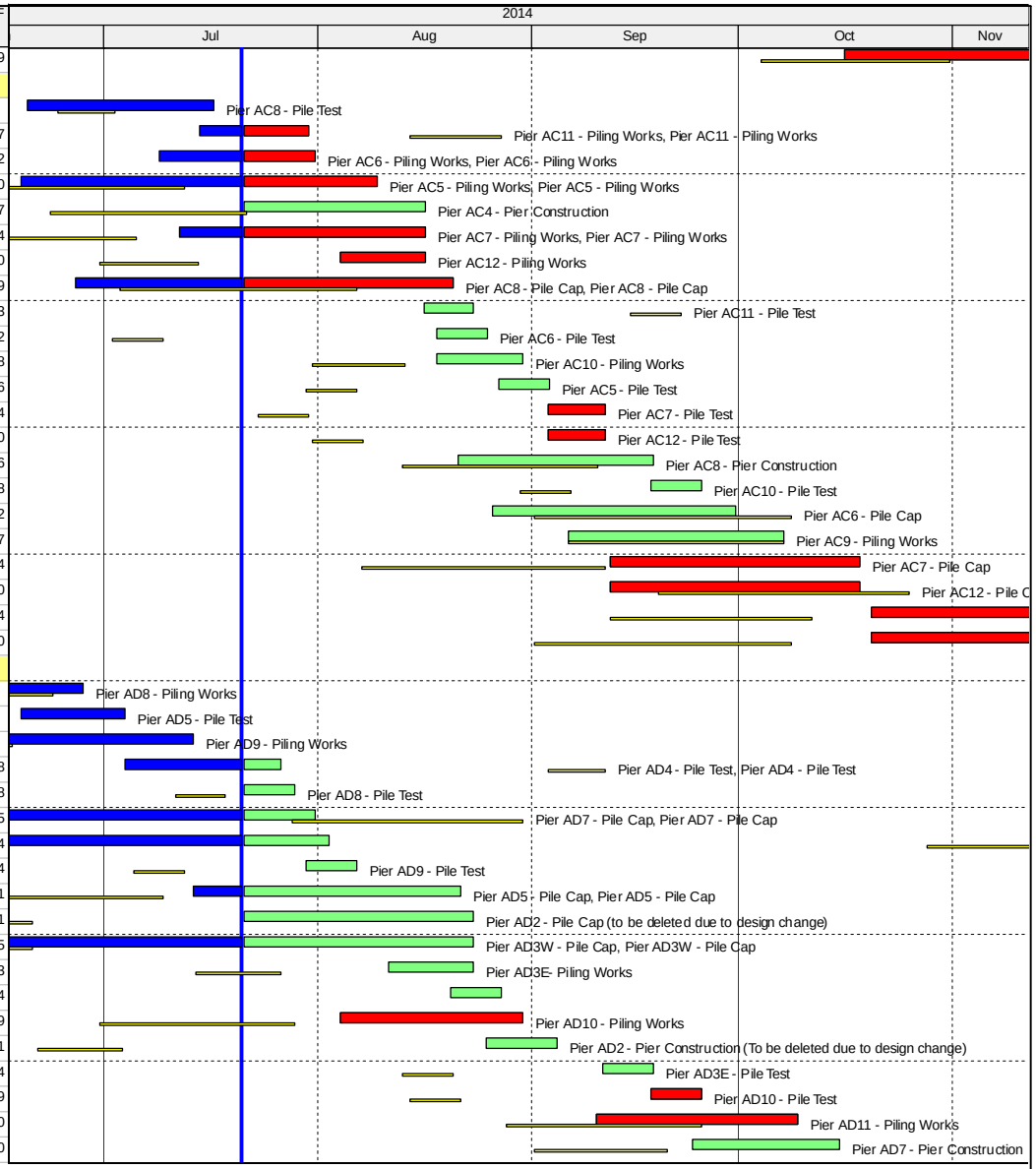
BB-10-1000	Pier AB10 - Piling Works	24	24	16-Oct-14	12-Nov-14	-9
Bridge C						
BC-08-1010	Pier AC8 - Pile Test	7	0	20-Jun-14 A	17-Jul-14 A	
BC-11-1000	Pier AC11 - Piling Works	12	9	15-Jul-14 A	30-Jul-14	-7
BC-06-1000	Pier AC6 - Piling Works	12	10	09-Jul-14 A	31-Jul-14	-2
BC-05-1000	Pier AC5 - Piling Works	24	18	19-Jun-14 A	09-Aug-14	-10
BC-04-1030	Pier AC4 - Pier Construction	24	24	21-Jul-14*	16-Aug-14	37
BC-07-1000	Pier AC7 - Piling Works	24	24	12-Jul-14 A	16-Aug-14	-14
BC-12-1000	Pier AC12 - Piling Works	12	12	04-Aug-14	16-Aug-14	-10
BC-08-1020	Pier AC8 - Pile Cap	30	27	27-Jun-14 A	20-Aug-14	-39
BC-11-1010	Pier AC11 - Pile Test	7	7	16-Aug-14	23-Aug-14	163
BC-06-1010	Pier AC6 - Pile Test	7	7	18-Aug-14	25-Aug-14	52
BC-10-1000	Pier AC10 - Piling Works	12	12	18-Aug-14	30-Aug-14	68
BC-05-1010	Pier AC5 - Pile Test	7	7	27-Aug-14	03-Sep-14	26
BC-07-1010	Pier AC7 - Pile Test	7	7	03-Sep-14	11-Sep-14	-14
BC-12-1010	Pier AC12 - Pile Test	7	7	03-Sep-14	11-Sep-14	-10
BC-08-1030	Pier AC8 - Pier Construction	24	24	21-Aug-14	18-Sep-14	6
BC-10-1010	Pier AC10 - Pile Test	7	7	18-Sep-14	25-Sep-14	68
BC-06-1020	Pier AC6 - Pile Cap	30	30	26-Aug-14	30-Sep-14	52
BC-09-1000	Pier AC9 - Piling Works	24	24	06-Sep-14	07-Oct-14	27
BC-07-1020	Pier AC7 - Pile Cap	30	30	12-Sep-14	18-Oct-14	-14
BC-12-1020	Pier AC12 - Pile Cap	30	30	12-Sep-14	18-Oct-14	-10
BC-07-1030	Pier AC7 - Pier Construction	24	24	20-Oct-14	15-Nov-14	-14
BC-05-1020	Pier AC5 - Pile Cap	30	30	20-Oct-14	22-Nov-14	-10
Bridge D						
BD-08-1000	Pier AD8 - Piling Works	12	0	10-May-14 A	28-Jun-14 A	
BD-05-1010	Pier AD5 - Pile Test	7	0	19-Jun-14 A	04-Jul-14 A	
BD-09-1000	Pier AD9 - Piling Works	24	0	09-Jun-14 A	14-Jul-14 A	
BD-04-1010	Pier AD4 - Pile Test	7	6	04-Jul-14 A	26-Jul-14	138
BD-08-1010	Pier AD8 - Pile Test	7	7	21-Jul-14	28-Jul-14	28
BD-07-1020	Pier AD7 - Pile Cap	30	10	26-May-14 A	31-Jul-14	95
BD-06-1000	Pier AD6 - Piling Works	24	12	29-May-14 A	02-Aug-14	184
BD-09-1010	Pier AD9 - Pile Test	7	7	30-Jul-14	06-Aug-14	44
BD-05-1020	Pier AD5 - Pile Cap	30	28	14-Jul-14 A	21-Aug-14	1
BD-02-1020	Pier AD2 - Pile Cap (to be deleted due to design change)	30	30	21-Jul-14	23-Aug-14	41
BD-03-1020	Pier AD3W - Pile Cap	30	30	04-Apr-14 A	23-Aug-14	5
BD-03-2000	Pier AD3E- Piling Works	12	12	11-Aug-14	23-Aug-14	3
BD-06-1010	Pier AD6 - Pile Test	7	7	20-Aug-14	27-Aug-14	184
BD-10-1000	Pier AD10 - Piling Works	24	24	04-Aug-14	30-Aug-14	-69
BD-02-1030	Pier AD2 - Pier Construction (To be deleted due to design change)	10	10	25-Aug-14	04-Sep-14	41
BD-03-2010	Pier AD3E - Pile Test	7	7	11-Sep-14	18-Sep-14	64
BD-10-1010	Pier AD10 - Pile Test	7	7	18-Sep-14	25-Sep-14	-69
BD-11-1000	Pier AD11 - Piling Works	24	24	10-Sep-14*	09-Oct-14	-10
BD-07-1030	Pier AD7 - Pier Construction	17	17	24-Sep-14	15-Oct-14	50



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

Actual Work
Remaining Work
Summary Bar
Critical Remaining Work
Milestone
Project Baseline Bar

CEDD Contract No. CV/2012/09

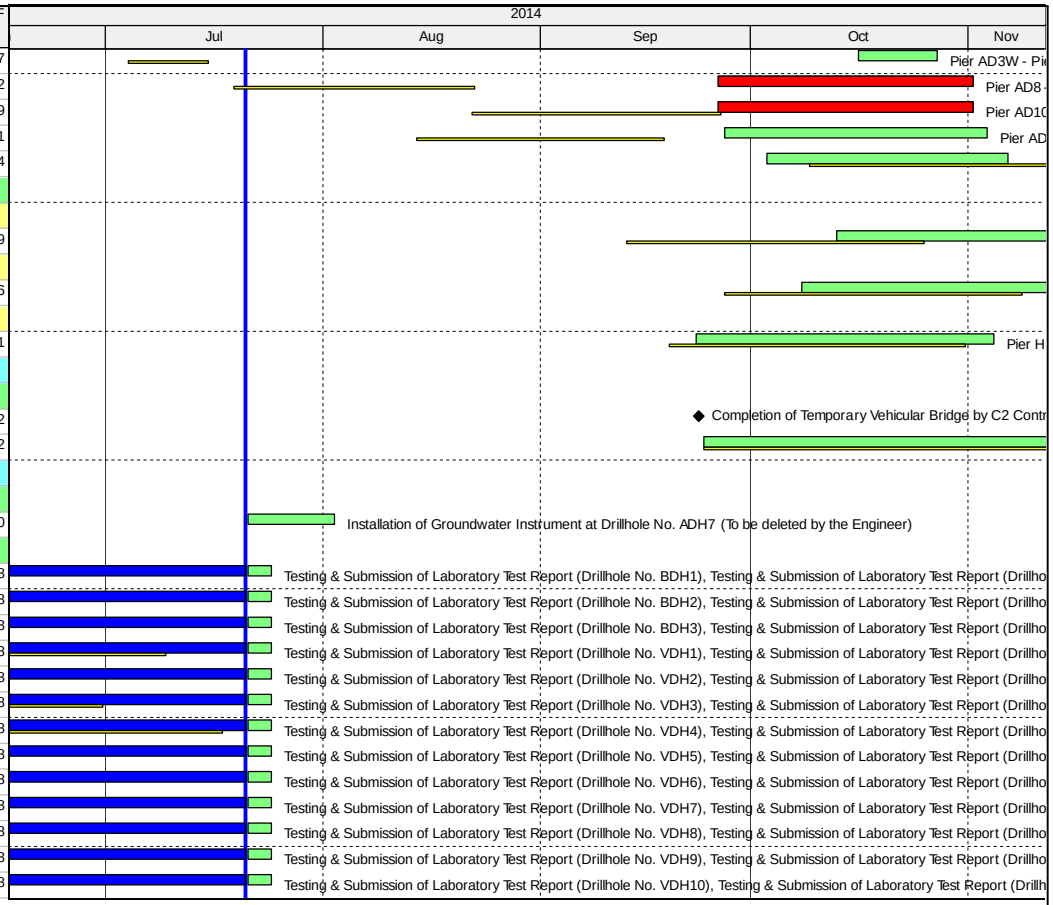
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2014-07-21

Date	Revision	Checked	Approved
23-Jul-14	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
BD-03-1030	Pier AD3W - Pier Construction	10	10	16-Oct-14	27-Oct-14	77
BD-08-1020	Pier AD8 - Pile Cap	30	30	26-Sep-14	01-Nov-14	-22
BD-10-1020	Pier AD10 - Pile Cap	30	30	26-Sep-14*	01-Nov-14	-69
BD-09-1020	Pier AD9 - Pile Cap	30	30	27-Sep-14	03-Nov-14	1
BD-03-2020	Pier AD3E - Pile Cap	30	30	03-Oct-14	06-Nov-14	54
Pier Head Construction						
Bridge A						
PA-1170	Pier Head Construction at Pier AA17	35	35	13-Oct-14	21-Nov-14	39
Bridge C						
PC-1080	Pier Head Construction at Pier AC8	35	35	08-Oct-14	17-Nov-14	6
Bridge D						
PD-1020	Pier Head Construction at Pier AD2 (To be deleted due to design change)	35	35	23-Sep-14*	04-Nov-14	41
Section VI - Works in Portion FH9 (KD-6A)						
Preliminary Preparation Works						
S6-1000	Completion of Temporary Vehicular Bridge by C2 Contractor	0	0		23-Sep-14	152
S6-1010	Tree Felling and Tree Transplant	75	75	24-Sep-14	22-Dec-14	152
Section VII - All Geotechnical Fieldworks & All Associated Laboratory Tests (KD-6B)						
Installation of Geotechnical Instruments / Ground Investigation						
S7-3030	Installation of Groundwater Instrument at Drillhole No. ADH7 (To be deleted by the E	12	12	21-Jul-14	02-Aug-14	10
Submission of Laboratory Tests						
S7-5000	Testing & Submission of Laboratory Test Report (Drillhole No. BDH1)	35	4	28-Dec-13 A	24-Jul-14	18
S7-5010	Testing & Submission of Laboratory Test Report (Drillhole No. BDH2)	35	4	25-Feb-14 A	24-Jul-14	18
S7-5020	Testing & Submission of Laboratory Test Report (Drillhole No. BDH3)	35	4	28-Feb-14 A	24-Jul-14	18
S7-5030	Testing & Submission of Laboratory Test Report (Drillhole No. VDH1)	35	4	31-May-14 A	24-Jul-14	18
S7-5040	Testing & Submission of Laboratory Test Report (Drillhole No. VDH2)	35	4	11-Mar-14 A	24-Jul-14	18
S7-5050	Testing & Submission of Laboratory Test Report (Drillhole No. VDH3)	35	4	04-Jun-14 A	24-Jul-14	18
S7-5060	Testing & Submission of Laboratory Test Report (Drillhole No. VDH4)	35	4	06-Jun-14 A	24-Jul-14	18
S7-5070	Testing & Submission of Laboratory Test Report (Drillhole No. VDH5)	35	4	08-May-14 A	24-Jul-14	18
S7-5080	Testing & Submission of Laboratory Test Report (Drillhole No. VDH6)	35	4	11-Jan-14 A	24-Jul-14	18
S7-5090	Testing & Submission of Laboratory Test Report (Drillhole No. VDH7)	35	4	06-Dec-13 A	24-Jul-14	18
S7-5100	Testing & Submission of Laboratory Test Report (Drillhole No. VDH8)	35	4	14-Mar-14 A	24-Jul-14	18
S7-5110	Testing & Submission of Laboratory Test Report (Drillhole No. VDH9)	35	4	07-Mar-14 A	24-Jul-14	18
S7-5120	Testing & Submission of Laboratory Test Report (Drillhole No. VDH10)	35	4	21-Feb-14 A	24-Jul-14	18



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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CEDD Contract No. CV/2012/09

Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

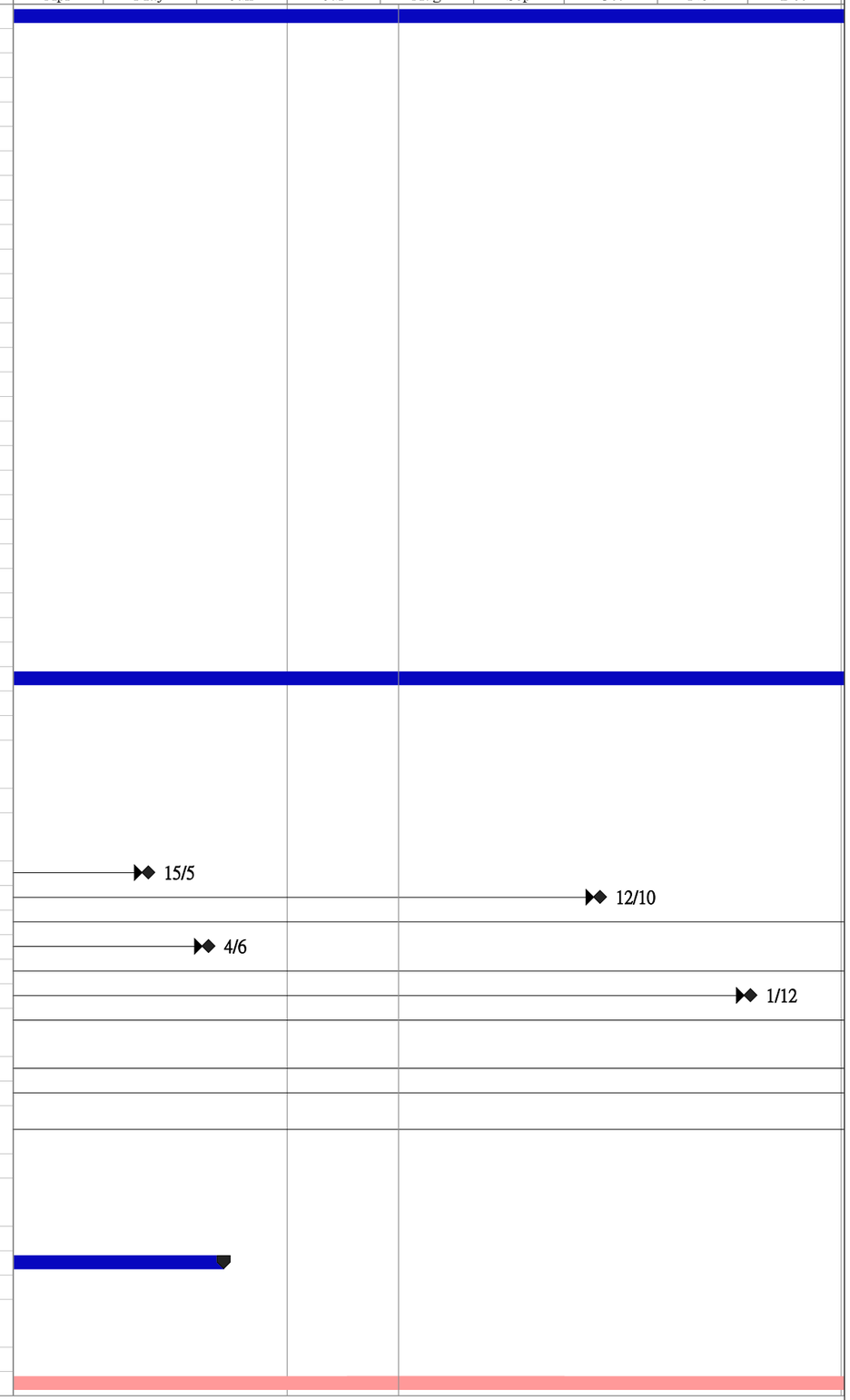
3-Month Rolling Programme

3-Month Rolling Programme updated to 2014-07-21

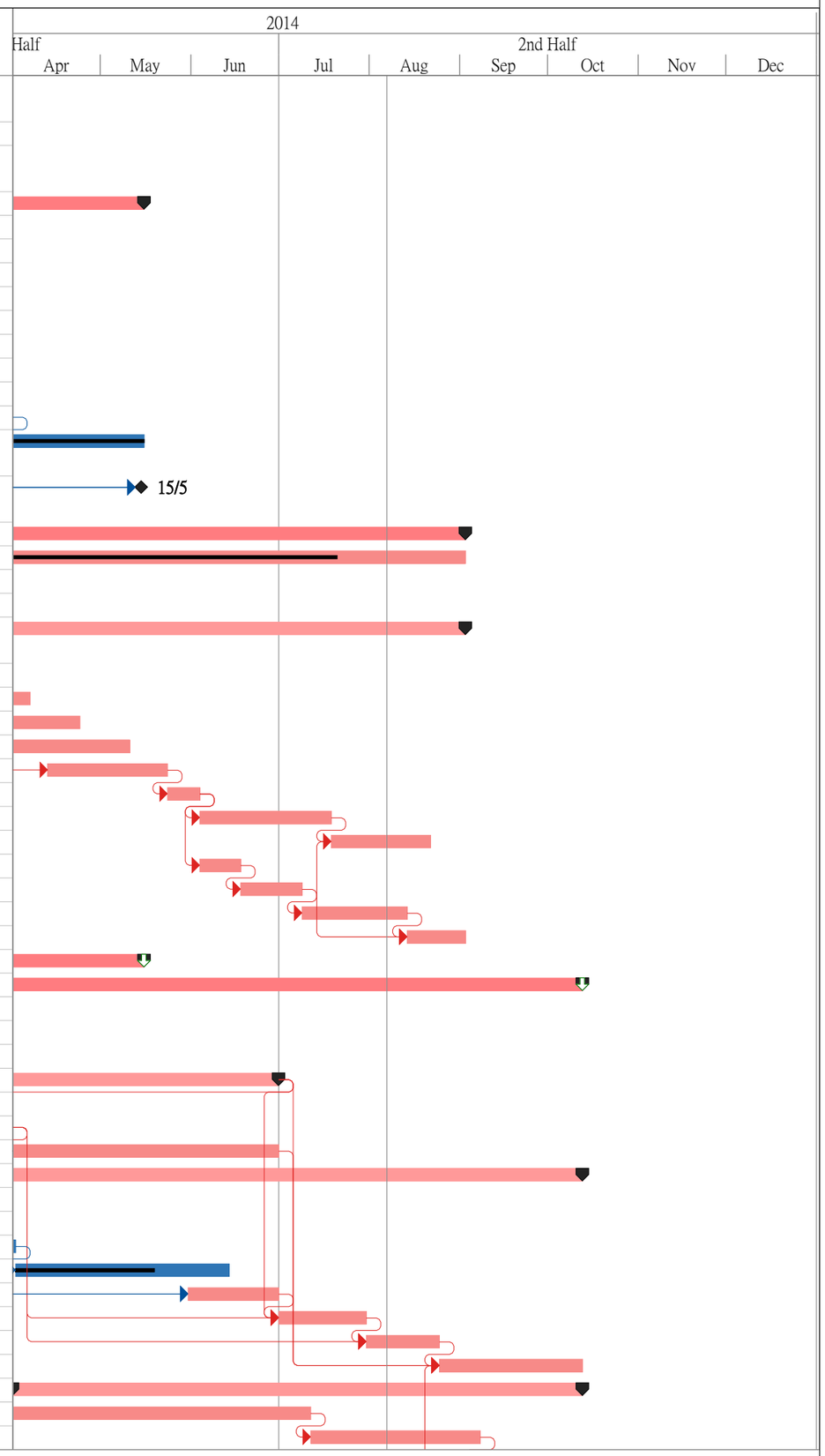
Date	Revision	Checked	Approved
23-Jul-14	Rev.1	SL	

Contract 5

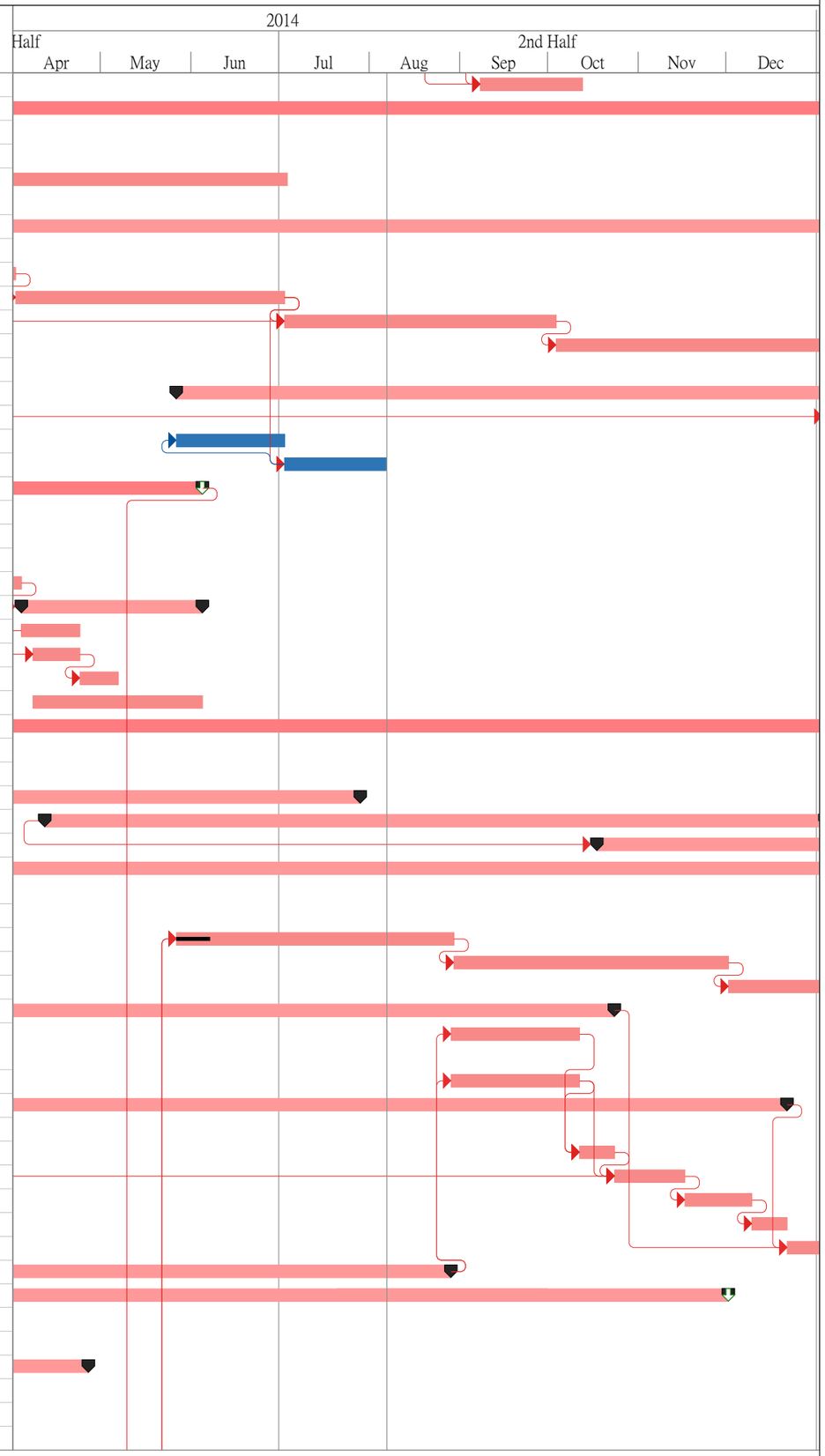
ID	WBS	Task Name	Duration	Start	Finish	% Complete
1	**1**	**Key Dates**	**1110 days**	**28/3/2013**	**10/4/2016**	**0%**
2	**1.1**	**Contract Award & Commencement**	**15 days**	**28/3/2013**	**11/4/2013**	**100%**
3	1.1.1	Letter of Acceptance	0 days	28/3/2013	28/3/2013	100%
4	1.1.2	Commencement of Works	0 days	11/4/2013	11/4/2013	100%
5	**1.2**	**Site Possession Date**	**330 days**	**11/4/2013**	**7/3/2014**	**100%**
6	1.2.1	Portion BCP 1	0 days	11/5/2013	11/5/2013	100%
7	1.2.2	Portion BCP 2	0 days	10/6/2013	10/6/2013	100%
8	1.2.3	Portion BCP 3	0 days	8/9/2013	8/9/2013	100%
9	1.2.4	Portion BCP 4 (delaying site possession)	0 days	7/3/2014	7/3/2014	100%
10	1.2.5	Portion BCP 5	0 days	8/9/2013	8/9/2013	100%
11	1.2.6	Portion BCP 6	0 days	8/9/2013	8/9/2013	100%
12	1.2.7	Portion BCP 7	0 days	8/9/2013	8/9/2013	100%
13	1.2.8	Portion CR 2	0 days	7/12/2013	7/12/2013	100%
14	1.2.9	Portion CR 40 (delaying site possession)	0 days	7/3/2014	7/3/2014	100%
15	1.2.10	Portion CR 41 (delaying site possession)	0 days	7/3/2014	7/3/2014	100%
16	1.2.11	Portion CR 42 (delaying site possession)	0 days	7/3/2014	7/3/2014	100%
17	1.2.12	Portion CR 44 (delaying site possession)	0 days	5/2/2014	5/2/2014	100%
18	1.2.13	Area LMH 0	0 days	11/4/2013	11/4/2013	100%
19	1.2.14	Area LMH 1	0 days	8/9/2013	8/9/2013	100%
20	1.2.15	Area LMH 2	0 days	11/5/2013	11/5/2013	100%
21	1.2.16	Area LMH 3	0 days	7/3/2014	7/3/2014	100%
22	1.2.17	Area LMH 4	0 days	8/9/2013	8/9/2013	100%
23	1.2.18	Area LMH 5	0 days	8/10/2013	8/10/2013	100%
24	1.2.19	Area RS 1	0 days	11/5/2013	11/5/2013	100%
25	1.2.20	Area RS 2 (Omitted)	0 days	11/5/2013	11/5/2013	100%
26	1.2.21	Area RS 3	0 days	11/5/2013	11/5/2013	100%
27	1.2.22	Area RS 4	0 days	11/5/2013	11/5/2013	100%
28	**1.3**	**Section Completion Date**	**976 days**	**8/8/2013**	**10/4/2016**	**0%**
29	1.3.1	KD-1 Section I of the Works - G.I. field works	0 days	4/2/2014	4/2/2014	100%
30	1.3.2	KD-2 Section II of the Works - All laboratory tests for Section I	0 days	6/3/2014	6/3/2014	100%
31	1.3.3	KD-3 Section III of the Works - Site formation works for portion RS1, RS2 & RS3	0 days	8/8/2013	8/8/2013	100%
32	1.3.4	KD-4 Section IV of the Works - Village house within portion RS4	0 days	5/1/2014	5/1/2014	100%
33	1.3.5	KD-5 Section V of the Works - All works within portion RS4 exclude Section IV	0 days	5/1/2014	5/1/2014	100%
34	1.3.6	KD-7 Section VII of the Works - All works within Area CRD	0 days	15/5/2014	15/5/2014	100%
35	1.3.7	KD-8 Section VIII of the Works - All works within Area BCPA	0 days	12/10/2014	12/10/2014	0%
36	1.3.8	KD-8 Section IX of the Works - All works within Area BCPB	0 days	11/4/2015	11/4/2015	0%
37	1.3.9	KD-10 Section X of the Works - All works within Area BCPC	0 days	4/6/2014	4/6/2014	100%
38	1.3.10	KD-11 Section XI of the Works - All works within Area BCPD	0 days	11/4/2015	11/4/2015	0%
39	1.3.11	KD-12 Section XII of the Works - All works within Area LMH	0 days	1/12/2014	1/12/2014	0%
40	1.3.12	KD-13 Section XIII of the Works - Works not covered in any other Sections	0 days	11/4/2015	11/4/2015	0%
41	1.3.13	KD-14 Section XIV of the Works - Trees preservation and protection	0 days	11/4/2015	11/4/2015	0%
42	1.3.14	KD-15 Section XV of the Works - Landscape soft works	0 days	11/4/2015	11/4/2015	0%
43	1.3.15	KD-16 Section XVI of the Works - Establishment works for landscape soft works	0 days	10/4/2016	10/4/2016	0%
44	**1.4**	**Stage Completion Date**	**60 days**	**8/8/2013**	**7/10/2013**	**100%**
45	1.4.1	KD-17 Stage I of the Works - Temporary vehicular bridge J and temporary Lin Ma Hang Road	0 days	7/10/2013	7/10/2013	100%
46	1.4.2	KD-18 Stage II of the Works - Temporary ArchSD Depot	0 days	8/8/2013	8/8/2013	100%
47	**2**	**Preliminaries and Statuary / Contractual Submissions**	**424 days**	**11/4/2013**	**9/6/2014**	**100%**
78	**3**	**Stage of the Works**	**180 days**	**11/4/2013**	**7/10/2013**	**100%**
79	**3.1**	**Stage I of the Works - Temporary vehicular bridge B and temporary Lin Ma Hang Road**	**179 days**	**12/4/2013**	**7/10/2013**	**100%**
90	**3.2**	**Stage II of the Works - Temporary ArchSD Depot (LMH2)**	**78 days**	**11/4/2013**	**27/6/2013**	**100%**
94	**4**	**Section of the Works**	**1095 days**	**12/4/2013**	**10/4/2016**	**39%**



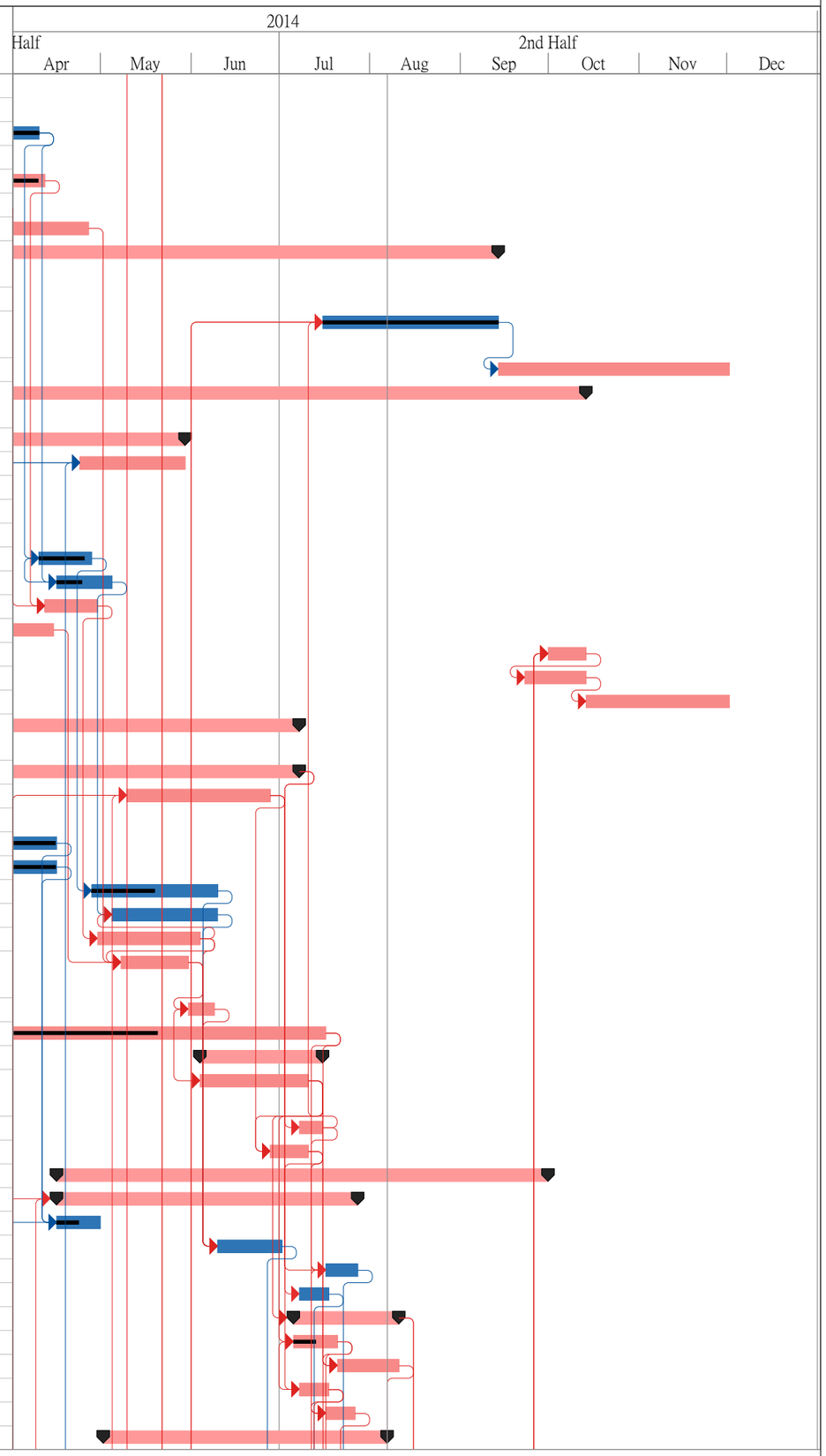
ID	WBS	Task Name	Duration	Start	Finish	% Complete
95	**4.1**	**Section I of the Works - Ground Investigation field works (Drg. 7101A-7111A)**	**251 days**	**30/5/2013**	**4/2/2014**	**100%**
100	**4.2**	**Section II of the Works - All laboratory tests for Section I**	**188 days**	**31/8/2013**	**6/3/2014**	**100%**
105	**4.3**	**Section III of the Works - Site formation works for Portions RS1, RS2 & RS3**	**89 days**	**12/5/2013**	**8/8/2013**	**100%**
111	**4.4**	**Section IV of the Works - Village house within portion RS4**	**399 days**	**12/4/2013**	**15/5/2014**	**100%**
112	**4.4.1**	**Actual Site Instruction from the Engineer (Issued EOT 1)**	**116 days**	**12/4/2013**	**5/8/2013**	**100%**
113	4.4.2	Submissions / Approval of material	44 days	6/8/2013	18/9/2013	100%
114	4.4.3	Foundation (House 1 to 4)	61 days	25/8/2013	24/10/2013	100%
115	4.4.4	G/F - Ground beam, slab, wall (House 1 to 4)	51 days	13/9/2013	2/11/2013	100%
116	4.4.5	1/F - Beam, wall, slab (House 1 to 4)	48 days	24/10/2013	10/12/2013	100%
117	4.4.6	2/F - Beam, wall, slab (House 1 to 4)	53 days	24/11/2013	15/1/2014	100%
118	4.4.7	R/F - Beam, slab (House 1 to 4)	23 days	31/12/2013	22/1/2014	100%
119	4.4.8	SH and Parapet (House 1 to 4)	24 days	9/1/2014	1/2/2014	100%
120	4.4.9	Building Services (House 1 to 4)	75 days	16/1/2014	31/3/2014	100%
121	**4.4.10**	**Extension of Time Order No. 3 - additional requests form the owners of village houses within Portion RS4 of the Site**	**45 days**	**1/4/2014**	**15/5/2014**	**100%**
122	**4.4.11**	**Certificate of Completion No. 5 (WHL:PWKL:cfwl:60212563 /C5/M15/910-2014008645W dated 15 July 2014**	**0 days**	**15/5/2014**	**15/5/2014**	**100%**
123	**4.5**	**Section V of the Works-All works within portion RS4 exclude Section IV**	**509 days**	**12/4/2013**	**2/9/2014**	**36%**
124	**4.5.1**	**ISSUED EOT2**	**241 days**	**5/1/2014**	**2/9/2014**	**82%**
125	4.5.2	Submissions and method statement	37 days	12/4/2013	18/5/2013	100%
126	4.5.3	Approvals from ER	30 days	26/4/2013	25/5/2013	100%
127	**4.5.4**	**Construction of footbridge and staircase with mini-piles 8 nos. x Ø 273 and staircase (delaying site possession in Claim No. 007)**	**235 days**	**11/1/2014**	**2/9/2014**	**0%**
128	4.5.4.1	Mini-piles	61 days	11/1/2014	12/3/2014	0%
129	4.5.4.2	Pile Caps	52 days	14/2/2014	6/4/2014	0%
130	4.5.4.3	Abutments	45 days	10/3/2014	23/4/2014	0%
131	4.5.4.4	Wing walls	45 days	27/3/2014	10/5/2014	0%
132	4.5.4.5	Mass concrete	41 days	13/4/2014	23/5/2014	0%
133	4.5.4.6	Remove sheetpiles from abutments	11 days	24/5/2014	3/6/2014	0%
134	4.5.4.7	Beams	45 days	4/6/2014	18/7/2014	0%
135	4.5.4.8	Deck	34 days	19/7/2014	21/8/2014	0%
136	4.5.4.9	Compact fill behind abutments	14 days	4/6/2014	17/6/2014	0%
137	4.5.4.10	New footpath	21 days	18/6/2014	8/7/2014	0%
138	4.5.4.11	New staircase	36 days	9/7/2014	13/8/2014	0%
139	4.5.4.12	Miscellaneous (pedestrian parapet, granite tile etc.)	20 days	14/8/2014	2/9/2014	0%
140	**4.6**	**Section VII of the Works - All works within Area CRD**	**249 days**	**9/9/2013**	**15/5/2014**	**100%**
177	**4.7**	**Section VIII of the Works - All works within Area BCPA**	**489 days**	**11/6/2013**	**12/10/2014**	**42%**
178	4.7.1	Submission for Site Formation Works & import fill	72 days	11/6/2013	21/8/2013	100%
179	4.7.2	Approval of submission for Site Formation Works	50 days	22/8/2013	10/10/2013	100%
180	4.7.3	Approval for sources of import fill	69 days	28/9/2013	5/12/2013	100%
181	4.7.4	Site formation of land (import fill 121433m3)	263 days	11/10/2013	30/6/2014	60%
182	4.7.4.1	site formation (A1-A9)	82 days	11/10/2013	31/12/2013	97%
183	4.7.4.2	site formation (A10-13, A15-20, A23, A24-A25)	90 days	1/1/2014	31/3/2014	87%
184	4.7.4.3	site formation (A14, A22, A26)	91 days	1/4/2014	30/6/2014	0%
185	4.7.5	Slope drainage works (Drg. 7156B-7159B)	284 days	2/1/2014	12/10/2014	16%
186	4.7.5.1	submission of design of sedimentation tank/pond	38 days	2/1/2014	8/2/2014	0%
187	4.7.5.2	approval of design of sedimentation tank/pond	36 days	9/2/2014	16/3/2014	0%
188	4.7.5.3	discharge to existing Box Culvert No. 4 & sedimentation tank	16 days	17/3/2014	1/4/2014	0%
189	4.7.5.4	DN1050 from CP to sedimentation tank	73 days	2/4/2014	13/6/2014	65%
190	4.7.5.5	shortcreted TC (from A3,A2,A1,A5)	31 days	31/5/2014	30/6/2014	0%
191	4.7.5.6	shortcreted TC (from A10-13)	30 days	1/7/2014	30/7/2014	0%
192	4.7.5.7	shortcreted TC (from A10,A15,A19)	25 days	31/7/2014	24/8/2014	0%
193	4.7.5.8	shortcreted TC (from A20-24A26,A14)	49 days	25/8/2014	12/10/2014	0%
194	4.7.6	Chain link fence (1120m)	195 days	1/4/2014	12/10/2014	0%
195	4.7.6.1	chain link fence (A1-5,A10,A15,A19)	102 days	1/4/2014	11/7/2014	0%
196	4.7.6.2	chain link fence (A4,A9,A14,A26,A24)	58 days	12/7/2014	7/9/2014	0%



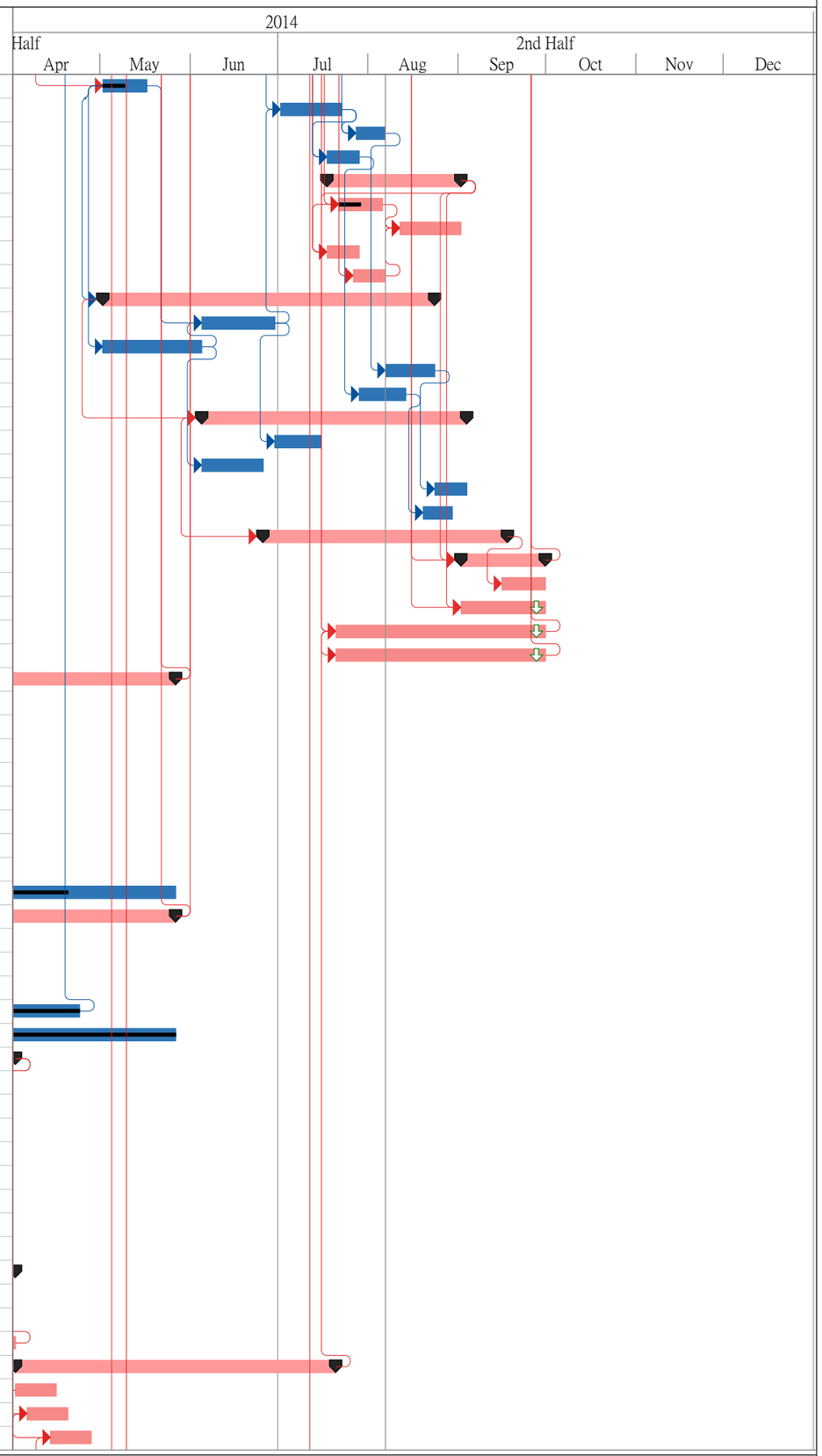
ID	WBS	Task Name	Duration	Start	Finish	% Complete
197	4.7.6.3	chain link fence (A21-24)	35 days	8/9/2014	12/10/2014	0%
198	**4.8**	**Section IX of the Works - All works within Area BCPB**	**492 days**	**6/12/2013**	**11/4/2015**	**10%**
199	4.8.1	Submission for demolition of existing building structures	37 days	20/12/2013	25/1/2014	100%
200	4.8.2	Approval of submission for demolish existing building structures	41 days	26/1/2014	7/3/2014	100%
201	4.8.3	Demolition of existing building structures UPON instruction (Drg. 6152A, 6153A)	118 days	8/3/2014	3/7/2014	0%
202	4.8.4	Site formation works (import fill 370523m3)	492 days	6/12/2013	11/4/2015	1%
203	4.8.4.1	site formation works (B20)	28 days	6/12/2013	2/1/2014	0%
204	4.8.4.2	site formation works (B1,3,6,9,21,22)	89 days	3/1/2014	1/4/2014	5%
205	4.8.4.3	site formation works (B2,5)	92 days	2/4/2014	2/7/2014	0%
206	4.8.4.4	site formation works (B7,11,12)	93 days	3/7/2014	3/10/2014	0%
207	4.8.4.5	site formation works (4,8,10,13,14,16,17)	91 days	4/10/2014	2/1/2015	0%
208	4.8.4.6	site formation works (B15,18,19)	99 days	3/1/2015	11/4/2015	0%
209	4.8.5	Temp. boundary fence, chain link fence (Drg.1002C, 1032B, 1033B)	320 days	27/5/2014	11/4/2015	0%
210	4.8.5.1	chain link fence (780m)	99 days	3/1/2015	11/4/2015	0%
211	4.8.5.2	fabricate temporary boundary fence & post	37 days	27/5/2014	2/7/2014	0%
212	4.8.5.3	fix temporary boundary fence (105m)	35 days	3/7/2014	6/8/2014	0%
213	**4.9**	**Section X of the Works - All works within Area BCPC**	**269 days**	**9/9/2013**	**4/6/2014**	**19%**
214	4.9.1	Submission for retaining wall no. 2	12 days	9/9/2013	20/9/2013	100%
215	4.9.2	Approval of Submission for retaining wall no. 2	25 days	21/9/2013	15/10/2013	100%
216	**4.9.3**	**Construction of retaining wall RW2-CH840-1025 (length 185m)**	**150 days**	**16/10/2013**	**14/3/2014**	**0%**
223	4.9.4	Site Formation works (import fill 24936m3)(C1-C8)	92 days	2/1/2014	3/4/2014	67%
224	4.9.5	Drainage Works & Irrigation System (Drg.1305C, 1975B)	62 days	4/4/2014	4/6/2014	0%
225	4.9.5.1	drainage for CP26 (SMH9962-CP26)	20 days	4/4/2014	23/4/2014	0%
226	4.9.5.2	drainage for CP24 (SMH9924 to CP24)	16 days	8/4/2014	23/4/2014	0%
227	4.9.5.3	drainage for CP23 (SMH9923 to CP23)	13 days	24/4/2014	6/5/2014	0%
228	4.9.5.4	irrigation system in Area BCPC	58 days	8/4/2014	4/6/2014	0%
229	**4.10**	**Section XI of the Works - All works within Area BCPD**	**598 days**	**22/8/2013**	**11/4/2015**	**3%**
230	4.10.1	Submissions	23 days	22/8/2013	13/9/2013	100%
231	4.10.2	Approval of Submissions	37 days	14/9/2013	20/10/2013	100%
232	**4.10.3**	**Construction of retaining wall RW2 - CH0 to 840 (length 840m)**	**281 days**	**21/10/2013**	**28/7/2014**	**0%**
248	4.10.4	Boundary fence (Drg.1002C, 1003A)	267 days	12/4/2014	3/1/2015	0%
253	4.10.5	Modified CEDD hoarding Type III (Drg. 1032B)	176 days	18/10/2014	11/4/2015	0%
257	4.10.6	Site Formation works (import fill 104958m3) including slope drainage works (Drg. 7155B-7159B)	423 days	7/1/2014	5/3/2015	13%
258	4.10.6.1	D1-D2	84 days	7/1/2014	31/3/2014	42%
259	4.10.6.2	D3, D10,D11, D17, D12- D14	95 days	27/5/2014	29/8/2014	12%
260	4.10.6.3	D4, D15, D16	94 days	30/8/2014	1/12/2014	0%
261	4.10.6.4	D5-D9	94 days	2/12/2014	5/3/2015	0%
262	4.10.7	Sewerage, Drainage & Water Works (Drg. 1323B,1305C,1309A)	368 days	21/10/2013	23/10/2014	0%
277	4.10.8	Irrigation system (sequence 3)(see Appendix C) adjacent to underpass & depressed road	44 days	29/8/2014	11/10/2014	0%
278	4.10.9	Irrigation system (sequence 4) (see Appendix C) next to BCPC	44 days	29/8/2014	11/10/2014	0%
279	4.10.10	Utilities works (Drg. 1405A) (see Appendix A)	369 days	18/12/2013	21/12/2014	0%
280	4.10.10.1	Sequence 1 - allow ducts for 11kV & LV across the underpass	13 days	18/12/2013	30/12/2013	0%
281	4.10.10.2	Sequence 5a - 132kV	12 days	12/10/2014	23/10/2014	0%
282	4.10.10.3	Sequence 5b - 11kV	24 days	24/10/2014	16/11/2014	0%
283	4.10.10.4	Sequence 5c - LV	23 days	17/11/2014	9/12/2014	0%
284	4.10.10.5	Sequence 5d - PCCW	12 days	10/12/2014	21/12/2014	0%
285	4.10.11	Road works and Road lighting works (Drg.1205A,1505C,1605B)	111 days	22/12/2014	11/4/2015	0%
286	**4.10.12**	**Construction of depressed road & underpass-9.3m wide x168m long**	**241 days**	**31/12/2013**	**28/8/2014**	**0%**
292	**4.11**	**Section XII of the Works - All works within Area LMH**	**467 days**	**22/8/2013**	**1/12/2014**	**53%**
293	4.11.1	Submissions for method statement of subway & staircase	70 days	22/8/2013	30/10/2013	100%
294	4.11.2	Approval of Submissions for method statement of subway & staircase	68 days	30/8/2013	5/11/2013	100%
295	**4.11.3**	**Construction of retaining wall RW1 - CH0 to 561.053m**	**213 days**	**26/9/2013**	**26/4/2014**	**91%**
296	4.11.3.1	Bay 1075 to Bay 1068 (8 bays) -H1	77 days	26/9/2013	11/12/2013	100%
297	4.11.3.2	Bay 1067 to Bay 1060 (8 bays) -H2	77 days	8/10/2013	23/12/2013	100%
298	4.11.3.3	Bay 1059 to Bay 1052 (8 bays) - H3	93 days	15/11/2013	15/2/2014	100%



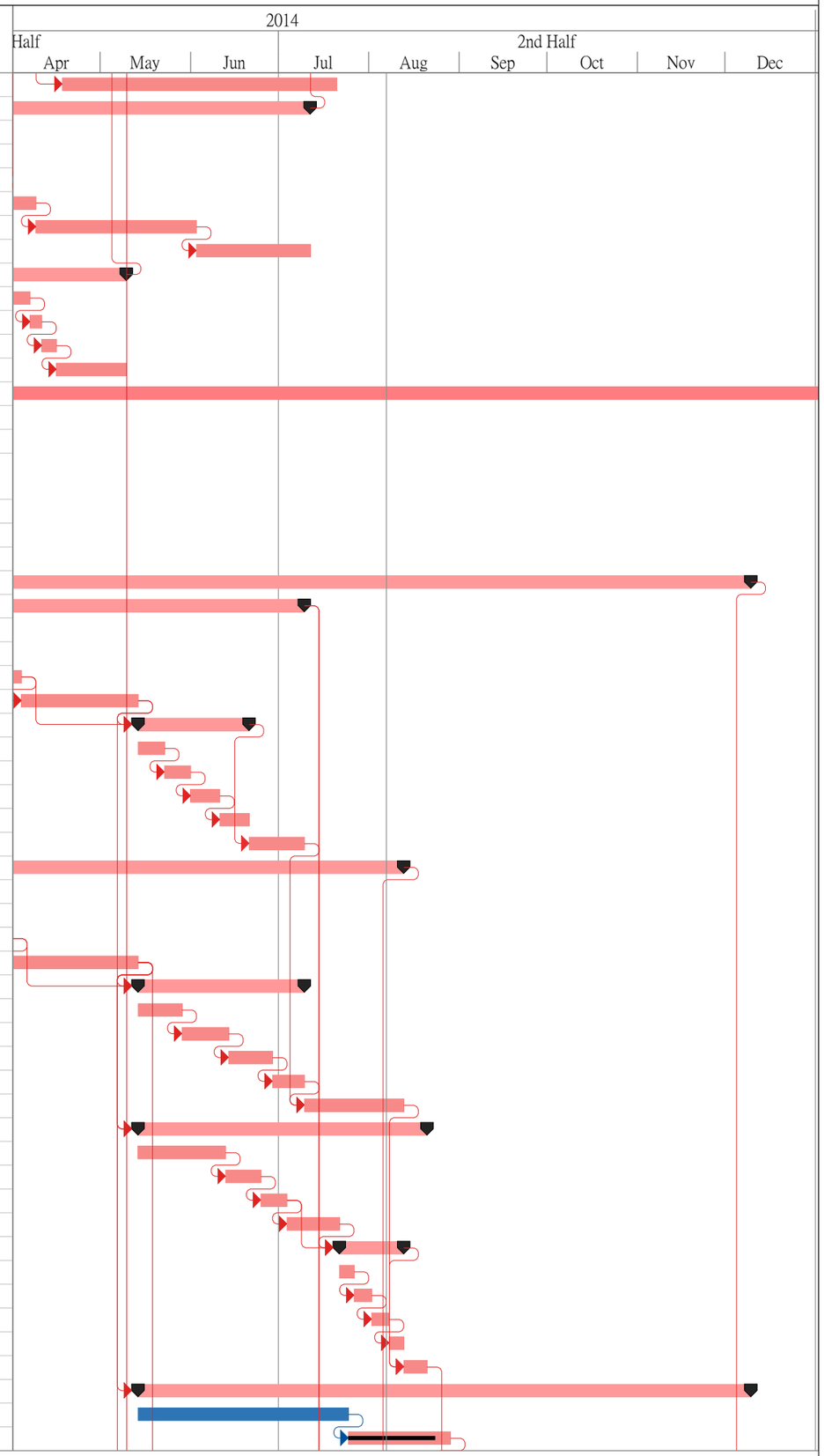
ID	WBS	Task Name	Duration	Start	Finish	% Complete
299	4.11.3.4	Bay 1051 to Bay 1044 (8 bays) -H4	80 days	29/11/2013	16/2/2014	100%
300	4.11.3.5	Bay 1043 to Bay 1036 (8 bays) - H5	79 days	13/12/2013	1/3/2014	100%
301	4.11.3.6	Bay 1035 to Bay 1028 (8 bays) -H5,H6	83 days	17/1/2014	9/4/2014	100%
302	4.11.3.7	Bay 1027 to Bay 1020 (8 bays) -H6	79 days	16/12/2013	4/3/2014	100%
303	4.11.3.8	Bay 1019 to Bay 1012 (8 bays) -H7	105 days	28/12/2013	11/4/2014	98%
304	4.11.3.9	Bay 1011 to Bay 1004 (8 bays) H7,H8	87 days	30/12/2013	26/3/2014	55%
305	4.11.3.10	Bay 1003 to Bay 1001 (3 bays) - H8	31 days	27/3/2014	26/4/2014	0%
306	**4.11.4**	**Construction of retaining wall RW1A-CH561.053 to 612.457m (length approx.. 51.4m)**	**368 days**	**11/9/2013**	**13/9/2014**	**100%**
307	4.11.4.1	Bay 1076 to Bay 1078 (base & wall)	49 days	11/9/2013	29/10/2013	100%
308	4.11.4.2	Bay 1079 to Bay 1082 (after divert existing Rd i.e. after Staircase & Lift Shaft)	60 days	16/7/2014	13/9/2014	100%
309	4.11.5	Filling & Slope drainage behind RW1A (involve TTA)	79 days	14/9/2014	1/12/2014	0%
310	**4.11.6**	**Site formation works (import fill 15300m3) including slope drainage works (Drg. 7154B, 7159B) (see Appendix B)**	**294 days**	**24/12/2013**	**13/10/2014**	**39%**
311	**4.11.6.1**	**site formation (H1-H8) & slope drainage works**	**157 days**	**24/12/2013**	**29/5/2014**	**46%**
312	4.11.6.1.1	fill H1	36 days	24/4/2014	29/5/2014	0%
313	4.11.6.1.2	fill H2	20 days	24/12/2013	12/1/2014	97%
314	4.11.6.1.3	fill H3	17 days	17/2/2014	5/3/2014	97%
315	4.11.6.1.4	fill H4	17 days	17/2/2014	5/3/2014	97%
316	4.11.6.1.5	fill H5	18 days	10/4/2014	27/4/2014	85%
317	4.11.6.1.6	fill H6	19 days	16/4/2014	4/5/2014	45%
318	4.11.6.1.7	fill H7	18 days	12/4/2014	29/4/2014	0%
319	4.11.6.1.8	fill H8	19 days	27/3/2014	14/4/2014	0%
320	4.11.6.2	Remove existing Lin Ma Hang Road	13 days	1/10/2014	13/10/2014	0%
321	4.11.6.3	Fill H9 & B15 for slope	21 days	23/9/2014	13/10/2014	0%
322	4.11.7	Boundary fence & chain link fence on top of slope	49 days	14/10/2014	1/12/2014	0%
323	**4.11.8**	**Drainage works at Lin Ma Hang Road (Drg. 1304B, 1306A, 1307A, 1309A) (see Appendix B)**	**244 days**	**6/11/2013**	**7/7/2014**	**26%**
324	4.11.8.1	H1-SM16-9062, 9201 & 9105A-9062, 9054-9062, 9101-9105	244 days	6/11/2013	7/7/2014	0%
330	4.11.8.2	SMH6895-6808, 6804-6808	49 days	10/5/2014	27/6/2014	0%
331	4.11.8.3	H2 - SMH9054-45,44, 9043	52 days	13/1/2014	5/3/2014	100%
332	4.11.8.4	H3 - SMH9043-37, 9036 (DN900)	41 days	6/3/2014	15/4/2014	99%
333	4.11.8.5	H4 - SMH9036-30,9029 (DN900)	32 days	15/3/2014	15/4/2014	99%
334	4.11.8.6	H5 - SMH9029-22,9021 (DN750,900)	43 days	28/4/2014	9/6/2014	50%
335	4.11.8.7	H6 - SMH9021-14,9013 (DN750)	36 days	5/5/2014	9/6/2014	0%
336	4.11.8.8	H7 - SMH9013-06,9005 (DN600,750)	35 days	30/4/2014	3/6/2014	0%
337	4.11.8.9	H8 - SMH9005-03,9002 (DN450)	23 days	8/5/2014	30/5/2014	0%
338	4.11.8.10	H8 - SMH9002-9001 (DN300)	9 days	31/5/2014	8/6/2014	0%
339	4.11.9	Water works at Lin Ma Hang Road (Drg.1914B-1917B)	128 days	11/3/2014	16/7/2014	55%
340	4.11.10	Irrigation System at Lin Ma Hang Road (Drg.1974B, 1976A, 1977A)	42 days	4/6/2014	15/7/2014	0%
341	4.11.10.1	from Phase H2-H8	37 days	4/6/2014	10/7/2014	0%
342	4.11.10.2	for Phase H1	8 days	8/7/2014	15/7/2014	0%
343	4.11.10.3	after Phase H8	13 days	28/6/2014	10/7/2014	0%
344	**4.11.11**	**Utility Works**	**168 days**	**16/4/2014**	**30/9/2014**	**19%**
345	**4.11.11.1**	**CLP - LV (west side of new Lin Ma Hang Road)**	**103 days**	**16/4/2014**	**27/7/2014**	**13%**
346	4.11.11.1.1	from chainage 840 to chainage 1125	15 days	16/4/2014	30/4/2014	50%
347	4.11.11.1.2	from chainage 630 to chainage 840	22 days	10/6/2014	1/7/2014	0%
348	4.11.11.1.3	from chainage 475 to chainage 630	11 days	17/7/2014	27/7/2014	0%
349	4.11.11.1.4	from chainage 1125 to chainage 1270	10 days	8/7/2014	17/7/2014	0%
350	4.11.11.2	CLP - LV (east side of new Lin Ma Hang Road)	36 days	6/7/2014	10/8/2014	13%
351	4.11.11.2.1	from chainage 840 to chainage 1125	15 days	6/7/2014	20/7/2014	50%
352	4.11.11.2.2	from chainage 630 to chainage 840	21 days	21/7/2014	10/8/2014	0%
353	4.11.11.2.3	from chainage 475 to chainage 630	10 days	8/7/2014	17/7/2014	0%
354	4.11.11.2.4	from chainage 1125 to chainage 1270	10 days	17/7/2014	26/7/2014	0%
355	**4.11.11.3**	**CLP - 11kV (west side of new Lin Ma Hang Road)**	**97 days**	**2/5/2014**	**6/8/2014**	**13%**



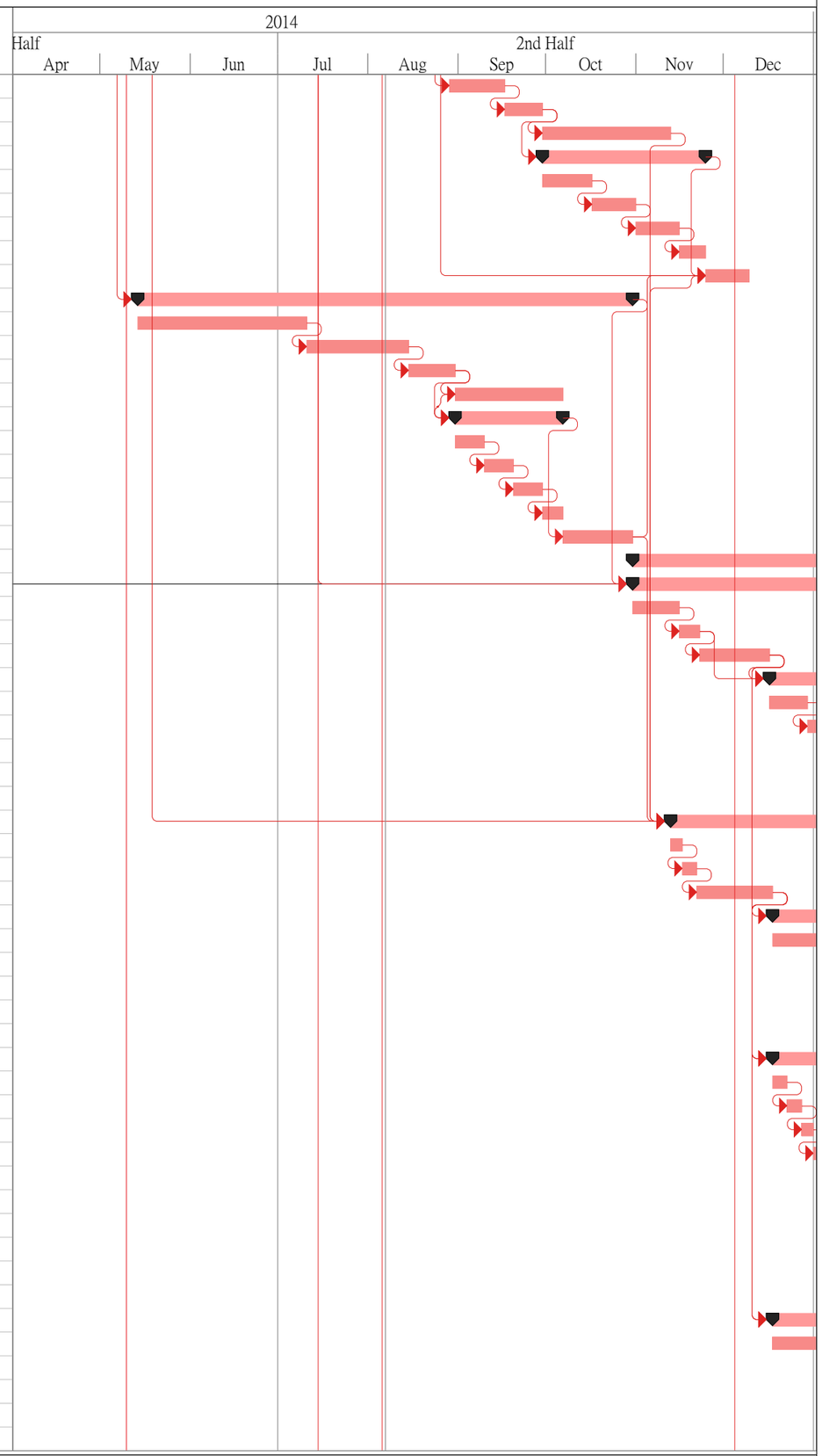
ID	WBS	Task Name	Duration	Start	Finish	% Complete
356	4.11.11.3.1	from chainage 840 to chainage 1125	15 days	2/5/2014	16/5/2014	50%
357	4.11.11.3.2	from chainage 630 to chainage 840	21 days	2/7/2014	22/7/2014	0%
358	4.11.11.3.3	from chainage 475 to chainage 630	10 days	28/7/2014	6/8/2014	0%
359	4.11.11.3.4	from chainage 1125 to chainage 1270	11 days	18/7/2014	28/7/2014	0%
360	4.11.11.4	CLP - 11kV (east side of new Lin Ma Hang Road)	46 days	18/7/2014	1/9/2014	13%
361	4.11.11.4.1	from chainage 840 to chainage 1125	15 days	22/7/2014	5/8/2014	50%
362	4.11.11.4.2	from chainage 630 to chainage 840	21 days	12/8/2014	1/9/2014	0%
363	4.11.11.4.3	from chainage 475 to chainage 630	11 days	18/7/2014	28/7/2014	0%
364	4.11.11.4.4	from chainage 1125 to chainage 1270	11 days	27/7/2014	6/8/2014	0%
365	**4.11.11.5**	**PCCW (west side of new Lin Ma Hang Road)**	**114 days**	**2/5/2014**	**23/8/2014**	**0%**
366	4.11.11.5.1	from chainage 840 to chainage 1125	25 days	5/6/2014	29/6/2014	0%
367	4.11.11.5.2	from chainage 630 to chainage 840	34 days	2/5/2014	4/6/2014	0%
368	4.11.11.5.3	from chainage 475 to chainage 630	17 days	7/8/2014	23/8/2014	0%
369	4.11.11.5.4	from chainage 1125 to chainage 1270	16 days	29/7/2014	13/8/2014	0%
370	**4.11.11.6**	**HGC (west side of new Lin Ma Hang Road)**	**91 days**	**5/6/2014**	**3/9/2014**	**0%**
371	4.11.11.6.1	from chainage 840 to chainage 1125	16 days	30/6/2014	15/7/2014	0%
372	4.11.11.6.2	from chainage 630 to chainage 840	21 days	5/6/2014	25/6/2014	0%
373	4.11.11.6.3	from chainage 475 to chainage 630	11 days	24/8/2014	3/9/2014	0%
374	4.11.11.6.4	from chainage 1125 to chainage 1270	10 days	20/8/2014	29/8/2014	0%
375	**4.11.11.7**	**NWT (west side of new Lin Ma Hang Road)**	**84 days**	**26/6/2014**	**17/9/2014**	**100%**
380	4.11.11.8	Street lighting work	29 days	2/9/2014	30/9/2014	0%
381	4.11.11.8.1	west side of new Lin Ma Hang Road	15 days	16/9/2014	30/9/2014	0%
382	4.11.11.8.2	east side of new Lin Ma Hang Road	29 days	2/9/2014	30/9/2014	0%
383	4.11.12	Roadwork of carriageway (new Lin Ma Hang Road for BCPA)	72 days	21/7/2014	30/9/2014	0%
384	4.11.13	Construction of footpath (for BCPA)	72 days	21/7/2014	30/9/2014	0%
385	**4.11.14**	**Construction of pedestrian subway & pump room**	**202 days**	**6/11/2013**	**26/5/2014**	**85%**
386	4.11.14.1	prepare formation of sheetpiling/excavation	9 days	6/11/2013	14/11/2013	100%
387	4.11.14.2	excavation &/or sheetpiling	33 days	15/11/2013	17/12/2013	100%
388	4.11.14.3	rubble mound	16 days	2/12/2013	17/12/2013	100%
389	4.11.14.4	cast blinding layer	17 days	11/12/2013	27/12/2013	100%
390	4.11.14.5	pump house	30 days	16/12/2013	14/1/2014	100%
391	4.11.14.6	subway 8th bay	27 days	15/1/2014	10/2/2014	100%
392	4.11.14.7	subway 7th bay	23 days	11/2/2014	5/3/2014	98%
393	4.11.14.8	subway 6th bay	17 days	25/2/2014	13/3/2014	100%
394	4.11.14.9	miscellaneous works	74 days	14/3/2014	26/5/2014	50%
395	**4.11.15**	**Construction of staircase with lift shaft with 6 nos. of mini pile**	**225 days**	**14/10/2013**	**26/5/2014**	**96%**
396	4.11.15.1	mini-piles	54 days	14/10/2013	6/12/2013	100%
397	4.11.15.2	lift shaft	41 days	7/12/2013	16/1/2014	100%
398	4.11.15.3	Bay 9	33 days	17/1/2014	18/2/2014	65%
399	4.11.15.4	Staircase	64 days	19/2/2014	23/4/2014	100%
400	4.11.15.5	miscellaneous works	73 days	15/3/2014	26/5/2014	100%
401	**4.11.16**	**1 no. DN1650 pipe jacking LV009 including jacking & receiving pits**	**147 days**	**6/11/2013**	**1/4/2014**	**85%**
402	**4.11.16.1**	**Pits construction**	**36 days**	**6/11/2013**	**11/12/2013**	**100%**
403	4.11.16.1.1	utility detection of the area	3 days	6/11/2013	8/11/2013	100%
404	4.11.16.1.2	inspection pits for jacking pit and receiving pit	5 days	9/11/2013	13/11/2013	100%
405	4.11.16.1.3	temporary work & excavation for receiving pit	14 days	28/11/2013	11/12/2013	100%
406	4.11.16.1.4	temporary work & excavation for jacking pit	14 days	14/11/2013	27/11/2013	100%
407	**4.11.16.2**	**Jack sleeve Pipes**	**89 days**	**12/12/2013**	**10/3/2014**	**100%**
408	4.11.16.2.1	establishment of jacking equipment	15 days	12/12/2013	26/12/2013	100%
409	4.11.16.2.2	jack pipe and excavate	74 days	27/12/2013	10/3/2014	100%
410	4.11.16.3	HDPE pipes	22 days	11/3/2014	1/4/2014	0%
411	4.11.16.3.1	Lay HDPE pipes	7 days	11/3/2014	17/3/2014	0%
412	4.11.16.3.2	Grout HDPE pipes	7 days	18/3/2014	24/3/2014	0%
413	4.11.16.3.3	Remove temporary works and backfilling	8 days	25/3/2014	1/4/2014	0%
414	**4.11.17**	**Construction of retaining wall RW9 - CH0 to 75m (length 75m)**	**110 days**	**2/4/2014**	**20/7/2014**	**0%**
415	4.11.17.1	drive sheetpile & excavation	14 days	2/4/2014	15/4/2014	0%
416	4.11.17.2	grade 200 rock fill	14 days	6/4/2014	19/4/2014	0%
417	4.11.17.3	cast blinding layer	14 days	14/4/2014	27/4/2014	0%



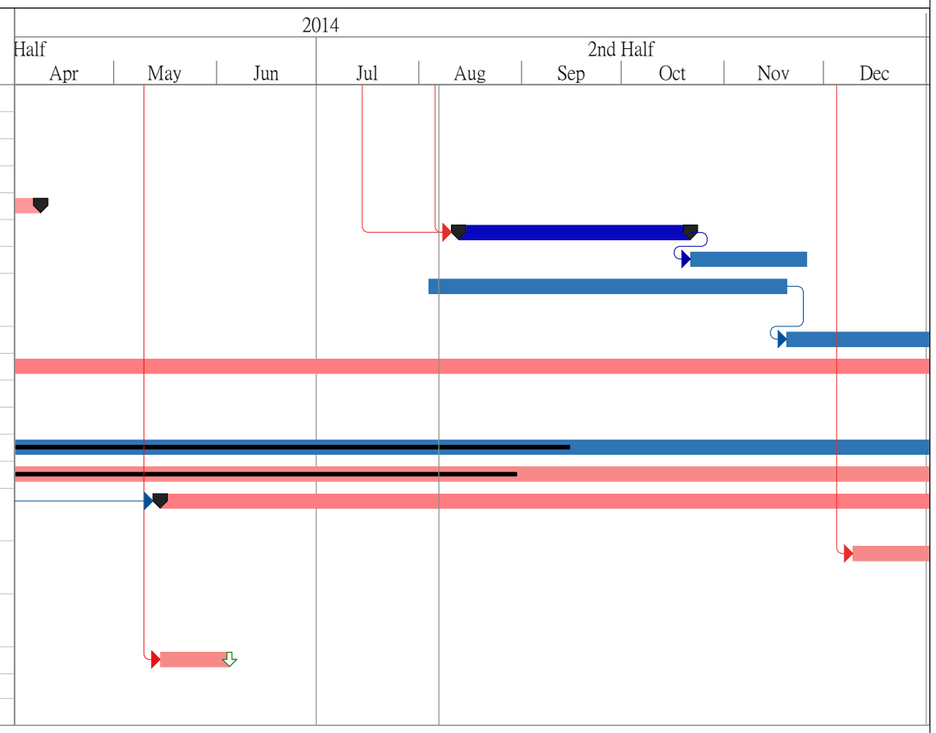
ID	WBS	Task Name	Duration	Start	Finish	% Complete
418	4.11.17.4	Bay 9001-9010	94 days	18/4/2014	20/7/2014	0%
419	**4.11.18**	**Construction of Bridge J with 6 x Ø 1500 bored piles**	**217 days**	**7/12/2013**	**11/7/2014**	**41%**
420	4.11.18.1	bored piles	73 days	7/12/2013	17/2/2014	100%
421	4.11.18.2	pile caps	15 days	18/2/2014	4/3/2014	100%
422	4.11.18.3	abutment walls	24 days	3/3/2014	26/3/2014	10%
423	4.11.18.4	falsework for deck	15 days	25/3/2014	8/4/2014	0%
424	4.11.18.5	deck	55 days	9/4/2014	2/6/2014	0%
425	4.11.18.6	parapet	39 days	3/6/2014	11/7/2014	0%
426	**4.11.19**	**Construction of retaining wall RW5 - CH0 to 60m (length 60m)**	**44 days**	**27/3/2014**	**9/5/2014**	**0%**
427	4.11.19.1	drive sheetpile & excavation	11 days	27/3/2014	6/4/2014	0%
428	4.11.19.2	grade 200 rock fill	4 days	7/4/2014	10/4/2014	0%
429	4.11.19.3	cast blinding layer	5 days	11/4/2014	15/4/2014	0%
430	4.11.19.4	Bay 5001-5008	24 days	16/4/2014	9/5/2014	0%
431	**4.12**	**Section XIII of the Works - Works not covered in any other Sections**	**598 days**	**22/8/2013**	**11/4/2015**	**26%**
432	4.12.1	Submissions	70 days	22/8/2013	30/10/2013	100%
433	4.12.2	Approval of Submissions	68 days	16/9/2013	22/11/2013	100%
434	**4.12.3**	**Temporary Traffic Arrangement (TTA) Scheme for Works at existing LMH Rd**	**92 days**	**23/8/2013**	**22/11/2013**	**100%**
435	4.12.3.1	Preparation of TTA scheme	21 days	23/8/2013	12/9/2013	100%
436	4.12.3.2	Comment & approval of TTA scheme by TD & RMO	55 days	13/9/2013	6/11/2013	100%
437	4.12.3.3	Obtain roadwork advice from RMO	16 days	7/11/2013	22/11/2013	100%
438	**4.12.4**	**Northbound of Re-aligned Lin Ma Hang Road (west side)**	**382 days**	**23/11/2013**	**9/12/2014**	**24%**
439	**4.12.4.1**	**Works from chainage 190 to chainage 310**	**229 days**	**23/11/2013**	**9/7/2014**	**49%**
440	4.12.4.1.1	Drainage & slope drain	76 days	23/11/2013	6/2/2014	100%
441	4.12.4.1.2	Waterwork	38 days	7/2/2014	16/3/2014	95%
442	4.12.4.1.3	Irrigation System	18 days	17/3/2014	3/4/2014	0%
443	4.12.4.1.4	Roadwork	40 days	4/4/2014	13/5/2014	0%
444	4.12.4.1.5	Utilities works	38 days	14/5/2014	20/6/2014	0%
445	4.12.4.1.5.1	11kV	9 days	14/5/2014	22/5/2014	0%
446	4.12.4.1.5.2	LV	9 days	23/5/2014	31/5/2014	0%
447	4.12.4.1.5.3	NWT	10 days	1/6/2014	10/6/2014	0%
448	4.12.4.1.5.4	Highway lighting	10 days	11/6/2014	20/6/2014	0%
449	4.12.4.1.6	Footpath	19 days	21/6/2014	9/7/2014	0%
450	**4.12.4.2**	**Works from chainage 380 to chainage 580**	**263 days**	**23/11/2013**	**12/8/2014**	**40%**
451	4.12.4.2.1	Drainage	76 days	23/11/2013	6/2/2014	95%
452	4.12.4.2.2	Waterwork	35 days	7/2/2014	13/3/2014	95%
453	4.12.4.2.3	Irrigation System	18 days	14/3/2014	31/3/2014	0%
454	4.12.4.2.4	Roadwork	43 days	1/4/2014	13/5/2014	0%
455	4.12.4.2.5	Utilities works	57 days	14/5/2014	9/7/2014	0%
456	4.12.4.2.5.1	11kV	15 days	14/5/2014	28/5/2014	0%
457	4.12.4.2.5.2	LV	16 days	29/5/2014	13/6/2014	0%
458	4.12.4.2.5.3	NWT	15 days	14/6/2014	28/6/2014	0%
459	4.12.4.2.5.4	Highway lighting	11 days	29/6/2014	9/7/2014	0%
460	4.12.4.2.6	Footpath	34 days	10/7/2014	12/8/2014	0%
461	**4.12.4.3**	**Works from chainage 310 to chainage 380**	**99 days**	**14/5/2014**	**20/8/2014**	**0%**
462	4.12.4.3.1	Drainage	30 days	14/5/2014	12/6/2014	0%
463	4.12.4.3.2	Waterwork	12 days	13/6/2014	24/6/2014	0%
464	4.12.4.3.3	Irrigation System	9 days	25/6/2014	3/7/2014	0%
465	4.12.4.3.4	Roadwork	18 days	4/7/2014	21/7/2014	0%
466	4.12.4.3.5	Utilities works	22 days	22/7/2014	12/8/2014	0%
467	4.12.4.3.5.1	11kV	5 days	22/7/2014	26/7/2014	0%
468	4.12.4.3.5.2	LV	6 days	27/7/2014	1/8/2014	0%
469	4.12.4.3.5.3	NWT	6 days	2/8/2014	7/8/2014	0%
470	4.12.4.3.5.4	Highway lighting	5 days	8/8/2014	12/8/2014	0%
471	4.12.4.3.6	Footpath	8 days	13/8/2014	20/8/2014	0%
472	**4.12.4.4**	**Works from chainage 580 to chainage 780**	**210 days**	**14/5/2014**	**9/12/2014**	**12%**
473	4.12.4.4.1	Drainage	72 days	14/5/2014	24/7/2014	0%
474	4.12.4.4.2	Waterwork	35 days	25/7/2014	28/8/2014	85%



ID	WBS	Task Name	Duration	Start	Finish	% Complete
475	4.12.4.4.3	Irrigation System	19 days	29/8/2014	16/9/2014	0%
476	4.12.4.4.4	Sewerage	13 days	17/9/2014	29/9/2014	0%
477	4.12.4.4.5	Roadwork	44 days	30/9/2014	12/11/2014	0%
478	4.12.4.4.6	Utilities works	56 days	30/9/2014	24/11/2014	0%
479	4.12.4.4.6.1	11kV	17 days	30/9/2014	16/10/2014	0%
480	4.12.4.4.6.2	LV	15 days	17/10/2014	31/10/2014	0%
481	4.12.4.4.6.3	NWT	15 days	1/11/2014	15/11/2014	0%
482	4.12.4.4.6.4	Highway lighting	9 days	16/11/2014	24/11/2014	0%
483	4.12.4.4.7	Footpath	15 days	25/11/2014	9/12/2014	0%
484	**4.12.4.5**	**Works from chainage 80 to chainage 190**	**170 days**	**14/5/2014**	**30/10/2014**	**0%**
485	4.12.4.5.1	Drainage	58 days	14/5/2014	10/7/2014	0%
486	4.12.4.5.2	Waterwork	35 days	11/7/2014	14/8/2014	0%
487	4.12.4.5.3	Irrigation System	16 days	15/8/2014	30/8/2014	0%
488	4.12.4.5.4	Roadwork	37 days	31/8/2014	6/10/2014	0%
489	4.12.4.5.5	Utilities works	37 days	31/8/2014	6/10/2014	0%
490	4.12.4.5.5.1	11kV	10 days	31/8/2014	9/9/2014	0%
491	4.12.4.5.5.2	LV	10 days	10/9/2014	19/9/2014	0%
492	4.12.4.5.5.3	NWT	10 days	20/9/2014	29/9/2014	0%
493	4.12.4.5.5.4	Highway lighting	7 days	30/9/2014	6/10/2014	0%
494	4.12.4.5.6	Footpath	24 days	7/10/2014	30/10/2014	0%
495	**4.12.5**	**Southbound of Re-aligned Lin Ma Hang Road (east side)**	**163 days**	**31/10/2014**	**11/4/2015**	**0%**
496	**4.12.5.1**	**Works from chainage 60 to chainage 200**	**111 days**	**31/10/2014**	**18/2/2015**	**0%**
497	4.12.5.1.1	Drainage	16 days	31/10/2014	15/11/2014	0%
498	4.12.5.1.2	Irrigation System	7 days	16/11/2014	22/11/2014	0%
499	4.12.5.1.3	Roadwork	24 days	23/11/2014	16/12/2014	0%
500	4.12.5.1.4	Utilities works	43 days	17/12/2014	28/1/2015	0%
501	4.12.5.1.4.1	11kV	13 days	17/12/2014	29/12/2014	0%
502	4.12.5.1.4.2	LV	11 days	30/12/2014	9/1/2015	0%
503	4.12.5.1.4.3	HGC	10 days	10/1/2015	19/1/2015	0%
504	4.12.5.1.4.4	Highway lighting	9 days	20/1/2015	28/1/2015	0%
505	4.12.5.1.5	Footpath	21 days	29/1/2015	18/2/2015	0%
506	**4.12.5.2**	**Works from chainage 400 to chainage 600**	**133 days**	**13/11/2014**	**25/3/2015**	**0%**
507	4.12.5.2.1	Waterwork	4 days	13/11/2014	16/11/2014	0%
508	4.12.5.2.2	Irrigation System	5 days	17/11/2014	21/11/2014	0%
509	4.12.5.2.3	Roadwork	26 days	22/11/2014	17/12/2014	0%
510	4.12.5.2.4	Utilities works	63 days	18/12/2014	18/2/2015	0%
511	4.12.5.2.4.1	11kV	17 days	18/12/2014	3/1/2015	0%
512	4.12.5.2.4.2	LV	16 days	4/1/2015	19/1/2015	0%
513	4.12.5.2.4.3	HGC	15 days	20/1/2015	3/2/2015	0%
514	4.12.5.2.4.4	Highway lighting	15 days	4/2/2015	18/2/2015	0%
515	4.12.5.2.5	Footpath	35 days	19/2/2015	25/3/2015	0%
516	**4.12.5.3**	**Works from chainage 200 to chainage 400**	**115 days**	**18/12/2014**	**11/4/2015**	**0%**
517	4.12.5.3.1	Slope drain	5 days	18/12/2014	22/12/2014	0%
518	4.12.5.3.2	Irrigation System	5 days	23/12/2014	27/12/2014	0%
519	4.12.5.3.3	Waterwork	4 days	28/12/2014	31/12/2014	0%
520	4.12.5.3.4	Roadwork	25 days	1/1/2015	25/1/2015	0%
521	4.12.5.3.5	Utilities works	62 days	26/1/2015	28/3/2015	0%
522	4.12.5.3.5.1	11kV	15 days	26/1/2015	9/2/2015	0%
523	4.12.5.3.5.2	LV	17 days	10/2/2015	26/2/2015	0%
524	4.12.5.3.5.3	HGC	15 days	27/2/2015	13/3/2015	0%
525	4.12.5.3.5.4	Highway lighting	15 days	14/3/2015	28/3/2015	0%
526	4.12.5.3.6	Footpath	17 days	26/3/2015	11/4/2015	0%
527	**4.12.5.4**	**Works from chainage 600 to chainage 780**	**115 days**	**18/12/2014**	**11/4/2015**	**0%**
528	4.12.5.4.1	Sewerage	20 days	18/12/2014	6/1/2015	0%
529	4.12.5.4.2	Irrigation System	9 days	7/1/2015	15/1/2015	0%
530	4.12.5.4.3	Roadwork	21 days	16/1/2015	5/2/2015	0%
531	4.12.5.4.4	Utilities works	55 days	6/2/2015	1/4/2015	0%
532	4.12.5.4.4.1	11kV	13 days	6/2/2015	18/2/2015	0%

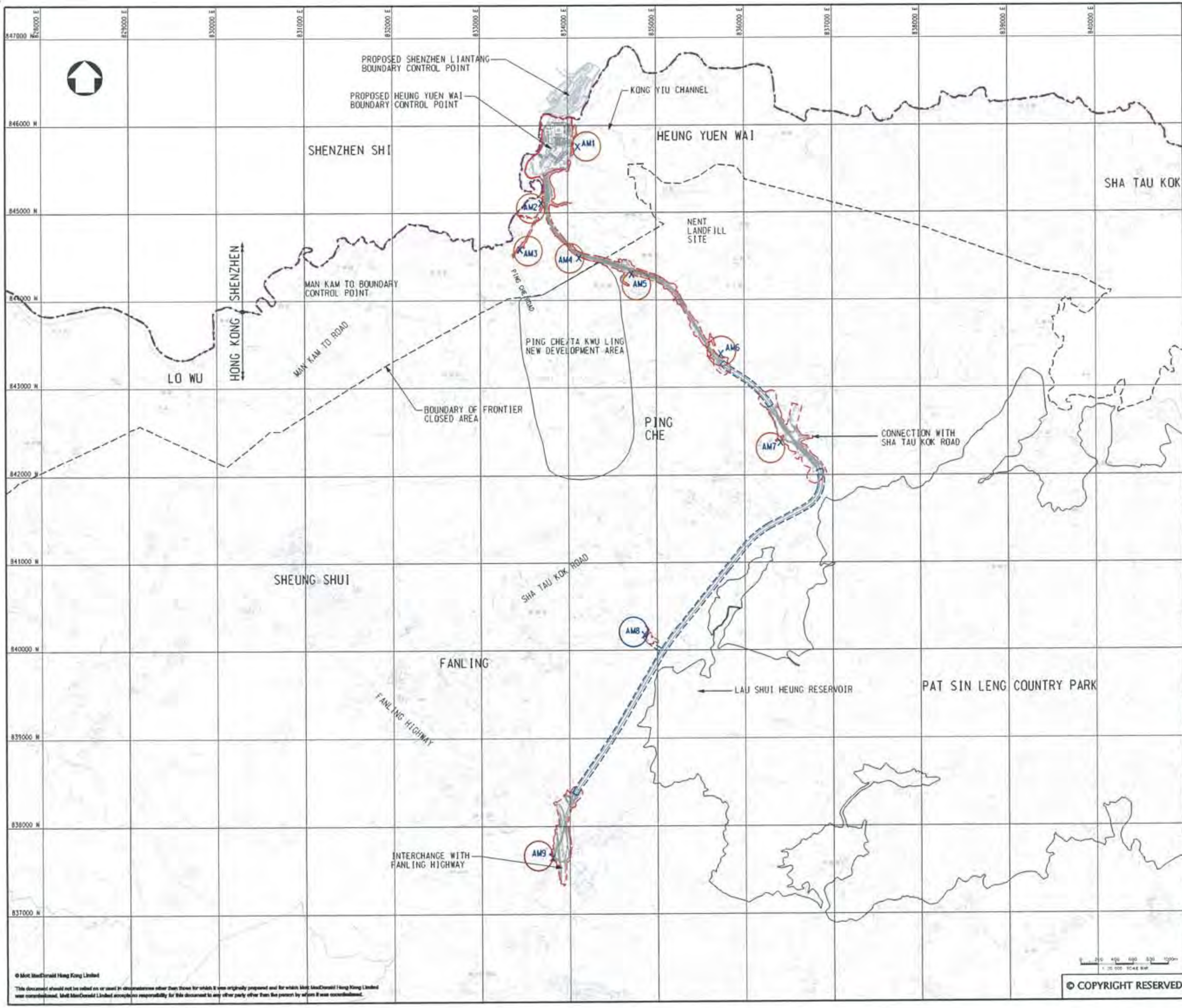


ID	WBS	Task Name	Duration	Start	Finish	% Complete
533	4.12.5.4.4.2	LV	16 days	19/2/2015	6/3/2015	0%
534	4.12.5.4.4.3	HGC	13 days	7/3/2015	19/3/2015	0%
535	4.12.5.4.4.4	Highway lighting	13 days	20/3/2015	1/4/2015	0%
536	4.12.5.4.5	Footpath	18 days	25/3/2015	11/4/2015	0%
537	**4.12.6**	**Archaeological survey (Sections T1 to T3)(Drg. 6403A)**	**167 days**	**24/10/2013**	**8/4/2014**	**100%**
543	**4.12.7**	**Construction of retaining wall RW8 - CH0 to 22 (3 bays)**	**70 days**	**13/8/2014**	**21/10/2014**	**0%**
545	4.12.8	Site Formation works for ArchSD Depot (Drg. 1001B)	35 days	22/10/2014	25/11/2014	0%
546	4.12.9	Existing road to be improved & run-in to the site to be constructed at RS1 (Drg.1203A, 1001B)	108 days	4/8/2014	19/11/2014	0%
547	4.12.10	Access road to be re-constructed / upgraded at RS3 (Drg/1203)	111 days	20/11/2014	10/3/2015	0%
548	**4.13**	**Section XIV of the Works - Trees preservation and protection**	**730 days**	**12/4/2013**	**11/4/2015**	**72%**
549	4.13.1	Submissions	69 days	12/4/2013	19/6/2013	100%
550	4.13.2	Approval of Submissions	70 days	20/6/2013	28/8/2013	100%
551	4.13.3	Tree felling/removal works and tree transplanting works	499 days	6/9/2013	17/1/2015	75%
552	4.13.4	Preservation and Protection of Existing Trees in all Portion of the Site	591 days	29/8/2013	11/4/2015	62%
553	**4.14**	**Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)**	**332 days**	**15/5/2014**	**11/4/2015**	**0%**
554	4.14.1	tree & shrub planting at re-aligned Lin Ma Hang Road (west) for Section XIII of the Works	58 days	10/12/2014	5/2/2015	0%
555	4.14.2	tree & shrub planting at re-aligned Lin Ma Hang Road (east) for Section XIII of the Works	65 days	6/2/2015	11/4/2015	0%
556	4.14.3	shrub planting at BCPC for Section X of the Works	21 days	15/5/2014	4/6/2014	0%
557	4.14.4	tree & shrub planting at BCPD Section XI of the Works	55 days	16/2/2015	11/4/2015	0%
558	**4.15**	**Section XVI of the Works - Establishment works for landscape soft works**	**365 days**	**12/4/2015**	**10/4/2016**	**0%**



Appendix D

Designated Monitoring Locations as Recommended in the Approved EM&A Manual



Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	AUG 10	MING	FIRST ISSUE	DC	HT

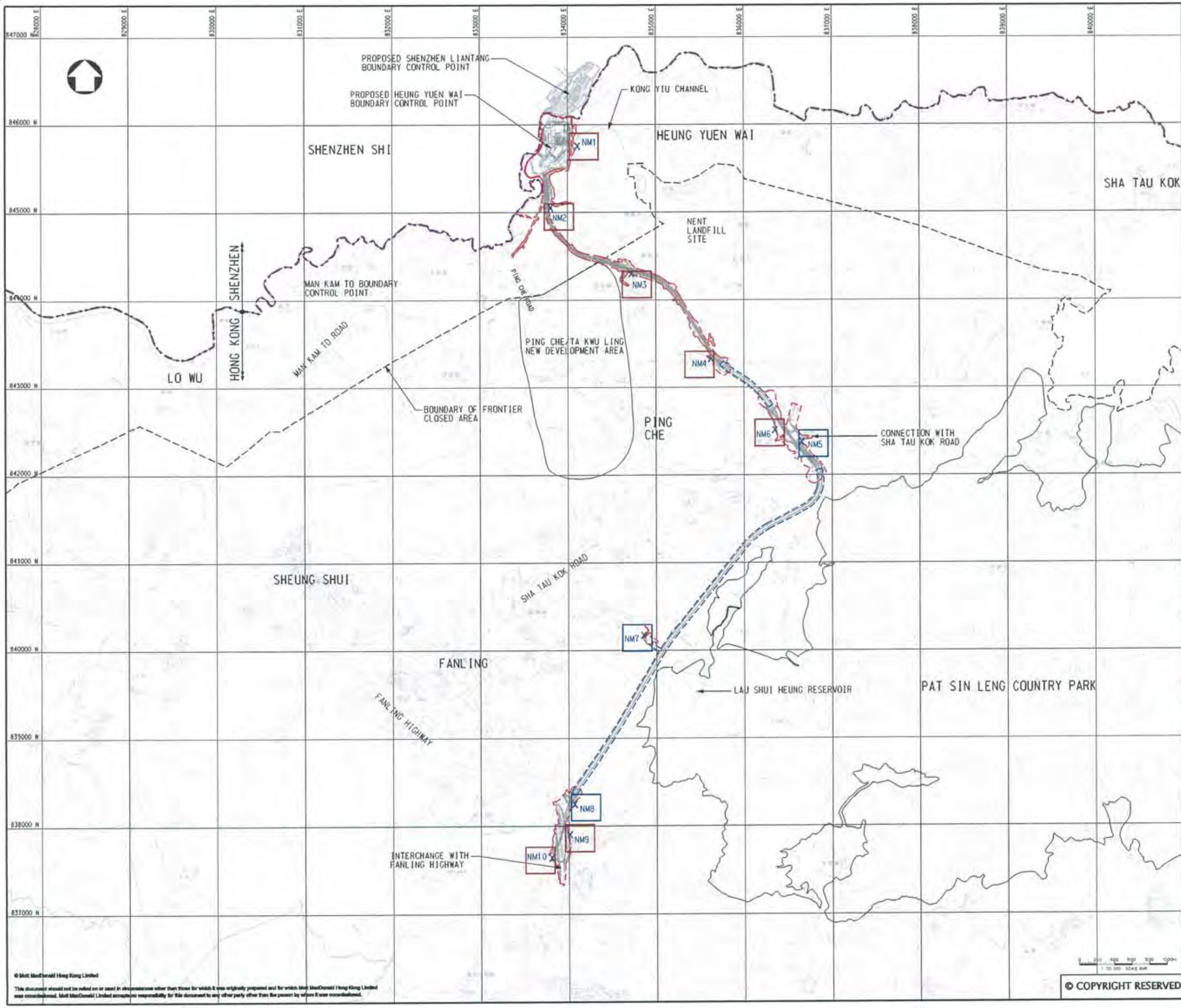
Mott MacDonald

Client: CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project: AGREEMENT NO. CE45/2008(CE) LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Title: PROPOSED LOCATION OF CONSTRUCTION AIR QUALITY MONITORING STATIONS

Designed	DC	Eng.Chk.	EC
Drawn	MING	Coordination	EC
Dwg.Chk.	DC	Approved	HT
Scale at A1	1:20000	Project	255228
Status	PRE		
Drawing No	FIGURE 2.1	Rev	P1



Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	AUG 10	WING	FIRST ISSUE	DC	HT

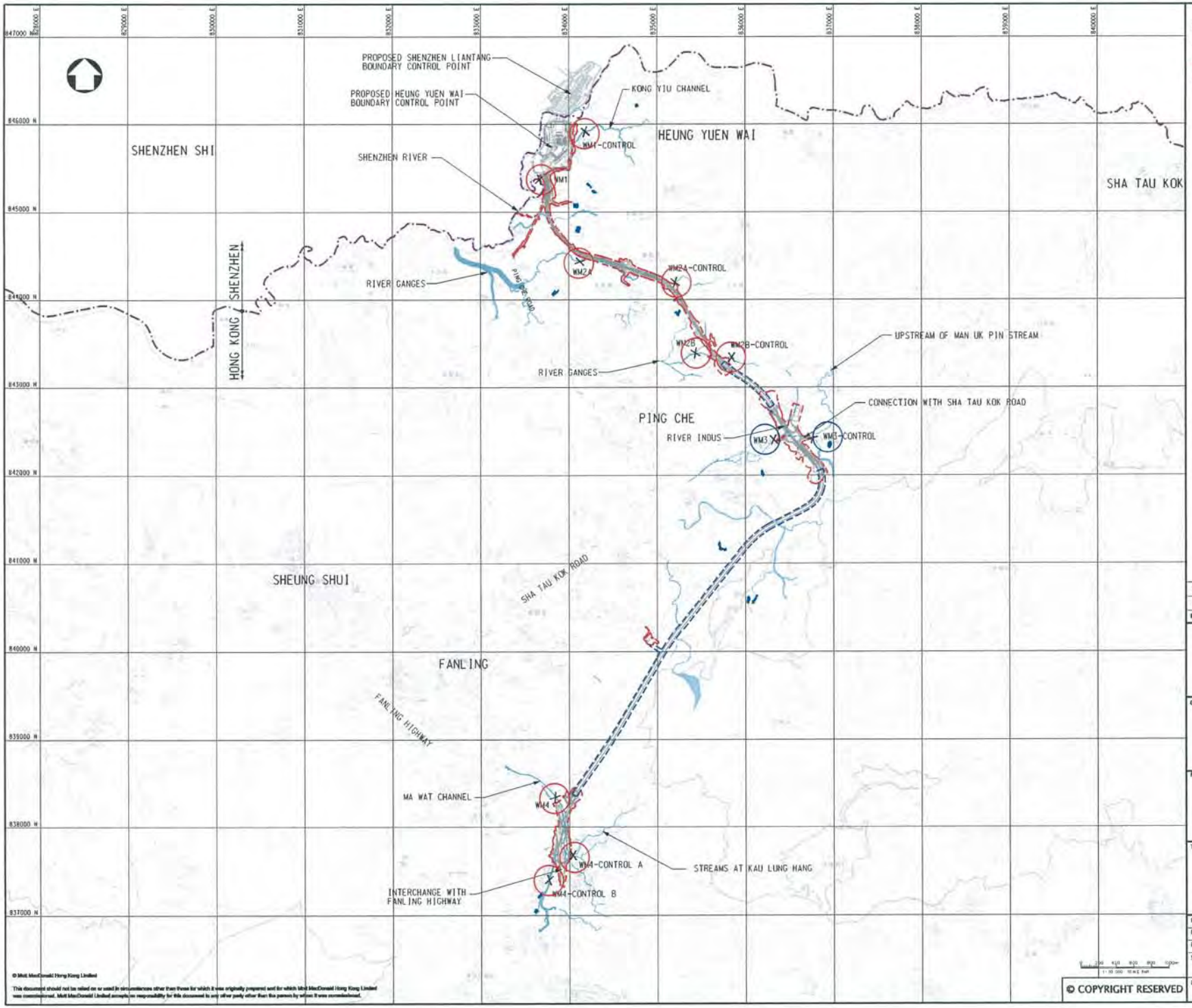
Mott MacDonald

Client: CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project: AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Title: PROPOSED LOCATION OF CONSTRUCTION NOISE MONITORING STATIONS

Designed	DC	Eng.Chk.	EC
Drawn	WING	Coordination	EC
Dwg.Chk.	DC	Approved	HT
Scale at A1	1:20000	Project	255228
Status	PRE		
Drawing No	FIGURE 3.1	Rev	P1



LEGEND:

- BOUNDARY OF HKSAR
- LAND REQUIREMENT LIMIT (ABOVE GROUND)
- LAND REQUIREMENT LIMIT (TUNNEL)
- X PROPOSED WATER QUALITY MONITORING STATION

MONITORING STATION	CO-ORDINATES	
	EAST(NG(m)	NORTHING(m)
WM1	833668.635	845371.097
WM1-CONTROL	834185.480	845916.662
WM2A	834132.193	844432.910
WM2A-CONTROL	835205.329	844200.151
WM2B	835434.744	843394.606
WM2B-CONTROL	835845.878	843343.625
WM3	836323.622	842404.977
WM3-CONTROL	836763.419	842425.507
WM4	833840.783	838344.842
WM4-CONTROL A	834038.937	837688.995
WM4-CONTROL B	833769.123	837406.936

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	NOV 10	WING	GENERAL REVISION	HC	HT
P1	OCT 10	WING	FIRST ISSUE	HC	HT

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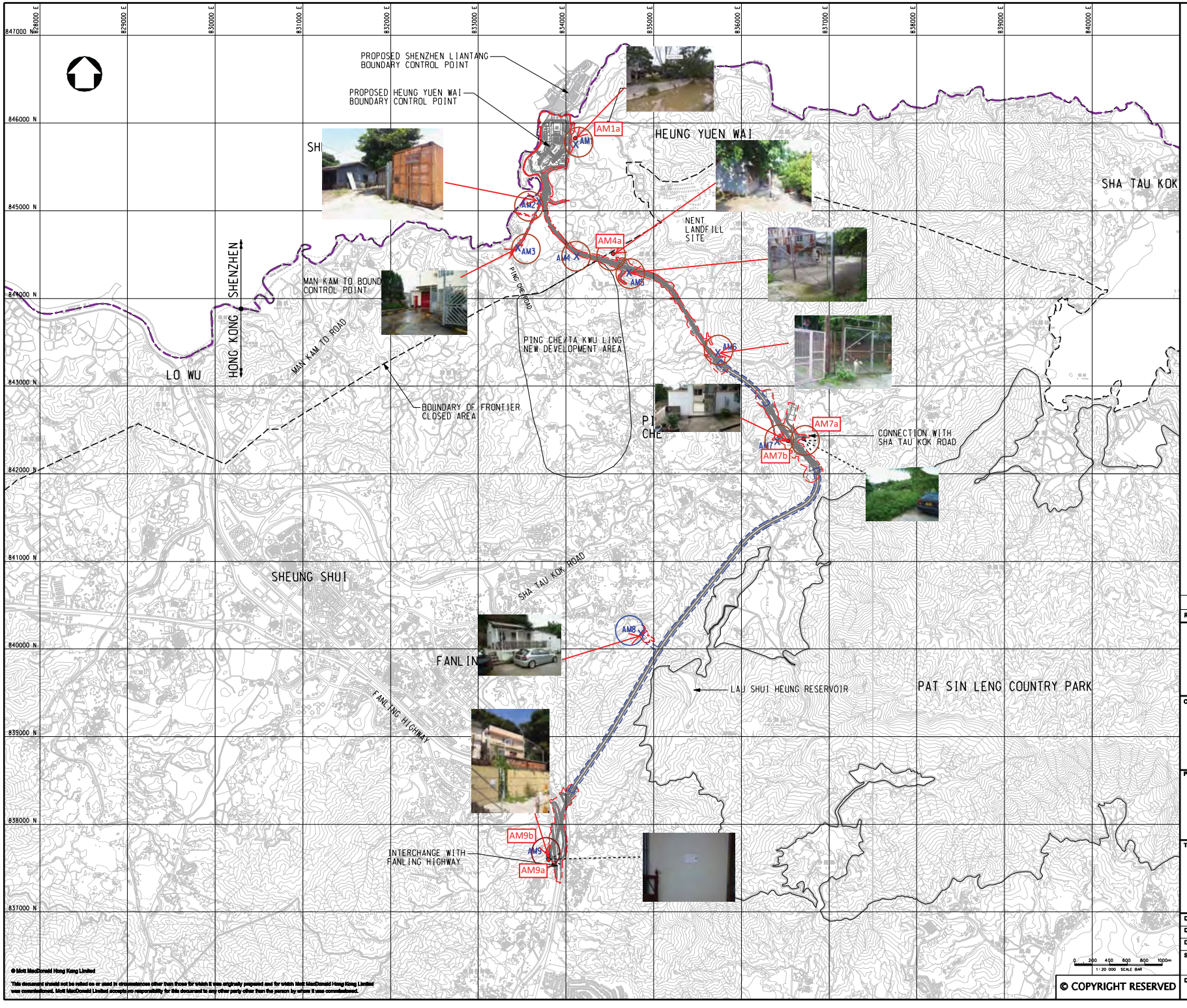
Project: AGREEMENT NO. CE45/2008(CE) LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Title: LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

Designed	HC		Eng.Chk.	EC	
Drawn	WING		Coordination	EC	
Eng.Chk.	HC		Approved	HT	
Scale at A1	1:20000	Project	255228		Status PRE
Drawing No	FIGURE 4.1				Rev P2

Appendix E

Monitoring Locations for Impact Monitoring



LEGEND:

- BOUNDARY OF HKSAR
- WORKS AREA (ABOVE GROUND)
- WORKS AREA (TUNNEL)
- X AIR MONITORING STATIONS

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	AUG 10	MING	FIRST ISSUE	DC	HT

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20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

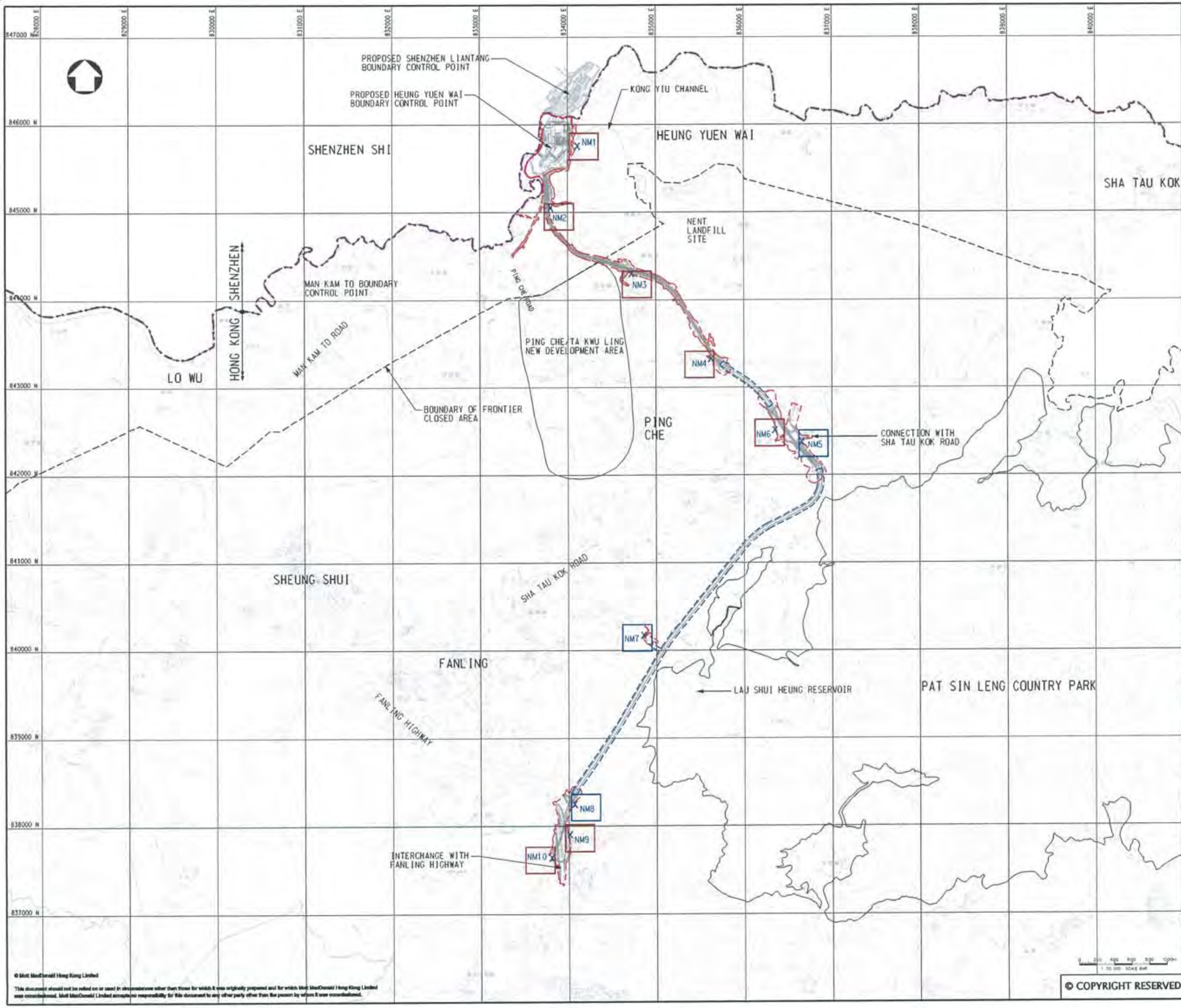
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Title

PROPOSED LOCATION OF CONSTRUCTION AIR QUALITY MONITORING STATIONS

Designed	DC		Eng.Chk.	EC	
Drawn	MING		Coordination	EC	
Dwg.Chk.	DC		Approved	HT	
Scale at A1	1:20000	Project	255228	Status	PRE
		CAD file	j:\255228\report\env\em&o\00831\FIG 2-1.dgn		
Drawing No	FIGURE 2.1			Rev	P1

0 200 400 600 800 1000m
1:20 000 SCALE BAR



LEGEND:

- BOUNDARY OF HKSAR
- WORKS AREA (ABOVE GROUND)
- WORKS AREA (TUNNEL)
- X CONSTRUCTION NOISE MONITORING STATIONS

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	AUG 10	WING	FIRST ISSUE	DC	HT

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Client: CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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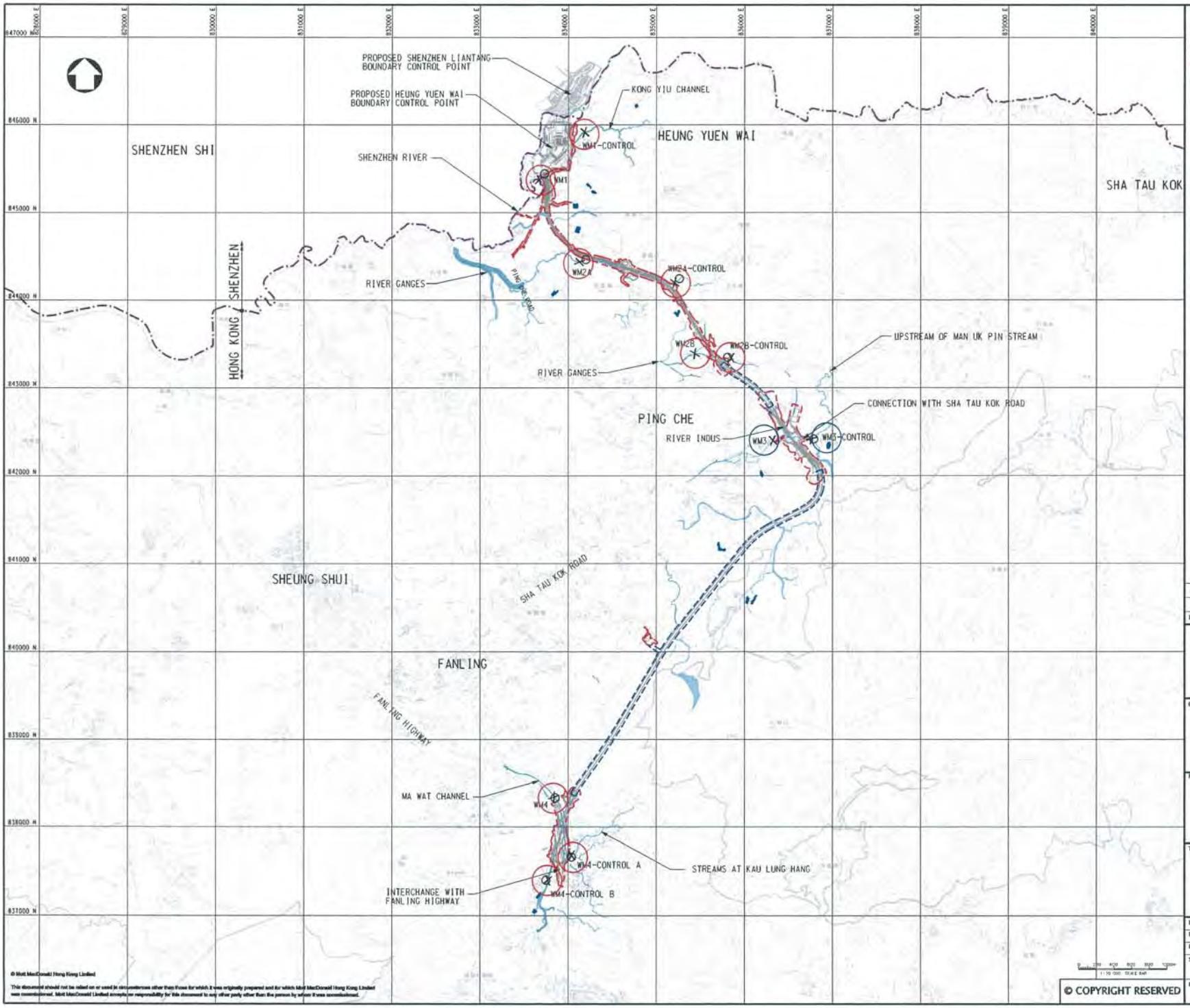
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Title: PROPOSED LOCATION OF CONSTRUCTION NOISE MONITORING STATIONS

Designed	DC	Eng Chk	EC
Drawn	WING	Coordination	EC
Dwg Chk	DC	Approved	HT
Scale at A1	1:20000	Project	255228
Drawing No	FIGURE 3.1	Status	PRE
		Rev	P1



LEGEND:

- BOUNDARY OF HKSAR
- LAND REQUIREMENT LIMIT (ABOVE GROUND)
- LAND REQUIREMENT LIMIT (TUNNEL)
- X — Water Quality Monitoring Location Recommended in EM&A Manual
- O — Alternative Water Quality Monitoring Location for EM&A Programme

Station ID	Location recommended in EM&A Manual – Coordinates		Location found during site visit – Coordinates	
	Easting	Northing	Easting	Northing
WM1	833668.635	845371.097	833679	845423
WM1-Control	834185.480	845916.662	834185	845917
WM2A	834132.193	844432.910	834204	844471
WM2A-Control	835205.529	844200.151	835270	844243
WM2B	835434.744	843394.606	835433	843397
WM2B-Control	835845.878	843343.625	835835	843351
WM3	836523.622	842404.977	836524	842407
WM3-Control	836763.419	842425.507	836763	842400
WM4	833840.785	838344.842	833850	838358
WM4-Control A	834038.937	837668.995	834028	837695
WM4-Control B	833769.123	837406.936	833760	837395

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	NOV 10	MING	GENERAL REVISION	HC	HT
P1	OCT 10	MING	FIRST ISSUE	HC	HT

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Project

AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

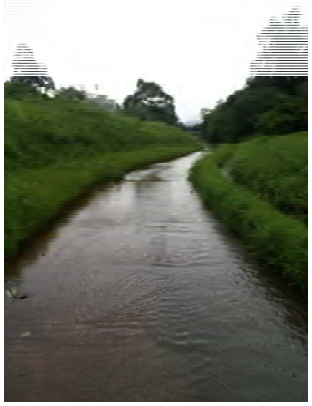
Title

LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

Designed	HC		Eng.Chk.	EC	
Drawn	MING		Coordination	EC	
Dwg.Chk.	HC		Approved	HT	
Scale at A1	1:20000	Project	255228	Status	PRE
		CAD file	A1\255228\REPORT\EMY-EM&A MANUAL\FIG 4-1.dgn		
Drawing No	FIGURE 4.1			Rev	P2

Photographic Records for Water Quality Monitoring Location

	
Alternative Location of WM1	**Co-ordinates of Alternative Location of WM1**
	
Alternative Location of WM1 - Control	**Co-ordinates of Alternative Location of WM1 - Control**
	
Alternative Location of WM2A	**Co-ordinates of Alternative Location of WM2A**
	
Alternative Location of WM2-Control A	**Co-ordinates of Alternative Location of WM2 – Control**

	
Location of WM2B-Control	**Co-ordinates of WM2B-Control**
	
Location of WM2B	**Co-ordinates of WM2B**
	
Location of WM3-Control	**Co-ordinates of WM3-Control**
	
Location of WM3	**Co-ordinates of WM3**

	
Location of WM4–Control A	**Co-ordinates of WM4-Control A**
	
Location of WM4–Control B	**Co-ordinates of WM4-Control B**
	
Location of WM4	**Co-ordinates of WM4**

Appendix F

Calibration Certificate of Monitoring Equipment and HOKLAS-accreditation Certificate of the Testing Laboratory

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Garden Farm, Tsung Yuen Ha Village
Location ID : AM1a

Date of Calibration: 23/6/2014
Next Calibration Date: 23/8/2014
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1004.1	Corrected Pressure (mm Hg)	753.075
Temperature (°C)	27.8	Temperature (K)	301

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5	5	10.0	1.569	48	47.56	Slope = 33.2665
13	4.1	4.1	8.2	1.421	42	41.61	Intercept = -5.2086
10	3.1	3.1	6.2	1.237	36	35.67	Corr. coeff. = 0.9992
7	2	2	4.0	0.995	28	27.74	
5	1.2	1.2	2.4	0.773	21	20.81	

Calculations :

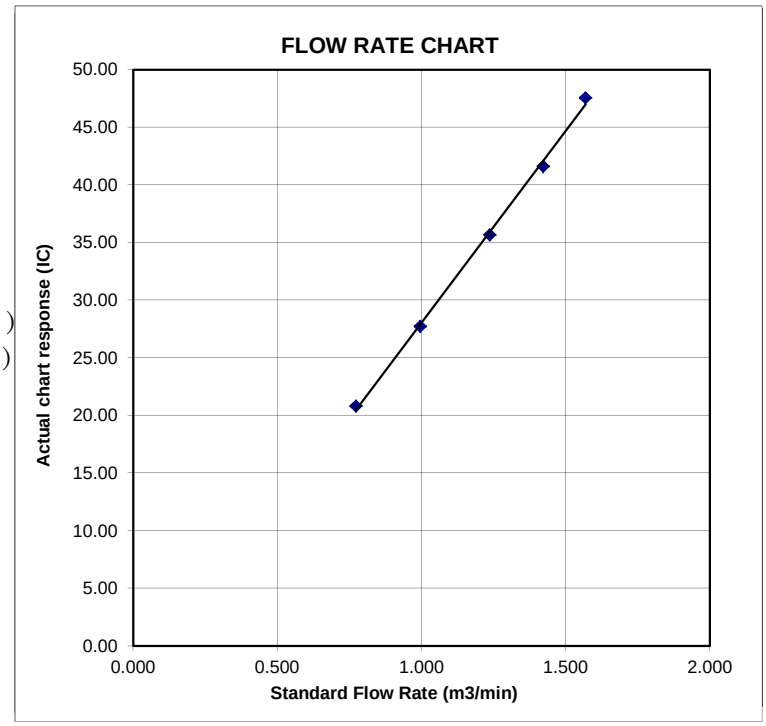
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Village House near Lin Ma Hang Road
Location ID : AM2

Date of Calibration: 20/6/2014
Next Calibration Date: 20/8/2014
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.7	Corrected Pressure (mm Hg)	752.025
Temperature (°C)	29.2	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.2	6.2	12.4	1.741	54	53.34	Slope = 33.4669
13	5	5	10.0	1.564	49	48.40	Intercept = -4.4451
10	3.9	3.9	7.8	1.382	42	41.49	Corr. coeff. = 0.9983
7	2.5	2.5	5.0	1.108	34	33.59	
5	1.5	1.5	3.0	0.860	24	23.71	

Calculations :

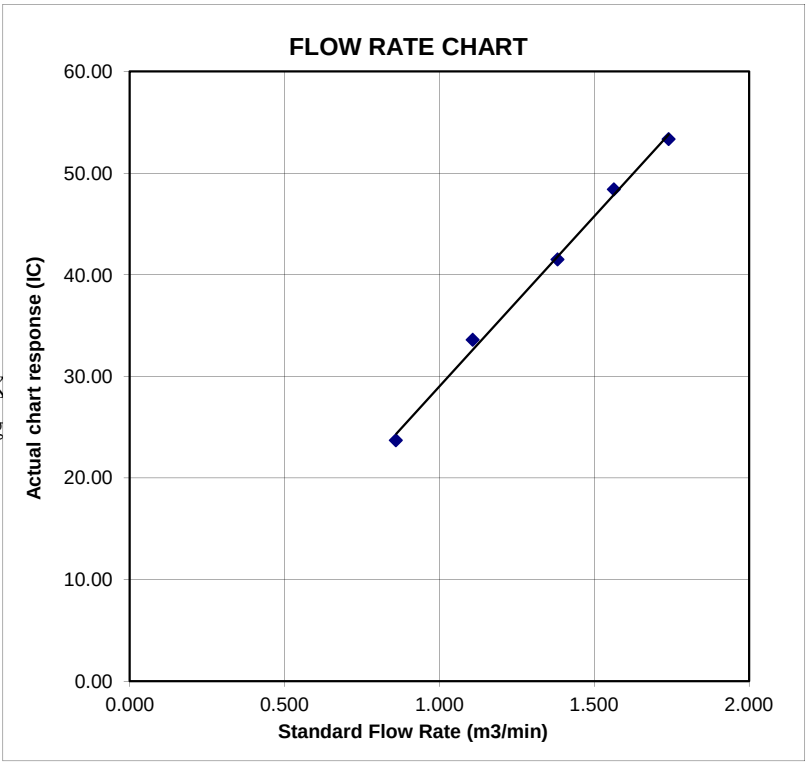
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ta Kwu Ling Fire Service Station
Location ID : AM3

Date of Calibration: 20/6/2014
Next Calibration Date: 20/8/2014
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.7	Corrected Pressure (mm Hg)	752.025
Temperature (ºC)	29.2	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.684	54	53.34	Slope = 32.3526
13	4.6	4.6	9.2	1.501	49	48.40	Intercept = -0.7315
10	3.7	3.7	7.4	1.347	43	42.48	Corr. coeff. = 0.9987
7	2.2	2.2	4.4	1.040	34	33.59	
5	1.4	1.4	2.8	0.831	26	25.68	

Calculations :

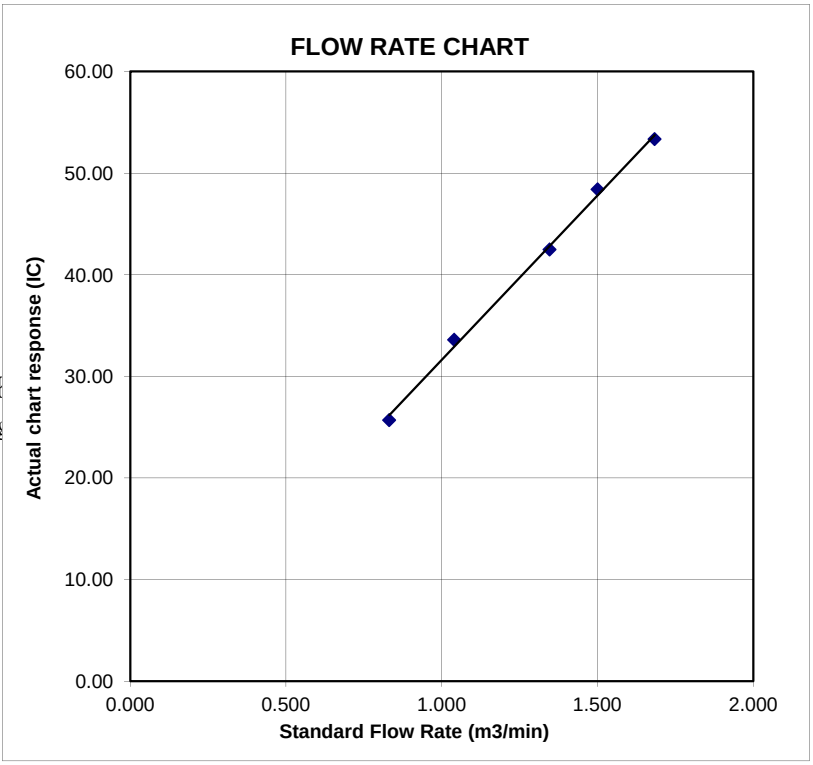
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Village House of Loi Tung Village
Location ID : AM7b

Date of Calibration: 26/5/2014
Next Calibration Date: 26/7/2014
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1010	Corrected Pressure (mm Hg)	757.5
Temperature (°C)	29.6	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.3	4.3	8.6	1.455	51	50.53	Slope = 33.8032
13	3.1	3.1	6.2	1.237	44	43.59	Intercept = 1.6299
10	2.3	2.3	4.6	1.067	39	38.64	Corr. coeff. = 0.9973
7	1.9	1.9	3.8	0.970	34	33.69	
5	1.3	1.3	2.6	0.804	29	28.73	

Calculations :

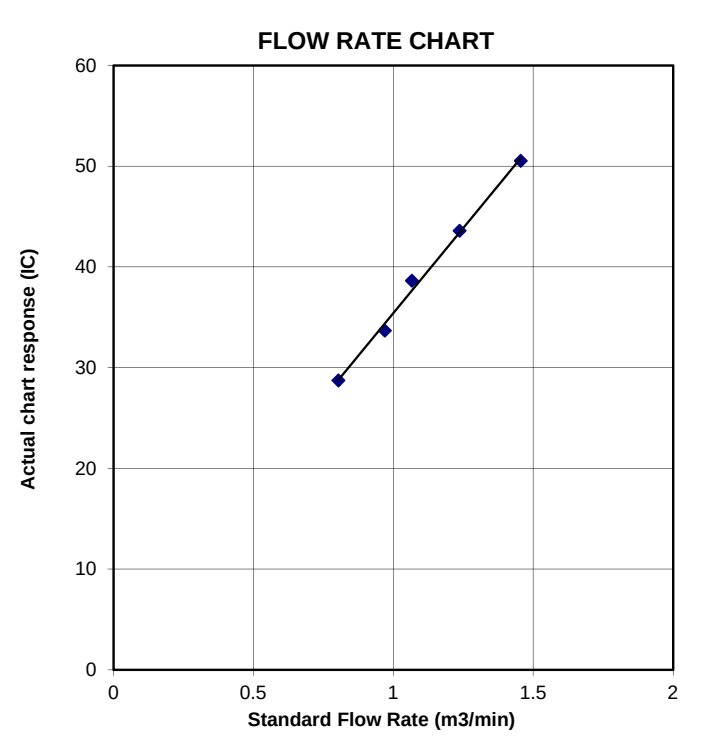
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Village House of Loi Tung Village
Location ID : AM7b

Date of Calibration: 23/7/2014
Next Calibration Date: 23/9/2014
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	999.7	Corrected Pressure (mm Hg)	749.775
Temperature (°C)	30.6	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.1	6.1	12.2	1.720	54	53.14	Slope = 33.3908
13	4.9	4.9	9.8	1.543	48	47.23	Intercept = -4.0664
10	3.8	3.8	7.6	1.359	42	41.33	Corr. coeff. = 0.9974
7	2.4	2.4	4.8	1.082	34	33.46	
5	1.4	1.4	2.8	0.828	23	22.63	

Calculations :

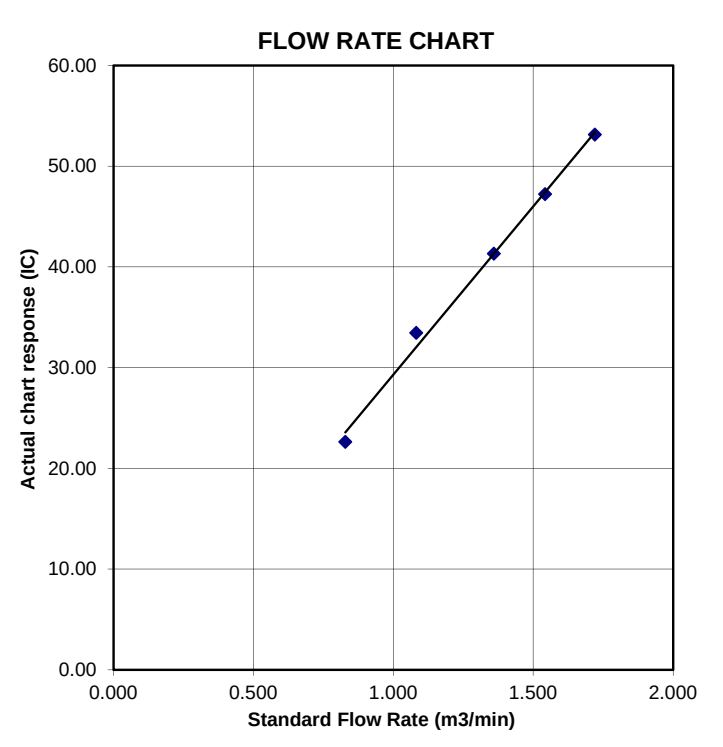
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Po Kat Tsai Village No. 4
Location ID : AM8

Date of Calibration: 21/5/2014
Next Calibration Date: 21/7/2014
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1006.9	Corrected Pressure (mm Hg)	755.175
Temperature (°C)	27.1	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.9	5.9	11.8	1.708	63	62.58	Slope = 34.1504
13	4.6	4.6	9.2	1.509	56	55.63	Intercept = 4.2419
10	3.7	3.7	7.4	1.354	51	50.66	Corr. coeff. = 1.0000
7	2.3	2.3	4.6	1.069	41	40.73	
5	1.4	1.4	2.8	0.836	33	32.78	

Calculations :

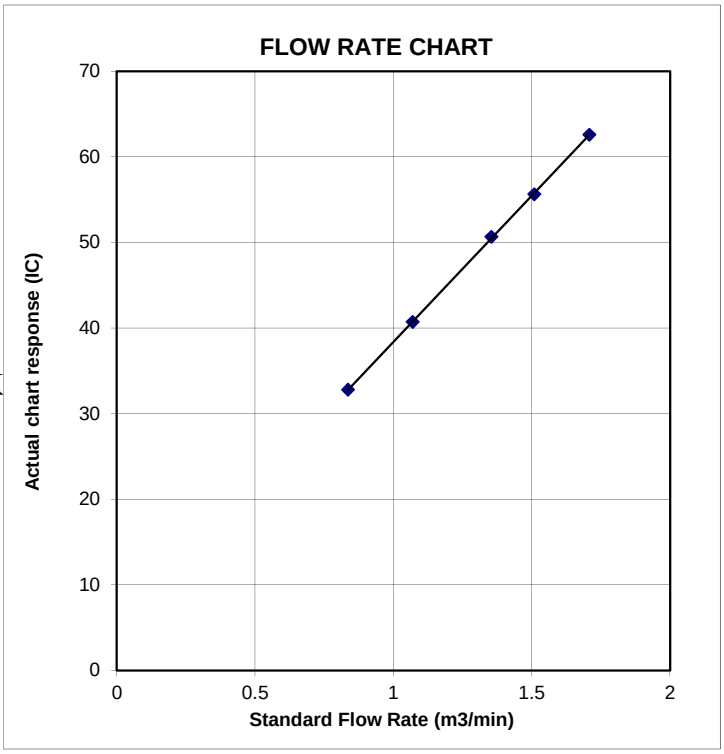
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Po Kat Tsai Village No. 4
Location ID : AM8

Date of Calibration: 23/7/2014
Next Calibration Date: 23/9/2014
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	999.7	Corrected Pressure (mm Hg)	749.775
Temperature (°C)	30.6	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6	6	12.0	1.706	62	61.01	Slope = 32.3537
13	4.7	4.7	9.4	1.511	54	53.14	Intercept = 5.0594
10	3.8	3.8	7.6	1.359	50	49.20	Corr. coeff. = 0.9981
7	2.4	2.4	4.8	1.082	40	39.36	
5	1.3	1.3	2.6	0.798	32	31.49	

Calculations :

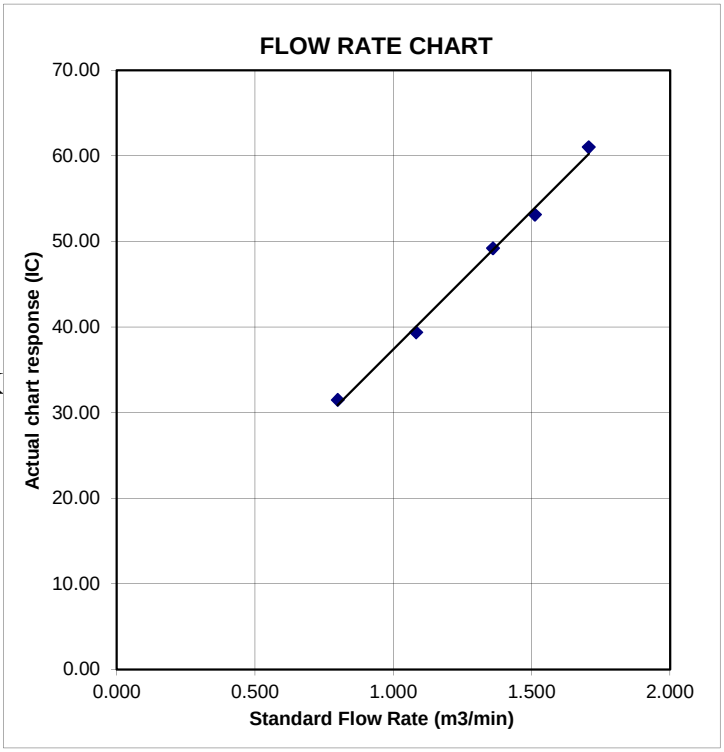
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Wa Po Village House No. 80		Date of Calibration:	23/6/2014
Location ID : AM9b		Next Calibration Date:	23/8/2014
		Technician:	Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1004.1	Corrected Pressure (mm Hg)	753.075
Temperature (ºC)	27.8	Temperature (K)	301

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.7	4.7	9.4	1.521	50	49.54	Slope = 30.6859
13	3.9	3.9	7.8	1.386	44	43.59	Intercept = 1.5416
10	3.5	3.5	7.0	1.314	41	40.62	Corr. coeff. = 0.9941
7	2.1	2.1	4.2	1.020	33	32.70	
5	1.3	1.3	2.6	0.804	27	26.75	

Calculations :

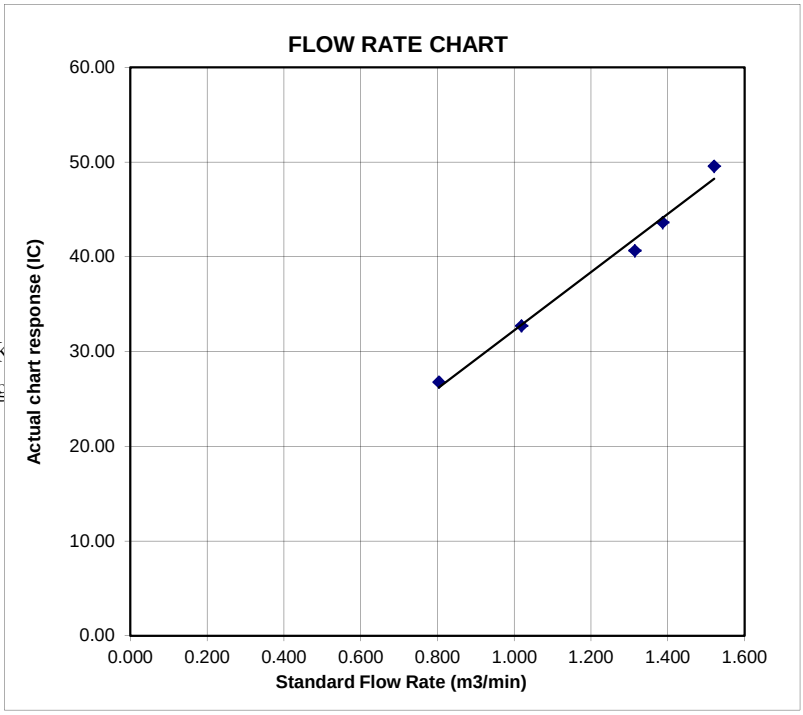
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 07, 2014 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1612 Pa (mm) - 742.95

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3940	3.2	2.00
2	NA	NA	1.00	0.9790	6.4	4.00
3	NA	NA	1.00	0.8800	7.8	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
0.9866	0.7077	1.4077
0.9823	1.0034	1.9908
0.9804	1.1140	2.2258
0.9791	1.1726	2.3345
0.9739	1.4094	2.8155

Qstd slope (m) = 2.00757
intercept (b) = -0.01628
coefficient (r) = 0.99989

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.7142	0.8896
0.9914	1.0127	1.2581
0.9894	1.1243	1.4066
0.9881	1.1834	1.4753
0.9829	1.4224	1.7793

Qa slope (m) = 1.25710
intercept (b) = -0.01029
coefficient (r) = 0.99989

y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

SIBATA

EQ113

SIBATA SCIENTIFIC TECHNOLOGY LTD.
1-1-62, Nakane, Soka, Saitama, 340-0005 Japan
TEL : 048-933-1582 FAX : 048-933-1591

CALIBRATION CERTIFICATE

Date: February 26, 2014

Equipment Name	:	Laser Dust Monitor, Model LD-3B
Code No.	:	080000-42
Quantity	:	1 unit
Serial No.	:	3Y6502
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	563 CPM
Scale Setting	:	February 25, 2014

We hereby certify that the avobe mentioned instrment has been calibrated satisfactory.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Susumu Egashira
Overseas Sales Division

SIBATA

EQ114

SIBATA SCIENTIFIC TECHNOLOGY LTD.
1-1-62, Nakane, Soka, Saitama, 340-0005 Japan
TEL : 048-933-1582 FAX : 048-933-1591

CALIBRATION CERTIFICATE

Date: December 18, 2013

Equipment Name	:	Laser Dust Monitor, Model LD-3B
Code No.	:	080000-42
Quantity	:	1 unit
Serial No.	:	3Y6505
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	591 CPM
Calibration Date	:	November 12, 2013

We hereby certify that the avobe mentioned instrment has been calibrated satisfactory.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Kentaro Togo
Section Manager
Overseas Sales Division

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR T W TAM	WORK ORDER	: **HK1415131**
CLIENT	: **ACTION UNITED ENVIRO SERVICES**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH DATE RECEIVED DATE OF ISSUE	: 1 : 16-JAN-2014 : 16-MAY-2014
PROJECT	: ----	NO. OF SAMPLES CLIENT ORDER	: 1 : ----

General Comments

- **Sample(s) were received in an ambient condition.**
- **Sample(s) analysed and reported on an as received basis.**
- **Calibration was analysed by Action United Enviro Services.**

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

WORK ORDER	: HK1415131
SUB-BATCH	: 1
CLIENT	: ACTION UNITED ENVIRO SERVICES
PROJECT	: ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1415131-001	S/N: 2X6145	AIR	16-JAN-2014	S/N: 2X6145

Equipment Calibration Record

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	2X6145
Equipment Ref:	EQ105
Job Order	

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	6 January 2014

Equipment Calibration Results:

Calibration Date: 16 & 17 January 2014

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
4hr23min	10:20 ~ 14:43	19.5	1024.3	0.031	3528	13.4
2hr55min	14:55 ~ 17:50	19.5	1024.3	0.052	3722	21.2
5hr19min	12:45 ~ 18:04	20.1	1023.3	0.102	14812	46.4

Sensitivity Adjustment Scale Setting (Before Calibration) 590 (CPM)

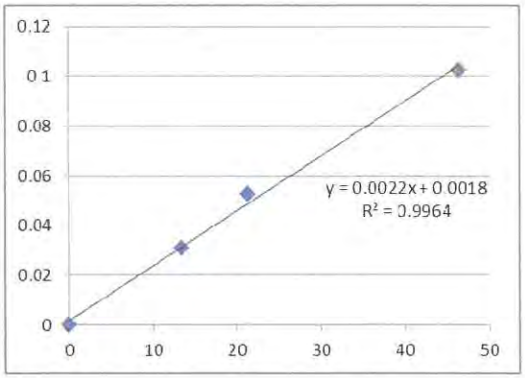
Sensitivity Adjustment Scale Setting (After Calibration) 597 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9964

Validity of Calibration Record 22 Jan 2014



Operator : Tung Chi Sun Signature : Sun Date : 22 January 2014

QC Reviewer : Ben Tam Signature : Date : 22 January 2014

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	6-Jan-14
Location ID :	Calibration Room	Next Calibration Date:	6-Apr-14

CONDITIONS

Sea Level Pressure (hPa)	1018	Corrected Pressure (mm Hg)	763.5
Temperature (°C)	18.5	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11662
Model->	5025A	Qstd Intercept ->	-0.01714
Calibration Date->	9-Apr-13	Expiry Date->	9-Apr-14

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.639	56	56.75	Slope = 23.4751
13	4.6	4.6	9.2	1.460	50	50.67	Intercept = 17.5690
10	2.8	2.8	5.6	1.141	44	44.59	Corr. coeff. = 0.9966
8	1.6	1.6	3.2	0.865	38	38.51	
5	0.9	0.9	1.8	0.650	32	32.43	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

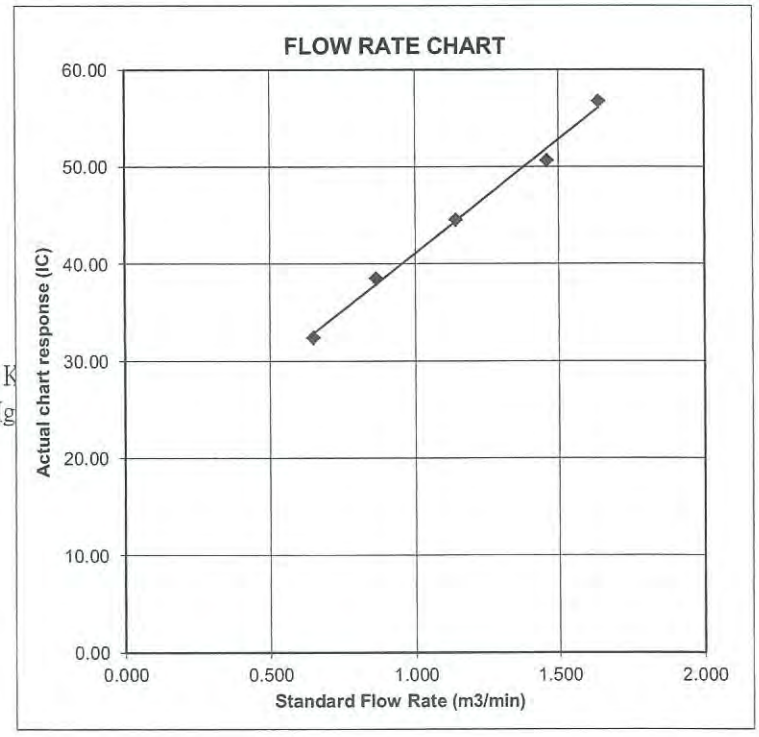
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR T W TAM	**WORK ORDER**	: **HK1415129**
CLIENT	: **ACTION UNITED ENVIRO SERVICES**		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH DATE RECEIVED DATE OF ISSUE	: 1 : 16-JAN-2014 : 16-MAY-2014
PROJECT	: ----	NO. OF SAMPLES CLIENT ORDER	: 1 : ----

General Comments

- **Sample(s) were received in an ambient condition.**
- **Sample(s) analysed and reported on an as received basis.**
- **Calibration was analysed by Action United Enviro Services.**

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

WORK ORDER	: HK1415129
SUB-BATCH	: 1
CLIENT	: ACTION UNITED ENVIRO SERVICES
PROJECT	: ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1415129-001	S/N: 2X6146	AIR	16-JAN-2014	S/N: 2X6146

Equipment Calibration Record

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	2X6146
Equipment Ref:	EQ106
Job Order	

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	6 January 2014

Equipment Calibration Results:

Calibration Date: 16 & 17 January 2014

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
4hr23min	10:20 ~ 14:43	19.5	1024.3	0.031	3410	12.9
2hr55min	14:55 ~ 17:50	19.5	1024.3	0.052	3701	21.1
5hr19min	12:45 ~ 18:04	20.1	1023.3	0.102	14533	45.5

Sensitivity Adjustment Scale Setting (Before Calibration) 589 (CPM)

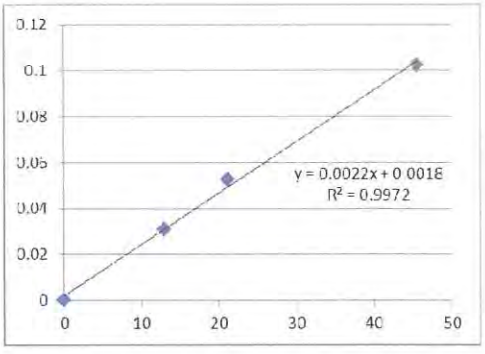
Sensitivity Adjustment Scale Setting (After Calibration) 593 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9972

Validity of Calibration Record 22 Jan 2014



Operator : Tung Chi Sun Signature : Date : 22 January 2014

QC Reviewer : Ben Tam Signature : Date : 22 January 2014

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	6-Jan-14
Location ID :	Calibration Room	Next Calibration Date:	6-Apr-14

CONDITIONS

Sea Level Pressure (hPa)	1018	Corrected Pressure (mm Hg)	763.5
Temperature (°C)	18.5	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11662
Model->	5025A	Qstd Intercept ->	-0.01714
Calibration Date->	9-Apr-13	Expiry Date->	9-Apr-14

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.639	56	56.75	Slope = 23.4751
13	4.6	4.6	9.2	1.460	50	50.67	Intercept = 17.5690
10	2.8	2.8	5.6	1.141	44	44.59	Corr. coeff. = 0.9966
8	1.6	1.6	3.2	0.865	38	38.51	
5	0.9	0.9	1.8	0.650	32	32.43	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

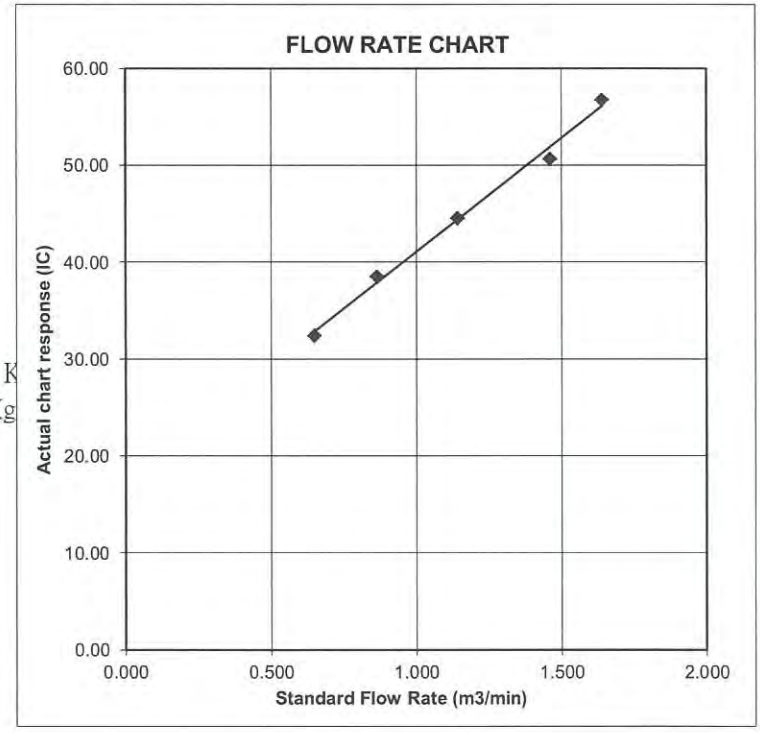
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142545
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 14 April 2014

Description / 儀器名稱 : Acoustical Calibrator (EQ081)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2326408
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 26 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 29 April 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142545
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Certificate of Calibration
校正證書

Certificate No. : C142221
證書編號

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142223
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 28 March 2014

Description / 儀器名稱 : Sound Level Meter (EQ011)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 01121362
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 10 April 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142223
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.9 (Ref.)
				104.00		103.9
				114.00		113.9

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.9	± 0.3

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c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142223
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.4	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	C	Fast	94.00	63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.5	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04596

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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c/o 香港新界屯門興安里一號青山灣機樓四樓
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 28 March 2014

Description / 儀器名稱 : Sound Level Meter (EQ013)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00921191
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 10 April 2014

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
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Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.7	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.7	Ref.
			Slow			93.7	± 0.3

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Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.4	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.5
					250 Hz	85.0	-8.6 ± 1.4
					500 Hz	90.4	-3.2 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	94.9	+1.2 ± 1.6
					4 kHz	94.7	+1.0 ± 1.6
					8 kHz	92.6	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.3	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	C	Fast	94.00	63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.5
					250 Hz	93.7	0.0 ± 1.4
					500 Hz	93.7	0.0 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	93.5	-0.2 ± 1.6
					4 kHz	92.9	-0.8 ± 1.6
					8 kHz	90.7	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.3	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04223

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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TEST REPORT
for
PRECISION
SOUND LEVEL METER
(NX-42EX installed)

Model : NL－52

Serial No. : 00142580

Microphone No. : 06011

Preamplifier No. : 32608

Condition : Temperature 25 ℃

Humidity 30 %RH

Date : March, 12, 2014

Signature :

RION CO., LTD.

1. Frequency weightings (Fig. 1) Pass

Frequency weighting A

Frequency weighting C

Frequency weighting Z

2. Level linearity error (dB)

Reference signal level (Ref.) : 94.0 dB (at 1 kHz, 8 kHz), 74.0 dB (at 31.5 Hz)

Frequency weighting : A

Indicated value / Frequency	Difference with Reference signal level (dB)						
	25.0	74.0	94.0	98.0	114.0	136.0	138.0
31.5 Hz	−0.2	Ref.	—	−0.1	—	—	—
1 kHz	0.0	—	Ref.	—	0.0	—	0.0
8 kHz	0.0	—	Ref.	—	—	0.0	—
Tolerance limit	±0.3	—	—	±0.3	±0.2	±0.3	±0.3

3. Toneburst response (Time weighted sound level)

Input signal level : 127 dB

Toneburst : Frequency : 4 kHz, duration : 0.25 ms

Frequency weighting : A, Time-weighting : F

(dB)			
Design goal	Indicated value	Difference	Tolerance limit
100.0	99.7	−0.3	±1.0

4. Time weighting I (impulse)

Input signal level : 120 dB

Toneburst : Frequency : 4 kHz, duration : 5 ms, period : 500 ms

Frequency weighting : A

(dB)			
Design goal	Indicated value	Difference	Tolerance limit
111.2	110.3	−0.9	±2.0

*When the optional Extended Function Program NX-42EX is installed, time weighting I(impulse) can be selected in only sub-channel.

5. Peak sound level (dB)

Frequency weighting : C

Frequency (Hz)	Number of cycles in test signal	(dB)				
		Input signal level	Design goal	Indicated value	Difference	Tolerance limit
			L_C	Lcpeak		
31.5	1 cycle	137.0	136.5	137.3	0.8	±2.0
500	Positive half cycle	137.0	139.4	139.2	−0.2	±1.0
	Negative half cycle	137.0	139.4	139.2	−0.2	±1.0

6. Response to repeated to toneburst

Input signal level : 130.0 dB + 8 dB

Frequency weighting : A, Time-weighting : S

Toneburst : Frequency : 2 kHz, duration : 5 ms, period : 25 ms

(dB)				
Peak-to-rms ratio	Design goal	Indicated value	Difference	Tolerance limit
3.16	131.0	131.0	0.0	±0.5

7. Inherent noise level (dB)

(dB)		
Frequency weighting	Indicated value	Tolerance limit
A	10.5	17 or less
C	15.0	25 or less
Z	20.6	30 or less

8. Instrumental error

84.0 dB ± 0.7 dB 0.0 dB

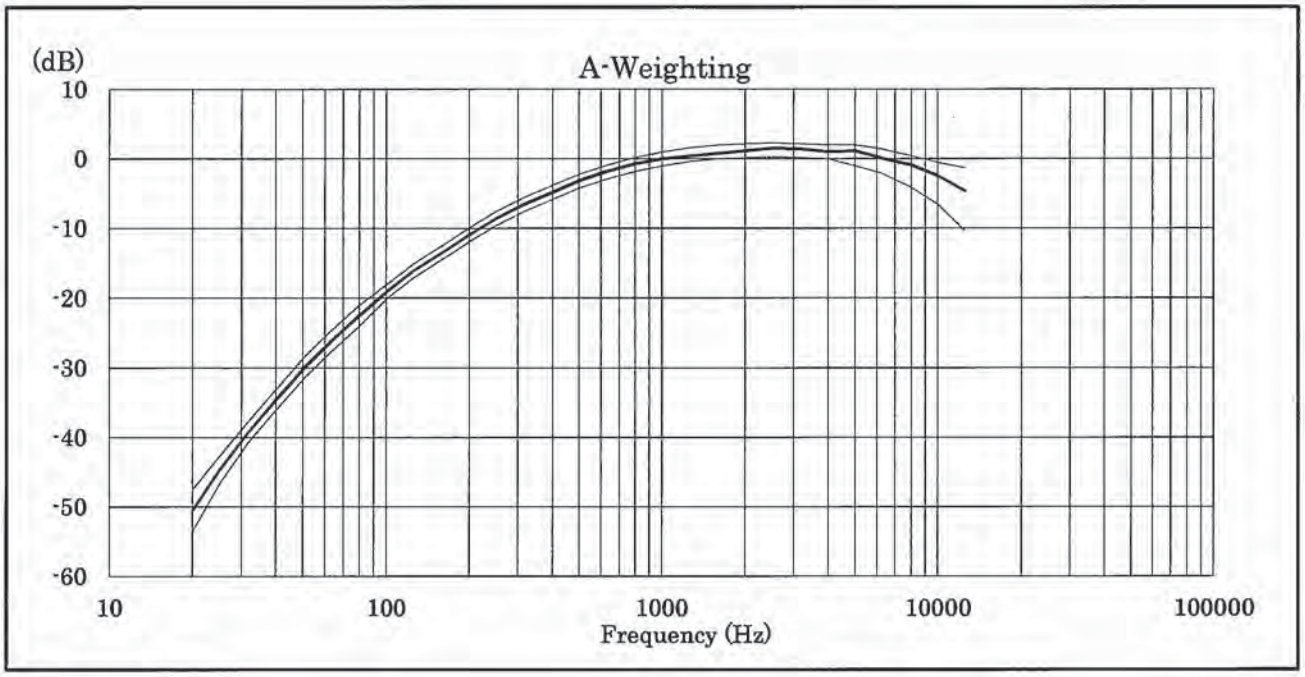
Applicable standards

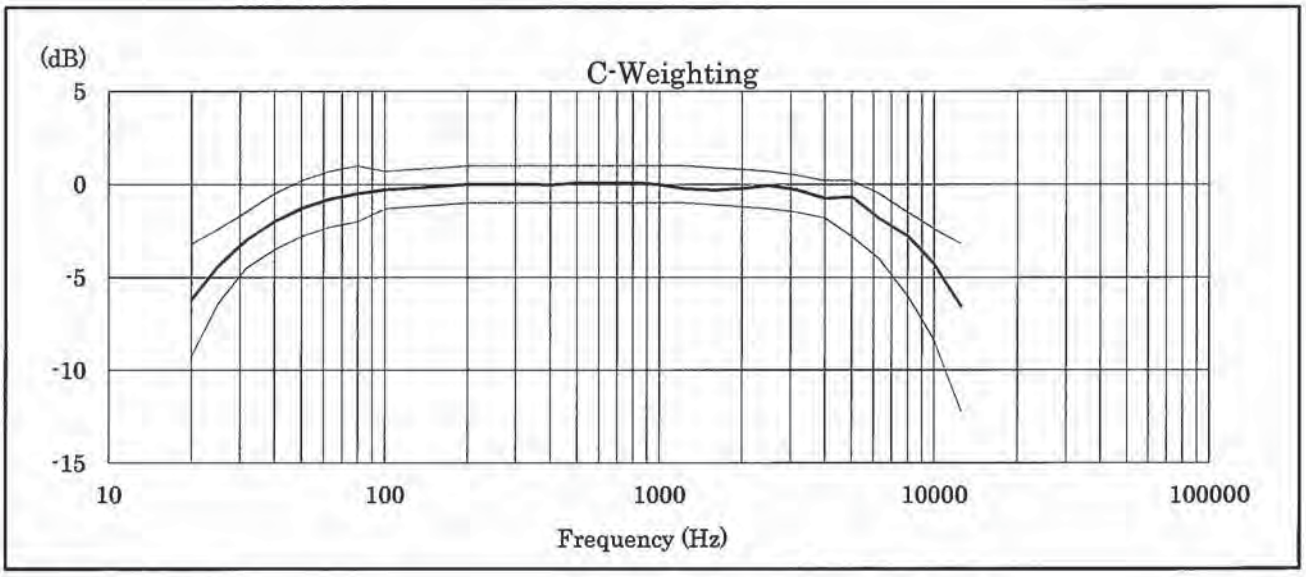
JIS C 1509-1 : 2005 Class 1
IEC 61672-1 : 2002 Class 1
ANSI S1.4-1983 Type 1
ANSI S1.43-1997 Type 1
CE marking (EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC)
WEEE Directive (2002/96/EC)
Chinese RoHS

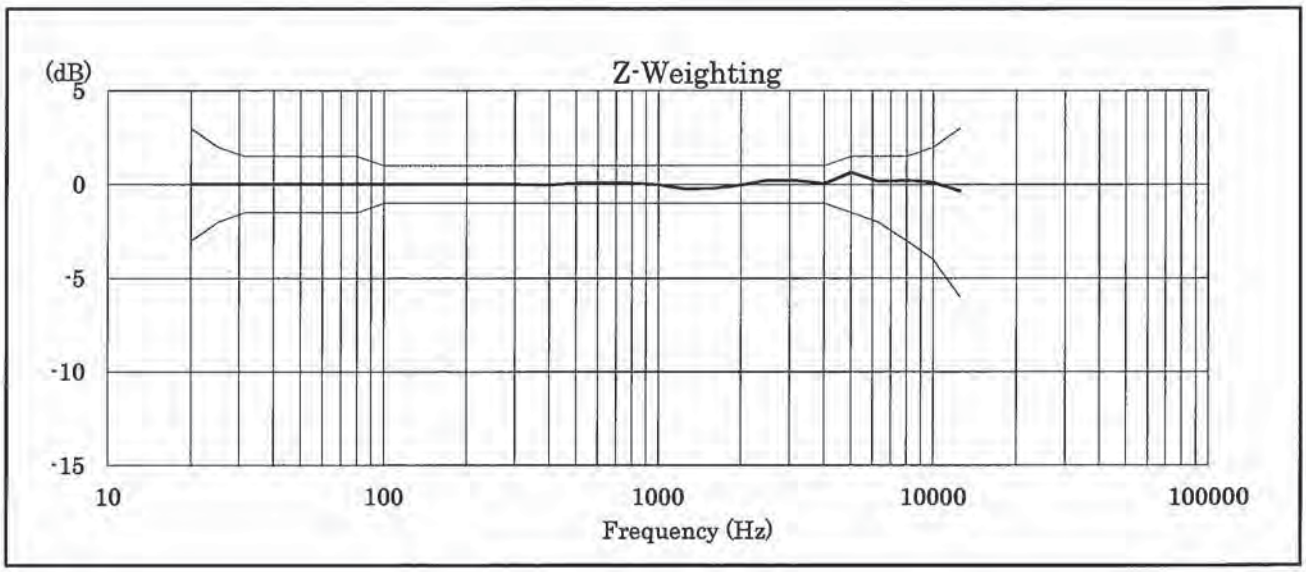
RION

NL-52 (Fig. 1) No. 00142580

Relative free field frequency response







輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142547
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 14 April 2014

Description / 儀器名稱 : Sound Level Meter (EQ067)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00410221
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 26 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 29 April 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
p/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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p/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142547
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.9

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	Ref.
			Slow			93.8	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C142547
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.5	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.8	0.0 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142547
證書編號

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 319734

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	:	± 0.35 dB
	250 Hz - 500 Hz	:	± 0.30 dB
	1 kHz	:	± 0.20 dB
	2 kHz - 4 kHz	:	± 0.35 dB
	8 kHz	:	± 0.45 dB
	12.5 kHz	:	± 0.70 dB
104 dB	: 1 kHz	:	± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	:	± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142873
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 8 May 2014

Description / 儀器名稱 : Integrating Sound Level Meter (EQ065)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2337676
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 May 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 15 May 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142873
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.2

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C142873
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.0	Ref.
	L_{ASP}		S			94.0	± 0.1
	L_{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142873
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						$1/10^2$		90	89.7	± 0.5
			60 sec.			$1/10^3$		80	79.7	± 1.0
			5 min.			$1/10^4$		70	69.7	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812708

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB :	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz		: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz		: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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香港新界屯門興安里一號青山灣機場四樓
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	**WORK ORDER:**	HK1414568
CLIENT:	ALS TECHNICHEM (HK) PTY LTD	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T., HONG KONG	**DATE RECEIVED:**	13/05/2014
		DATE OF ISSUE:	16/05/2014

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissovled Oxygen and Temperature
Description:	Multimeter
Brand Name:	YSI
Model No.:	YSI 550A
Serial No.:	05F2063AZ
Equipment No.:	--
Date of Calibration:	13 May, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1414568
Date of Issue: 16/05/2014
Client: ALS TECHNICHEM (HK) PTY LTD

Description: Multimeter
Brand Name: YSI
Model No.: YSI 550A
Serial No.: 05F2063AZ
Equipment No.: --
Date of Calibration: 13 May, 2014 Date of next Calibration: 13 August, 2014

Parameters:

Dissolved Oxygen **Method Ref: APHA (21st edition), 4500O: G**

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.26	3.30	+0.04
5.74	5.76	+0.02
8.22	8.23	+0.01
	Tolerance Limit (mg/L)	±0.20

Temperature **Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	10.2	+0.2
23.0	22.9	-0.1
38.0	38.4	+0.4
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Fung Lim Chee Richard
General Manager -
Greater China & Hong Kong

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1410448
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG,	**DATE RECEIVED:**	07/04/2014
		DATE OF ISSUE:	11/04/2014
PROJECT:	N.T., HONG KONG		

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test:	Turbidity
Description:	Turbidimeter
Brand Name:	HACH
Model No.:	2100Q
Serial No.:	11030C008499
Equipment No.:	--
Date of Calibration:	07 April, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1410448
Date of Issue: 11/04/2014
Client: ACTION UNITED ENVIRO SERVICES

Description: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --
Date of Calibration: 07 April, 2014 Date of next Calibration: 07 July, 2014

Parameters:

Turbidity **Method Ref: APHA (21st edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.62	--
4	4.2	+5.0
40	40.2	+0.5
80	80.1	+0.1
400	412	+3.0
800	802	+0.3
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

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T: +852 2610 1044
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1421664
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG	**DATE RECEIVED:**	08/07/2014
		DATE OF ISSUE:	16/07/2014
PROJECT:	--		

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	HACH
Model No.:	2100Q
Serial No.:	12060C018266
Equipment No.:	--
Date of Calibration:	08 July, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1421664
Date of Issue: 16/07/2014
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 12060C018266
Equipment No.: --
Date of Calibration: 08 July, 2014 Date of next Calibration: 08 October, 2014

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.08	--
4	4.30	+7.5
40	37.6	-6.0
80	78.4	-2.0
400	402	+0.5
800	848	+6.0
	Tolerance Limit (±%)	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1410830
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG,	**DATE RECEIVED:**	09/04/2014
		DATE OF ISSUE:	16/04/2014
PROJECT:	N.T., HONG KONG		

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test:	pH
Description:	pH meter
Brand Name:	AZ
Model No.:	8685
Serial No.:	1064457
Equipment No.:	--
Date of Calibration:	14 April, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1410830
Date of Issue: 16/04/2014
Client: ACTION UNITED ENVIRO SERVICES

Description: pH meter
Brand Name: AZ
Model No.: 8685
Serial No.: 1064457
Equipment No.: --
Date of Calibration: 14 April, 2014 Date of next Calibration: 14 July, 2014

Parameters:

pH Value **Method Ref: APHA (21st edition), 4500H:B**

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.1	+0.10
7.0	7.0	0.00
10.0	9.9	-0.10
	Tolerance Limit (pH Unit)	±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Fung Lim Chee, Richard
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1421347
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG,	**DATE RECEIVED:**	07/07/2014
		DATE OF ISSUE:	21/07/2014
PROJECT:	N.T., HONG KONG		

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	pH
Description:	pH meter
Brand Name:	--
Model No.:	8685
Serial No.:	1067687
Equipment No.:	--
Date of Calibration:	08 July, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1421347
Date of Issue: 21/07/2014
Client: ACTION UNITED ENVIRO SERVICES

Description: pH meter
Brand Name: --
Model No.: 8685
Serial No.: 1067687
Equipment No.: --
Date of Calibration: 08 July, 2014 Date of next Calibration: 08 October, 2014

Parameters:

pH Value **Method Ref: APHA (21st edition), 4500H:B**

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.8	-0.20
7.0	7.1	+0.10
10.0	9.9	-0.10
	Tolerance Limit (pH Unit)	±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Fung Lim Chee, Richard
General Manager
Greater China & Hong Kong

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作（見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報）。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 000552

Appendix G

Event and Action Plan

Event and Action Plan for Air Quality

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

Event and Action Plan for Construction Noise

Event	ET	IEC	ER	Action Contractor
Action Level	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Event and Action Plan for Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures.
Action Level being exceeded by more than two consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit Level.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the ER, to slow down or to stop all or part of the construction activities.

Appendix H

Impact Monitoring Schedule

Impact Monitoring Schedule for the Reporting Period – July 2014

Date		Dust Monitoring		Noise Monitoring	Water Quality
		1-hour TSP	24-hour TSP		
Tue	1-Jul-14				
Wed	2-Jul-14	**C5**		**C5**	**C3 & C5**
Thu	3-Jul-14				
Fri	4-Jul-14		**C2&C3 & C5**		
Sat	5-Jul-14	**C2&C3**		**C2&C3**	**C3 & C5**
Sun	6-Jul-14				
Mon	7-Jul-14				
Tue	8-Jul-14	**C3&C5**		**C3&C5**	**C3 & C5**
Wed	9-Jul-14				
Thu	10-Jul-14		**C2&C3 & C5**		**C3 & C5**
Fri	11-Jul-14	**C2**		**C2**	
Sat	12-Jul-14				**C3 & C5**
Sun	13-Jul-14				
Mon	14-Jul-14	**C3&C5**		**C3&C5**	**C3 & C5**
Tue	15-Jul-14				
Wed	16-Jul-14		**C2& C3 & C5**		
Thu	17-Jul-14	**C2**		**C2**	**C3 & C5**
Fri	18-Jul-14				
Sat	19-Jul-14	**C3&C5**		**C3&C5**	**C3 & C5**
Sun	20-Jul-14				
Mon	21-Jul-14				**C3 & C5**
Tue	22-Jul-14		**C2& C3 & C5**		
Wed	23-Jul-14	**C2**		**C2**	**C3 & C5**
Thu	24-Jul-14				
Fri	25-Jul-14	**C3&C5**		**C3&C5**	**C3 & C5**
Sat	26-Jul-14				
Sun	27-Jul-14				
Mon	28-Jul-14		**C2& C3 & C5**		
Tue	29-Jul-14	**C2**		**C2**	**C3 & C5**
Wed	30-Jul-14				
Thu	31-Jul-14	**C3&C5**	**C5-AM1a#**	**C3&C5**	**C3 & C5**

 # 24-hour TSP monitoring for AM1a was rescheduled from 28 Jul to 31 Jul due to power failure of HVS.

	Monitoring Day
	Sunday or Public Holiday

Monitoring Location

Contract 5 (C5)	Air Quality	AM1a, AM2 & AM3
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control

Contract 3 (C3)	Air Quality	AM9b
	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B

Contract 2 (C2)	Air Quality	AM7b & AM8
	Construction Noise	NM5, NM6, NM7, NM8

Impact Monitoring Schedule for next Reporting Period – August 2014

Date		Dust Monitoring		Noise Monitoring	Water Quality
		1-hour TSP	24-hour TSP		
Fri	1-Aug-14				
Sat	2-Aug-14		**C2&C3 & C5**		**C3 & C5**
Sun	3-Aug-14				
Mon	4-Aug-14	**C2**		**C2**	**C3 & C5**
Tue	5-Aug-14				
Wed	6-Aug-14	**C3&C5**		**C3&C5**	**C3 & C5**
Thu	7-Aug-14				
Fri	8-Aug-14		**C2&C3 & C5**		
Sat	9-Aug-14	**C2**		**C2**	**C3 & C5**
Sun	10-Aug-14				
Mon	11-Aug-14				
Tue	12-Aug-14	**C3&C5**		**C3&C5**	**C3 & C5**
Wed	13-Aug-14				
Thu	14-Aug-14		**C2& C3 & C5**		**C3 & C5**
Fri	15-Aug-14	**C2**		**C2**	
Sat	16-Aug-14				**C3 & C5**
Sun	17-Aug-14				
Mon	18-Aug-14	**C3&C5**		**C3&C5**	**C3 & C5**
Tue	19-Aug-14				
Wed	20-Aug-14		**C2& C3 & C5**		
Thu	21-Aug-14	**C2**		**C2**	**C3 & C5**
Fri	22-Aug-14				
Sat	23-Aug-14	**C3&C5**		**C3&C5**	**C3 & C5**
Sun	24-Aug-14				
Mon	25-Aug-14				**C3 & C5**
Tue	26-Aug-14		**C2& C3 & C5**		
Wed	27-Aug-14	**C2**		**C2**	**C3 & C5**
Thu	28-Aug-14				
Fri	29-Aug-14	**C3&C5**		**C3&C5**	**C3 & C5**
Sat	30-Aug-14				
Sun	31-Aug-14				

	Monitoring Day
	Sunday or Public Holiday

Monitoring Location

Contract 5 (C5)	Air Quality	AM1a, AM2 & AM3
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control

Contract 3 (C3)	Air Quality	AM9b
	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B

Contract 2 (C2)	Air Quality	AM7b & AM8
	Construction Noise	NM5, NM6, NM7, NM8

Appendix I

Database of Monitoring Result

24-hour TSP Monitoring Data

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-HR TSP ($\mu g/m^3$)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m^3/min)	(std m^3)	INITIAL	FINAL	(g)	
AM1a - Garden Farm, Tsung Yuen Ha Village															
4-Jul-14	26984	8669.04	8693.05	1440.60	42	43	42.5	28.7	1006.4	1.42	2048	2.7471	2.8263	0.0792	39
10-Jul-14	27000	8693.05	8717.05	1440.00	41	42	41.5	29	1005.7	1.39	2003	2.7235	2.7825	0.0590	29
16-Jul-14	26998	8717.05	8740.55	1410.00	41	43	42.0	28.9	1005.9	1.41	1983	2.7289	2.7835	0.0546	28
22-Jul-14	27007	8740.55	8764.55	1440.00	42	43	42.5	28.9	1006.3	1.42	2047	2.7350	2.9597	0.2247	110
31-Jul-14#	207666	8764.55	8788.55	1440.00	42	43	42.5	28.8	1004.7	1.42	2046	2.6992	2.8728	0.1736	85
AM2 - Village House near Lin Ma Hang Road															
4-Jul-14	26975	4135.12	4158.67	1413.00	33	34	33.5	28.7	1006.4	1.12	1589	2.7451	2.8465	0.1014	64
10-Jul-14	26983	4158.57	4182.08	1410.60	33	34	33.5	29	1005.7	1.12	1585	2.7489	2.8534	0.1045	66
16-Jul-14	26999	4182.08	4205.58	1410.00	33	34	33.5	28.9	1005.9	1.12	1584	2.7398	2.8319	0.0921	58
22-Jul-14	27027	4205.58	4229.08	1410.00	33	34	33.5	28.9	1006.3	1.12	1585	2.7638	2.9334	0.1696	107
28-Jul-14	207665	4229.08	4252.59	1410.60	30	34	32.0	28.6	1004.6	1.08	1522	2.7086	2.8857	0.1771	116
AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village															
4-Jul-14	26976	5137.85	5161.85	1440.00	38	39	38.5	28.7	1006.4	1.20	1730	2.7511	2.8612	0.1101	64
10-Jul-14	26982	5161.85	5185.85	1440.00	37	38	37.5	29	1005.7	1.17	1684	2.7496	2.8162	0.0666	40
16-Jul-14	27002	5185.85	5209.85	1440.00	38	38	38.0	28.9	1005.9	1.19	1707	2.7342	2.7958	0.0616	36
22-Jul-14	27028	5209.85	5233.85	1440.00	38	39	38.5	28.9	1006.3	1.20	1729	2.7550	2.9643	0.2093	121
28-Jul-14	207664	5233.85	5257.86	1440.60	38	40	39.0	28.6	1004.6	1.22	1751	2.7163	2.8017	0.0854	49
AM7b - Loi Tung Village House															
4-Jul-14	26977	12708.34	12732.34	1440.00	43	45	44.0	28.7	1006.4	1.24	1787	2.7502	2.9743	0.2241	125
10-Jul-14	26995	12732.34	12756.34	1440.00	45	46	45.5	29	1005.7	1.28	1849	2.7328	2.7870	0.0542	29
16-Jul-14	27003	12756.34	12780.34	1440.00	46	46	46.0	28.9	1005.9	1.30	1870	2.7418	2.9896	0.2478	132
22-Jul-14	27029	12780.34	12804.35	1440.60	44	46	45.0	28.9	1006.3	1.27	1829	2.7478	2.9935	0.2457	134
28-Jul-14	207663	12804.35	12828.35	1440.00	39	43	41.0	28.6	1004.6	1.34	1925	2.6903	2.9421	0.2518	131
AM8 - Po Kat Tsai Village No. 4															
4-Jul-14	26978	6578.96	6602.96	1440.00	38	38	38.0	28.7	1006.4	0.98	1408	2.7613	2.8141	0.0528	37
10-Jul-14	26997	6602.96	6626.96	1440.00	38	38	38.0	29	1005.7	0.98	1407	2.7407	2.7838	0.0431	31
16-Jul-14	27004	6626.96	6650.96	1440.00	38	39	38.5	28.9	1005.9	0.99	1428	2.7486	2.8069	0.0583	41
22-Jul-14	27030	6650.96	6674.96	1440.00	38	39	38.5	28.9	1006.3	0.99	1428	2.7620	2.8963	0.1343	94
28-Jul-14	207661	6674.96	6698.96	1440.00	38	39	38.5	28.6	1004.6	1.02	1471	2.7114	2.7555	0.0441	30
AM9b - Nam Wa Po Village House No. 80															
4-Jul-14	26979	14136.22	14160.23	1440.60	28	30	29.0	28.7	1006.4	0.89	1276	2.7700	2.8076	0.0376	29
10-Jul-14	26996	14160.23	14184.23	1440.00	28	30	29.0	29	1005.7	0.88	1274	2.7311	2.7720	0.0409	32
16-Jul-14	27005	14184.23	14208.23	1440.00	28	32	30.0	28.9	1005.9	0.92	1321	2.7453	2.7822	0.0369	28

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-HR TSP ($\mu g/m^3$)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m^3/min)	(std m^3)	INITIAL	FINAL	(g)	
22-Jul-14	27031	14208.23	14232.23	1440.00	28	30	29.0	28.9	1006.3	0.89	1275	2.7481	2.8645	0.1164	91
28-Jul-14	207662	14232.23	14256.23	1440.00	28	30	29.0	28.6	1004.6	0.89	1275	2.7142	2.7661	0.0519	41

Remark: # 24-hr TSP monitoring was rescheduled from 28 Jul to 31 Jul due to power failure of HVS.

Construction Noise Monitoring Results, dB(A)

Date	Start Time	1st Leq_{5min}	L10	L90	2nd Leq_{5min}	L10	L90	3rd Leq_{5min}	L10	L90	4th Leq_{5min}	L10	L90	5th Leq_{5min}	L10	L90	6th Leq_{5min}	L10	L90	Leq30	façade correction
NM1 - Tsung Yuen Ha Village House No. 63																					
2-Jul-14	11:37	58.3	61.8	52.1	61.2	67.5	45.1	49.2	48.6	45.3	54.5	57.7	45.3	51.5	53.5	45.1	56.3	59.4	46.0	57	NA
8-Jul-14	10:48	52.3	55.2	47.6	51.1	53.3	48.3	52.3	54.6	48.3	52.8	55.6	49.1	56.2	62.9	48.2	53.3	56.4	47.1	53	NA
14-Jul-14	11:28	48.5	49.7	46.5	53.8	60.7	45.6	47.1	47.5	44.4	47.3	49.2	44.0	45.6	47.5	43.6	44.7	46.0	42.9	49	NA
19-Jul-14	11:21	47.2	49.3	45.3	47.1	47.7	44.9	46.3	47.5	45.1	53.0	59.7	44.5	46.4	48.5	44.0	45.7	47.1	43.9	49	NA
25-Jul-14	10:35	56.3	60.4	50.0	58.0	59.6	51.2	54.7	56.6	50.4	55.1	57.1	49.5	53.2	55.0	50.0	51.8	52.8	49.2	55	NA
31-Jul-14	10:39	55.2	56.6	51.4	55.2	57.2	52.2	56.7	60.3	50.0	53.8	56.2	49.9	54.1	56.7	51.0	57.9	61.1	52.2	56	NA
NM2 - Village House near Lin Ma Hang Road																					
2-Jul-14	13:02	63.2	66.8	55.3	60.5	63.5	55.5	58.3	61.2	54.9	61.7	64.3	55.2	61.4	65.4	53.3	59.7	62.6	53.3	61	NA
8-Jul-14	10:42	65.2	71.2	50.1	59.6	64.9	52.5	56.5	56.3	52.7	59.2	62.1	54.4	58.1	61.2	52.8	59.5	63.1	51.6	61	NA
14-Jul-14	10:52	60.5	61.0	54.4	60.2	61.6	53.6	58.5	60.1	53.4	60.1	63.7	54.7	60.5	64.6	55.6	60.4	62.8	55.7	60	NA
19-Jul-14	15:57	57.7	59.8	53.5	55.8	56.8	53.1	60.5	61.3	53.8	56.5	55.8	49.6	56.1	56.9	49.6	52.4	53.1	49.1	57	NA
25-Jul-14	10:31	60.3	64.7	47.3	60.6	66.2	48.3	58.1	60.8	45.9	61.4	65.1	47.6	60.6	65.5	46.7	63.9	69.0	46.1	61	NA
31-Jul-14	10:44	61.3	66.8	55.1	63.7	68.2	53.4	61.8	66.0	52.0	58.3	61.8	51.3	61.6	66.4	51.7	64.3	70.0	45.2	62	NA
NM5– Ping Yeung Village House (façade facing northeast)																					
5-Jul-14	17:00	58.9	62.9	45.7	58.9	62.7	49.2	58.9	64.5	45.2	55.0	58.7	44.0	58.3	61.1	45.2	60.6	61.8	47.8	59	NA
11-Jul-14	17:04	56.0	59.2	49.9	59.0	61.4	50.9	57.1	60.3	49.9	55.1	58.8	48.9	55.5	59.2	50.2	66.8	61.1	50.0	61	NA
17-Jul-14	13:26	58.7	63.7	51.6	59.7	65.2	50.9	62.7	67.0	53.2	63.2	67.4	52.4	60.1	64.6	53.8	62.1	66.0	52.8	61	NA
23-Jul-14	10:17	58.5	62.2	53.0	57.4	60.6	51.9	58.1	61.7	51.4	56.0	59.7	50.5	57.2	60.3	52.2	59.9	63.4	53.3	58	NA
29-Jul-14	11:26	53.5	57.4	43.5	51.5	55.3	43.1	52.1	56.8	43.0	51.6	55.3	44.3	53.7	57.2	41.9	53.8	56.7	45.0	53	NA
NM6 – Tai Tong Wu Village House 2																					
5-Jul-14	16:11	62.6	65.6	55.5	62.7	65.6	55.8	58.8	62.4	51.2	61.7	65.3	54.4	60.8	64.8	51.0	60.4	64.2	51.9	61	NA
11-Jul-14	10:36	60.9	64.2	50.6	61.7	64.7	51.6	62.1	65.7	53.7	57.5	60.9	51.3	59.7	63.2	52.0	56.6	60.4	50.2	60	NA
17-Jul-14	13:25	62.5	66.4	53.2	61.0	65.5	55.2	62.2	65.8	53.9	62.5	66.1	55.1	62.0	64.8	54.9	62.9	66.6	56.1	62	NA
23-Jul-14	10:00	61.8	64.9	55.5	63.1	66.2	54.1	63.3	67.0	53.7	62.4	65.8	53.4	62.9	66.2	53.7	61.6	65.3	53.6	63	NA
29-Jul-14	11:34	62.5	65.6	52.3	62.9	66.5	54.7	60.9	64.9	50.4	60.7	65.1	48.9	61.2	64.8	50.1	61.5	65.4	52.5	62	NA
NM7 – Po Kat Tsai Village																					
5-Jul-14	11:21	64.2	63.7	52.9	64.0	67.3	52.3	70.7	74.5	51.0	64.0	65.9	48.7	60.8	64.8	50.8	65.2	65.9	46.7	66	NA
11-Jul-14	13:01	64.4	66.0	62.4	63.9	64.9	58.1	66.9	70.1	59.2	67.1	70.8	57.2	61.6	63.0	58.2	60.8	62.5	56.5	65	NA
17-Jul-14	17:00	63.4	65.7	55.7	63.0	66.4	57.1	62.5	66.6	52.1	57.3	60.5	51.6	66.9	64.9	54.6	57.9	60.7	53.0	63	NA
23-Jul-14	11:18	64.6	67.8	60.2	65.0	68.5	58.6	63.3	66.6	56.1	65.4	66.6	55.7	63.1	64.5	56.2	63.6	66.7	56.2	64	NA
29-Jul-14	16:07	65.7	68.8	55.9	62.6	66.2	56.2	62.1	65.8	56.0	62.3	65.5	57.0	66.6	67.0	57.6	63.9	66.8	59.1	64	NA

Date	Start Time	1st Leq_{5min}	L10	L90	2nd Leq_{5min}	L10	L90	3nd Leq_{5min}	L10	L90	4th Leq_{5min}	L10	L90	5th Leq_{5min}	L10	L90	6th Leq_{5min}	L10	L90	Leq30	façade correction
NM8 - Village House, Tong Hang																					
5-Jul-14	13:25	58.9	60.3	51.5	57.0	62.2	51.5	57.7	61.7	50.7	56.5	60.5	51.8	57.3	62.6	52.1	55.5	59.7	51.0	57	NA
8-Jul-14	13:39	60.1	64.0	50.7	59.0	60.6	55.3	60.8	65.3	56.3	58.8	63.4	53.0	57.4	60.6	52.0	57.7	61.2	52.6	59	NA
14-Jul-14	13:06	57.2	60.3	53.3	58.2	60.2	51.3	60.3	62.7	50.8	58.7	59.9	51.5	59.8	60.2	52.3	57.7	61.1	52.5	59	NA
19-Jul-14	15:03	59.6	64.4	51.2	58.8	63.5	49.3	56.7	60.6	47.5	57.0	61.0	50.7	59.6	63.4	50.1	64.2	64.1	48.8	60	NA
25-Jul-14	13:12	58.1	58.4	51.4	58.2	59.8	51.7	57.4	60.9	50.5	58.8	60.5	51.7	56.9	60.2	50.2	57.9	59.2	52.2	58	NA
31-Jul-14	13:08	60.8	63.4	52.2	59.5	64.3	51.3	58.4	63.2	50.5	59.9	62.7	51.7	57.3	64.6	49.1	58.4	63.9	50.8	59	NA
NM9 - Village House, Kiu Tau Village																					
5-Jul-14	11:05	71.6	73.0	60.5	61.8	65.5	51.0	57.5	60.5	50.0	57.1	61.5	48.5	57.9	62.0	47.0	62.3	63.5	50.0	65	NA
8-Jul-14	11:12	56.5	56.8	52.3	55.6	57.5	51.6	54.4	56.7	50.5	56.7	58.5	51.7	55.5	56.3	49.9	54.2	59.2	51.2	56	NA
14-Jul-14	13:52	54.3	56.6	50.2	55.7	57.5	52.7	54.0	57.7	50.9	56.2	56.9	51.7	56.4	58.4	50.9	55.0	56.6	52.3	55	NA
19-Jul-14	14:29	53.5	55.9	49.2	52.9	56.6	48.8	52.9	56.1	49.2	55.5	59.3	49.4	54.8	58.9	49.5	53.7	58.1	48.4	54	NA
25-Jul-14	13:55	56.2	56.3	51.7	54.7	56.7	50.8	55.8	57.9	49.9	56.5	55.2	50.4	54.2	55.1	52.7	55.0	56.1	53.3	55	NA
31-Jul-14	13:57	52.4	56.7	48.3	53.3	57.2	49.8	52.3	56.1	49.7	53.9	55.2	48.3	53.0	56.5	48.4	54.4	57.7	48.2	53	NA
NM10 - Nam Wa Po Village House No. 80																					
5-Jul-14	10:13	67.5	68.1	65.1	69.6	73.9	65.2	69.9	71.3	66.1	69.7	71.7	66.2	68.8	70.7	66.2	68.5	70.1	66.5	69	72
8-Jul-14	14:47	62.3	66.1	55.9	64.8	68.5	57.8	64.6	68.3	57.8	61.4	63.6	58.0	62.8	66.9	57.9	58.9	61.4	56.6	63	66
14-Jul-14	10:18	58.6	60.4	56.7	58.1	59.3	56.9	59.4	60.2	58.0	61.2	62.1	59.3	60.2	61.1	59.3	60.3	61.0	59.5	60	63
19-Jul-14	13:20	63.1	64.5	61.2	63.0	64.4	61.2	62.6	63.8	61.2	61.9	63.1	60.2	62.4	63.8	60.0	62.2	63.1	61.0	63	66
25-Jul-14	10:04	57.3	57.9	56.0	57.6	58.2	56.4	68.6	72.3	56.4	68.5	70.3	66.4	65.0	67.5	57.1	72.8	74.2	70.9	68	71
31-Jul-14	10:15	55.6	56.9	53.7	55.8	57.9	52.5	56.2	58.6	53.4	54.9	56.2	53.0	55.2	56.6	53.5	55.5	56.7	54.0	56	59

Water Quality Monitoring Data for Contract 5

Date	2-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:50	0.79	32.7	32.7	6.02	6.1	81.9	82.5	23.2	22.8	6.7	6.7	10	10.5
			32.7		6.15		83.1		22.4		6.7		11	
WM1	12:20	0.85	31.2	31.2	5.15	5.5	75.3	74.9	41.7	42.1	6.7	6.7	42	40.5
			31.2		5.83		74.5		42.4		6.7		39	

Date	5-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	12:20	0.79	29.3	29.3	7.01	7.0	91.6	91.2	13.5	13.6	6.5	6.5	4	4.5
			29.3		6.96		90.7		13.6		6.5		5	
WM1	12:47	0.70	29.6	29.6	7.36	7.3	96.3	95.9	17.7	17.7	7.4	7.4	23	22.5
			29.6		7.31		95.5		17.6		7.4		22	

Date	8-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:05	0.70	28.7	28.7	7.93	7.9	101.9	101.4	15.8	15.1	8	8.0	4	4.0
			28.7		7.85		100.8		14.4		8		4	
WM1	11:34	0.59	30.8	30.8	8.33	8.3	111.4	110.7	28.1	28.0	7.2	7.2	32	32.5
			30.8		8.19		110.0		27.8		7.2		33	

Date	10-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	10:18	0.76	28.9	28.9	6.63	6.5	85.8	86.6	17.9	17.8	6.4	6.4	4	4.5
			28.8		6.43		87.3		17.6		6.4		5	
WM1	10:52	0.79	29.3	29.2	7.03	7.0	90.6	90.9	46.3	45.8	6.5	6.5	68	**68.5**
			29		7.02		91.1		45.2		6.5		69	

Date	12-Jul-14													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	13:00	0.56	30.4	30.4	6.95	6.9	92.7	92.1	42.3	41.1	7.3	7.3	12	12.5

			30.4		6.85		91.4		39.9		7.3		13	
WM1	12:38	0.57	30.9	31.0	7.06	7.0	94.1	93.9	84.3	**83.5**	7	7.0	46	45.0
			31		6.99		93.7		82.6		7		44	

Date	**14-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:12	0.68	30.2	30.2	6.75	6.7	89.6	88.9	29.8	29.9	6.4	6.5	6	5.5
			30.2		6.63		88.2		30.0		6.5		5	
WM1	11:43	0.65	31.7	31.7	6.64	6.7	90.7	91.0	45.3	45.5	6.5	6.5	43	43.5
			31.6		6.71		91.3		45.6		6.5		44	

Date	**17-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:21	0.29	28.9	28.9	6.08	6.2	78.8	79.9	25.1	25.0	7.11	7.1	5	6.0
			28.9		6.25		81.0		24.9		7.01		7	
WM1	10:36	0.40	30.8	30.8	6.98	7.0	92.5	92.3	48.1	47.7	7.34	7.3	36	36.5
			30.8		6.94		92.1		47.3		7.34		37	

Date	**19-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:37	0.63	29.2	29.1	5.09	5.2	66.2	67.3	overrange	#DIV/0!	7.8	7.8	576	560.5
			29		5.25		68.3		overrange		7.8		545	
WM1	12:07	0.69	31.4	31.5	5.23	5.3	71.3	71.9	overrange	#DIV/0!	7.7	7.7	522	499.0
			31.5		5.39		72.5		overrange		7.7		476	

Date	**21-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:16	0.67	28.6	28.6	7.09	7.0	90.6	90.0	12.4	12.3	7.6	7.6	6	6.0
			28.5		6.97		89.3		12.1		7.6		6	
WM1	11:41	0.48	29.6	29.6	6.66	6.9	88.6	90.5	33.2	33.0	7.6	7.6	25	24.5
			29.6		7.07		92.4		32.8		7.6		24	

Date	23-Jul-14														
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	15:10	0.36	31.9	31.9	7.68	7.6	104.0	102.6	10.0	10.1	8.5	8.5	7	7.0
			31.8		7.48		101.2		10.1		8.5		7	
WM1	14:39	0.48	32.9	32.9	7.16	7.1	98.8	98.4	24.1	23.2	8.5	8.6	21	25.0
			32.9		7.12		98.0		22.3		8.6		29	

Date	25-Jul-14														
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	10:40	0.64	27.7	27.7	7.37	7.4	93.6	93.5	13.0	13.1	7.9	7.9	3	3.0
			27.7		7.36		93.3		13.2		7.9		3	
WM1	11:20	0.77	28.1	28.1	6.88	7.0	88.8	89.9	50.7	50.6	7.6	7.6	58	58.0
			28.1		7.12		91.0		50.4		7.6		58	

Date	29-Jul-14														
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:57	0.59	29.5	29.5	7.37	7.3	95.5	94.7	12.1	12.2	7.5	7.5	4	4.0
			29.4		7.21		93.8		12.3		7.4		4	
WM1	12:17	0.48	30.5	30.5	7.66	7.7	101.2	101.3	28.0	27.5	7.7	7.8	28	27.5
			30.5		7.69		101.3		26.9		7.8		27	

Date	31-Jul-14														
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	10:52	0.59	29.8	29.8	7.53	7.6	99.2	99.7	12.5	12.6	8.2	8.2	<2	2.0
			29.8		7.61		100.1		12.7		8.2		<2	
WM1	11:25	0.57	30.5	30.4	7.65	7.7	101.4	101.7	31.2	31.8	8	8.0	34	33.0
			30.3		7.68		102.0		32.3		8		32	

Water Quality Monitoring Data for Contract

Date	2-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	16:34	0.16	29.4	29.4	7.24	7.2	94.6	94.5	5.2	5.2	7.3	7.3	2	2.5
			29.4		7.24		94.4		5.2		7.3		3	
WM4-CB	16:14	0.27	32	32.0	6	5.9	81.9	81.2	11.7	11.8	6.6	6.7	7	6.5
			32		5.89		80.5		11.9		6.7		6	
WM4	15:31	0.29	32.2	32.2	7.82	7.8	106.3	106.5	19.7	19.2	7.2	7.3	14	14.0
			32.1		7.74		106.6		18.7		7.3		14	

Date	5-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	15:06	0.14	30.7	30.7	6.64	6.6	89.4	89.7	5.3	5.3	7.6	7.6	4	3.5
			30.7		6.65		89.9		5.2		7.6		3	
WM4-CB	15:34	0.26	31.2	31.2	5.34	5.4	72.3	72.6	8.6	8.6	6.6	6.6	10	9.5
			31.2		5.42		72.8		8.6		6.5		9	
WM4	14:42	0.36	31	31.0	9.32	9.4	125.3	68.8	10.0	9.9	6.7	6.7	7	7.0
			31		9.44		12.3		9.8		6.6		7	

Date	8-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	14:26	0.11	28.1	28.1	7.52	7.5	95.1	93.6	6.1	6.2	7.8	7.9	3	4.0
			28.1		7.44		92.1		6.3		7.9		5	
WM4-CB	14:59	0.23	30.3	30.3	5.15	5.2	68.7	69.4	11.5	11.6	7.1	7.2	14	14.5
			30.2		5.29		70.0		11.6		7.2		15	
WM4	13:52	0.33	31	31.0	5.71	5.7	77.3	77.4	20.4	19.6	7.6	7.6	16	16.5
			31		5.73		77.5		18.7		7.6		17	

Date	10-Jul-14															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	13:07	0.12	31	31.0	7.68	7.7	102.9	103.0	26.4	25.6	7	7.0	12	12.0
			31		7.7		103.1		24.7		7		12	

WM4-CB	12:20	0.28	30.8	30.8	5.92	6.0	78.9	79.3	56.1	56.4	6.7	6.7	36	35.5
			30.8		5.98		79.7		56.7		6.7		35	
WM4	11:37	0.63	29.8	29.8	5.97	5.9	77.3	77.2	64.3	66.0	7	7.0	52	**53.0**
			29.7		5.89		77.0		67.7		7		54	

Date	**12-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	11:47	0.21	29	29.0	7.89	7.9	102.3	101.9	29.6	28.8	7.3	7.3	11	10.5
			28.9		7.81		101.4		28.0		7.3		10	
WM4-CB	11:26	0.13	30.7	30.7	7.56	7.5	101.6	101.1	64.5	63.8	6.9	6.9	49	50.0
			30.7		7.51		100.6		63.1		6.9		51	
WM4	10:57	0.56	29.8	29.8	7.05	7.0	92.9	92.6	72.2	72.7	6.9	6.9	59	**61.0**
			29.8		7.01		92.3		73.1		6.9		63	

Date	**14-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	14:05	0.11	32.6	32.6	6.21	6.2	84.2	84.7	19.0	18.5	7.1	7.1	5	5.0
			32.5		6.28		85.2		18.0		7.1		5	
WM4-CB	14:24	0.20	32.9	32.9	5.29	5.3	73.5	73.1	32.2	31.8	6.7	6.7	12	12.0
			32.9		5.23		72.6		31.3		6.6		12	
WM4	13:40	0.29	33.4	33.4	8.17	8.1	114.5	114.0	37.9	37.6	6.7	6.7	20	19.5
			33.4		8.04		113.4		37.3		6.7		19	

Date	**17-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	15:21	0.07	30.9	30.9	6.42	6.4	86.2	85.6	8.9	8.7	7.7	7.7	6	6.0
			30.9		6.35		85.0		8.6		7.7		6	
WM4-CB	15:45	0.17	31.6	31.6	5.02	5.0	67.9	68.1	15.1	14.7	7.3	7.3	11	11.0
			31.6		5.05		68.3		14.3		7.3		11	
WM4	14:50	0.35	33	33.0	6.9	6.9	95.3	95.0	16.7	16.9	7.3	7.3	9	9.0
			33		6.86		94.6		17.0		7.3		9	

Date	**19-Jul-14**

Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	15:03	0.09	30.5	30.5	7.49	7.4	99.8	98.7	9.8	9.5	7.3	7.4	8	8.0
			30.4		7.31		97.5		9.3		7.4		8	
WM4-CB	15:21	0.23	31.9	31.9	6.42	6.4	83.9	83.7	14.3	14.2	6.6	6.6	11	11.5
			31.8		6.31		83.4		14.1		6.6		12	
WM4	14:47	0.44	32.1	32.1	7.21	7.3	98.8	99.5	32.8	32.2	7.2	7.2	24	25.0
			32		7.32		100.1		31.6		7.2		26	

Date	21-Jul-14													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	15:15	0.16	29.2	29.2	7.62	7.6	99.3	98.7	5.4	5.3	7.2	7.2	4	4.0
			29.1		7.53		98.1		5.1		7.2		4	
WM4-CB	14:52	0.21	31.1	31.1	6.04	6.0	81.3	81.0	17.6	17.2	6.8	6.8	14	15.0
			31		5.99		80.6		16.7		6.8		16	
WM4	14:27	0.36	31.5	31.5	7.9	7.9	107.1	107.0	16.2	16.0	7.3	7.3	10	9.0
			31.4		7.87		106.8		15.7		7.3		8	

Date	23-Jul-14													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	13:40	0.10	31.3	31.3	7.81	7.8	105.6	104.9	4.4	4.3	9.3	9.3	5	4.5
			31.3		7.71		104.2		4.3		9.3		4	
WM4-CB	14:03	0.21	32.7	32.7	6.41	6.5	88.9	90.6	14.4	14.8	8.5	8.6	14	15.0
			32.7		6.65		92.2		15.1		8.6		16	
WM4	13:15	0.36	32.4	32.5	8.17	8.1	113.0	112.3	13.9	13.2	8.5	8.5	10	11.0
			32.5		8.09		111.6		12.4		8.5		12	

Date	25-Jul-14													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	14:55	0.04	30	30.0	7.43	7.4	98.6	98.8	7.2	7.3	7.9	7.9	<2	2.0
			30		7.45		98.9		7.4		7.9		<2	
WM4-CB	15:20	0.22	32	32.0	6.1	6.1	82.9	83.0	12.5	12.3	7.5	7.5	9	9.0
			32		6.12		83.0		12.1		7.5		9	
WM4	14:25	0.45	31.9	31.9	7.94	7.9	108.7	107.8	24.9	24.7	7.8	7.8	22	21.0

			31.9		7.83		106.9		24.4		7.8		20	

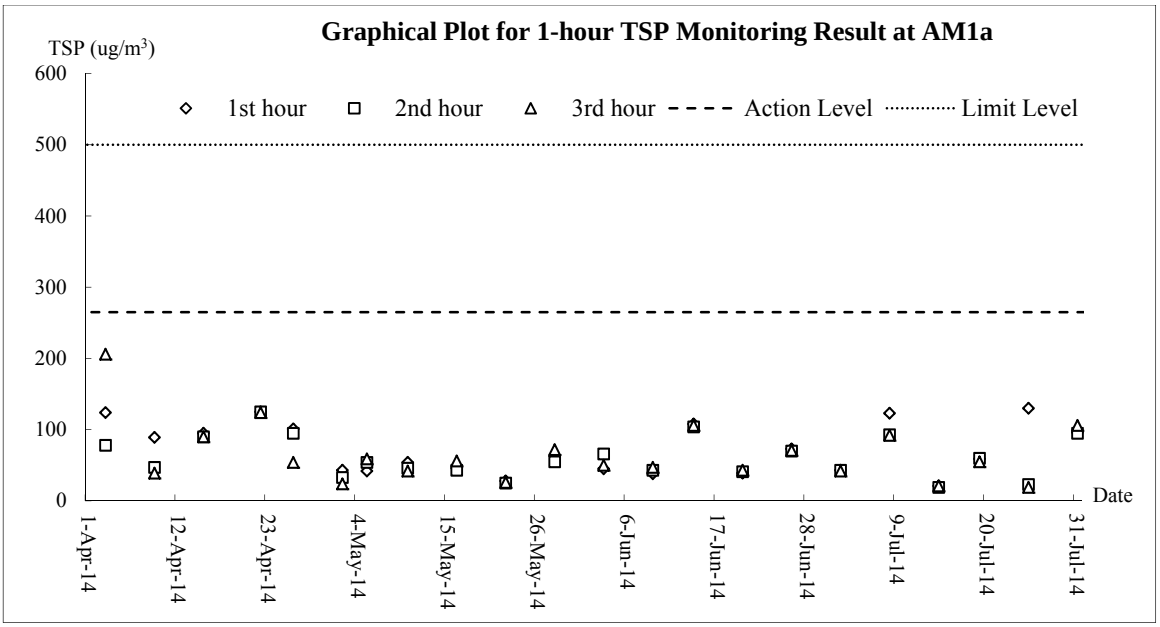
Date	**29-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	15:10	0.11	32.1	32.1	6.98	7.0	94.3	94.0	6.0	5.9	7.7	7.8	4	4.0
			32.1		6.98		93.7		5.9		7.8		4	
WM4-CB	15:32	0.29	32.5	32.5	6.52	6.6	89.1	89.7	8.7	8.4	7.6	7.6	7	7.0
			32.5		6.62		90.2		8.2		7.6		7	
WM4	14:50	0.33	34.1	34.1	8.3	8.1	115.7	113.2	24.7	24.6	7.9	7.9	17	17.0
			34.1		7.94		110.7		24.4		7.9		17	

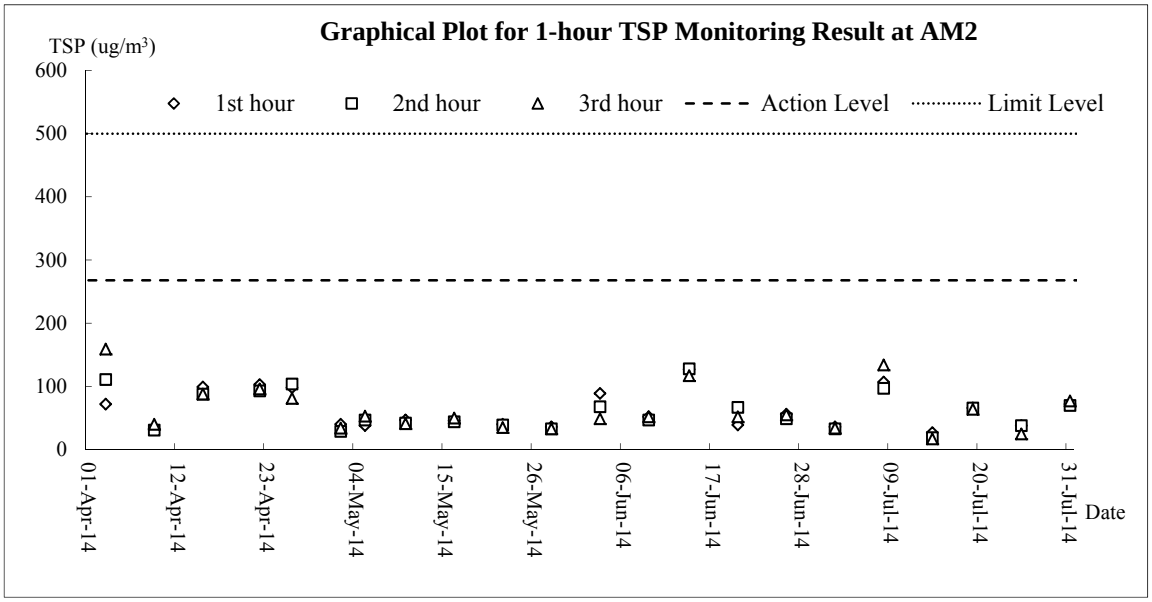
Date	**31-Jul-14**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	14:17	0.07	32.5	32.5	7.09	7.2	92.1	95.9	3.7	3.6	8.3	8.3	2	2.0
			32.5		7.29		99.6		3.6		8.3		2	
WM4-CB	14:35	0.22	33.5	33.5	7.39	7.3	102.4	101.3	7.8	7.4	7.8	7.8	5	5.0
			33.5		7.21		100.2		7.1		7.8		5	
WM4	13:58	0.35	34.8	34.8	8.24	8.3	116.5	117.2	13.0	13.1	8	8.1	4	3.5
			34.8		8.34		117.8		13.1		8.1		3	

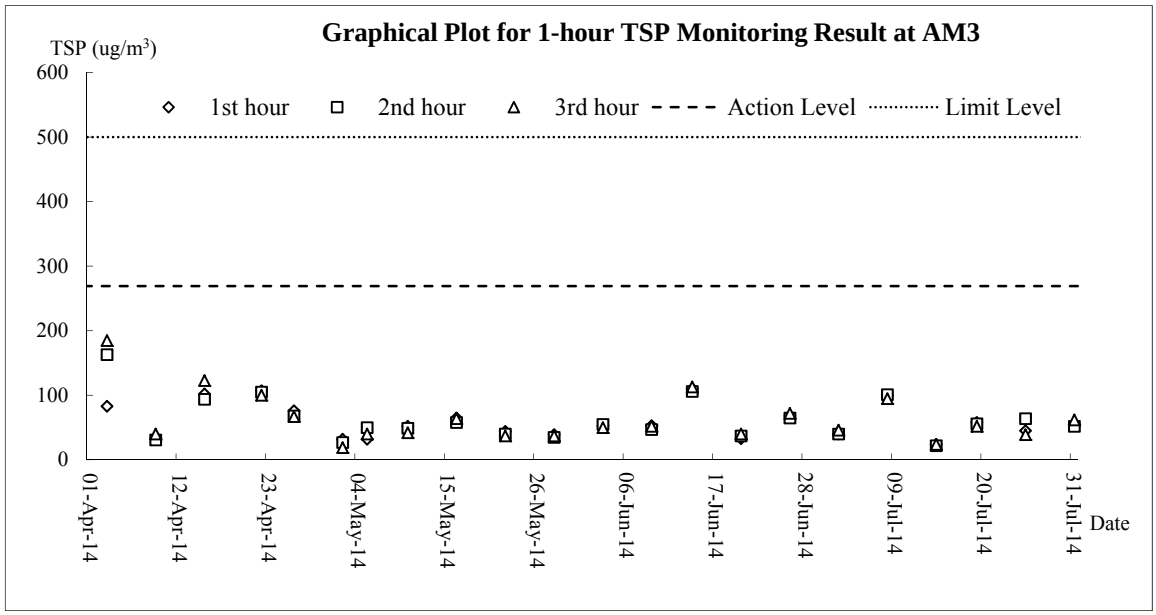
Appendix J

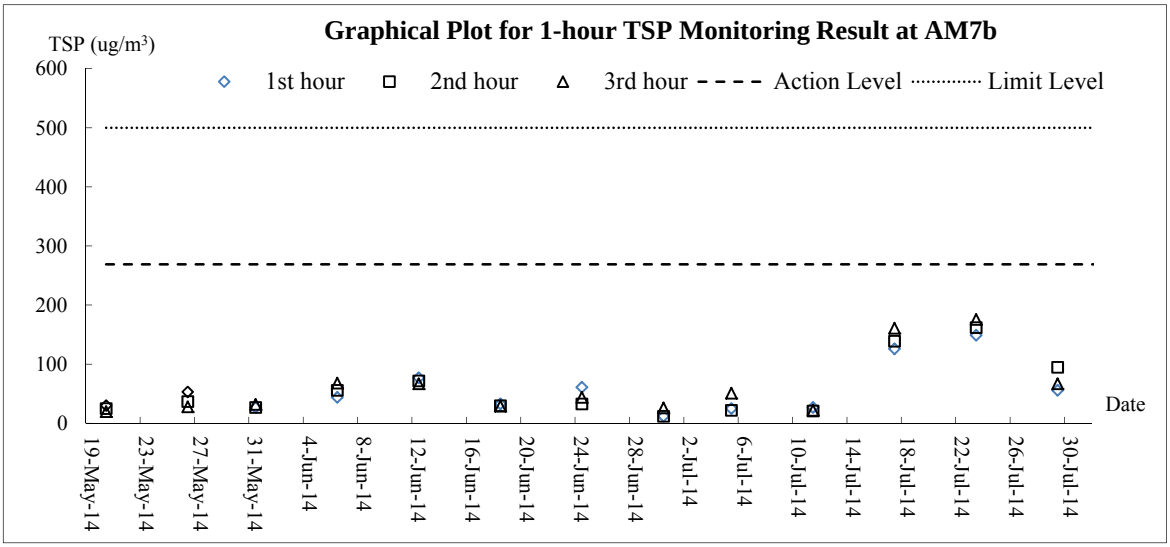
Graphical Plots for Monitoring Result

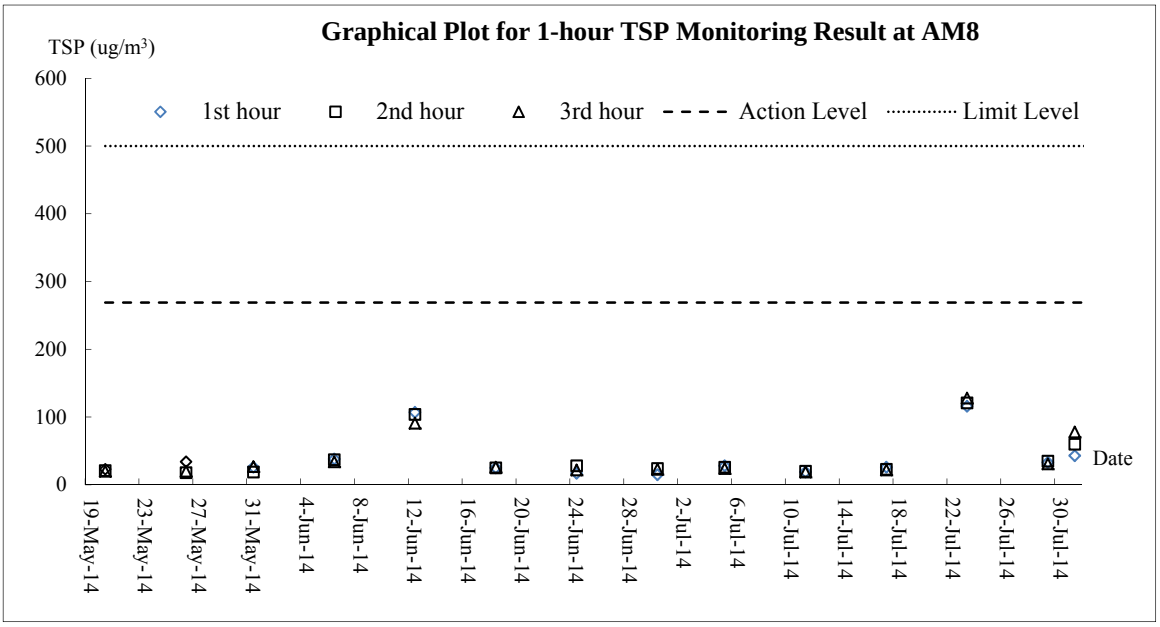
Air Quality – 1-hour TSP

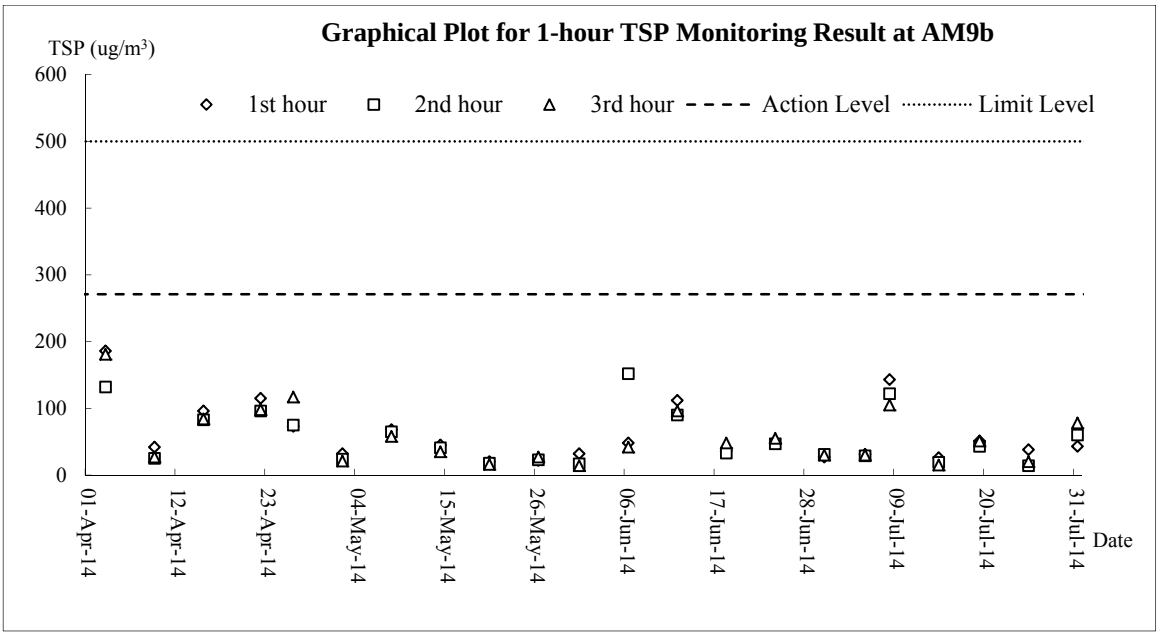




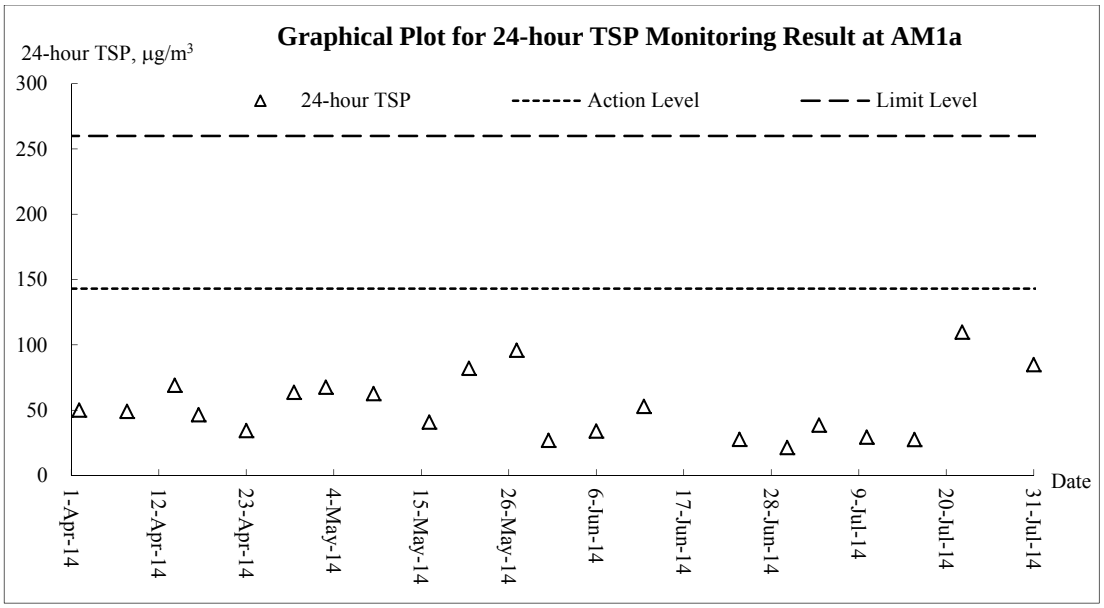


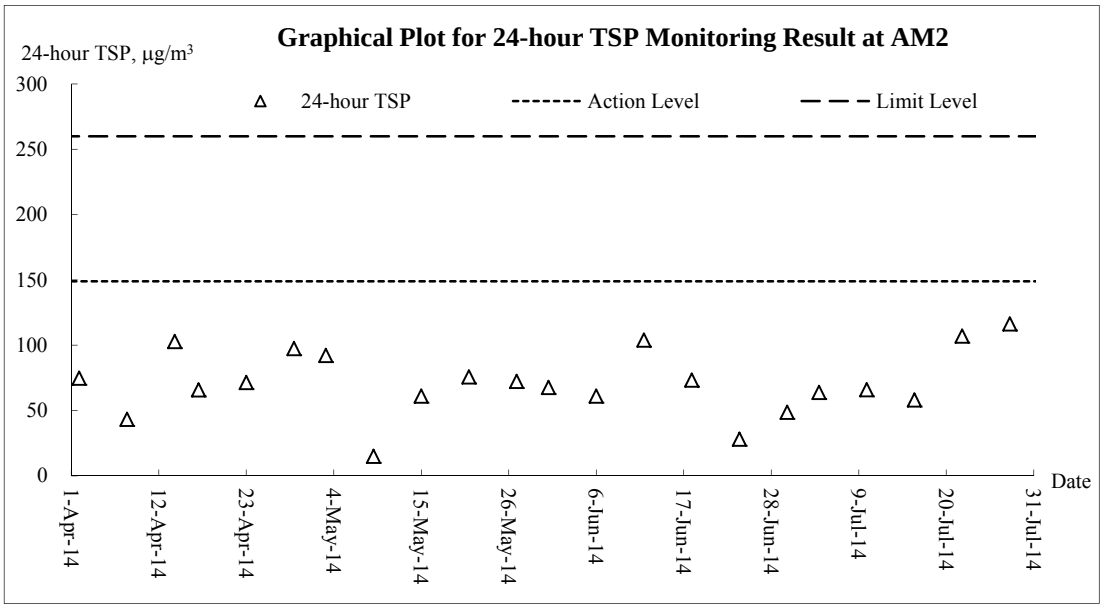

Graphical Plot for 1-hour TSP Monitoring Result at AM7b
TSP (ug/m³)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
19-May-14
23-May-14
27-May-14
31-May-14
4-Jun-14
8-Jun-14
12-Jun-14
16-Jun-14
20-Jun-14
24-Jun-14
28-Jun-14
2-Jul-14
6-Jul-14
10-Jul-14
14-Jul-14
18-Jul-14
22-Jul-14
26-Jul-14
30-Jul-14
Date

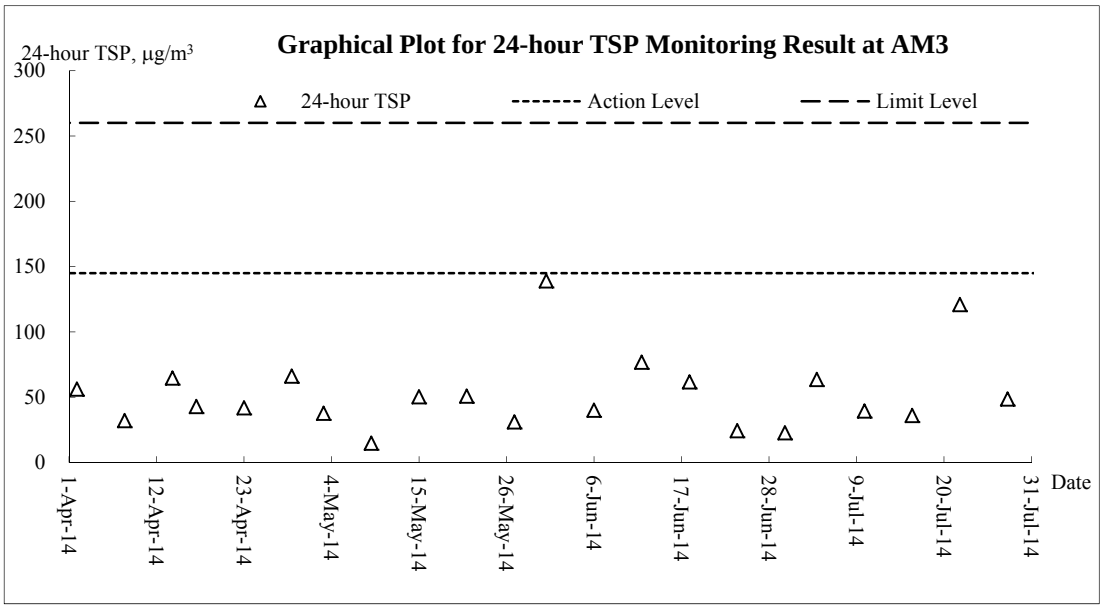

Graphical Plot for 1-hour TSP Monitoring Result at AM8
TSP (ug/m³)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
19-May-14
23-May-14
27-May-14
31-May-14
4-Jun-14
8-Jun-14
12-Jun-14
16-Jun-14
20-Jun-14
24-Jun-14
28-Jun-14
2-Jul-14
6-Jul-14
10-Jul-14
14-Jul-14
18-Jul-14
22-Jul-14
26-Jul-14
30-Jul-14
Date

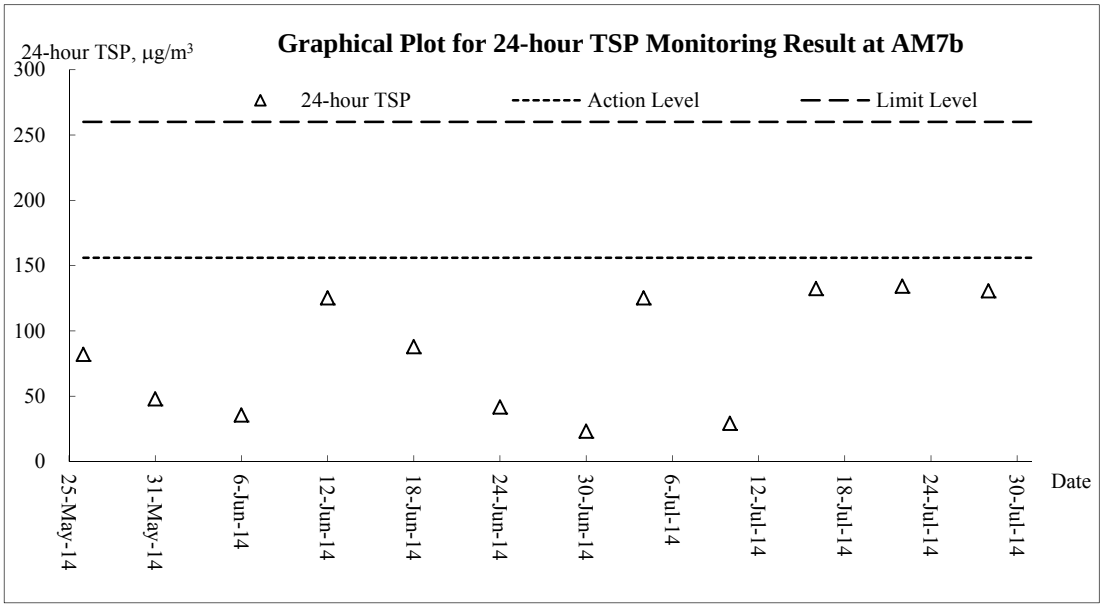

Graphical Plot for 1-hour TSP Monitoring Result at AM9b
TSP (ug/m³)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
01-Apr-14
12-Apr-14
23-Apr-14
04-May-14
15-May-14
26-May-14
06-Jun-14
17-Jun-14
28-Jun-14
09-Jul-14
20-Jul-14
31-Jul-14
Date

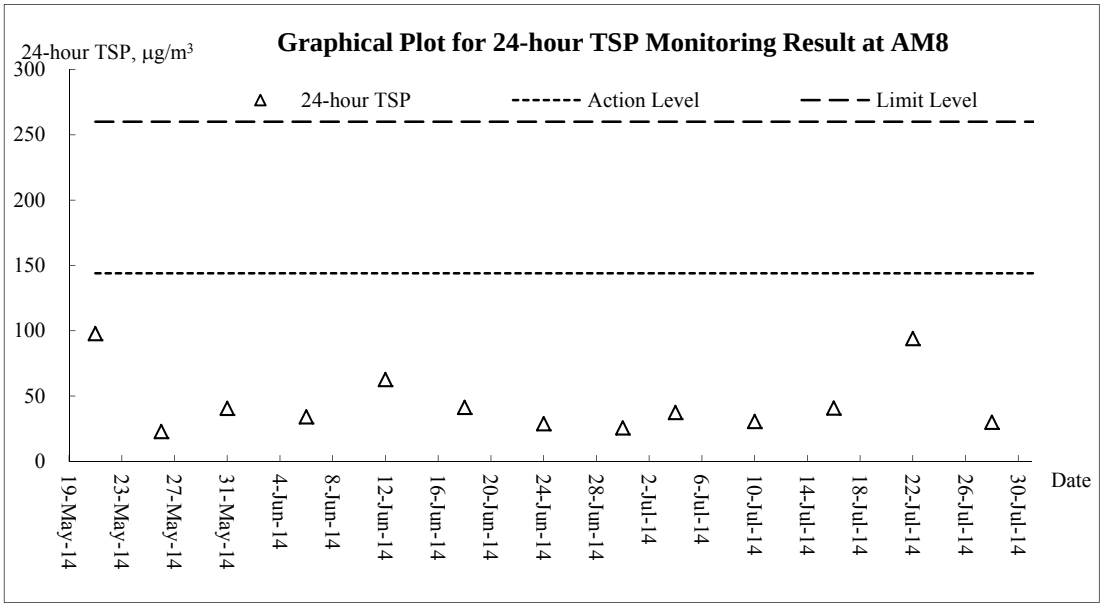
Air Quality – 24-hour TSP

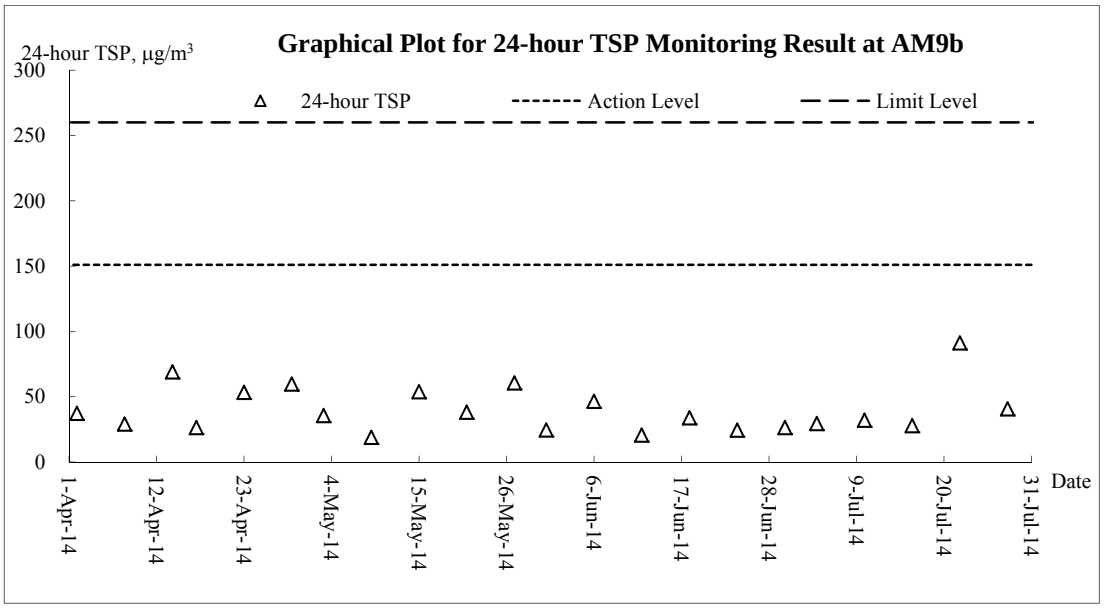




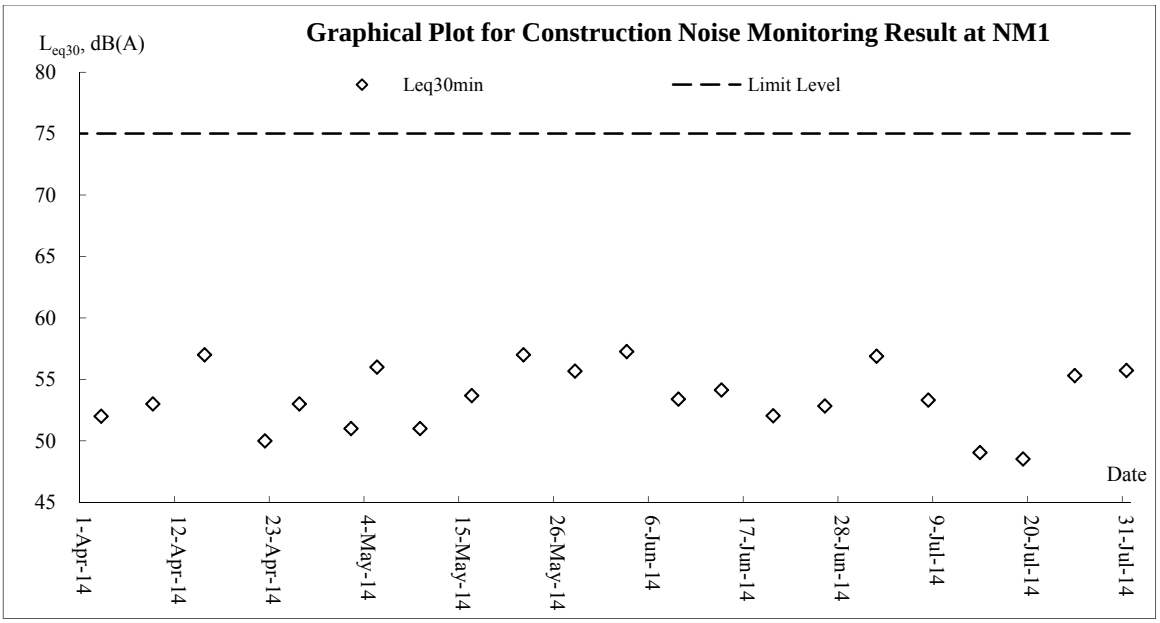


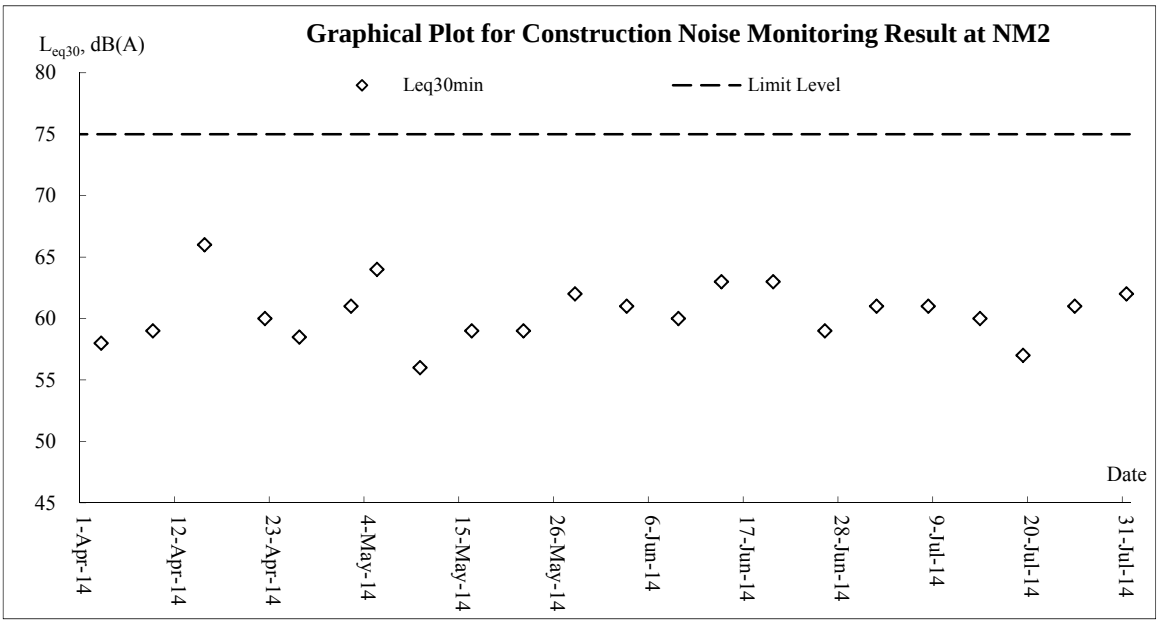

Graphical Plot for 24-hour TSP Monitoring Result at AM7b
24-hour TSP, µg/m³
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
25-May-14
31-May-14
6-Jun-14
12-Jun-14
18-Jun-14
24-Jun-14
30-Jun-14
6-Jul-14
12-Jul-14
18-Jul-14
24-Jul-14
30-Jul-14
Date

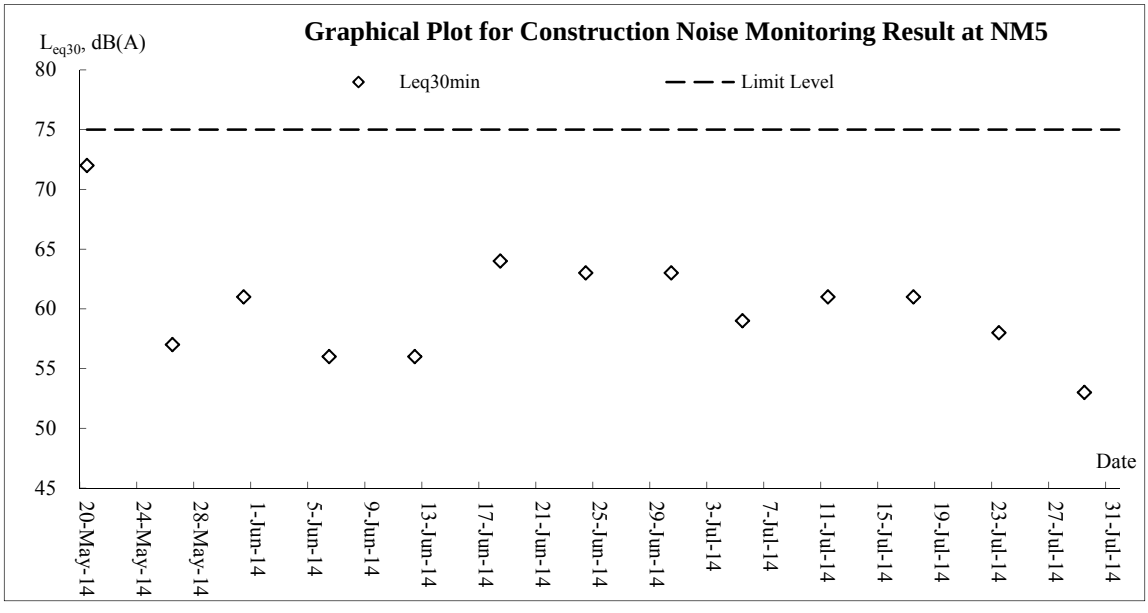

Graphical Plot for 24-hour TSP Monitoring Result at AM8
24-hour TSP, µg/m³
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
19-May-14
23-May-14
27-May-14
31-May-14
4-Jun-14
8-Jun-14
12-Jun-14
16-Jun-14
20-Jun-14
24-Jun-14
28-Jun-14
2-Jul-14
6-Jul-14
10-Jul-14
14-Jul-14
18-Jul-14
22-Jul-14
26-Jul-14
30-Jul-14
Date

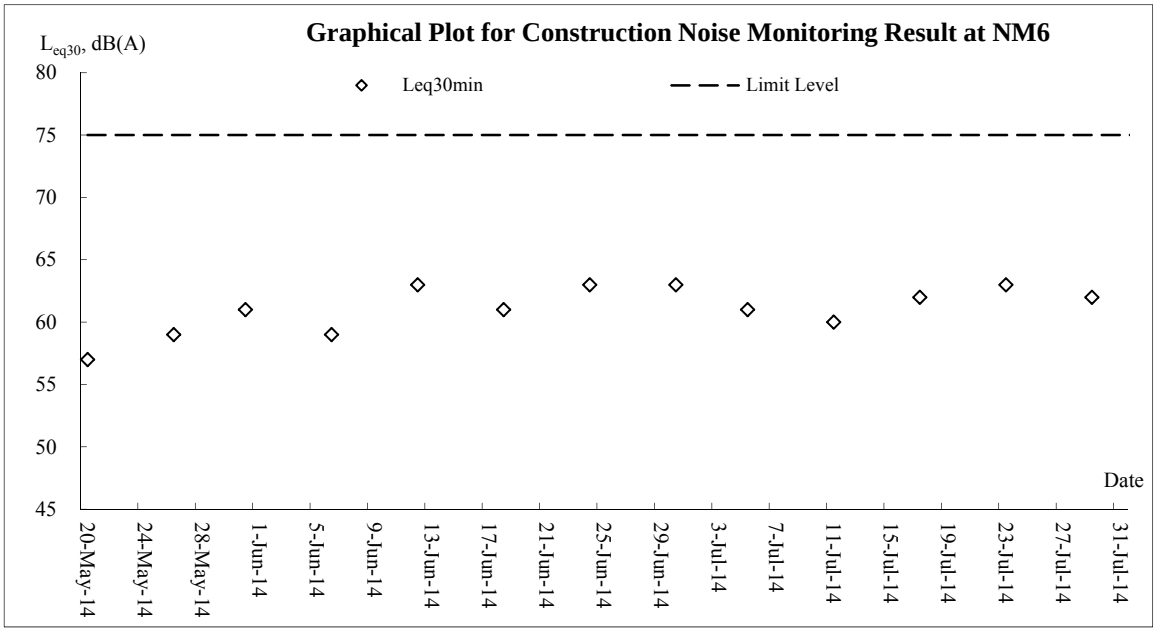

Graphical Plot for 24-hour TSP Monitoring Result at AM9b
24-hour TSP, µg/m³
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14
Date

Noise


Graphical Plot for Construction Noise Monitoring Result at NM1
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14


Graphical Plot for Construction Noise Monitoring Result at NM2
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14


Graphical Plot for Construction Noise Monitoring Result at NM5
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
20-May-14
24-May-14
28-May-14
1-Jun-14
5-Jun-14
9-Jun-14
13-Jun-14
17-Jun-14
21-Jun-14
25-Jun-14
29-Jun-14
3-Jul-14
7-Jul-14
11-Jul-14
15-Jul-14
19-Jul-14
23-Jul-14
27-Jul-14
31-Jul-14


Graphical Plot for Construction Noise Monitoring Result at NM6
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
20-May-14
24-May-14
28-May-14
1-Jun-14
5-Jun-14
9-Jun-14
13-Jun-14
17-Jun-14
21-Jun-14
25-Jun-14
29-Jun-14
3-Jul-14
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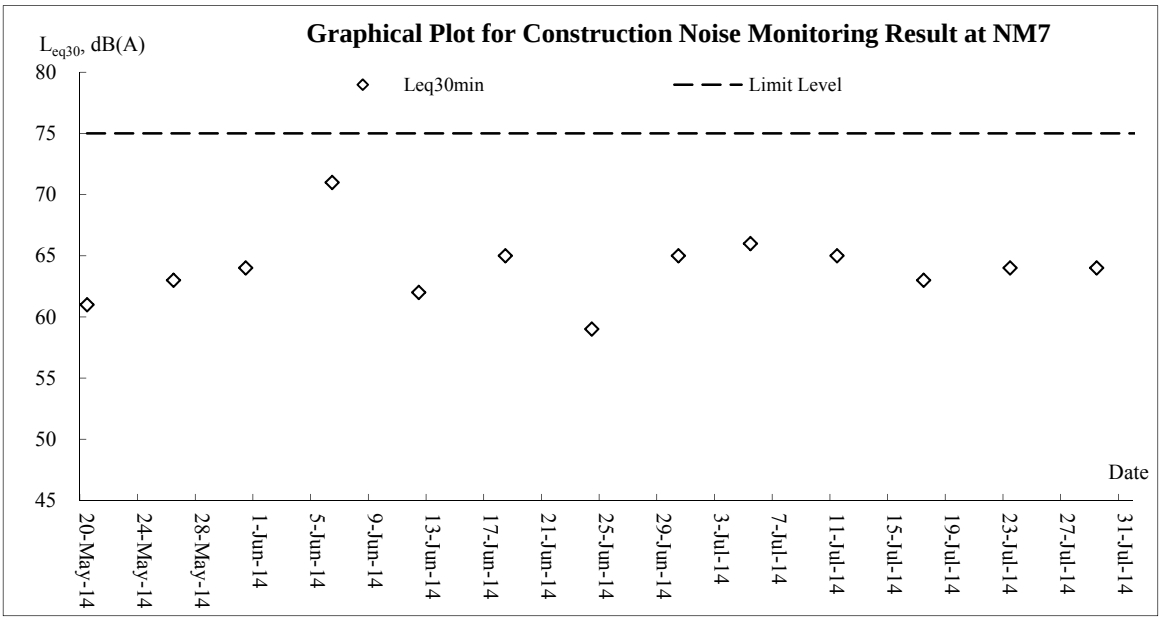
27-Jul-14
31-Jul-14


Graphical Plot for Construction Noise Monitoring Result at NM7
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
20-May-14
24-May-14
28-May-14
1-Jun-14
5-Jun-14
9-Jun-14
13-Jun-14
17-Jun-14
21-Jun-14
25-Jun-14
29-Jun-14
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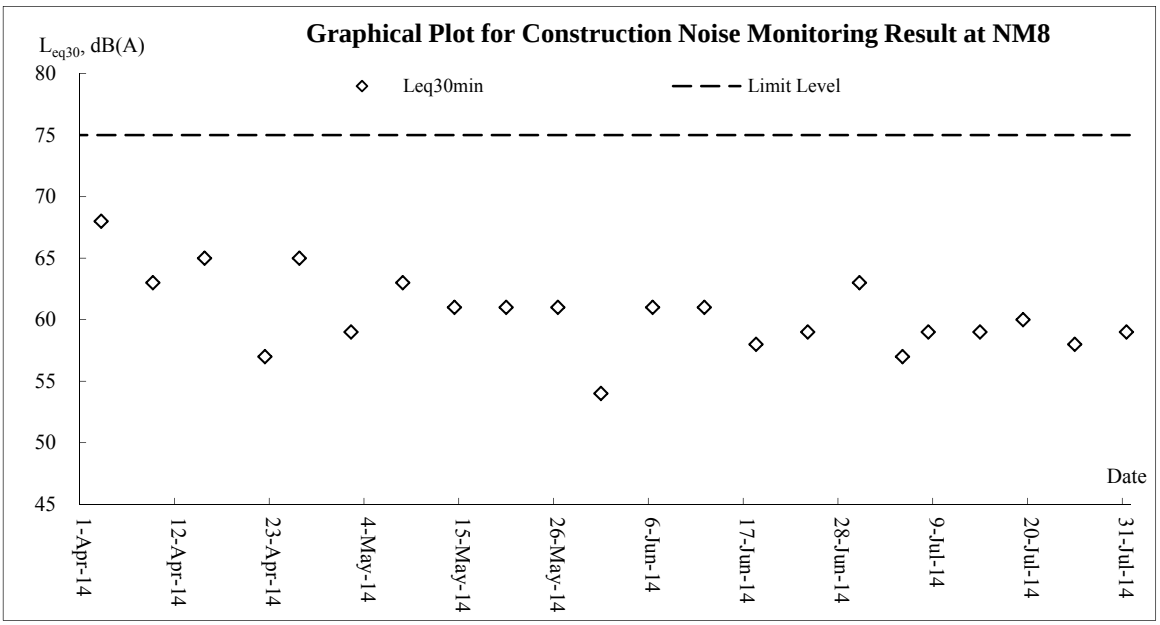
27-Jul-14
31-Jul-14


Graphical Plot for Construction Noise Monitoring Result at NM8
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
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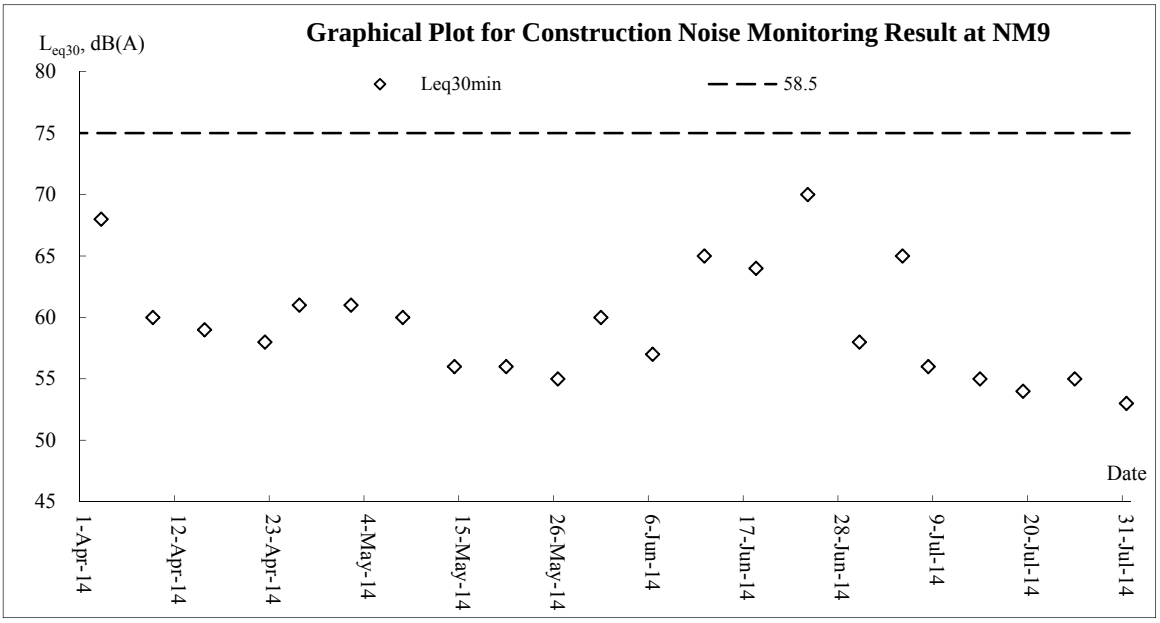
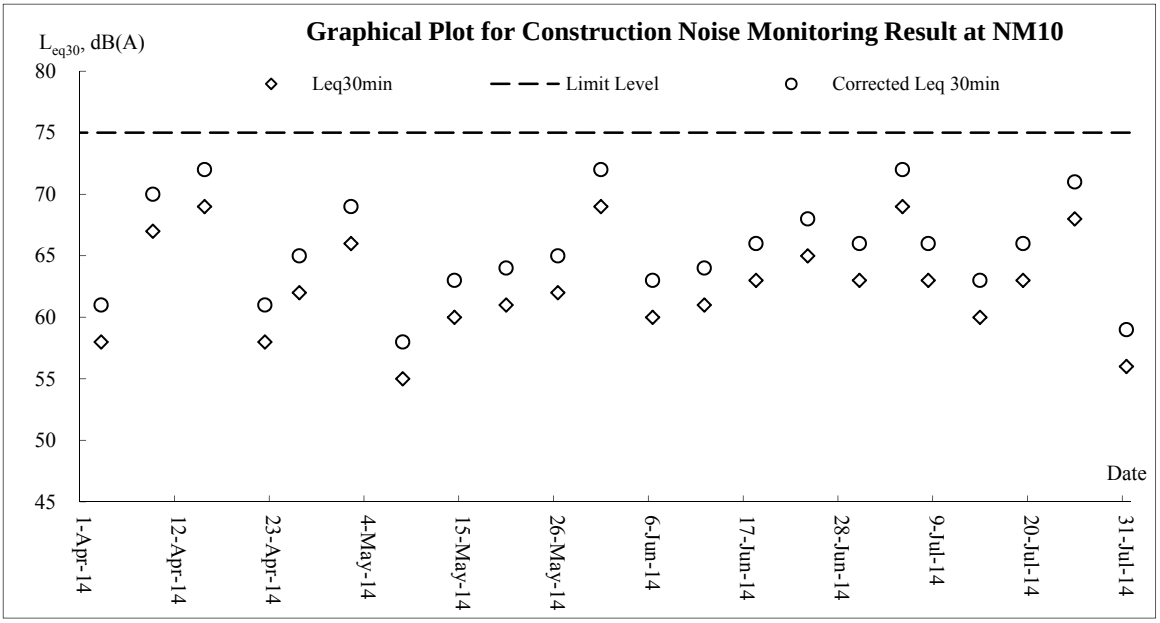
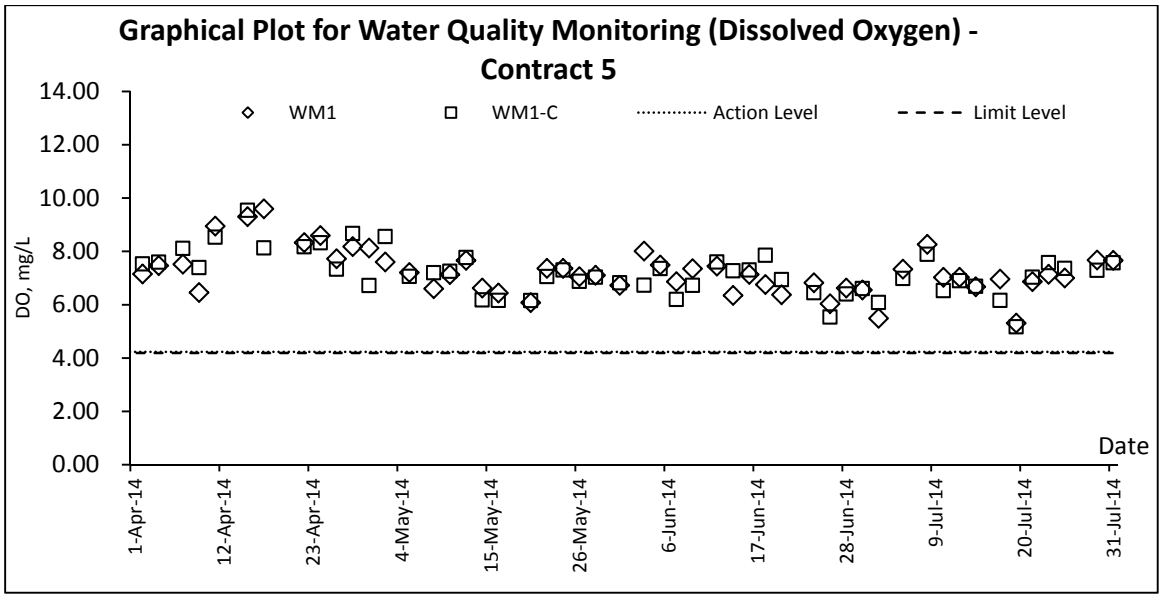
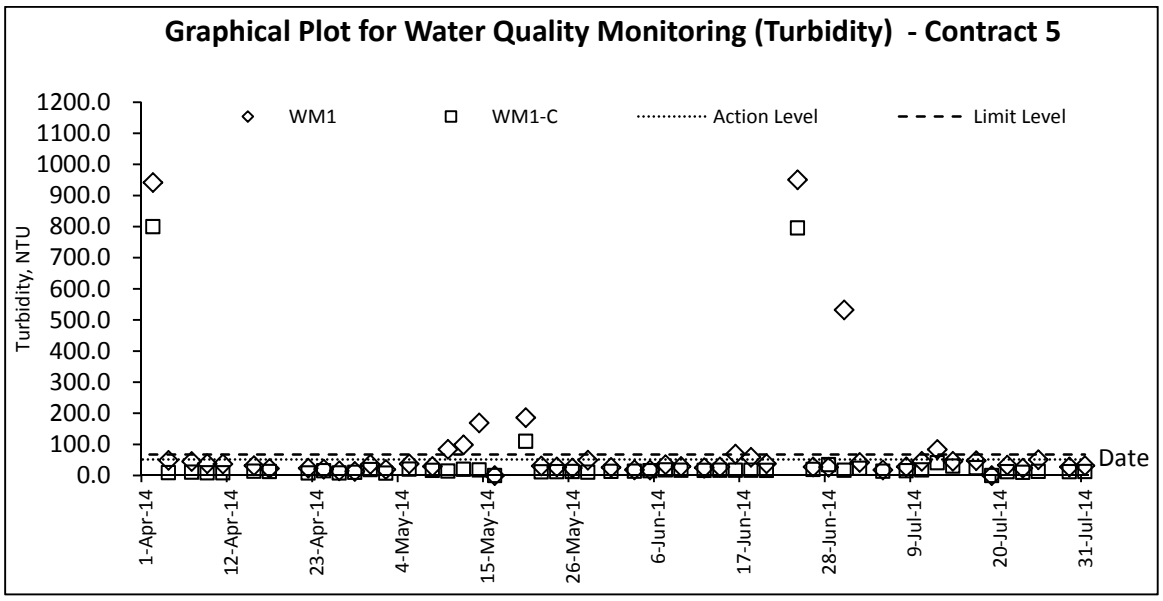
9-Jul-14
20-Jul-14
31-Jul-14

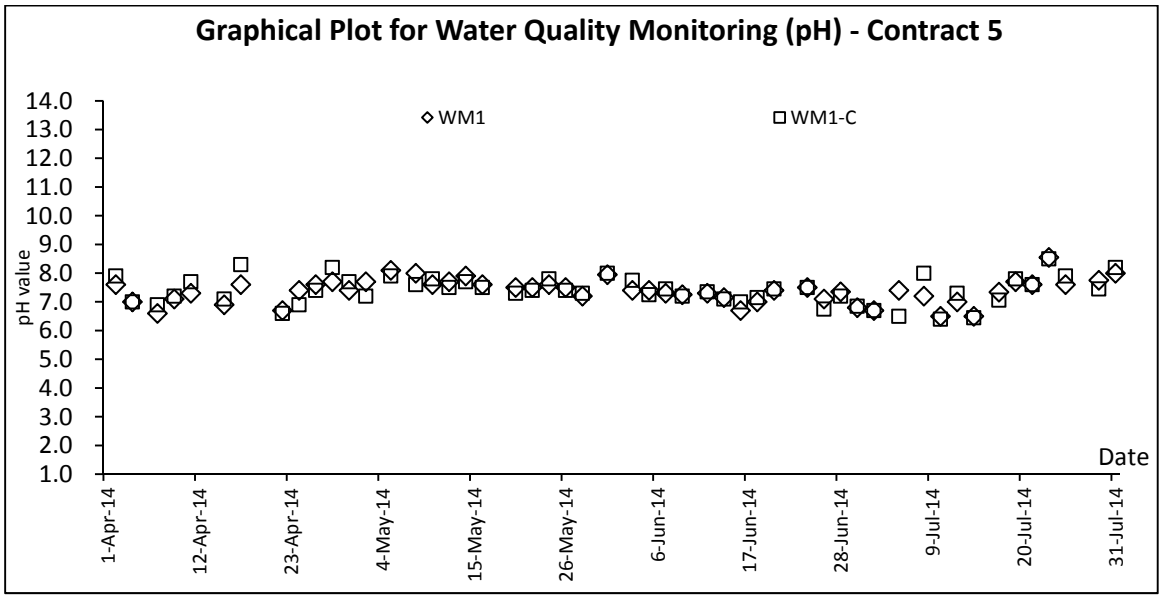

Graphical Plot for Construction Noise Monitoring Result at NM9
L_{eq30}, dB(A)
Leq30min
58.5
80
75
70
65
60
55
50
45
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14

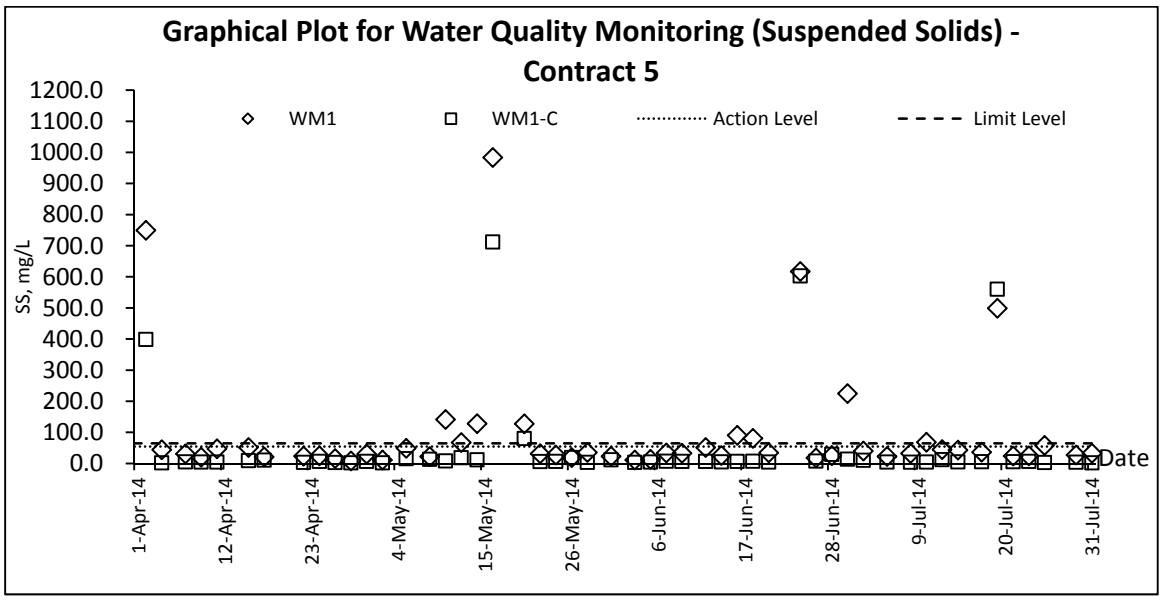

Graphical Plot for Construction Noise Monitoring Result at NM10
L_{eq30}, dB(A)
Leq30min
Limit Level
Corrected Leq 30min
80
75
70
65
60
55
50
45
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14

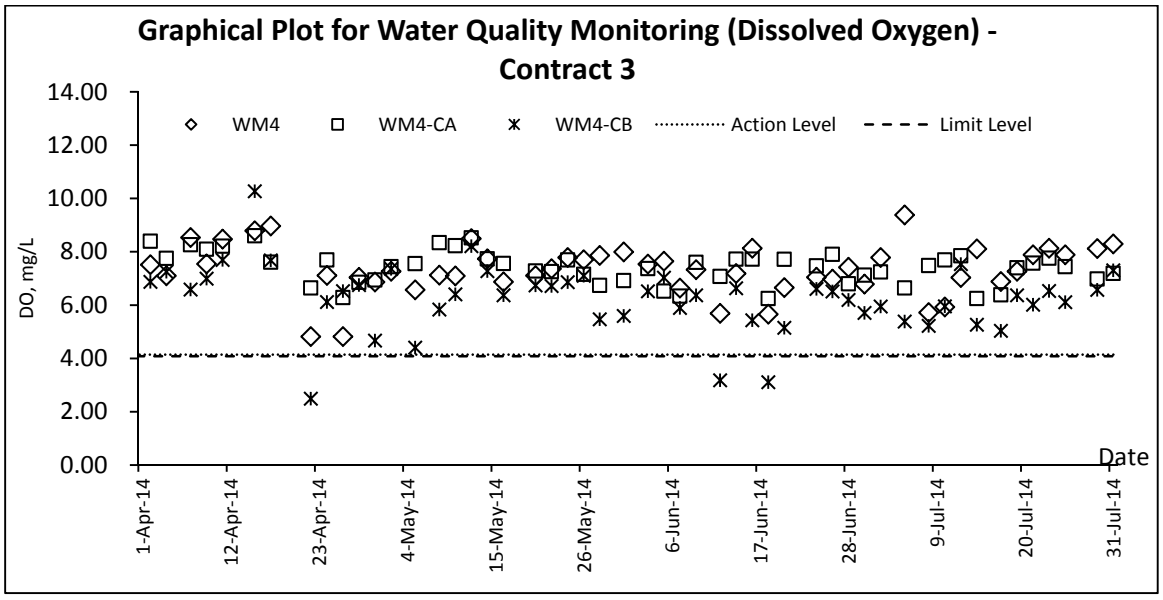
Water Quality








Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contract 5
WM1
WM1-C
Action Level
Limit Level
SS, mg/L
1200.0
1100.0
1000.0
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14


Graphical Plot for Water Quality Monitoring (Dissolved Oxygen) - Contract 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
DO, mg/L
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
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17-Jun-14
28-Jun-14
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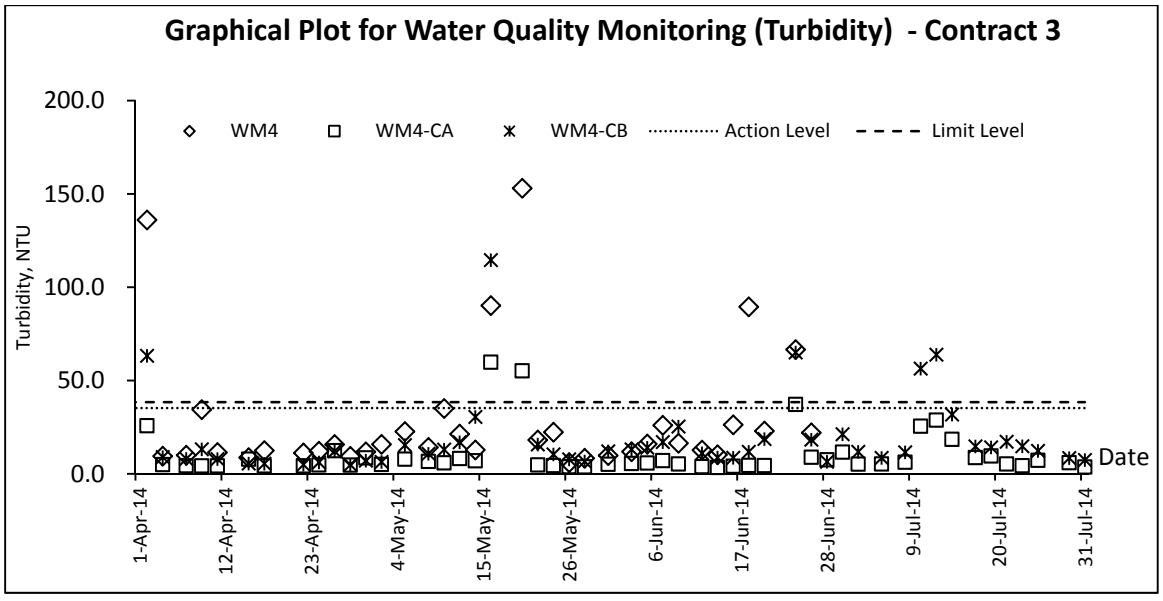
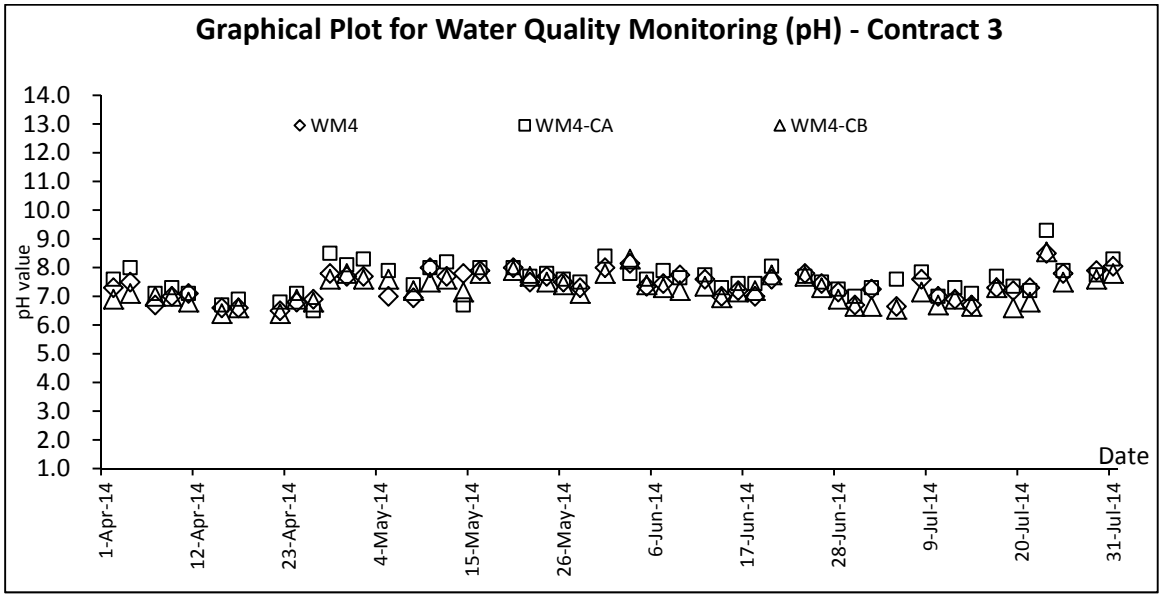
20-Jul-14
31-Jul-14


Graphical Plot for Water Quality Monitoring (Turbidity) - Contract 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
Turbidity, NTU
200.0
150.0
100.0
50.0
0.0
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14


Graphical Plot for Water Quality Monitoring (pH) - Contract 3
WM4
WM4-CA
WM4-CB
pH value
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
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17-Jun-14
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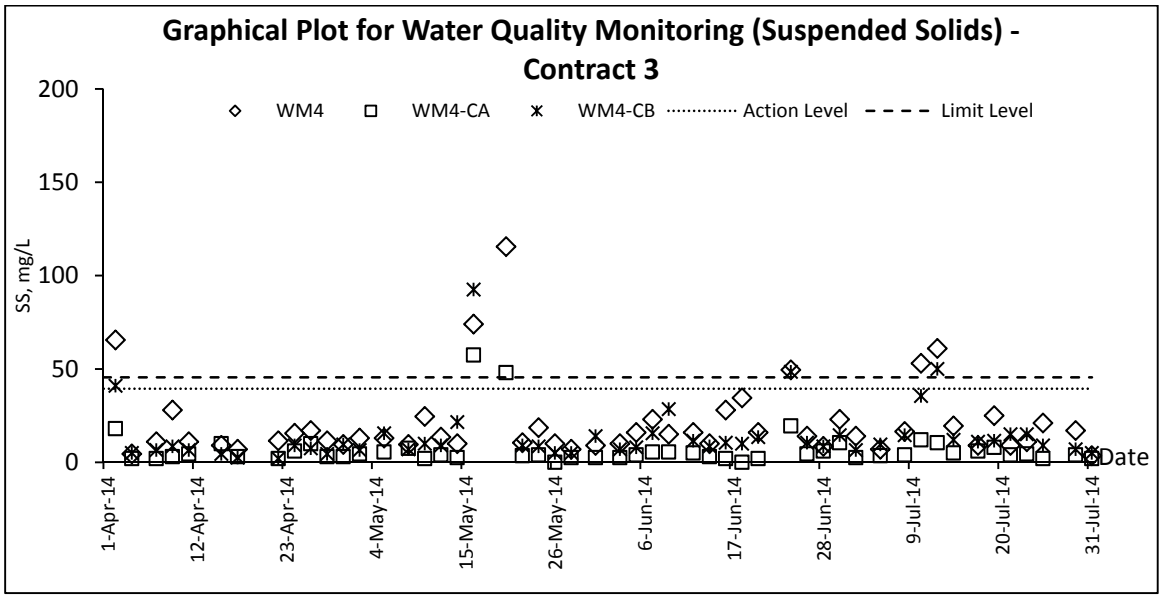
20-Jul-14
31-Jul-14


Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contract 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
SS, mg/L
200
150
100
50
0
Date
1-Apr-14
12-Apr-14
23-Apr-14
4-May-14
15-May-14
26-May-14
6-Jun-14
17-Jun-14
28-Jun-14
9-Jul-14
20-Jul-14
31-Jul-14

Appendix K

Meteorological Data

Date		Weather	Total Rainfall (mm)	Ta Kwu Ling Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jul-14	Tue	Mainly fine apart from isolated showers. Very hot in the afternoon. Moderate southwesterly winds.	13.9	28.7	28.7	82.7	E/SE
2-Jul-14	Wed	Mainly fine apart from isolated showers. Very hot in the afternoon. Moderate southwesterly winds.	Trace	29.7	29.7	76.5	S/SW
3-Jul-14	Thu	Mainly fine apart from isolated showers. Very hot in the afternoon. Moderate southwesterly winds.	0.1	30.1	30.1	76.2	W/SW
4-Jul-14	Fri	Mainly fine. Very hot in the afternoon. Light to moderate southwesterly winds.	0	24.8	24.8	75.3	E/SE
5-Jul-14	Sat	Mainly fine. Very hot in the afternoon. Light to moderate southwesterly winds.	1.5	30.4	30.4	71.4	E/SE
6-Jul-14	Sun	Sunny periods apart from a few showers and isolated thunderstorms, Very hot. Light to moderate westerly winds.	14.8	30.6	30.6	75.8	SW
7-Jul-14	Mon	Sunny periods apart from a few showers and isolated thunderstorms, Very hot. Light to moderate westerly winds.	5.5	28.8	28.8	80	W/SW
8-Jul-14	Tue	Very hot with sunny periods in the afternoon. Mainly cloudy at night. Light winds.	0	29.5	29.5	80	N/NE
9-Jul-14	Wed	Mainly fine and very hot with isolated showers. Light to moderate southwesterly winds.	Trace	29.6	29.6	78.7	E
10-Jul-14	Thu	Hot with sunny periods during the day with a maximum temperature of around 32 degrees. Moderate southerly winds.	16.9	29.7	29.7	81	E/SE
11-Jul-14	Fri	Hot. Mainly cloudy with a few showers. Moderate southerly winds.	23.3	28.9	28.9	85.2	E/NE
12-Jul-14	Sat	Hot. Mainly cloudy with a few showers. Moderate southerly winds.	5.8	29.8	8.2	79.2	S/SE
13-Jul-14	Sun	A few showers and isolated thunderstorms. It will be very hot with sunny periods. Moderate southerly winds.	2.9	29.9	6.8	77.5	S/SW
14-Jul-14	Mon	A few showers and isolated thunderstorms. It will be very hot with sunny periods. Moderate southerly winds.	22.6	29.9	7	76.7	S/SW
15-Jul-14	Tue	Fine and very hot. Moderate south to southeasterly winds.	6.2	30	5.5	75	S/SW
16-Jul-14	Wed	Fine and very hot. Moderate south to southeasterly winds.	Trace	29.3	6.4	76.5	E/NE
17-Jul-14	Thu	Cloudy with rain, heavy at times with squally thunderstorms. There will be swells.	34.5	30	12.7	76	E/NE
18-Jul-14	Fri	Cloudy with rain, heavy at times with squally thunderstorms. There will be swells.	19.5	27.2	18.8	84.5	E
19-Jul-14	Sat	Fine and very hot but hazy tomorrow. Light to moderate westerly winds.	6.5	29.8	16.5	77.2	E
20-Jul-14	Sun	Fine and very hot but hazy tomorrow. Light to moderate westerly winds.	11.1	29.3	6.5	79.7	E/NE
21-Jul-14	Mon	Fine and very hot but hazy tomorrow. Light to moderate westerly winds.	0	29.7	4.1	77.2	S/SW
22-Jul-14	Tue	Cloudy with a few showers, Sunny periods. Moderate west to southwesterly winds, fresh offshore at first.	35.7	29.5	7.5	80.5	W/SW
23-Jul-14	Wed	Mainly cloudy with a few showers. Sunny intervals. Moderate south to southwesterly winds.	0	30.4	6.9	80	W/SW
24-Jul-14	Thu	isolated showers and one or two thunderstorms. Hot with sunny periods. Moderate south to southwesterly winds.	7.3	29.2	7.3	80.2	SW
25-Jul-14	Fri	Mainly cloudy with a few showers. Moderate south to southeasterly winds.	6.2	28.7	8.2	81.5	E/NE
26-Jul-14	Sat	Mainly fine and very hot apart from isolated showers. Moderate west to southwesterly winds.	6.7	27.7	7.5	86.7	E/NE
27-Jul-14	Sun	Mainly fine and very hot apart from isolated showers. Moderate west to southwesterly winds.	25.5	29.2	7.6	81.2	E/NE
28-Jul-14	Mon	Mainly fine apart from isolated showers. Very hot during the day. Light to moderate east to southeasterly winds.	0	29.5	5.5	70.2	E/NE
29-Jul-14	Tue	Fine and very hot. Light winds.	0	Maintenance			
30-Jul-14	Wed	Fine and very hot. Light winds.	0	30.2	4.5	72.2	N/NE
31-Jul-14	Thu	Fine and very hot. There will be some haze later. Light to moderate westerly winds.	0	30.6	6.5	75.5	SW

Appendix L

Waste Flow Table

Name of Department : CEDD **Contract No./ Work Order No. :** CV/2012/08

Appendix J - Monthly Summary Waste Flow Table for 2014

(All quantities shall be rounded off to 3 decimal places)

Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000 m3)						Actual Quantities of Other C&D Materials / Wastes Generated				
	Total Quantities Generated [a+b+c+d]	Broken Concrete (including rock for recycling into aggregates) (a)	Reused in the Contract (b)	Reused in Other Projects (c)	Disposed as Public Fill (d)	Imported C&D Material	Metal (in '000kg)	Paper/ Cardboard Packaging (in '000kg)	Plastic (bottles/containers, plastic sheets/ foams from package material) (in '000kg)	Chemical Waste (in '000kg)	Others (e.g. General Refuse etc.) (in '000m3)
January	0.0045	0.0000	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1773
February	0.9869	0.0000	0.9869	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1102
March	0.1366	0.0000	0.1366	0.0000	0.0000	0.2282	0.0000	0.0000	0.0000	3.2400	0.1825
April	0.2063	0.0000	0.1217	0.0269	0.0577	0.5536	0.0000	0.0000	0.0000	4.2800	0.2069
May	14.5769	0.0000	0.0643	14.4032	0.1094	2.0126	0.0000	0.0000	0.0000	0.0000	0.0887
June	26.0821	0.0000	0.0348	22.1289	3.9183	0.6915	0.0000	0.0000	0.0000	0.0000	1.1851
Half-year total	41.9932	0.0000	1.3487	36.5590	4.0855	3.4859	0.0000	0.0000	0.0000	7.5200	1.9508
July	49.4606	0.0000	0.0069	37.1170	12.3368	0.4385	0.0000	0.0000	0.0000	0.0000	0.0558
August	0.0000										
September	0.0000										
October	0.0000										
November	0.0000										
December	0.0000										
Yearly Total	91.4538	0.0000	1.3556	73.6760	16.4222	3.9244	0.0000	0.0000	0.0000	7.5200	2.0066

Remark:

1) Density of C&D material to b 2.2 metric ton/m3

2) Density of General Refuse to 1.6 metric ton/m3

Name of Department: CEDD

Contract No.: CV/2012/09

Monthly Summary Waste Flow Table for 2014 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	0.409	0.084	0	0	0.409	0.200	0	0	0.010	0	0.110
Feb	1.697	0.356	0.380	0	1.473	0	0.002	0	0	0.019	0.040
Mar	3.954	0.506	1.092	0	2.862	0	0	0	0	0	0.265
Apr	1.600	0.054	0.672	0	0.928	0.200	0	0	0	0.020	0.135
May	2.740	0.450	0.192	0	2.548	0.500	0	0	0	0.020	0.195
Jun	2.215	0.258	0.675	0	1.540	1.075	0	0	0	0.001	0.180
Sub-total	12.615	1.708	3.011	0.000	9.760	1.975	0.002	0.000	0.010	0.060	0.925
Jul	3.596	0.233	0.502	0	3.094	0.747	0	0	0.005	0	0.165
Aug											
Sep											
Oct											
Nov											
Dec											
Total	16.211	1.941	3.513	0.000	12.854	2.722	0.002	0.000	0.015	0.060	1.090

Note:

1. Assume the density of soil fill is 2 ton/m^3.
2. Assume the density of rock and broken concrete is 2.5 ton/m^3.
3. Assume each truck of C&D wastes is 5m^3.
4. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
5. The slurry and bentonite are disposed at Tseung Kwun O 137.
6. The non-inert C&D wastes are disposed at NENT.
7. Assume the density of metal is 7,850 kg/m^3.

Name of Department: CEDD

Monthly Summary Waste Flow Table for 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
JAN	0	0	0	0	0	16.571	0	0	0	0	0.85
FEB	0	0	0	0	0	18.672	0	0	0	0	0.005
MAR	0	0	0	0	0	2.968	0	0	0	6	0.01
APRIL	0	0	0	0	0	1.664	0.87	0.051	0	0	0.245
MAY	0	0	0	0	0	18.352	0	0	0	0	0.23
JUN	0	0	0	0	0	33.381	0	0.14	0	0	0
Sub Total	0	0	0	0	0	91.608	0.87	0.191	0	6	1.34
JUL	**0**	**0**	**0**	**0**	**0**	**16.04**	**2.01**	**0**	**0**	**0**	**0.11**
AUG											
SEP											
OCT											
NOV											
DEC											
Total	0	0	0	0	0	107.65	2.88	0.191	0	6	1.45

Notes:

Name of Department: CEDD

Forecast of Total Quantities of C&D Materials to be Generated from the Contract (see Note 4)										
Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metal	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
0	0	0	0	0	350	30	4	2	1	4

Notes:

(1) The performance targets are given in PS clause 6(14) above.

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

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

(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature

- Hard Rocks and Large Broken Concrete = Cannot be defined at this stage
- Imported Fill = Estimated by the Contractor = 1 loading = 8m 3
- Metal = Estimated by the Contractor
- Paper/cardboard packaging = Estimated by the Contractor
- Plastics = Estimated by the Contractor
- Chemical Waste = Estimated by the Contractor (Spent lubricating oil, assume density 0.9kg/L)
- Other, e.g. general refuse = Estimated by the Contractor

Appendix M

Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
Air Quality Impact (Construction)							
3.6.1.1	2.1	**General Dust Control Measures** The following dust suppression measures should be implemented: ■ Frequent water spraying for active construction areas (4 times per day for active areas in Po Kak Tsai and 8 times per day for all other active areas), including areas with heavy construction and slope cutting activities ■ 80% of stockpile areas should be covered by impervious sheets ■ Speed of trucks within the site should be controlled to about 10 km/hr ■ All haul roads within the site should be paved to avoid dust emission due to vehicular movement	To minimize adverse dust emission generated from various construction activities of the works sites	Contractor	Construction Works Sites	During Construction	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation
3.6.1.2	2.1	**Best Practice for Dust Control** The relevant best practices for dust control as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted to further reduce the construction dust impacts of the Project. These best practices include: *Good site management* ■ The Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. ■ Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimize the release of visible dust emission. ■ Any piles of materials accumulated on or around the work areas should be cleaned up regularly. ■ Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimizing generation of fugitive dust emissions. ■ The material should be handled properly to prevent fugitive dust emission before cleaning. *Disturbed Parts of the Roads* ■ Each and every main temporary access should be paved with	To minimize adverse dust emission generated from various construction activities of the works sites	Contractor	Construction Works Sites	During Construction	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or ■ Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. *Exposed Earth* ■ Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies. *Loading, Unloading or Transfer of Dusty Materials* ■ All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. *Debris Handling* ■ Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides. ■ Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped. *Transport of Dusty Materials* ■ Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards. *Wheel washing* ■ Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. *Use of vehicles* ■ Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. ■ Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.				

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		Site hoarding ■ Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit. *Blasting* ■ The areas within 30m from the blasting area should be wetted with water prior to blasting.					
Air Quality Impact (Operation)							
3.5.2.2	2.2	The following odour containment and control measures will be provided for the proposed sewage treatment work at the BCP site: ■ The treatment work will be totally enclosed. Negative pressure ventilation will be provided within the enclosure to avoid any fugitive odorous emission from the treatment work. ■ Further odour containment will be achieved by covering or confining the sewage channels, sewage tanks, and equipment with potential odour emission. ■ Proper mixing will be provided at the equalization and sludge holding tanks to prevent sewage septicity. ■ Chemical or biological deodorisation facilities with a minimum odour removal efficiency of 90% will be provided to treat potential odorous emissions from the treatment plant including sewage channels / tanks, filter press and screening facilities so as to minimize any potential odour impact to the nearby ASRs.	To minimize potential odour impact from operation of the proposed sewage treatment work at BCP	DSD	BCP	Operation Phase	EIA recommendation
Noise Impact (Construction)							
4.4.1.4	3.1	**Adoption of Quieter PME** Use of the recommended quieter PME such as those given in the BS5228: Part 1:2009 and presented in **Table 4.14**, which can be found in Hong Kong.	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and Noise Control Ordinance (NCO)

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.4.1.4	3.1	**Use of Movable Noise Barrier** The use of movable barrier for certain PME can further alleviate the construction noise impacts. In general, a 5 dB(A) reduction for movable PME and 10 dB(A) for stationary PME can be achieved depending on the actual design of the movable noise barrier. The Contractor shall be responsible for design of the movable noise barrier with due consideration given to the size of the PME and the requirement for intercepting the line of sight between the NSRs and PME. Barrier material with surface mass in excess of 7 kg/m^2 is recommended to achieve the predicted screening effect.	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
4.4.1.4	3.1	**Use of Noise Enclosure/ Acoustic Shed** The use of noise enclosure or acoustic shed is to cover stationary PME such as air compressor and concrete pump. With the adoption of the noise enclosure, the PME could be completely screened, and noise reduction of 15 dB(A) can be achieved according to the GW-TM.	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
4.4.1.4	3.1	**Use of Noise Insulating Fabric** Noise insulating fabric can be adopted for certain PME (e.g. drill rig, pilling auger etc). The insulating fabric should be lapped such that there are no openings or gaps on the joints. Technical data from manufacturers state that by using the Fabric, a noise reduction of over 10 dB(A) can be achieved on noise level.	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.4.1.4	3.1	**Good Site Practice** The good site practices listed below should be followed during each phase of construction: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction programme; • Mobile plant, if any, should be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
Noise Impact (Operation)							
		Road Traffic Noise					
Table 4.42 and Figure 4.20.1 to 4.20.4	3.2	Erection of noise barrier/ enclosure along the viaduct section.	To minimize the road traffic noise along the connecting road of BCP	Contractor	Loi Tung and Fanling Highway Interchange	Before Operation	EIAO and NCO
		Fixed Plant Noise					
Table 4.46	3.2	Specification of the maximum allowable sound power levels of the proposed fixed plants during daytime and night-time.	To minimize the fixed plant noise impact	Managing Authority of the buildings / Contractor	BCP, Administration Building and all ventilation buildings	Before Operation	EIA recommendation, EIAO and NCO

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.5.2.4	3.2	The following noise reduction measures shall be considered as far as practicable during operation: • Choose quieter plant such as those which have been effectively silenced; • Include noise levels specification when ordering new plant (including chillier and E/M equipment); • Locate fixed plant/louver away from any NSRs as far as practicable; • Locate fixed plant in walled plant rooms or in specially designed enclosures; • Locate noisy machines in a basement or a completely separate building; • Install direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary; and • Develop and implement a regularly scheduled plant maintenance programme so that equipment is properly operated and serviced in order to maintain a controlled level of noise.	To minimize the fixed plant noise impact	Managing Authority of the buildings / Contractor	BCP, Administration Building and all ventilation buildings	Before Operation	EIAO and NCO
Water Quality Impact (Construction)							
5.6.1.1	4.1	**Construction site runoff and drainage** The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended to protect water quality and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts: ▪ At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the Contractor prior to the commencement of construction. ▪ The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas.	To control site runoff and drainage; prevent high sediment loading from reaching the nearby watercourses	Contractor	Construction Works Sites	Construction Phase	Practice Note for Professional Persons on Construction Site Drainage (ProPECC Note PN 1/94)

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		Temporary ditches should be provided to facilitate the runoff discharge into stormwater drainage system through a sediment/silt trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates, if practical. ▪ Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractor prior to the commencement of construction. ▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. ▪ Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities. ▪ If surface excavation works cannot be avoided during the wet season (April to September), temporarily exposed slope/soil surfaces should be covered by tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interception channels should be provided (e.g. along the crest/edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC Note PN 1/94. ▪ The overall slope of the site should be kept to a minimum to reduce					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		the erosive potential of surface water flows. ▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. ▪ Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. ▪ Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers. ▪ Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. ▪ Bentonite slurries used in piling or slurry walling should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.					
5.6.1.1	4.1	**Good site practices for works within water gathering grounds** The following conditions should be complied, if there is any works to be carried out within the water gathering grounds:	To minimize water quality impacts to the water gathering grounds	Contractor	Construction Works Sites within the water gathering	Construction Phase	ProPECC Note PN 1/94

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		▪ Adequate measures should be implemented to ensure no pollution or siltation occurs to the catchwaters and catchments. ▪ No earth, building materials, oil or fuel, soil, toxic materials or any materials that may possibly cause contamination to water gathering grounds are allowed to be stockpiled on site. ▪ All surplus spoil should be removed from water gathering grounds as soon as possible. ▪ Temporary drains with silt traps should be constructed at the site boundary before the commencement of any earthworks. ▪ Regular cleaning of silt traps should be carried out to ensure proper operation at all time. ▪ All excavated or filled surfaces which have the risk of erosion should always be protected form erosion. ▪ Facilities for washing the wheels of vehicles before leaving the site should be provided. ▪ Any construction plant which causes pollution to catchwaters or catchments due to the leakage of oil or fuel should be removed off site immediately. ▪ No maintenance activities which may generate chemical wastes should be undertaken in the water gathering grounds. Vehicle maintenance should be confined to designated paved areas only and any spillages should be cleared up immediately using absorbents and waste oils should be collected in designated tanks prior to disposal off site. All storm water run-off from these areas should be discharged via oil/petrol separators and sand/silt removal traps. ▪ Any soil contaminated with fuel leaked from plant should be removed off site and the voids arising from removal of contaminated soil should be replaced by suitable material approved by the Director of Water Supplies. ▪ Provision of temporary toilet facilities and use of chemicals or insecticide of any kind are subject to the approval of the Director of Water Supplies. ▪ Drainage plans should be submitted for approval by the Director of			grounds		

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		Water Supplies. ▪ An unimpeded access through the waterworks access road should always be maintained. ▪ Earthworks near catchwaters or streamcourses should only be carried out in dry season between October and March, ▪ Advance notice must be given before the commencement of works on site quoting WSD's approval letter reference.					
5.6.1.2	4.1	**Good site practices of general construction activities** Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby stormwater drain. Stockpiles of cement and other construction materials should be kept covered when not being used. Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby stormwater drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	To minimize water quality impacts	Contractor	All construction works sites	Construction phase	EIA Recommendation
5.6.1.3	4.1	**Sewage effluent from construction workforce** Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize water quality impacts	Contractor	All construction works sites with on-site sanitary facilities	Construction phase	EIA Recommendation and Water Pollution Control Ordinance (WPCO)
5.6.1.4	4.1	**Hydrogeological Impact** Grout injection works would be conducted before blasting, for sealing a limited area around the tunnel with a grout of a suitable strength for controlling the potential groundwater inflows. The pre-injection grouting method would be supplemented by post-injection grouting where necessary to further enhance the groundwater inflow control. On-site treatment for the groundwater ingress pumped out would be required to remove any contamination by grouting materials before discharge off-site.	To minimize water quality impacts	Contractor	Construction works sites of the drill and blast tunnel	Construction phase	EIA Recommendation and WPCO
Water Quality Impact (Operation)							
		No mitigation measure is required.					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
Sewage and Sewerage Treatment Impact (Construction)							
6.7	5	The sewage generated by the on-site workforce should be collected in chemical toilets and disposed of off-site by a licensed waste collector.	To minimize water quality impacts	Contractor	All construction works sites with on-site sanitary facilities	Construction phase	EIA recommendation and WPCO
Sewage and Sewerage Treatment Impact (Operation)							
6.6.3	5	Sewage generated by the BCP and Chuk Yuen Village Resite will be collected and treated by the proposed on-site sewage treatment facility using Membrane Bioreactor treatment with a portion of the treated wastewater reused for irrigation and flushing within the BCP.	To minimize water quality impacts	DSD	BCP	Operation phase	EIA recommendation and WPCO
6.5.3	5	Sewage generated from the Administration Building will be discharged to the existing local sewerage system.	To minimize water quality impacts	DSD	Administration Building	Operation phase	EIA recommendation and WPCO
Waste Management Implication (Construction)							
7.6.1.1	6	**Good Site Practices** Adverse impacts related to waste management such as potential hazard, air, odour, noise, wastewater discharge and public transport as mentioned in section 3.4.7.2 (ii)(c) of the Study Brief are not expected to arise, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include: ▪ Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ▪ Training of site personnel in proper waste management and chemical handling procedures ▪ Provision of sufficient waste disposal points and regular collection of waste ▪ Dust suppression measures as required under the Air Pollution Control (Construction Dust) Regulation should be followed as far as practicable. Appropriate measures to minimise windblown litter and dust/odour during transportation of waste by covering trucks or in enclosed containers ▪ General refuse shall be removed away immediately for disposal. As	To minimize adverse environmental impact	Contractor	Construction works sites (general)	Construction Phase	EIA recommendation; Waste Disposal Ordinance; Waste Disposal (Chemical Wastes) (General) Regulation; and ETWB TC(W) No. 19/2005, Environmental Management on Construction Site

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		such odour is not anticipated to be an issue to distant sensitive receivers ▪ Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction from public road ▪ Covers and water spraying system should be provided for the stockpiled C&D material to prevent dust impact or being washed away ▪ Designate different locations for storage of C&D material to enhance reuse ▪ Well planned programme for transportation of C&D material to lessen the off-site traffic impact. Well planned delivery programme for offsite disposal and imported filling material such that adverse noise impact from transporting of C&D material is not anticipated ▪ Site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be adopted as far as practicable, such as cleaning and maintenance of drainage systems regularly ▪ Provision of cover for the stockpile material, sand bag or earth bund as barrier to prevent material from washing away and entering the drains					
7.6.1.2	6	**Waste Reduction Measures** Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: ▪ Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal ▪ Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force ▪ Proper storage and site practices to minimise the potential for damage or contamination of construction materials ▪ Plan and stock construction materials carefully to minimise amount	To reduce the quantity of wastes	Contractor	Construction works sites (General)	Construction Phase	EIA recommendation and Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		of waste generated and avoid unnecessary generation of waste ▪ In addition to the above measures, specific mitigation measures are recommended below for the identified waste arising to minimise environmental impacts during handling, transportation and disposal of these wastes.					
7.6.1.3	6	**C&D Materials** In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated materials should be reused on-site as backfilling material as far as practicable. The surplus rock and other inert C&D material would be disposed of at the Government's Public Fill Reception Facilities (PFRFs) at Tuen Mun Area 38 for beneficial use by other projects in the HKSAR as the last resort. C&D waste generated from general site clearance and tree felling works would require disposal to the designated landfill site. Other mitigation requirements are listed below: ▪ A Waste Management Plan should be prepared and implemented in accordance with ETWB TC(W) No. 19/2005 Environmental Management on Construction Site; and ▪ In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills, and to control fly-tipping, a trip-ticket system (e.g. ETWB TCW No. 31/2004) should be included.	To minimize impacts resulting from C&D material	Contractor	Construction Works Sites (General)	Construction Phase	EIA recommendation; Waste Disposal Ordinance; and ETWB TCW No. 31/2004
7.6.1.4	6	**General refuse** General refuse should be stored in enclosed bins or compaction units separated from other C&D material. A reputable waste collector is to be employed by the Contractor to remove general refuse from the site separately. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' litter.	To minimize impacts resulting from collection and transportation of general refuse for off-site disposal	Contractor	Construction works sites (General)	Construction phase	Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation
7.6.1.5	6	**Chemical waste** If chemical wastes are produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical	To minimize impacts resulting from collection and transportation of chemical waste for off-site disposal	Contractor	Construction works sites (General)	Construction phase	Waste Disposal (Chemical Waste) (General) Regulation and Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes