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.27) – OCTOBER 2015

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
12 November 2015	TCS00694/13/600/R0025v2		
		Nicola Hon (Environmental Consultant)	Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	11 November 2015	First Submission
2	12 November 2015	Amended according to the IEC's comments on 11 November 2015

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12 November 2015 Our ref: 7076192/L19534/RY/AB/AW/FL/rw

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. 27) – October 2015

With reference to the Monthly EM&A Report No. 27 for October 2015 (Version 2) certified by the ET Leader provided to us on 12 November 2015, 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/C.

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 Mr Francis LEE on tel. 3995 8144 or by email to francis.lee@smec.com.

Yours faithfully
for and on behalf of
SMEC Asia Limited

Antony WONG
Independent Environmental Checker

cc	CEDD/BCP	-	Mr Karl KL KWAN	by fax: 3547 1659
	ArchSD	-	Mr William WL CHENG	by fax: 2804 6805
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
	Ronald Lu	-	Mr Peter YAM / Mr Justin CHEUNG	by email
	SRJV	-	Mr Edwin AU	by email
	CW	-	Mr Daniel HO	by email
	DHK	-	Mr Raymond CHENG	by email
	CCKJV	-	Mr Vincent CHAN	by email
	Leighton	-	Mr Jon KITCHING	by email
	AUES	-	Mr TW TAM	by email

EXECUTIVE SUMMARY

ES01 This is the **27th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 to 31 October 2015** (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 to six CEDD contracts including Contract 2 (CV/2012/08), Contract 3 (CV/2012/09), Contract 4 (TCSS), Contract 5 (CV/2013/03), Contract 6 (CV/2013/08) and Contract 7 (NE/2014/03) and an ArshSD contract (Contract SS C505).

ES03 In the Reporting Period, the construction works for Contract 6 was commenced on 23 October 2015 and therefore the active contracts would be included Contract 2, Contract 3, Contract 5, Contract 6 and Contract SS C505. 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	**9**	**114**
	24-hour TSP	**9**	**33**
Construction Noise	$L_{eq(30min)}$ Daytime	**10**	**47**
Water Quality	Water sampling	**5**	**13(*)**
		6	**4 (*)**
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	**Contract 2**	**4**
		Contract 3	**4**
		Contract 5	**4**
		Contract 6	**2**
		Contract SS C505	**4**

(*) *Monitoring day*

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES04 In the Reporting Period, no air quality and noise exceedance was registered for the Project. For water quality, total of fifteen (15) Limit Level exceedances, namely four (4) exceedances of turbidity and four (4) exceedances of suspended solids recorded at WM2A and four (4) exceedances of turbidity and three (3) exceedance of suspended solids recorded at WM2B. The summary of exceedance in the Reporting Period 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	**8**	**8**	- The exceedances are under investigation	N/A
	SS	0	**7**	**7**		

ENVIRONMENTAL COMPLAINT

ES05 In this Reporting Period, no environmental complaints were received related to the EM&A programme.

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 **2, 9, 16, 20 and 30 October 2015**.. 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 **5, 16, 19 and 26 October 2015**. 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 **8, 14, 22 and 29 October 2015.** No non-compliance was noted.

ES11 In the Reporting Period, joint site inspection to evaluate the site environmental performance at ***Contract 6*** has been carried out by the RE, IEC, ET and the Contractor on **23 and 29 October 2015.** No non-compliance was noted.

ES12 In the Reporting Period, joint site inspection to evaluate the site environmental performance at ***Contract SS C505*** has been carried out by the RE, IEC, ET and the Contractor on **7, 14, 22 and 28 October 2015**. No non-compliance was noted.

FUTURE KEY ISSUES

ES13 During dry season, special attention should 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.

ES14 The Contractor was also reminded to prevent muddy water or other water pollutants from site surface flow to local stream such as Kong Yiu Channel and Ma Wat Channel or public area. Water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should paid attention and fully implemented.

ES15 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.

ES16 Since most of construction sites under the Project are located adjacent to villages, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission.

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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/C granted on 12 March 2015.

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 **27th** monthly EM&A report presenting the monitoring results and inspection findings for reporting period from **1** to **31 October 2015**.

1.2 REPORT STRUCTURE

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

Section 1 *Introduction*
Section 2 *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*

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 (NE/2014/02)
- Contract 5 (CV/2013/03)
- Contract 6 (CV/2013/08)
- Contract 7 (NE/2014/03)
- ArchSD Contract No. SS C505

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 (NE/2014/02)

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 has awarded in June 2015 and construction work was commenced on 23 October 2015. 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.

Contract 7 (NE/2014/03)

2.1.8 Contract 7 has not yet been awarded. Major Scope of Work of the Contract 7 would be included below:

- construction of the Hong Kong Special Administrative Region (HKSAR) portion of four vehicular bridge
- construction of one pedestrian bridge crossing Shenzhen (SZ) River (cross boundary bridges)

ArchSD Contract No. SS C505

2.1.9 SS C505 has been awarded in July 2015 and construction work was commenced on 1 September 2015. Major Scope of Work of the SS C505 would be included below:

- passenger-related facilities including processing kiosks and examination facilities for private cars and coaches, passenger clearance building and halls, the interior fitting works for the pedestrian bridge crossing Shenzhen River, etc.;
- cargo processing facilities including kiosks for clearance of goods vehicles, customs inspection platforms, X-ray building, etc.;
- accommodation for the facilities inside of the Government departments providing services in connection with the BCP;
- transport-related facilities inside the BCP including road networks, public transport interchange, transport drop-off and pick-up areas, vehicle holding areas and associated road furniture etc;
- a public carpark; and
- other ancillary facilities such as sewerage and drainage, building services provisions and electronic systems, associated environmental mitigation measure and landscape 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.

Architectural Services Department (ArchSD)

2.2.3 ArchSD acts as the works agent for Development Bureau (DEVB), for Contract SS C505 Liantang/ Heung Yuen Wai Boundary Control Point (BCP) – BCP Buildings and Associated Facilities.

Environmental Protection Department (EPD)

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

Ronald Lu & Partners (Hong Kong) Ltd (The Architect)

2.2.5 Ronald Lu & Partners (Hong Kong) Ltd is appointed by ArchSD as an Architect for Contract SS C505 Liantang/ Heung Yuen Wai Boundary Control Point (BCP) – BCP Buildings and Associated Facilities. It responsible for overseeing the construction works of Contract SS C505 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 Architect 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' and ET'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 Regulation of Shenzhen River Stage 4 (RSR 4)" Project discussing regarding the cumulative impact issues.

Engineer or Engineers Representative (ER)

2.2.6 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)

2.2.7 There will be one contractor for each individual works contract. Once the contractors are

appointed, EPD, ET and IEC will be notified the details of the contractor.

2.2.8 The Contractor for Contracts under CEDD should report to the ER. For ArchSD Contract, the Contractor should report to the Architect or Architect's Representative (AR). 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)

2.2.9 Once the ET is appointed, the EPD, CEDD, ER, Architect and IEC will be notified the details of the ET.

2.2.10 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 Architect, the lEC and Contractor 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)

2.2.11 One IEC will be employed for this Project. Once the IEC is appointed, EPD, ER, the Architect and ET will be notified the details of the IEC.

2.2.12 The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor 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 appointment of IEC should be subject to the approval of EPD. The IEC should:

- 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
- Verify the log-book(s) mentioned in Condition 2.2 of the EP, notify the Director by fax, within one working day of receipt of notification from the ET Leader of each and every occurrence, change of circumstances or non-compliance with the EIA Report and/or the EP, which might affect the monitoring or control of adverse environmental impacts from the Project
- 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, the Architect, ET, lEC and the Contractor 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;

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

(c) 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, 5, 6 and SS C505 and they are summarized in below. Moreover, the 3-month rolling construction program of the Contracts 2, 3, 5, 6 and SS C505 is enclosed in ***Appendix C***.

Contract 2 (CV/2012/08)

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

Mid-Vent	• Cavern excavation
Portal	• Adit invert slab
	• Tube excavation (NB + SB) towards North Portal
North Portal	• Slope stablilization
	• Southbound tunnel door erection
	• Northbound top heading canopies and tunnel door erection
	• Tunnel Boring Machine and initial drive

South Portal	• Southbound and Northbound excavation • Drill and Blast Set Up and site installation • Building works foundation and substructure • Building works superstructure
Admin Building	• Removal of surcharge

Contract 3 (CV/2012/09)

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

- Cable detection and trial trenches
- Decking construction for Bridge E
- E&M work for new valve control & Telemetry House
- Filling works at Tong Hang
- Storm drain laying
- Noise barrier construction
- Pier / pier table construction
- Pile cap works
- Piling works
- Portal beam erection
- Pre-drilling
- Road works at Fanling Highway
- Retaining Wall construction
- Socket H-pile installation
- Tree felling works
- Utilities duct laying
- Viaduct segment erection
- Slope works

Contract 4 (Contract number to be assigned)

2.4.4 The contract has not yet been awarded.

Contract 5 (CV/2013/03)

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

- Re-construction of rising main at existing Lin Ma Hang (LMH) Road
- Diversion of Underground Utility (UU) at existing LMH Road
- Construction of secondary boundary fencing
- Construction of Temporary Secondary Boundary Fencing
- Filling works for ArchSD permanent office
- Drainage works for ArchSD permanent office
- Construction of Depressed Road at BCP3
- Additional works (Access Works) for Village House at RS4
- Drainage works at existing/proposed LMH Road
- Drainage works (Connection to Box 3) at BCP Area
- Brick laying at footpath of proposed LMH road
- Irrigation at proposed LMH Road
- Formation works at BCPB Area
- Installation of UU at proposed and existing LMH road
- Road works (kerb laying) for proposed and existing LMH road
- Bituminous laying at existing & proposed LMH road

Contract 6 (CV/2013/08)

2.4.6 Contract 6 has awarded in June 2015 and construction work was commenced on 23 October 2015. In this Reporting Period, construction activities conducted are listed below:

- - Site Clearance
- - Slope Works
- - Site Accesses Construction
- - Ground Investigation (GI) Works

Contract 7 (NE/2014/03)

2.4.7 Contract 7 has not yet awarded.

Contract SS C505

2.4.8 Contract SS C505 has awarded in July 2015 and construction work was commenced on 1 September 2015. In this Reporting Period, construction activities conducted are listed below:

- Excavation & fill works
- Predrilling
- Percussive piling
- Pile caps
- Site office set-up
- Structure works

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, 5, 6 and SS C505
- 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 2, 3, 5 and SS C505
- Contamination Assessment Plan (CAP) for Po Kat Tsai, Loi Tung and the workshops in Fanling
- Contamination Assessment Report (CAR) for Po Kat Tsai, Loi Tung and the workshops in Fanling
- Vegetation Survey Report
- Woodland Compensation Plan
- Habitat Creation Management Plan

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		
		Ref. no.	Effective Date	Expiry Date
Contract 2				
1	Air pollution Control (Construction Dust) Regulation	Ref No.: 368864	31 Dec 2013	Till Contract ends
2	Chemical Waste Producer Registration	***North Portal*** Waste Producers Number: No.5213-652-D2523-01	25 Mar 2014	Till Contract ends
		Mid-Vent Portal Waste Producers Number:	25 Mar 2014	Till Contract

Item	Description	License/Permit Status		
		Ref. no.	Effective Date	Expiry Date
		No.5213-634-D2524-01 ***South Portal*** Waste Producers Number: No.5213-634-D2526-01	9 Apr 2014	ends Till Contract ends
3	Water Pollution Control Ordinance - Discharge License	No.WT00018374-2014	3 Mar 2014	28 Feb 2019
		No.: W5/1I389	28 Mar 2014	31 Mar 2019
		No.: W5/1I390	19 June 2014	31 Mar 2019
		No.: W5/1I391	28 Mar 2014	31 Mar 2019
		No.: W5/1I392	28 Mar 2014	31 Mar 2019
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7019105	8 Jan 2014	Till Contract ends
5	Construction Noise Permit	GW-RN0304-15	19 May 2015	14 Nov 2015
		GW-RN0468-15	29 Aug 2015	28 Nov 2015
		GW-RN0467-15	23 Aug 2015	22 Nov 2015
		GW-RN0477-15	14 Aug 2015	31 Oct 2015
		GW-RN0479-15	31 Jul 2015	29 Jan 2016
		GW-RN0562-15	7 Sep 2015	6 Dec 2015
		GW-RN0606-15	25 Sep 2015	24 Nov 2015
Contract 3				
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 362101	17 Jul 2013	Till Contract ends
2	Chemical Waste Producer Registration	Waste Producers Number: No.:5113-634-C3817-01	7 Oct 2013	Till Contract ends
3	Water Pollution Control Ordinance - Discharge License	No.:WT00016832 – 2013	28 Aug 13	31 Aug 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017914	2 Aug 13	Till Contract ends
5	Construction Noise Permit	GW-RN0230-15	15 Apr 2015	14 Oct 2015
		GW-RN0334-15	8 Jun 2015	7 Dec 2015
		GW-RN0428-15	9 Ju1 2015	31 Dec 2015
		GW-RN0473-15	29 Jul 2015	17 Dec 2015
		GW-RN0461-15	5 Aug 2015	8 Jan 2016
		GW-RN0495-15	12 Aug 2015	11 Feb 2016
		GW-RN0497-15	14 Aug 2015	13 Feb 2016
		GW-RN0488-15	6 Sep 2015	22 Nov 2015
		GW-RN0525-15	29 Aug 2015	13 Feb 2016
		GW-RN0542-15	1 Sep 2015	25 Feb 2016
		GW-RN0608-15	28 Sep 2015	29 Feb 2016

Item	Description	License/Permit Status		
		Ref. no.	Effective Date	Expiry Date
		GW-RN0633-15	15 Oct 2015	29 Feb 2016
		GW-RN0677-15	26 Oct 2015	29 Feb 2016
Contract 5				
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 359338	13 May 2013	Till the end of Contract
2	Chemical Waste Producer Registration	Waste Producers Number No.: 5213-642-S3735-01	8 Jun 2013	Till the end of Contract
3	Water Pollution Control Ordinance - Discharge License	No.: W5/1G44/1	8 Jun 13	30 Jun 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017351	29 Apr 13	Till the end of Contract
Contract 6				
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 390614	29 Jun 2015	Till the end of Contract
2	Chemical Waste Producer Registration	Waste Producers Number No.: 5213-652-C3969-01	31 Aug 2015	Till the end of Contract
3	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7022707	9 Jul 2015	Till the end of Contract
4	Water Pollution Control Ordinance - Discharge License	Application is under consideration by EPD		
5	Construction Noise Permit	GW-RN0681-15	26 Oct 2015	25 Apr 2016
6	Construction Noise Permit	GW-RN0683-15	26 Oct 2015	25 Apr 2016
Contract SS C505				
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 390974	13 Jul 2015	Till the end of Contract
2	Chemical Waste Producer Registration	Waste Producer No.: 5213-642-L1048-07	16 Sep 2015	Till the end of Contract
3	Water Pollution Control Ordinance - Discharge License	Application is under consideration by EPD		
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7022831	23 Jul 2015	Till the end of Contract
5	Construction Noise Permit	GW-RN0602-15	23 Sep 2015	21 Mar 2016
		PP-RN0023-15	28 Aug 2015	5 Oct 2015
		PP-RN0027-15	5 Oct 2015	2 Apr 2016

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	ArchSD SS C505 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	LMH to Frontier	Contract 5,

Station ID	Description	Works Area	Related to the Work Contract
	Kwu Ling Village.	Closed Area	Contract 6
AM4b^	House no. 10B1 Nga Yiu Ha Village	LMH to Frontier Closed Area	Contract 6
AM5a^	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 Contract 6
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).
^ proposal for change of monitoring location are subject to approve by EPD.

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	ArchSD SS C505 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 Road	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	ArchSD SS C505 Contract 5
WM1-Control	Upstream of Kong Yiu Channel	834 185	845 917	NA	ArchSD SS C505 Contract 5

Station ID	Description	Coordinates of Designated / Alternative Location		Nature of the location	Related to the Work Contract
WM2A	Downstream of River Ganges	834 204	844 471	Alternative location located at downstream 81m of the designated location	Contract 6
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 2 Contract 6
WM3-Control	Upstream of River Indus	836 763	842 400	Alternative location located at downstream 26m of the designated location	Contract 2 Contract 6
WM4	Downstream of Ma Wat Channel	833 850	838 338	Alternative location located at upstream 11m of the designated location	Contract 2 Contract 3
WM4–Control A	Kau Lung Hang Stream	834 028	837 695	Alternative location located at downstream 28m of the designated location	Contract 2 Contract 3
WM4–Control B	Upstream of Ma Wat Channel	833760	837395	Alternative location located at upstream 15m of the designated location	Contract 2 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*

** Instrument was used in the Reporting Period and the calibration certificate could be referred in Appendix F.*

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.

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* or Cesva CB-5* or Rion NC-74*
Portable Wind Speed Indicator	Testo Anemometer

** Instrument was used in the Reporting Period and the calibration certificate could be referred in Appendix F.*

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
Thermometer & DO meter	YSI Professional Plus /YSI PRO20 Handheld Dissolved Oxygen Instrument* / YSI 550A Multifunctional Meter/ YSI 6820/ 650MDS
pH meter	YSI Professional Plus / AZ8685 pH pen-style meter*/ YSI 6820/ 650MDS
Turbidimeter	Hach 2100Q*/ YSI 6820/ 650MDS
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-liter plastic cool box with Ice pad

** Instrument was used in the Reporting Period and the calibration certificate could be referred in Appendix F.*

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 Tisch Environmental, Inc. Model TE-5170 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		
AM4b	267	148		
AM5a	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, 5, 6 and Contract SS C505 and air quality monitoring was performed at all designated locations.

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 ***114*** events of 1-hour TSP and ***33*** events 24-hours TSP monitoring were carried out and the monitoring results are summarized in ***Tables 4-1 to 4-9***. 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 ($\mu g/m^3$)	1-hour TSP ($\mu g/m^3$)				
		Date	Start Time	1st reading	2nd reading	3rd reading
6-Oct-15	28	6-Oct-15	11:15	67	62	57
12-Oct-15	80	12-Oct-15	13:31	102	91	91
17-Oct-15	117	17-Oct-15	10:28	111	107	100
23-Oct-15	84	23-Oct-15	10:31	115	110	95
29-Oct-15	52	29-Oct-15	10:17	165	156	150
Average (Range)	**72 (28-117)**	Average (Range)		**105 (57 – 165)**		

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

Date	24-hour TSP ($\mu g/m^3$)	1-hour TSP ($\mu g/m^3$)				
		Date	Start Time	1st reading	2nd reading	3rd reading
6-Oct-15	35	6-Oct-15	11:07	51	47	45
12-Oct-15	144	12-Oct-15	13:10	104	83	93
17-Oct-15	142	17-Oct-15	10:13	75	72	75
23-Oct-15	133	23-Oct-15	10:27	129	119	96
29-Oct-15	89	29-Oct-15	10:13	145	136	133
Average (Range)	**109 (35-144)**	Average (Range)		**94 (45 – 145)**		

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

Date	24-hour TSP ($\mu g/m^3$)	1-hour TSP ($\mu g/m^3$)				
		Date	Start Time	1st reading	2nd reading	3rd reading
6-Oct-15	11	6-Oct-15	11:01	89	79	64
12-Oct-15	130	12-Oct-15	13:03	105	60	62
17-Oct-15	18	17-Oct-15	10:01	100	90	74
23-Oct-15	114	23-Oct-15	10:19	107	118	84
29-Oct-15	10	29-Oct-15	10:08	135	126	119
Average (Range)	**57 (10-114)**	Average (Range)		**94 (60 – 135)**		

Table 4-4 Summary of 24-hour and 1-hour TSP Monitoring Results – AM4b

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
27-Oct-15	84	26-Oct-15	11:11	111	106	110
		31-Oct-15	11:02	96	90	102
Average (Range)	**NA**	Average (Range)		**103 (90 – 111)**		

Table 4-5 Summary of 24-hour and 1-hour TSP Monitoring Results – AM5a

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
27-Oct-15	73	26-Oct-15	11:05	114	121	116
		31-Oct-15	10:52	98	90	85
Average (Range)	**NA**	Average (Range)		**104 (85 – 121)**		

Table 4-6 Summary of 24-hour and 1-hour TSP Monitoring Results – AM6

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st reading	2nd reading	3rd reading
27-Oct-15	98	26-Oct-15	10:48	110	106	110
		31-Oct-15	10:36	85	91	94
Average (Range)	**NA**	Average (Range)		**99 (85 – 110)**		

Table 4-7 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
6-Oct-15	28	2-Oct-15	13:54	50	57	66
12-Oct-15	63	8-Oct-15	9:56	154	134	100
17-Oct-15	74	14-Oct-15	10:24	144	139	147
23-Oct-15	74	20-Oct-15	11:10	119	157	104
29-Oct-15	59	26-Oct-15	9:27	150	128	134
		31-Oct-15	10:27	69	70	58
Average (Range)	**60 (28-74)**	Average (Range)		**110 (50 – 157)**		

Table 4-8 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
6-Oct-15	24	2-Oct-15	14:21	54	49	53
12-Oct-15	40	8-Oct-15	10:03	173	174	229
17-Oct-15	72	14-Oct-15	10:41	162	146	158
23-Oct-15	75	20-Oct-15	11:18	104	91	82
29-Oct-15	41	26-Oct-15	10:30	112	116	110
		31-Oct-15	10:12	64	58	57
Average (Range)	**50 (24-75)**	Average (Range)		**111 (49 – 229)**		

Table 4-9 Summary of 24-hour and 1-hour TSP Monitoring Results – AM9b

Date	24-hour TSP ($\mu g/m^3$)	1-hour TSP ($\mu g/m^3$)				
		Date	Start Time	1st reading	2nd reading	3rd reading
6-Oct-15	#	6-Oct-15	10:40	94	103	114
12-Oct-15	123	12-Oct-15	13:15	60	61	73
17-Oct-15	147	17-Oct-15	10:09	137	114	100
23-Oct-15	85	23-Oct-15	9:14	156	121	119
29-Oct-15	38	29-Oct-15	9:04	169	232	245
Average (Range)	**71 (38-147)**	Average (Range)		**127 (60 – 245)**		

4.2.2 In the Reporting Period, the 24-hour TSP monitoring at AM9b on 6 October 2015 was suspended since the neighbor of AM9b complaint that the operation noise of the HVS at AM9b seriously disturbed his bedtime. After discussion with the complainant and agreed by the RE and Contractor of C3, the HVS was moved to the high wall next to original AM9b which approximately 6m apart. This location is still within the premises of AM9b.

4.2.3 As shown in ***Tables 4-1 to 4-9***, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action/Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.

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, 5, 6 and Contract SS C505 and noise monitoring was performed at all designated locations.

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 **47** 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, NM3, NM4, 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 and 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 ***Tables 5-1 and 5-2.*** 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 (Contracts 3 and 5)

Construction Noise Level ($L_{eq30min}$), dB(A)					
Date	**NM1**	**NM2**	**NM8**	**NM9**	**NM10(*)**
6-Oct-15	54	67	64	65	70
12-Oct-15	64	65	59	62	66
17-Oct-15	63	60	56	60	67
23-Oct-15	57	62	58	58	66
29-Oct-15	56	61	55	59	70
Limit Level	**75 dB(A)**				

Remarks

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

Table 5-2 Summary of Construction Noise Monitoring Results (Contracts 2 and 6)

Construction Noise Level ($L_{eq30min}$), dB(A)					
Date	**NM3**	**NM4**	**NM5**	**NM6**	**NM7**
2-Oct-15			54	62	62
8-Oct-15			54	61	63
14-Oct-15			52	62	58
20-Oct-15			54	63	62
26-Oct-15	58	60	57	56	54
31-Oct-15	61	64	60	59	60
Limit Level	**75 dB(A)**				

5.2.2 As shown in ***Tables 5-1 and 5-2***, the noise level measured at all designated monitoring locations were below 75dB(A). Furthermore, there was no noise complaints (Action Level exceedance) received by the RE, Contractors 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 2, 3, 5, 6 and Contract SS C505 and water quality monitoring was performed at all designated locations.

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, there were **thirteen** (**13)** sampling days of water quality monitoring conducted at the designated water monitoring location WM1 and WM4 and its control stations. Since Contract 6 commenced on 23 October 2015, there were **four (4)** sampling days of water quality monitoring conducted at the designated water monitoring location WM2A, WM2Am WM3 and its control stations.

6.2.2 The key monitoring parameters including Dissolved Oxygen, Turbidity and Suspended Solids are summarized in ***Tables 6-1 and 6-4***. Breaches of water quality monitoring criteria are shown in ***Table 6-5***. 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 Contracts 2 and 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
3-Oct-15	6.3	7.3	6.3	13.3	4.1	9.7	12.0	3.0	9.5
6-Oct-15	7.3	7.3	6.8	139.0	144.5	55.6	115.5	127.0	33.0
8-Oct-15	7.9	7.9	6.6	13.0	8.9	13.8	3.5	2.0	5.0
10-Oct-15	8.3	7.5	6.3	13.4	7.9	17.8	12.0	8.5	19.5
12-Oct-15	7.7	7.8	6.5	15.2	7.0	9.6	7.5	3.0	7.5
14-Oct-15	6.6	7.3	5.6	11.4	4.9	13.4	8.0	3.0	13.0
17-Oct-15	8.6	8.9	8.5	15.8	5.5	12.4	15.5	3.0	14.0
20-Oct-15	7.5	7.8	7.1	17.1	6.6	12.0	17.5	6.0	12.5
22-Oct-15	7.6	7.8	7.3	11.1	7.6	12.9	5.0	3.5	9.0
24-Oct-15	7.4	7.7	6.9	13.5	7.7	18.8	9.5	7.0	15.5
27-Oct-15	6.1	7.1	3.2	18.6	6.6	17.5	15.0	4.5	20.5
29-Oct-15	7.8	7.7	7.4	13.9	6.3	15.2	12.0	6.0	16.5
31-Oct-15	7.7	7.2	7.2	15.3	7.1	19.7	22.5	12.0	6.0

Table 6-2 Summary of Water Quality Monitoring Results for Contracts 5 and SS C505

Date	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
	WM1	WM1-Control	WM1	WM1-Control	WM1	WM1-Control
3-Oct-15	7.2	7.0	14.3	13.4	4.5	13.0
6-Oct-15	7.3	7.0	121.5	117.5	94.5	91.5
8-Oct-15	7.2	7.0	9.5	9.0	2.0	2.0
10-Oct-15	8.8	8.5	8.8	8.6	4.5	3.5
12-Oct-15	7.9	7.7	8.9	7.3	2.0	2.0
14-Oct-15	7.2	7.0	10.9	11.8	4.0	3.0
17-Oct-15	8.4	8.1	11.6	9.4	3.5	3.0
20-Oct-15	8.7	8.5	9.4	10.6	6.0	5.5
22-Oct-15	8.2	8.3	20.4	22.9	17.5	17.5
24-Oct-15	8.6	7.8	10.9	10.3	5.0	4.0
27-Oct-15	8.2	7.3	9.8	10.2	4.0	3.5
29-Oct-15	7.8	7.2	9.9	11.6	5.5	8.0

Date	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
	WM1	WM1-Control	WM1	WM1-Control	WM1	WM1-Control
31-Oct-15	7.7	9.2	14.9	9.7	3.0	15.0

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

Date	Dissolved Oxygen (mg/L)				Turbidity (NTU)				Suspended Solids (mg/L)			
	WM2A	WM2A-C	WM2B	WM2B-C	WM2A	WM2A-C	WM2B	WM2B-C	WM2A	WM2A-C	WM2B	WM2B-C
23-Oct-15	7.7	7.8	7.7	7.8	**35.9**	6.9	**86.2**	6.7	**27.0**	2.0	**92.0**	6.0
26-Oct-15	7.6	7.5	7.8	7.3	**110.0**	11.4	**15.4**	4.4	**73.5**	9.0	8.5	2.5
28-Oct-15	7.8	7.5	8.2	7.8	**34.9**	11.2	**27.5**	3.0	**29.0**	2.0	**18.5**	2.0
30-Oct-15	7.6	8.1	7.7	7.8	**44.7**	10.6	**25.8**	4.4	**41.5**	2.0	**13.5**	3.5

Remark:

i bold and underlined indicated Limit Level exceedance.

ii bold and italic indicated Action Level exceedance.

Table 6-4 Summary of Water Quality Monitoring Results for Contracts 2 and 6

Date	Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
	WM3	WM3-Control	WM3	WM3-Control	WM3	WM3-Control
23-Oct-15	7.0	6.7	14.8	18.3	13.0	33.0
26-Oct-15	7.3	6.8	9.9	18.3	8.5	17.5
28-Oct-15	7.2	7.3	8.1	8.5	6.5	12.5
30-Oct-15	7.3	6.7	9.7	6.9	6.0	7.0

Table 6-5 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	0	0	0	0	0
WM2A	0	0	0	**4**	0	**4**	0	**8**
WM2B	0	0	0	**4**	0	**3**	0	**7**
WM3	0	0	0	0	0	0	0	0
WM4	0	0	0	0	0	0	0	0
No of Exceedance	0	0	0	**8**	0	**7**	0	**15**

6.2.3 In this Reporting Period, total of fifteen (15) Limit Level exceedances, namely four (4) exceedances of turbidity and four (4) exceedances of suspended solids recorded at WM2A and four (4) exceedances of turbidity and three (3) exceedance of suspended solids recorded at WM2B.

6.2.4 NOE was issued to relevant parties upon confirmation of the monitoring result. The investigation for the cause of exceedance is in progress.

6.2.5 There were outstanding investigation results for water quality exceedances recorded at WM1 and WM4 in last Reporting Period. The relevant investigation was completed and the results are presented in below.

Investigation Result for Exceedance at WM1 on 4 September 2015 (Contract 5)

6.2.6 According to the site information provided by the Contractor, formation work at BCP and

construction of Depressed Road at BCP3 were carried out under Contract 5 on 4 September 2015. Moreover, no wastewater discharge was made on 4 September 2015.

6.2.7 According to the site record by the ET, there was heavy rain before the monitoring work. Muddy water was observed throughout the channel. Moreover, high concentration of turbidity and SS were also recorded at the upstream control station. It is considered that the exceedances were due to the rain and not likely related to the works under the project

Investigation Result for Exceedance at WM1 on 9 and 12 September 2015 (Contract SS C505)

6.2.8 According to the site information provided by the Contractor, percussive piling, pre-drilling and excavation was carried out on 9 and 12 September 2015 and the active construction area was carried out away from the river course.

6.2.9 During the ET's site inspection on 9 and 16 September 2015, it was observed that, to avoid direct discharge of surface runoff, temporary drainage channel has been constructing at the periphery of the site to intercept and divert the runoff to the wastewater treatment facilities. No discharge was observed during the site inspection. As advised by the Contractor, as the water mitigation measures, all the treated water was recirculated in pre-drilling works or watering on site area and haul roads since commencement of contract.

6.2.10 According to the record from the Hong Kong Observatory, there was heavy rain on 7 September 2015 and muddy water was observed throughout the channel during the monitoring on 7 September 2015. Since the flow rate of the river is relatively low, the water in poor quality due to the rainstorm was cumulated at downstream of Kong Yiu River which near WM1 on 9 and 12 September 2015.

6.2.11 In view of the subsequent monitoring results a week after the rainy day, the turbidity and SS level was constantly reduced and no exceedances were triggered. It is considered that the exceedances were due to the rain and not likely related to the works under the project.

Investigation Result for Exceedance at WM1 on 9 and 12 September 2015 (Contract 5)

6.2.12 According to the site information provided by the Contractor, formation work at BCP and construction of Depressed Road at BCP3 were carried out under Contract 5 on 9 and 12 September 2015. As advised by the Contractor, no wastewater discharge was made on 9 and 12 September 2015.

6.2.13 During site inspection on 10 and 17 September 2015, it was noted that the active construction works were excavation and compaction in Lin Ma Hang Road and these works would not generate wastewater. Moreover, no water quality impact caused by Contract 5 was observed.

6.2.14 According to the record from the Hong Kong Observatory, there was heavy rain on 7 September 2015 and muddy water was observed throughout the channel during the monitoring on 7 September 2015. Since the flow rate of the river is relatively low, the water in poor quality due to the rainstorm was cumulated at downstream of Kong Yiu River which near WM1 on 9 and 12 September 2015.

6.2.15 In view of the subsequent monitoring results a week after the rainy day, the turbidity and SS level was constantly reduced and no exceedances were triggered. It is considered that the exceedances were due to the rain and not likely related to the works under the project.

Investigation Result for Exceedance at WM4 on 16 September 2015 (Contract 2)

6.2.16 According to the site information provided from the Contractor of C2 (DHK), construction activities carried out on 16 September 2015 at South Portal included tunnel excavation, ventilation building formation and blast door erection which undertaken away from the Ma Wat River. According to the site record from the monitoring team, no abnormality was observed at

both control station WM4-CA and WM4-CB but muddy water was observed at impact station WM4.

6.2.17 Joint site inspection was carried out by the RE, IEC, Contractor and ET on 16 September 2015. It was observed that muddy water has been flowing from an upstream location which was not under monitored by the project. Turbid water was also observed at Bridge D2 and it was considered that the stream water was affected by the muddy water from upstream location. In conclusion, it is considered that the exceedance was due to the external muddy water from upstream and not related to the works under the Contract

Investigation Result for Exceedance at WM4 on 18 September 2015 (Contract 2)

6.2.18 According to the site information provided from the Contractor of C2, construction activities carried out on 18 September 2015 at South Portal included tunnel excavation, ventilation building formation and blast door erection which undertaken away from the Ma Wat River.

6.2.19 According to the site record from the monitoring team during monitoring on 18 September 2015, muddy water flowing from an outfall at close downstream of WM4-CB was observed and recorded. It was suspected that the muddy water was come from the other construction site.

6.2.20 The muddy water suspected from other construction site was occasionally recorded during the ET's weekly site inspection of C3 as well. During site inspection of C3 on 16 September 2015, it was observed that the water quality at upstream of construction area of C3 was turbid and deteriorated the water quality to far downstream.

6.2.21 Based on our investigation, it is considered that the exceedances were due to the external muddy water from upstream and not related to the works under the Contract.

Investigation Result for Exceedance at WM4 on 18 September 2015 (Contract 3)

6.2.22 According to the site information provided from the Contractor of C2, construction activities carried out on 18 September 2015 at South Portal included tunnel excavation, ventilation building formation and blast door erection which undertaken away from the Ma Wat River.

6.2.23 According to the site record from the monitoring team during monitoring on 18 September 2015, muddy water flowing from an outfall at close downstream of WM4-CB was observed and recorded. It was suspected that the muddy water was come from the other construction site.

6.2.24 The muddy water suspected from other construction site was occasionally recorded during the ET's weekly site inspection of C3 as well. During site inspection of C3 on 16 September 2015, it was observed that the water quality at upstream of construction area of C3 was turbid and deteriorated the water quality to far downstream.

6.2.25 Based on our investigation, it is considered that the exceedances were due to the external muddy water from upstream and not related to the works under the Contract.

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		Contract 6		Contract SS C505		Total Quantity
	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	
C&D Materials (Inert) (in '000m^3)	**45.0442**	--	**2.462**	--	0	--	**37.297**	--	**3.82**	--	**88.6232**
Reused in this Project (Inert) (in '000 m^3)	**1.6666**	--	**1.500**	--	0	--	**0.113**	--	**3.82**	--	**7.0996**
Reused in other Projects (Inert) (in '000 m^3)	**43.0977**	C6/ NENT	0	--	0	--	**5.356**	C3/ C5	0	--	**48.4537**
Disposal as Public Fill (Inert) (in '000 m^3)	**0.28**	Tuen Mun 38	**0.962**	Tuen Mun 38	0	--	**31.643**	Tuen Mun 38	0	--	**32.885**

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

Type of Waste	Contract 2		Contract 3		Contract 5		Contract 6		Contract SS C505		Total Quantity
	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	Qty.	Disposal location	
Recycled Metal ('000kg) #	0	-	0	-	0	--	0	--	0	--	**0**
Recycled Paper / Cardboard Packing ('000kg) #	**0.58**	Licensed collector	0	-	**0.099**	Licensed collector	0	--	0	--	**0.679**
Recycled Plastic ('000kg) #	**0.9**	Licensed collector	**0.001**	Licensed collector	0	--	0	--	0	--	**900kg+1m^3**
Chemical Wastes ('000kg) #	**2.9920**	Licensed collector	0	-	0	--	0	--	0	--	**2.992**
General Refuses ('000m^3)	**0.0716**	NENT	**0.125**	NENT	**0.145**	NENT	**0.185**	NENT	**0.0129**	NENT	**0.5345**

Remark #: Unit of recycled metal, recycled paper/ cardboard packing, recycled plastic and chemical waste for Contractor 3 was in ('000m^3).

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

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 **2, 9, 16, 20 and 30 October 2015**. 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
2 October 2015	• No adverse environmental were observed.	• NA
9 October 2015	• It was reminded that water spraying should be applied when undertaking excavation or breaking activities to minimize dust generation. (All Area)	• Not required for reminder.
16 October 2015	• No adverse environmental were observed.	• NA
20 October 2015	• No adverse environmental were observed.	• NA
30 October 2015	• No adverse environmental were observed.	• NA

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 **5, 16, 19 and 26 October 2015**. 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
5 October 2015	• The Contractor was reminded to divert the stagnant/ ponding water to the wastewater treatment facilites for proper treatment before discharge at the approval discharge point after the rainfall.	• Not required for reminder.
16 October 2015	• The Contractor was reminded to enhance the mosquito control measures to prevent any cummulation of stagnant water.	• Not required for reminder.
19 October 2015	• Chemical container without drip tray was observed, the Contractor should provide drip tray underneath.	• The chemical containers are placed on the drip tray.

Date	Findings / Deficiencies	Follow-Up Status
	• The Contractor was reminded to clear the general refuse bin on regular basis in oreder to maintaine the site cleanliness.	• Not required for reminder.
26 October 2015	• Sand and gravel was observed on the pedestrian road, the Contractor should maintain the cleanliness of the pedestrian road for public use. (Tai Wo Services Road West)	• The cleanliness of the pedestrian road was improved.

Contract 5

8.2.5 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 **8, 14, 22 and 29 October 2015**. No non-compliance was noted.

8.2.6 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
8 October 2015	• No adverse environmental were observed.	• NA
14 October 2015	• No adverse environmental were observed.	• NA
22 October 2015	• Uncovered dusty stockpile was observed at LMH site office working area (1500 pipe), the Contractor should cover the stockpile with tarpaulin to minimise dust generation.	• Green nets have been provided to the stockpiles to minimise dust generation.
29 October 2015	• No adverse environmental were observed.	• NA

Contract 6

8.2.7 In the Reporting Period, joint site inspection for Contract 6 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **23 and 29 October 2015**. No non-compliance was noted.

8.2.8 The findings / deficiencies of ***Contract 6*** that observed during the weekly site inspection are listed in ***Table 8-4***.

Table 8-4 Site Observations for Contract 5

Date	Findings / Deficiencies	Follow-Up Status
23 October 2015	• Power generator was observed emitting dark smoke at Bridge A, the Contractor should ensure all machineries are under regular maintenance. • Generator placed on the river was observed, the Contractor should remove the generator from the river and ensure no contamination would be caused to the river. (Location: North Portal)	• No dark smoke was observed from the machineries. • The generator was removed from the river.

Date	Findings / Deficiencies	Follow-Up Status
	• The Contractor should redirect the wastewater or stagnant water generated from the site to the wastewater treatment facility before any discharge. (Location: North Portal) • During the dry season, the Contractor was reminded to provide sufficient mitigation measures for dust suspension. • The Contractor was reminded to clean up the waste storage area regularly. • The Contractor was reminded to review the efficiency of their temporary drainage system and wastewater treatment facility. • The Contractor was reminded to check the status of the trees within the site boundary, and name tag or label should be provided for inspection. Also, proper tree protection measures should be implemented if the tree needs to be retained.	• Temporary U-channel was provided to redirect the wastewater to the treatment facility. • Not required for reminders.
29 October 2015	• Open stockpiles of mud near water body was observed, the Contractor should cover the stockpile with tarpaulin to prevent muddy runoff into the water body (Location: North Portal) • Free standing chemical containers were observed at Bridge A, the Contractor should provide drip tray for all chemical containers. • During the dry season, the Contractor was reminded to provide water spraying on the haul road to minimise dust generation.	• To be followed. • To be followed. • Not required for reminder.

Contract SS C505

8.2.9 In the Reporting Period, joint site inspection for Contract SS C505 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **7, 14, 22 and 28 October 2015**. No non-compliance was noted.

8.2.10 The findings / deficiencies of ***Contract SS C505*** that observed during the weekly site inspection are listed in ***Table 8-5***.

Table 8-5 Site Observations for Contract SS C505

Date	Findings / Deficiencies	Follow-Up Status
7 October 2015	• The Contractor was reminded to remove the stagnant water after rainy day to prevent mosquito breeding.	• Not required for reminder.
14 October 2015	• Stagnant water was observed in portion 2C. The Contractor should take measures to remove and avoid stagnant on site for mosquito breeding prevention.	• Stagnant water was cleared.

Date	Findings / Deficiencies	Follow-Up Status
22 October 2015	• Muddy runoff generated from an opened slope was observed near the wheel washing bay, the Contractor should protect the slope to prevent water impact.	• The slope was paved with concrete to minimize muddy run-off.
	• Cumulated soil was observed inside the temporary cut-off channel, the Contractor should clear up the soil inside the channel on regular basis.	• The cumulated soil was cleared from the channel.
	• The Contractor should provide full contact detail including contact person and contact number on the chemical waste label.	• Contact detail including contact person and contact number was provided on the chemical waste label.
	• The Contractor was reminded to provide sufficient water spraying on the site area during dry season.	• Not required for reminder.
29 October 2015	• The Contractor should take measures to minimize muddy run-off from the exposed earth surface on site during heavy rain.	• Soil compaction was carried out on site to minimize muddy runoff generated during heavy rain.

8.2.11 Overall, general housekeeping such as daily site tidiness and cleaniness should be maintained for all Contracts. Furthermore, the Contractors were reminded to implement Waste Management Plan of the Project.

Other Contracts

8.2.12 Since the construction works at the Contract 4 and Contract 7 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 complaints, summons and prosecution under the EM&A Programme was lodged.

9.1.2 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 Sep 2015	Contract 2	0	**13**	• **(6) Water Quality** • **(5) Construction Dust** • **(2) Noise**
06 Nov 2013 – 30 Sep 2015	Contract 3	0	**3**	• **(1) Construction Dust** • **(2) Water quality**
16 Aug 2013 – 30 Sep 2015	Contract 5	0	**2**	• **(2) Construction Dust**
1 – 31 October 2015	Contract 2	0	**13**	• **(6) Water Quality** • **(5) Construction Dust** • **(2) Noise**
	Contract 3	0	**3**	• **(1) Construction Dust** • **(2) Water quality**
	Contract 5	0	**2**	• **(2) Construction Dust**
	Contract 6#	0	**0**	**N/A**
	Contract SS C505	0	**0**	**N/A**

 # The Reporting Period for Contract 6 is from 23 October to 31 October 2015.

Table 9-2 Statistical Summary of Environmental Summons

Reporting Period	Contract No	Environmental Summons Statistics		
		Frequency	Cumulative	Complaint Nature
19 May 2014 – 30 Sep 2015	Contract 2	0	0	NA
06 Nov 2013 – 30 Sep 2015	Contract 3	0	0	NA
16 Aug 2013 – 30 Sep 2015	Contract 5	0	0	NA
1 – 31 October 2015	Contract 2	0	0	NA
	Contract 3	0	0	NA
	Contract 5	0	0	NA
	Contract 6#	0	**0**	NA
	Contract SS C505	0	0	NA

 # The Reporting Period for Contract 6 is from 23 October to 31 October 2015.

Table 9-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract No	Environmental Prosecution Statistics		
		Frequency	Cumulative	Complaint Nature
19 May 2014 – 30 Sep 2015	Contract 2	0	0	NA
06 Nov 2013 – 30 Sep 2015	Contract 3	0	0	NA
16 Aug 2013 – 30 Sep 2015	Contract 5	0	0	NA

1 – 31 October 2015	Contract 2	0	0	NA
	Contract 3	0	0	NA
	Contract 5	0	0	NA
	Contract 6#	0	**0**	NA
	Contract SS C505	0	0	NA

 # The Reporting Period for Contract 6 is from 23 October to 31 October 2015.

The Other Contracts

9.1.3 Since the construction works at the Contract 4 and Contact 7 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 2, 3, 5, 6 and Contract SS C505 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 wastewater treatment facilities i.e. sedimentation tank or AquaSed before 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

Mid-Vent Portal	• Tube excavation (NB+SB) towards North Portal and South Portal • Adit invert slab
North Portal	• Retaining walls and slope stabilization • South Bound tunnel internal works and finishes • North Bound top heading canopies • TBM excavation
South Portal	• Northbound mechanical excavation • Southbound full face D&B excavation • Building works superstructure
Admin Building	• Removal of surcharge

Contract 3

- Cable detection and trial trenches
- Decking construction for Bridge E
- E&M work for new valve control & Telemetry House
- Filling works at Tong Hang East
- Storm Drains Laying

- Noise barrier construction
- Pier / Pier Table construction
- Pile cap works
- Portal beam erection
- Pre-drilling works and piling works for viaduct
- Retaining Wall construction
- Road works at Fanling Highway
- Slope works
- Socket H-pile installation
- Tree felling works
- Utilities duct laying
- Viaduct segment erection
- Demolition of existing ramp of Kiu Tau Footbridge
- Sewer Works

Contract 5

- Laying of additional rising main at LMH road
- Bituminous laying at proposed and existing LMH road.
- Construction of secondary boundary fencing
- Brick laying at footpath of proposed LMH road
- Road works (kerb and bituminous laying) for proposed LMH road and existing LMH road
- Formation works at BCP area
- Construction of access road (RS4)
- Construction of Depressed Road at BCP3
- Filling work for ArchSD permanent office
- Drainage works at exiting LMH Road
- Water works at proposed LMH Road
- Irrigation system at proposed and existing LMH Road
- Drainage works at BCP area
- Installation of Underground utilities at proposed and existing LMH Road
- Re-construction of Pavilion at Chung Yuen Ha Village

Contract 6

- Site Clearance
- Slope Works
- Site Accesses Construction
- GI Works
- Soil Nail
- Bored Piling

Contract SS C505

- Excavation and fill works
- Predrilling
- Percussive piling
- Pile caps
- Site office set-up
- Structure works
- Foundation works

10.3 KEY ISSUES FOR THE COMING MONTH

10.3.1 Key issues to be considered in the coming month for Contracts 2, 3, 5,6 and SS C505 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 Contract 4 and Contact 7 have not yet commenced and no environmental issue is presented.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

11.1.1 This is **27th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **31 October 2015**.

11.1.2 For air quality monitoring, no 1-hour and 24-hour TSP monitoring results 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, total of fifteen (15) Limit Level exceedances, namely four (4) exceedances of turbidity and four (4) exceedances of suspended solids recorded at WM2A and four (4) exceedances of turbidity and three (3) exceedance of suspended solids recorded at WM2B. The investigations for the cause of exceedances were in progress.

11.1.5 No notification of summons or successful prosecution under the EM&A Programme of the Project was received in the reporting period for Contract 2, 3, 5, 6 and SS C505.

11.1.6 No environmental complaint under the EM&A Programme of the Project was received in the reporting period for Contract 2, 3, 5, 6 and SS C505.

11.1.7 During the Reporting Period, weekly joint site inspection by the RE, IEC, ET with the relevant Main-contractor were carried out for Contracts 2, 3, 5, 6 and SS C505 in accordance with the EM&A Manual stipulation. No non-compliance observed during the site inspection.

11.2 RECOMMENDATIONS

11.2.1 During dry season, special attention should 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.

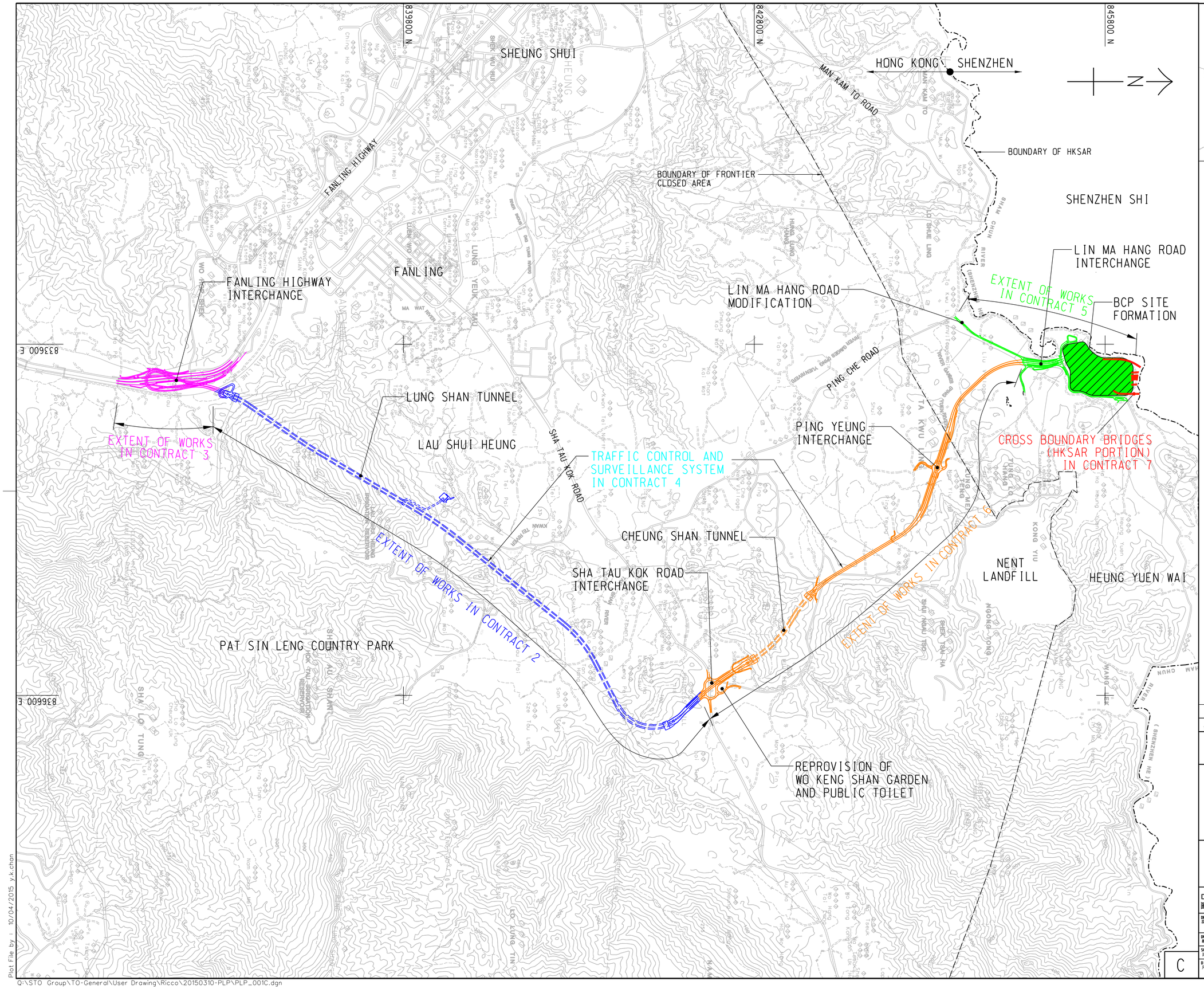
11.2.2 The Contractor was also reminded to prevent muddy water or other water pollutants from site surface flow to local stream such as Kong Yiu Channel and Ma Wat Channel or public area. Water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should paid attention and fully implemented.

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:

UNDERGROUND WORKS

REV. 修訂	DESCRIPTION 內容摘要	D.E.	P.E. 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 批准人
–	–	–
DRAWN BY 繪圖 ZJ	STATUS 階段	
SCALE 比例 A1 1 : 15000 A3 1 : 30000		
DIMENSIONS ARE IN 尺寸單位 METRES		

C

Plot File by : 10/04/2015 y.k.chan

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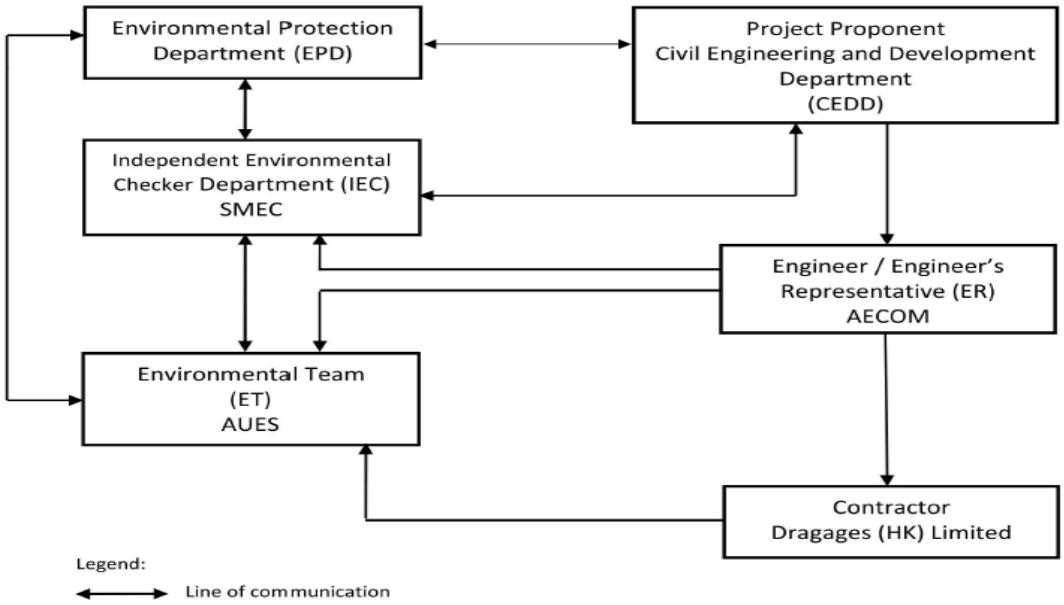
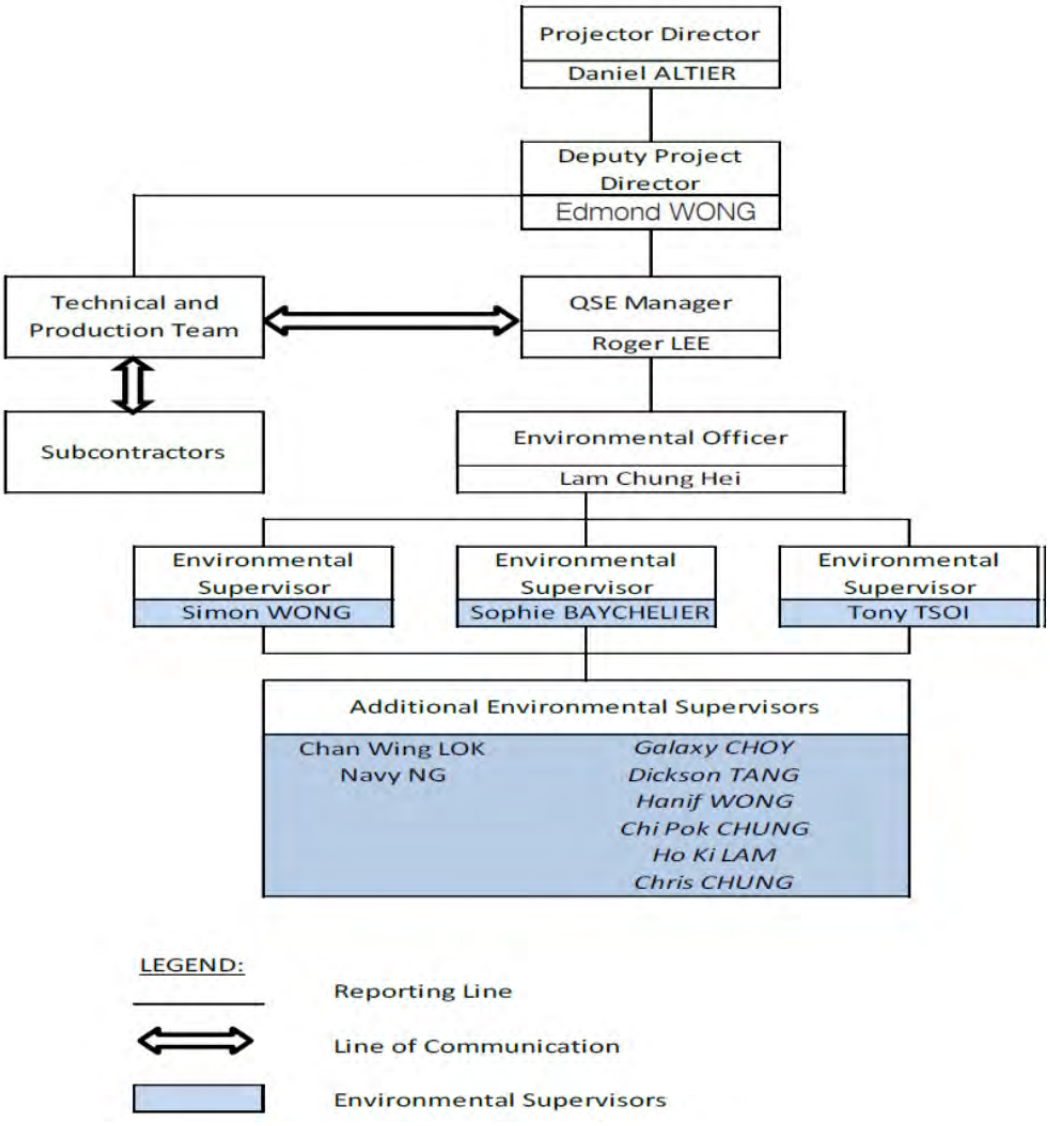
Appendix B

Organization Chart

Project Organization Structure





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	2171 3300	2171 3498
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
DHK	Project Director	Daniel Altier	2171 3004	2171 3299
DHK	Deputy Project Manager	Edmond Wong	2171 3004	2171 3299
DHK	QSE Manager	Roger Lee	6293 8726	2171 3299
DHK	Environmental Officer	Lam Chung Hei	2171 3004	2171 3299
DHK	Environmental Supervisor	Simon Wong	9281 4346	2171 3299
DHK	Environmental Supervisor	Sophie Baycheuer	6321 5001	2171 3299
DHK	Environmental Supervisor	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:

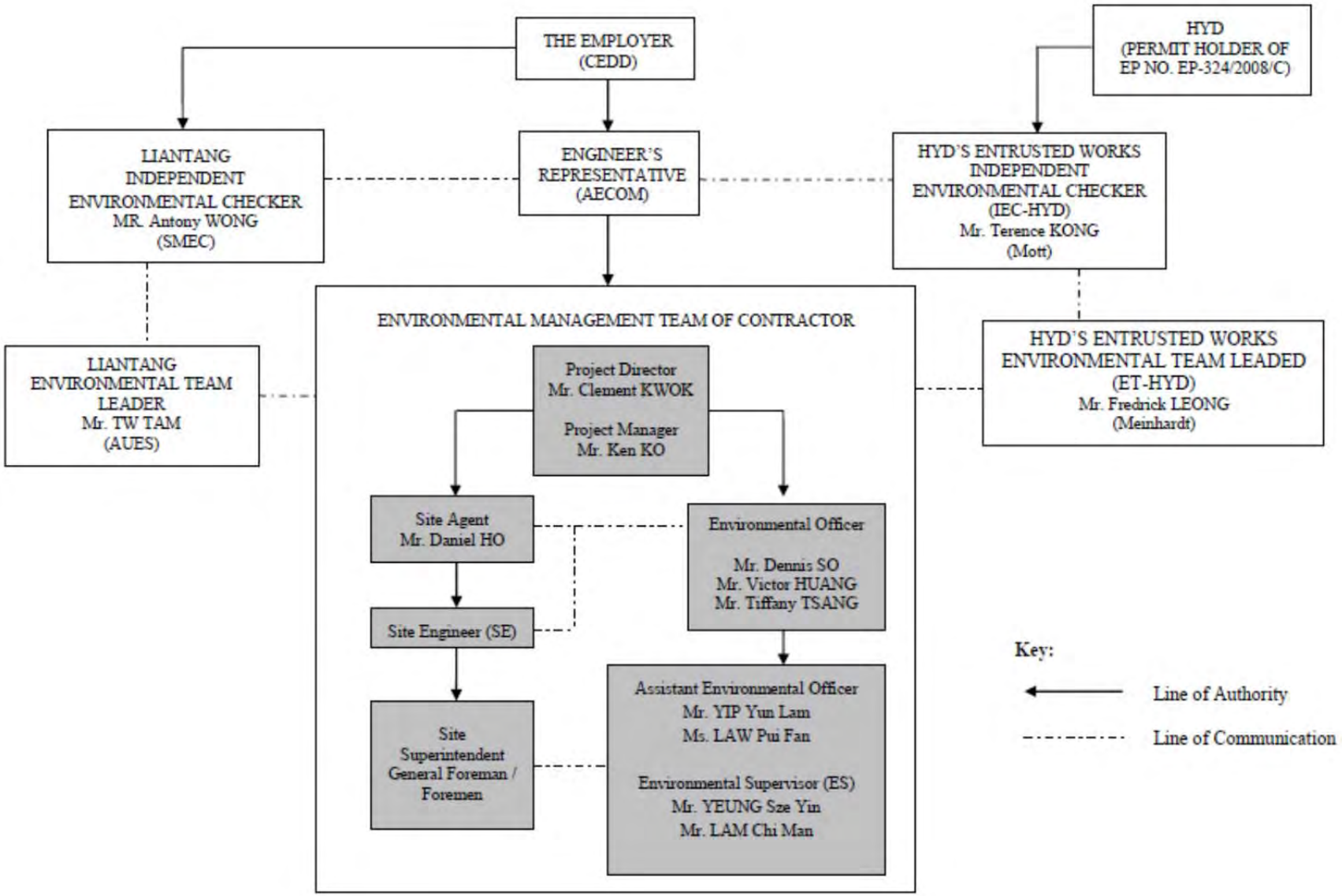
CEDD (Employer) – Civil Engineering and Development Department

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	2171 3300	2171 3498
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	Victor Huang Tiffany Tsang Dennis So	2638 6115	2638 7077
Chun Wo	Assistant Environmental Officer	Yip Yun Lam Law Pui Fan	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:

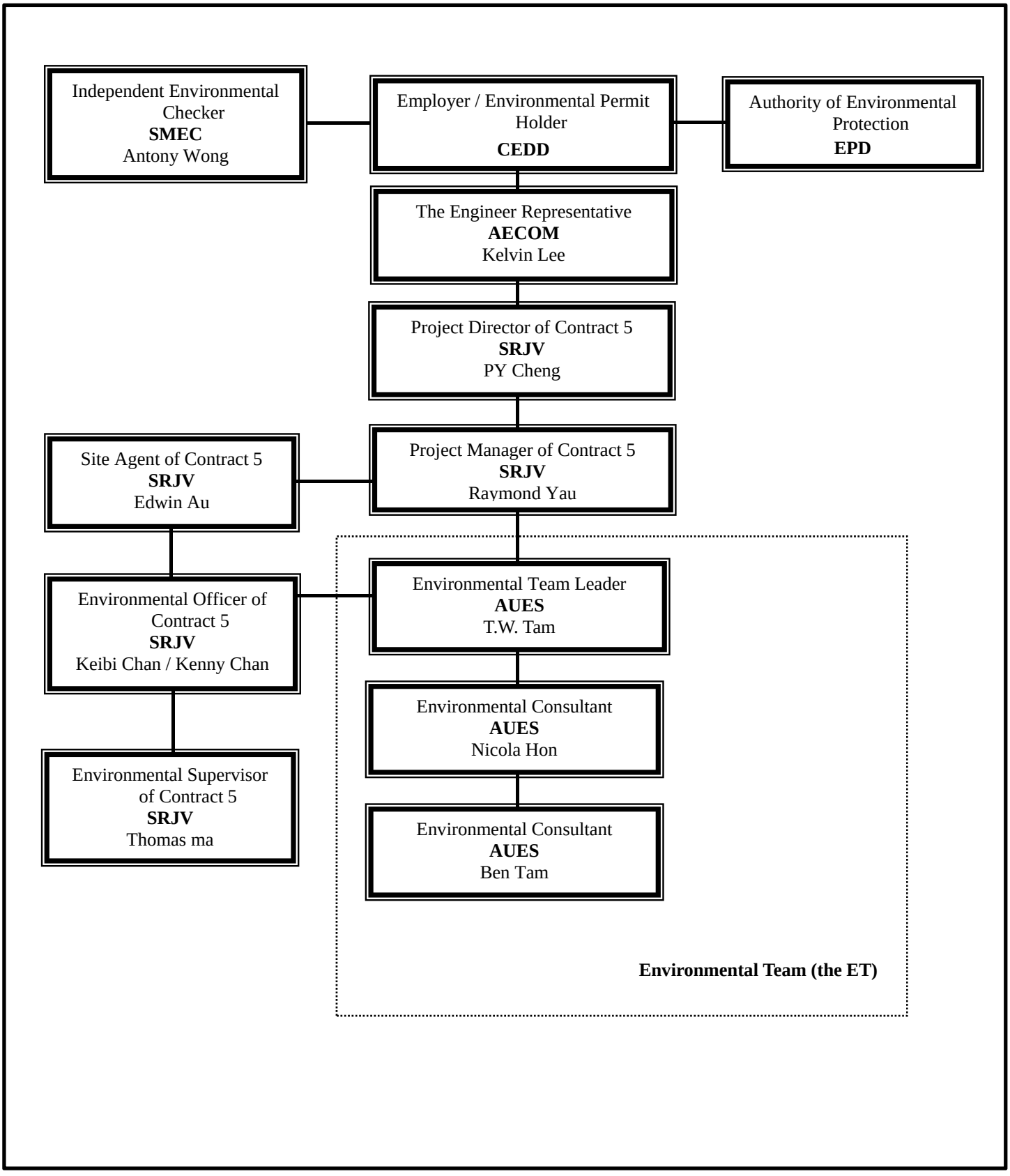
CEDD (Employer) – Civil Engineering and Development Department

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	Kelvin Lee	2674 2273	2674 7732
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	Thomas Ma	-	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:

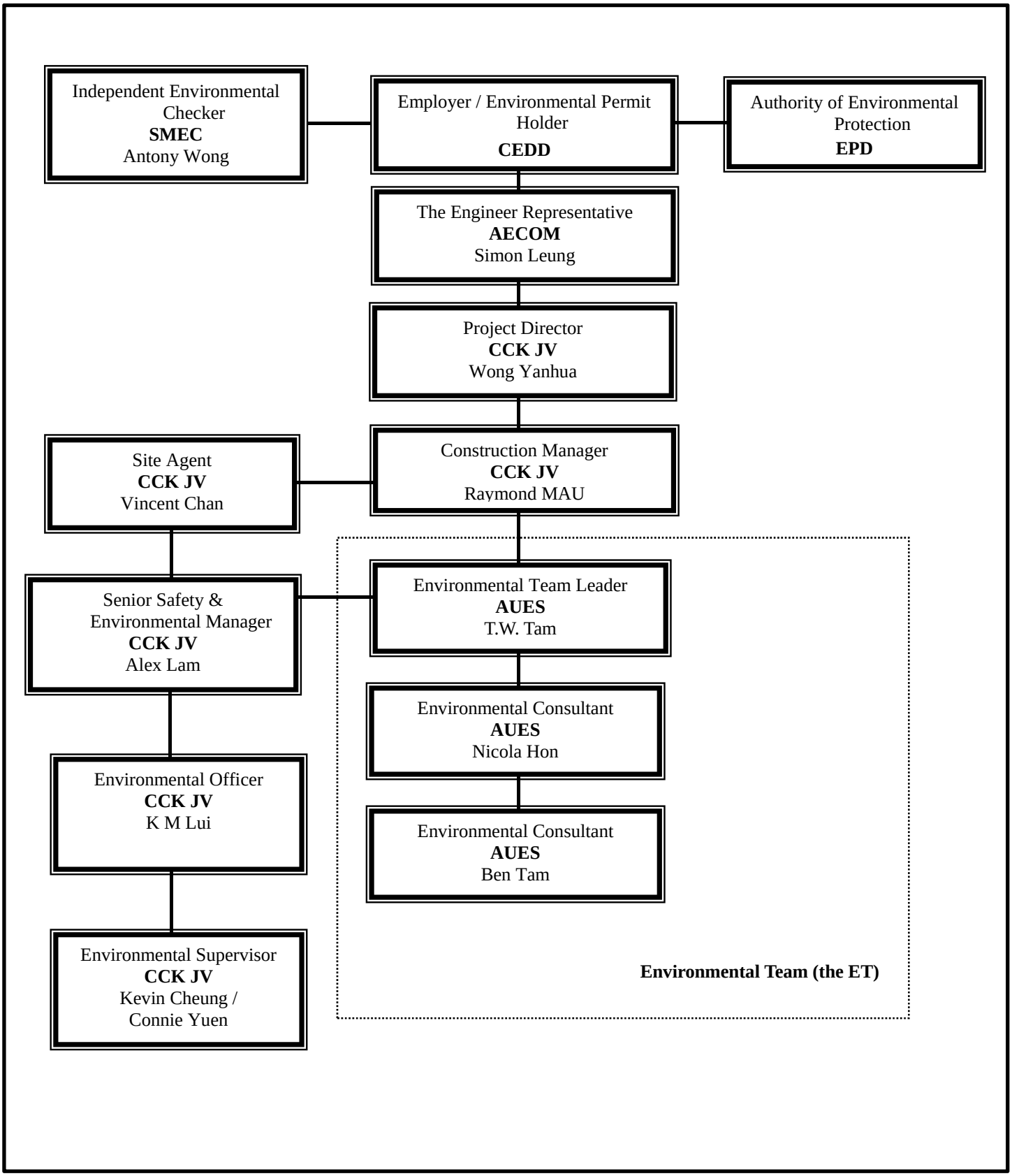
CEDD (Employer) – Civil Engineering and Development Department

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



Environmental Management Organization – CV/2013/08

Contact Details of Key Personnel for Contract 6 - CV/2013/03

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
AECOM	Engineer's Representative	Simon Leung	2674 2273	2674 7732
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
CCK JV	Project Director	Wang Yanhua	6190 4212	
CCK JV	Construction Manager	Raymond Mau Sai-Wai	9011 5340	
CCK JV	Site Agent	Vincent Chan	9655 9404	
CCK JV	Senior Safety & Environmental Manager	Alex Lam	5547 0181	
CCK JV	Environmental Officer	K M Lui	51138223	
CCK JV	Environmental Supervisor	Kevin Cheung/ Connie Yeun	6316 6931 6117 1344	
AUES	Environmental Team Leader	TW Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079

Legend:

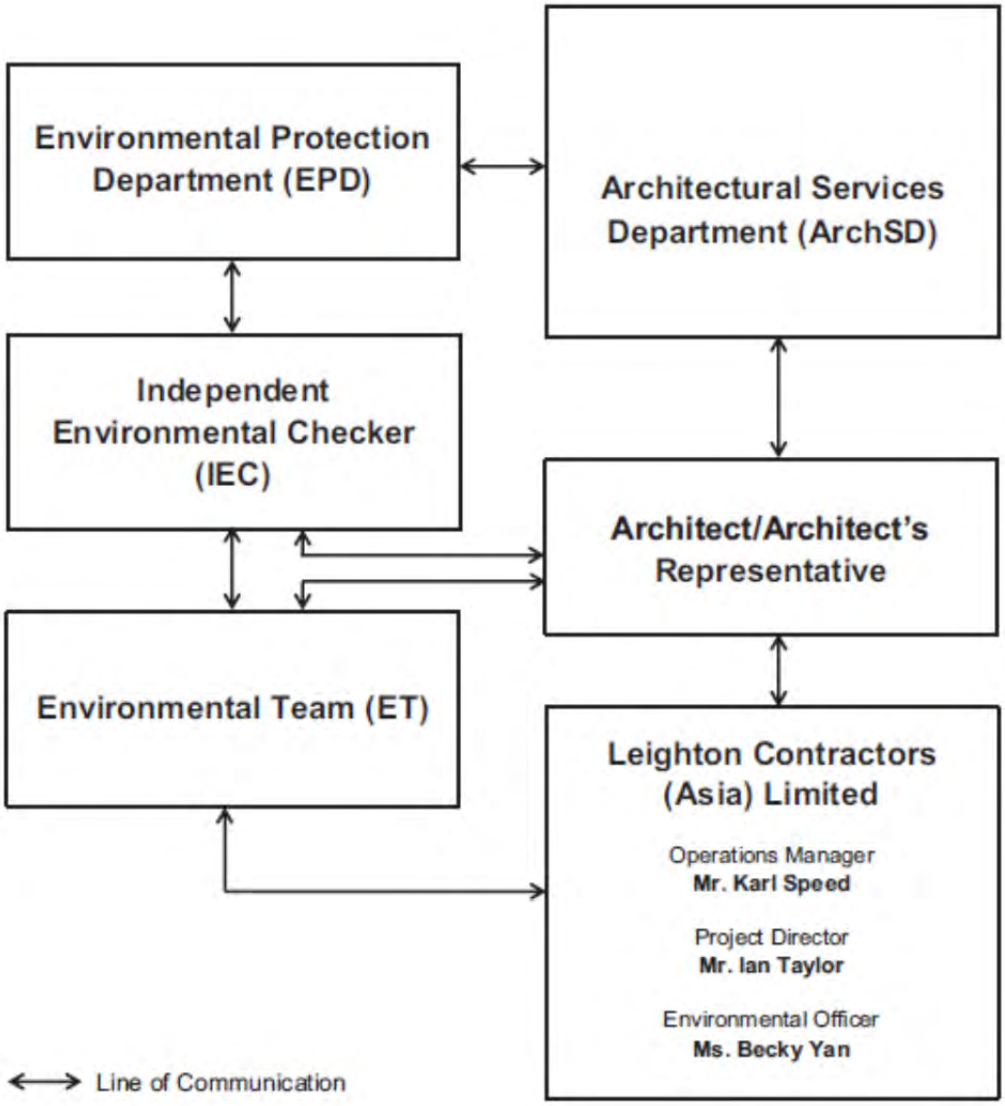
CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

CCK JV (Main Contractor) – CRBE-CEC-Kaden Joint Venture

SMEC (IEC) – SMEC Asia Limited

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



Environmental Management Organigram

Environmental Management Organization for Contract SS C505

Contact Details of Key Personnel for Contract SS C505

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
ArchSD	Works agent for the Development Bureau (DEVB)	Mr. William Cheng	2867 3904	2804 6805
Ronald Lu & Partners	Architect/ Architect's Representative	Mr. Justin Cheng	3189 9272	2834 5442
SMEC	Independent Environmental Checker	Mr. Antony Wong	3995 8120	3995 8101
Leighton	Operation Manager	Mr. Karl Speed	2823 1433	25298784
Leighton	Project Director	Mr. Ian Taylor	2858 1519	2858 1899
Leighton	Environmental Officer	Ms. Becky Yan	3973 1069	-
Leighton	Assistant Environmental Officer	Ms. Penny Yiu	3973 0818	-
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079

Legend:

ArchSD (Project Proponent) –Architectural Services Department

Ronald Lu & Partners (Architect/ Architect's Representative) –Ronald Lu & Partners (Hong Kong) Ltd

Leighton (Main Contractor) – Leighton Contractors (Asia) Limited

SMEC (IEC) – SMEC Asia Limited

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

Appendix C

3-month rolling construction program

Contract 2

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish
Total		609.8	27-Oct-14	06-May-16
HKLTH Works Programme update 20-October-2015		609.8	27-Oct-14	06-May-16
2 General		417.0	27-Oct-14	14-Dec-15
Noise Barriers		122.0	03-Jul-15	01-Dec-15
DDA Submission		122.0	03-Jul-15	01-Dec-15
CONTDS1090	Preparation of DDA for formal submission to ER/ICE/IP	45.0	03-Jul-15	28-Aug-15
CONTDS1100	IPs'/ ER's Review	28.0	29-Aug-15	03-Oct-15
CONTDS1110	Preparation of DDA with ICE Certification for resubmission to ER/ICE/IP	21.0	05-Oct-15	29-Oct-15
CONTDS1120	ER/IP's Approval	28.0	30-Oct-15	01-Dec-15
Project Wide E&M		338.0	27-Oct-14	14-Dec-15
E&M Design & Engineering Works		177.0	22-Jan-15	29-Aug-15
Shop Drawing & Builder's Drawing Submission		177.0	22-Jan-15	29-Aug-15
PD.DW.1010	Shop Drawings & Builder's Drawings Submission & Approval	177.0	22-Jan-15	29-Aug-15
Equipment Selection & Submission		338.0	27-Oct-14	14-Dec-15
PD.PQ.1080	Electrical Services System Submission and Approval by the Engineer	338.0	27-Oct-14	14-Dec-15
PD.PQ.1150	Tunnel Ventilation System Submission and Approval by the Engineer	228.0	07-Nov-14	15-Aug-15
PD.PQ.2010	FS System Submission and Approval by the Engineer	278.0	01-Nov-14	09-Oct-15
3 South Portal Area		316.9	06-May-15	14-Mar-16
3.1 South Portal Subcontract & Procurement		269.3	30-Jun-15	16-Jan-16
SPS&P0080	Subcontract : Ventilation Building Structure Works	60.0	30-Jun-15	08-Sep-15
SPS&P0090	Subcontract : Tunnel Lining Works	60.0	13-Jul-15	19-Sep-15
SPS&P0100	Subcontract : Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150.0	13-Jul-15	09-Jan-16
SPS&P0110	Subcontract : Tunnel Concreting Works	60.0	24-Aug-15	04-Nov-15
SPS&P0120	Subcontract : Tunnel Finishing Works	60.0	05-Nov-15	16-Jan-16
3.2 South Portal Design Submission		196.6	08-Jul-15	27-Dec-15
South Tunnel Internal Structures		28.0	26-Jul-15	22-Aug-15
DDA Submission		28.0	26-Jul-15	22-Aug-15
STIS1L1023690	ER/IP's Approval	28.0	26-Jul-15	22-Aug-15
Cross Passages -Temp Works D&B Tunnel - Rock		55.0	08-Jul-15	07-Oct-15
DDA Submission		55.0	08-Jul-15	07-Oct-15
FL326980	IPs'/ ER's Review	28.0	08-Jul-15	08-Aug-15
FL327000	Preparation for resubmission to ER/ICE/IP with ICE Certification	27.0	10-Aug-15	09-Sep-15
FL327100	ER/IP's Approval	28.0	10-Sep-15	07-Oct-15
As-Built Drawings [Contractor's Design/ Contractor's Alternative Design]		60.0	29-Oct-15	27-Dec-15
SC1650	As-Built Drawings Submission - South Portal Ventilation Bldg Foundation	60.0	29-Oct-15	27-Dec-15
3.3 South Portal Method Statement Submission		48.0	05-Jan-16	03-Mar-16
South Portal: Temporary Bridge Dismantling		48.0	05-Jan-16	03-Mar-16
FL2022077	Prepare Method Statement	48.0	05-Jan-16	03-Mar-16
3.5 South Portal Works		265.6	06-May-15	14-Mar-16
South Portal: Foundation & Substructure		109.0	29-Jun-15	28-Oct-15
SV2180	South Bound Foundation	54.0	29-Jun-15	04-Sep-15
SV2190	Handover to SB Tunneling	1.0	04-Sep-15	04-Sep-15
SV2210	N/B Bored Piles 4nos & Pile Test	48.0	07-Jul-15	04-Sep-15
SV2740	N/B Pile Caps & Tie Beams	36.0	05-Sep-15	20-Oct-15
SV2745	N/B Backfilling	6.0	22-Oct-15	28-Oct-15

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MAIN CONTRACTOR: 香寶嘉 Dragages HongKong — A member of the Bouygues Construction group

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

THE ENGINEER: AECOM

CONTRACTOR'S DESIGNER: ATKINS

PROJECT: Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

TITLE: Monthly Report No.22 3-Months Rolling Programme (Approved Works Programme Rev. D)

DOCUMENT NO.		
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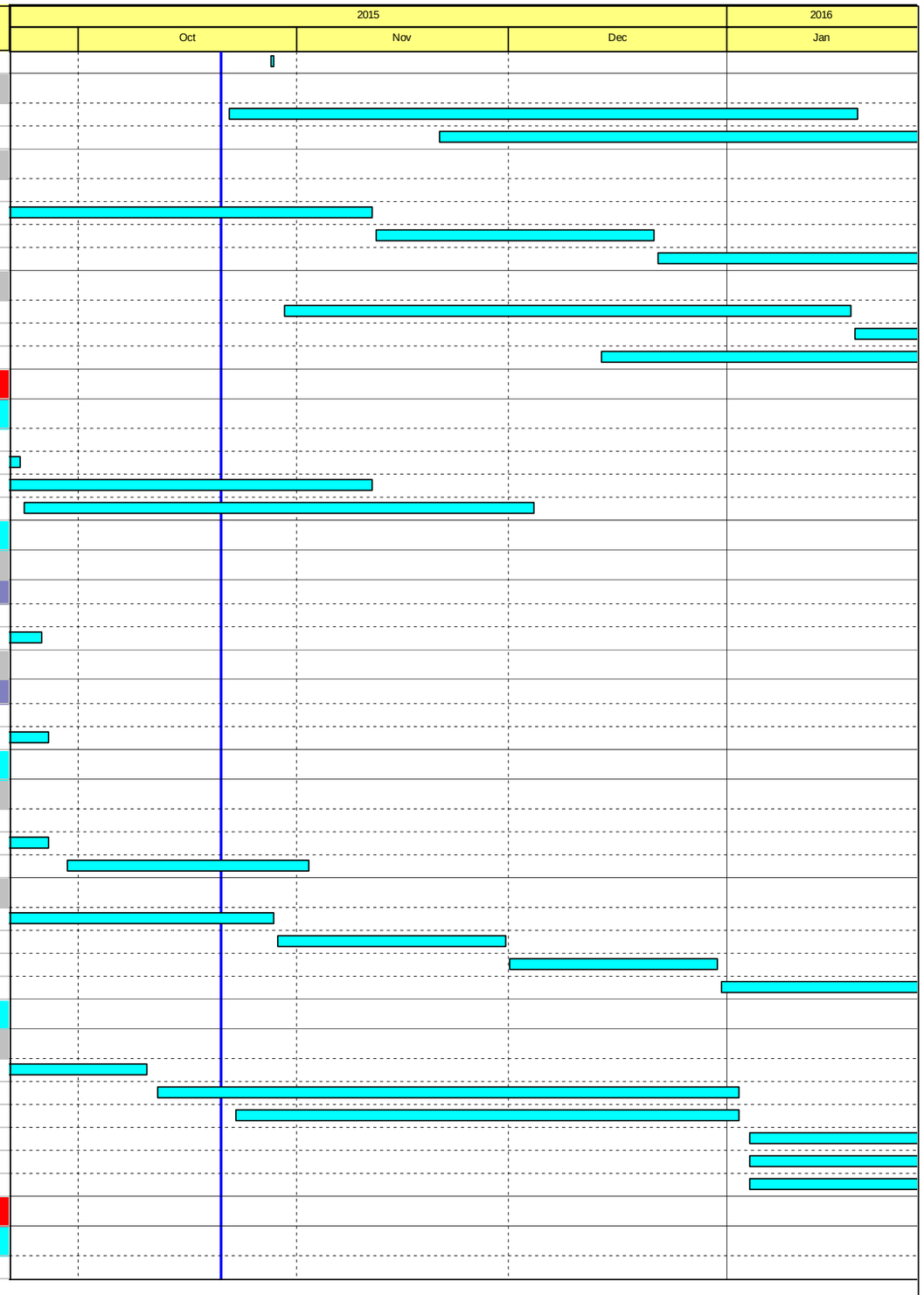
Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish
SV2750	Handover to NB Tunneling	1.0	28-Oct-15	28-Oct-15
South Portal: Superstructure		87.0	22-Oct-15	02-Feb-16
SV2325	Retaining Walls (LSTSP/ RW3 & LSTSP/ RW4 & S1,S2 & S3)	74.0	22-Oct-15	19-Jan-16
SV2335	Backfilling to Permanent Slope	60.0	21-Nov-15	02-Feb-16
South Tunnels: Southbound Tunnel		273.6	06-May-15	14-Mar-16
DB6300	D&B Setup / Site Installation	101.0	06-May-15	04-Sep-15
DB6310	Top Heading Excavation (Canopies) (CRP: Ch1,751>Ch1,787) 36m	57.0	05-Sep-15	11-Nov-15
DB6320	Bottom Bench Excavation (CRP:Ch1,751>Ch1,787)	34.0	12-Nov-15	21-Dec-15
DB6330cdwp	Full Face D&B Excavation: (CRP: Ch1,787 to Ch2,065)	70.0	22-Dec-15	14-Mar-16
South Tunnels: Northbound Tunnel		159.2	30-Oct-15	25-Feb-16
DB6340dwp1	Top Heading Excavation (Canopies) (P20/NB Ch: 139 to 178); 39m; (CRP: Ch1,750>Ch1,789)	67.0	30-Oct-15	18-Jan-16
DB6340dwp2	Top Heading Excavation (Canopies) (P20/NB Ch: 178 to 200); 22m; (CRP: Ch1,789>Ch1,811)	28.0	19-Jan-16	19-Feb-16
DB6350	Bottom Bench Excavation (P20/NB - 139>200); 61m; (CRP: Ch1,750>Ch1,811)	62.0	14-Dec-15	25-Feb-16
4 Middle Portal Area		361.4	05-Feb-15	02-Apr-16
4.1 Middle Portal Subcontract & Procurement		331.6	05-Feb-15	04-Dec-15
MPS&P0050	Subcontract : Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150.0	05-Feb-15	11-Aug-15
MPS&P0080	Subcontract : Ventilation Building ABWF Works	60.0	15-Jul-15	22-Sep-15
MPS&P0090	Subcontract : Tunnel Concreting Works for Internal Structures	60.0	31-Aug-15	11-Nov-15
MPS&P0100	Subcontract : External Works and Landscaping Works	60.0	23-Sep-15	04-Dec-15
4.2 Middle Portal Design Submission		324.4	20-Jul-15	26-Sep-15
Mid Vent Adit Internal Structure		119.0	20-Jul-15	25-Sep-15
DDA Submission		119.0	20-Jul-15	25-Sep-15
DSN29084	Preparation for resubmission to ER/ICE/IP with ICE Certification	35.0	20-Jul-15	28-Aug-15
DSN29085	ER/IP's Approval	28.0	29-Aug-15	25-Sep-15
Mid Vent Junction Internal Structure		55.0	24-Jul-15	26-Sep-15
DDA Submission		55.0	24-Jul-15	26-Sep-15
DSN29104	Preparation for resubmission to ER/ICE/IP with ICE Certification	32.0	24-Jul-15	29-Aug-15
DSN29105	ER/IP's Approval	28.0	30-Aug-15	26-Sep-15
4.3 Middle Portal Method Statement Submission		140.7	29-Jul-15	02-Feb-16
Cavern Permanent Lining		80.0	29-Jul-15	02-Nov-15
A25522	Engineer's Comment	28.0	29-Jul-15	29-Aug-15
A25523	Re-submission Method Statement	24.0	31-Aug-15	26-Sep-15
A25524	Engineer's Approval	28.0	29-Sep-15	02-Nov-15
Middle Ventilation Adit Tunnel Concreting Works (Internal Structures)		135.3	31-Aug-15	02-Feb-16
A25517	Prepare Method Statement	48.0	31-Aug-15	28-Oct-15
A25518	Engineer's Comment	28.0	29-Oct-15	30-Nov-15
A25519	Re-submission Method Statement	24.0	01-Dec-15	30-Dec-15
A25520	Engineer's Approval	28.0	31-Dec-15	02-Feb-16
4.5 Middle Portal Works		217.8	18-Jul-15	02-Apr-16
Adit Construction - Mid Portal		217.8	18-Jul-15	02-Apr-16
MV2530	Cavern Excavation Ch302>Ch371; 69m	70.0	18-Jul-15	10-Oct-15
MV2710	D&B UT Tunneling Ch3,436 to Ch3,586 (NB) - towards North	70.0	12-Oct-15	02-Jan-16
MV2720	D&B DT Tunneling Ch3,433 to Ch3,561 (SB) - towards North	60.0	23-Oct-15	02-Jan-16
MV2730	D&B UT Tunneling Ch3,413 to Ch3,313 (NB) - towards South	23.0	04-Jan-16	29-Jan-16
MV2740	D&B DT Tunneling Ch3,410 to Ch3,313 (SB) - towards South	23.0	04-Jan-16	29-Jan-16
MV2749	Ground Treatment for TBm Breakthrough	77.0	04-Jan-16	02-Apr-16
5 North Portal Area		431.8	21-Jan-15	06-May-16
5.0 North Portal Site Possession Contract Dates		0.0	19-Aug-15	19-Aug-15
A1920	LS7 (near North Vent Slope)	0.0	19-Aug-15	



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Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish
5.1 North Portal Subcontract & Procurement		418.8	05-Jun-15	18-Mar-16
NPS&P0070	Subcontract : Tunnel Lining Works	60.0	05-Jun-15	15-Aug-15
NPS&P0080	Subcontract : Tunnel Concreting Works	60.0	05-Jun-15	15-Aug-15
NPS&P0090	Subcontract : Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150.0	05-Jun-15	02-Dec-15
NPS&P0110	Subcontract : Ventilation Building Structure Works	60.0	12-Aug-15	23-Oct-15
NPS&P0120	Subcontract : Ventilation Building Pile Cap Works	60.0	23-Sep-15	04-Dec-15
NPS&P0130	Subcontract : Ventilation Building ABWF Works	60.0	24-Oct-15	05-Jan-16
NPS&P0140	Subcontract : External Works and Landscaping Works	60.0	06-Jan-16	18-Mar-16
5.2 North Portal Design Submission		212.0	18-May-15	16-Nov-15
Bored Tunnel/ D&B Tunnel Transition - Headwall Structure (N/B & S/B)		80.0	15-Jul-15	17-Oct-15
DDA Submission		80.0	15-Jul-15	17-Oct-15
FL2022182	IPs'/ ER's Review	28.0	15-Jul-15	15-Aug-15
FL2022183	Preparation for resubmission to ER/ICE/IP with ICE Certification	30.0	17-Aug-15	19-Sep-15
FL2022184	ER/IP's Approval	28.0	20-Sep-15	17-Oct-15
North Tunnel Curved Section Cross Passages - Temp Works		84.0	20-Jul-15	24-Oct-15
DDA Submission		84.0	20-Jul-15	24-Oct-15
FL2022190	IPs'/ ER's Review	28.0	20-Jul-15	20-Aug-15
FL2022191	Preparation for resubmission to ER/ICE/IP with ICE Certification	32.0	21-Aug-15	26-Sep-15
FL2022192	ER/IP's Approval	28.0	27-Sep-15	24-Oct-15
Bored Tunnel Cross Passages Permanent Lining (Soft Ground)		66.0	28-Jul-15	13-Oct-15
DDA Submission		66.0	28-Jul-15	13-Oct-15
FL2022211	Preparation for resubmission to ER/ICE/IP with ICE Certification	43.0	28-Jul-15	15-Sep-15
FL2022212	ER/IP's Approval	28.0	16-Sep-15	13-Oct-15
Bored Tunnel Cross Passages Permanent Lining (Rock)		74.0	18-Jul-15	13-Oct-15
DDA Submission		74.0	18-Jul-15	13-Oct-15
FL2022218	IPs'/ ER's Review	28.0	18-Jul-15	19-Aug-15
FL2022219	Preparation for resubmission to ER/ICE/IP with ICE Certification	23.0	20-Aug-15	15-Sep-15
FL2022220	ER/IP's Approval	28.0	16-Sep-15	13-Oct-15
Bored Tunnel Cross Passages Internal Structures		212.0	18-May-15	16-Nov-15
DDA Submission		212.0	18-May-15	16-Nov-15
FL2022225	Preparation for formal submission to ER/ICE/IP	75.0	18-May-15	15-Aug-15
FL2022226	IPs'/ ER's Review	28.0	17-Aug-15	17-Sep-15
FL2022227	Preparation for resubmission to ER/ICE/IP with ICE Certification	25.0	18-Sep-15	19-Oct-15
FL2022228	ER/IP's Approval	28.0	20-Oct-15	16-Nov-15
5.3 North Portal Method Statement Submission		215.0	01-Jun-15	06-Feb-16
North Tunnel (Cross Passages) Blasting Method Statement		95.0	01-Jun-15	21-Sep-15
FL2022111	Preparation and Submission of Blasting Method Statement	70.0	01-Jun-15	22-Aug-15
FL2022112	Engineer's/IP's Review & Approval	60.0	14-Jul-15	21-Sep-15
MS for TBM Break-out		116.8	17-Sep-15	04-Jan-16
FL2022544	Prepare & Submit Method Statement	24.0	17-Sep-15	16-Oct-15
FL2022554	ER's Comment for Method Statement	30.0	17-Oct-15	15-Nov-15
FL2022564	Prepare & Re-submit Method Statement	18.0	16-Nov-15	05-Dec-15
FL2022574	ER's Approval for Method Statement	30.0	06-Dec-15	04-Jan-16
MS for TBM Turn		180.0	17-Oct-15	06-Feb-16
FL3875	Prepare & Submit Method Statement	24.0	17-Oct-15	14-Nov-15
FL3880	ER's Comment for Method Statement	30.0	15-Nov-15	14-Dec-15
FL3885	Prepare & Re-submit Method Statement	18.0	15-Dec-15	07-Jan-16
FL3890	ER's Approval for Method Statement	30.0	08-Jan-16	06-Feb-16
MS for Removal of Left-in HDC Drill Rods within N/B TBM Excavation		99.2	13-Nov-15	30-Jan-16
FL2022584	Prepare & Submit Method Statement	40.0	13-Nov-15	31-Dec-15

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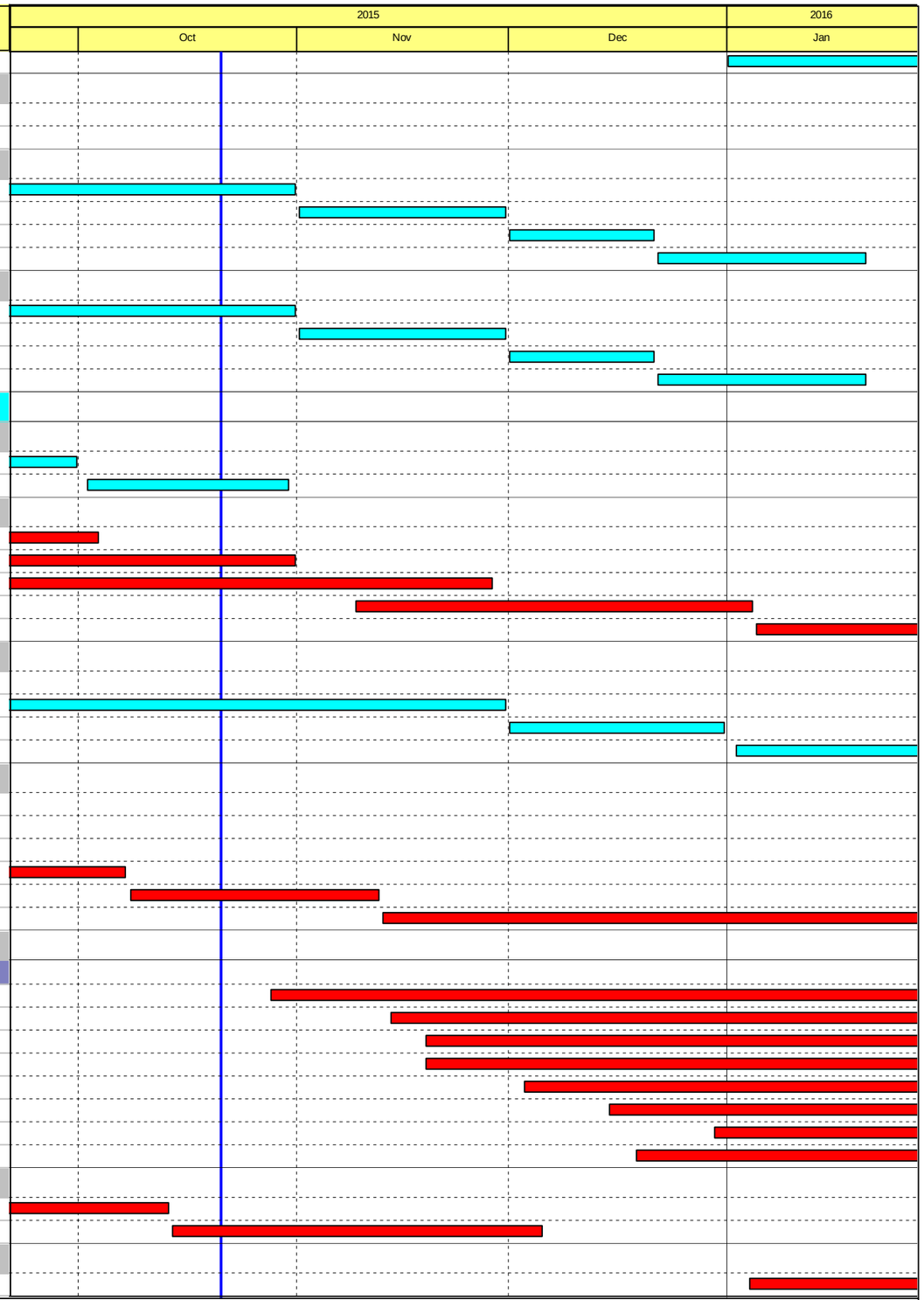
FL2022594	ER's Comment for Method Statement	30.0	01-Jan-16	30-Jan-16
North Portal: MS for Cross Passage Ground Treatment		41.0	20-Jul-15	07-Sep-15
FL2022067	Prepare & Re-submit Method Statement	18.0	20-Jul-15	08-Aug-15
FL2022068	ER's Approval for Method Statement	30.0	09-Aug-15	07-Sep-15
North Portal: MS for Cross Passage Excavation in Rock		131.0	12-Sep-15	20-Jan-16
FL2022069	Prepare & Submit Method Statement	40.0	12-Sep-15	31-Oct-15
FL2022070	ER's Comment for Method Statement	30.0	01-Nov-15	30-Nov-15
FL2022071	Prepare & Re-submit Method Statement	18.0	01-Dec-15	21-Dec-15
FL2022072	ER's Approval for Method Statement	30.0	22-Dec-15	20-Jan-16
North Portal: MS for Cross Passage Excavation in Soft		131.0	12-Sep-15	20-Jan-16
FL2022073	Prepare & Submit Method Statement	40.0	12-Sep-15	31-Oct-15
FL2022074	ER's Comment for Method Statement	30.0	01-Nov-15	30-Nov-15
FL2022075	Prepare & Re-submit Method Statement	18.0	01-Dec-15	21-Dec-15
FL2022076	ER's Approval for Method Statement	30.0	22-Dec-15	20-Jan-16
5.5 North Portal Works		400.3	21-Jan-15	06-May-16
North Portal: Site Formation		192.0	21-Jan-15	30-Oct-15
N20655	NB: Stage 3 Permanent Slope from +75mPD to +30mPD	192.0	21-Jan-15	30-Sep-15
N20665	NB: Stage 4 Excavation from +18mPD to +9.5mPD w/4 rows Soil Nail	24.0	02-Oct-15	30-Oct-15
Southbound Tunnel (Mined Excavation) inc Enlargement		241.0	23-Jul-15	06-May-16
TD0910	SB - Invert Grouting	60.0	23-Jul-15	03-Oct-15
TD0920	SB - Gallery	60.0	21-Aug-15	31-Oct-15
TD0930	SB - Crown Grouting	60.0	19-Sep-15	28-Nov-15
TD0940a	Top Heading Enlargement (Ch6355>Ch6268); 87m; [P21: 4755 to 4668]	47.0	09-Nov-15	04-Jan-16
TD0940a1	Top Heading Enlargement (Ch6268>Ch6148); 120m; [P21: 4668 to 4548] - WSD Restriction Zone	104.0	05-Jan-16	06-May-16
Northbound Tunnel (Mined Excavation)		248.0	09-Jun-15	31-Mar-16
DB6400a2	Top Heading Canopies (Ch6410>Ch6350); 60m; [P20: 4788 to 4728]	70.0	09-Jun-15	31-Aug-15
DB6400a3	Top Heading Canopies (Ch6350>Ch6284); 66m; [P20: 4728 to 4662]	76.0	01-Sep-15	30-Nov-15
DB6400a5	Platform Lowering for Bench Excavation	26.0	01-Dec-15	31-Dec-15
DB6400a6	Bench Excavation (Ch6446>Ch6284); 162m; [P20: 4824 to 4662]	76.0	02-Jan-16	31-Mar-16
Southbound Tunnel (TBM Tunneling)		207.0	10-Jun-15	12-Feb-16
TD1000a	TBM DT (Ch6,355>Ch6,077) 278m	82.0	10-Jun-15	16-Sep-15
TD1000a20	TBM DT (Ch6,268>Ch6,148) 120m - WSD Restriction Zone	35.0	11-Jul-15	21-Aug-15
TD1000a30	TBM DT (Ch6,148>Ch6,077) 71m	21.0	22-Aug-15	16-Sep-15
TD1010a	TBM DT (Ch6,077>Ch5,950) 127m	17.0	17-Sep-15	07-Oct-15
TD1010b	TBM DT (Ch5,950>Ch5,713) 237m	31.0	08-Oct-15	12-Nov-15
TD1050	TBM DT (Ch5,713>Ch4,904) 809m	77.0	13-Nov-15	12-Feb-16
Bored Tunnel (S/B & N/B) Internal Works & Finishes		134.0	28-Oct-15	04-Apr-16
Southbound Tunnel Internal Works & Finishes		134.0	28-Oct-15	04-Apr-16
TD1470a	Tunnel Backfilling (Ch5,950 >Ch5,153) 797m- (Stage 1)	85.0	28-Oct-15	05-Feb-16
TD1480a	Bottom Drilling for Cross Passage (fr.Ch5953)	70.0	14-Nov-15	05-Feb-16
TD1490a	Tunnel Backfilling (Ch5,950 >Ch5,153) 797m- (Stage 2)	80.0	19-Nov-15	22-Feb-16
TD1500a	Drilling for Cross Passage (Remaining) (Ch5,950 >Ch5,153) 797m	80.0	19-Nov-15	22-Feb-16
TD1520a	Corbel (Ch5,950 >Ch5,153) 797m	80.0	03-Dec-15	07-Mar-16
TD1523a	OHVD Slab & 132kV Cable Trough (Ch5,950 >Ch5,153) 797m	81.0	15-Dec-15	19-Mar-16
TD1524a	Walkway Construction Ch5,950 >Ch5,153) 797m	81.0	30-Dec-15	04-Apr-16
TD1528a	Ground Treatment for Cross Passage Ch5,950 >Ch5,153) 797m	82.0	19-Dec-15	25-Mar-16
North Portal: Retaining Wall & Site Formation		102.0	03-Aug-15	05-Dec-15
N20930	*Retaining Wall & Site Formation (STK/RW1)	57.0	03-Aug-15	13-Oct-15
N20940	Retaining Wall & Site Formation (STK/RW3)	45.0	14-Oct-15	05-Dec-15
North Portal: Noise Barrier (NB5 to NB9)		51.0	04-Jan-16	09-Mar-16
N20990	Noise Barrier NB 6,8,9	51.0	04-Jan-16	09-Mar-16



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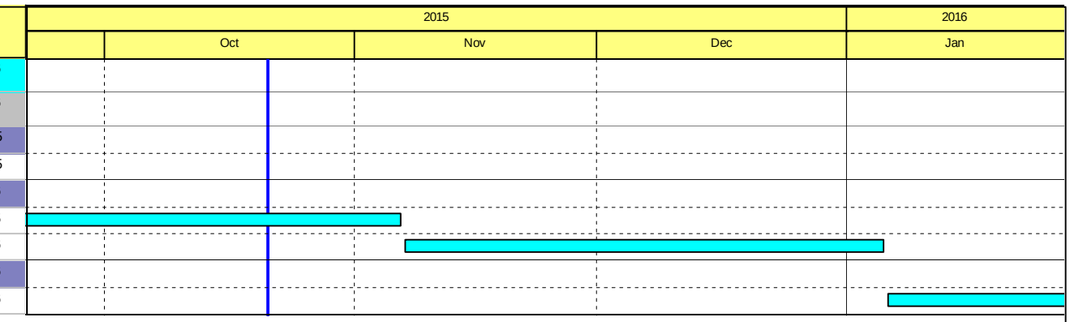
Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish
5.6 Administration Building:		139.3	24-Jul-15	05-Mar-16
5.65 Administration Building: Works		139.3	24-Jul-15	05-Mar-16
Administration Building:Demolition		18.0	24-Jul-15	15-Aug-15
SV2945	Demolish Existing Building (AB3 - GLL 36508)	18.0	24-Jul-15	15-Aug-15
Administration Building: Site Formation		67.0	17-Aug-15	05-Jan-16
AD2070	Backfilling for Surcharge	66.0	17-Aug-15	06-Nov-15
AD2080	Surcharge (2 months Consolidation)	60.0	07-Nov-15	05-Jan-16
Administration Building: Foundation & Substructure		46.0	06-Jan-16	05-Mar-16
AD2030	Excavation for Footing	46.0	06-Jan-16	05-Mar-16



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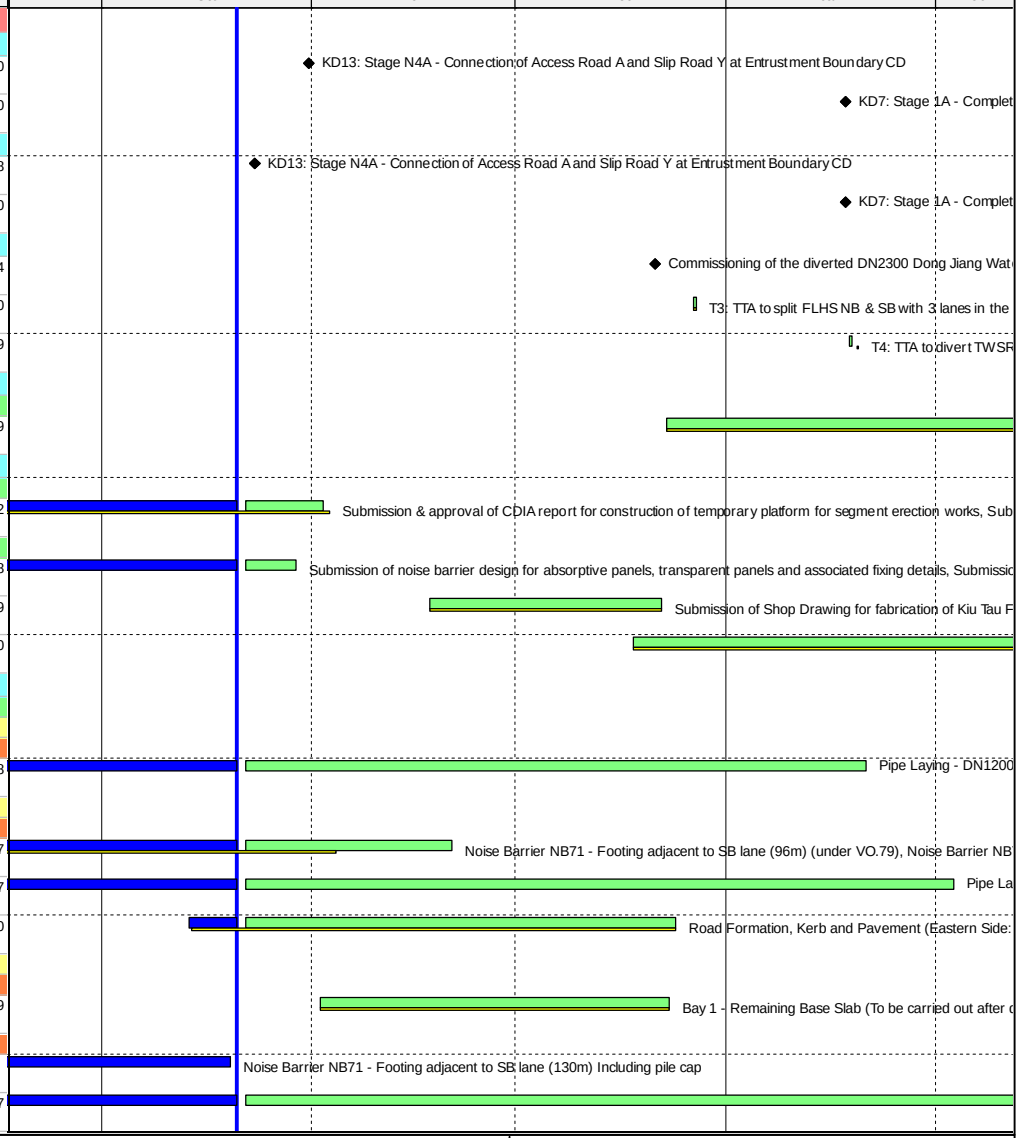
Contract 3

Activity ID	Activity Name	OD	RD	Start	Finish	TF
3-Month Rolling Programme 2015-10-21						
Key Dates (Contractual)						
KD-1500	KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD	0	0		31-Oct-15*	0
KD-1100	KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic	0	0		18-Jan-16*	0
Key Dates (Forecast)						
KD-1505	KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD	0	0		23-Oct-15	8
KD-1105	KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic	0	0		18-Jan-16	0
Major Milestones and Events						
MS-0240	Commissioning of the diverted DN2300 Dong Jiang Watermains	0	0		21-Dec-15	294
MS-2000C	T3: TTA to split FLHS NB & SB with 3 lanes in the middle unoccupied (between CH7130 and CH7470)	1	1	27-Dec-15*	27-Dec-15	0
MS-2000D	T4: TTA to divert TWSRW traffic to the completed re-aligned TWSRW	1	1	19-Jan-16	19-Jan-16	69
Major Procurement & Delivery						
Footbridge Steel Truss						
MM-3050	Fabrication of footbridge steel truss (Kiu Tau Footbridge)	100	100	23-Dec-15	03-May-16	19
Design and Submissions						
Statutory Approval						
PRE-1050	Submission & approval of CDIA report for construction of temporary platform for segment erection works	185	10	27-Nov-14 A	02-Nov-15	52
Method Statement and Design (Major) Approved by AECOM						
PRE-2020	Submission of noise barrier design for absorptive panels, transparent panels and associated fixing details	60	7	11-Mar-14 A	29-Oct-15	88
PRE-2050	Submission of Shop Drawing for fabrication of Kiu Tau Footbridge Steelworks	30	30	18-Nov-15	22-Dec-15	19
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	60	18-Dec-15	07-Mar-16	130
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-1130*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)	182	76	20-Feb-14 A	21-Jan-16	88
Fanling Highway Zone 2 between CH7130 and CH7290						
At-Grade Roadworks (160m)						
FHW-2110B	Noise Barrier NB71 - Footing adjacent to SB lane (96m) (under VO.79)	341	27	26-Jul-14 A	21-Nov-15	77
FHW-2130*	Pipe Laying - DN1200 & DN600 Watermains (CHB & CHC) along Fanling Highway (183m long, 4m depth)	144	87	13-Jul-15 A	03-Feb-16	77
FHW-2140	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard should)	61	55	14-Oct-15 A	24-Dec-15	0
Fanling Highway Zone 3 between CH7290 and CH7380						
Box Culvert Extension - ID4						
ID4-3090	Bay 1 - Remaining Base Slab (To be carried out after diversion of DN1400 water mains)	45	45	02-Nov-15	23-Dec-15	269
At-Grade Roadworks (130m)						
FHW-3130	Noise Barrier NB71 - Footing adjacent to SB lane (130m) Including pile cap	324	0	23-May-14 A	20-Oct-15 A	
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	150	140	07-Jun-14 A	16-Apr-16	227



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

Programme ID: 3MPR027 (Data Date: 21-Oct-15)

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3-Month Rolling Programme updated to 2015-10-20

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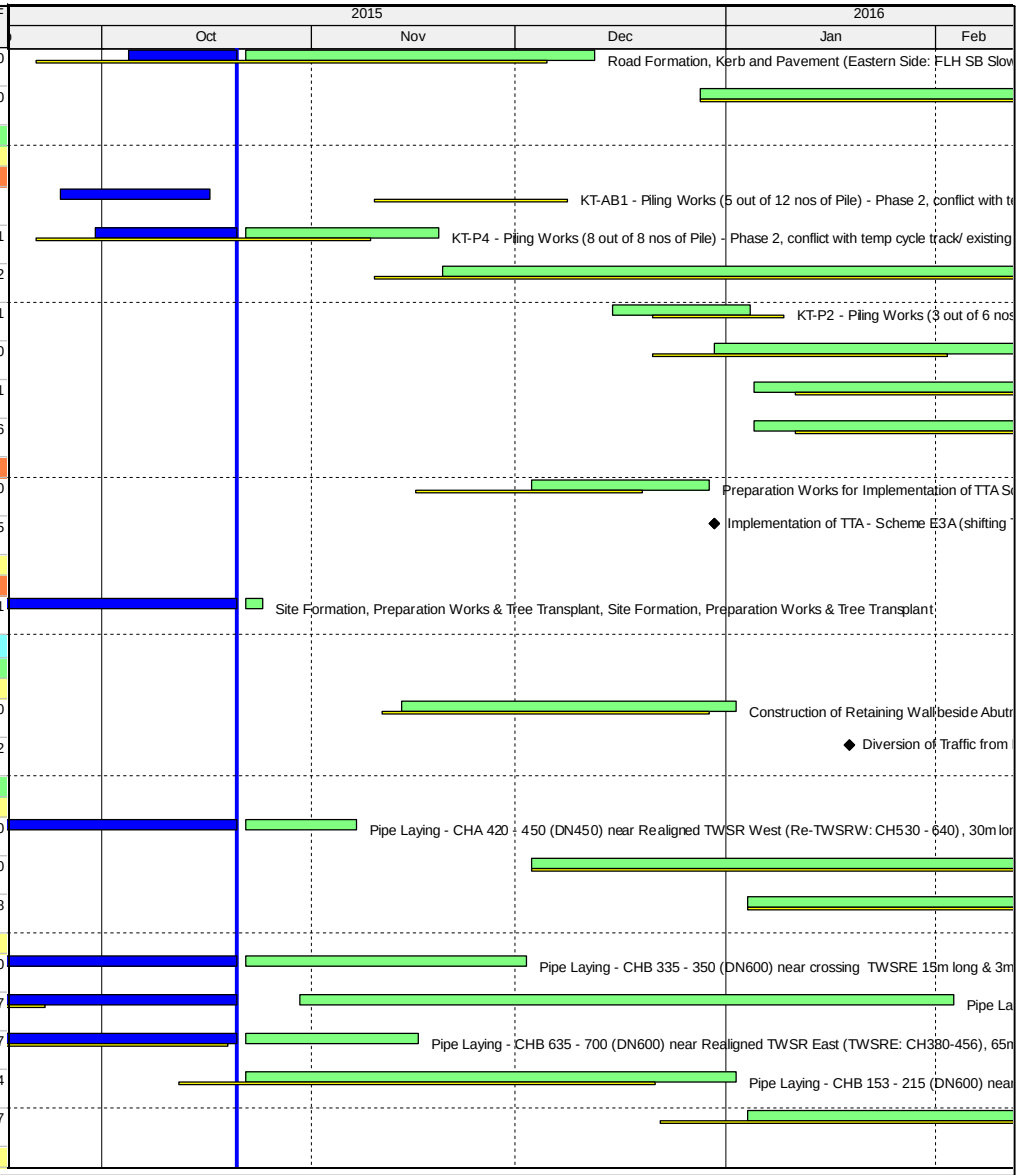
Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-3160	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard should)	63	45	05-Oct-15 A	12-Dec-15	10
FHW-3300	Noise Barrier NB68A - Mini-Piling at central median (CSD: 20 nos)	70	70	28-Dec-15	29-Mar-16	0
Fanling Highway North Portion between CH7470 and CH7925						
Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)						
Kiu Tau Footbridge Reprovision (East)						
FHW-5000A2	KT-AB1 - Piling Works (5 out of 12 nos of Pile) - Phase 2, conflict with temp cycle track/ existing tree	25	0	25-Sep-15 A	17-Oct-15 A	
FHW-5000E	KT-P4 - Piling Works (8 out of 8 nos of Pile) - Phase 2, conflict with temp cycle track/ existing tree	40	25	30-Sep-15 A	19-Nov-15	31
FHW-5010E	KT-P4 - Pile Cap & Pier	75	75	20-Nov-15	25-Feb-16	72
FHW-5000C2	KT-P2 - Piling Works (3 out of 6 nos of Pile) - Phase 2, conflict with existing TWSRE	15	15	15-Dec-15	04-Jan-16	31
FHW-5110	Inspection & Remedial Works for the 3nos. suspected defected piles (AB1-7, AB2-4, P3-9)	35	35	30-Dec-15	16-Feb-16	0
FHW-5010C	KT-P2 - Pile Cap & Pier	60	60	05-Jan-16	21-Mar-16	31
FHW-5090	Additional BFA Facilities - Pile Cap & Sump Pit, to be covered by VO	45	45	05-Jan-16	03-Mar-16	66
At-Grade Road Works (130m)						
FHW-5120C	Preparation Works for Implementation of TTA Scheme E3A	21	21	03-Dec-15	29-Dec-15	0
FHW-5120D	Implementation of TTA - Scheme E3A (shifting TWSR East westward, at the existing ramp of Kiu Tau Footbridge)	0	0	30-Dec-15		35
Fanling Highway Zone 7 between CH7660 and CH7925						
At-Grade Roadworks (265m)						
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	3	30-Aug-13 A	24-Oct-15	11
Section II - Remainder of the Works (KD-3)						
At Grade Link Road at Fanling Highway Interchange						
Link Road 4 (near Abutment AC1)						
FHI-LR4-4030	Construction of Retaining Wall beside Abutment AC1 (4 bays)	40	40	14-Nov-15	02-Jan-16	0
FHI-LR4-4000	Diversion of Traffic from Existing TWSR West to Realigned TWSR West	0	0	19-Jan-16		462
WSD Works						
DN450 Fire Mains (CHA)						
WA-1050	Pipe Laying - CHA 420 - 450 (DN450) near Realigned TWSR West (Re-TWSRW: CH530 - 640), 30m long & 2m depth	70	15	29-May-15 A	07-Nov-15	0
WA-1060	Pipe Laying - CHA 450 - 575 (DN450) near Realigned TWSR West (Re-TWSRW: CH640 - 695), 125m long & 2m depth	95	95	03-Dec-15	06-Apr-16	260
WA-1090	Pipe Laying - CHA 800 - 960 (DN450) near Ext. TWSR West (No Roadworks), 160m long & 3m depth	148	148	04-Jan-16*	09-Jul-16	78
DN600 Water Mains (CHB)						
WB-1030A	Pipe Laying - CHB 335 - 350 (DN600) near crossing TWSRE 15m long & 3m depth	30	36	09-Jun-15 A	02-Dec-15	0
WB-1000	Pipe Laying - CHB 100 - 153 (DN600) near Fanling Highway S/B (FHW: CH7130-7290), 53m long (common trench with NB)	45	80	13-Jul-15 A	03-Feb-16	77
WB-1070	Pipe Laying - CHB 635 - 700 (DN600) near Realigned TWSR East (TWSRE: CH380-456), 65m long & GL	78	22	18-Jul-15 A	16-Nov-15	227
WB-1010	Pipe Laying - CHB 153 - 215 (DN600) near Fanling Highway S/B (FHW: CH7290-7380), 62m long (common trench with NB)	60	60	22-Oct-15	02-Jan-16	104
WB-1020	Pipe Laying - CHB 215 - 300 (DN600) near Fanling Highway S/B (FHW: CH7380-7470), 85m long (common trench with NB)	80	80	04-Jan-16	16-Apr-16	227
DN1200 Water Mains (CHC)						



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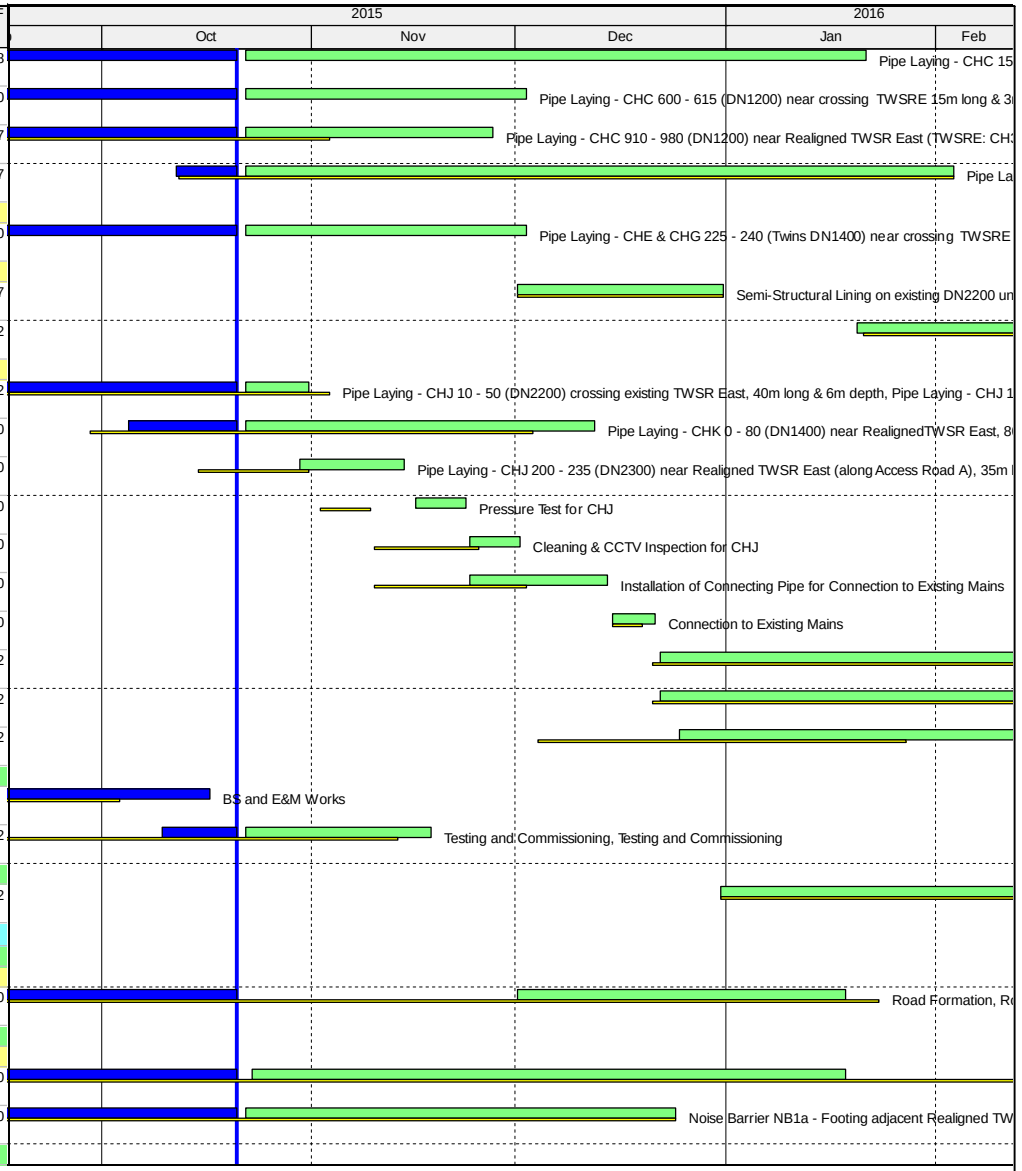
WC-1050A	Pipe Laying - CHC 155 - 200 (DN1200) near Fanling Highway S/B (FHW: CH6935-7130), 45m long, 4m depth	120	76	15-Oct-14 A	21-Jan-16	88
WC-1090A	Pipe Laying - CHC 600 - 615 (DN1200) near crossing TWSRE 15m long & 3m depth	30	36	09-Jun-15 A	02-Dec-15	0
WC-1130	Pipe Laying - CHC 910 - 980 (DN1200) near Realigned TWSR East (TWSRE: CH380-456), 70m long & GL	78	32	07-Jul-15 A	27-Nov-15	217
WC-1060	Pipe Laying - CHC 235 - 420 (DN1200) near Fanling Highway S/B (FHW: CH7130-7290), 185m long (common trench with NB)	95	87	12-Oct-15 A	03-Feb-16	77
Twin DN1400 Water Mains (CHE & CHG)						
WE-1030	Pipe Laying - CHE & CHG 225 - 240 (Twins DN1400) near crossing TWSRE 15m long & 3m depth	30	36	09-Jun-15 A	02-Dec-15	0
DN2200 Water Mains (CHF)						
WF-3000	Semi-Structural Lining on existing DN2200 underneath Link Road 4, 52m long (VO no.077)	25	25	01-Dec-15*	31-Dec-15	157
WF-1000A	Pipe Laying - CHF 80 - 112 (DN2200) near ext. TWSR West underneath Box Culvert BC01	210	210	20-Jan-16	08-Oct-16	142
DN2300 Water Mains and Leakage Collection System (CHJ & CHKA/CHK)						
WJ-1010B	Pipe Laying - CHJ 10 - 50 (DN2200) crossing existing TWSR East, 40m long & 6m depth	78	9	28-Jul-15 A	31-Oct-15	12
WJ-1020A	Pipe Laying - CHK 0 - 80 (DN1400) near RealignedTWSR East, 80m long & 4m depth	55	45	05-Oct-15 A	12-Dec-15	200
WJ-1050B	Pipe Laying - CHJ 200 - 235 (DN2300) near Realigned TWSR East (along Access Road A), 35m long & GL	14	14	30-Oct-15	14-Nov-15	0
WJ-2000B	Pressure Test for CHJ	7	7	16-Nov-15	23-Nov-15	0
WJ-2010A	Cleaning & CCTV Inspection for CHJ	7	7	24-Nov-15	01-Dec-15	0
WJ-2020	Installation of Connecting Pipe for Connection to Existing Mains	18	18	24-Nov-15	14-Dec-15	0
WJ-2040	Connection to Existing Mains	7	7	15-Dec-15*	21-Dec-15*	0
WJ-1100	DN300 Washout at around CHJ 268	65	65	22-Dec-15	16-Mar-16*	212
WJ-1110	DN300 Washout at CHJ 155	65	65	22-Dec-15	16-Mar-16*	212
WJ-1020B	Pipe Laying - CHKA 0 - 73 (DN1400) near Realigned TWSR East, 73m long & 4m depth	90	90	25-Dec-15	23-Mar-16	242
Kau Lung Hang Valve Control & Telemetry House Reprovision						
VCTH-1010	BS and E&M Works	30	0	15-Jul-15 A	17-Oct-15 A	
VCTH-1020	Testing and Commissioning	30	24	10-Oct-15 A	18-Nov-15	22
Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)						
PS-1000	Demolition of Existing Boundary Wall of Pumping Station (PST3)	50	50	31-Dec-15*	05-Mar-16	472
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)						
TWSRW Zone 1 between CH100 and CH155						
At-Grade Roadworks						
TWSRW-1160	Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	286	39	15-Nov-14 A	18-Jan-16	0
TWSRW Zone 2 between CH155 and CH280						
At-Grade Roadworks						
TWSRW-2120	Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	165	72	16-Oct-14 A	18-Jan-16	0
TWSRW-2130	Noise Barrier NB1a - Footing adjacent Realigned TWSR West (Covered by VO 103) (Approx. 60.2m)	85	55	14-Sep-15 A	24-Dec-15	0
TWSRW Zone 3 between CH280 and CH315						



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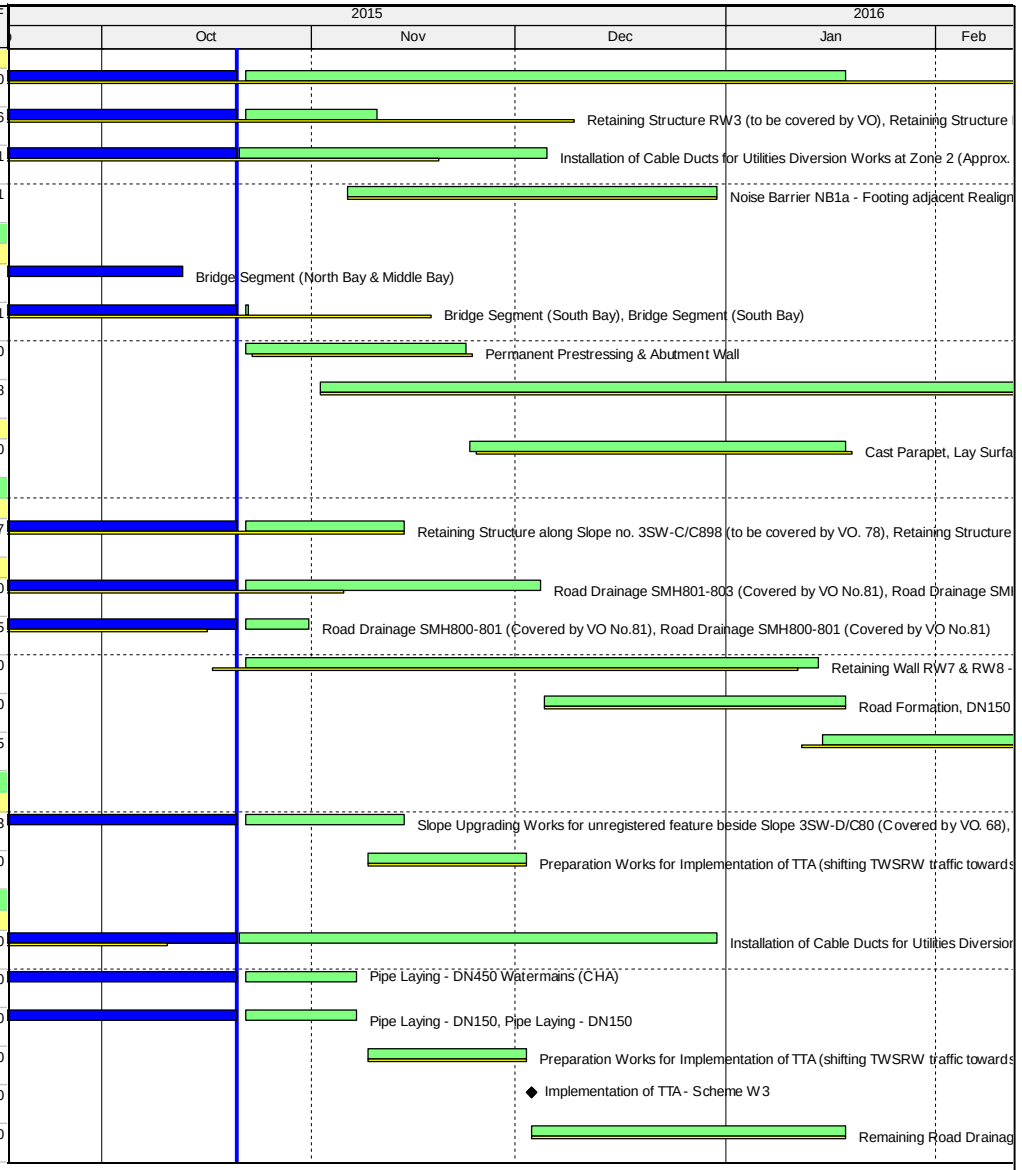
	At-Grade Roadworks					
TWSRW-3120	Road Formation, Road Drainage, Kerb, Planter and Pavement	181	73	22-Jun-15 A	18-Jan-16	0
TWSRW-3130	Retaining Structure RW3 (to be covered by VO)	85	17	18-Jul-15 A	10-Nov-15	26
TWSRW-3110	Installation of Cable Ducts for Utilities Diversion Works at Zone 2 (Approx. 120m) (by utilities undertakers)	111	46	21-Jul-15 A	05-Dec-15	1
TWSRW-3100	Noise Barrier NB1a - Footing adjacent Realigned TWSR West (Covered by VO 103) (Approx. 35.1m)	45	45	06-Nov-15	30-Dec-15	1
	TWSRW Zone 4 betweeen CH315 and CH376					
	Construction of Bridge E					
TWSRW-4070	Bridge Segment (North Bay & Middle Bay)	80	0	01-Apr-15 A	13-Oct-15 A	
TWSRW-4080	Bridge Segment (South Bay)	80	1	01-Apr-15 A	22-Oct-15	1
TWSRW-4090	Permanent Prestressing & Abutment Wall	28	28	22-Oct-15	23-Nov-15	0
TWSRW-4100	Remove Scaffold System and Temporary Work together with Slope Reinstatement	110	110	02-Nov-15*	18-Mar-16*	8
	At-Grade Roadworks					
TWSRW-4200	Cast Parapet, Lay Surfacing and Road Furniture for Footpath and Carriageway	45	45	24-Nov-15	18-Jan-16	0
	TWSRW Zone 5 betweeen CH376 and CH520					
	Construction of Retaining Structures					
TWSRW-5080	Retaining Structure along Slope no. 3SW-C/C898 (to be covered by VO. 78)	50	21	29-Jun-15 A	14-Nov-15	17
	At-Grade Roadworks					
TWSRW-5110C	Road Drainage SMH801-803 (Covered by VO No.81)	80	38	27-Apr-15 A	04-Dec-15	0
TWSRW-5110B	Road Drainage SMH800-801 (Covered by VO No.81)	36	9	03-Sep-15 A	31-Oct-15	5
TWSRW-5100	Retaining Wall RW7 & RW8 - adjacent to Realigned TWSR West (66m)	70	70	22-Oct-15	14-Jan-16	0
TWSRW-5110A	Road Formation, DN150 watermain, Kerb, Planter and Pavement	35	35	05-Dec-15	18-Jan-16	0
TWSRW-5120	Permanent Vehicular Access to Lot 81	125	125	15-Jan-16	23-Jun-16	475
	TWSRW Zone 6 betweeen CH520 and CH530					
	At-Grade Roadworks					
TWSRW-6110	Slope Upgrading Works for unregistered feature beside Slope 3SW-D/C80 (Covered by VO. 68)	65	21	22-May-15 A	14-Nov-15	23
TWSRW-6100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the edge of extended box culvert	21	21	09-Nov-15	02-Dec-15	0
	TWSRW Zone 7 betweeen CH530 and CH640					
	At-Grade Roadworks					
TWSRW-7140	Installation of Cable Ducts for Utilities Diversion Works at Area 4 (Approx. 150m) (by utilities undertakers)	233	71	28-Jan-15 A	30-Dec-15	0
TWSRW-7120*	Pipe Laying - DN450 Watermains (CHA)	70	15	29-May-15 A	07-Nov-15	0
TWSRW-7160	Pipe Laying - DN150	25	15	13-Jul-15 A	07-Nov-15	0
TWSRW-7100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the cut-slope)	21	21	09-Nov-15	02-Dec-15	0
TWSRW-7110	Implementation of TTA - Scheme W3	0	0	03-Dec-15		0
TWSRW-7150	Remaining Road Drainage, Road Formation, DN150 watermain, Kerb, Planter and Pavement (incl. Zone 6 & Zone 7)	37	37	03-Dec-15	18-Jan-16	0



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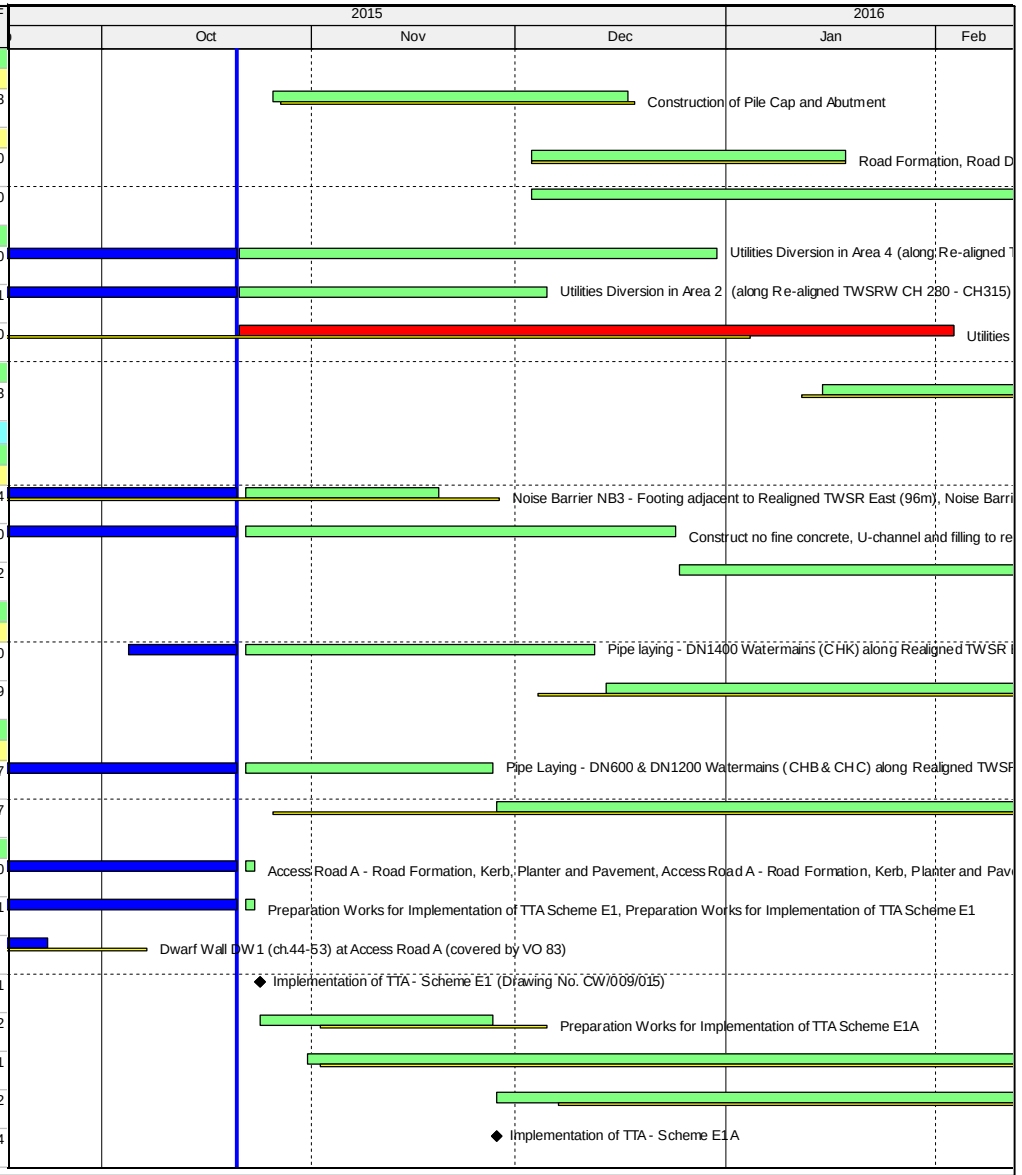
	TWSRW Zone 8 betweeen CH640 and CH695					
	Kiu Tau Footbridge Reprovision (West)					
TWSRW-8020	Construction of Pile Cap and Abutment	46	46	26-Oct-15	17-Dec-15	33
	At-Grade Roadworks					
TWSRW-8120	Road Formation, Road Drainage, Kerb and Pavement	37	37	03-Dec-15	18-Jan-16	0
TWSRW-8110*	Pipe Laying - DN450 Watermains (CHA)	95	95	03-Dec-15	06-Apr-16	260
	Remainder of the Works					
TWSRW-9040*	Utilities Diversion in Area 4 (along Re-aligned TWSRW CH530 - CH640)	233	71	28-Jan-15 A	30-Dec-15	0
TWSRW-9020*	Utilities Diversion in Area 2 (along Re-aligned TWSRW CH 280 - CH315)	111	46	21-Jul-15 A	05-Dec-15	1
TWSRW-9030	Utilities Diversion in Area 3 (along existing TWSRW, Approx. 150m) (by utilities undertakers)	106	106	21-Oct-15	03-Feb-16	-30
	Remaining Works for Noise Barrier along realigned TWSR West					
TWSRW-NB-140	Noise Barrier Steelworks & Panel for NB2 at Zone 5	30	30	15-Jan-16	25-Feb-16	153
	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-1120	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m)	110	25	29-Dec-14 A	19-Nov-15	324
TWSRE-1150	Construct no fine concrete, U-channel and filling to required level for pipe laying works	30	55	06-Jan-15 A	24-Dec-15	190
TWSRE-1140*	Pipe laying - DN1400 Watermains (CHKA) along Realigned TWSR East	90	90	25-Dec-15	23-Mar-16	242
	TWSRE Zone 2 between CH270 and CH380					
	At-Grade Roadworks					
TWSRE-2030B*	Pipe laying - DN1400 Watermains (CHK) along Realigned TWSR East	55	45	05-Oct-15 A	12-Dec-15	200
TWSRE-2040	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement	90	90	14-Dec-15	11-Apr-16	279
	TWSRE Zone 3 between CH380 and CH456					
	At-Grade Roadworks					
TWSRE-3020A*	Pipe Laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR East	78	32	07-Jul-15 A	27-Nov-15	217
TWSRE-3040	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement (Incl. FL/F10)	165	165	28-Nov-15	25-Jun-16	217
	Roundabout A, Slip Road and Access Road					
TWSRE-4060B	Access Road A - Road Formation, Kerb, Planter and Pavement	44	2	22-Jun-15 A	23-Oct-15	0
TWSRE-4080	Preparation Works for Implementation of TTA Scheme E1	42	2	24-Jun-15 A	23-Oct-15	1
TWSRE-4100B	Dwarf Wall DW1 (ch.44-53) at Access Road A (covered by VO 83)	40	0	22-Aug-15 A	23-Sep-15 A	
TWSRE-4090	Implementation of TTA - Scheme E1 (Drawing No. CW/009/015)	0	0	24-Oct-15		1
TWSRE-4110	Preparation Works for Implementation of TTA Scheme E1A	30	30	24-Oct-15	27-Nov-15	142
TWSRE-4070	Roundabout A - Road Formation, Kerb, Planter and Pavement	90	90	31-Oct-15	23-Feb-16	1
TWSRE-4030B	Slip Road Y (CH100-CH230) - Road Formation, Remaining Road Drainage, Kerb, Planter and Pavement	120	120	28-Nov-15	30-Apr-16	142
TWSRE-4120	Implementation of TTA - Scheme E1A	0	0	28-Nov-15*		184



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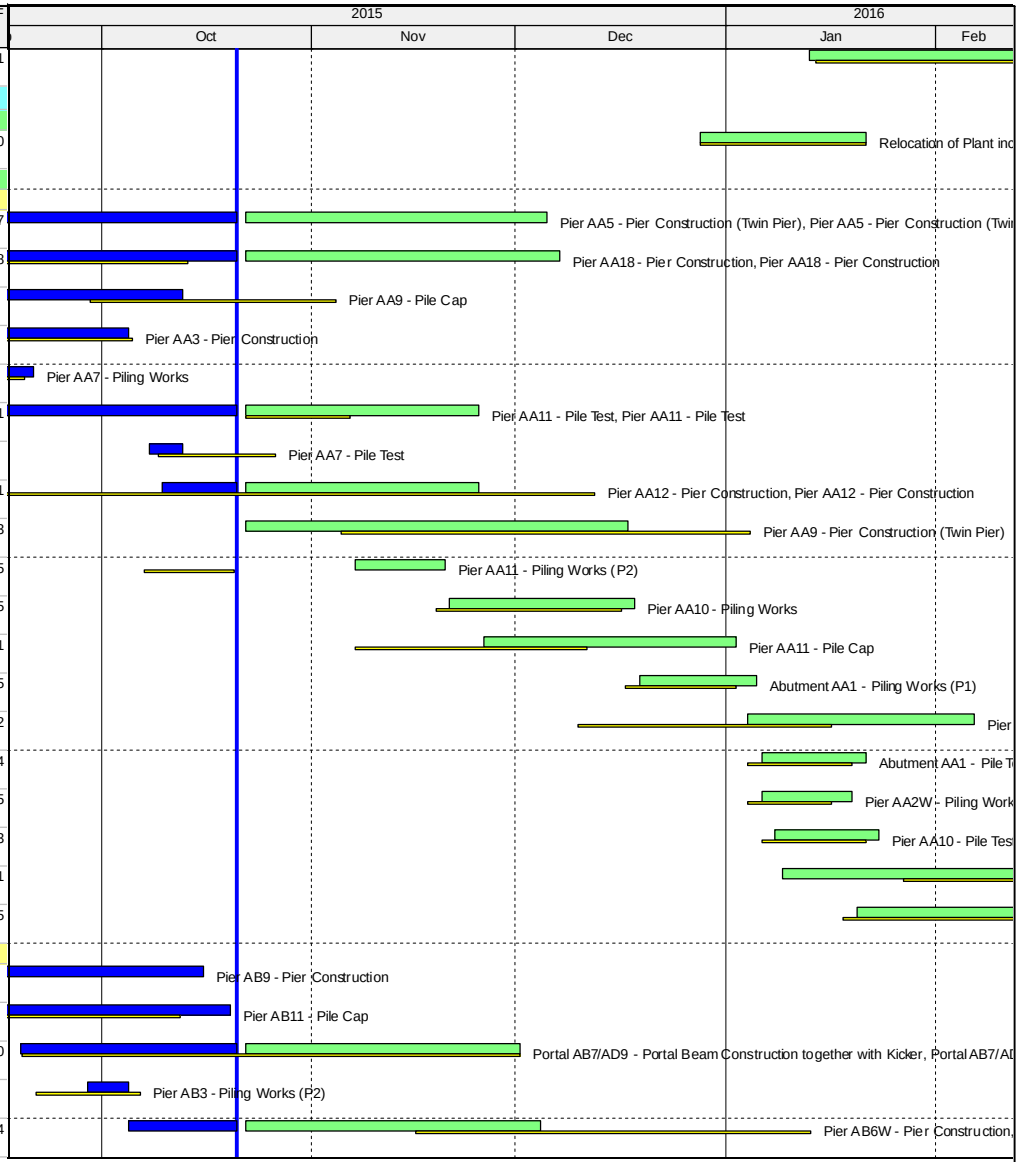
TWSRE-4020	Slip Road Y (CH260-CH404) - Road Formation, Road Drainage, Kerb, Planter and Pavement	108	108	13-Jan-16	31-May-16	1
Stage 1C - Viaduct Structure & TCSS Civil Provisions (KD-9)						
Preliminaries						
B-3050	Relocation of Plant including Pre-drilling Works	21	21	28-Dec-15	21-Jan-16	90
Foundation & Pier Construction						
Bridge A						
BA-05-1030	Pier AA5 - Pier Construction (Twin Pier)	27	39	29-Oct-14 A	05-Dec-15	47
BA-18-1030	Pier AA18 - Pier Construction	56	40	08-May-15 A	07-Dec-15	38
BA-09-1020	Pier AA9 - Pile Cap	30	0	13-Aug-15 A	13-Oct-15 A	
BA-03-1030	Pier AA3 - Pier Construction	35	0	17-Aug-15 A	05-Oct-15 A	
BA-07-1000	Pier AA7 - Piling Works	24	0	29-Aug-15 A	21-Sep-15 A	
BA-11-1010	Pier AA11 - Pile Test	14	30	14-Sep-15 A	25-Nov-15	11
BA-07-1010	Pier AA7 - Pile Test	14	0	08-Oct-15 A	13-Oct-15 A	
BA-12-1030	Pier AA12 - Pier Construction	35	30	10-Oct-15 A	25-Nov-15	21
BA-09-1030	Pier AA9 - Pier Construction (Twin Pier)	49	49	22-Oct-15	17-Dec-15	63
BA-11-1000B	Pier AA11 - Piling Works (P2)	12	12	07-Nov-15	20-Nov-15	5
BA-10-1000	Pier AA10 - Piling Works	24	24	21-Nov-15	18-Dec-15	5
BA-11-1020	Pier AA11 - Pile Cap	30	30	26-Nov-15	02-Jan-16	11
BA-01-1000b	Abutment AA1 - Piling Works (P1)	12	12	19-Dec-15	05-Jan-16	5
BA-07-1020	Pier AA7 - Pile Cap	30	30	04-Jan-16	06-Feb-16	22
BA-01-1010	Abutment AA1 - Pile Test	14	14	06-Jan-16	21-Jan-16	224
BA-02-1000	Pier AA2W - Piling Works	12	12	06-Jan-16	19-Jan-16	5
BA-10-1010	Pier AA10 - Pile Test	14	14	08-Jan-16	23-Jan-16	23
BA-11-1030	Pier AA11 - Pier Construction	35	35	09-Jan-16	25-Feb-16	21
BA-08-1000	Pier AA8 - Piling Works	24	24	20-Jan-16	23-Feb-16	5
Bridge B						
BB-09-1030	Pier AB9 - Pier Construction	24	0	17-Jul-15 A	16-Oct-15 A	
BB-11-1020	Pier AB11 - Pile Cap	30	0	29-Aug-15 A	20-Oct-15 A	
BB-07-1040	Portal AB7/AD9 - Portal Beam Construction together with Kicker	60	35	19-Sep-15 A	01-Dec-15	0
BB-03-1000B	Pier AB3 - Piling Works (P2)	12	0	29-Sep-15 A	05-Oct-15 A	
BB-06-1040	Pier AB6W - Pier Construction	48	38	05-Oct-15 A	04-Dec-15	34



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3-Month Rolling Programme

Programme ID: 3MPR027 (Data Date: 21-Oct-15)

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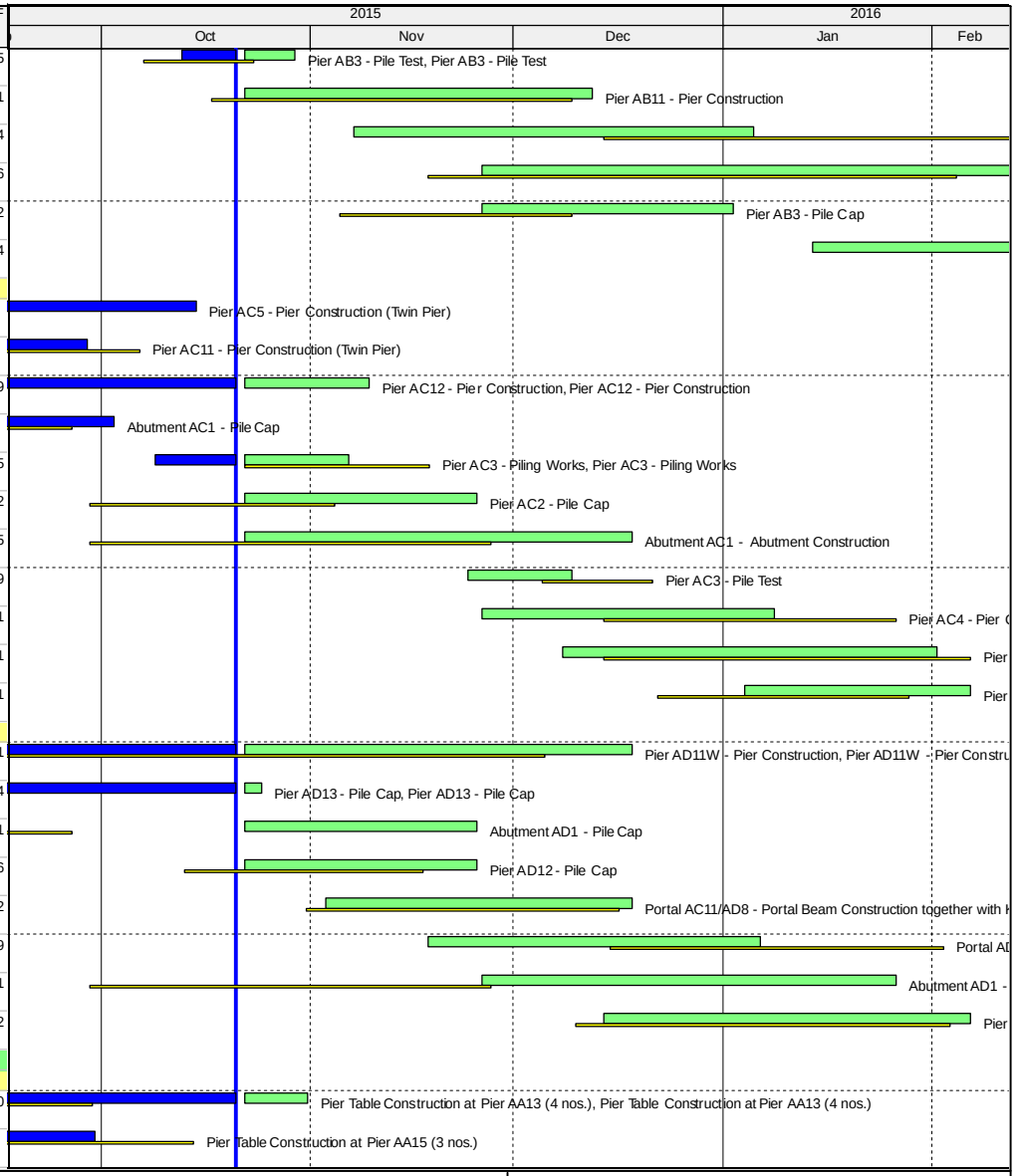
3-Month Rolling Programme updated to 2015-10-20

Date	Revision	Checked	Approved
20-Oct-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
BB-03-1010	Pier AB3 - Pile Test	14	7	13-Oct-15 A	29-Oct-15	45
BB-11-1030	Pier AB11 - Pier Construction	45	45	22-Oct-15	12-Dec-15	11
BB-06-1030	Pier AB6E - Pier Construction	48	48	07-Nov-15	05-Jan-16	34
BB-12-1020	Abutment AB12/AD14 - Pile Cap	65	65	26-Nov-15	19-Feb-16	26
BB-03-1020	Pier AB3 - Pile Cap	30	30	26-Nov-15	02-Jan-16	22
BB-06-1050	Portal AB6 - Portal Beam Construction together with Kicker	40	40	14-Jan-16	07-Mar-16	34
Bridge C						
BC-05-1030	Pier AC5 - Pier Construction (Twin Pier)	38	0	22-Dec-14 A	15-Oct-15 A	
BC-11-1030	Pier AC11 - Pier Construction (Twin Pier)	55	0	27-May-15 A	29-Sep-15 A	
BC-12-1030	Pier AC12 - Pier Construction	28	16	10-Jun-15 A	09-Nov-15	59
BC-01-1020	Abutment AC1 - Pile Cap	49	0	03-Aug-15 A	03-Oct-15 A	
BC-03-1000	Pier AC3 - Piling Works	24	14	09-Oct-15 A	06-Nov-15	5
BC-02-1020	Pier AC2 - Pile Cap	30	30	22-Oct-15	25-Nov-15	22
BC-01-1030	Abutment AC1 - Abutment Construction	50	50	22-Oct-15	18-Dec-15	305
BC-03-1010	Pier AC3 - Pile Test	14	14	24-Nov-15	09-Dec-15	29
BC-04-1030	Pier AC4 - Pier Construction	35	35	26-Nov-15	08-Jan-16	21
BC-02-1030	Pier AC2 - Pier Construction	45	45	08-Dec-15	01-Feb-16	131
BC-03-1020	Pier AC3 - Pile Cap	30	30	04-Jan-16	06-Feb-16	11
Bridge D						
BD-11-1040	Pier AD11W - Pier Construction	84	50	26-Aug-15 A	18-Dec-15	101
BD-13-1020	Pier AD13 - Pile Cap	30	3	02-Sep-15 A	24-Oct-15	74
BD-01-1020	Abutment AD1 - Pile Cap	30	30	22-Oct-15	25-Nov-15	11
BD-12-1020	Pier AD12 - Pile Cap	30	30	22-Oct-15	25-Nov-15	26
BD-08-1040	Portal AC11/AD8 - Portal Beam Construction together with Kicker	40	40	03-Nov-15	18-Dec-15	52
BD-09-1040	Portal AD9/AC12 - Portal Beam Construction together with Kicker	40	40	18-Nov-15	06-Jan-16	59
BD-01-1030	Abutment AD1 - Abutment Construction	50	50	26-Nov-15	26-Jan-16	261
BD-13-1030	Pier AD13 - Pier Construction	45	45	14-Dec-15	06-Feb-16	32
Pier Table Construction						
Bridge A						
PA-1130	Pier Table Construction at Pier AA13 (4 nos.)	50	9	25-Jul-15 A	31-Oct-15	10
PA-1150	Pier Table Construction at Pier AA15 (3 nos.)	50	0	27-Aug-15 A	30-Sep-15 A	



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
- Actual Level of Effort
- Project Baseline Bar

CEDD Contract No. CV/2012/09

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

3-Month Rolling Programme

Programme ID: 3MPR027 (Data Date: 21-Oct-15)

3-Month Rolling Programme updated to 2015-10-20

Date	Revision	Checked	Approved
20-Oct-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
PA-1160	Pier Table Construction at Pier AA16 (3 nos.)	50	34	13-Oct-15 A	30-Nov-15	0
PA-1170	Pier Table Construction at Pier AA17 (3 nos.)	50	47	17-Oct-15 A	15-Dec-15	11
PA-1180	Pier Table Construction at Pier AA18 (4 nos.)	50	50	19-Dec-15	25-Feb-16	35
PA-1040	Pier Table Construction at Pier AA4 (3 nos.)	50	50	02-Jan-16	07-Mar-16	58
Bridge B						
PB-1100	Pier Table Construction at Pier AB10 (4 nos.) incl. in-situ cross head	50	32	21-Sep-15 A	27-Nov-15	2
PB-1080	Pier Table Construction at Portal AB8 (4 nos.)	37	17	08-Oct-15 A	10-Nov-15	0
PB-1070	Pier Table Construction at Portal AB7/AD9 (4 nos.)	28	28	02-Dec-15	06-Jan-16	0
PB-1110	Pier Table Construction at Pier AB11 (4 nos.) incl. in-situ cross head	40	40	07-Jan-16	29-Feb-16	0
Bridge C						
PC-1090	Pier Table Construction at Pier AC9 (3 nos.)	50	39	08-Oct-15 A	05-Dec-15	162
PC-1050	Pier Table Construction at Pier AC5 (4 nos.)	50	50	02-Nov-15	31-Dec-15	14
PC-1100	Pier Table Construction at Pier AC10 (3 nos.)	50	50	01-Dec-15	30-Jan-16	1
Bridge D						
PD-1050	Pier Table Construction at Pier AD5 (4 nos.)	50	0	28-Jul-15 A	10-Oct-15 A	
PD-1060	Pier Table Construction at Pier AD6 (3 nos.)	50	0	07-Sep-15 A	14-Oct-15 A	
PD-1100	Pier Table Construction at Pier AD10 (4 nos.) incl. in-situ cross head	40	39	06-Oct-15 A	05-Dec-15	63
PD-1040	Pier Table Construction at Pier AD4 (3 nos.)	50	50	22-Oct-15 A	18-Dec-15	35
PD-1070	Pier Table Construction at Pier AD7 (3 nos.)	50	50	16-Dec-15	22-Feb-16	17
PD-1080	Pier Table Construction at Portal AC11/AD8 (4 nos.)	20	20	19-Dec-15	14-Jan-16	52
PD-1090	Pier Table Construction at Portal AD9/AC12 (4 nos.)	28	28	15-Jan-16	23-Feb-16	52
Viaduct Bridge Segement Erection						
Bridge A						
EA-1150	Bridge Deck Construction at Pier AA15 by Typical Lifting Frame (16 nos + 1 no. key segment)	11	6	09-Oct-15 A	28-Oct-15	1126
EA-1130	Bridge Deck Construction at Pier AA13 by Typical Lifting Frame (22 nos + 1 no. key segment)	15	15	13-Nov-15	30-Nov-15	4
EA-1160	Bridge Deck Construction at Pier AA16 by Typical Lifting Frame (24 nos + 1 no. key segment)	13	13	05-Dec-15	19-Dec-15	0
EA-1170	Bridge Deck Construction at Pier AA17 by Typical Lifting Frame (14 nos + 1 no. key segment)	15	15	06-Jan-16	22-Jan-16	0
Bridge B						
EB-1080	Bridge Deck Construction at Portal AB8 by Special Lifting Frame & Crane (26 nos)	12	12	16-Nov-15	28-Nov-15	0
EB-1100	Bridge Deck Construction at Pier AB10 by Special Lifting Frame (54 nos in which 12 nos above MTRCL Railway)	72	72	01-Dec-15	03-Mar-16	0
EB-1070	Bridge Deck Construction at Pier AB7 by Crane (26 nos + 2 no. key segment)	20	20	07-Jan-16	29-Jan-16	68
Bridge C						

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

3-Month Rolling Programme

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Date	Revision	Checked	Approved
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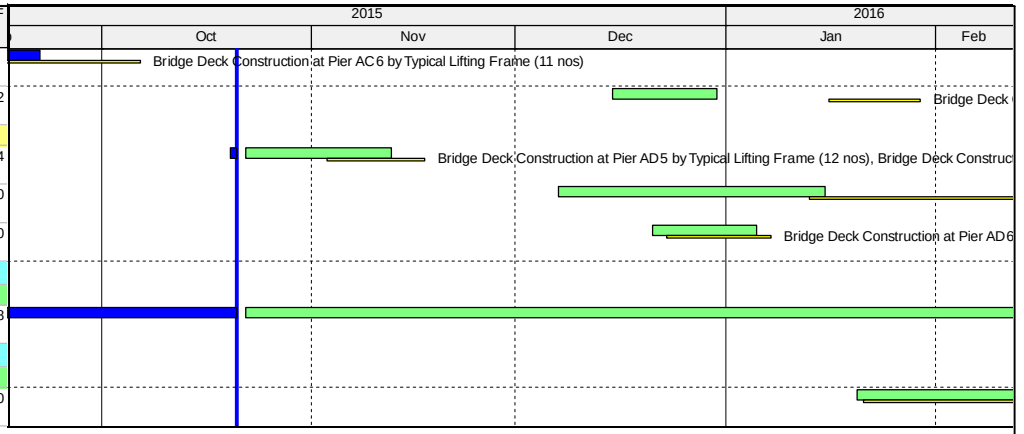
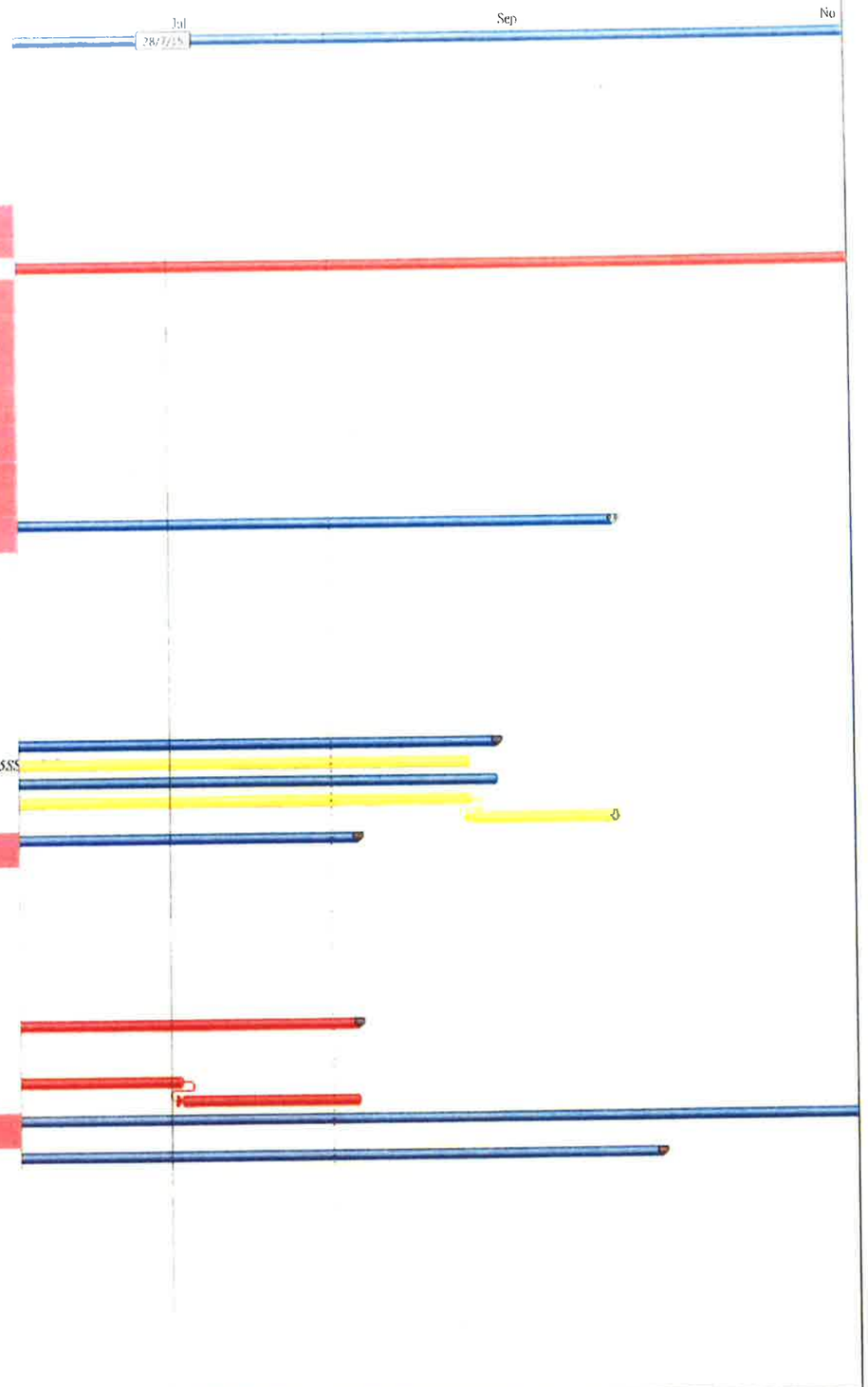
Activity ID	Activity Name	OD	RD	Start	Finish	TF
EC-1060	Bridge Deck Construction at Pier AC6 by Typical Lifting Frame (11 nos)	18	0	15-Sep-15 A	22-Sep-15 A	
EC-1090	Bridge Deck Construction at Pier AC9 by Crane (21 nos + 1 no. key segment)	12	12	15-Dec-15	30-Dec-15	162
Bridge D						
ED-1050	Bridge Deck Construction at Pier AD5 by Typical Lifting Frame (12 nos)	13	19	20-Oct-15 A	12-Nov-15	4
ED-1100	Bridge Deck Construction at Portal AD10 by Crane (52 nos)	32	32	07-Dec-15	15-Jan-16	80
ED-1060	Bridge Deck Construction at Pier AD6 by Typical Lifting Frame (18 nos + 1 no. key segment)	11	11	21-Dec-15	05-Jan-16	0
Section VI - Works in Portion FH9 (KD-6A)						
Major Works						
S6-2000*	Construction of Abutment AB12/AD14 (including Piling, Pile Cap & Abutment construction)	276	170	06-Feb-15 A	24-May-16	158
Landscaping & Establishment Works (KD-4, 4A, 5, 5A, 6)						
Secton III - Remainder of Landscaping Softworks Not Included in Secton IIIA						
S3-1000	Transplanting along Realigned TWSR West	120	120	20-Jan-16	22-Jun-16	360

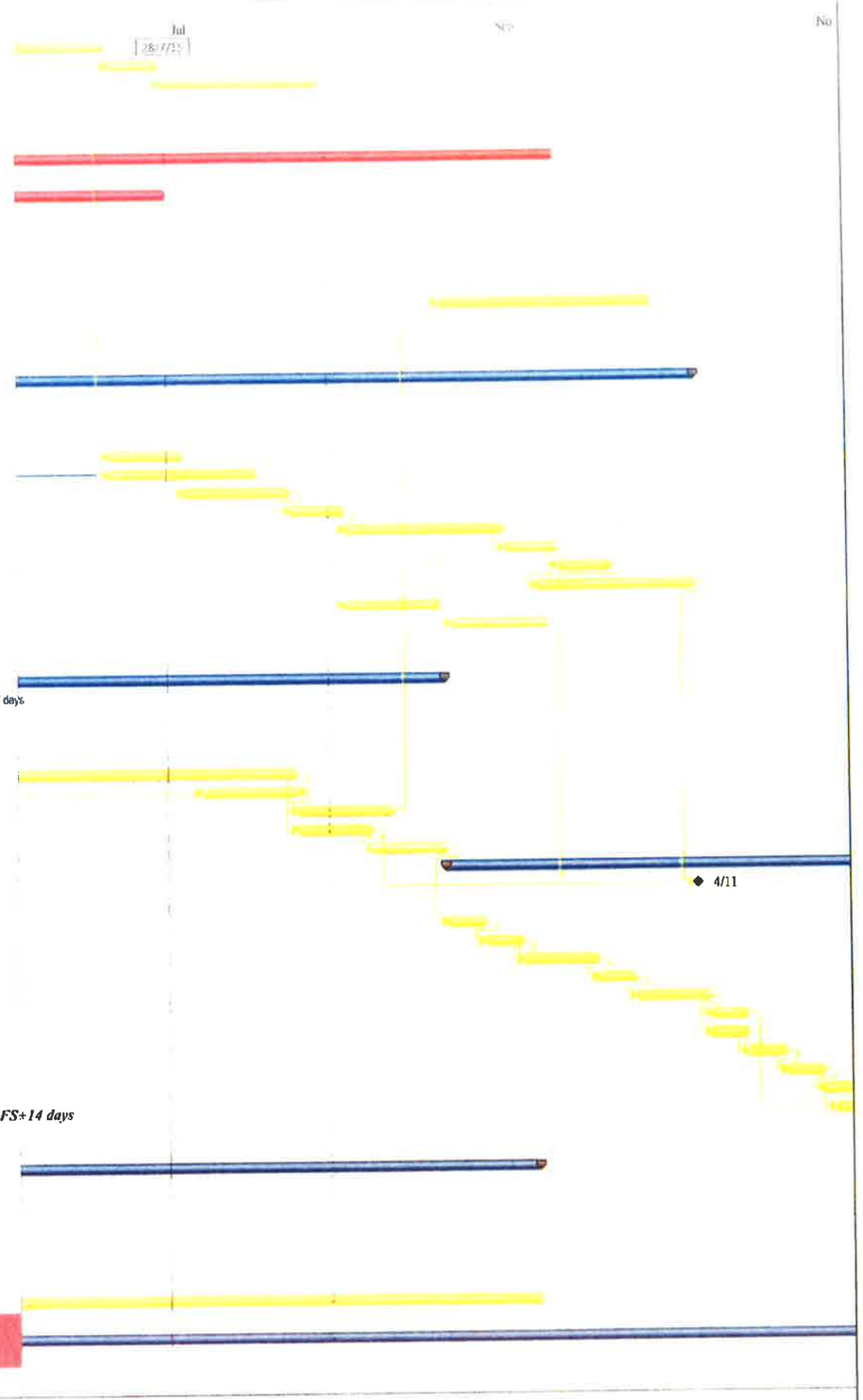


Contract 5

ID	WBS	Task Name	Duration	Start	Finish	Predecessors
1	1	Key Dates	1110 days	Thu 28/3/13	Sun 10/4/16	
47	2	Preliminaries and Statuary / Contractual Submissions	424 days	Thu 11/4/13	Mon 9/6/14	4
48	2.1	Site Establishment	399 days	Thu 11/4/13	Thu 15/5/14	
53	2.2	Applications to Government Department	89 days	Fri 12/4/13	Tue 9/7/13	
58	2.3	Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd	131 days	Fri 12/4/13	Tue 20/8/13	
63	2.4	Liaison with Utility Undertakers	363 days	Fri 12/4/13	Wed 9/4/14	
66	2.5	Environmental Baseline & Impact Monitoring	132 days	Thu 11/4/13	Wed 21/8/13	
77	2.6	General Site Clearance	424 days	Fri 12/4/13	Mon 9/6/14	5SS
78	3	Stage of the Works	180 days	Thu 11/4/13	Mon 7/10/13	
79	3.1	Stage I of the Works - Temporary vehicular bridge B and temporary Lin Ma Hang Road	179 days	Fri 12/4/13	Mon 7/10/13	4
90	3.2	Stage II of the Works - Temporary ArchSD Depot (LMH2)	78 days	Thu 11/4/13	Thu 27/6/13	
94	4	Section of the Works	1511 days	Fri 12/4/13	Wed 31/5/17	
95	4.1	Section I of the Works - Ground Investigation field works (Drg. 7101A-7111A)	251 days	Thu 30/5/13	Tue 4/2/14	74SS+13 days
100	4.2	Section II of the Works - All laboratory tests for Section I	188 days	Sat 31/8/13	Thu 6/3/14	97
105	4.3	Section III of the Works - Site formation works for Portions RS1, RS2 & RS3 (seek for certificate of completion in letter ref. SRJV/W47/SO/35/1308/00416 dated 23/8/2013)	89 days	Sun 12/5/13	Thu 8/8/13	24,25,26
111	4.4	Section IV of the Works - Village house within portion RS4 - EOT3 completion 15/5/2014	399 days	Fri 12/4/13	Thu 15/5/14	4
123	4.5	Section V of the Works-All works within portion RS4 exclude Section IV - EOT8 completion 28/4/2015	747 days	Fri 12/4/13	Tue 28/4/15	4
140	4.6	Section VII of the Works - All works within Area CRD	249 days	Mon 9/9/13	Thu 15/5/14	8
177	4.7	Section VIII of the Works - All works within Area BCPA - EOT6 completion 2/1/2015	571 days	Tue 11/6/13	Fri 2/1/15	6,7,18
211	4.8	Section IX of the Works - All works within Area BCPB - EOTO7 completion 19 October 2015	669 days	Fri 20/12/13	Mon 19/10/15	7
212	4.8.1	Claim No. 009 - Delays due to Delayed Possession of Portion BCP4 of the Site - Orginal 7/3/2014 and possessed on 25/9/2014	0 days	Fri 26/9/14	Fri 26/9/14	181
213	4.8.2	Submission for demolition of existing building structures	37 days	Fri 20/12/13	Sat 25/1/14	
214	4.8.3	Approval of submission for demolish existing building structures	41 days	Sun 26/1/14	Fri 7/3/14	213
215	4.8.4	Demolition of existing building structures UPON instruction (included Asbestos Investigation, Report & Asbestos Abatement Plan)	76 days	Fri 3/10/14	Wed 17/12/14	212FS+7 days,214
216	4.8.5	Tree felling/removal works and tree transplanting works at BCP4 (include tree survey etc)	139 days	Fri 26/9/14	Wed 11/2/15	738SS
217	4.8.6	Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident (NOT YET)	0 days	Wed 14/1/15	Wed 14/1/15	181
218	4.8.7	Site formation works	330 days	Sun 2/11/14	Sun 27/9/15	
219	*4.8.7.1*	*site formation works (surrounding areas B1-3,B5-6, B9)*	*200 days*	*Sat 7/3/15*	*Tue 22/9/15*	*217FS+52 days,215SS*
220	4.8.7.2	site formation works (area BCP4 - B4,7,8,10-B17)	330 days	Sun 2/11/14	Sun 27/9/15	215FS-46 days
221	*4.8.7.3*	*site formation works (B18-B22)*	*200 days*	*Sat 7/3/15*	*Tue 22/9/15*	*219SS*
222	*4.8.8*	*chain link fence (Drg.1002C, 1032B, 1033B)*	*27 days*	*Wed 23/9/15*	*Mon 19/10/15*	*221*
223	4.9	Section X of the Works - All works within Area BCPC - (Outstanding Works for SBF)	454 days	Thu 5/6/14	Tue 1/9/15	8
224	4.9.1	ISSUED EOT5	125 days	Thu 5/6/14	Tue 7/10/14	
225	4.9.2	Claim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion A) (from Area C8 to D2)	0 days	Tue 16/9/14	Tue 16/9/14	180
226	4.9.3	Received Variation Order No. 035 for CLP Substation	0 days	Mon 21/7/14	Mon 21/7/14	
227	4.9.4	Filling Works, Drainage & Irrigation System	21 days	Tue 16/9/14	Mon 6/10/14	
229	4.9.5	South West Works for CLP Sub-Station (VO No. 035) (Area C1, C3, C4, C5, C6)	64 days	Mon 4/8/14	Mon 6/10/14	
233	4.9.6	Handing over CLP Substation Area	0 days	Tue 7/10/14	Tue 7/10/14	228FS+1 day
234	4.9.7	VO 073 for Secondary Boundary Fencing extend to BCPC	125 days	Thu 30/4/15	Tue 1/9/15	
235	4.9.7.1	Handing over from CLP for the extended area	0 days	Thu 30/4/15	Thu 30/4/15	
236	*4.9.7.2*	*Construction of Retaining Wall 2A*	*41 days*	*Sat 2/5/15*	*Thu 11/6/15*	*235FS+2 days*
237	4.9.7.3	Construction of soil cement / general fill slope adjacent to CLP Substation	90 days	Sat 2/5/15	Thu 30/7/15	235FS+2 days
238	4.9.7.4	Secondary Boundary Fencing ChA+125 to ChA+250 (Bay 17 to 32)	33 days	Fri 31/7/15	Tue 1/9/15	237
239	4.10	Section XI of the Works - All works within Area BCPD	514 days	Mon 14/7/14	Wed 9/12/15	
240	4.10.1	South West Works for additional 132kV (at Areas D1 & D2) at BCPD	439 days	Fri 15/8/14	Tue 27/10/15	
241	4.10.1.1	fill platform for CLP (132kV) from +12.8 to +15.3	47 days	Fri 15/8/14	Tue 30/9/14	
242	4.10.1.2	UU for erection of overhead post & termination of electricity by CLP(132kV)(Area D2)	28 days	Tue 14/10/14	Mon 10/11/14	241FS+13 days
243	*4.10.1.3*	***Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident - confirmed to possess on 14/1/2015***	*1 day*	*Wed 14/1/15*	*Wed 14/1/15*	*217*
244	4.10.1.4	site clearance, take initial survey	10 days	Thu 15/1/15	Sat 24/1/15	243
245	4.10.1.5	tree felling / transplant	14 days	Sun 25/1/15	Sat 7/2/15	244
246	4.10.1.6	assume filling partly areas D1 & D2 to +13.5 for drain	20 days	Sun 8/2/15	Fri 27/2/15	245
247	4.10.1.7	PVO Construct Special Manhole No 9937	60 days	Sat 28/2/15	Tue 28/4/15	246
248	4.10.1.8	Inv sewer FHM511 to 515	45 days	Wed 29/4/15	Fri 12/6/15	247



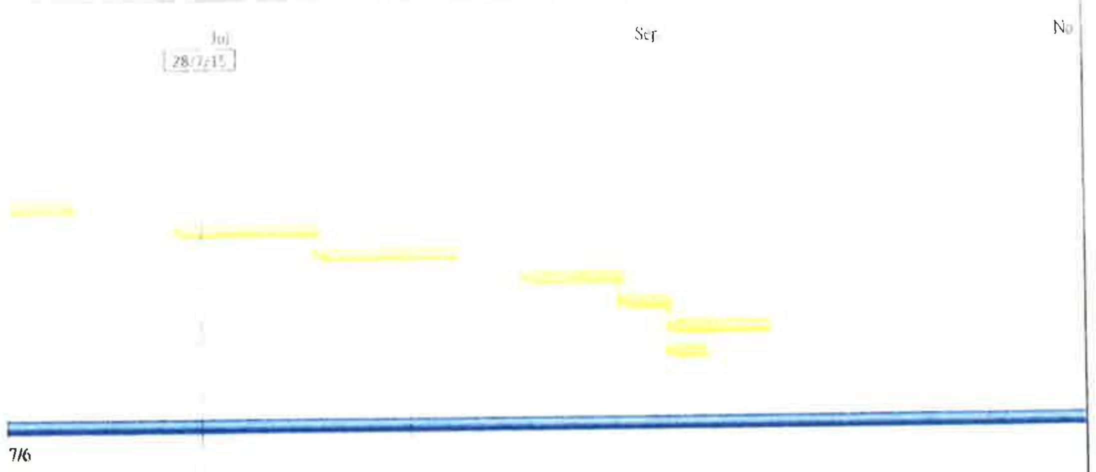
ID	WBS	Task Name	Duration	Start	Finish	Predecessors
249	4.10.1.9	lay sewer STP-FMH520 & 515	35 days	Sat 13/6/15	Fri 17/7/15	248
250	4.10.1.10	fill trench from laid sewer to drainage formation	10 days	Sat 18/7/15	Mon 27/7/15	249
251	4.10.1.11	lay drainage SMH9961 to 9966 & 9938 to 9937	30 days	Tue 28/7/15	Wed 26/8/15	250
252	4.10.1.12	filling of areas D1 & D2 to +15.3 with D2 soil cement slope	35 days	Wed 29/4/15	Tue 2/6/15	247
253	4.10.1.13	Confirmation of Alignment for Secondary Boundary Fencing	35 days	Mon 29/12/14	Sun 1/2/15	
254	4.10.12	Secondary Boundary Fencing Ch0 to Ch709 (Bay 1 to 92)	250 days	Mon 2/2/15	Fri 9/10/15	253
255	4.10.1.15	Secondary Boundary Fencing Ch709 to Ch1234 (Bay 98 to 158)	177 days	Mon 2/2/15	Tue 28/7/15	253
256	4.10.1.16	Secondary Boundary Fencing Ch1234 to Ch1436 (Bay 159 to 184)	70 days	Thu 26/2/15	Wed 6/5/15	253FS+24 days
257	4.10.1.17	Secondary Boundary Fencing ChA0 to ChA125 (Bay 1 to 16)	40 days	Mon 27/4/15	Fri 5/6/15	256FS-10 days
258	4.10.1.18	Secondary Boundary Fencing Ch1436 to Ch1520 (Bay 185 to 197)	40 days	Fri 18/9/15	Tue 27/10/15	283FS+9 days
259	4.10.1.19	irrigation system at west D1 & D2	7 days	Wed 3/6/15	Tue 9/6/15	252
260	4.10.1.20	additional 132kV (at Areas D1 & D2)	7 days	Wed 10/6/15	Tue 16/6/15	259
261	4.10.2	**South West Works for Areas D1 & D2**	**398 days**	**Fri 3/10/14**	**Wed 4/11/15**	
262	4.10.2.1	site clearance, take initial survey	10 days	Fri 3/10/14	Sun 12/10/14	181FS+7 days
263	4.10.2.2	tree felling / transplant	25 days	Mon 13/10/14	Thu 6/11/14	262
264	4.10.2.3	fill trench to formation for Plug-FMH501-502-STP (approx. to +11)	20 days	Fri 7/11/14	Wed 26/11/14	263
265	4.10.2.4	*lay sewer Plug-FMH501-502-STP*	14 days	Sat 18/7/15	Fri 31/7/15	249,280
266	4.10.2.5	*complete filling for Areas D1 & D2 to formation area*	28 days	Sat 18/7/15	Fri 14/8/15	263FS-7 days,265SS
267	4.10.2.6	*lay drainage SMH9941 to 9943-9931*	20 days	Sat 1/8/15	Thu 20/8/15	265
268	4.10.2.7	*lay drainage SMH9952 to 9953*	10 days	Fri 21/8/15	Sun 30/8/15	267,260SS-5 days
269	4.10.2.8	*lay drainage SMH9930 to 9935*	30 days	Mon 31/8/15	Tue 29/9/15	268
270	4.10.2.9	*lay drainage SMH9702A to 9935*	10 days	Wed 30/9/15	Fri 9/10/15	269
271	4.10.2.10	*lay drainage CP25-SMH9701A-9902-9702A*	10 days	Sat 10/10/15	Mon 19/10/15	270
272	4.10.2.11	*lay drainage SMH9922 to 9930*	30 days	Tue 6/10/15	Wed 4/11/15	271FS-14 days
273	4.10.2.12	*water pipe DN250 CHL 150 to 335 749*	18 days	Mon 31/8/15	Thu 17/9/15	268
274	4.10.2.13	*rising main CHC*	18 days	Sun 20/9/15	Wed 7/10/15	269FS-10 days
275	4.10.3	**Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident**	**0 days**	**Wed 14/1/15**	**Wed 14/1/15**	**217**
276	4.10.4	**South West Work for Construction of Depressed Road**	**223 days**	**Sun 8/2/15**	**Fri 18/9/15**	
277	4.10.4.1	UU for 11kV & LV lay ducts across & underneath underpass	1 day	Mon 2/3/15	Mon 2/3/15	241FS+42 days,275FS+47 days
278	4.10.4.2	structural work for Bay 16015-16012	40 days	Sun 8/2/15	Thu 19/3/15	245
279	4.10.4.3	structural work for Bay 16011-16008	60 days	Tue 10/3/15	Fri 8/5/15	278FS-10 days
280	4.10.4.4	structural work for Bay 16007-16004	55 days	Wed 29/4/15	Mon 22/6/15	279FS-10 days
281	4.10.4.5	structural work for Bay 16003-16001	60 days	Tue 23/6/15	Fri 21/8/15	280
282	4.10.4.6	drainage work inside depressed road (Bay 16015-16008)	18 days	Tue 4/8/15	Fri 21/8/15	279,281FF
283	4.10.4.7	drainage work inside depressed road (Bay 16007-16001)	18 days	Sat 22/8/15	Tue 8/9/15	281,282
284	4.10.4.8	backfill western side of depressed road	14 days	Sat 22/8/15	Fri 4/9/15	281
285	4.10.4.9	irrigation system next to depressed road	14 days	Sat 5/9/15	Fri 18/9/15	284
286	4.10.5	**South West Work for Access Road**	**82 days**	**Sat 19/9/15**	**Wed 9/12/15**	
287	4.10.5.1	completion of drainage SMH9922 to 9930, water pipe & rising main & backfill western side of depressed road	0 days	Wed 4/11/15	Wed 4/11/15	272,274,284
288	*4.10.5.2*	***UU for 132kV, 11kV & LV***	***7 days***	***Sat 19/9/15***	***Fri 25/9/15***	***285***
289	*4.10.5.3*	***UU for PCCW***	***7 days***	***Sat 26/9/15***	***Fri 2/10/15***	***288***
290	*4.10.5.4*	*backfill to road formation with SRT98%*	*14 days*	*Sat 3/10/15*	*Fri 16/10/15*	*289*
291	*4.10.5.5*	*sub-base laying*	*7 days*	*Sat 17/10/15*	*Fri 23/10/15*	*290*
292	*4.10.5.6*	*kerb bedding, laying & backing before bituminous material*	*14 days*	*Sat 24/10/15*	*Fri 6/11/15*	*291*
293	*4.10.5.7*	***AC - lay DBM & base course***	***7 days***	***Sat 7/11/15***	***Fri 13/11/15***	***292***
294	*4.10.5.8*	*backfill footpath formation*	*7 days*	*Sat 7/11/15*	*Fri 13/11/15*	*292*
295	*4.10.5.9*	*street lighting ducts, drawpits & controller*	*7 days*	*Sat 14/11/15*	*Fri 20/11/15*	*294*
296	*4.10.5.10*	***UU for CLP (lighting)***	***7 days***	***Sat 21/11/15***	***Fri 27/11/15***	***295***
297	*4.10.5.11*	*footpath paving*	*7 days*	*Sat 28/11/15*	*Fri 4/12/15*	*296*
298	*4.10.5.12*	***AC - lay wearing course***	***10 days***	***Mon 30/11/15***	***Wed 9/12/15***	***296FS+2 days,293FS+14 days***
299	4.10.6	**Claim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion B) (from Area D3 to D10)**	**0 days**	**Tue 12/8/14**	**Tue 12/8/14**	**179**
300	4.10.7	**Works at Areas D4 to D9 (shown in Section VIII)**	**449 days**	**Mon 14/7/14**	**Mon 5/10/15**	
301	4.10.7.1	Retaining Wall BCP/RW2B	92 days	Mon 14/7/14	Mon 13/10/14	182SS
316	4.10.7.2	install 150UPVC perforated pipe behind retaining wall	4 days	Fri 17/10/14	Mon 20/10/14	197SS
317	4.10.7.3	install geotextile filter & backfill D4, B6 & A4 to +15.0	28 days	Tue 21/10/14	Mon 17/11/14	198SS
318	4.10.7.4	site formation work for Areas D4 to D6	45 days	Tue 4/11/14	Thu 18/12/14	317FS-14 days
319	4.10.7.5	soil cement slopes for Areas D4 to D6	21 days	Fri 5/12/14	Thu 25/12/14	318FS-14 days
320	4.10.7.6	site formation work for Areas D7 to D9	60 days	Fri 19/12/14	Mon 16/2/15	319FS-7 days
321	*4.10.7.7*	*PVO - U/J-Channel along Patoral Road (approx. 1200m)*	*150 days*	*Sat 9/5/15*	*Mon 5/10/15*	
322	4.11	**Section XII of the Works - All works within Area LMH**	635 days	Thu 22/8/13	Mon 18/5/15	74
491	4.12	**Section XIII of the Works - Works not covered in any other Sections**	983 days	Thu 22/8/13	Sat 30/4/16	74
492	*4.12.1*	*Submissions*	*70 days*	*Thu 22/8/13*	*Wed 30/10/13*	



Revision 1
Fri 28/8/15

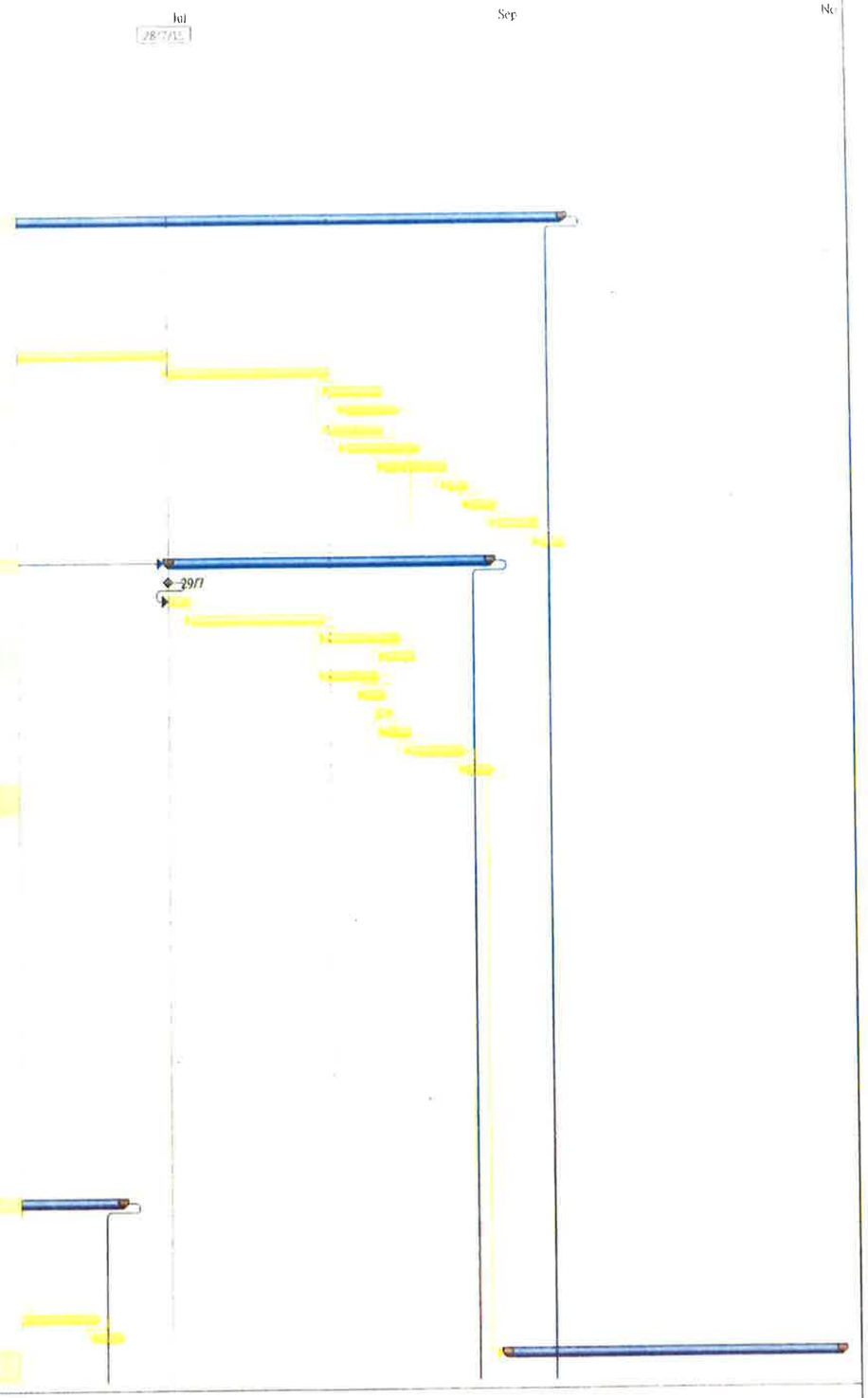
Task | Split | Milestone | Summary | Project Summary | Critical | Critical Split | Progress | Deadline

ID	WBS	Task Name	Duration	Start	Finish	Predecessors
493	4.12.2	*Approval of Submissions*	*68 days*	*Mon 16/9/13*	*Fri 22/11/13*	*492SS+25 days*
494	4.12.3	*VO.080 Additional Footpath adjacent to the Eastern Side of Tak Yuen Village, [illegible]*	*[illegible]*	*Tue 5/5/15*	*Tue 5/5/15*	
495	4.12.4	*Submissions*	*14 days*	*Wed 6/5/15*	*Tue 19/5/15*	*494*
496	4.12.5	*Approval of Submissions*	*7 days*	*Wed 20/5/15*	*Tue 26/5/15*	*495*
497	4.12.6	*Temporary works and excavation*	*20 days*	*Wed 27/5/15*	*Mon 15/6/15*	*496*
498	4.12.7	*Base slab*	*25 days*	*Tue 16/6/15*	*Fri 10/7/15*	*497SS+20 days*
499	4.12.8	*Wall Stem*	*20 days*	*Sun 26/7/15*	*Fri 14/8/15*	*498FS+15 days*
500	4.12.9	*Backfilling*	*20 days*	*Sat 15/8/15*	*Thu 3/9/15*	*499*
501	4.12.10	*DN150 watermain & Utilities Laying*	*14 days*	*Mon 14/9/15*	*Sun 27/9/15*	*500FS+10 days*
502	4.12.11	*Surfacing & U-Channel*	*7 days*	*Mon 28/9/15*	*Sun 4/10/15*	*501*
503	4.12.12	*Reinstatement of Gabion*	*14 days*	*Mon 5/10/15*	*Sun 18/10/15*	*502*
504	4.12.13	*Type 2 Railing*	*5 days*	*Mon 5/10/15*	*Fri 9/10/15*	*502*
505	4.12.14	**Temporary Traffic Arrangement (TTA) Scheme for Works at existing LMH Rd**	**92 days**	**Fri 23/8/13**	**Fri 22/11/13**	**492SS+1 day**
509	4.12.15	**Lin Ma Hang Road Widening Section**	**920 days**	**Thu 24/10/13**	**Sat 30/4/16**	
510	4.12.15.1	*PVO - Additional U-Channel along both Side of existing LMH Road 600m x 2) (Advanced works commenced)*	*0 days*	*Sat 27/6/15*	*Sat 27/6/15*	
511	4.12.15.2	**VO.061 Addition al Rising Main at LMH Road**	0 days	Wed 31/12/14	Wed 31/12/14	
512	4.12.15.3	**place order for HDPE pipes**	0 days	Tue 6/1/15	Tue 6/1/15	511FS+2 days
513	4.12.15.4	***arrival of HDPE pipes***	*80 days*	*Tue 6/1/15*	*Thu 26/3/15*	*512*
514	4.12.15.5	**RECEIVE VO 053 ADDITIONAL CROSS ROAD DUCTS FOR EXISTING IRRIGATION PIPES**	0 days	Tue 7/10/14	Tue 7/10/14	
515	4.12.15.6	**RECEIVE VO 062 CABLE DUCTS LAYING FOR PUBLIC LIGHTING SYSTEM AT LIN MA HANG ROAD**	**0 days**	**Tue 14/10/14**	**Tue 14/10/14**	
516	**4.12.15.7**	**1 Works from chainage 190 to chainage 380 (west side carriageway & footpath)**	**231 days**	**Sun 24/8/14**	**Sat 11/4/15**	
517	4.12.15.7.1	TTA for ch 310-380(west)	0 days	Sun 24/8/14	Sun 24/8/14	
518	4.12.15.7.2	*earthwork to lay drainage & waterwork*	*21 days*	*Sun 24/8/14*	*Sat 13/9/14*	*517*
519	4.12.15.7.3	*drainage & waterwork + backfill for CLP*	*45 days*	*Sun 14/9/14*	*Tue 28/10/14*	*518*
520	*4.12.15.7.4*	***VO053 - crossing no. 1(whole), 2 (west)***	*18 days*	***Wed 29/10/14***	***Sat 15/11/14***	***519,514***
521	*4.12.15.7.5*	***UU for ch 190-380 (132kV,11kV,LV)***	*19 days*	***Sun 16/11/14***	***Thu 4/12/14***	***520***
522	4.12.15.7.6	*filling works to formation of road (include SRT98%)*	*7 days*	*Fri 5/12/14*	*Thu 11/12/14*	*521*
523	4.12.15.7.7	*street lighting drawpits & crossroads*	*7 days*	*Fri 12/12/14*	*Thu 18/12/14*	*522*
524	4.12.15.7.8	*kerb bedding, laying & backing before bituminous material*	*9 days*	*Fri 19/12/14*	*Sat 27/12/14*	*523*
525	4.12.15.7.9	*filling works to formation of footpath*	*4 days*	*Sun 28/12/14*	*Wed 31/12/14*	*524*
526	*4.12.15.7.10*	***UU for CLP (lighting)***	*5 days*	***Thu 1/1/15***	***Mon 5/1/15***	***525***
527	*4.12.15.7.11*	***UU for ch 190-380 (PCCW)***	*7 days*	***Tue 6/1/15***	***Mon 12/1/15***	***526***
528	4.12.15.7.12	*irrigation system*	*7 days*	*Tue 13/1/15*	*Mon 19/1/15*	*527*
529	4.12.15.7.13	*preparation works to formation of footpath*	*3 days*	*Mon 19/1/15*	*Wed 21/1/15*	*528FS-1 day*
530	4.12.15.7.14	*footpath paving*	*9 days*	*Thu 22/1/15*	*Fri 30/1/15*	*529*
531	*4.12.15.7.15*	***VO.061 for renewal of rising main***	*6 days*	***Fri 27/3/15***	***Wed 1/4/15***	***513***
532	4.12.15.7.16	*sub-base laying for road*	*5 days*	*Thu 2/4/15*	*Mon 6/4/15*	*531*
533	*4.12.15.7.17*	***AC - lay DBM & base course***	*5 days*	***Tue 7/4/15***	**Sat 11/4/15**	***524,532***
534	**4.12.15.8**	**1 Works from chainage 380 to chainage 580 (west side carriageway & footpath)**	**402 days**	**Fri 22/11/13**	**Mon 29/12/14**	**505**
535	4.12.15.8.1	TTA for ch 380-580(west)	0 days	**Fri 22/11/13**	Fri 22/11/13	
536	4.12.15.8.2	watermain (include issue of alignment and laying)	120 days	Sat 23/11/13	Sat 22/3/14	535
537	4.12.15.8.3	drainage (pipe, manholes & gullies)	155 days	Sun 23/3/14	Sun 24/8/14	536
538	**4.12.15.8.4**	**Received Variation Order Nos. 040 & 042**	**0 days**	**Mon 28/4/14**	**Mon 28/4/14**	
539	**4.12.15.8.5**	**construct DN450mm pipe with concrete surround**	**28 days**	Mon 12/5/14	Sun 8/6/14	**537SS+50 days,538FS+14 days**
540	4.12.15.8.5.1	low stream pipe & catchpit at western side	28 days	Mon 12/5/14	Sun 8/6/14	
541	**4.12.15.8.6**	**construct 1900x950 box culvert with manholes SMH8052A & B**	**49 days**	Mon 9/6/14	Sun 27/7/14	**538,540**
542	4.12.15.8.6.1	support existing DN150mm sewer pipe & watermain	7 days	Mon 9/6/14	Sun 15/6/14	
543	4.12.15.8.6.2	construct box culvert	14 days	Mon 16/6/14	Sun 29/6/14	542
544	4.12.15.8.6.3	construct manholes	28 days	Mon 30/6/14	Sun 27/7/14	543
545	4.12.15.8.7	found existing cables affected construction of gullies & discuss with CLP	18 days	Sat 26/7/14	Tue 12/8/14	537FF-12 days,544FS-2 days
546	4.12.15.8.8	complete preparation work & fill footpath for 132kV, 11kV & LV	8 days	Wed 13/8/14	Wed 20/8/14	545
547	**4.12.15.8.9**	**UU - 132kV+11kV & LV**	**35 days**	**Thu 21/8/14**	**Wed 24/9/14**	546
548	4.12.15.8.10	temporary connection of cables	3 days	Thu 25/9/14	Sat 27/9/14	547
549	**4.12.15.8.11**	**960x650 box culvert (low stream & west catchpit)**	**7 days**	Sun 28/9/14	Sat 4/10/14	**548**
551	4.12.15.8.12	construct outstanding drainage & gullies	7 days	Wed 1/10/14	Tue 7/10/14	550FS-4 days
552	4.12.15.8.13	filling work to formation of road (include SRT98%)	5 days	Wed 8/10/14	Sun 12/10/14	551
553	*4.12.15.8.14*	***VO053 - crossing no. 3, 4 (west)***	***10 days***	**Mon 13/10/14**	**Wed 22/10/14**	*514FS+6 days*
554	4.12.15.8.15	*complete filling work to formation of road (include SRT98%)*	*5 days*	Thu 23/10/14	Mon 27/10/14	*553*
555	4.12.15.8.16	*street lighting drawpits & crossing at ch 523*	*4 days*	Mon 27/10/14	Thu 30/10/14	*554FS-1 day*
556	*4.12.15.8.17*	***UU for CLP (lighting)***	***5 days***	**Fri 31/10/14**	**Tue 4/11/14**	*555*

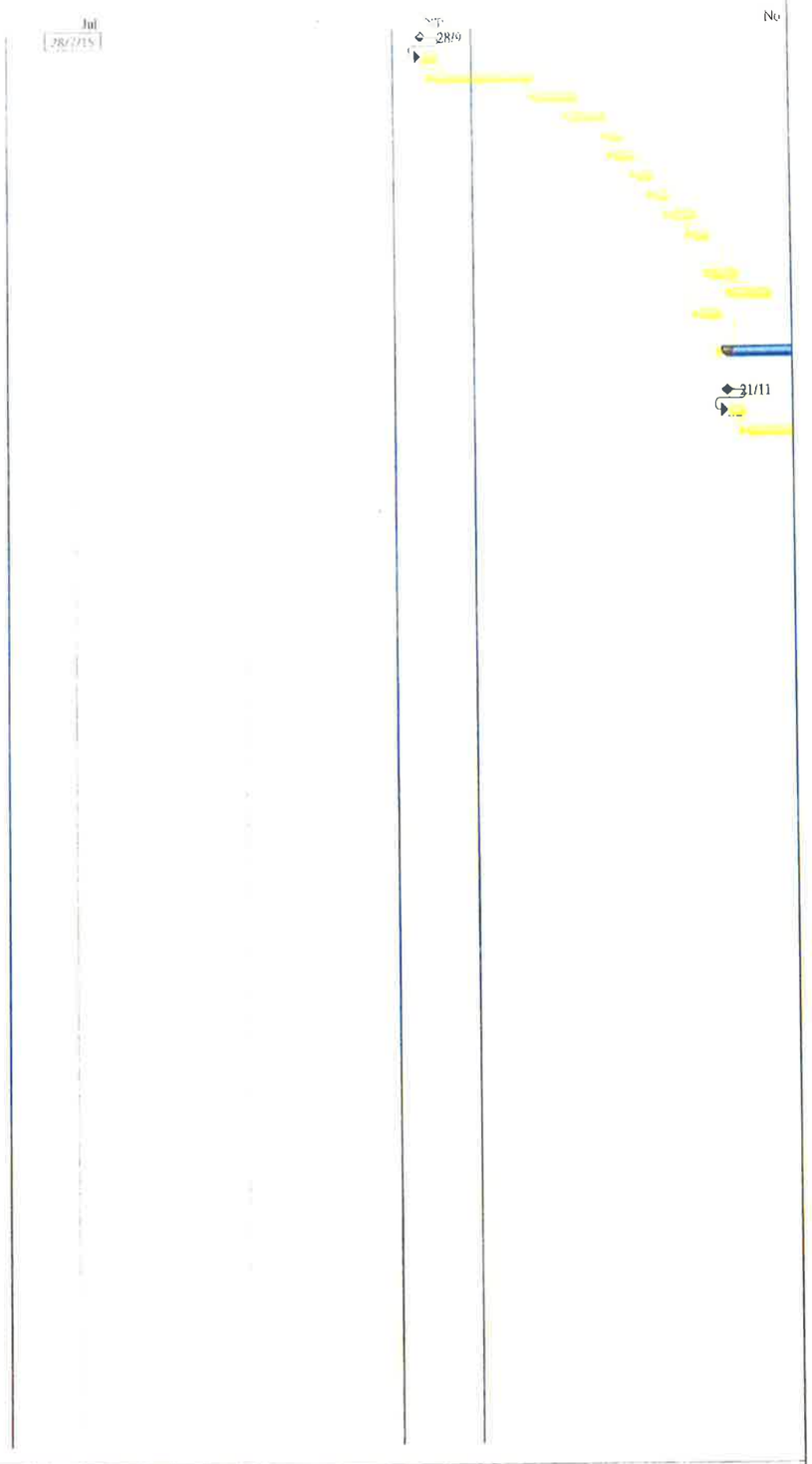


Revision 1 Fri 28/8/15	Task		Milestone	◆	Project Summary		Critical Split		Deadline	
	Split		Summary		Critical		Progress			

ID	WBS	Task Name	Duration	Start	Finish	Predecessors
557	4.12.15.8.18	*sub-base laying for road*	*4 days*	Wed 5/11/14	Sat 8/11/14	556
558	4.12.15.8.19	*kerb bedding, laying & backing before bituminous material*	*12 days*	Sat 8/11/14	Wed 19/11/14	557FS-1 day
559	4.12.15.8.20	*filling works to formation of footpath*	*5 days*	Thu 20/11/14	Mon 24/11/14	558
560	4.12.15.8.21	***UU for ch 380-580 (PCCW)***	***14 days***	**Tue 25/11/14**	**Mon 8/12/14**	*559*
561	4.12.15.8.22	*irrigation system*	*4 days*	Tue 9/12/14	Fri 12/12/14	*560*
562	4.12.15.8.23	*preparation works to formation of footpath*	*3 days*	Sat 13/12/14	Mon 15/12/14	*561*
563	4.12.15.8.24	*footpath paving*	*14 days*	Tue 16/12/14	Mon 29/12/14	*562*
564	4.12.15.8.25	***AC - lay DBM & base course***	***5 days***	**Thu 20/11/14**	**Mon 24/11/14**	*558*
565	4.12.15.9	**2 Works from ch 380-580 (east side carriageway)**	**318 days**	**Wed 26/11/14**	**Sat 10/10/15**	**564FS+2 days**
566	4.12.15.9.1	TTA for ch 380-580 (east)	0 days	**Wed 26/11/14**	Wed 26/11/14	
567	4.12.15.9.2	remove existing pavement	4 days	*Thu 27/11/14*	*Sun 30/11/14*	566
568	4.12.15.9.3	PVO: 2 nos. U-Channel Drainage Crossing	14 days	Mon 1/12/14	Sun 14/12/14	567
569	4.12.15.9.4	*VO.061 for rising main*	*40 days*	*Fri 27/3/15*	*Tue 5/5/15*	*513,568*
570	4.12.15.9.5	Waterworks - 150T FH, 150T Irrigation & 150T	14 days	Wed 6/5/15	Tue 19/5/15	569
571	4.12.15.9.6	VO053 - crossing no. 2, 3, 4, 5 (east)	20 days	Wed 13/5/15	Mon 1/6/15	570FS-7 days
572	4.12.15.9.7	*PVO - Revised Design of VO.061 for Rising Mains*	*40 days*	*Fri 19/6/15*	*Tue 28/7/15*	
573	4.12.15.9.8	***Re-construction: VO.061 for Rising Mains***	***30 days***	***Wed 29/7/15***	***Thu 27/8/15***	*572*
574	4.12.15.9.9	**Re-construction: Waterworks - 150T FH, 150T Irrigation & 150T	10 days	Fri 28/8/15	Sun 6/9/15	573
575	4.12.15.9.10	***Re-construction: RVO053 - crossing no. 2, 3, 4, 5 (east)***	***10 days***	***Mon 31/8/15***	***Wed 9/9/15***	***574FS-7 days***
576	4.12.15.9.11	**Re-construction: PVO: 2 nos. U-Channel Drainage Crossing	10 days	Fri 28/8/15	Sun 6/9/15	573
577	4.12.15.9.12	middle stream box culvert 960x650	*14 days*	*Mon 31/8/15*	*Sun 13/9/15*	*576FS-7 days*
578	4.12.15.9.13	middle stream DN450mm pipe	*12 days*	*Mon 7/9/15*	*Fri 18/9/15*	*577FS-7 days*
579	4.12.15.9.14	street light crossing at ch 523	*4 days*	*Sat 19/9/15*	*Tue 22/9/15*	*575,578*
580	4.12.15.9.15	SRT Formation level	5 days	Wed 23/9/15	Sun 27/9/15	579
581	4.12.15.9.16	sub-base & east kerbing	*8 days*	*Mon 28/9/15*	*Mon 5/10/15*	*575,580*
582	4.12.15.9.17	***AC - lay DBM & base course***	***5 days***	***Tue 6/10/15***	**Sat 10/10/15**	*581*
583	4.12.15.10	**3 Works from ch 190-380 (east side carriageway)**	**60 days**	**Wed 29/7/15**	**Sat 26/9/15**	**516FS+2 days**
584	4.12.15.10.1	TTA for ch 190-380 (east)	0 days	**Wed 29/7/15**	Wed 29/7/15	
585	4.12.15.10.2	remove existing pavement	*4 days*	*Wed 29/7/15*	*Sat 1/8/15*	*584*
586	4.12.15.10.3	*VO.061 for rising main*	*25 days*	*Sun 2/8/15*	*Wed 26/8/15*	*585*
587	4.12.15.10.4	Waterworks - 150T FH, 150T x 2	14 days	Thu 27/8/15	Wed 9/9/15	586
588	4.12.15.10.5	RVO053 - crossing no. 1 (east)	6 days	Mon 7/9/15	Sat 12/9/15	587FS-3 days
589	4.12.15.10.6	PVO: 2 nos. U-Channel Drainage Crossing	10 days	Thu 27/8/15	Sat 5/9/15	586
590	4.12.15.10.7	street light crossings at ch 287, 350	*4 days*	*Thu 3/9/15*	*Sun 6/9/15*	*589FS-3 days*
591	4.12.15.10.8	PCCW crossings at ch 350	2 days	Sat 5/9/15	Sun 6/9/15	590FF
592	4.12.15.10.9	SRT Formation level	5 days	Mon 7/9/15	Fri 11/9/15	591
593	4.12.15.10.10	sub-base & east kerbing	*10 days*	*Sat 12/9/15*	*Mon 21/9/15*	*590,592*
594	4.12.15.10.11	**AC - lay DBM & base course**	5 days	**Tue 22/9/15**	**Sat 26/9/15**	**593**
595	4.12.15.11	**2,3,7 Works from chainage 580 to chainage 785 (west side carriageway & footpath)**	**265 days**	**Sun 5/10/14**	**Fri 26/6/15**	
596	4.12.15.11.1	**UU for ch 580-785 (132kV,11kV,LV)**	**21 days**	**Sun 5/10/14**	**Sat 25/10/14**	**549**
597	4.12.15.11.2	*VO.091 Water Mains Diversion*	*50 days*	*Fri 8/5/15*	*Fri 26/6/15*	
598	4.12.15.11.3	TTA for ch 580-785(west)	0 days	**Wed 26/11/14**	Wed 26/11/14	565SS
599	4.12.15.11.4	*earthwork to lay drainage & waterwork*	*10 days*	*Thu 27/11/14*	*Sat 6/12/14*	*598*
600	4.12.15.11.5	*drainage & waterwork*	*120 days*	*Sun 7/12/14*	*Sun 5/4/15*	*599*
601	4.12.15.11.6	***VO053 - crossing no. 5, 6, 7&8 & Ducts along ch613-700 (west)***	***14 days***	***Mon 6/4/15***	***Sun 19/4/15***	*600*
602	4.12.15.11.7	*filling works to formation of road (include SRT98%)*	*7 days*	*Mon 20/4/15*	*Sun 26/4/15*	*601*
603	4.12.15.11.8	*street lighting drawpits & crossings ch760,785*	*5 days*	*Mon 27/4/15*	*Fri 1/5/15*	*602*
604	4.12.15.11.9	*sub-base laying for road*	*5 days*	*Sat 2/5/15*	*Wed 6/5/15*	*603*
605	4.12.15.11.10	*kerb bedding, laying & backing before bituminous material*	*9 days*	*Thu 7/5/15*	*Fri 15/5/15*	*604*
606	4.12.15.11.11	*filling works to formation of footpath*	*4 days*	*Sat 16/5/15*	*Tue 19/5/15*	*605*
607	4.12.15.11.12	***UU for CLP (lighting)***	***5 days***	***Wed 20/5/15***	***Sun 24/5/15***	*606*
608	4.12.15.11.13	***UU for ch 580-785 (PCCW)***	***14 days***	***Mon 25/5/15***	***Sun 7/6/15***	*606,607*
609	4.12.15.11.14	*irrigation system*	*5 days*	*Mon 8/6/15*	*Fri 12/6/15*	*608*
610	4.12.15.11.15	*preparation works to formation of footpath*	*3 days*	*Sat 13/6/15*	*Mon 15/6/15*	*609*
611	4.12.15.11.16	*footpath paving*	*7 days*	*Tue 16/6/15*	*Mon 22/6/15*	*610*
612	4.12.15.11.17	***AC - lay DBM & base course***	***5 days***	***Sat 16/5/15***	**Wed 20/5/15**	*605*
613	4.12.15.12	**4,5,6 Works from ch 580-785 (east side carriageway)**	**58 days**	**Fri 22/5/15**	**Sun 19/7/15**	**612FS+2 days**
614	4.12.15.12.1	TTA for ch 580-785 (east)	0 days	**Fri 22/5/15**	Fri 22/5/15	
615	4.12.15.12.2	remove existing pavement	5 days	Sat 23/5/15	Wed 27/5/15	614
616	4.12.15.12.3	**VO.061 for rising main**	**20 days**	**Thu 28/5/15**	**Tue 16/6/15**	**615**
617	4.12.15.12.4	**VO053 - crossing no. 5, 6, 7&8 (east)**	**14 days**	**Fri 12/6/15**	**Thu 25/6/15**	**616FS-5 days**
618	4.12.15.12.5	street lighting crossings at ch 760, 785	7 days	Wed 24/6/15	Tue 30/6/15	617FS-2 days
619	4.12.15.12.6	sub-base & east kerbing	14 days	Wed 1/7/15	Tue 14/7/15	618
620	4.12.15.12.7	**AC - lay DBM & base course**	5 days	**Wed 15/7/15**	**Sun 19/7/15**	**619**
621	4.12.15.13	**5 Works from chainage 125 to chainage 190 (west side carriageway & footpath)**	**62 days**	**Mon 28/9/15**	**Sun 29/11/15**	**594FS+2 days**



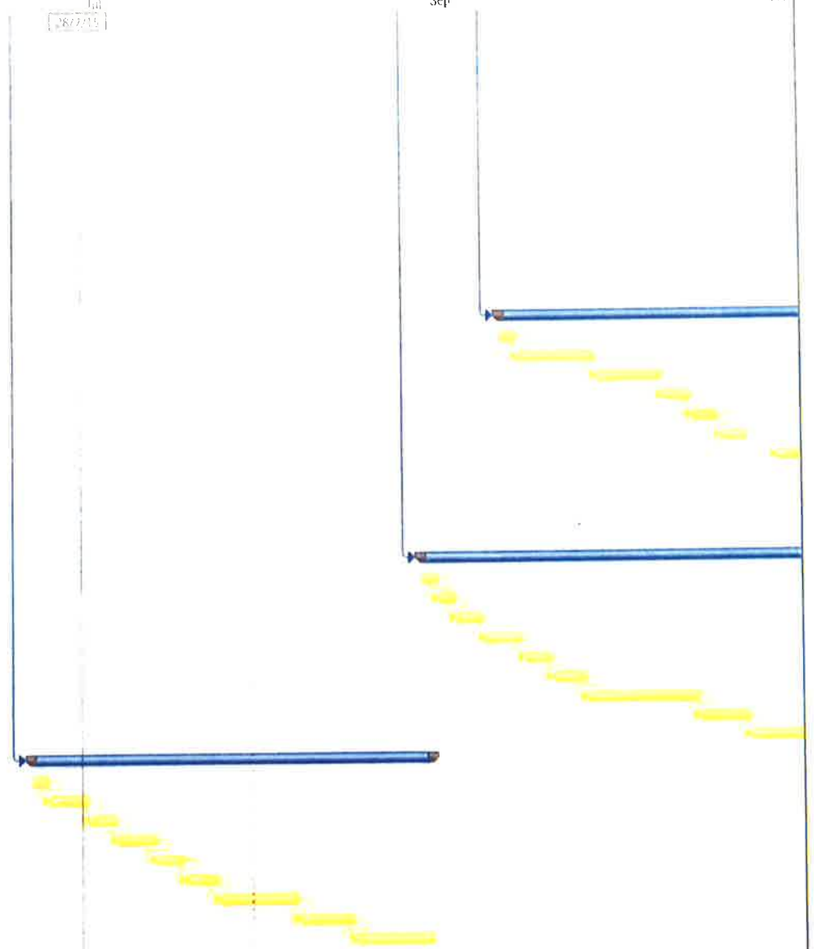
ID	WBS	Task Name	Duration	Start	Finish	Predecessors
622	4.12.15.13.1	TTA for ch 125-190 (west)	0 days	Mon 28/9/15	Mon 28/9/15	
623	4.12.15.13.2	*earthwork to lay drainage & waterwork*	*3 days*	*Tue 29/9/15*	*Thu 1/10/15*	*622*
624	4.12.15.13.3	*drainage & waterwork + backfill for CLP*	*18 days*	*Thu 1/10/15*	*Sun 18/10/15*	*623FS-1 day*
625	4.12.15.13.4	***UU for ch 125-190 (132kV,11kV,LV)***	***8 days***	***Mon 19/10/15***	***Mon 26/10/15***	***624***
626	4.12.15.13.5	*filling works to formation of road (include SRT98%)*	*7 days*	*Sun 25/10/15*	*Sat 31/10/15*	*625FS-2 days*
627	4.12.15.13.6	*street lighting drawpits & crossing at ch 154*	*3 days*	*Sun 1/11/15*	*Tue 3/11/15*	*626*
628	4.12.15.13.7	*irrigation system*	*4 days*	*Mon 2/11/15*	*Thu 5/11/15*	*627FS-2 days*
629	4.12.15.13.8	***UU for CLP (lighting)***	***3 days***	***Fri 6/11/15***	***Sun 8/11/15***	***628***
630	4.12.15.13.9	*sub-base laying*	*3 days*	*Mon 9/11/15*	*Wed 11/11/15*	*629*
631	4.12.15.13.10	*kerb bedding, laying & backing before bituminous material*	*5 days*	*Thu 12/11/15*	*Mon 16/11/15*	*630*
632	4.12.15.13.11	*filling works to formation of footpath*	*3 days*	*Mon 16/11/15*	*Wed 18/11/15*	*631FS-1 day*
633	4.12.15.13.12	***UU for ch 125-190 (PCCW)***	***5 days***	***Thu 19/11/15***	***Mon 23/11/15***	***632***
634	4.12.15.13.13	*footpath paving*	*7 days*	*Mon 23/11/15*	*Sun 29/11/15*	*633FS-1 day*
635	4.12.15.13.14	***AC - lay DBM & base course***	***4 days***	***Tue 17/11/15***	**Fri 20/11/15**	***631***
636	4.12.15.14	**7 Works from chainage 80 to chainage 125 (west side carriageway & footpath)**	**67 days**	**Sat 21/11/15**	**Wed 27/1/16**	**635FS+1 day**
637	4.12.15.14.1	TTA for ch 80-125(west)	0 days	**Sat 21/11/15**	Sat 21/11/15	
638	4.12.15.14.2	*earthwork to lay drainage & waterwork*	*3 days*	Sun 22/11/15	Tue 24/11/15	*637*
639	4.12.15.14.3	*drainage & waterwork + backfill for CLP*	*18 days*	Wed 25/11/15	Sat 12/12/15	*638*
640	4.12.15.14.4	***UU for ch 80-190 (132kV,11kV,LV)***	***6 days***	**Sun 13/12/15**	**Fri 18/12/15**	***639***
641	4.12.15.14.5	*filling works to formation of road (include SRT98%)*	*7 days*	Sat 19/12/15	Fri 25/12/15	*640*
642	4.12.15.14.6	*street lighting drawpits & crossing at ch 98*	*3 days*	Sat 26/12/15	Mon 28/12/15	*641*
643	4.12.15.14.7	*irrigation system*	*3 days*	Tue 29/12/15	Thu 31/12/15	*642*
644	4.12.15.14.8	***UU for CLP (lighting)***	***3 days***	**Fri 1/1/16**	**Sun 3/1/16**	***643***
645	4.12.15.14.9	*sub-base laying*	*3 days*	Mon 4/1/16	Wed 6/1/16	*644*
646	4.12.15.14.10	*kerb bedding, laying & backing before bituminous material*	*5 days*	Thu 7/1/16	Mon 11/1/16	*645*
647	4.12.15.14.11	*filling works to formation of footpath*	*4 days*	Tue 12/1/16	Fri 15/1/16	*646*
648	4.12.15.14.12	***UU for ch 80-190 (PCCW)***	***4 days***	**Sat 16/1/16**	**Tue 19/1/16**	***647***
649	4.12.15.14.13	*footpath paving*	*8 days*	Wed 20/1/16	Wed 27/1/16	*648*
650	4.12.15.14.14	***AC - lay DBM & base course***	***4 days***	**Tue 12/1/16**	**Fri 15/1/16**	***646***
651	4.12.15.15	**4 Works from chainage 125 to chainage 190 (east side carriageway & footpath)**	**42 days**	**Sat 16/1/16**	**Sat 27/2/16**	**650FS+1 day**
652	4.12.15.15.1	TTA for ch 125-190 (east)	0 days	**Sat 16/1/16**	Sat 16/1/16	
653	4.12.15.15.2	***VO.061 for rising main***	***7 days***	**Sun 17/1/16**	**Sat 23/1/16**	***652***
654	4.12.15.15.3	*filling works to formation of road (include SRT98%)*	*4 days*	Sat 23/1/16	Tue 26/1/16	*653FS-1 day*
655	4.12.15.15.4	*street lighting drawpits & crossing at ch 154*	*3 days*	Wed 27/1/16	Fri 29/1/16	*654*
656	4.12.15.15.5	*irrigation system*	*3 days*	Sat 30/1/16	Mon 1/2/16	*655*
657	4.12.15.15.6	***UU for CLP (lighting)***	***3 days***	**Tue 2/2/16**	**Thu 4/2/16**	***656***
658	4.12.15.15.7	*sub-base laying*	*2 days*	Fri 5/2/16	Sat 6/2/16	*657,656*
659	4.12.15.15.8	*kerb bedding, laying & backing before bituminous material*	*5 days*	Sun 7/2/16	Thu 11/2/16	*658*
660	4.12.15.15.9	*filling works to formation of footpath*	*3 days*	Fri 12/2/16	Sun 14/2/16	*659*
661	4.12.15.15.10	***UU for ch 125-200 (PCCW/HGC)***	***5 days***	**Mon 15/2/16**	**Fri 19/2/16**	***660***
662	4.12.15.15.11	*footpath paving*	*8 days*	Sat 20/2/16	Sat 27/2/16	*661*
663	4.12.15.15.12	***AC - lay DBM & base course***	***4 days***	**Fri 12/2/16**	**Mon 15/2/16**	***659***
664	4.12.15.16	**6 Works from chainage 80 to chainage 125 (east side carriageway & footpath)**	**40 days**	**Tue 16/2/16**	**Sun 27/3/16**	**663FS+1 day**
665	4.12.15.16.1	TTA for ch 80-125 (east)	0 days	**Tue 16/2/16**	Tue 16/2/16	
666	4.12.15.16.2	***VO.061 for rising main***	***7 days***	**Wed 17/2/16**	**Tue 23/2/16**	***665***
667	4.12.15.16.3	*filling works to formation of road (include SRT98%)*	*5 days*	Mon 22/2/16	Fri 26/2/16	*666FS-2 days*
668	4.12.15.16.4	*street lighting drawpits & crossing at ch 98*	*3 days*	Fri 26/2/16	Sun 28/2/16	*667FS-1 day*
669	4.12.15.16.5	*irrigation system*	*3 days*	Mon 29/2/16	Wed 2/3/16	*668*
670	4.12.15.16.6	***UU for CLP (lighting)***	***3 days***	**Thu 3/3/16**	**Sat 5/3/16**	***669***
671	4.12.15.16.7	*sub-base laying*	*3 days*	Sun 6/3/16	Tue 8/3/16	*670*
672	4.12.15.16.8	*kerb bedding, laying & backing before bituminous material*	*5 days*	Wed 9/3/16	Sun 13/3/16	*671*
673	4.12.15.16.9	*filling works to formation of footpath*	*3 days*	Mon 14/3/16	Wed 16/3/16	*672*
674	4.12.15.16.10	***UU for ch 80-125 (PCCW/HGC)***	***4 days***	**Thu 17/3/16**	**Sun 20/3/16**	***673***
675	4.12.15.16.11	*footpath paving*	*7 days*	Mon 21/3/16	Sun 27/3/16	*674*
676	4.12.15.16.12	***AC - lay DBM & base course***	***3 days***	**Mon 14/3/16**	**Wed 16/3/16**	***672***
677	4.12.15.17	**Rising manholes & drawpit covers & Lay wearing course (with TTA)**	**44 days**	**Fri 18/3/16**	**Sat 30/4/16**	**676FS+1 day**
678	4.12.15.17.1	*Chainage 80 to Chainage 180 (west side)*	4 days	Fri 18/3/16	Mon 21/3/16	



Revision 1
Fri 28/8/15

Task — Milestone — Project Summary — Critical Split — Deadline
Split — Summary — Critical — Progress

ID	WBS	Task Name	Duration	Start	Finish	Predecessors
679	*4.12.15.17.2*	*Chainage 80 to Chainage 180 (east side)*	2 days	Tue 22/3/16	Wed 23/3/16	678
680	*4.12.15.17.3*	*Chainage 180 to Chainage 280 (west side)*	4 days	Thu 24/3/16	Sun 27/3/16	679
681	*4.12.15.17.4*	*Chainage 180 to Chainage 280 (east side)*	4 days	Mon 28/3/16	Thu 31/3/16	680
682	*4.12.15.17.5*	*Chainage 280 to Chainage 380 (west side)*	4 days	Fri 1/4/16	Mon 4/4/16	681
683	***4.12.15.17.6***	*Chainage 280 to Chainage 380 (east side)*	2 days	Tue 5/4/16	Wed 6/4/16	682
684	*4.12.15.17.7*	*Chainage 380 to Chainage 480 (west side)*	4 days	Thu 7/4/16	Sun 10/4/16	683
685	*4.12.15.17.8*	*Chainage 380 to Chainage 480 (east side)*	2 days	Mon 11/4/16	Tue 12/4/16	684
686	*4.12.15.17.9*	*Chainage 480 to Chainage 580 (west side)*	4 days	Wed 13/4/16	Sat 16/4/16	685
687	***4.12.15.17.10***	*Chainage 480 to Chainage 580 (east side)*	2 days	Sun 17/4/16	Mon 18/4/16	686
688	*4.12.15.17.11*	*Chainage 580 to Chainage 680 (west side)*	4 days	Tue 19/4/16	Fri 22/4/16	687
689	***4.12.15.17.12***	*Chainage 580 to Chainage 680 (east side)*	2 days	Sat 23/4/16	Sun 24/4/16	688
690	*4.12.15.17.13*	*Chainage 680 to Chainage 785 (west side)*	4 days	Mon 25/4/16	Thu 28/4/16	689
691	***4.12.15.17.14***	*Chainage 680 to Chainage 785 (east side)*	2 days	Fri 29/4/16	Sat 30/4/16	690
692	**4.12.15.18**	**Eastern Footpath from ch 380-580)**	**98 days**	**Sun 11/10/15**	**Sat 16/1/16**	**565**
693	*4.12.15.18.1*	*remove existing pavement*	*3 days*	Sun 11/10/15	Tue 13/10/15	
694	*4.12.15.18.2*	*upper stream box culvert 960x650*	*14 days*	Wed 14/10/15	Tue 27/10/15	*693*
695	*4.12.15.18.3*	*upper stream DN450mm pipe*	*12 days*	Wed 28/10/15	Sun 8/11/15	*694*
696	***4.12.15.18.4***	***VO053 - crossing no. 2, 3, 4, 5 (east footpath)***	***5 days***	**Mon 9/11/15**	**Fri 13/11/15**	***695***
697	*4.12.15.18.5*	*filling works to formation of footpath*	*5 days*	Sat 14/11/15	Wed 18/11/15	*696*
698	*4.12.15.18.6*	*street light crossing at ch523*	*5 days*	Thu 19/11/15	Mon 23/11/15	*697*
699	***4.12.15.18.7***	***UU for CLP (lighting)***	***5 days***	**Sun 29/11/15**	**Thu 3/12/15**	***698FS+5 days***
700	*4.12.15.18.8*	*sub-base & edging*	*6 days*	Fri 4/12/15	Wed 9/12/15	*699*
701	***4.12.15.18.9***	***UU for ch 380-580 (PCCW/HGC)***	***14 days***	**Thu 10/12/15**	**Wed 23/12/15**	***700***
702	*4.12.15.18.10*	*construct edging*	*10 days*	Thu 24/12/15	Sat 2/1/16	*701*
703	*4.12.15.18.11*	*footpath paving*	*14 days*	Sun 3/1/16	Sat 16/1/16	*702*
704	**4.12.15.19**	**Eastern Footpath from ch 190-380)**	**71 days**	**Sun 27/9/15**	**Sun 6/12/15**	**583**
705	*4.12.15.19.1*	*remove existing pavement*	*3 days*	Sun 27/9/15	Tue 29/9/15	
706	***4.12.15.19.2***	***VO053 - crossing no. 2 (east footpath)***	***3 days***	**Wed 30/9/15**	**Fri 2/10/15**	***705***
707	*4.12.15.19.3*	*filling works to formation of footpath*	*5 days*	Sat 3/10/15	Wed 7/10/15	*706*
708	*4.12.15.19.4*	*street light crossings at ch287,350*	*7 days*	Thu 8/10/15	Wed 14/10/15	*707*
709	***4.12.15.19.5***	***UU for CLP (lighting)***	***5 days***	**Thu 15/10/15**	**Mon 19/10/15**	***708***
710	*4.12.15.19.6*	*sub-base & edging*	*6 days*	Tue 20/10/15	Sun 25/10/15	*709*
711	***4.12.15.19.7***	***UU for ch 190-380 (PCCW/HGC)***	***20 days***	**Mon 26/10/15**	**Sat 14/11/15**	***710***
712	*4.12.15.19.8*	*construct edging*	*9 days*	Sun 15/11/15	Mon 23/11/15	*711*
713	*4.12.15.19.9*	*footpath paving*	*13 days*	Tue 24/11/15	Sun 6/12/15	*712*
714	**4.12.15.20**	**Eastern Footpath from ch 580-785)**	**71 days**	**Mon 20/7/15**	**Mon 28/9/15**	**613**
715	*4.12.15.20.1*	*remove existing pavement*	*3 days*	*Mon 20/7/15*	*Wed 22/7/15*	
716	***4.12.15.20.2***	***VO053 - crossing no. 5, 6, 7&8 (east footpath)***	***7 days***	***Thu 23/7/15***	***Wed 29/7/15***	***715***
717	*4.12.15.20.3*	*filling works to formation of footpath*	*5 days*	*Thu 30/7/15*	*Mon 3/8/15*	*716*
718	*4.12.15.20.4*	*street light crossings at ch760,785*	*7 days*	*Tue 4/8/15*	*Mon 10/8/15*	*717*
719	***4.12.15.20.5***	***UU for CLP (lighting)***	***5 days***	***Tue 11/8/15***	***Sat 15/8/15***	***718***
720	*4.12.15.20.6*	*sub-base & edging*	*6 days*	*Sun 16/8/15*	*Fri 21/8/15*	*719*
721	***4.12.15.20.7***	***UU for ch 580-785 (PCCW/HGC)***	***14 days***	***Sat 22/8/15***	***Fri 4/9/15***	***720***
722	*4.12.15.20.8*	*construct edging*	*10 days*	*Sat 5/9/15*	*Mon 14/9/15*	*721*
723	*4.12.15.20.9*	*footpath paving*	*14 days*	*Tue 15/9/15*	*Mon 28/9/15*	*722*
724	**4.12.15.21**	**Construction of retaining wall RW8 - CH0 to 22 (3 bays)**	**70 days**	**Tue 30/12/14**	**Mon 9/3/15**	**534**
726	*4.12.15.22*	*Site Formation works for ArchSD Depot (Drg. 1001B)*	*60 days*	*Tue 10/3/15*	*Fri 8/5/15*	*724*
727	**4.12.15.23**	**Archaeological survey (Sections T1 to T3)(Drg. 6403A)**	**147 days**	**Thu 24/10/13**	**Wed 19/3/14**	
733	4.13	Section XIV of the Works - Trees preservation and protection	730 days	Fri 12/4/13	Sat 11/4/15	4
741	4.14	Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)	209 days	Thu 5/11/15	Tue 31/5/16	
745	4.15	Section XVI of the Works - Establishment works for landscape soft works	365 days	Wed 1/6/16	Wed 31/5/17	733,741



Revision 1
Fri 28/8/15

Task — Milestone ◆ — Project Summary — Critical Split — Deadline
Split — Summary — Critical — Progress

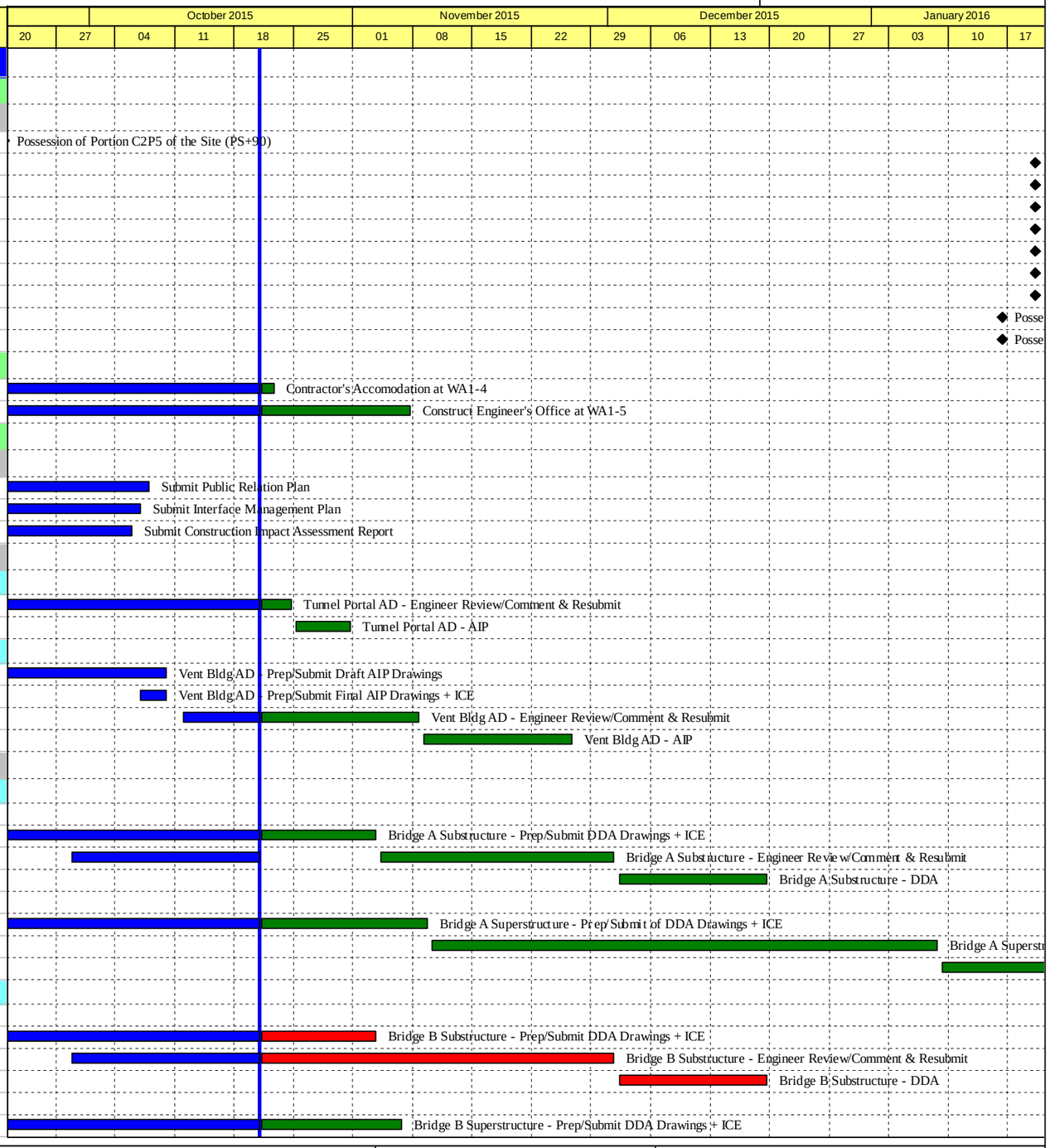
Contract 6

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

AECOM

CEDD

Activity ID	Activity Name	Rem Dur	Start	Finish
LT/HYW BCP Contract 6 - 3MRP Oct 2015				
1.0 - Contract Key Dates				
1.5 - Works Areas Possession Date				
CKD-5190	Possession of Portion C2P5 of the Site (PS+90)	0	21-Sep-15 A	
CKD-5300	Possession of Portion CR16 of the Site (PS+210)	0	20-Jan-16	
CKD-5310	Possession of Portion CR17 of the Site (PS+210)	0	20-Jan-16	
CKD-5320	Possession of Portion CR17A of the Site (PS+210)	0	20-Jan-16	
CKD-5360	Possession of Portion CR23 of the Site (PS+210)	0	20-Jan-16	
CKD-5380	Possession of Portion CR28 of the Site (PS+210)	0	20-Jan-16	
CKD-5390	Possession of Portion CR30 of the Site (PS+210)	0	20-Jan-16	
CKD-5400	Possession of Portion CR34 of the Site (PS+210)	0	20-Jan-16	
CKD-5720	Possession of Portion C2P1 of the Site (PS+207)	0	16-Jan-16	
CKD-5730	Possession of Portion C2P2 of the Site (PS+207)	0	16-Jan-16	
2.0 - Preliminaries				
A1000	Contractor's Accomodation at WA1-4	2	24-Jun-15 A	22-Oct-15
A1020	Construct Engineer's Office at WA1-5	18	12-Jul-15 A	07-Nov-15
3.0 - Submission and Approval				
3.1 - General Submission				
SUB-5885	Submit Public Relation Plan	0	28-Aug-15 A	08-Oct-15 A
SUB-5886	Submit Interface Management Plan	0	25-Aug-15 A	07-Oct-15 A
SUB-5888	Submit Construction Impact Assessment Report	0	04-Aug-15 A	06-Oct-15 A
3.2 - AIP - Alternative Design				
- AIP Submission - Tunnel Portal Alternative Design				
SUB-2150	Tunnel Portal AD - Engineer Review/Comment & Resubmit	4	08-Aug-15 A	24-Oct-15
SUB-2160	Tunnel Portal AD - AIP	7	25-Oct-15	31-Oct-15
- AIP Submission - Ventilation Building Altenative Design				
SUB-2170	Vent Bldg AD - Prep/Submit Draft AIP Drawings	0	24-Jun-15 A	10-Oct-15 A
SUB-2180	Vent Bldg AD - Prep/Submit Final AIP Drawings + ICE	0	07-Oct-15 A	10-Oct-15 A
SUB-2190	Vent Bldg AD - Engineer Review/Comment & Resubmit	19	12-Oct-15 A	08-Nov-15
SUB-2200	Vent Bldg AD - AIP	18	09-Nov-15	26-Nov-15
3.3 - DDA - Alternative Design				
- DDA Submission - Bridge A				
DDA Submission - Bridge A Substructure				
SUB-3000	Bridge A Substructure - Prep/Submit DDA Drawings + ICE	14	15-Jul-15 A	03-Nov-15
SUB-3010	Bridge A Substructure - Engineer Review/Comment & Resubmit	28	29-Sep-15 A	01-Dec-15
SUB-3030	Bridge A Substructure - DDA	18	02-Dec-15	19-Dec-15
DDA Submission - Bridge A Superstructure				
SUB-3050	Bridge A Superstructure - Prep/Submit of DDA Drawings + ICE	20	27-Jul-15 A	09-Nov-15
SUB-3060	Bridge A Superstructure - Engineer Review/Comment & Resubmit	60	10-Nov-15	08-Jan-16
SUB-3070	Bridge A Superstructure - DDA	18	09-Jan-16	26-Jan-16
- DDA Submission - Bridge B				
DDA Submission - Bridge B Substructure				
SUB-3100	Bridge B Substructure - Prep/Submit DDA Drawings + ICE	14	15-Jul-15 A	03-Nov-15
SUB-3110	Bridge B Substructure - Engineer Review/Comment & Resubmit	42	29-Sep-15 A	01-Dec-15
SUB-3130	Bridge B Substructure - DDA	18	02-Dec-15	19-Dec-15
DDA Submission - Bridge B Superstructure				
SUB-3140	Bridge B Superstructure - Prep/Submit DDA Drawings + ICE	17	15-Jul-15 A	06-Nov-15



CRBC-CEC-KADEN Joint Venture

Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3-month Rolling Programme (20-Oct-2015)

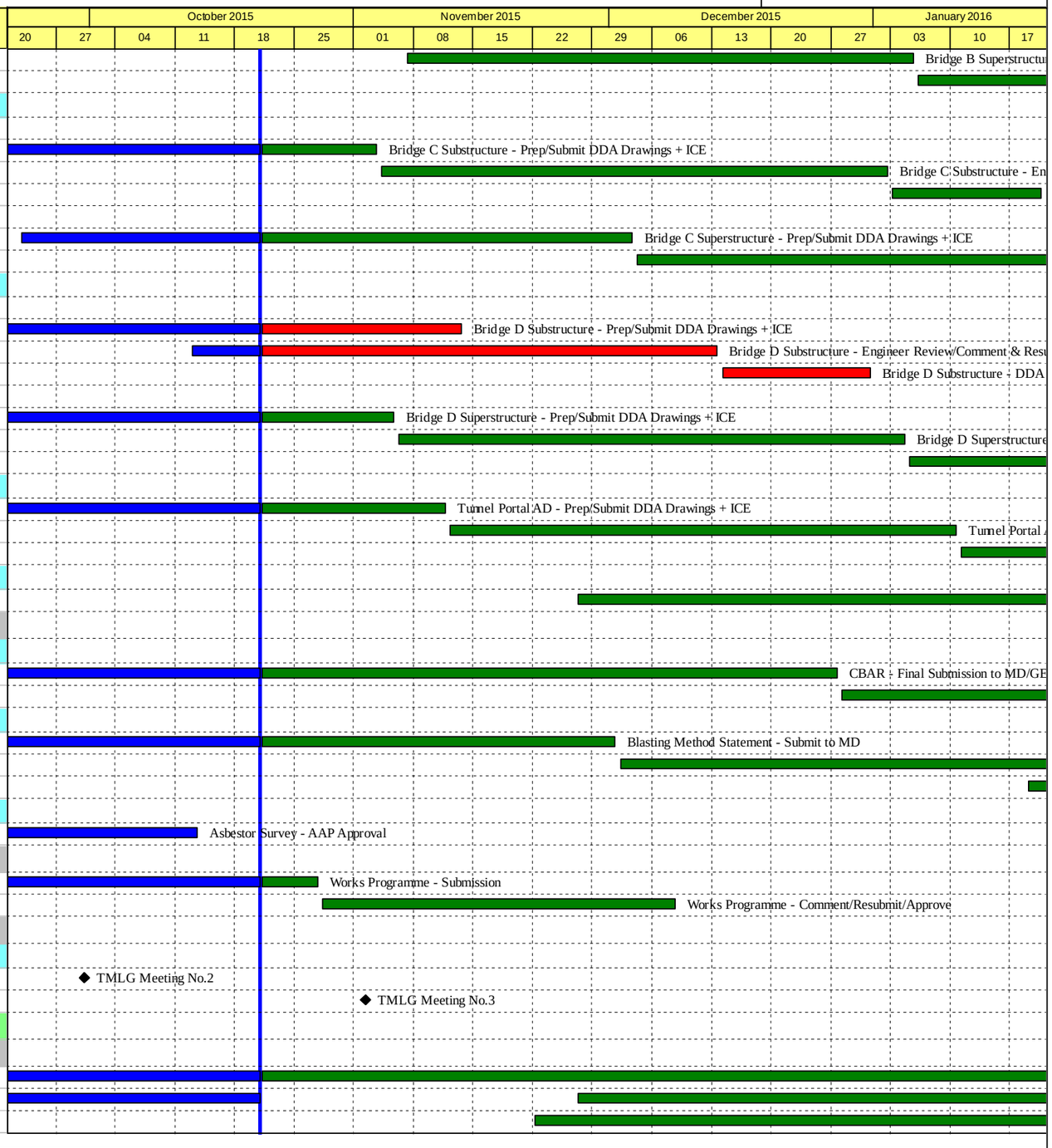
Data Date: 21-Oct-15 Run Date: 27-Oct-15

Project ID :LT6-3MRP-04
Layout : LT6IWP 3MRP

3-month Rolling Programme

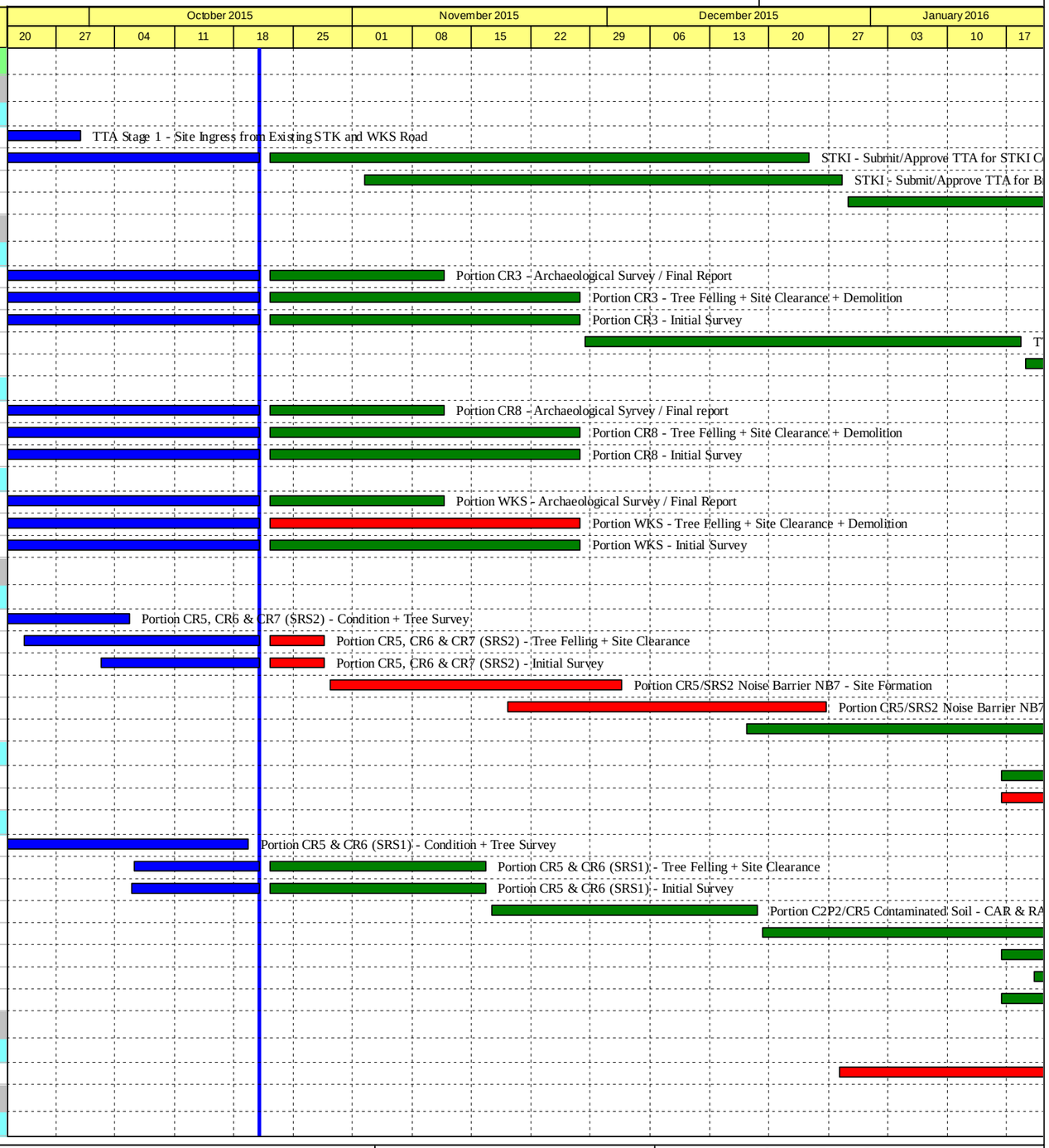
Date	Revision	Checked	Approved
20-Oct-15	3MRP		

Activity ID	Activity Name	Rem Dur	Start	Finish
SUB-3150	Bridge B Superstructure - Engineer Review/Comment & Resubmit	60	07-Nov-15	05-Jan-16
SUB-3160	Bridge B Superstructure - DDA	18	06-Jan-16	23-Jan-16
- DDA Submission - Bridge C				
DDA Submission - Bridge C Substructure				
SUB-3200	Bridge C Substructure - Prep/Submit DDA Drawings + ICE	14	20-Aug-15 A	03-Nov-15
SUB-3210	Bridge C Substructure - Engineer Review/Comment & Resubmit	60	04-Nov-15	02-Jan-16
SUB-3230	Bridge C Substructure - DDA	18	03-Jan-16	20-Jan-16
DDA Submission - Bridge C Superstructure				
SUB-3240	Bridge C Superstructure - Prep/Submit DDA Drawings + ICE	44	23-Sep-15 A	03-Dec-15
SUB-3250	Bridge C Superstructure - Engineer Review/Comment & resubmit	60	04-Dec-15	01-Feb-16
- DDA Submission - Bridge D				
DDA Submission - Bridge D Substructure				
SUB-3300	Bridge D Substructure - Prep/Submit DDA Drawings + ICE	24	15-Jul-15 A	13-Nov-15
SUB-3310	Bridge D Substructure - Engineer Review/Comment & Resubmit	54	13-Oct-15 A	13-Dec-15
SUB-3330	Bridge D Substructure - DDA	18	14-Dec-15	31-Dec-15
DDA Submission - Bridge D Superstructure				
SUB-3340	Bridge D Superstructure - Prep/Submit DDA Drawings + ICE	16	05-Sep-15 A	05-Nov-15
SUB-3350	Bridge D Superstructure - Engineer Review/Comment & Resubmit	60	06-Nov-15	04-Jan-16
SUB-3360	Bridge D Superstructure - DDA	18	05-Jan-16	22-Jan-16
- DDA Submission - Tunnel & Portal Alternative Design				
SUB-3400	Tunnel Portal AD - Prep/Submit DDA Drawings + ICE	22	08-Aug-15 A	11-Nov-15
SUB-3410	Tunnel Portal AD - Engineer Review/Comment & resubmit	60	12-Nov-15	10-Jan-16
SUB-3420	Tunnel Portal AD - DDA	18	11-Jan-16	28-Jan-16
- DDA Submission - Ventilation Building Alternative Design				
SUB-3430	Vent Bldg AD - Prep/Submit DDA Drawings + ICE	60	27-Nov-15	25-Jan-16
3.4 - Statutory Submission and Approval				
- Contracor Blasting Assessment Report (CBAR)				
SUB-4040	CBAR - Final Submission to MD/GEO/BD/Police/FSD	68	24-Aug-15 A	27-Dec-15
SUB-4050	CBAR - Approval	28	28-Dec-15	24-Jan-16
- Blasting Method Statement				
SUB-4120	Blasting Method Statement - Submit to MD	42	14-Sep-15 A	01-Dec-15
SUB-4130	Blasting Method Statement - MD Review and Comment	120	02-Dec-15	30-Mar-16
SUB-4140	Blasting Method Statement - Resubmit to MD	90	19-Jan-16	17-Apr-16
- Asbestos Survey				
SUB-4330	Asbestor Survey - AAP Approval	0	18-Aug-15 A	13-Oct-15 A
3.6 - Works Programme				
SUB-5820	Works Programme - Submission	7	05-Sep-15 A	27-Oct-15
SUB-5830	Works Programme - Comment/Resubmit/Approve	42	28-Oct-15	08-Dec-15
3.7 - Coordination Meeting and Liaison Works				
- TMLG Meeting				
SUB-5890	TMLG Meeting No.2	0	30-Sep-15 A	
SUB-5910	TMLG Meeting No.3	0	02-Nov-15*	
4.0 - Off-Site Works				
4.1 - Segment Fabrication				
OSW-1000	Segment Off-site Fabrication Yard Set-up	95	17-Aug-15 A	23-Jan-16
OSW-1050	Segment Mould Design and Fabrication	58	20-Aug-15 A	23-Jan-16
OSW-1100	Submit/Approve Geometry Control Design	90	22-Nov-15	19-Feb-16



Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

Activity ID	Activity Name	Rem Dur	Start	Finish
5.0 - Sha Tau Kok Interchange				
5.1 - Preliminary Works				
- Site Possession and Site Establishment Works				
STK-1040	TTA Stage 1 - Site Ingress from Existing STK and WKS Road	0	15-Sep-15 A	30-Sep-15 A
STK-1250	STKI - Submit/Approve TTA for STKI Construction	55	14-Sep-15 A	24-Dec-15
STK-1260	STKI - Submit/Approve TTA for Bridge A Pier Construction	48	02-Nov-15	28-Dec-15
STK-1270	STKI - Submit/Approve TTA for Bridge A Segment Erection	60	29-Dec-15	15-Mar-16
5.3 - STKI (North) - Portion CR3, WKS & CR8				
- Portion CR3				
STK-3020	Portion CR3 - Archaeological Survey / Final Report	18	16-Sep-15 A	11-Nov-15
STK-3030	Portion CR3 - Tree Felling + Site Clearance + Demolition	32	01-Aug-15 A	27-Nov-15
STK-3040	Portion CR3 - Initial Survey	32	01-Aug-15 A	27-Nov-15
STK-3050	TTA - Wo Keng Shan Road Local Diversion for CR3 Roadworks	42	28-Nov-15	18-Jan-16
STK-3060	Portion CR3 - Road Formation (STK/F9+STKF6)	90	19-Jan-16	13-May-16
- Portion CR8				
STK-3720	Portion CR8 - Archaeological Syrvey / Final report	18	16-Sep-15 A	11-Nov-15
STK-3730	Portion CR8 - Tree Felling + Site Clearance + Demolition	32	01-Aug-15 A	27-Nov-15
STK-3740	Portion CR8 - Initial Survey	32	01-Aug-15 A	27-Nov-15
- Portion WKS				
STK-3420	Portion WKS - Archaeological Survey / Final Report	18	16-Sep-15 A	11-Nov-15
STK-3430	Portion WKS - Tree Felling + Site Clearance + Demolition	32	26-Aug-15 A	27-Nov-15
STK-3440	Portion WKS - Initial Survey	32	21-Sep-15 A	27-Nov-15
5.4 - STKI (South) - Portion CR5, CR6, CR7 & C2P2				
- STKI Slip Road S2				
STK-4110	Portion CR5, CR6 & CR7 (SRS2) - Condition + Tree Survey	0	19-Sep-15 A	05-Oct-15 A
STK-4120	Portion CR5, CR6 & CR7 (SRS2) - Tree Felling + Site Clearance	6	23-Sep-15 A	28-Oct-15
STK-4130	Portion CR5, CR6 & CR7 (SRS2) - Initial Survey	6	02-Oct-15 A	28-Oct-15
STK-4140	Portion CR5/SRS2 Noise Barrier NB7 - Site Formation	30	29-Oct-15	02-Dec-15
STK-4141	Portion CR5/SRS2 Noise Barrier NB7 - Footing Slab	32	19-Nov-15	26-Dec-15
STK-4142	Portion CR5/SRS2 Noise Barrier NB7 - Footing Wall	36	17-Dec-15	29-Jan-16
- STKI Portion C2P2				
STK-4210	Portion C2P2 - Condition Survey + Tree Survey	12	16-Jan-16	29-Jan-16
STK-4235	Portion C2P2/SRS2 Noise Barrier NB7 - Site Formation	6	16-Jan-16	22-Jan-16
- STKI Slip Road S1				
STK-4300	Portion CR5 & CR6 (SRS1) - Condition + Tree Survey	0	19-Sep-15 A	19-Oct-15 A
STK-4301	Portion CR5 & CR6 (SRS1) - Tree Felling + Site Clearance	22	06-Oct-15 A	16-Nov-15
STK-4302	Portion CR5 & CR6 (SRS1) - Initial Survey	22	06-Oct-15 A	16-Nov-15
STK-4305	Portion C2P2/CR5 Contaminated Soil - CAR & RAP Submission	28	17-Nov-15	18-Dec-15
STK-4306	Portion C2P2/CR5 Contaminated Soil - CAR & RAP EPD Endorsement	28	19-Dec-15	22-Jan-16
STK-4315	Portion C2P1 - Condition + Tree Survey	6	16-Jan-16	22-Jan-16
STK-4320	Portion C2P1 - Tree Felling + Site Clearance	6	20-Jan-16	26-Jan-16
STK-4331	Portion CR6/SRS1 Noise Barrier NB9 - Site Formation	24	16-Jan-16	19-Feb-16
5.5 - STKI (East) - Portion CR3 & RD				
- Bridge E				
STK-5200	TTA - STK Road Local Diversion for Bridge E	28	28-Dec-15	29-Jan-16
5.6 - STKI (West) - Portion CR4 & RD				
- Bridge F				



CRBC-CEC-KADEN Joint Venture

Milestone
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Non-Critical Activity
Remaining Level of Effort
Actual Work

3-month Rolling Programme (20-Oct-2015)

Data Date: 21-Oct-15 Run Date: 27-Oct-15

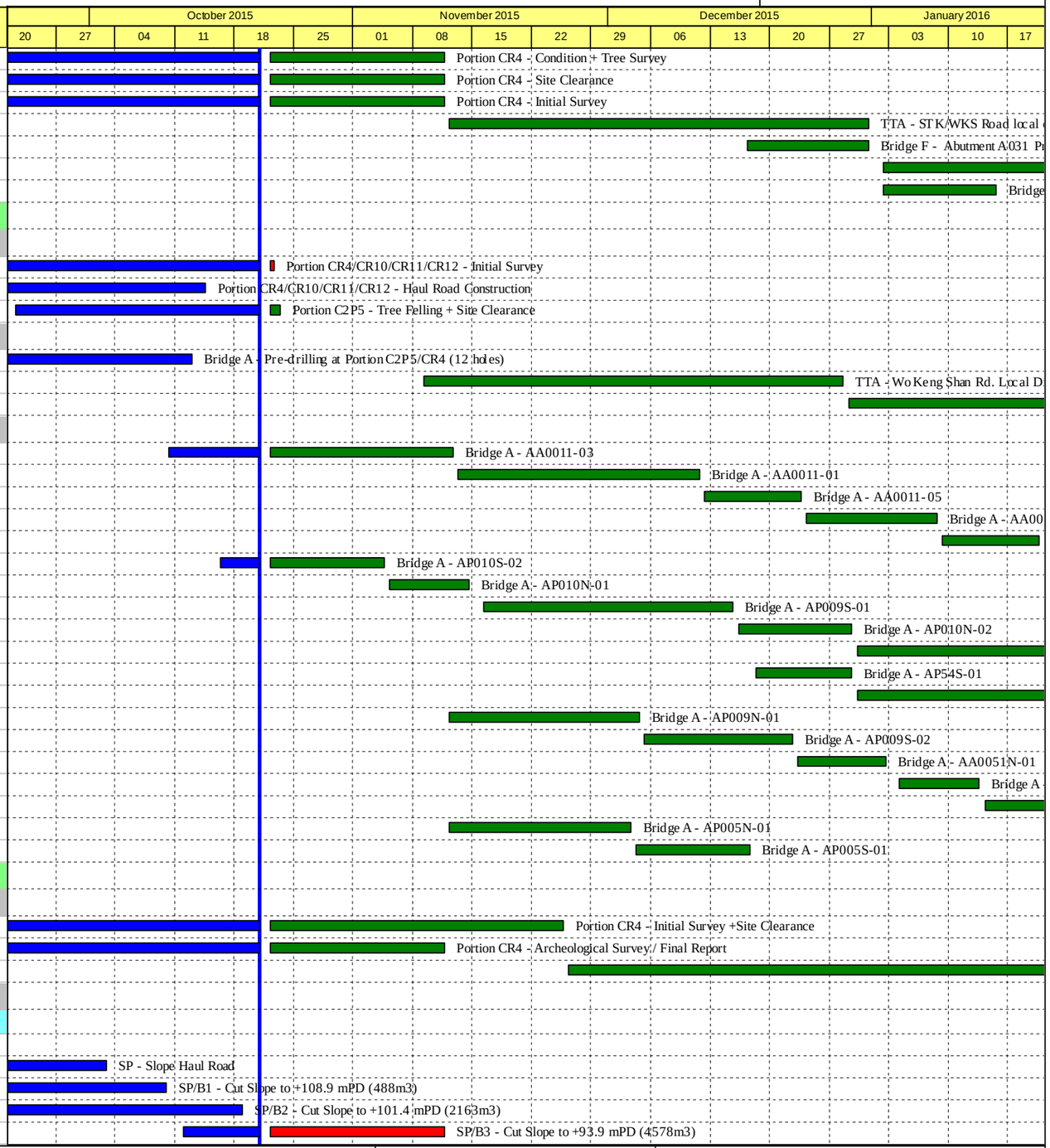
Project ID :LT6-3MRP-04
Layout : LT6IWP 3MRP

3-month Rolling Programme

Date	Revision	Checked	Approved
20-Oct-15	3MRP		

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

Activity ID	Activity Name	Rem Dur	Start	Finish
STK-6010	Portion CR4 - Condition + Tree Survey	18	21-Sep-15 A	11-Nov-15
STK-6012	Portion CR4 - Site Clearance	18	21-Sep-15 A	11-Nov-15
STK-6015	Portion CR4 - Initial Survey	18	21-Sep-15 A	11-Nov-15
STK-6020	TTA - STK/WKS Road local diversion for Bridge F Construction	42	12-Nov-15	31-Dec-15
STK-6030	Bridge F - Abutment A031 Predrilling	12	17-Dec-15	31-Dec-15
STK-6050	Bridge F - Abutment A031 Piling	72	02-Jan-16	06-Apr-16
STK-6150	Bridge F - Abutment A032 Predrilling	12	02-Jan-16	15-Jan-16
6.0 - Bridge A (Ch6850 to Ch7295)				
6.1 - Site Establisment				
BRA-1030	Portion CR4/CR10/CR11/CR12 - Initial Survey	1	01-Aug-15 A	22-Oct-15
BRA-1040	Portion CR4/CR10/CR11/CR12 - Haul Road Construction	0	18-Aug-15 A	14-Oct-15 A
BRA-1120	Portion C2P5 - Tree Felling + Site Clearance	2	22-Sep-15 A	23-Oct-15
6.2 - Ground Investigation				
BRA-2010	Bridge A - Pre-drilling at Portion C2P5/CR4 (12 holes)	0	12-Sep-15 A	13-Oct-15 A
BRA-2022	TTA - Wo Keng Shan Rd. Local Diversion for AP006	42	09-Nov-15	28-Dec-15
BRA-2023	Diversion of Existing Utilities Diversion for AP006	60	29-Dec-15	15-Mar-16
6.3 - Bored Piles				
BRA-3000.01	Bridge A - AA0011-03	19	10-Oct-15 A	12-Nov-15
BRA-3000.02	Bridge A - AA0011-01	25	13-Nov-15	11-Dec-15
BRA-3000.03	Bridge A - AA0011-05	10	12-Dec-15	23-Dec-15
BRA-3000.04	Bridge A - AA0011-04	12	24-Dec-15	08-Jan-16
BRA-3000.05	Bridge A - AP54N-01	10	09-Jan-16	20-Jan-16
BRA-3000.07	Bridge A - AP010S-02	12	16-Oct-15 A	04-Nov-15
BRA-3000.08	Bridge A - AP010N-01	9	05-Nov-15	14-Nov-15
BRA-3000.09	Bridge A - AP009S-01	26	16-Nov-15	15-Dec-15
BRA-3000.10	Bridge A - AP010N-02	11	16-Dec-15	29-Dec-15
BRA-3000.11	Bridge A - AP009N-02	33	30-Dec-15	06-Feb-16
BRA-3000.13	Bridge A - AP54S-01	9	18-Dec-15	29-Dec-15
BRA-3000.14	Bridge A - AP53N-01	19	30-Dec-15	21-Jan-16
BRA-3000.16	Bridge A - AP009N-01	20	12-Nov-15	04-Dec-15
BRA-3000.17	Bridge A - AP009S-02	15	05-Dec-15	22-Dec-15
BRA-3010.24	Bridge A - AA0051N-01	8	23-Dec-15	02-Jan-16
BRA-3010.25	Bridge A - AA0051S-01	9	04-Jan-16	13-Jan-16
BRA-3010.26	Bridge A - AA0051N-02	8	14-Jan-16	22-Jan-16
BRA-3020.28	Bridge A - AP005N-01	19	12-Nov-15	03-Dec-15
BRA-3020.29	Bridge A - AP005S-01	12	04-Dec-15	17-Dec-15
7.0 - South Portal Works				
7.1 - South Portal Preliminary Works				
TSP-1010	Portion CR4 - Initial Survey +Site Clearance	30	24-Jun-15 A	25-Nov-15
TSP-1020	Portion CR4 - Archeological Survey / Final Report	18	17-Sep-15 A	11-Nov-15
TSP-1060	South Portal - Boulder Stabilization (12 nos)	75	26-Nov-15	01-Mar-16
7.2 - South Portal Formation				
- SP Slope Excavation to 48.9mPD				
-- Cut Slope				
TSP-1200	SP - Slope Haul Road	0	26-Aug-15 A	03-Oct-15 A
TSP-1210	SP/B1 - Cut Slope to +108.9 mPD (488m3)	0	02-Sep-15 A	10-Oct-15 A
TSP-1220	SP/B2 - Cut Slope to +101.4 mPD (2163m3)	0	17-Sep-15 A	19-Oct-15 A
TSP-1230	SP/B3 - Cut Slope to +93.9 mPD (4578m3)	18	12-Oct-15 A	11-Nov-15



CRBC-CEC-KADEN Joint Venture

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Actual Work

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Data Date: 21-Oct-15 Run Date: 27-Oct-15

Project ID :LT6-3MRP-04
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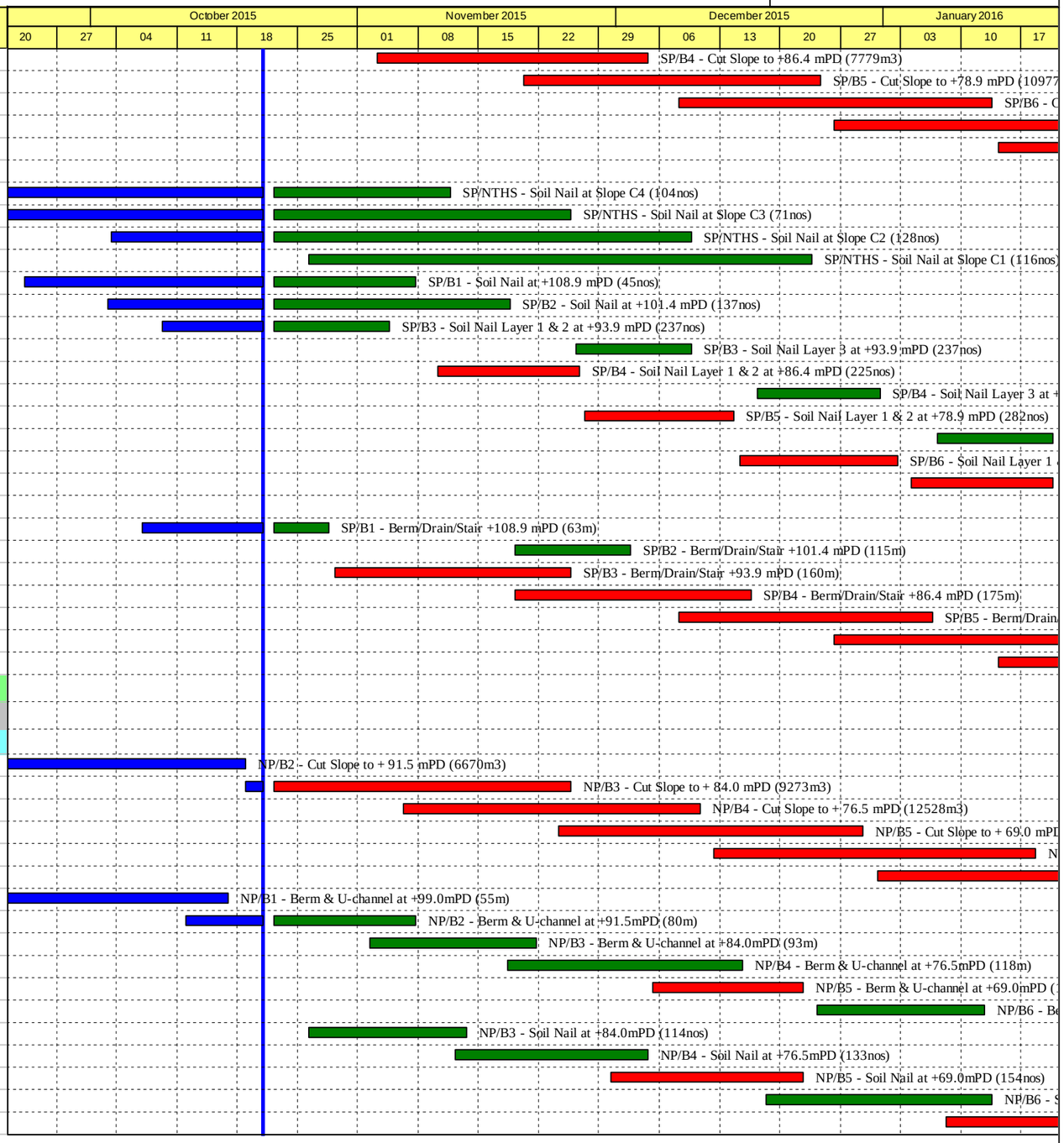
3-month Rolling Programme

Date	Revision	Checked	Approved
20-Oct-15	3MRP		

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

Activity ID	Activity Name	Rem Dur	Start	Finish
TSP-1240	SP/B4 - Cut Slope to +86.4 mPD (7779m3)	28	03-Nov-15	04-Dec-15
TSP-1250	SP/B5 - Cut Slope to +78.9 mPD (10977m3)	30	20-Nov-15	24-Dec-15
TSP-1260	SP/B6 - Cut Slope to +71.4 mPD (14065m3)	30	08-Dec-15	13-Jan-16
TSP-1270	SP/B7 - Cut Slope to +63.9 mPD (17231m3)	30	26-Dec-15	30-Jan-16
TSP-1280	SP/B8 - Cut Slope to +56.4 mPD (19745m3)	30	14-Jan-16	24-Feb-16
	-- Soil nail			
TSP-1070	SP/NTHS - Soil Nail at Slope C4 (104nos)	18	07-Sep-15 A	11-Nov-15
TSP-1075	SP/NTHS - Soil Nail at Slope C3 (71nos)	30	17-Sep-15 A	25-Nov-15
TSP-1080	SP/NTHS - Soil Nail at Slope C2 (128nos)	42	03-Oct-15 A	09-Dec-15
TSP-1085	SP/NTHS - Soil Nail at Slope C1 (116nos)	51	26-Oct-15	23-Dec-15
TSP-1310	SP/B1 - Soil Nail at +108.9 mPD (45nos)	15	23-Sep-15 A	07-Nov-15
TSP-1320	SP/B2 - Soil Nail at +101.4 mPD (137nos)	24	03-Oct-15 A	18-Nov-15
TSP-1330	SP/B3 - Soil Nail Layer 1 & 2 at +93.9 mPD (237nos)	12	09-Oct-15 A	04-Nov-15
TSP-1335	SP/B3 - Soil Nail Layer 3 at +93.9 mPD (237nos)	12	26-Nov-15	09-Dec-15
TSP-1340	SP/B4 - Soil Nail Layer 1 & 2 at +86.4 mPD (225nos)	15	10-Nov-15	26-Nov-15
TSP-1345	SP/B4 - Soil Nail Layer 3 at +86.4 mPD (225nos)	12	17-Dec-15	31-Dec-15
TSP-1350	SP/B5 - Soil Nail Layer 1 & 2 at +78.9 mPD (282nos)	15	27-Nov-15	14-Dec-15
TSP-1355	SP/B5 - Soil Nail Layer 3 at +78.9 mPD (282nos)	12	07-Jan-16	20-Jan-16
TSP-1360	SP/B6 - Soil Nail Layer 1 & 2 at +71.4 mPD (289nos)	15	15-Dec-15	02-Jan-16
TSP-1370	SP/B7 - Soil Nail Layer 1 & 2 at +63.9 mPD (279nos)	15	04-Jan-16	20-Jan-16
	-- Berm			
TSP-1410	SP/B1 - Berm/Drain/Stair +108.9 mPD (63m)	6	07-Oct-15 A	28-Oct-15
TSP-1420	SP/B2 - Berm/Drain/Stair +101.4 mPD (115m)	12	19-Nov-15	02-Dec-15
TSP-1430	SP/B3 - Berm/Drain/Stair +93.9 mPD (160m)	24	29-Oct-15	25-Nov-15
TSP-1440	SP/B4 - Berm/Drain/Stair +86.4 mPD (175m)	24	19-Nov-15	16-Dec-15
TSP-1450	SP/B5 - Berm/Drain/Stair +78.9 mPD (190m)	24	08-Dec-15	06-Jan-16
TSP-1460	SP/B6 - Berm/Drain/Stair +71.4 mPD (185m)	24	26-Dec-15	23-Jan-16
TSP-1470	SP/B7 - Berm/Drain/Stair +63.9 mPD (180m)	24	14-Jan-16	17-Feb-16
	8.0 - North Portal Works			
	8.2 - North Portal Site Formation			
	- NP Slope Excavation to +59.0mPD			
TNP-1115	NP/B2 - Cut Slope to + 91.5 mPD (6670m3)	0	09-Sep-15 A	19-Oct-15 A
TNP-1120	NP/B3 - Cut Slope to + 84.0 mPD (9273m3)	30	19-Oct-15 A	25-Nov-15
TNP-1125	NP/B4 - Cut Slope to + 76.5 mPD (12528m3)	30	06-Nov-15	10-Dec-15
TNP-1130	NP/B5 - Cut Slope to + 69.0 mPD (16034m3)	30	24-Nov-15	29-Dec-15
TNP-1135	NP/B6 - Cut Slope to + 61.5 mPD (19136m3)	30	12-Dec-15	18-Jan-16
TNP-1140	NP/B7 - Cut Slope to + 59.0 mPD (14351m3)	18	31-Dec-15	21-Jan-16
TNP-1200	NP/B1 - Berm & U-channel at +99.0mPD (55m)	0	11-Sep-15 A	17-Oct-15 A
TNP-1205	NP/B2 - Berm & U-channel at +91.5mPD (80m)	15	12-Oct-15 A	07-Nov-15
TNP-1210	NP/B3 - Berm & U-channel at +84.0mPD (93m)	18	02-Nov-15	21-Nov-15
TNP-1220	NP/B4 - Berm & U-channel at +76.5mPD (118m)	24	18-Nov-15	15-Dec-15
TNP-1230	NP/B5 - Berm & U-channel at +69.0mPD (142m)	15	05-Dec-15	22-Dec-15
TNP-1240	NP/B6 - Berm & U-channel at +61.5mPD (162m)	15	24-Dec-15	12-Jan-16
TNP-1310	NP/B3 - Soil Nail at +84.0mPD (114nos)	17	26-Oct-15	13-Nov-15
TNP-1320	NP/B4 - Soil Nail at +76.5mPD (133nos)	20	12-Nov-15	04-Dec-15
TNP-1330	NP/B5 - Soil Nail at +69.0mPD (154nos)	20	30-Nov-15	22-Dec-15
TNP-1340	NP/B6 - Soil Nail at +61.5mPD (183nos)	21	18-Dec-15	13-Jan-16
TNP-1350	NP/B7 - Soil Nail at +59.0mPD (34nos)	12	08-Jan-16	21-Jan-16



CRBC-CEC-KADEN Joint Venture

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3-month Rolling Programme (20-Oct-2015)

Data Date: 21-Oct-15 Run Date: 27-Oct-15

Project ID :LT6-3MRP-04
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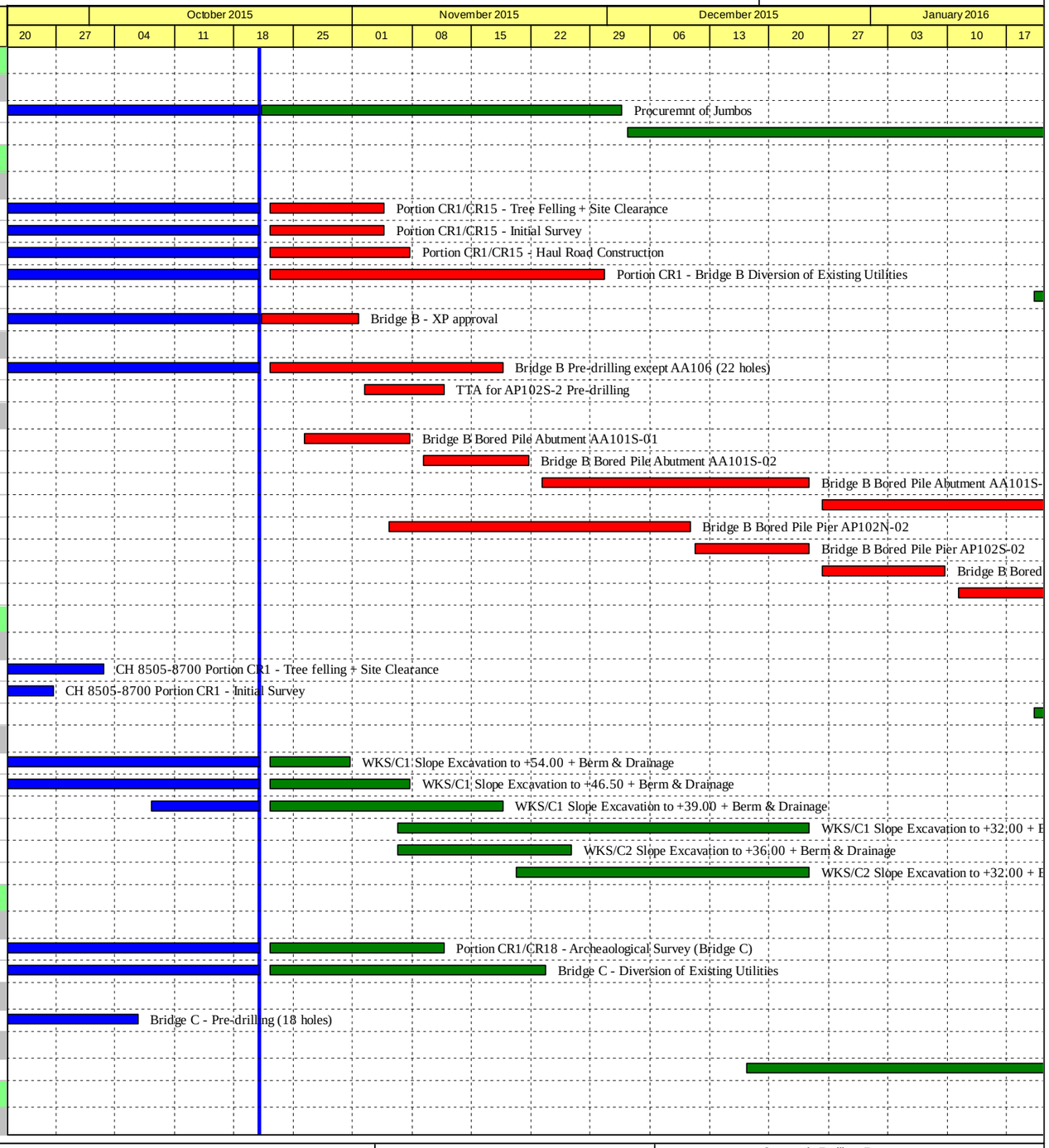
3-month Rolling Programme			
Date	Revision	Checked	Approved
20-Oct-15	3MRP		

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

Activity ID	Activity Name	Rem Dur	Start	Finish
9.0 - Cheung Shan Tunnel Works				
9.1 - Preliminary Works				
TUN-1000	Procuremnt of Jumbos	43	23-Aug-15 A	02-Dec-15
TUN-1100	Manufacture and delivery of Jumbo	210	03-Dec-15	29-Jun-16
10.0 - Bridge B (Ch8250 to Ch8505)				
10.1 - Preparation Works				
BRB-1020	Portion CR1/CR15 - Tree Felling + Site Clearance	12	02-Jul-15 A	04-Nov-15
BRB-1030	Portion CR1/CR15 - Initial Survey	12	07-Aug-15 A	04-Nov-15
BRB-1040	Portion CR1/CR15 - Haul Road Construction	15	07-Aug-15 A	07-Nov-15
BRB-1080	Portion CR1 - Bridge B Diversion of Existing Utilities	34	17-Jul-15 A	30-Nov-15
BRB-1400	Portion CR16/CR17 - Site Survey & Clearance	12	20-Jan-16	02-Feb-16
BRB-1450	Bridge B - XP approval	12	24-Jun-15 A	01-Nov-15
10.2 - Ground Investigation				
BRB-2000	Bridge B Pre-drilling except AA106 (22 holes)	24	31-Jul-15 A	18-Nov-15
BRB-2100	TTA for AP102S-2 Pre-drilling	9	02-Nov-15	11-Nov-15
10.3 - Bored piles				
BRB-3010	Bridge B Bored Pile Abutment AA101S-01	12	26-Oct-15	07-Nov-15
BRB-3020	Bridge B Bored Pile Abutment AA101S-02	12	09-Nov-15	21-Nov-15
BRB-3030	Bridge B Bored Pile Abutment AA101S-03	28	23-Nov-15	24-Dec-15
BRB-3050	Bridge B Bored Pile Abutment AA101S-04	28	26-Dec-15	28-Jan-16
BRB-9810	Bridge B Bored Pile Pier AP102N-02	31	05-Nov-15	10-Dec-15
BRB-9820	Bridge B Bored Pile Pier AP102S-02	12	11-Dec-15	24-Dec-15
BRB-9830	Bridge B Bored Pile Pier AP103N-L-1	12	26-Dec-15	09-Jan-16
BRB-9840	Bridge B Bored Pile Pier AP102N-01	31	11-Jan-16	22-Feb-16
11.0 - Road On Grade (Ch 8505 to Ch 8700)				
11.1 - Preliminary Works				
RBC-1200	CH 8505-8700 Portion CR1 - Tree felling + Site Clearance	0	03-Jul-15 A	02-Oct-15 A
RBC-1400	CH 8505-8700 Portion CR1 - Initial Survey	0	31-Jul-15 A	26-Sep-15 A
RBC-1500	CH 8505-8700 Portion CR17A - Site Survey and Clearance	24	20-Jan-16	23-Feb-16
11.2 - Cut Slopes				
RBC-2100	WKS/C1 Slope Excavation to +54.00 + Berm & Drainage	9	23-Aug-15 A	31-Oct-15
RBC-2200	WKS/C1 Slope Excavation to +46.50 + Berm & Drainage	15	15-Sep-15 A	07-Nov-15
RBC-2300	WKS/C1 Slope Excavation to +39.00 + Berm & Drainage	24	08-Oct-15 A	18-Nov-15
RBC-2400	WKS/C1 Slope Excavation to +32.00 + Berm & Drainage	42	06-Nov-15	24-Dec-15
RBC-2500	WKS/C2 Slope Excavation to +36.00 + Berm & Drainage	18	06-Nov-15	26-Nov-15
RBC-2600	WKS/C2 Slope Excavation to +32.00 + Berm & Drainage	30	20-Nov-15	24-Dec-15
12.0 - Bridge C (Ch8700 to Ch9005)				
12.1 - Preparation Works				
BRC-1250	Portion CR1/CR18 - Archeaological Survey (Bridge C)	18	17-Sep-15 A	11-Nov-15
BRC-9610	Bridge C - Diversion of Existing Utilities	28	31-Jul-15 A	23-Nov-15
12.2 - Ground Investigation				
BRC-2000	Bridge C - Pre-drilling (18 holes)	0	18-Jul-15 A	06-Oct-15 A
12.3 - Bored piles				
BRC-9620	Bridge C - Bored Piling for Abut AA207 - 6 nos	72	17-Dec-15	18-Mar-16
13.0 - Road On Grade (Ch 9005 to Ch 9260)				
13.1 - Preliminary Works				



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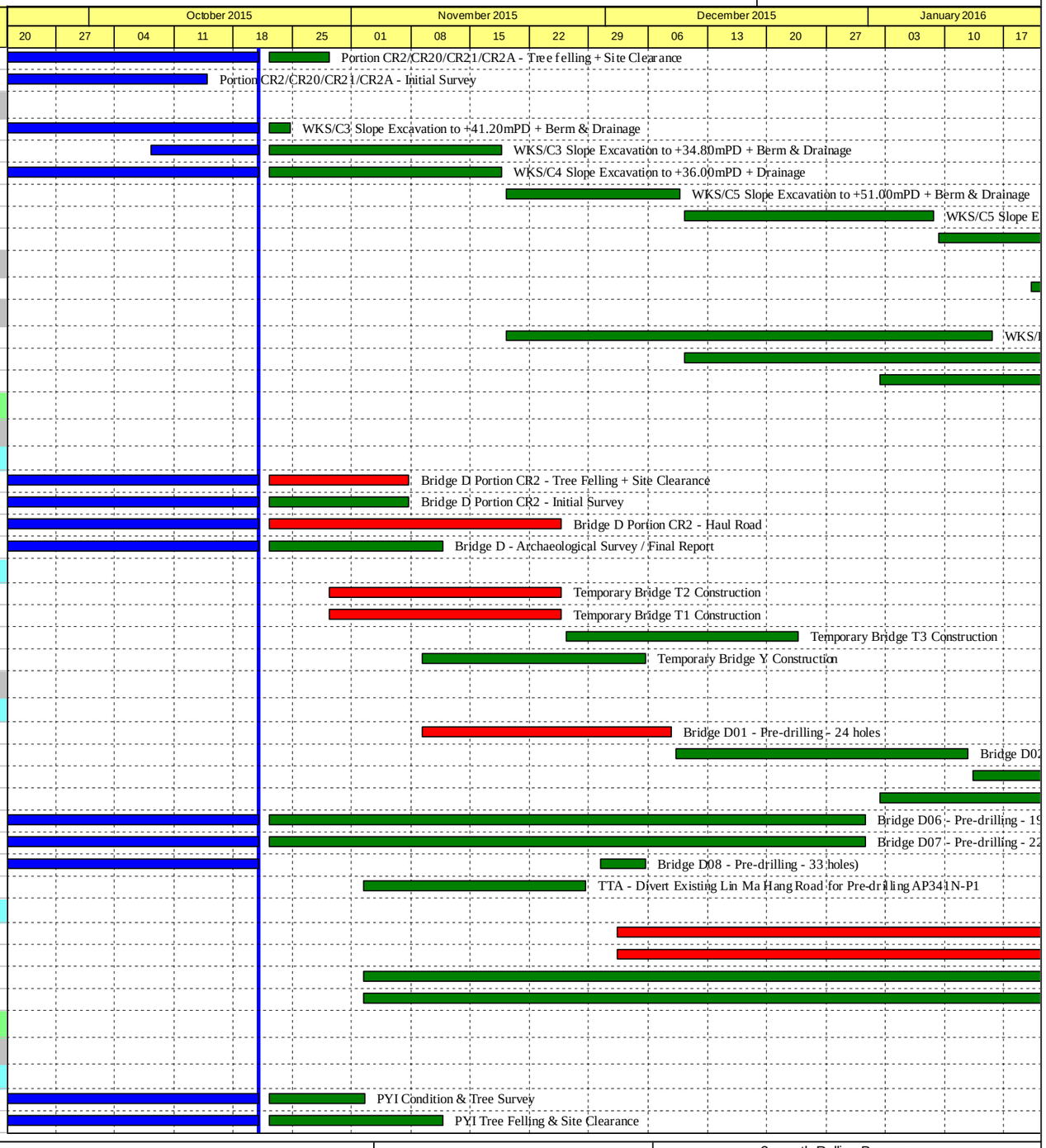
Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

Activity ID	Activity Name	Rem Dur	Start	Finish
RCD-1120	Portion CR2/CR20/CR21/CR2A - Tree felling + Site Clearance	6	14-Aug-15 A	29-Oct-15
RCD-1140	Portion CR2/CR20/CR21/CR2A - Initial Survey	0	28-Aug-15 A	15-Oct-15 A
13.2 - Cut Slopes				
RCD-2010	WKS/C3 Slope Excavation to +41.20mPD + Berm & Drainage	3	18-Sep-15 A	24-Oct-15
RCD-2020	WKS/C3 Slope Excavation to +34.80mPD + Berm & Drainage	24	08-Oct-15 A	18-Nov-15
RCD-2030	WKS/C4 Slope Excavation to +36.00mPD + Drainage	24	18-Sep-15 A	18-Nov-15
RCD-2090	WKS/C5 Slope Excavation to +51.00mPD + Berm & Drainage	18	19-Nov-15	09-Dec-15
RCD-2100	WKS/C5 Slope Excavation to +43.50mPD + Berm & Drainage	24	10-Dec-15	08-Jan-16
RCD-2200	WKS/C5 Slope Excavation to +36.00mPD + Soil Nail + Berm & Drainage	36	09-Jan-16	26-Feb-16
13.3 - Fill Slopes				
RCD-3000	WKS/F8 Fill Slope	75	20-Jan-16	27-Apr-16
13.4 - Retaining Walls				
RCD-4000	WKS/RW6 Retaining Wall Excavation	48	19-Nov-15	15-Jan-16
RCD-4100	WKS/RW6 Retaining Wall Base Slab	60	10-Dec-15	26-Feb-16
RCD-4200	WKS/RW6 Retaining Wall Stem Wall	72	02-Jan-16	06-Apr-16
14.0 - Bridge D (Ch9269 to Ch11369)				
14.1 - Bridge D - Preliminary Works				
- Site Establishment				
BRD-1020	Bridge D Portion CR2 - Tree Felling + Site Clearance	15	31-Jul-15 A	07-Nov-15
BRD-1030	Bridge D Portion CR2 - Initial Survey	15	21-Aug-15 A	07-Nov-15
BRD-1180	Bridge D Portion CR2 - Haul Road	30	08-Sep-15 A	25-Nov-15
BRD-1300	Bridge D - Archaeological Survey / Final Report	18	16-Sep-15 A	11-Nov-15
- Temporary Bridges				
BRD-1190	Temporary Bridge T2 Construction	24	29-Oct-15	25-Nov-15
BRD-1200	Temporary Bridge T1 Construction	24	29-Oct-15	25-Nov-15
BRD-1220	Temporary Bridge T3 Construction	24	26-Nov-15	23-Dec-15
BRD-1230	Temporary Bridge Y Construction	24	09-Nov-15	05-Dec-15
14.2 - Bored Piles				
- Pre-drilling				
BRD-2010	Bridge D01 - Pre-drilling - 24 holes	26	09-Nov-15	08-Dec-15
BRD-2020	Bridge D02 - Pre-drilling - 27 holes	28	09-Dec-15	12-Jan-16
BRD-2030	Bridge D03 - Pre-drilling - 28 holes	28	13-Jan-16	20-Feb-16
BRD-2050	Bridge D05 - Pre-drilling - 16 holes	40	02-Jan-16	24-Feb-16
BRD-2060	Bridge D06 - Pre-drilling - 19 holes	60	08-Sep-15 A	31-Dec-15
BRD-2070	Bridge D07 - Pre-drilling - 22 holes)	60	15-Sep-15 A	31-Dec-15
BRD-2080	Bridge D08 - Pre-drilling - 33 holes)	6	21-Aug-15 A	05-Dec-15
BRD-2085	TTA - Divert Existing Lin Ma Hang Road for Pre-drilling AP341N-P1	24	02-Nov-15	28-Nov-15
- Bored Piling				
BRD-2100	Bridge D01 Bored Piling Abutment AA301 - 8 nos (1 set)	85	02-Dec-15	18-Mar-16
BRD-2150	Bridge D01 Bored Piling Piers - 16 nos (3 sets)	72	02-Dec-15	03-Mar-16
BRD-2900	Bridge D08 - Bored Piling Piers - 21 nos (3 sets)	77	02-Nov-15	01-Feb-16
BRD-2980	Bridge D08 - Bored Piling Abutment AA344 - 8 nos (1 set)	88	02-Nov-15	20-Feb-16
15.0 - Ping Yeung Interchange (PYI)				
15.1 - PYI Local Road - South				
- Preparation Works				
PYI-1010	PYI Condition & Tree Survey	10	24-Jun-15 A	02-Nov-15
PYI-1015	PYI Tree Felling & Site Clearance	18	07-Aug-15 A	11-Nov-15



CRBC-CEC-KADEN Joint Venture

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3-month Rolling Programme (20-Oct-2015)

Data Date: 21-Oct-15 Run Date: 27-Oct-15

Project ID :LT6-3MRP-04
Layout : LT6IWP 3MRP

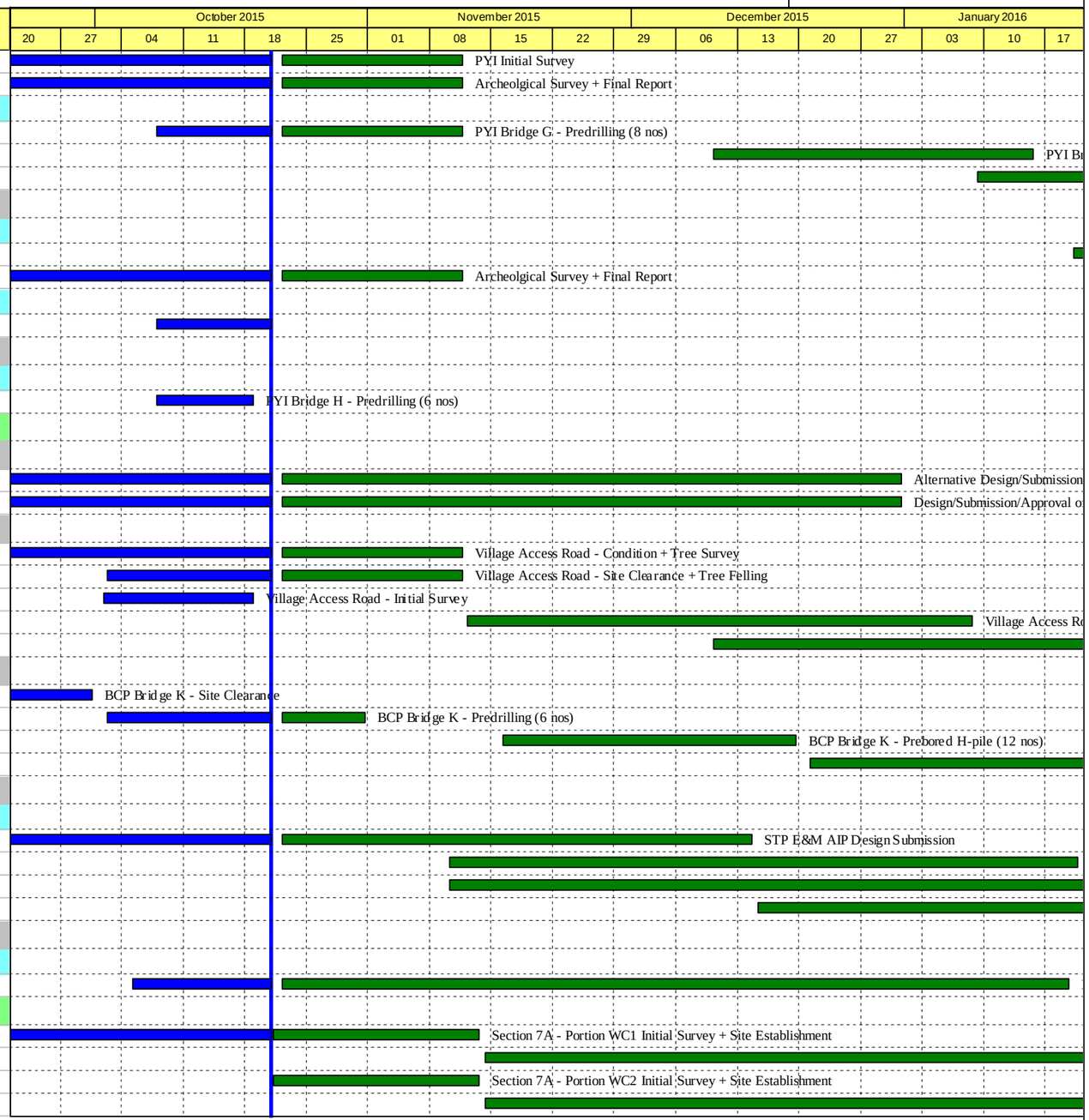
3-month Rolling Programme			
Date	Revision	Checked	Approved
20-Oct-15	3MRP		

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - CONTRACT 6

AECOM

CEDD

Activity ID	Activity Name	Rem Dur	Start	Finish
PYI-1020	PYI Initial Survey	18	11-Sep-15 A	11-Nov-15
PYI-1030	Archeolgical Survey + Final Report	18	21-Sep-15 A	11-Nov-15
- Bridge G				
PYI-1040	PYI Bridge G - Predrilling (8 nos)	18	08-Oct-15 A	11-Nov-15
PYI-1050	PYI Bridge G - Prebored H-pile - 16 nos	30	10-Dec-15	15-Jan-16
PYI-1100	PYI Bridge G - Construct Abutments	42	09-Jan-16	04-Mar-16
15.2 - PYI Local Road - North				
- Preparation Works				
PYI-2010	PYI Condition & Tree Survey	12	20-Jan-16	02-Feb-16
PYI-2040	Archeolgical Survey + Final Report	18	21-Sep-15 A	11-Nov-15
- Bridge L				
PYI-2050	PYI Bridge L - Predrilling (19 nos)	11	08-Oct-15 A	21-Mar-16
15.3 - PYI Roadworks				
- Bridge H				
PYI-2700	PYI Bridge H - Predrilling (6 nos)	0	08-Oct-15 A	19-Oct-15 A
16.0 - Border Control Point (BCP)				
16.1 - Proposed Lin Ma Hang Road				
BCP-1010	Alternative Design/Submission/Approval for BCP/RW4A	60	02-Sep-15 A	31-Dec-15
BCP-1110	Design/Submission/Approval of CSD Proposal for BCP/RW3	60	02-Sep-15 A	31-Dec-15
16.2 - Village Access Road (VAR)				
BCP-6010	Village Access Road - Condition + Tree Survey	18	02-Sep-15 A	11-Nov-15
BCP-6020	Village Access Road - Site Clearance + Tree Felling	18	02-Oct-15 A	11-Nov-15
BCP-6030	Village Access Road - Initial Survey	0	02-Oct-15 A	19-Oct-15 A
BCP-6050	Village Access Road E/B - Site Formation + BCP/C1 + BCP/C2	48	12-Nov-15	08-Jan-16
BCP-6100	Village Access Road - Gabion Channel	90	10-Dec-15	06-Apr-16
16.4 - Bridge K				
BCP-4010	BCP Bridge K - Site Clearance	0	16-Sep-15 A	30-Sep-15 A
BCP-4050	BCP Bridge K - Predrilling (6 nos)	9	02-Oct-15 A	31-Oct-15
BCP-4100	BCP Bridge K - Prebored H-pile (12 nos)	30	16-Nov-15	19-Dec-15
BCP-4150	BCP Bridge K - Construct Abutments	48	21-Dec-15	23-Feb-16
16.8 - Sewage Treatment Plant				
- Contractor's Design Approval				
BCP-7005	STP E&M AIP Design Submission	46	24-Jul-15 A	14-Dec-15
BCP-7010	STP E&M AIP Design Engineer Review + Approval	60	10-Nov-15	20-Jan-16
BCP-7020	STP E&M DDA Design Submission	130	10-Nov-15	22-Apr-16
BCP-7030	STP Civil and Structure Design Submission	90	15-Dec-15	11-Apr-16
16.9 - Reclaimed Water Facilities (Provisional)				
- Contractor's Design Approval				
BCP-8780	RWF E&M AIP Design Submission	75	05-Oct-15 A	19-Jan-16
18.0 - Landscaping and Establishment Works				
LEW-1000	Section 7A - Portion WC1 Initial Survey + Site Establishment	24	24-Jul-15 A	13-Nov-15
LEW-1100	Section 7A - Portion WC1 Initial Planting	220	14-Nov-15	20-Jun-16
LEW-1200	Section 7A - Portion WC2 Initial Survey + Site Establishment	24	21-Oct-15	13-Nov-15
LEW-1300	Section 7A - Portion WC2 Initial Planting	220	14-Nov-15	20-Jun-16



CRBC-CEC-KADEN Joint Venture

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3-month Rolling Programme (20-Oct-2015)

Data Date: 21-Oct-15 Run Date: 27-Oct-15

Project ID :LT6-3MRP-04
Layout : LT6IWP 3MRP

3-month Rolling Programme			
Date	Revision	Checked	Approved
20-Oct-15	3MRP		

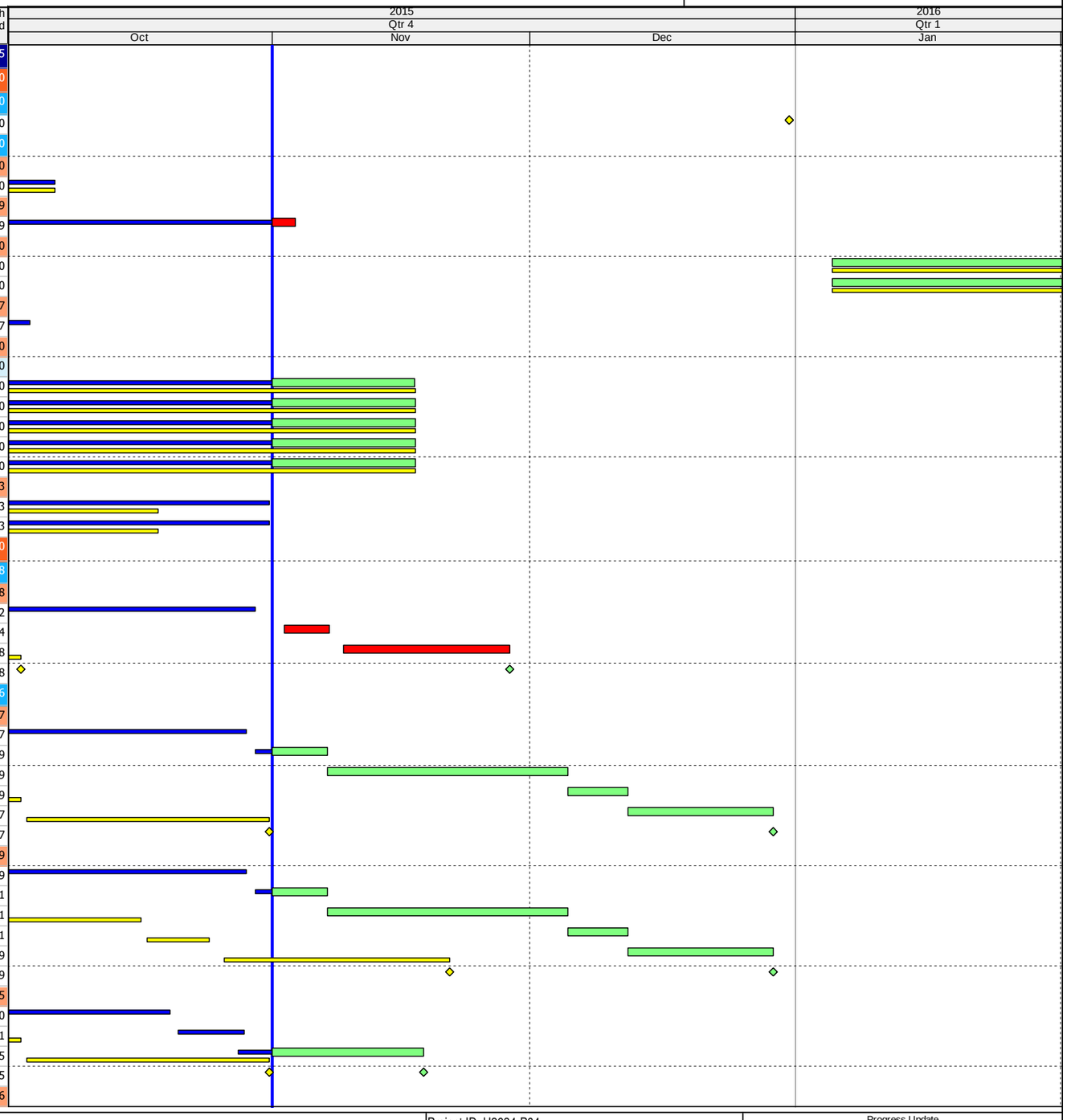
Contract SS C505

Data Date: 01-Nov-15
Print Date: 04-Nov-15 15:16

Liantang/Heung Yuen Wai Boundary Control Point

BCP Buildings and Associated Facilities

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
LHYW Boundary Control Point - Works Programme with		796	09-Jul-15 A	23-Mar-18	-15
PRELIMINARIES AND GENERAL REQUIREMENTS		162	03-Aug-15 A	01-Feb-16	0
Possession of Temporary Works Areas		0	31-Dec-15	31-Dec-15	0
WA4x	Contractor shall allow access to tempory works area for Bridge A till end	0	31-Dec-15*		0
Submission and Approvals		162	03-Aug-15 A	01-Feb-16	0
Initial General Submission		30	07-Sep-15 A	06-Oct-15 A	0
1018	Carry out audit for the ISO 9001:2000 or ISO 9001:2008 certification; S(	30	07-Sep-15 A	06-Oct-15 A	0
Programme		7	24-Aug-15 A	03-Nov-15	-69
1086	Architect review and approval on Final Works Programme	7	24-Aug-15 A	03-Nov-15	-69
Other Submissions		24	05-Jan-16	01-Feb-16	0
1161	Prepare and submit Ironmongery Schedule for PTB	24	05-Jan-16	01-Feb-16	0
8796	Prepare and submit Ironmongery Schedule for Ancillary Buildings	24	05-Jan-16	01-Feb-16	0
Project Wide EPD Permits & Licenses		28	30-Aug-15 A	03-Oct-15 A	-7
1160	EPD - Grant discharge License for Effluent	28	30-Aug-15 A	03-Oct-15 A	-7
Permit		90	20-Aug-15 A	17-Nov-15	0
Environmental Permit EP-404/2011		90	20-Aug-15 A	17-Nov-15	0
1166	EP - Prepare and submit Vegetation surveys Report	90	20-Aug-15 A	17-Nov-15	0
1168	EP - Prepare and submit Woodland Compensation Plan (WCP)	90	20-Aug-15 A	17-Nov-15	0
1170	EP - Prepare and submit Habitat Creation and Management Plan (HCMP)	90	20-Aug-15 A	17-Nov-15	0
1174	EP - Prepare and submit Topsoil Management Plan	90	20-Aug-15 A	17-Nov-15	0
1176	EP - Prepare and submit Environmental Monitoring and Audit (EM&A) Pro	90	20-Aug-15 A	17-Nov-15	0
Training		90	03-Aug-15 A	31-Oct-15 A	-13
1464	Commence Training of the CCTS Trainees in B&C Trades; SCC109	90	03-Aug-15 A	31-Oct-15 A	-13
1466	Commence Training of the CCTS Trainees in E&M Trades; SCC109	90	03-Aug-15 A	31-Oct-15 A	-13
DETAILED DESIGN OF WORKS		328	09-Jul-15 A	17-Aug-16	0
Foundations for Passenger Terminal Building		102	30-Jul-15 A	28-Nov-15	-48
Socketted H-Piles		102	30-Jul-15 A	28-Nov-15	-48
8218	19 - Submit to Architect for Review	24	30-Jul-15 A	30-Oct-15 A	-52
8220	19 - Response to comments	6	02-Nov-15	07-Nov-15	-54
8222	19 - Submit to Architect for Final submission	18	09-Nov-15	28-Nov-15	-48
8224	19 - Architect Issue Consent to proceed construction	0		28-Nov-15	-48
Foundation for Ancillary Buildings (Portion 1)		132	30-Jul-15 A	06-Jan-16	-36
Driven H-Piles - 02 HKPF Building		125	30-Jul-15 A	29-Dec-15	-47
8226	Prepare Submission for Driven H- Piling	18	30-Jul-15 A	29-Oct-15 A	-57
8228	IDC Review and Issue Check Certificate	6	30-Oct-15 A	07-Nov-15	-59
8230	Submit to Engineer for Review	24	07-Nov-15	05-Dec-15	-59
8232	Response to comments	6	05-Dec-15	12-Dec-15	-59
8234	Submit to Engineer for DDA	12	12-Dec-15	29-Dec-15	-47
8236	Engineer Issue Consent to proceed construction	0		29-Dec-15	-47
Driven H-Piles - 03 Fire Station		107	20-Aug-15 A	29-Dec-15	-29
8517	Prepare Submission for Driven H- Piling	18	20-Aug-15 A	29-Oct-15 A	-39
8518	IDC Review and Issue Check Certificate	6	30-Oct-15 A	07-Nov-15	-41
8519	Submit to Engineer for Review	24	07-Nov-15	05-Dec-15	-41
8520	Response to comments	6	05-Dec-15	12-Dec-15	-41
8521	Submit to Engineer for DDA	12	12-Dec-15	29-Dec-15	-29
8522	Engineer Issue Consent to proceed construction	0		29-Dec-15	-29
Driven H-Piles - 05 CEB (Outbound)		56	26-Sep-15 A	18-Nov-15	-15
8525	Submit to Engineer for Review	24	26-Sep-15 A	20-Oct-15 A	-20
8526	Response to comments	6	21-Oct-15 A	28-Oct-15 A	-21
8527	Submit to Engineer for DDA	24	28-Oct-15 A	18-Nov-15	-15
8528	Engineer Issue Consent to proceed construction	0		18-Nov-15	-15
Driven H-Piles - 07 FXRVIS Building (Outbound)		114	28-Sep-15 A	06-Jan-16	-36



Actual Milestone
Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
R.
P..
A.
L..
B.

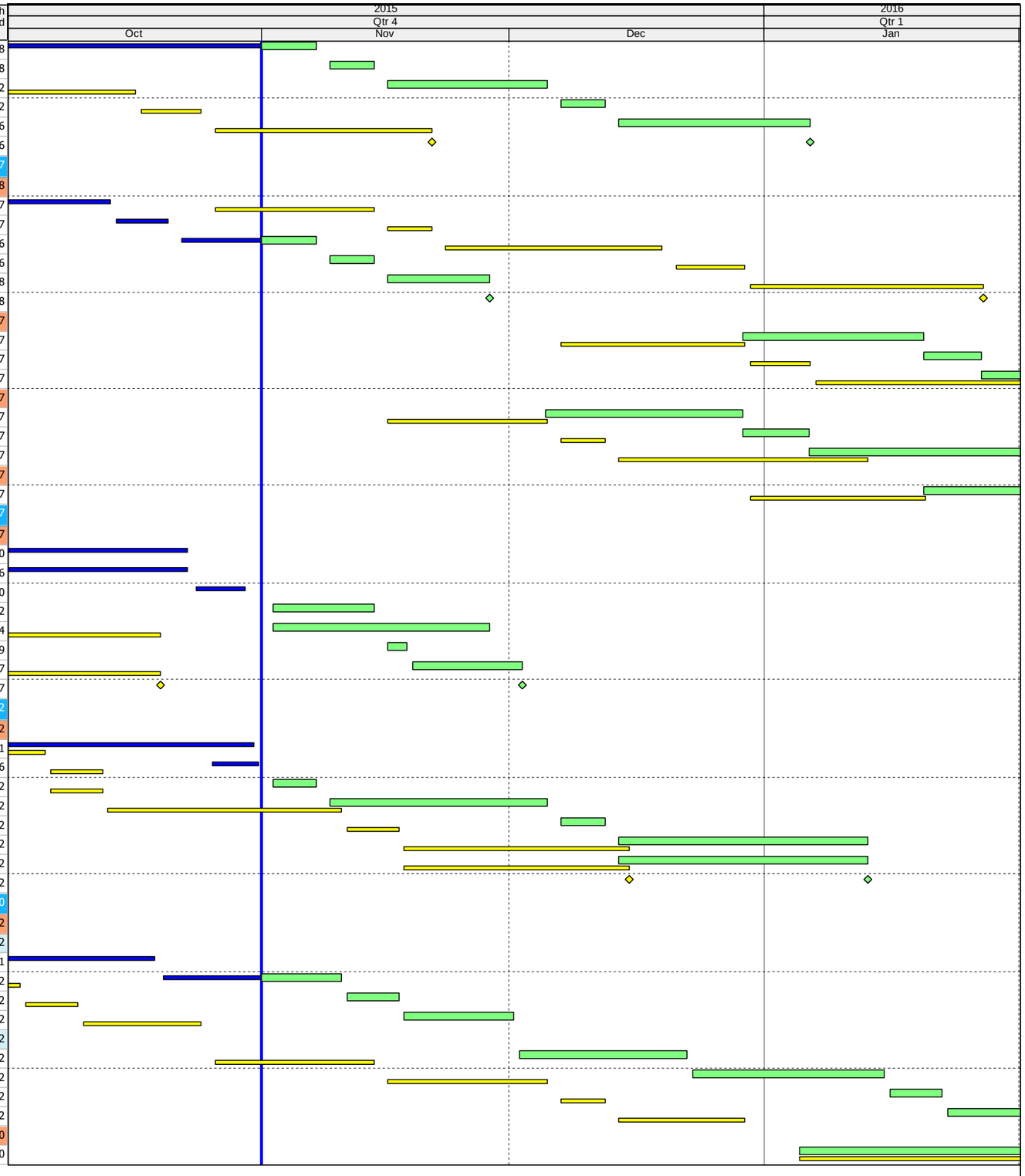
3 Month Lookahead Programme

Progress to 01-Nov-15

Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

Progress Update			
Date	Revision	Checked	
02-Nov-15	Progress update		

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
8529	Prepare Submission for Driven H- Piling	18	28-Sep-15 A	07-Nov-15	-48
8530	IDC Review and Issue Check Certificate	6	09-Nov-15	14-Nov-15	-48
8531	Submit to Engineer for Review	18	16-Nov-15	05-Dec-15	-42
8532	Response to comments	6	07-Dec-15	12-Dec-15	-42
8533	Submit to Engineer for DDA	18	14-Dec-15	06-Jan-16	-36
8534	Engineer Issue Consent to proceed construction	0		06-Jan-16	-36
Foundation for Ancillary Buildings (Portion 2)		110	21-Sep-15 A	02-Mar-16	-17
Driven H-Piles - 04 CEB (Inbound)		56	21-Sep-15 A	28-Nov-15	48
8482	Prepare Submission for Driven H- Piling	18	21-Sep-15 A	13-Oct-15 A	27
8484	IDC Review and Issue Check Certificate	6	14-Oct-15 A	20-Oct-15 A	27
8486	Submit to Engineer for Review	24	22-Oct-15 A	07-Nov-15	36
8488	Response to comments	6	09-Nov-15	14-Nov-15	36
8490	Submit to Engineer for DDA	12	16-Nov-15	28-Nov-15	48
8492	Engineer Issue Consent to proceed construction	0		28-Nov-15	48
Driven H-Piles - 06 FXRVIS Building (Inbound)		48	29-Dec-15	02-Mar-16	-17
8535	Prepare Submission for Driven H- Piling	18	29-Dec-15	20-Jan-16	-17
8536	IDC Review and Issue Check Certificate	6	20-Jan-16	27-Jan-16	-17
8537	Submit to Engineer for Review	24	27-Jan-16	02-Mar-16	-17
Driven H-Piles - 37 Elevated Walkway 1		48	05-Dec-15	03-Feb-16	-17
8547	Prepare Submission for Driven H- Piling	18	05-Dec-15	29-Dec-15	-17
8548	IDC Review and Issue Check Certificate	6	29-Dec-15	06-Jan-16	-17
8549	Submit to Engineer for Review	24	06-Jan-16	03-Feb-16	-17
Driven H-Piles - 39 Elevated Walkway 3		18	20-Jan-16	17-Feb-16	-17
8553	Prepare Submission for Driven H- Piling	18	20-Jan-16	17-Feb-16	-17
Foundation for Bridges B4/B5		123	09-Jul-15 A	02-Dec-15	-37
Bored Piles		123	09-Jul-15 A	02-Dec-15	-37
8238	B4/B5 - Prepare Submission for Bored Pile	18	09-Jul-15 A	23-Oct-15 A	-70
8250	B4/B5 - Prepare 1st submission; incl. Method Statement, Temp works De	6	28-Sep-15 A	23-Oct-15 A	-56
8240	B4/B5 - IDC Review and Issue Check Certificate	6	24-Oct-15 A	30-Oct-15 A	-70
8242	B4/B5 - Submit to Architect for Review	12	02-Nov-15	14-Nov-15	-52
8249	B4/B5 Prepare and submit design statement to Highways Department	24	02-Nov-15	28-Nov-15	-34
8244	B4/B5 - Response to comments	3	16-Nov-15	18-Nov-15	-49
8246	B4/B5 - Submit to Architect for Final submission	12	19-Nov-15	02-Dec-15	-37
8248	B4/B5 - Architect Issue Consent to proceed construction	0		02-Dec-15	-37
Foundation for Bridges B1/B2/B3		100	21-Sep-15 A	13-Jan-16	-22
Bored Piles		100	21-Sep-15 A	13-Jan-16	-22
8252	B1/B2/B3 - Prepare Submission for Bored Pile	18	21-Sep-15 A	31-Oct-15 A	-21
8264	B1/B2/B3 - Prepare 1st submission; incl. Method Statement, Temp works	6	26-Oct-15 A	31-Oct-15 A	-16
8254	B1/B2/B3 - IDC Review and Issue Check Certificate	6	02-Nov-15	07-Nov-15	-22
8256	B1/B2/B3 - Submit to Architect for Review	24	09-Nov-15	05-Dec-15	-22
8258	B1/B2/B3 - Response to comments	6	07-Dec-15	12-Dec-15	-22
8260	B1/B2/B3 - Submit to Architect for Final submission	24	14-Dec-15	13-Jan-16	-22
8797	B1/B2/B3 - Prepare and submit design statement to Highways Department	24	14-Dec-15	13-Jan-16	-22
8262	B1/B2/B3 - Architect Issue Consent to proceed construction	0		13-Jan-16	-22
Architectural		307	03-Aug-15 A	17-Aug-16	0
Curtain Walls, Glass Wall & Aluminum Claddings		155	03-Aug-15 A	05-Feb-16	-32
VMU Design		101	03-Aug-15 A	01-Dec-15	-32
1412	Prepare shop drawings	33	03-Aug-15 A	19-Oct-15 A	-31
1554	Submit for comment	18	20-Oct-15 A	10-Nov-15	-32
8636	Incorporate comments	6	11-Nov-15	17-Nov-15	-32
8646	Resubmit and approval	12	18-Nov-15	01-Dec-15	-32
PMU Design		54	02-Dec-15	05-Feb-16	-32
1488	Prepare shop drawings	18	02-Dec-15	22-Dec-15	-32
1556	Submit for comment	18	23-Dec-15	15-Jan-16	-32
1558	Incorporate comments	6	16-Jan-16	22-Jan-16	-32
8656	Resubmit and approval	12	23-Jan-16	05-Feb-16	-32
Roofing		180	05-Jan-16	17-Aug-16	0
1410	Metal Roofing & Roof Fall Arrest System Design Submission Review & Ap	180	05-Jan-16	17-Aug-16	0



Actual Milestone
Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
R.
P..
A.
L..
B.

3 Month Lookahead Programme

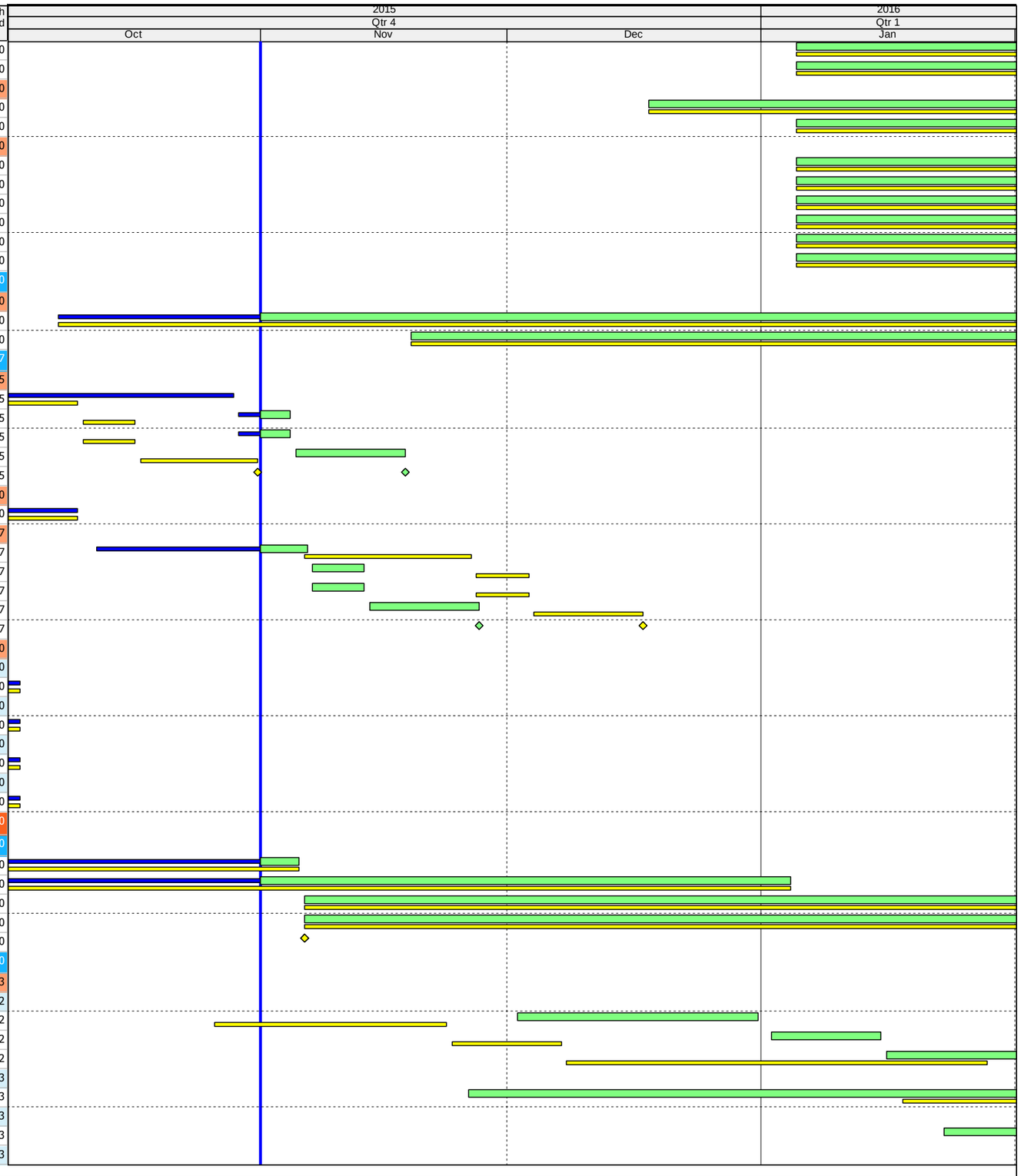
Progress to 01-Nov-15

Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

Page 2 of 6

Progress Update			
Date	Revision	Checked	A
02-Nov-15	Progress update		

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
1414	Skylight/Glazed Canopies/Glazed Roofing & Sun Shades Design Submissio	180	05-Jan-16	17-Aug-16	0
1416	Green Roof System Design Submission Review & Approval	150	05-Jan-16	13-Jul-16	0
Suspended Ceiling, Steel Windows, Louvre and Door		180	18-Dec-15	03-Aug-16	0
1418	Suspended Ceiling System Design Submission Review & Approval	180	18-Dec-15	03-Aug-16	0
1408	Steel Windows, Louvre and Door Design Submission Review & Approval	150	05-Jan-16	13-Jul-16	0
Others		120	05-Jan-16	06-Jun-16	0
8666	Glass and Metal Balustrades Design Submission Review & Approval	120	05-Jan-16	06-Jun-16	0
8676	Minor Structural Steelworks Design Submission Review & Approval	120	05-Jan-16	06-Jun-16	0
8686	Steel Maintenance and Support Platforms Design Submission Review & A	120	05-Jan-16	06-Jun-16	0
8706	Glass Cladding Design Submission Review & Approval	120	05-Jan-16	06-Jun-16	0
8716	X-ray Shielding Doors Design Submission Review & Approval	90	05-Jan-16	29-Apr-16	0
8726	Hoisting and Beams Installation Design Submission Review & Approval	90	05-Jan-16	29-Apr-16	0
MEP Systems		156	07-Oct-15 A	21-Apr-16	0
Shop Drawings		156	07-Oct-15 A	21-Apr-16	0
3100	Combined BWIC & Concealed Conduit / Services Drawings	120	07-Oct-15 A	05-Mar-16	0
3102	Combined Services Drawings & shop Drawings	120	19-Nov-15	21-Apr-16	0
Temporary Works Design & Engineering		95	06-Aug-15 A	27-Nov-15	17
ELS for u/g Water / Fuel Tanks		40	21-Sep-15 A	18-Nov-15	-15
1490	TW2 - Prepare design for ELS u/g tanks	30	21-Sep-15 A	28-Oct-15 A	-15
1492	TW2 - ICE review and issue check certificate	6	29-Oct-15 A	04-Nov-15	-15
1494	TW2 - Prepare 1st submission; incl. Method Statement, Temp works Des	6	29-Oct-15 A	04-Nov-15	-15
1496	TW2 - Submit to Architect for review	12	05-Nov-15	18-Nov-15	-15
1498	TW2 - Architect Issue Consent to proceed construction	0		18-Nov-15	-15
Utilities Diversiopn / Protection		24	10-Sep-15 A	09-Oct-15 A	0
1532	TW6 - Architect and Utilities company Agree Diversion / Protection Propo	24	10-Sep-15 A	09-Oct-15 A	0
Formwork and Falsework		19	12-Oct-15 A	27-Nov-15	17
1582	TW8 - Prepare design for Formworks and Falseworks	18	12-Oct-15 A	06-Nov-15	17
1584	TW8 - ICE review and issue check certificate	6	07-Nov-15	13-Nov-15	17
1586	TW8 - Prepare 1st submission; incl. Method Statement	6	07-Nov-15	13-Nov-15	17
1588	TW8 - Submit to Architect for review	12	14-Nov-15	27-Nov-15	17
1590	TW8 - Architect Issue Consent to preoceed construction	0		27-Nov-15	17
Interfacing		50	06-Aug-15 A	02-Oct-15 A	0
Interfacing with CV/2012/08 (LTBCP - Contract 2)		48	06-Aug-15 A	02-Oct-15 A	0
1536	INT - CV/2012/08 Prepare and note the details of some of the design ar	48	06-Aug-15 A	02-Oct-15 A	0
Interfacing with CV/2012/09 (LTBCP - Contract 3)		48	06-Aug-15 A	02-Oct-15 A	0
1540	INT - CV/2012/09 Prepare and note the details of some of the design ar	48	06-Aug-15 A	02-Oct-15 A	0
Interfacing with CV/2012/03 (LTBCP - Contract 5)		48	06-Aug-15 A	02-Oct-15 A	0
1544	INT - CV/2012/03 Prepare and note the details of some of the design ar	48	06-Aug-15 A	02-Oct-15 A	0
Interfacing with CV/2013/08 (LTBCP - Contract 6)		28	06-Aug-15 A	02-Oct-15 A	0
1548	INT - CV/2013/08 Prepare and note the details of some of the design ar	28	06-Aug-15 A	02-Oct-15 A	0
PROCUREMENT MOCK-UPS MANUFACTURING & DELIVE		268	09-Jul-15 A	06-Jun-16	0
Procurement of Major Subcontracts		214	08-Aug-15 A	03-May-16	0
3772	Structural Works	90	08-Aug-15 A	05-Nov-15	0
3776	Architectural / fitting Out	120	07-Sep-15 A	04-Jan-16	0
3774	Builder's Works	180	06-Nov-15	03-May-16	0
3778	Building Services	150	06-Nov-15	03-Apr-16	0
3780	Award of SC - Formwork & Falseworks	0	06-Nov-15		0
Mock-Ups, Prototypes & Performance Test		268	09-Jul-15 A	06-Jun-16	0
Facade		220	09-Jul-15 A	05-Apr-16	43
VMU		79	02-Dec-15	05-Mar-16	-32
A1000	Procurement and Fabrication	25	02-Dec-15	31-Dec-15	-32
A1010	Installation	12	02-Jan-16	15-Jan-16	-32
A1020	1st stage inspection	42	16-Jan-16	05-Mar-16	-32
GV Kiosk (Prototype A)		60	26-Nov-15	06-Feb-16	43
PT.1040	Prepare shop drawings and structural calculations	60	26-Nov-15	06-Feb-16	43
Double Curved Aluminum Cladding (Prototype B)		60	23-Jan-16	05-Apr-16	43
PT.1130	Prepare shop drawings and structural calculations	60	23-Jan-16	05-Apr-16	43
PTB Facade (Prototype C) assembled on building 09		196	09-Jul-15 A	05-Mar-16	43



Actual Milestone
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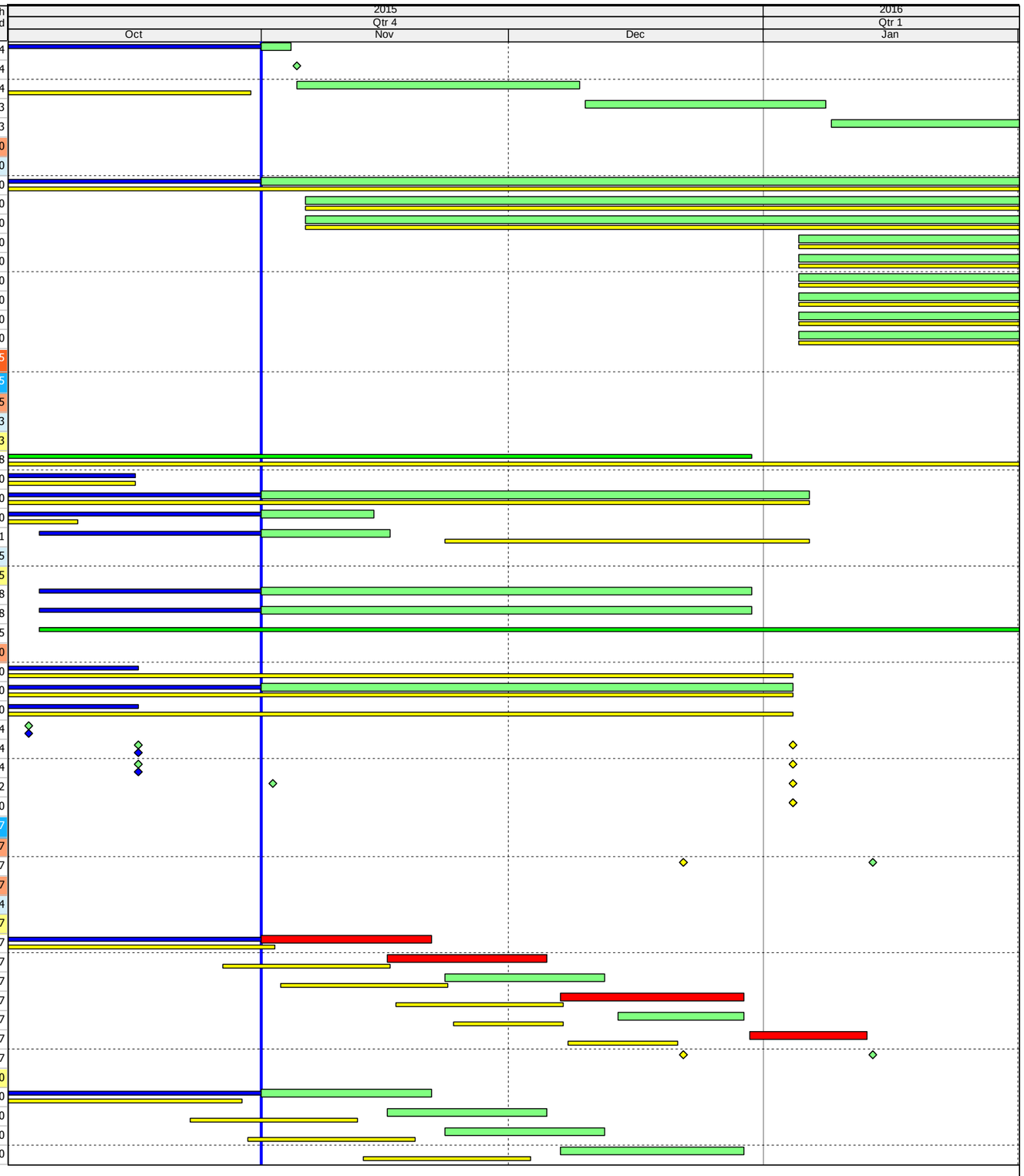
3 Month Lookahead Programme

Progress to 01-Nov-15

Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

Progress Update			
Date	Revision	Checked	
02-Nov-15	Progress update		

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
PT.1220	Prepare shop drawings and structural calculations	60	09-Jul-15 A	04-Nov-15	-34
PT.1230	Submit to Architect	0	05-Nov-15		-34
PT.1240	Fabricate prototype	30	05-Nov-15	09-Dec-15	-34
PT.1250	Install prototype	24	10-Dec-15	08-Jan-16	43
PT.1260	Stage I Inspection	48	09-Jan-16	05-Mar-16	43
Mock-ups		197	29-Sep-15 A	06-Jun-16	0
Other Specified Mockups (PS.A01)		197	29-Sep-15 A	06-Jun-16	0
MU.1120	Aluminium Windows Louvres and Doors	120	29-Sep-15 A	27-Feb-16	0
MU.1210	Fairface Concrete Works	120	06-Nov-15	08-Apr-16	0
MU.1370	Structural Steel works	120	06-Nov-15	08-Apr-16	0
MU.1110	Acoustic Panel System	60	05-Jan-16	21-Mar-16	0
MU.1130	Aluminium Standing Seam Metal Roofing	120	05-Jan-16	06-Jun-16	0
MU.1170	Dog Kennel Partitions and Doors	120	05-Jan-16	06-Jun-16	0
MU.1240	Floor Self Smoothing System	60	05-Jan-16	21-Mar-16	0
MU.1250	Flooring System	60	05-Jan-16	21-Mar-16	0
MU.1360	Toilet Cubicle and Changing Cubicle (incl fittings etc)	120	05-Jan-16	06-Jun-16	0
CONSTRUCTION		796	09-Jul-15 A	23-Mar-18	-15
Establishment , Mobilisation & Advance Works		796	09-Jul-15 A	23-Mar-18	-15
Site Establishment Works		772	06-Aug-15 A	23-Mar-18	-15
Portion 1		279	06-Aug-15 A	06-Jan-16	153
Offices Welfare and Other Facilities		279	06-Aug-15 A	06-Jan-16	153
8516	Maintain short term office and welfare facilities	279	06-Aug-15 A	30-Dec-15	158
1282	Office equipment and furnitures; Security System	30	10-Sep-15 A	16-Oct-15 A	0
1258	Mobilisation, Site Security and construct site facilities	96	10-Sep-15 A	06-Jan-16	0
1284	Project Sign Board	24	10-Sep-15 A	14-Nov-15	-30
1274	Utilities connections (Elec / sub-station / water / telephone / IT / etc.)	36	05-Oct-15 A	16-Nov-15	41
Portion 2		700	05-Oct-15 A	23-Mar-18	-15
Offices Welfare and other Facilities		700	05-Oct-15 A	23-Mar-18	-15
8502	Setup main Site Compound with Office and Welfare Facilities	72	05-Oct-15 A	30-Dec-15	158
8504	Setup main Engineer's Office	72	05-Oct-15 A	30-Dec-15	158
8514	Maintain main office and welfare facilities	700	05-Oct-15 A	23-Mar-18	-15
Temporary Utilities		148	09-Jul-15 A	04-Jan-16	0
1310	Obtain permit for water connection	180	09-Jul-15 A	17-Oct-15 A	80
8508	Obtain permit for electric connection and build sub-station	180	09-Jul-15 A	04-Jan-16	0
8510	Obtain permit for telephone/broadband connection	180	09-Jul-15 A	17-Oct-15 A	80
1292	Discharge Licence	0		03-Oct-15 A	-4
1290	Water connection for site use	0		17-Oct-15 A	64
1298	Telephone / Broad Band ready	0		17-Oct-15 A	64
1288	Fire Hydrant connection for site use	0		02-Nov-15	52
1296	Temporary Site Power ready	0		04-Jan-16	0
Passenger Terminal Building (PTB)		177	14-Sep-15 A	28-Apr-16	-17
19/20 Milestones		0	14-Jan-16	14-Jan-16	-17
19.MS20	PTB Building - Pilecaps Works Start	0	14-Jan-16		-17
19 - PTB (Podium)		177	14-Sep-15 A	28-Apr-16	-17
19 - Foundations		124	14-Sep-15 A	22-Feb-16	-14
19 - Foundations Portion C1		96	14-Sep-15 A	14-Jan-16	-17
19.802	19C1a - H-Piles Under Tower (300 no)	30	14-Sep-15 A	21-Nov-15	-17
19.804	19C1b - H Piles Outside Tower(177 no)	18	16-Nov-15	05-Dec-15	-17
19.806	19C1 Submit Piling Record & Load Test Under Tower	18	23-Nov-15	12-Dec-15	-17
19.810	19C1 Submit Piling Record & Load Test Outside Tower	18	07-Dec-15	29-Dec-15	-17
19.808	19C1 Architect review Piling Record and Load Test Under Tower	12	14-Dec-15	29-Dec-15	-17
19.812	19C1 Architect review Piling Record and Load Test Outside Tower	12	30-Dec-15	13-Jan-16	-17
19.116	19C1 - Start to construct Pilecaps at Portion C1	0	14-Jan-16		-17
19 - Foundations Portion C2		96	17-Sep-15 A	14-Jan-16	-20
19.814	19C2a - H Piles Under Tower (261 no)	27	17-Sep-15 A	21-Nov-15	-20
19.816	19C2b - H Piles Outside Tower (165 no)	18	16-Nov-15	05-Dec-15	-20
19.818	19C2 Submit Piling Record & Load Test Under Tower	18	23-Nov-15	12-Dec-15	-20
19.822	19C2 Submit Piling Record & Load Test Outside Tower	18	07-Dec-15	29-Dec-15	-20



Actual Milestone
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Baseline Milestone
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3 Month Lookahead Programme

Progress to 01-Nov-15

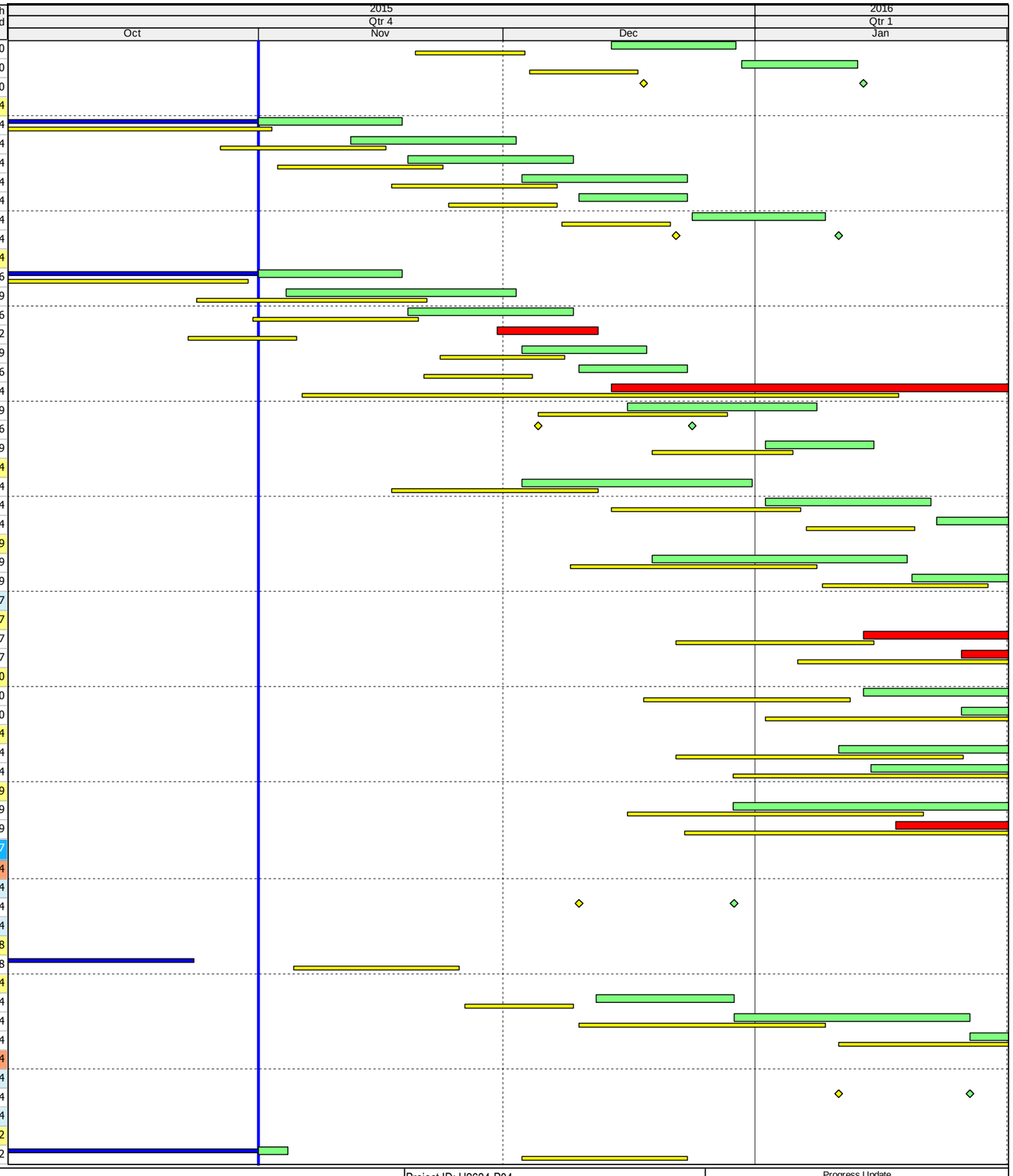
Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

Page 4 of 6

Progress Update

Date	Revision	Checked
02-Nov-15	Progress update	

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
19.820	19C2 Architect Review Piling Record and Load Test Under Tower	12	14-Dec-15	29-Dec-15	-20
19.824	19C2 Architect Review Piling Record and Load Test Outside Tower	12	30-Dec-15	13-Jan-16	-20
19.218	19C2 - Start to construct Pilecaps at Portion C2	0	14-Jan-16		-20
19 - Foundations Portion B1		93	21-Sep-15 A	11-Jan-16	-14
19.826	19B1a - H Piles Under Tower (295 no)	30	21-Sep-15 A	18-Nov-15	-14
19.830	19B1b - H Piles Outside Tower (182 no)	18	12-Nov-15	02-Dec-15	-14
19.828	19B1 Submit Piling Record & Load Test Under Tower	18	19-Nov-15	09-Dec-15	-14
19.834	19B1 Submit Piling Record & Load Test Outside Tower	18	03-Dec-15	23-Dec-15	-14
19.832	19B1 Architect Review Piling Record and Load Test Under Tower	12	10-Dec-15	23-Dec-15	-14
19.836	19B1 Architect Review Piling Record and Load Test Outside Tower	12	24-Dec-15	09-Jan-16	-14
19.372	19B1 - Start to construct Pilecaps at Portion B1	0	11-Jan-16		-14
19 - Foundations Portion B2		121	28-Sep-15 A	22-Feb-16	-24
19.838	19B2a - H Piles Under Tower (236 no)	25	28-Sep-15 A	18-Nov-15	-16
19.842	19B2c - H Piles Outside Tower (116 no)	25	04-Nov-15	02-Dec-15	-9
19.844	19B2 Submit Piling Record & Load Test Under Tower	18	19-Nov-15	09-Dec-15	-16
19.868	19B2 - Protection Works near existing Subway	12	30-Nov-15	12-Dec-15	-32
19.870	19B2b - H Piles Outside Tower (49 no)	14	03-Dec-15	18-Dec-15	-9
19.846	19B2 Architect Review Piling Record and Load Test Under Tower	12	10-Dec-15	23-Dec-15	-16
19.840	19B2 - Socketed H-piles Outside Tower (52 no)	52	14-Dec-15	22-Feb-16	-24
19.848	19B2 Submit Piling Record & Load Test Outside Tower	18	16-Dec-15	08-Jan-16	-9
19.382	19B2 - Start to construct Pilecaps at Portion B2	0	24-Dec-15		-16
19.850	19B2 Architect Review Piling Record and Load Test Outside Tower	12	02-Jan-16	15-Jan-16	-9
19 - Foundations Portion A1		53	03-Dec-15	05-Feb-16	-14
19.856	19A1 - H Piles Outside Tower (240 no)	23	03-Dec-15	31-Dec-15	-14
19.858	19A1 Submit Piling Record & Load Test Outside Tower	18	02-Jan-16	22-Jan-16	-14
19.860	19A1 Architect Review Piling Record and Load Test Outside Tower	12	23-Jan-16	05-Feb-16	-14
19 - Foundations Portion A2		42	19-Dec-15	16-Feb-16	-9
19.862	19A2 - H Piles Outside Tower (260 no)	24	19-Dec-15	19-Jan-16	-9
19.864	19A2 Submit Piling Record & Load Test Outside Tower	18	20-Jan-16	16-Feb-16	-9
19 - Substructures		94	29-Dec-15	28-Apr-16	-17
19 - Substructures Portion C1		81	14-Jan-16	28-Apr-16	-17
19.118	19C1 - Excavation down to FL	19	14-Jan-16	04-Feb-16	-17
19.120	19C1 - Prepare Pile heads and construct pilecaps	71	26-Jan-16	28-Apr-16	-17
19 - Substructures Portion C2		79	14-Jan-16	26-Apr-16	-20
19.220	19C2 - Excavation down to FL	19	14-Jan-16	04-Feb-16	-20
19.222	19C2 - Prepare Pile heads and construct pilecaps	69	26-Jan-16	26-Apr-16	-20
19 - Substructures Portion B1		69	11-Jan-16	11-Apr-16	-14
19.374	19B1 - Excavation down to FL	28	11-Jan-16	18-Feb-16	-14
19.376	19B1 - Prepare Pile heads and construct pilecaps	65	15-Jan-16	11-Apr-16	-14
19 - Substructures Portion B2		83	29-Dec-15	15-Apr-16	-19
19.384	19B2 - Excavation down to FL	29	29-Dec-15	01-Feb-16	-9
19.386	19B2 - Prepare Pile heads and construct pilecaps	67	18-Jan-16	15-Apr-16	-19
Associated Buildings		129	18-Aug-15 A	02-Mar-16	-7
02 HKPF Building and Observation Tower		117	26-Aug-15 A	02-Mar-16	-14
02 - Milestones		0	29-Dec-15	29-Dec-15	-14
02.MS10	HKPF Building & Observation Tower Construction Works Start	0	29-Dec-15		-14
02 - HKPF Building		117	26-Aug-15 A	02-Mar-16	-14
02 - SI works		18	26-Aug-15 A	24-Oct-15 A	28
02.100	02 - Site investigation works	18	26-Aug-15 A	24-Oct-15 A	28
02 - Foundations		60	12-Dec-15	02-Mar-16	-14
02.102	02 - Mobilisation	12	12-Dec-15	29-Dec-15	-14
02.104	02 - Install Driven H-piles (64 nos)	24	29-Dec-15	27-Jan-16	-14
02.106	02 - Proof drilling & Loading test	24	27-Jan-16	02-Mar-16	-14
03 Fire Station and Drill Tower		93	18-Aug-15 A	02-Mar-16	-14
03 - Milestones		0	27-Jan-16	27-Jan-16	-14
03.MS10	Fire Station & Drill Tower Construction Works Start	0	27-Jan-16		-14
03 Fire Station		93	18-Aug-15 A	02-Mar-16	-14
03 - SI works		18	18-Aug-15 A	04-Nov-15	42
03.100	03 - Site investigation	18	18-Aug-15 A	04-Nov-15	42



Actual Milestone
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3 Month Lookahead Programme

Progress to 01-Nov-15

Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

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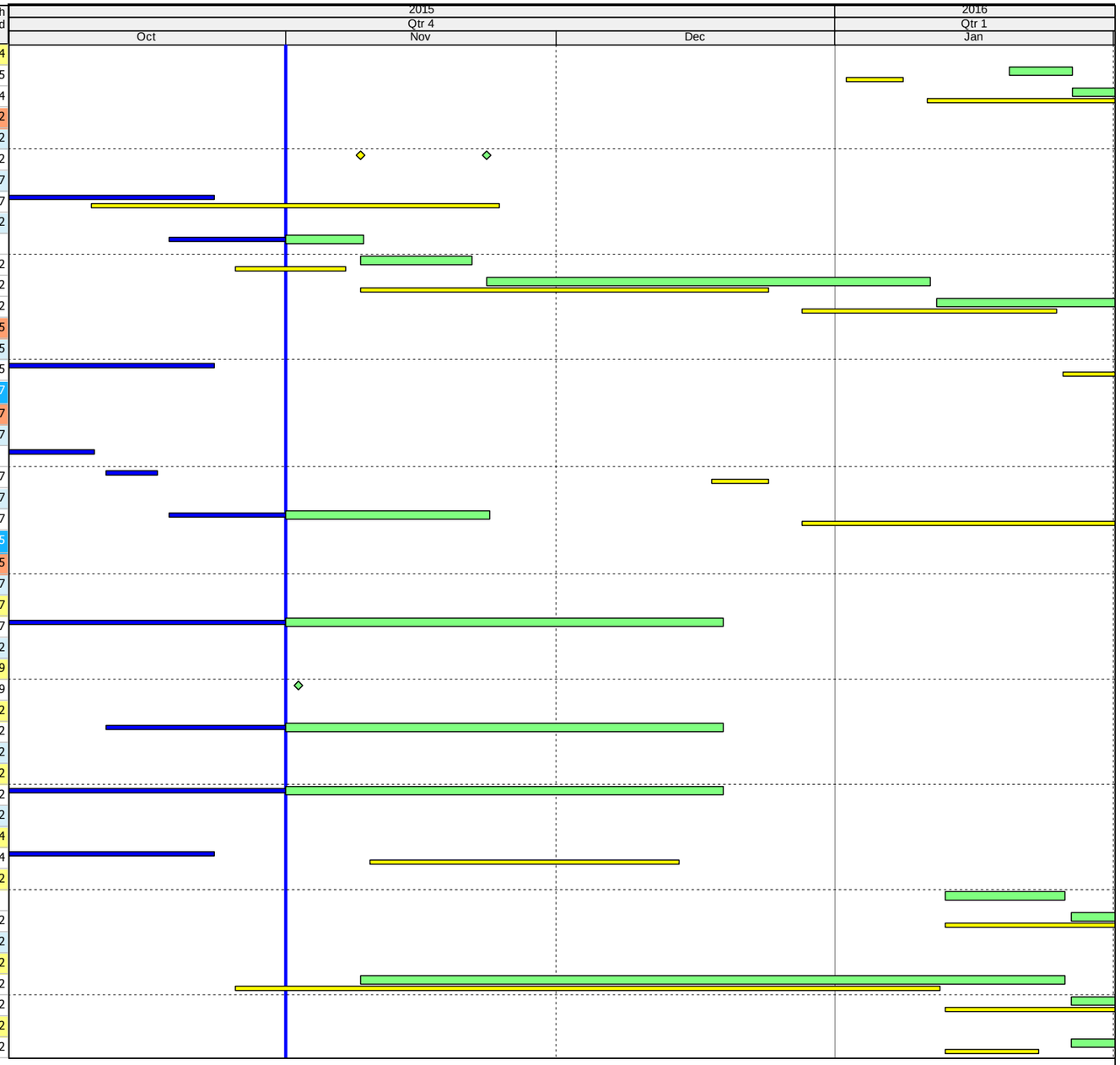
Progress Update			
Date	Revision	Checked	
02-Nov-15	Progress update		

Activity ID	Activity Name	Original Duration	Start	Finish	Variance with Planned
03 - Foundations		30	20-Jan-16	02-Mar-16	-14
03.102	03 - Mobilsation	6	20-Jan-16	27-Jan-16	-15
03.104	03 - Install driven H-piles (75 nos)	24	27-Jan-16	02-Mar-16	-14
05 Cargo Examination Building (Outbound)		116	21-Sep-15 A	15-Feb-16	-12
05 - Milestones		0	23-Nov-15	23-Nov-15	-12
05.MS10	Cargo Examination Bldg. Outbound (CBO) Contruction Works Start (Site F	0	23-Nov-15		-12
05 - SI works		38	21-Sep-15 A	24-Oct-15 A	27
05.102	05 - Site Investigation Works	38	21-Sep-15 A	24-Oct-15 A	27
05 - Foundations		107	19-Oct-15 A	15-Feb-16	-12
05.107	05 - Excavate to top of pilecaps level	18	19-Oct-15 A	09-Nov-15	
05.104	05 - Mobilisation	12	09-Nov-15	21-Nov-15	-12
05.106	05 - Install driven H-piles (353 nos)	40	23-Nov-15	11-Jan-16	-12
05.108	05 - Proof drilling / Loading Test	24	12-Jan-16	15-Feb-16	-12
07 Fixed X-ray Vehicle Inspection System (FXRVIS) Buildings (Outb		18	21-Sep-15 A	24-Oct-15 A	95
07 - SI Works		18	21-Sep-15 A	24-Oct-15 A	95
07.100	07 - Site Investigation	18	21-Sep-15 A	24-Oct-15 A	95
Other Associated Buildings for C&ED		53	29-Sep-15 A	23-Nov-15	57
09 - MXRVSS (Outbound)		53	29-Sep-15 A	23-Nov-15	57
09 - Site Formation Works		53	29-Sep-15 A	17-Oct-15 A	57
09.222	09 - Excavation to formation based on AI-S-003	10	29-Sep-15 A	10-Oct-15 A	
09.102	09 - Plate load test	6	12-Oct-15 A	17-Oct-15 A	57
09 - Structures		30	19-Oct-15 A	23-Nov-15	57
09.200	09 - Consturct RC footing (x10)	30	19-Oct-15 A	23-Nov-15	57
External Civil Works		249	29-Sep-15 A	09-May-16	75
Vehicular Bridges		249	29-Sep-15 A	09-May-16	75
Bridge 1		40	29-Sep-15 A	19-Dec-15	127
B1 - SI Works		40	29-Sep-15 A	19-Dec-15	127
B1.102	B1 - Site Investigation (48 nos)	40	29-Sep-15 A	19-Dec-15	127
Bridge 2		194	12-Oct-15 A	19-Dec-15	152
B2 - Milestones		0	02-Nov-15	02-Nov-15	169
B2.MS10	Vehicular Bridges B2 Construction Works Start	0	02-Nov-15		169
B2 - SI Works		25	12-Oct-15 A	19-Dec-15	152
B2.102	B2 - Site Investigation (9 nos)	25	12-Oct-15 A	19-Dec-15	152
Bridge 3		30	29-Sep-15 A	19-Dec-15	182
B3 - SI Works		30	29-Sep-15 A	19-Dec-15	182
B3.100	B3 - Site Investigation (12 nos)	30	29-Sep-15 A	19-Dec-15	182
Bridge 4		174	29-Sep-15 A	09-May-16	-12
B4 - SI Works		30	29-Sep-15 A	24-Oct-15 A	44
B4.100	B4 - Site Investigation (22 nos)	30	29-Sep-15 A	24-Oct-15 A	44
B4 - Foundations		90	13-Jan-16	09-May-16	-12
B4.103	B4 - Excavate for piling platform & setup equipment	12	13-Jan-16	26-Jan-16	
B4.102	B4 - Construction of Borepiles (31 nos)	78	27-Jan-16	09-May-16	-12
Bridge 5		89	09-Nov-15	01-Mar-16	-12
B5 - Foundations		89	09-Nov-15	01-Mar-16	-12
B5.102	B5 - Construction of Bored piles (26 nos)	65	09-Nov-15	26-Jan-16	-12
B5.104	B5 - Core test, full core, sonic test	24	27-Jan-16	01-Mar-16	-12
B5 - Pilecaps / Piers / Abutment / Retaining Walls / Portal		10	27-Jan-16	06-Feb-16	-12
B5.106	B5 - Excavation for retaining wall / abutment	10	27-Jan-16	06-Feb-16	-12



Actual Milestone
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3 Month Lookahead Programme

Progress to 01-Nov-15

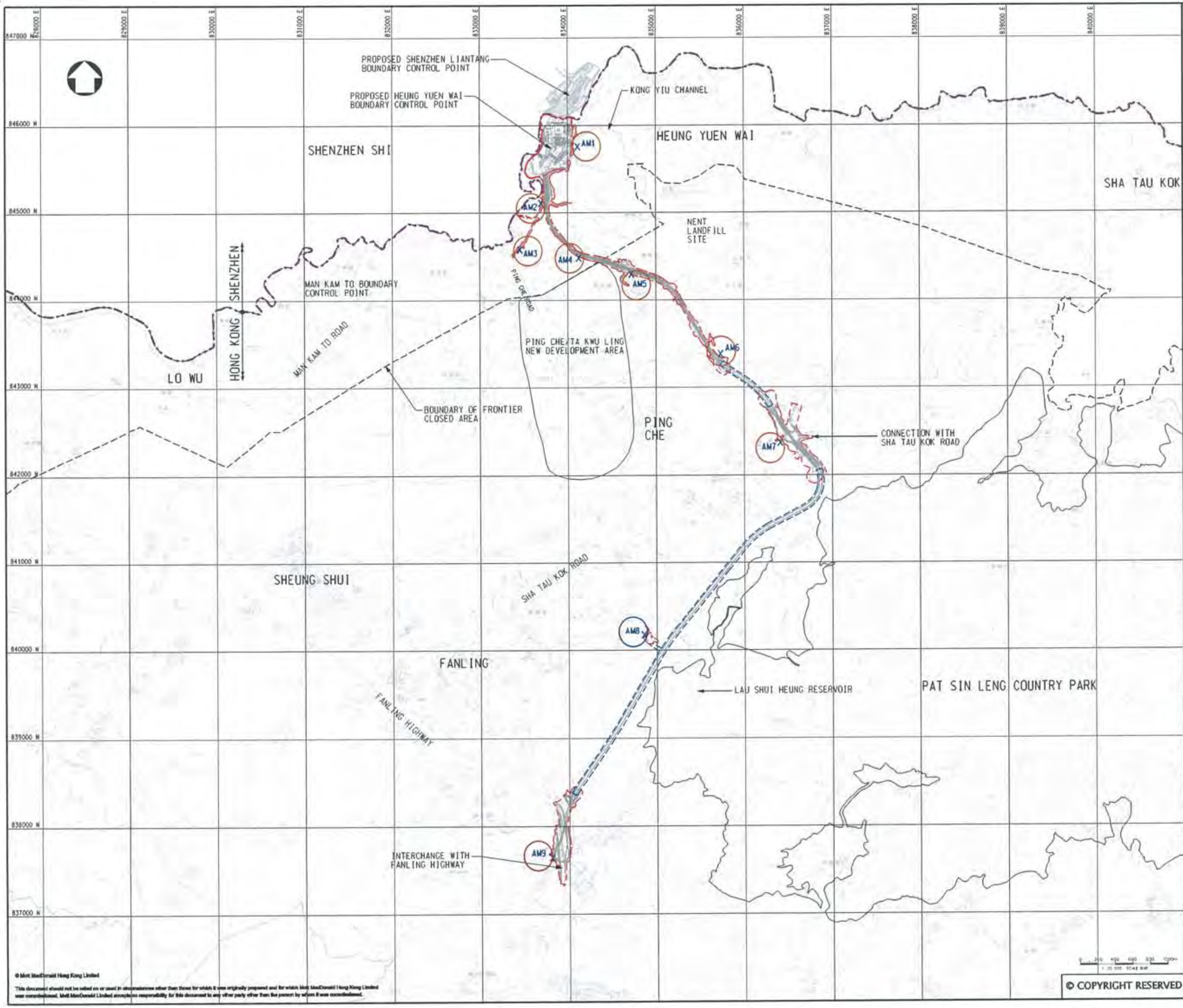
Project ID: H2634-P04
Baseline:
Layout: P01-3 Month Lookahead
Filter: TASK filter: Date range DD-1M to DD+3M.

Progress Update

Date	Revision	Checked	/
02-Nov-15	Progress update		

Appendix D

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



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	WING	FIRST ISSUE	DC	HT

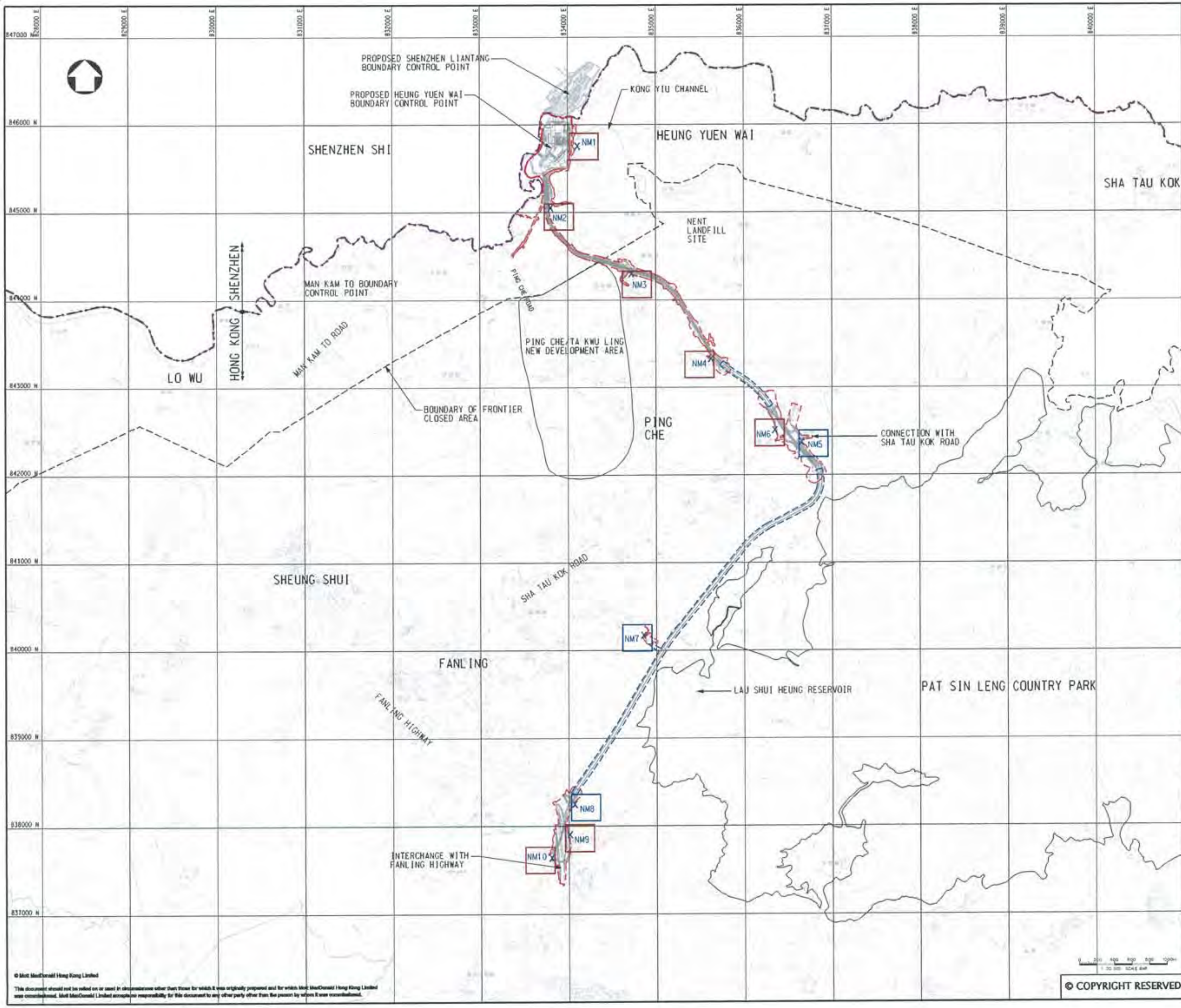
Mott MacDonald

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 AIR QUALITY 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 2.1			Rev P1



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

Mott MacDonald

Client: CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

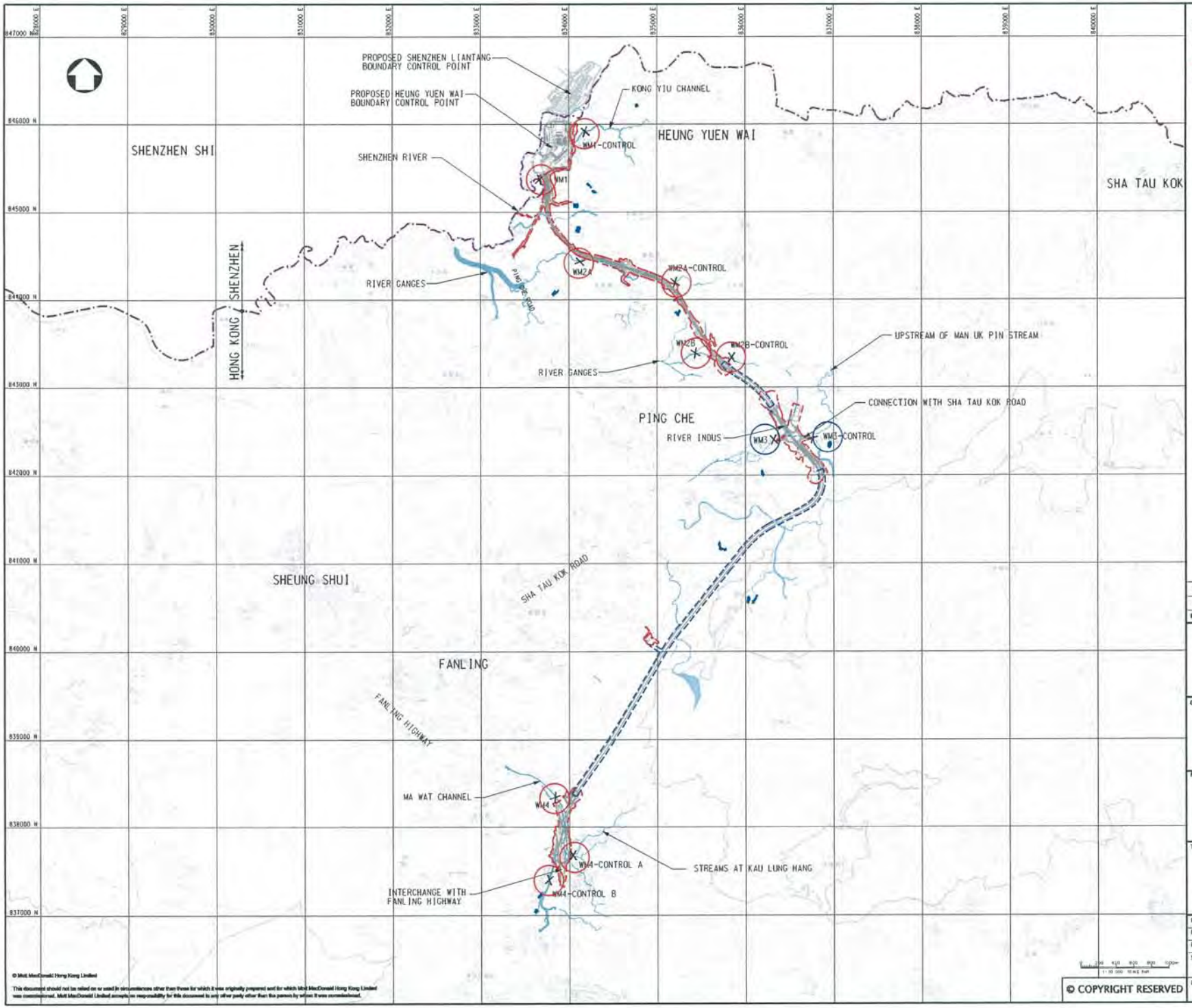
Project: AGREEMENT NO. CE45/2008(CE) LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

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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Client: CEDD — CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

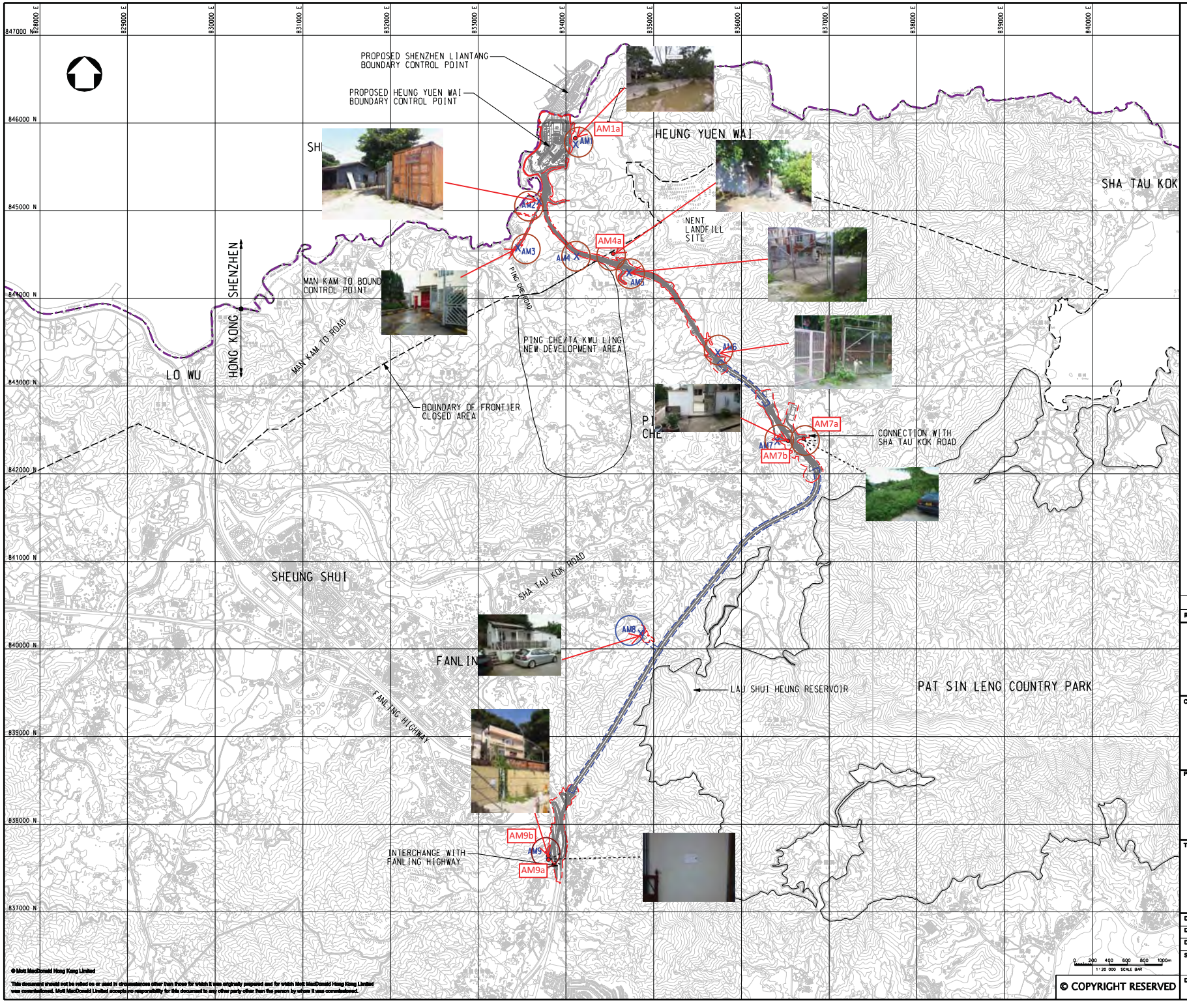
Project: AGREEMENT NO. CE45/2008(CE) LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

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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F +852 2827 1823
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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	
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Dwg.Chk.	DC		Approved	HT	
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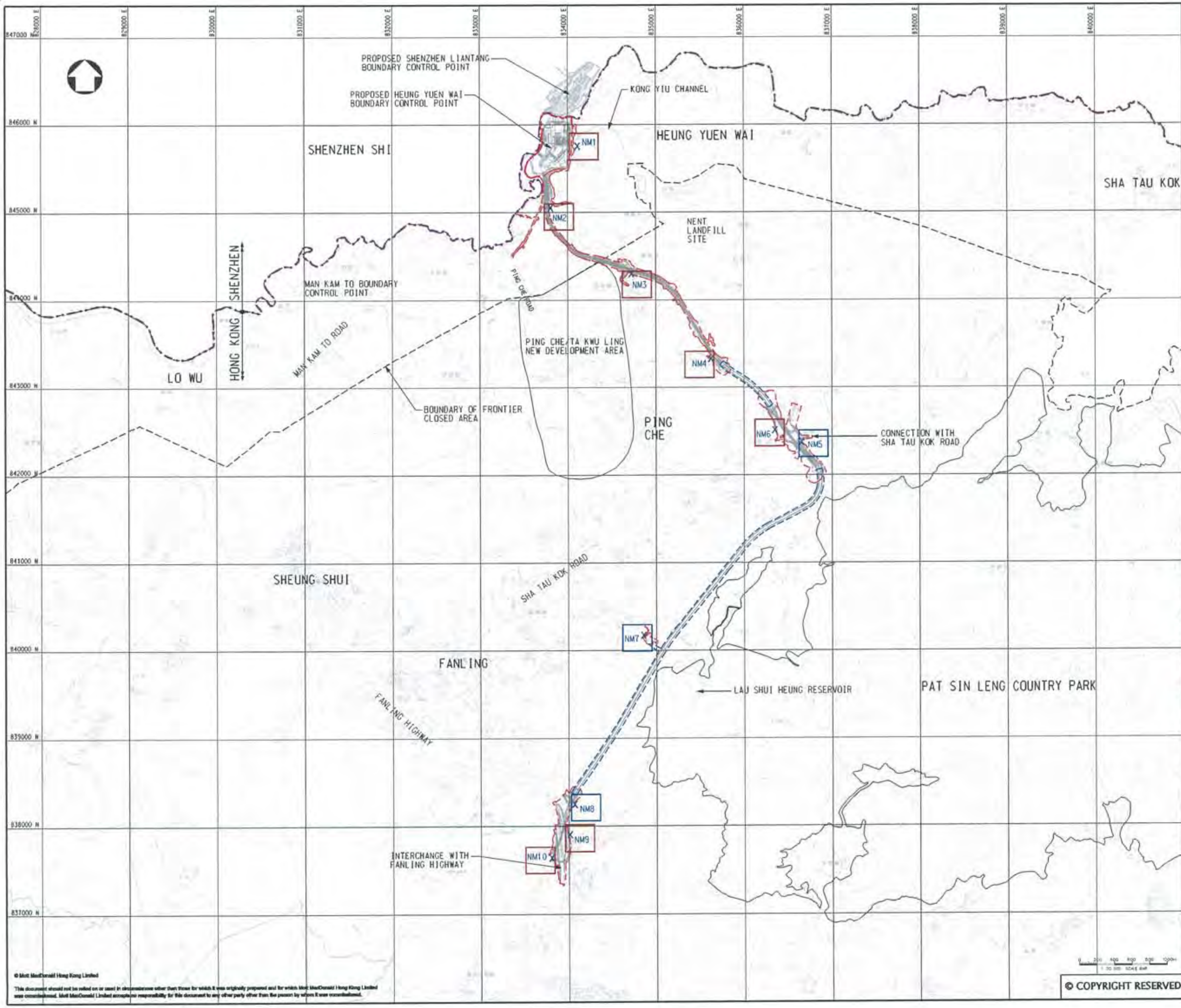
Drawing No	FIGURE 2.1			Rev	P1

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

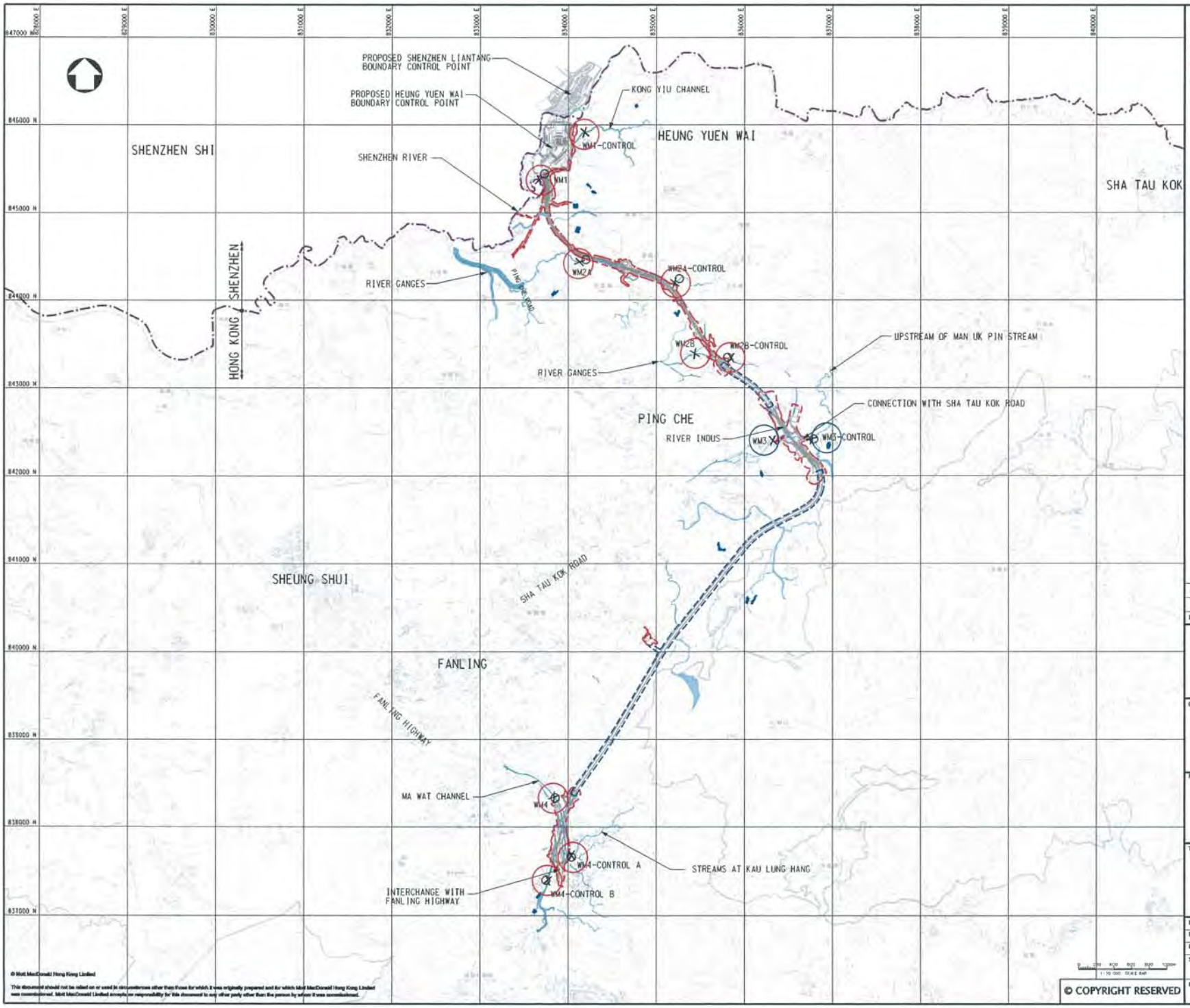
Mott MacDonald

Client: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

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 — 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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CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

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

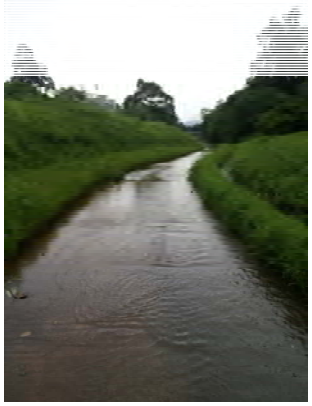
Title

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: 24/8/2015
Next Calibration Date: 24/10/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (°C)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	6.1	6.1	12.2	1.638	50	49.26
13	4.9	4.9	9.8	1.468	45	44.33
10	3.8	3.8	7.6	1.293	37	36.45
7	2.6	2.6	5.2	1.070	29	28.57
5	1.6	1.6	3.2	0.840	22	21.67

LINEAR REGRESSION

Slope = 35.4741
Intercept = -8.7079
Corr. coeff. = 0.9978

Calculations :

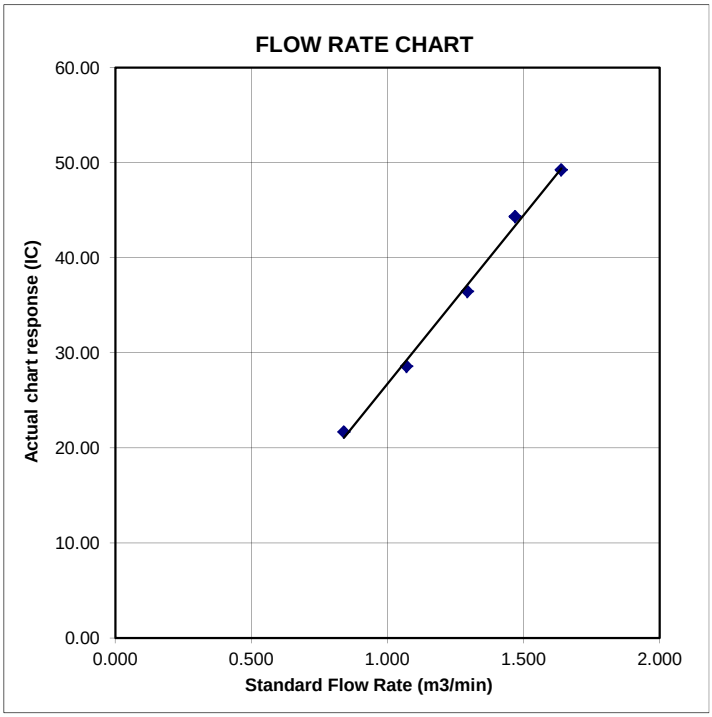
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/8/2015
Next Calibration Date: 24/10/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (°C)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.678	54	53.20	Slope = 29.4287
13	5.6	5.6	11.2	1.570	48	47.29	Intercept = 2.2328
10	4.2	4.2	8.4	1.360	42	41.38	Corr. coeff. = 0.9941
7	2.6	2.6	5.2	1.070	34	33.50	
5	1.6	1.6	3.2	0.840	28	27.59	

Calculations :

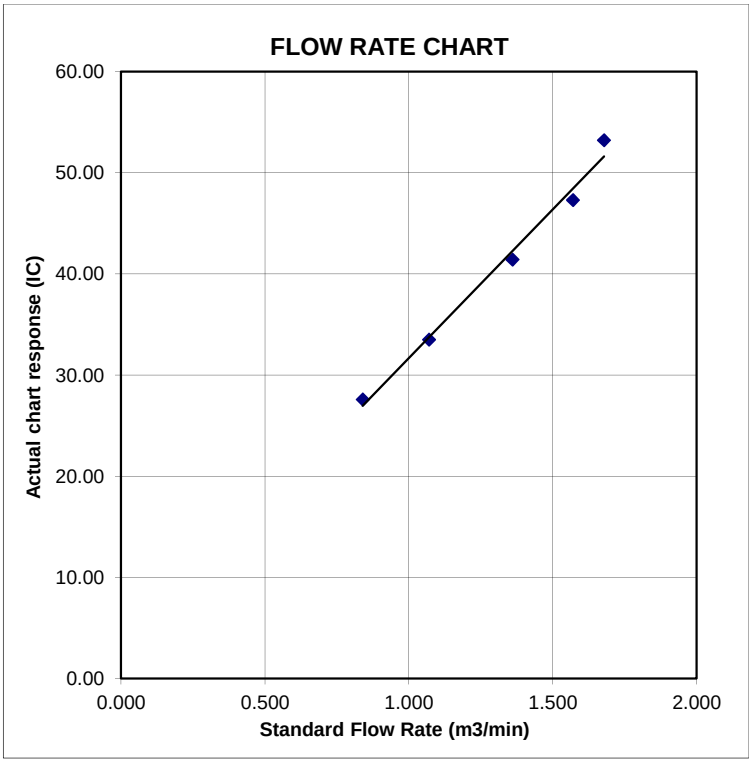
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/8/2015
Next Calibration Date: 24/10/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (°C)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.678	53	52.22	Slope = 29.0506
13	5	5	10.0	1.483	48	47.29	Intercept = 4.1295
10	4	4	8.0	1.327	44	43.35	Corr. coeff. = 0.9967
7	2.5	2.5	5.0	1.049	36	35.47	
5	1.6	1.6	3.2	0.840	28	27.59	

Calculations :

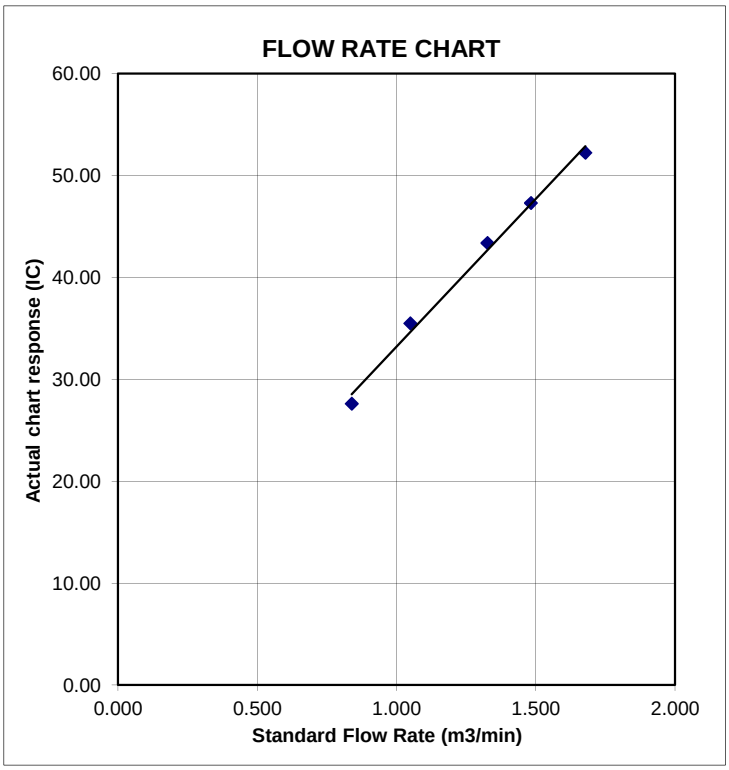
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/8/2015
Next Calibration Date: 24/10/2015
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (°C)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.678	58	57.14	Slope = 36.4399
13	5	5	10.0	1.483	53	52.22	Intercept = -2.8849
10	4	4	8.0	1.327	47	46.31	Corr. coeff. = 0.9970
7	2.6	2.6	5.2	1.070	36	35.47	
5	1.6	1.6	3.2	0.840	28	27.59	

Calculations :

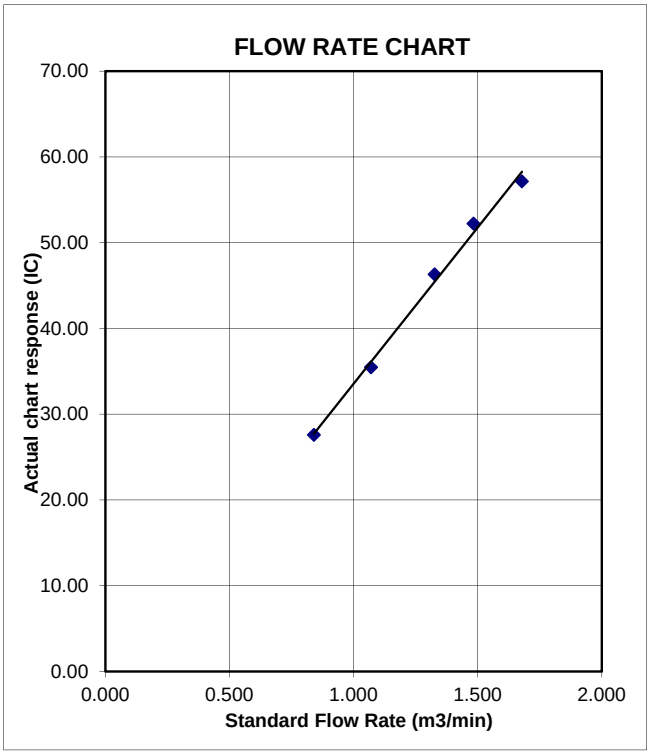
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/8/2015
Next Calibration Date: 24/10/2015
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (°C)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

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	1.652	60	59.11	Slope = 34.7536
13	5	5	10.0	1.483	54	53.20	Intercept = 2.1501
10	4	4	8.0	1.327	50	49.26	Corr. coeff. = 0.9975
7	2.5	2.5	5.0	1.049	40	39.41	
5	1.5	1.5	3.0	0.813	30	29.56	

Calculations :

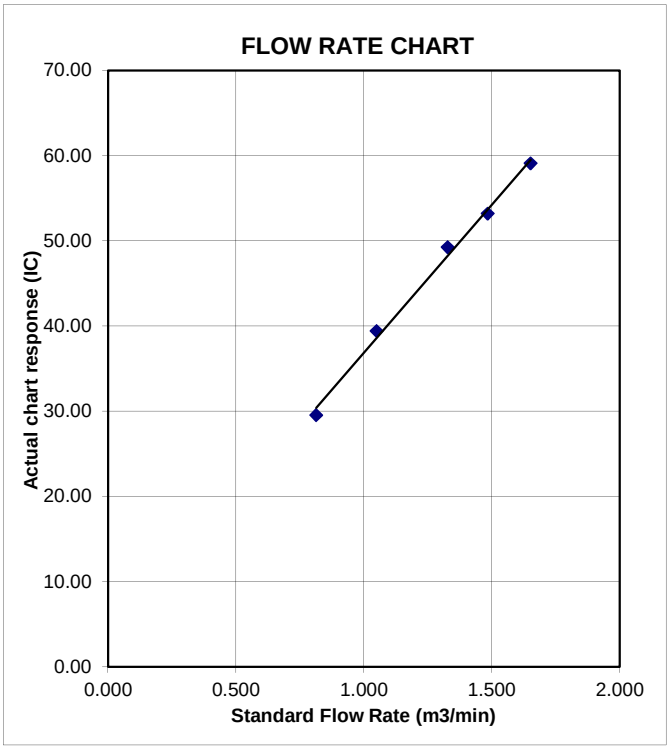
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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:	24/8/2015
Location ID : AM9b		Next Calibration Date:	24/10/2015
		Technician:	Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (ºC)	30.7	Temperature (K)	304

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.691	54	53.20	Slope = 31.6768
13	5.3	5.3	10.6	1.527	47	46.31	Intercept = -1.1273
10	4.1	4.1	8.2	1.343	42	41.38	Corr. coeff. = 0.9984
7	2.7	2.7	5.4	1.090	34	33.50	
5	1.6	1.6	3.2	0.840	26	25.62	

Calculations :

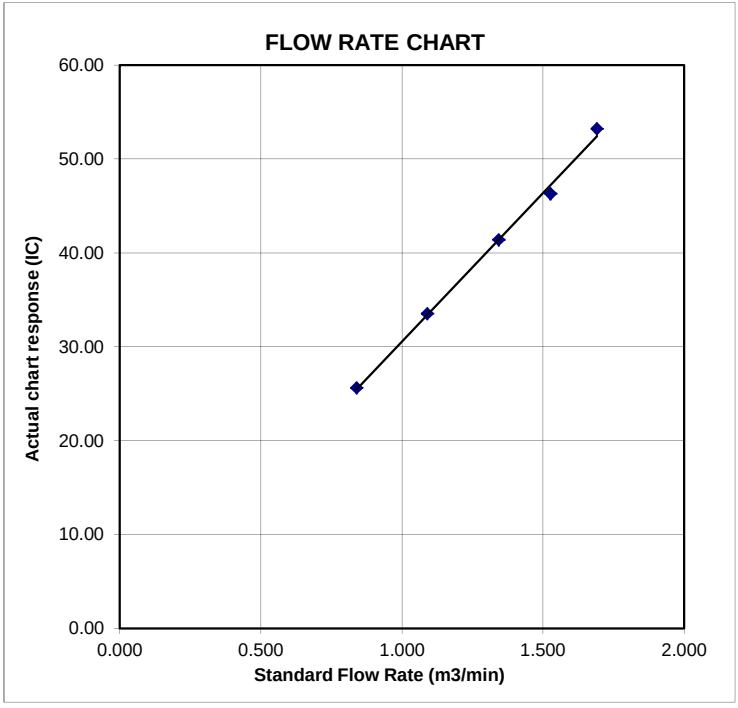
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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

Date of Calibration: 24/10/2015
Next Calibration Date: 24/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (°C)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

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	1.659	50	49.89	Slope = 32.7807
13	5	5	10.0	1.502	44	43.90	Intercept = -4.9623
10	3.7	3.7	7.4	1.293	37	36.92	Corr. coeff. = 0.9992
7	2.6	2.6	5.2	1.084	31	30.93	
5	1.6	1.6	3.2	0.850	23	22.95	

Calculations :

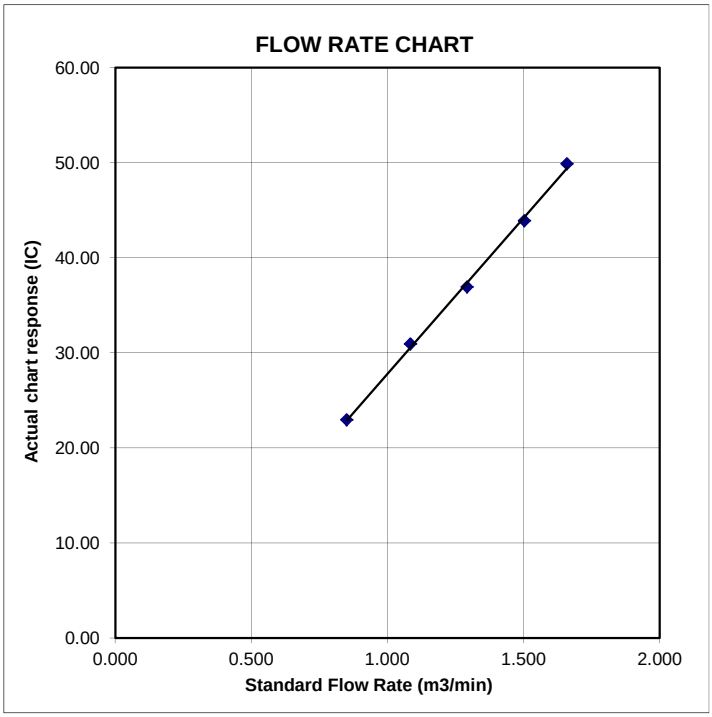
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/10/2015
Next Calibration Date: 24/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (°C)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.713	52	51.89	Slope = 28.1280
13	5.5	5.5	11.0	1.575	47	46.90	Intercept = 3.4387
10	4.2	4.2	8.4	1.377	43	42.91	Corr. coeff. = 0.9982
7	2.6	2.6	5.2	1.084	34	33.93	
5	1.7	1.7	3.4	0.877	28	27.94	

Calculations :

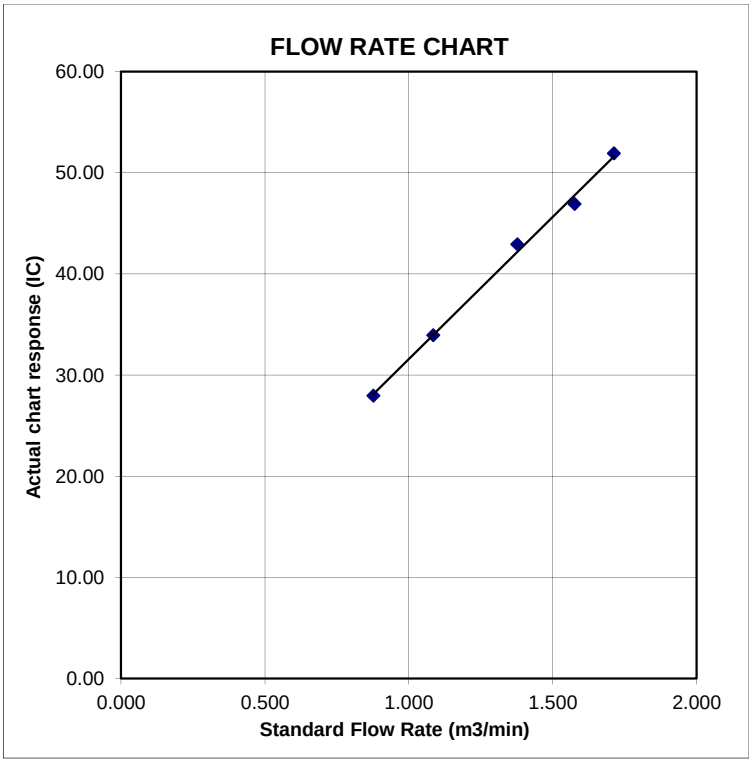
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/10/2015
Next Calibration Date: 24/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (ºC)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	54	53.88	Slope = 29.9170
13	5.1	5.1	10.2	1.517	49	48.89	Intercept = 3.3351
10	4	4	8.0	1.344	44	43.90	Corr. coeff. = 0.9997
7	2.5	2.5	5.0	1.063	35	34.92	
5	1.5	1.5	3.0	0.824	28	27.94	

Calculations :

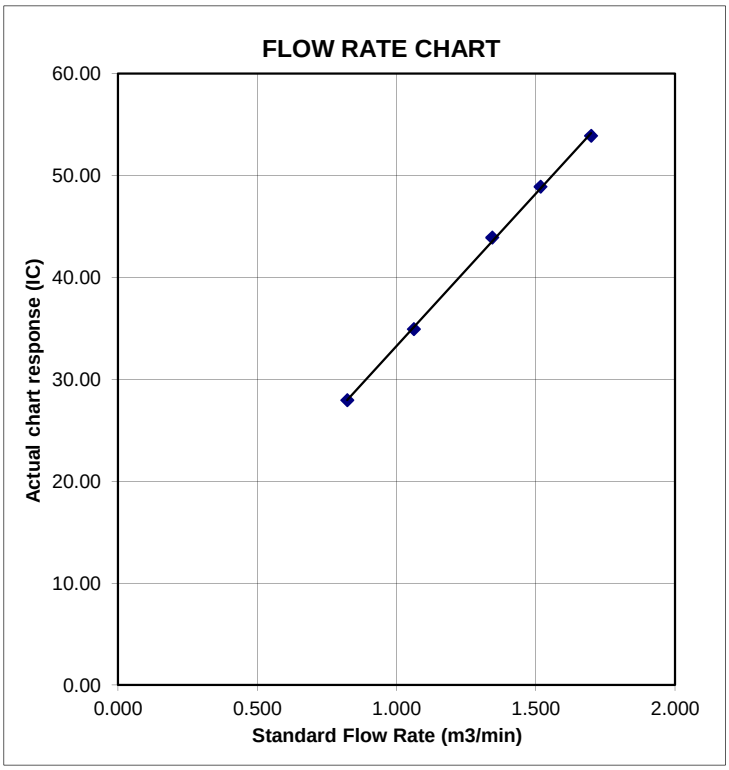
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 : Ping Yeung Village House
Location ID : AM4a

Date of Calibration: 22/10/2015
Next Calibration Date: 22/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1012	Corrected Pressure (mm Hg)	759
Temperature (°C)	27.0	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

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	1.670	59	58.76	Slope = 30.5692
13	4.8	4.8	9.6	1.469	53	52.79	Intercept = 8.0481
10	3.8	3.8	7.6	1.307	49	48.80	Corr. coeff. = 0.9990
7	2.4	2.4	4.8	1.039	40	39.84	
5	1.5	1.5	3.0	0.822	33	32.87	

Calculations :

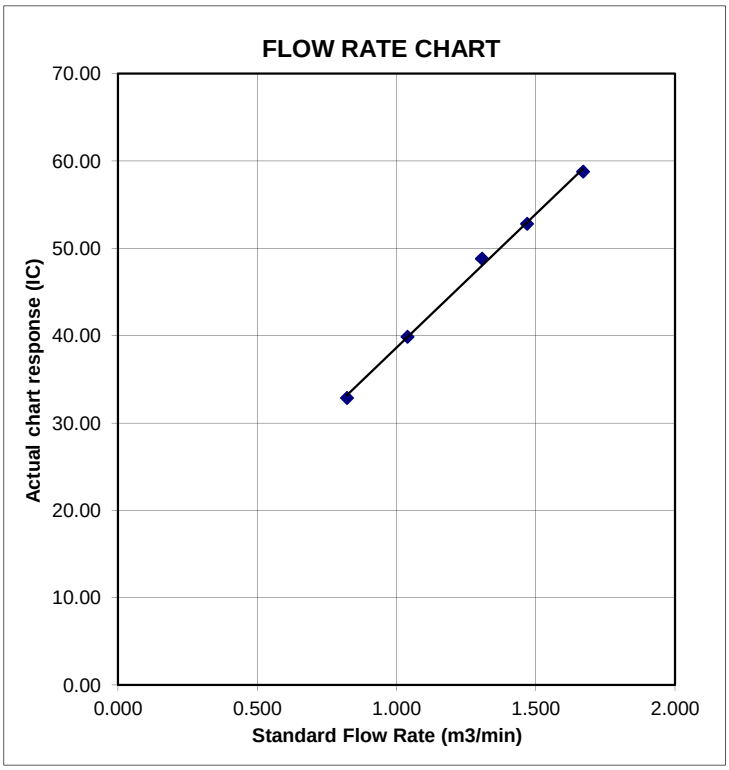
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 : Ping Yeung Village House
Location ID : AM5

Date of Calibration: 22/10/2015
Next Calibration Date: 22/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1012	Corrected Pressure (mm Hg)	759
Temperature (ºC)	27.0	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.6	6.6	13.2	1.723	55	54.78	Slope = 30.5936
13	5.2	5.2	10.4	1.529	50	49.80	Intercept = 2.6401
10	4	4	8.0	1.341	44	43.82	Corr. coeff. = 0.9983
7	2.5	2.5	5.0	1.061	36	35.86	
5	1.6	1.6	3.2	0.849	28	27.89	

Calculations :

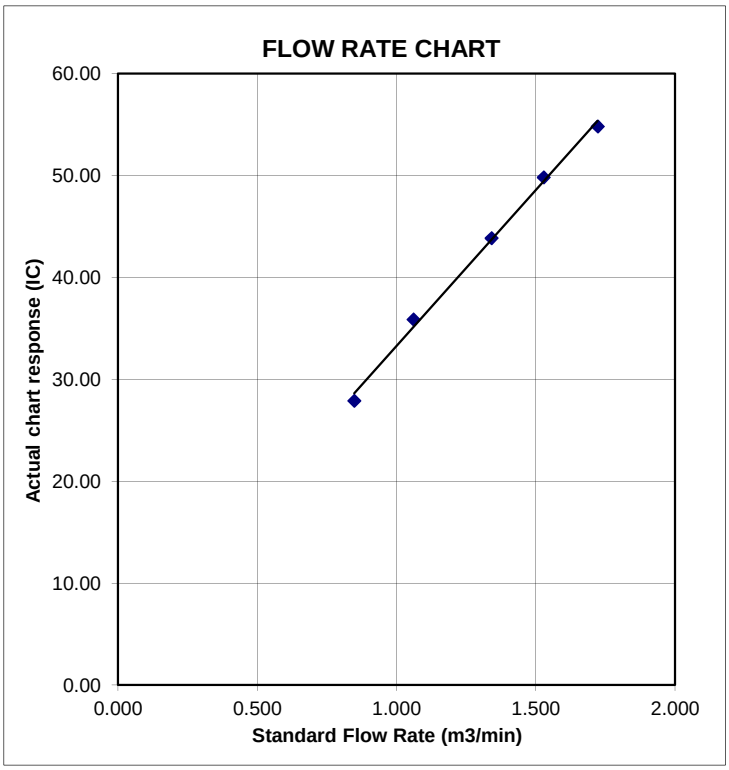
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 : Wo Keng Shan Village House
Location ID : AM6

Date of Calibration: 22/10/2015
Next Calibration Date: 22/12/2015
Technician: Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1012	Corrected Pressure (mm Hg)	759
Temperature (ºC)	27.0	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

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	1.629	52	51.79	Slope = 32.9273
13	4.6	4.6	9.2	1.438	47	46.81	Intercept = -1.1511
10	3.5	3.5	7.0	1.255	40	39.84	Corr. coeff. = 0.9954
7	2.3	2.3	4.6	1.018	34	33.86	
5	1.4	1.4	2.8	0.794	24	23.90	

Calculations :

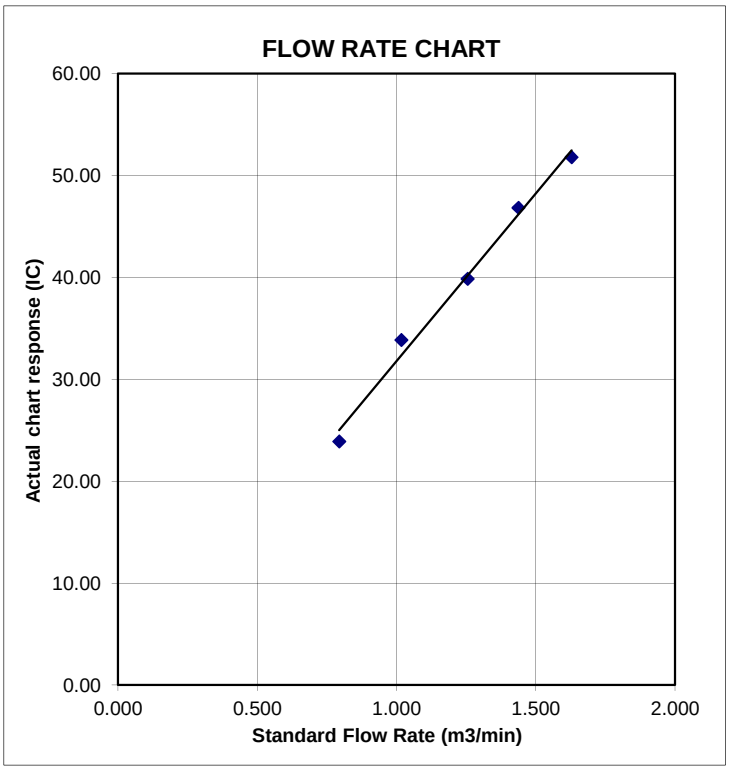
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/10/2015
Next Calibration Date: 24/12/2015
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (°C)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	59	58.87	Slope = 36.2413
13	5	5	10.0	1.502	52	51.89	Intercept = -2.7887
10	4.1	4.1	8.2	1.360	46	45.90	Corr. coeff. = 0.9995
7	2.6	2.6	5.2	1.084	37	36.92	
5	1.5	1.5	3.0	0.824	27	26.94	

Calculations :

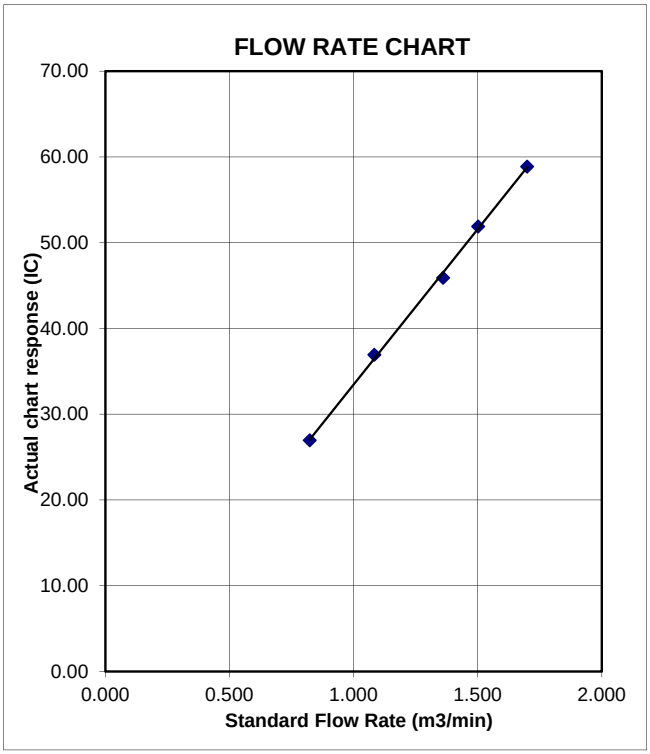
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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: 24/10/2015
Next Calibration Date: 24/12/2015
Technician: C Y Keung

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (°C)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

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	1.659	60	59.87	Slope = 34.5865
13	5	5	10.0	1.502	55	54.88	Intercept = 2.8024
10	3.9	3.9	7.8	1.327	49	48.89	Corr. coeff. = 0.9996
7	2.5	2.5	5.0	1.063	40	39.91	
5	1.5	1.5	3.0	0.824	31	30.93	

Calculations :

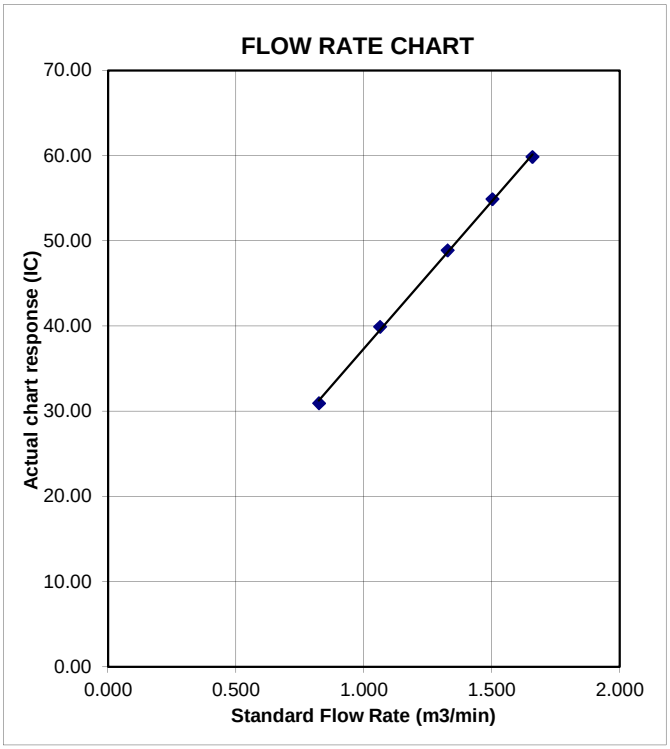
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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:	24/10/2015
Location ID : AM9b		Next Calibration Date:	24/12/2015
		Technician:	Keung Chi Young

CONDITIONS

Sea Level Pressure (hPa)	1015	Corrected Pressure (mm Hg)	761.25
Temperature (ºC)	26.8	Temperature (K)	300

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10265
Model->	5025A	Qstd Intercept ->	-0.00335
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION	
18	6.5	6.5	13.0	1.713	54	53.88	Slope =	32.3467
13	5.3	5.3	10.6	1.547	48	47.90	Intercept =	-2.1528
10	4.1	4.1	8.2	1.360	41	40.91	Corr. coeff. =	0.9982
7	2.8	2.8	5.6	1.125	34	33.93		
5	1.6	1.6	3.2	0.850	26	25.94		

Calculations :

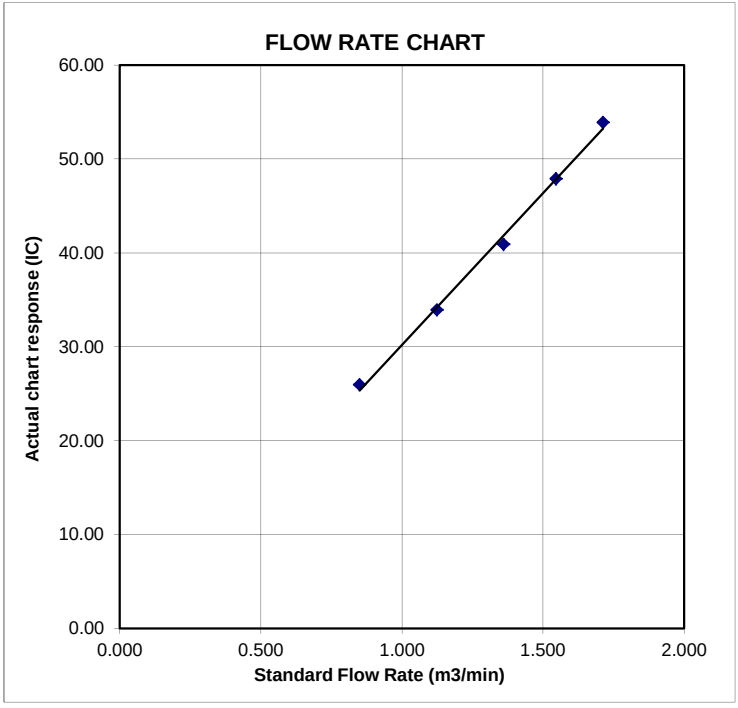
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 - Mar 24, 2015 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 756.92

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	1.4880	3.2	2.00
2	NA	NA	1.00	1.0510	6.4	4.00
3	NA	NA	1.00	0.9360	7.9	5.00
4	NA	NA	1.00	0.8920	8.8	5.50
5	NA	NA	1.00	0.7360	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0121	0.6802	1.4258		0.9958	0.6692	0.8784
1.0078	0.9589	2.0163		0.9916	0.9434	1.2422
1.0057	1.0745	2.2543		0.9895	1.0571	1.3888
1.0046	1.1262	2.3644		0.9884	1.1080	1.4566
0.9993	1.3578	2.8515		0.9832	1.3358	1.7568
Qstd slope (m) =		2.10265		Qa slope (m) =		1.31664
intercept (b) =		-0.00335		intercept (b) =		-0.00206
coefficient (r) =		0.99999		coefficient (r) =		0.99999
y axis = SQRT[H2O(Pa/760)(298/Ta)]				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}

Equipment Calibration Record

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	2X6146
Equipment Ref:	EQ 106
Job Order	HK1500837

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	10 Nov 2014

Equipment Calibration Results:

Calibration Date: 4 January 2015

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
1hr19min	10:00 ~ 11:19	17.3	1017.0	0.076	2677	33.8
2hr15min	11:25 ~ 13:40	17.3	1017.0	0.111	6875	50.9
2hr06min	15:40 ~ 17:46	17.3	1017.0	0.047	2399	19.0

Sensitivity Adjustment Scale Setting (Before Calibration) 594 (CPM)

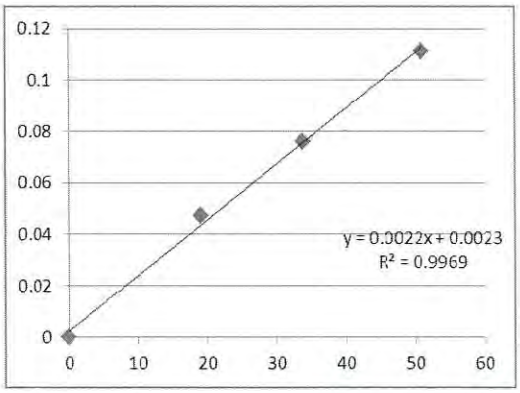
Sensitivity Adjustment Scale Setting (After Calibration) 588 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9969

Date of Issue 6 January 2015



Operator : Donald Kwok Signature : Date : 6 January 2015

QC Reviewer : Ben Tam Signature : Date : 6 January 2015

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	10-Nov-14
Location ID :	Calibration Room	Next Calibration Date:	10-Feb-15

CONDITIONS

Sea Level Pressure (hPa)	1017.3	Corrected Pressure (mm Hg)	762.975
Temperature (°C)	23.3	Temperature (K)	296

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Calibration Date->	7-Apr-14	Expiry Date->	7-Apr-15

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION	
18	3.6	3.6	7.2	1.351	58	58.28	Slope =	33.8083
13	2.8	2.8	5.6	1.193	54	54.26	Intercept =	12.9642
10	2.2	2.2	4.4	1.058	48	48.23	Corr. coeff. =	0.9976
8	1.5	1.5	3.0	0.875	42	42.20		
5	0.9	0.9	1.8	0.680	36	36.17		

Calculations :

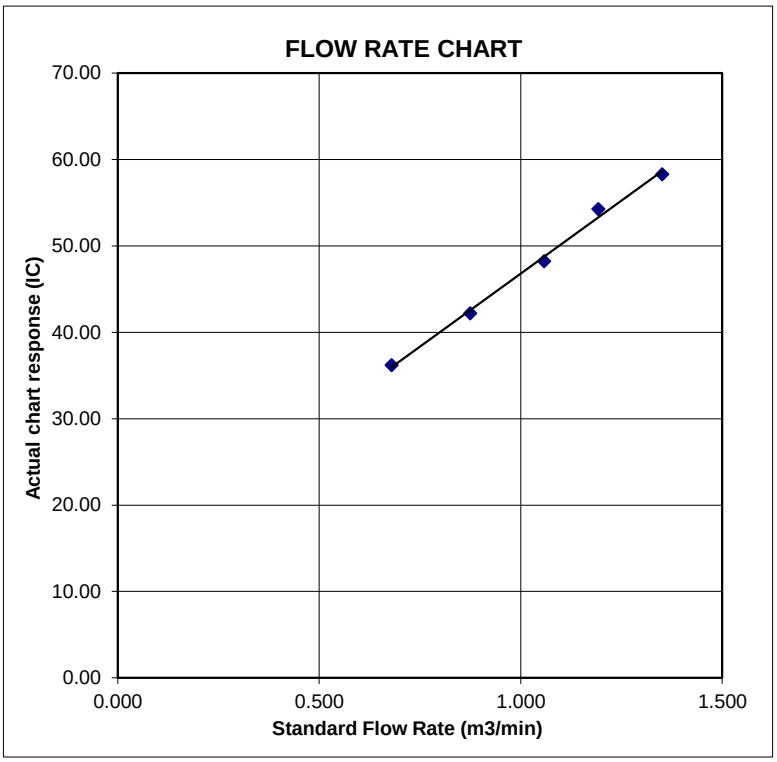
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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



Equipment Calibration Record

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366409
Equipment Ref:	EQ 109
Job Order	HK1500973

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	10 Nov 2014

Equipment Calibration Results:

Calibration Date: 4 January 2015

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
1hr19min	10:00 ~ 11:19	17.3	1017.0	0.076	2615	33.0
2hr15min	11:25 ~ 13:40	17.3	1017.0	0.111	6854	50.8
2hr06min	15:40 ~ 17:46	17.3	1017.0	0.047	2319	18.4

Sensitivity Adjustment Scale Setting (Before Calibration) 538 (CPM)

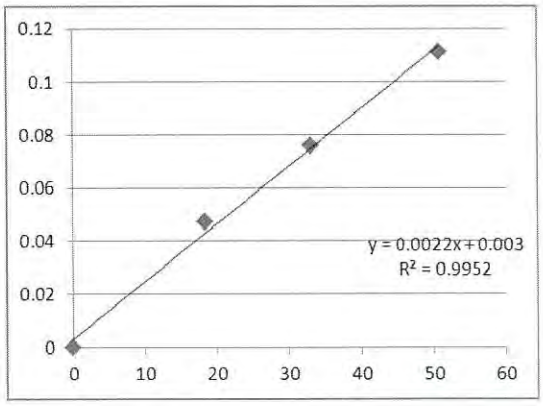
Sensitivity Adjustment Scale Setting (After Calibration) 533 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9952

Date of Issue 6 January 2015



Operator : Donald Kwok Signature : Date : 6 January 2015

QC Reviewer : Ben Tam Signature : Date : 6 January 2015

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	10-Nov-14
Location ID :	Calibration Room	Next Calibration Date:	10-Feb-15

CONDITIONS

Sea Level Pressure (hPa)	1017.3	Corrected Pressure (mm Hg)	762.975
Temperature (°C)	23.3	Temperature (K)	296

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Calibration Date->	7-Apr-14	Expiry Date->	7-Apr-15

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION	
18	3.6	3.6	7.2	1.351	58	58.28	Slope =	33.8083
13	2.8	2.8	5.6	1.193	54	54.26	Intercept =	12.9642
10	2.2	2.2	4.4	1.058	48	48.23	Corr. coeff. =	0.9976
8	1.5	1.5	3.0	0.875	42	42.20		
5	0.9	0.9	1.8	0.680	36	36.17		

Calculations :

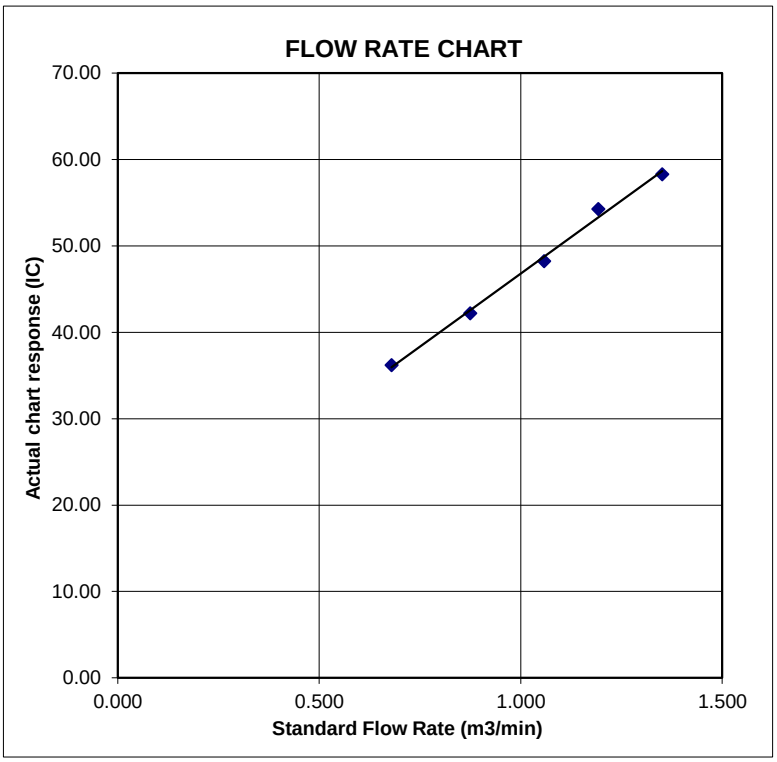
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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



Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	456660
Equipment Ref:	EQ117
Job Order	

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	6 February 2015

Equipment Verification Results:

Testing Date: 5 April 2015

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr11min	10:00 ~ 12:11	26.0	1011.3	0.041	2344	17.9
2hr21min	12:20 ~ 14:41	26.0	1011.3	0.038	2104	14.9
2hr17min	14:50 ~ 17:07	26.0	1011.3	0.057	3514	25.7

Sensitivity Adjustment Scale Setting (Before Calibration) 607 (CPM)

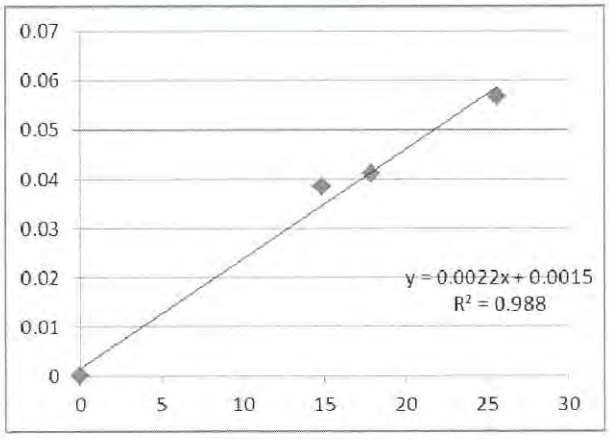
Sensitivity Adjustment Scale Setting (After Calibration) 602 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9940

Date of Issue 20 April 2015



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0022 should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Donald Kwok Signature : Date : 20 April 2015

QC Reviewer : Ben Tam Signature : Date : 20 April 2015

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	6-Feb-15
Location ID :	Calibration Room	Next Calibration Date:	6-May-15

CONDITIONS

Sea Level Pressure (hPa)	1024.5	Corrected Pressure (mm Hg)	768.375
Temperature (°C)	13.4	Temperature (K)	286

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Calibration Date->	7-Apr-14	Expiry Date->	7-Apr-15

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	3.8	3.8	7.6	1.417	56	57.44	Slope = 30.5075
13	3	3	6.0	1.260	52	53.33	Intercept = 14.6821
10	2.3	2.3	4.6	1.104	48	49.23	Corr. coeff. = 0.9974
8	1.7	1.7	3.4	0.950	42	43.08	
5	1.0	1.0	2.0	0.731	36	36.92	

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)

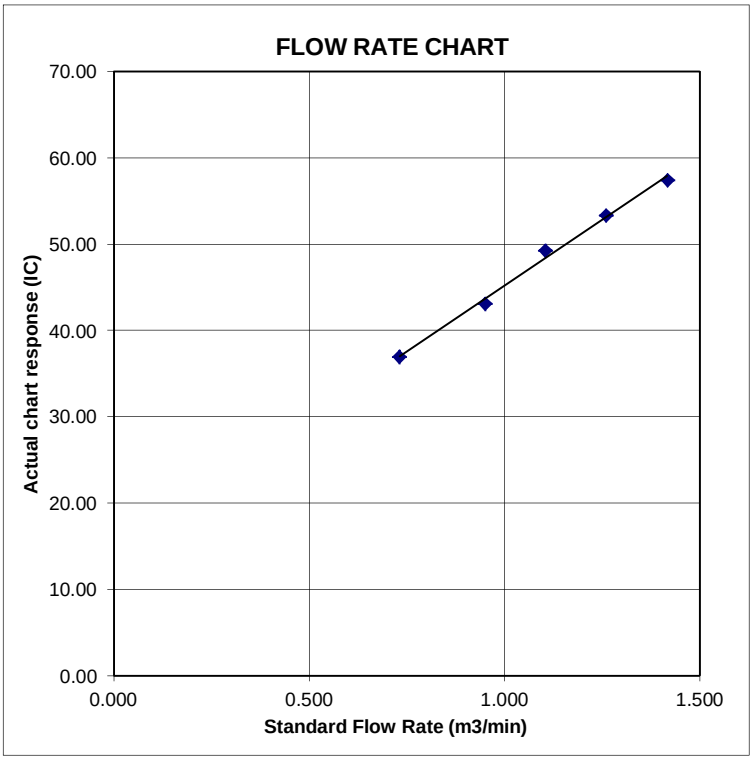
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	456658
Equipment Ref:	EQ115
Job Order	

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	6 February 2015

Equipment Verification Results:

Testing Date: 5 April 2015

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr11min	10:00 ~ 12:11	26.0	1011.3	0.041	2407	18.4
2hr21min	12:20 ~ 14:41	26.0	1011.3	0.038	2219	15.7
2hr17min	14:50 ~ 17:07	26.0	1011.3	0.057	3644	26.6

Sensitivity Adjustment Scale Setting (Before Calibration) 698 (CPM)

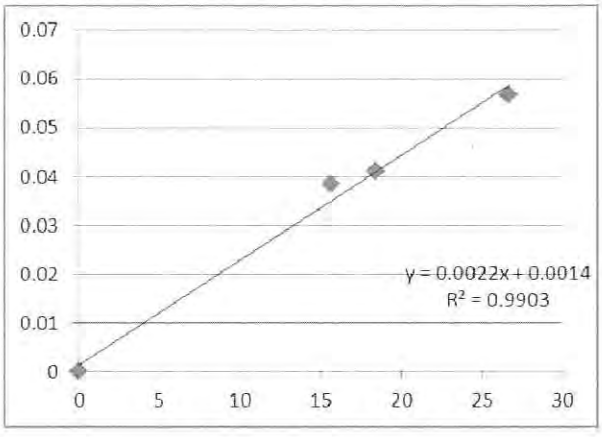
Sensitivity Adjustment Scale Setting (After Calibration) 701 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9951

Date of Issue 20 April 2015



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0022 should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Donald Kwok Signature : Date : 20 April 2015

QC Reviewer : Ben Tam Signature : Date : 20 April 2015

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	6-Feb-15
Location ID :	Calibration Room	Next Calibration Date:	6-May-15

CONDITIONS

Sea Level Pressure (hPa)	1024.5	Corrected Pressure (mm Hg)	768.375
Temperature (°C)	13.4	Temperature (K)	286

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00757
Model->	5025A	Qstd Intercept ->	-0.01628
Calibration Date->	7-Apr-14	Expiry Date->	7-Apr-15

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	3.8	3.8	7.6	1.417	56	57.44	Slope = 30.5075
13	3	3	6.0	1.260	52	53.33	Intercept = 14.6821
10	2.3	2.3	4.6	1.104	48	49.23	Corr. coeff. = 0.9974
8	1.7	1.7	3.4	0.950	42	43.08	
5	1.0	1.0	2.0	0.731	36	36.92	

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)

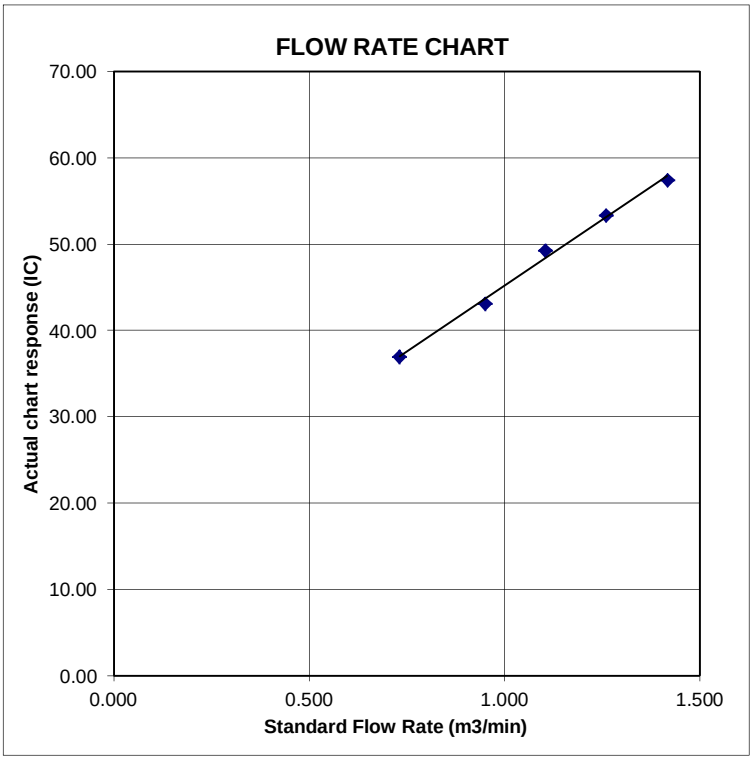
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



SIBATA (EQ111)

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

CALIBRATION CERTIFICATE

Date: May 11, 2015

Equipment Name	:	Digital Dust Indicator, Model LD-3B
Code No.	:	080000-42
Quantity	:	1 unit
Serial No.	:	3Y6501
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	656CPM
Scale Setting	:	April 24, 2015

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

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Hong

For Kentaro Togo
Overseas Sales Division

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. : C151969
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 24 March 2015

Description / 儀器名稱	:	Integrating Sound Level Meter (EQ006)
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	2238
Serial No. / 編號	:	2285762
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 : 11 April 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 14 April 2015

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. : C151969
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	C150014
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	94.3

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	94.1	± 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	94.1 (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.

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

Certificate of Calibration
校正證書

Certificate No. : C151969
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	94.1	Ref.
	L_{ASP}		S			94.1	± 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	104.9	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	101.9	-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	55.1	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

Certificate of Calibration
校正證書

Certificate No. : C151969
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	91.4	-3.0 ± 1.5
					63 Hz	93.4	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-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	100.0	± 0.5
						$1/10^2$		90	90.1	± 0.5
			60 sec.			$1/10^3$		80	79.4	± 1.0
			5 min.			$1/10^4$		70	69.2	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812705

- 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.

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. : C153055
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 15 May 2015

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 : 4 June 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 5 June 2015

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. : C153055
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. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

4. Test procedure : MA101N.

5. Results :

5.1 Sound Pressure Level

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

5.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
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.

5.2 Time Weighting

5.2.1 Continuous Signal

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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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. : C153055
證書編號

5.2.2 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

5.3 Frequency Weighting

5.3.1 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	90.8	-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)

5.3.2 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)

Certificate of Calibration
校正證書

Certificate No. : C153055
證書編號

5.4 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	100.0	± 0.5
						$1/10^2$		90	89.7	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 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.

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. : C152552
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 17 April 2015

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 May 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 12 May 2015

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Certificate of Calibration
校正證書

Certificate No. : C152552
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	C150014
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	93.6	± 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	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

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	93.6	Ref.
			Slow			93.6	± 0.3

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Certificate of Calibration
校正證書

Certificate No. : C152552
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	67.3	-26.2 ± 1.5
					125 Hz	77.4	-16.1 ± 1.5
					250 Hz	84.9	-8.6 ± 1.4
					500 Hz	90.3	-3.2 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	94.8	+1.2 ± 1.6
					4 kHz	94.6	+1.0 ± 1.6
					8 kHz	92.6	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.2	-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_C	C	Fast	94.00	63 Hz	92.7	-0.8 ± 1.5
					125 Hz	93.4	-0.2 ± 1.5
					250 Hz	93.6	0.0 ± 1.4
					500 Hz	93.6	0.0 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	93.4	-0.2 ± 1.6
					4 kHz	92.8	-0.8 ± 1.6
					8 kHz	90.7	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.2	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 07459

- 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
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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. : C151967
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 24 March 2015

Description / 儀器名稱 : Sound Level Calibrator (EQ084)
Manufacturer / 製造商 : Cesva
Model No. / 型號 : CB-5
Serial No. / 編號 : 030023
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

DATE OF TEST / 測試日期 : 11 April 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 14 April 2015

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Certificate of Calibration
校正證書

Certificate No. : C151967
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	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	* 94.4	± 0.3	± 0.2
104 dB, 1 kHz	* 104.4		± 0.3

Out of Mfr's Spec.

5.1.2 After Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.3	± 0.2
104 dB, 1 kHz	104.0		± 0.3

5.2 Frequency Accuracy

5.2.1 Before Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.002	1 kHz ± 1.5 %	± 1

5.2.2 After Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.001	1 kHz ± 1.5 %	± 1

Certificate of Calibration
校正證書

Certificate No. : C151967
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.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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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. : C152550
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 16 April 2015

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 : 7 May 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 12 May 2015

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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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. : C152550
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	C143868
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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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. : C151968
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 24 March 2015

Description / 儀器名稱 : Sound Calibrator (EQ083)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-74
Serial No. / 編號 : 34246492
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 : 11 April 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, 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 : 14 April 2015

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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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. : C151968
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	C143868
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	± 0.3	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.001	1 kHz ± 1 %	± 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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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1529672
CLIENT:	ACTION UNITED ENVIRO SERVICES	**SUB-BATCH:**	0
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG.	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	12/08/2015
		DATE OF ISSUE:	20/08/2015

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:	Dissolved Oxygen and Temperature
Equipment Type:	Dissolved Oxygen Meter
Brand Name:	YSI
Model No.:	Pro 20
Serial No.:	12C100570
Equipment No.:	--
Date of Calibration:	19 August, 2015

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: HK1529672
Sub-Batch: 0
Date of Issue: 20/08/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Dissolved Oxygen Meter
Brand Name: YSI
Model No.: Pro 20
Serial No.: 12C100570
Equipment No.: --
Date of Calibration: 19 August, 2015 Date of next Calibration: 19 November, 2015

Parameters:

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.08	3.14	+0.06
5.60	5.71	+0.11
7.82	7.79	-0.03
	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.**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
12	13.2	+1.2
18	18.9	+0.9
35	34.1	-0.9
	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:**	HK1529917
CLIENT:	ACTION UNITED ENVIRO SERVICES	**SUB-BATCH:**	0
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	13/08/2015
		DATE OF ISSUE:	19/08/2015

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.:	11030C008499
Equipment No.:	--
Date of Calibration:	17 August, 2015

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: HK1529917
Sub-batch: 0
Date of Issue: 19/08/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --
Date of Calibration: 17 August, 2015 Date of next Calibration: 17 November, 2015

Parameters:

Turbidity **Method Ref: APHA 21st Ed. 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.00	--
4	4.27	+6.7
40	38.7	-3.2
80	73.8	-7.8
400	377	-5.8
800	759	-5.1
	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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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM
CLIENT:	ACTION UNITED ENVIRO SERVICES
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG

WORK ORDER:	HK1529670
SUB-BATCH:	0
LABORATORY:	HONG KONG
DATE RECEIVED:	12/08/2015
DATE OF ISSUE:	20/08/2015

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 and Temperature
Description:	pH Meter
Brand Name:	AZ
Model No.:	8685
Serial No.:	1064457
Equipment No.:	--
Date of Calibration:	19 August, 2015

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: HK1529670
Sub-batch: 0
Date of Issue: 20/08/2015
Client: ACTION UNITED ENVIRO SERVICES

Description: pH Meter
Brand Name: AZ
Model No.: 8685
Serial No.: 1064457
Equipment No.: --
Date of Calibration: 19 August, 2015 Date of next Calibration: 19 November, 2015

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	6.9	-0.10
10.0	10.0	0.00
	Tolerance Limit (pH Unit)	±0.20

Temperature

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
12	11.5	-0.5
19	18.5	-0.5
38	37.5	-0.5
	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

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 – October 2015

Date		Dust Monitoring		Noise Monitoring	Water Quality
		1-hour TSP	24-hour TSP		
THU	1-OCT-15				
FRI	2-OCT-15	C2		C2	
SAT	3-OCT-15				C2&C3&C5& SSC505
SUN	4-OCT-15				
MON	5-OCT-15				
TUE	6-OCT-15	C3&C5 & SSC505	C2&C3&C5& SSC505	C3&C5	C2&C3&C5& SSC505
WED	7-OCT-15				
THU	8-OCT-15	C2		C2	C2&C3&C5& SSC505
FRI	9-OCT-15				
SAT	10-OCT-15				C2&C3&C5& SSC505
SUN	11-OCT-15				
MON	12-OCT-15	C3&C5 & SSC505	C2&C3&C5& SSC505	C3&C5	C2&C3&C5& SSC505
TUE	13-OCT-15				
WED	14-OCT-15	C2		C2	C2&C3&C5& SSC505
THU	15-OCT-15				
FRI	16-OCT-15				
SAT	17-OCT-15	C3&C5 & SSC505	C2&C3&C5& SSC505	C3&C5	C2&C3&C5& SSC505
SUN	18-OCT-15				
MON	19-OCT-15				
TUE	20-OCT-15	C2		C2	C2&C3&C5& SSC505
WED	21-OCT-15				
THU	22-OCT-15				C2&C3&C5& SSC505
FRI	23-OCT-15	C3&C5 & SSC505	C2&C3&C5& SSC505	C3&C5	C6
SAT	24-OCT-15				C2&C3&C5& SSC505
SUN	25-OCT-15				
MON	26-OCT-15	C2& C6		C2& C6	C6
TUE	27-OCT-15		C6		C2&C3&C5& SSC505
WED	28-OCT-15				C6
THU	29-OCT-15	C3&C5 & SSC505	C2&C3&C5& SSC505	C3&C5	C2&C3&C5& SSC505
FRI	30-OCT-15				C6
SAT	31-OCT-15	C2& C6		C2& C6	C2&C3&C5& SSC505

	Monitoring Day
	Sunday or Public Holiday

Monitoring Location

Contract 2 (C2)	Air Quality	AM7b & AM8
	Construction Noise	NM5, NM6, NM7
	Water Quality#	WM3, WM3-Control, WM4, WM4-Control A & WM4-Control B
Contract 3 (C3)	Air Quality	AM9b
	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B
Contract 5 (C5)	Air Quality	AM1a, AM2 & AM3
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control
Contract SS C505	Air Quality	AM1a
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control
Contract 6 (C6)	Air Quality	AM2, AM3, AM4b, AM5 & AM6
	Construction Noise	NM2,NM3, NM4, NM5 & NM6
	Water Quality	WM2a, WM2A-C, WM2B, WM2B-C, WM3, WM3-C

Impact Monitoring Schedule for next Reporting Period – November 2015

Date		Dust Monitoring		Noise Monitoring	Water Quality
		1-hour TSP	24-hour TSP		
Sun	1-Nov-15				
Mon	2-Nov-15		C6		C6
Tue	3-Nov-15	C3&C5 & SSC505		C3&C5& SSC505	C2&C3&C5& SSC505
Wed	4-Nov-15		C2&C3&C5& SSC505		C6
Thu	5-Nov-15				C2&C3&C5& SSC505
Fri	6-Nov-15	C2&C6		C2&C6	C6
Sat	7-Nov-15		C6		C2&C3&C5& SSC505
Sun	8-Nov-15				
Mon	9-Nov-15	C3&C5 & SSC505		C3&C5& SSC505	C2&C3&C5& SSC505
Tue	10-Nov-15		C2&C3&C5& SSC505		C6
Wed	11-Nov-15				C2&C3&C5& SSC505
Thu	12-Nov-15	C2&C6		C2&C6	C6
Fri	13-Nov-15		C6		C2&C3&C5& SSC505
Sat	14-Nov-15	C3&C5 & SSC505		C3&C5& SSC505	C6
Sun	15-Nov-15				
Mon	16-Nov-15		C2&C3&C5& SSC505		C2&C3&C5& C6&SSC505
Tue	17-Nov-15				
Wed	18-Nov-15	C2&C6		C2&C6	C6
Thu	19-Nov-15		C6		C2&C3&C5& SSC505
Fri	20-Nov-15	C3&C5 & SSC505		C3&C5& SSC505	C6
Sat	21-Nov-15		C2&C3&C5& SSC505		C2&C3&C5& SSC505
Sun	22-Nov-15				
Mon	23-Nov-15				C2&C3&C5& SSC505
Tue	24-Nov-15	C2&C6		C2&C6	C6
Wed	25-Nov-15		C6		C2&C3&C5& SSC505
Thu	26-Nov-15	C3&C5 & SSC505		C3&C5& SSC505	C6
Fri	27-Nov-15		C2&C3&C5& SSC505		C2&C3&C5& SSC505
Sat	28-Nov-15				C6
Sun	29-Nov-15				
Mon	30-Nov-15	C2&C6		C2&C6	C6

	Monitoring Day
	Sunday or Public Holiday

Monitoring Location

Contract 2 (C2)	Air Quality	AM7b & AM8
	Construction Noise	NM5, NM6, NM7
	Water Quality#	WM3, WM3-Control, WM4, WM4-Control A & WM4-Control B
Contract 3 (C3)	Air Quality	AM9b
	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B
Contract 5 (C5)	Air Quality	AM1a, AM2 & AM3
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control
Contract SS C505	Air Quality	AM1a
	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control
Contract 6 (C6)	Air Quality	AM2, AM3, AM4b, AM5 & AM6
	Construction Noise	NM2,NM3, NM4, NM5 & NM6
	Water Quality	WM2a, WM2A-C, WM2B, WM2B-C, WM3, WM3-C

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															
6-Oct-15	28474	10573.10	10596.74	1418.40	35	35	35.0	26	1014.1	1.23	1746	2.8452	2.8938	0.0486	28
12-Oct-15	28539	10596.74	10620.58	1430.40	35	36	35.5	23.1	1019	1.25	1791	2.7399	2.8827	0.1428	80
17-Oct-15	28543	10620.58	10644.87	1457.40	40	43	41.5	25.6	1014.2	1.41	2062	2.7597	3.0009	0.2412	117
23-Oct-15	28576	10644.87	10668.85	1438.80	34	34	34.0	24.7	1013	1.20	1733	2.7883	2.9331	0.1448	84
29-Oct-15	28474	10668.85	10692.44	1415.40	29	30	29.5	26.4	1018.2	1.05	1488	2.7902	2.8669	0.0767	52
AM2 - Village House near Lin Ma Hang Road															
6-Oct-15	28473	6118.89	6142.72	1429.80	30	31	30.5	26	1014.1	0.96	1371	2.8432	2.8907	0.0475	35
12-Oct-15	28540	6142.72	6167.20	1468.80	32	33	32.5	23.1	1019	1.04	1520	2.7503	2.9694	0.2191	144
17-Oct-15	28561	6167.20	6190.99	1427.40	33	34	33.5	25.6	1014.2	1.06	1516	2.8003	3.0160	0.2157	142
23-Oct-15	28566	6190.99	6214.78	1427.40	32	33	32.5	24.7	1013	1.03	1469	2.8143	3.0099	0.1956	133
29-Oct-15	28675	6214.78	6238.61	1429.80	32	33	32.5	26.4	1018.2	1.03	1477	2.7910	2.9228	0.1318	89
AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village															
6-Oct-15	28460	7230.65	7254.65	1440.00	32	33	32.5	26	1014.1	0.98	1404	2.8093	2.8242	0.0149	11
12-Oct-15	28541	7254.70	7278.70	1440.00	42	42	42.0	23.1	1019	1.31	1890	2.7660	3.0112	0.2452	130
17-Oct-15	28562	7278.72	7302.72	1440.00	33	36	34.5	25.6	1014.2	1.04	1504	2.7943	2.8208	0.0265	18
23-Oct-15	28577	7302.74	7326.74	1440.00	42	42	42.0	24.7	1013	1.30	1878	2.8088	3.0222	0.2134	114
29-Oct-15	28676	7326.74	7350.74	1440.00	31	32	31.5	26.4	1018.2	0.94	1356	2.7670	2.7801	0.0131	10
AM4 - House no. 10B1 Nga Yiu Ha Village															
27-Oct-15	28596	9306.65	9330.65	1440.00	38	39	38.5	26.5	1015.6	0.99	1432	2.7993	2.9191	0.1198	84
AM5a - Ping Yeung Village House															
27-Oct-15	28597	7144.93	7168.92	1439.40	34	35	34.5	26.5	1015.6	1.04	1497	2.8021	2.9110	0.1089	73
AM6 - Wo Keng Shan Village House															
27-Oct-15	28594	5692.43	5716.43	1440.00	33	34	33.5	26.5	1015.6	1.05	1513	2.7811	2.9292	0.1481	98
AM7b - Loi Tung Village House															
6-Oct-15	28510	14652.96	14676.96	1440.00	44	45	44.5	26	1014.1	1.30	1870	2.7976	2.8503	0.0527	28
12-Oct-15	28538	14676.97	14700.98	1440.60	48	48	48.0	23.1	1019	1.40	2023	2.7573	2.8852	0.1279	63
17-Oct-15	28565	14700.98	14724.98	1440.00	48	49	48.5	25.6	1014.2	1.41	2029	2.8050	2.9546	0.1496	74
23-Oct-15	28598	14724.98	14748.98	1440.00	48	49	48.5	24.7	1013	1.41	2031	2.8017	2.9519	0.1502	74
29-Oct-15	28679	14748.98	14772.98	1440.00	32	32	32.0	26.4	1018.2	0.96	1382	2.7895	2.8704	0.0809	59
AM8 - Po Kat Tsai Village No. 4															
6-Oct-15	28511	8523.37	8547.35	1438.80	48	48	48.0	26	1014.1	1.32	1896	2.7979	2.8427	0.0448	24
12-Oct-15	28542	8547.35	8571.35	1440.00	48	48	48.0	23.1	1019	1.33	1912	2.7560	2.8323	0.0763	40
17-Oct-15	28575	8571.38	8595.38	1440.00	43	44	43.5	25.6	1014.2	1.19	1712	2.7763	2.8989	0.1226	72

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)	
23-Oct-15	28592	8595.38	8619.38	1440.00	48	49	48.5	24.7	1013	1.33	1921	2.7875	2.9314	0.1439	75
29-Oct-15	28678	8619.38	8643.38	1440.00	48	48	48.0	26.4	1018.2	1.31	1882	2.7950	2.8728	0.0778	41
AM9b - Nam Wa Po Village House No. 80															
6-Oct-15	power failure														
12-Oct-15	28542	16024.10	16048.10	1440.00	32	32	32.0	23.1	1019	1.05	1515	2.7694	2.8266	0.0572	38
17-Oct-15	28477	16048.12	16072.12	1440.00	33	34	33.5	25.6	1014.2	1.09	1573	2.8617	3.0548	0.1931	123
23-Oct-15	28593	16072.13	16096.13	1440.00	33	34	33.5	24.7	1013	1.09	1575	2.7854	3.0167	0.2313	147
29-Oct-15	28677	16096.13	16120.13	1440.00	34	34	34.0	26.4	1018.2	1.12	1610	2.7898	2.9272	0.1374	85

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																					
6-Oct-15	11:21	50.5	51.9	49.1	54.0	56.6	49.7	58.7	62.7	50.8	51.1	53.2	47.9	50.3	49.9	47.6	52.5	54.5	47.8	54	NA
12-Oct-15	13:26	65.4	71.5	57.0	58.2	60.9	52.9	62.9	65.5	57.1	64.3	66.9	58.6	63.2	66.3	56.6	64.3	67.3	56.6	64	NA
17-Oct-15	10:41	61.4	64.8	54.1	62.6	67.0	51.9	55.8	57.6	52.9	64.8	68.1	55.9	64.6	68.1	56.1	64.4	67.7	55.3	63	NA
23-Oct-15	10:28	61.4	60.4	53.5	54.0	55.7	52.2	55.7	57.9	52.4	54.4	56.3	51.5	54.4	56.5	52.0	53.8	56.4	50.9	57	NA
29-Oct-15	10:21	52.3	54.0	49.9	50.8	52.5	48.6	51.0	52.8	48.7	53.1	56.3	49.0	56.4	58.3	52.2	61.2	63.9	54.3	56	NA
NM2 - Village House near Lin Ma Hang Road																					
6-Oct-15	14:23	55.6	58.0	51.3	67.1	69.9	63.1	68.3	70.7	62.3	69.0	70.6	64.3	68.1	69.7	62.0	63.5	67.7	54.9	67	NA
12-Oct-15	13:23	68.1	69.8	57.2	60.3	62.3	55.3	66.3	69.7	56.0	60.9	63.1	55.4	62.8	66.0	52.4	63.4	66.8	53.8	65	NA
17-Oct-15	11:28	58.4	60.9	48.8	64.8	65.9	53.7	57.9	59.3	49.9	56.1	59.6	47.8	56.9	59.6	47.6	58.4	60.9	48.8	60	NA
23-Oct-15	10:38	66.4	69.0	50.8	61.4	65.7	49.9	60.8	63.8	50.4	55.9	59.9	49.1	59.3	60.7	49.6	60.3	63.7	49.7	62	NA
29-Oct-15	11:17	62.8	63.0	47.6	54.9	53.7	46.3	62.6	60.7	43.9	61.9	64.7	48.0	59.7	62.8	46.0	55.8	59.7	45.2	61	NA
NM3 - Ping Yeung Village House																					
26-Oct-15	11:30	61.7	62.5	48.0	52.4	52.0	47.5	60.8	59.5	48.5	58.5	55.5	48.5	55.7	56.5	47.0	48.8	50.0	46.0	58	NA
31-Oct-15	14:23	64.4	65.5	50.0	61.8	63.5	49.5	59.7	62.5	49.0	60.3	62.0	49.0	61.0	62.5	49.5	58.6	61.5	48.5	61	NA
NM4 - Wo Keng Shan Village House																					
26-Oct-15	14:56	61.9	62.0	52.0	60.2	60.5	53.5	58.6	59.5	53.0	62.6	64.5	53.0	59.0	60.0	52.5	55.3	57.0	51.0	60	NA
31-Oct-15	13:35	63.2	66.0	58.5	62.6	65.5	58.0	64.7	66.5	58.5	62.4	65.5	57.5	66.0	68.0	58.5	64.1	67.0	58.0	64	NA
NM5– Ping Yeung Village House (façade facing northeast)																					
2-Oct-15	17:07	54.1	55.6	52.2	53.8	55.4	52.2	54.5	56.1	52.9	53.6	55.0	51.2	54.5	56.2	53.0	53.7	55.7	51.4	54	NA
8-Oct-15	11:16	52.9	55.5	47.5	53.8	56.0	47.0	54.0	56.5	49.0	53.0	56.0	48.0	54.5	48.0	48.5	53.4	48.0	48.5	54	NA
14-Oct-15	11:21	55.1	56.0	46.5	51.1	53.5	43.0	49.6	53.0	42.0	48.9	52.0	41.0	51.1	54.5	44.5	50.7	53.0	44.5	52	NA
20-Oct-15	13:00	54.6	57.0	49.0	53.7	57.0	43.5	45.1	57.5	46.0	55.2	58.5	47.5	56.1	53.0	43.0	52.0	55.0	45.0	54	NA
26-Oct-15	10:20	55.0	56.0	535.0	55.9	57.5	54.0	56.0	57.5	54.0	57.1	59.0	54.5	56.2	58.5	53.5	58.4	62.0	54.5	57	NA
31-Oct-15	10:43	49.3	52.0	43.0	54.2	57.0	46.5	65.9	59.5	45.0	61.6	63.0	49.5	52.7	55.0	49.0	55.2	57.5	48.5	60	NA
NM6 – Tai Tong Wu Village House 2																					
2-Oct-15	16:04	62.7	66.8	52.6	63.5	66.8	56.2	60.6	64.5	48.7	62.2	65.5	52.0	61.4	64.7	55.1	62.4	65.9	53.7	62	NA
8-Oct-15	11:18	61.9	65.2	56.0	60.1	62.6	55.4	61.1	64.0	56.2	60.4	63.6	55.1	61.6	65.3	55.5	61.5	64.6	55.8	61	NA
14-Oct-15	11:26	62.5	66.1	54.4	61.1	64.2	51.7	61.8	65.6	52.6	61.9	66.0	51.0	61.5	65.7	51.5	61.3	65.1	52.5	62	NA
20-Oct-15	11:28	62.9	65.5	54.5	63.2	66.5	54.0	63.1	65.0	50.0	62.6	65.5	51.0	61.1	64.5	46.5	63.1	66.0	52.0	63	NA
26-Oct-15	11:04	59.5	58.0	51.0	55.2	57.0	52.0	53.9	54.5	51.5	53.7	54.5	51.5	52.4	53.0	50.5	58.7	57.0	50.5	56	NA
31-Oct-15	10:38	60.5	63.2	54.3	57.6	60.0	53.8	59.4	62.5	51.6	59.1	62.7	51.5	58.9	62.6	49.8	59.0	62.6	51.0	59	NA

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
NM7 – Po Kat Tsai Village																					
2-Oct-15	15:17	63.2	66.5	50.0	60.6	64.5	49.5	59.5	63.0	50.0	57.9	59.0	48.5	59.7	63.0	49.5	65.0	65.0	55.0	62	NA
8-Oct-15	10:06	67.6	69.0	57.5	63.1	64.5	49.5	58.5	60.0	49.0	56.9	58.0	49.0	58.0	58.0	48.0	61.5	59.5	48.5	63	NA
14-Oct-15	10:41	57.8	60.0	50.5	52.0	53.0	50.0	59.5	60.0	50.5	57.9	57.5	49.5	50.5	51.0	47.5	61.8	60.5	49.0	58	NA
20-Oct-15	11:14	56.2	58.1	50.4	60.4	63.6	52.7	66.9	64.8	51.7	65.0	60.9	50.4	53.9	53.0	50.0	55.7	55.2	52.0	62	NA
26-Oct-15	17:14	56.2	58.5	47.5	53.5	55.5	47.5	54.6	54.5	46.5	53.8	55.5	48.0	52.4	54.5	47.0	51.9	54.0	47.8	54	NA
31-Oct-15	11:32	56.4	57.7	52.9	56.5	57.2	52.2	57.7	60.0	53.2	55.1	55.9	52.9	61.7	58.3	55.2	65.3	62.1	55.1	60	NA
NM8 - Village House, Tong Hang																					
6-Oct-15	15:32	62.5	65.2	58.4	65.7	68.1	59.7	64.2	67.9	59.7	63.4	64.7	59.9	62.7	66	59.9	62.8	66.8	59	64	NA
12-Oct-15	10:33	59.6	63.4	53.2	59.9	62.8	54.1	58.6	61	55.1	58.7	61.7	52.2	56.5	59.1	51.2	58.1	60.4	51.8	59	NA
17-Oct-15	11:24	55.2	58.3	47.2	56.2	61.4	47.9	58.5	63.3	47.8	55.6	60.7	44.9	53.9	55.4	45.2	57.4	63.4	46.8	56	NA
23-Oct-15	11:35	56.6	57.5	51	56.3	60	50.5	57.5	61	52	58	61.5	51.5	59.4	63.5	53	59.8	64	54	58	NA
29-Oct-15	11:38	53.3	55	50.5	55.1	58	50.5	56.6	59.5	51	55.2	59	50	54	55.5	50	55.5	58	48.5	55	NA
NM9 - Village House, Kiu Tau Village																					
6-Oct-15	16:21	67.2	68.5	59.2	66.9	70.4	59.8	66.0	69.9	59.4	62.4	66.4	57.2	61.2	63.1	57.2	60.5	63.0	58.4	65	NA
12-Oct-15	11:23	60.0	63.4	53.7	61.4	637.0	53.0	64.7	67.0	55.3	61.2	64.4	55.1	62.6	65.9	53.5	62.1	63.6	52.6	62	NA
17-Oct-15	10:59	58.7	62.0	54.0	59.1	62.5	53.5	60.9	64.5	55.5	61.0	64.5	55.5	59.2	62.0	54.5	62.5	64.0	55.0	60	NA
23-Oct-15	10:55	57.9	60.5	53.0	59.1	63.5	52.0	56.3	58.5	51.0	57.0	59.5	51.5	58.3	62.5	51.5	58.6	62.5	51.0	58	NA
29-Oct-15	10:56	58.7	63.0	51.0	59.8	57.5	50.0	54.4	57.0	51.0	56.9	59.5	52.0	59.0	62.0	53.0	61.0	62.5	59.0	59	NA
NM10 - Nam Wa Po Village House No. 80																					
6-Oct-15	10:22	66.7	68.7	63.4	66.8	67.6	63.6	67.4	67.8	63.8	67.6	69.3	63.9	68.2	69.1	63.1	68.0	69.5	63.5	67	70
12-Oct-15	13:21	63.4	64.4	61.5	63.4	64.6	62.1	61.9	63.5	59.8	62.2	63.5	60.7	62.5	63.6	60.9	61.9	63.1	60.5	63	66
17-Oct-15	10:17	66.8	68.5	61.0	62.7	64.0	60.5	63.5	65.0	61.5	62.5	63.5	61.0	62.1	63.5	60.0	64.6	66.0	61.0	64	67
23-Oct-15	9:16	61.8	64.0	54.5	62.8	64.5	60.5	62.1	63.5	60.5	63.0	64.5	61.0	62.2	63.5	60.0	63.0	65.0	60.5	63	66
29-Oct-15	9:09	62.4	65.0	55.5	64.7	67.0	61.0	65.7	68.0	61.0	70.0	69.5	59.0	68.0	70.0	60.0	67.8	71.5	58.5	67	70

Water Quality Monitoring Data for Contract 5 and SS C505

Date	3-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM1-C	10:32	0.43	25.6	25.6	7	7.0	85.6	85.8	13.5	13.4	9.1	9.1	13	13.0
			25.6		7.04		86.0		13.3		9.1		13	
WM1	11:01	0.22	25.5	25.5	7.18	7.2	87.7	87.7	14.1	14.3	8.9	8.9	5	4.5
			25.5		7.18		87.7		14.5		8.9		4	

Date	6-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM1-C	11:47	0.58	25.5	25.5	7	7.0	85.5	85.2	116.0	117.5	9.9	9.9	93	91.5
			25.5		6.95		84.9		119.0		9.9		90	
WM1	12:19	0.37	25.3	25.3	7.34	7.3	89.5	88.5	120.0	121.5	9.4	9.4	92	94.5
			25.3		7.18		87.5		123.0		9.4		97	

Date	8-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM1-C	10:11	0.52	25.5	25.5	7.05	7.0	86.1	85.7	9.0	9.0	9.3	9.3	<2	2.0
			25.5		6.98		85.2		9.1		9.3		<2	
WM1	10:38	0.28	26	26.0	7.18	7.2	88.5	88.6	9.7	9.5	8.5	8.5	<2	2.0
			26		7.2		88.7		9.3		8.5		<2	

Date	10-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM1-C	12:00	0.50	23.7	23.7	8.52	8.5	101.2	101.1	8.7	8.6	9.7	9.7	4	3.5
			23.7		8.5		100.9		8.6		9.7		3	
WM1	12:34	0.28	24	24.0	8.8	8.8	104.5	104.3	8.8	8.8	9.5	9.5	4	4.5
			24		8.76		104.0		8.8		9.5		5	

Date	12-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM1-C	13:40	0.44	23.1	23.1	7.77	7.7	91.1	90.7	7.3	7.3	8.5	8.5	<2	2.0

			23.1		7.7		90.3		7.3		8.5		2	
WM1	14:07	0.26	23.3	23.3	7.9	7.9	92.7	92.9	8.8	8.9	8.3	8.3	<2	2.0
			23.3		7.94		93.1		8.9		8.3		<2	

Date	**14-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	14:49	0.44	27	27.0	7.01	7.0	88.4	88.3	11.9	11.8	10	10.0	3	3.0
			27		7.08		88.2		11.7		10		3	
WM1	14:24	0.24	27.2	27.2	7.2	7.2	90.7	91.1	10.7	10.9	9.5	9.5	4	4.0
			27.2		7.25		91.4		11.0		9.5		4	

Date	**17-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	10:50	0.43	24	24.0	8.11	8.1	96.4	96.2	9.3	9.4	9.4	9.4	3	3.0
			24		8.07		95.9		9.5		9.4		3	
WM1	11:19	0.24	24.6	24.6	8.41	8.4	99.6	99.5	11.4	11.6	9.5	9.5	3	3.5
			24.6		8.37		99.3		11.7		9.5		4	

Date	**20-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	12:22	0.44	24.2	24.2	8.53	8.5	101.6	101.3	10.7	10.6	9	9.0	5	5.5
			24.2		8.47		101.0		10.4		9		6	
WM1	12:57	0.23	24.7	24.7	8.68	8.7	104.4	104.6	9.5	9.4	8.8	8.8	6	6.0
			24.7		8.7		104.7		9.4		8.8		6	

Date	**22-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:21	0.41	25.6	25.6	8.3	8.3	105.1	104.9	23.1	22.9	8.6	8.3	18	17.5
			25.6		8.27		104.7		22.7		8		17	
WM1	11:54	0.23	25.8	25.8	8.22	8.2	101.8	101.8	20.2	20.4	8.7	8.7	17	17.5
			25.8		8.23		101.8		20.6		8.7		18	

Date	24-Oct-15															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	11:53	0.43	25	25.0	7.84	7.8	94.2	94.1	10.1	10.3	8	8.0	4	4.0
			25		7.8		94.0		10.5		8		4	
WM1	12:19	0.26	25.7	25.7	8.59	8.6	105.3	105.3	11.0	10.9	8.6	8.6	5	5.0
			25.7		8.58		105.2		10.7		8.6		5	

Date	27-Oct-15															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	14:19	0.37	28.6	28.6	7.31	7.3	94.5	94.2	10.3	10.2	10	10.0	3	3.5
			28.6		7.26		93.9		10.0		10		4	
WM1	14:43	0.22	28.7	28.4	8.16	8.2	105.4	106.3	9.7	9.8	9.3	9.3	4	4.0
			28		8.3		107.2		9.8		9.3		4	

Date	29-Oct-15															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	10:32	0.21	24.5	24.5	7.25	7.2	86.9	86.8	11.6	11.6	7.9	7.9	7	8.0
			24.5		7.23		86.6		11.5		7.9		9	
WM1	11:04	0.23	25.4	25.4	7.76	7.8	94.6	94.9	9.8	9.9	8.7	8.7	5	5.5
			25.4		7.8		95.1		9.9		8.6		6	

Date	31-Oct-15															
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM1-C	14:48	0.28	27.9	27.9	9.22	9.2	117.6	117.3	10.1	9.7	8.1	8.1	15	15.0
			27.9		9.17		116.9		9.3		8.1		15	
WM1	15:16	0.20	27.5	27.5	7.77	7.7	98.4	98.0	14.2	14.9	7.7	7.7	3	3.0
			27.5		7.71		97.6		15.6		7.7		3	

Water Quality Monitoring Data for Contract 2 and 3

Date	3-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	12:16	0.10	26.5	26.5	7.27	7.3	92.1	92.7	4.1	4.1	7.9	7.9	3	3.0
			26.5		7.35		93.2		4.1		7.9		3	
WM4-CB	12:38	0.26	27.5	27.5	6.31	6.3	79.9	79.6	9.7	9.7	7.6	7.6	9	9.5
			27.5		6.26		79.3		9.7		7.6		10	
WM4	11:54	0.33	26.8	26.8	6.34	6.3	79.3	79.0	13.5	13.3	8	8.0	12	12.0
			26.8		6.29		78.7		13.1		8		12	

Date	6-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	16:27	0.28	25	25.0	7.25	7.3	87.8	87.9	141.0	144.5	8.8	8.8	126	127.0
			25		7.26		87.9		148.0		8.8		128	
WM4-CB	16:45	0.47	25.7	25.7	6.85	6.8	83.9	83.8	55.2	55.6	8.1	8.1	32	33.0
			25.7		6.83		83.7		55.9		8.1		34	
WM4	15:54	0.52	25.6	25.6	7.28	7.3	89.2	89.4	139.0	139.0	9.2	9.2	114	115.5
			25.6		7.31		89.5		139.0		9.2		117	

Date	8-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	15:07	0.15	25.8	25.8	7.88	7.9	96.8	96.7	9.0	8.9	7.8	7.8	<2	2.0
			25.8		7.85		96.5		8.9		7.8		<2	
WM4-CB	13:50	0.29	28.4	28.4	6.57	6.6	84.6	84.5	13.6	13.8	7.8	7.8	4	5.0
			28.4		6.55		84.3		13.9		7.8		6	
WM4	13:31	0.38	27.9	27.9	7.88	7.9	91.8	91.3	13.0	13.0	7.3	7.3	3	3.5
			27.9		7.85		90.8		13.0		7.3		4	

Date	10-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM4-CA	14:51	0.15	23.9	23.9	7.56	7.5	99.5	99.1	8.0	7.9	8.5	8.5	9	8.5
			23.9		7.46		98.6		7.9		8.5		8	
WM4-CB	15:15	0.27	25	25.0	6.33	6.3	89.6	89.1	17.8	17.8	7.9	7.9	20	19.5

			25		6.26		88.6		17.7		7.9		19	
WM4	14:21	0.41	24	24.0	8.36	8.3	76.7	76.3	13.2	13.4	8.6	8.6	12	12.0
			24		8.29		75.9		13.5		8.6		12	

Date	12-Oct-15													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	15:07	0.13	23	23.0	7.75	7.8	90.2	91.1	7.0	7.0	7.7	7.7	3	3.0
			23		7.89		91.9		6.9		7.7		3	
WM4-CB	15:21	0.28	24.9	24.9	6.37	6.5	76.9	78.1	9.5	9.6	7.3	7.3	7	7.5
			24.9		6.55		79.2		9.8		7.3		8	
WM4	14:48	0.38	24.1	24.1	7.63	7.7	90.8	91.1	15.0	15.2	7.6	7.6	8	7.5
			24		7.69		91.4		15.3		7.6		7	

Date	14-Oct-15													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	16:36	0.11	24.9	24.9	7.34	7.3	88.6	88.4	4.9	4.9	8.4	8.4	3	3.0
			24.9		7.3		88.2		5.0		8.4		3	
WM4-CB	16:59	0.24	26	26.0	5.66	5.6	69.8	69.4	13.2	13.4	8	8.0	14	13.0
			26		5.6		68.9		13.6		8		12	
WM4	16:06	0.31	26.9	26.9	6.62	6.6	83.1	82.2	11.5	11.4	8.7	8.7	7	8.0
			26.9		6.48		81.2		11.2		8.7		9	

Date	17-Oct-15													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	10:59	0.14	25.3	25.3	8.87	8.9	107.9	107.6	5.5	5.5	7.4	7.4	3	3.0
			25.3		8.83		107.3		5.6		7.4		3	
WM4-CB	10:22	0.22	27.6	27.6	8.53	8.5	106.4	106.0	12.3	12.4	7.1	7.1	14	14.0
			27.6		8.51		105.6		12.5		7.1		14	
WM4	12:10	0.28	26.3	26.3	8.54	8.6	108.3	108.9	15.9	15.8	7.4	7.4	16	15.5
			26.3		8.61		109.5		15.7		7.4		15	

Date	20-Oct-15						
Location	**Time**	**Depth (m)**	**Temp (oC)**	**DO (mg/L)**	**DO (%)**	**Turbidity (NTU)**	**pH**	**SS(mg/L)**

WM4-CA	15:47	0.12	25.7	25.7	7.82	7.8	95.7	95.4	6.4	6.6	8.5	8.5	6	6.0
			25.7		7.77		95.1		6.8		8.5		6	
WM4-CB	16:04	0.22	26.6	26.6	7.08	7.1	88.3	88.1	12.1	12.0	8	8.0	12	12.5
			26.6		7.05		87.9		11.8		8		13	
WM4	15:31	0.31	27	27.0	7.56	7.5	95.0	94.8	16.8	17.1	7.9	7.9	18	17.5
			27		7.52		94.5		17.3		7.9		17	

Date	**22-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	13:29	0.11	26.8	26.9	7.8	7.8	97.6	97.5	7.5	7.6	8	8.0	3	3.5
			26.9		7.77		97.3		7.7		8		4	
WM4-CB	13:51	0.19	28.5	28.5	7.3	7.3	94.2	94.7	13.1	12.9	7.5	7.5	8	9.0
			28.5		7.37		95.1		12.7		7.5		10	
WM4	13:10	0.29	27.7	27.7	7.63	7.6	97.0	97.1	11.0	11.1	8	8.0	5	5.0
			27.7		7.65		97.2		11.2		8		5	

Date	**24-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	13:03	0.11	26.7	26.7	7.68	7.7	96.0	95.8	7.7	7.7	8.2	8.2	6	7.0
			26.7		7.65		95.5		7.6		8.2		8	
WM4-CB	13:29	0.23	28.1	28.1	6.93	6.9	88.7	88.5	19.0	18.8	7.7	7.7	16	15.5
			28.1		6.89		88.3		18.6		7.7		15	
WM4	12:43	0.29	28.1	28.1	7.33	7.4	93.8	94.5	13.6	13.5	8.2	8.2	10	9.5
			28.1		7.44		95.2		13.3		8.2		9	

Date	**27-Oct-15**													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	17:03	0.11	26.5	26.5	7.15	7.1	89.0	88.8	6.9	6.6	8.4	8.4	4	4.5
			26.5		7.12		88.5		6.4		8.4		5	
WM4-CB	17:25		27.5	27.5	3.2	3.2	40.5	40.6	17.2	17.5	7.6	7.6	21	20.5
			27.5		3.21		40.7		17.7		7.6		20	
WM4	16:49	0.29	28.1	28.1	6.07	6.1	77.7	77.4	18.3	18.6	8.7	8.7	16	15.0
			28.1		6.03		77.1		18.9		8.7		14	

Date	29-Oct-15													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	12:28	0.10	27.5	27.5	7.74	7.7	98.1	97.8	6.2	6.3	8.1	8.1	6	6.0
			27.5		7.69		97.4		6.4		8.1		6	
WM4-CB	14:45	0.19	29.3	29.3	7.42	7.4	97.0	96.6	15.4	15.2	7.6	7.6	17	16.5
			29.3		7.35		96.1		15.0		7.6		16	
WM4	12:16	0.26	28.1	28.1	7.78	7.8	99.6	99.9	13.7	13.9	8.1	8.1	13	12.0
			28.1		7.82		100.2		14.0		8.1		11	

Date	31-Oct-15													
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DO (%)**		**Turbidity (NTU)**		**pH**		**SS(mg/L)**	
WM4-CA	13:31	0.10	27.1	27.1	7.29	7.2	91.8	90.6	7.0	7.1	8.2	8.2	11	12.0
			27.1		7.09		89.3		7.2		8.2		13	
WM4-CB	13:50	0.21	29	29.0	7.24	7.2	94.2	94.1	19.8	19.7	7.6	7.6	6	6.0
			29		7.21		93.9		19.5		7.6		6	
WM4	13:16	0.23	28.3	28.3	7.72	7.7	99.2	99.5	15.4	15.3	8.5	8.5	22	22.5
			28.3		7.77		99.8		15.1		8.4		23	

Water Quality Monitoring Data for Contract 6

Date	23-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2A-C	13:06	0.27	24.8	24.8	7.85	7.8	94.6	94.3	6.9	6.9	8.60	8.6	<2	2.0
			24.8		7.79		94.0		6.9		8.60		<2	
WM2A	12:06	0.15	27	27.0	7.74	7.7	97.0	96.8	35.3	**35.9**	8.90	8.9	26	**27.0**
			27		7.7		96.6		36.4		8.90		28	

Date	26-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2A-C	13:00	0.28	24.8	24.8	7.5	7.5	90.5	90.7	11.7	11.4	8.50	8.5	9	9.0
			24.8		7.53		90.9		11.0		8.50		9	
WM2A	12:27	0.15	25.7	25.7	7.63	7.6	93.5	93.7	110.0	**110.0**	9.00	9.0	74	**73.5**
			25.7		7.65		93.8		110.0		9.00		73	

Date	28-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2A-C	11:30	0.42	24.4	24.5	7.52	7.5	90.1	90.0	11.4	11.2	8.70	8.7	<2	2.0
			24.5		7.49		89.8		10.9		8.70		2	
WM2A	11:02	0.15	26.3	26.3	7.8	7.8	96.7	96.8	35.3	**34.9**	9.10	9.1	30	**29.0**
			26.3		7.81		96.9		34.4		9.10		28	

Date	30-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2A-C	15:15	0.43	25.1	25.1	8.12	8.1	98.4	98.1	10.9	10.6	8.70	8.7	<2	2.0
			25.1		8.06		97.7		10.3		8.70		2	
WM2A	14:25	0.16	28.2	28.2	7.6	7.6	97.5	97.7	43.9	**44.7**	9.20	9.2	41	**41.5**
			28.2		7.62		97.8		45.5		9.10		42	

Date	23-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2B-C	15:16	0.01	24.9	24.9	7.73	7.8	99.3	99.6	6.6	6.7	8.00	8.0	5	6.0
			24.9		7.77		99.9		6.8		8.00		7	
WM2B	14:56	0.02	27.6	27.6	7.74	7.7	98.2	97.6	84.8	**86.2**	8.30	8.3	94	**92.0**
			27.6		7.63		97.0		87.6		8.30		90	

Date	26-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2B-C	16:07	0.02	24.4	24.4	7.31	7.3	87.5	87.7	4.3	4.4	8.00	8.0	3	2.5
			24.4		7.34		87.8		4.5		8.00		2	
WM2B	15:44	0.02	25.6	25.6	7.77	7.8	95.1	95.3	15.7	**15.4**	8.30	8.3	9	8.5
			25.6		7.8		95.4		15.1		8.30		8	

Date	28-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2B-C	12:20	0.03	25.6	25.6	7.79	7.8	95.3	95.5	3.0	3.0	8.00	8.0	2	2.0
			25.6		7.82		95.7		3.1		8.00		<2	
WM2B	11:51	0.02	28.7	28.7	8.25	8.2	106.6	106.5	27.3	**27.5**	8.20	8.2	19	**18.5**
			28.7		8.24		106.4		27.6		8.10		18	

Date	30-Oct-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM2B-C	15:59	0.30	25	25.0	7.78	7.8	94.2	94.1	4.3	4.4	7.90	7.9	4	3.5
			25		7.76		93.9		4.5		7.80		3	
WM2B	15:39	0.30	27.6	27.7	7.74	7.7	98.3	98.2	26.0	**25.8**	8.10	8.1	14	**13.5**
			27.7		7.73		98.1		25.6		8.10		13	

Water Quality Monitoring Data for Contract 2 and 6

Date	23-Oct-15															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM3-C	15:34	0.06	26.6	26.6	6.62	6.7	82.5	82.9	18.9	18.3	10.00	10.0	32	33.0
			26.6		6.68		83.3		17.6		10.00		34	
WM3	15:51	0.21	25.4	25.4	6.96	7.0	84.9	85.0	14.9	14.8	9.10	9.1	14	13.0
			25.4		6.97		85.0		14.7		9.10		12	

Date	26-Oct-15															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM3-C	17:00	0.04	25.6	25.6	6.75	6.8	82.7	83.1	18.6	18.3	8.80	8.8	18	17.5
			25.6		6.82		83.5		17.9		8.80		17	
WM3	16:33	0.19	25.3	25.3	7.28	7.3	88.6	89.0	9.9	9.9	7.60	7.6	8	8.5
			25.3		7.34		89.3		10.0		7.60		9	

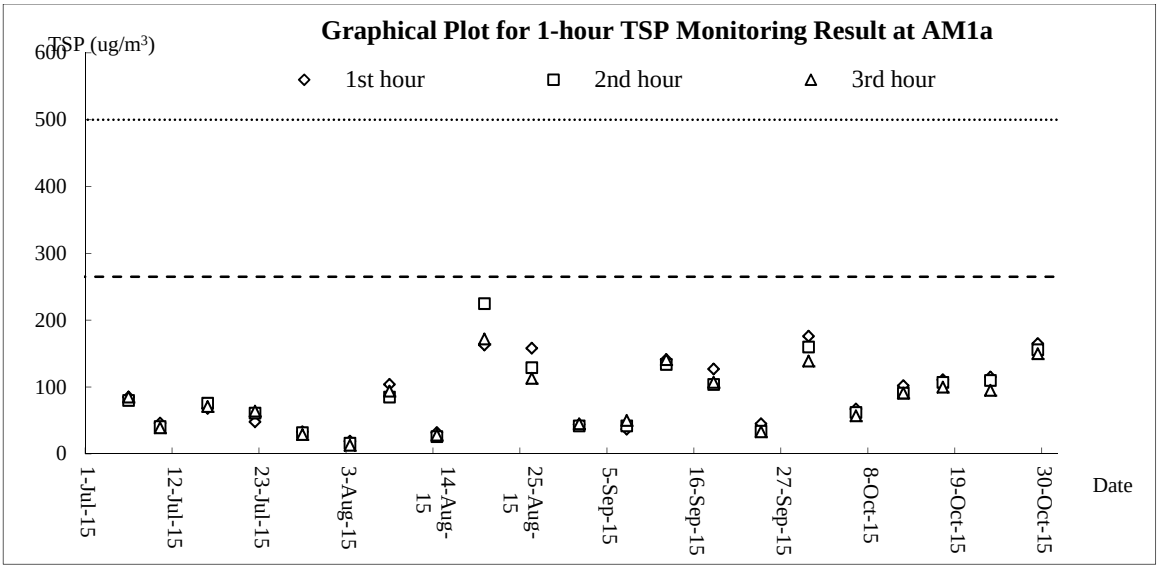
Date	28-Oct-15															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM3-C	13:01	0.02	27.7	27.7	7.34	7.3	93.3	92.9	8.3	8.5	7.60	7.6	13	12.5
			27.7		7.27		92.4		8.8		7.60		12	
WM3	13:21	0.22	26.6	26.6	7.21	7.2	89.9	90.2	8.2	8.1	7.80	7.8	6	6.5
			26.6		7.26		90.5		8.0		7.80		7	

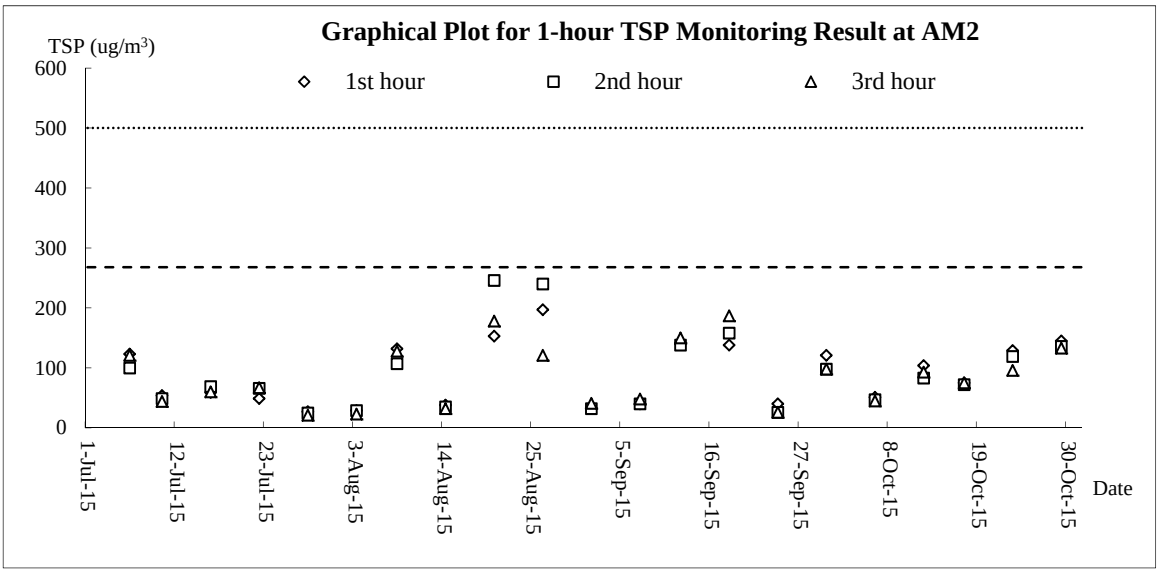
Date	30-Oct-15															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
WM3-C	16:20	0.02	26.6	26.6	6.68	6.7	83.8	83.7	7.3	6.9	7.30	7.3	7	7.0
			26.6		6.7		83.5		6.5		7.30		7	
WM3	16:41	0.21	25.4	25.4	7.29	7.3	88.9	88.8	9.5	9.7	7.60	7.6	5	6.0
			25.4		7.28		88.6		10.0		7.50		7	

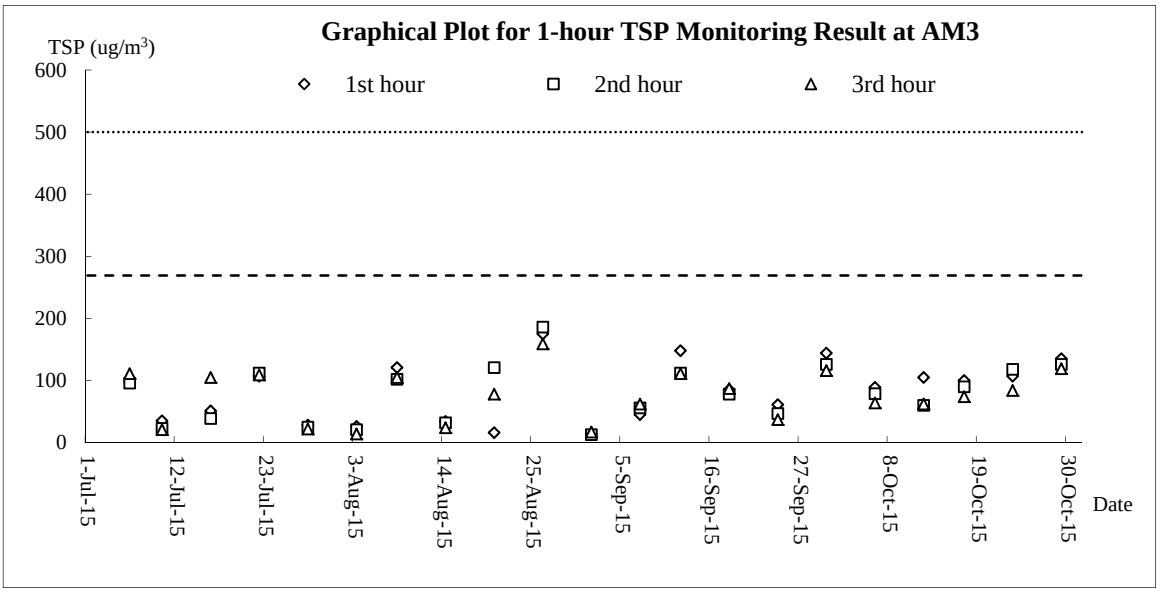
Appendix J

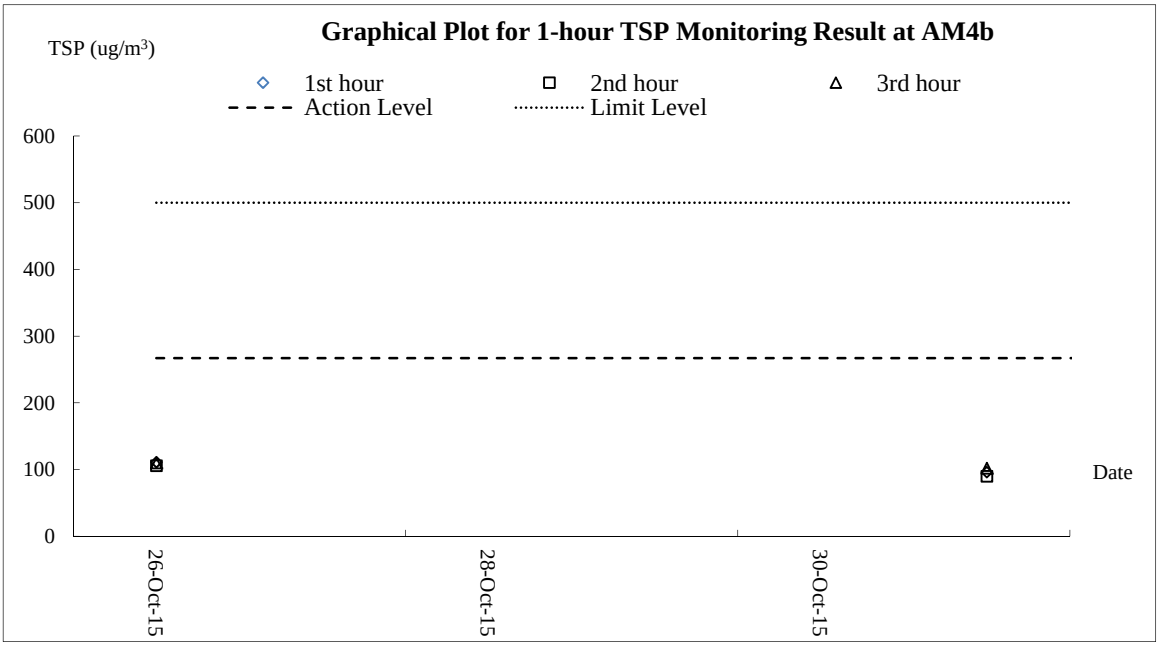
Graphical Plots for Monitoring Result

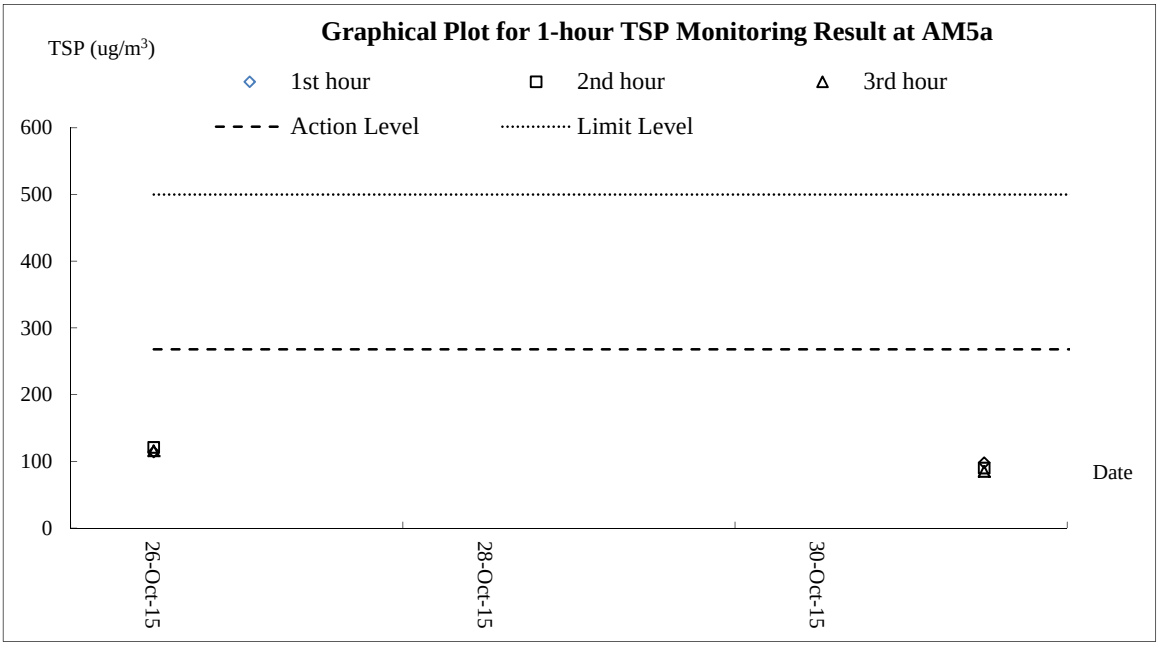
Air Quality – 1-hour TSP

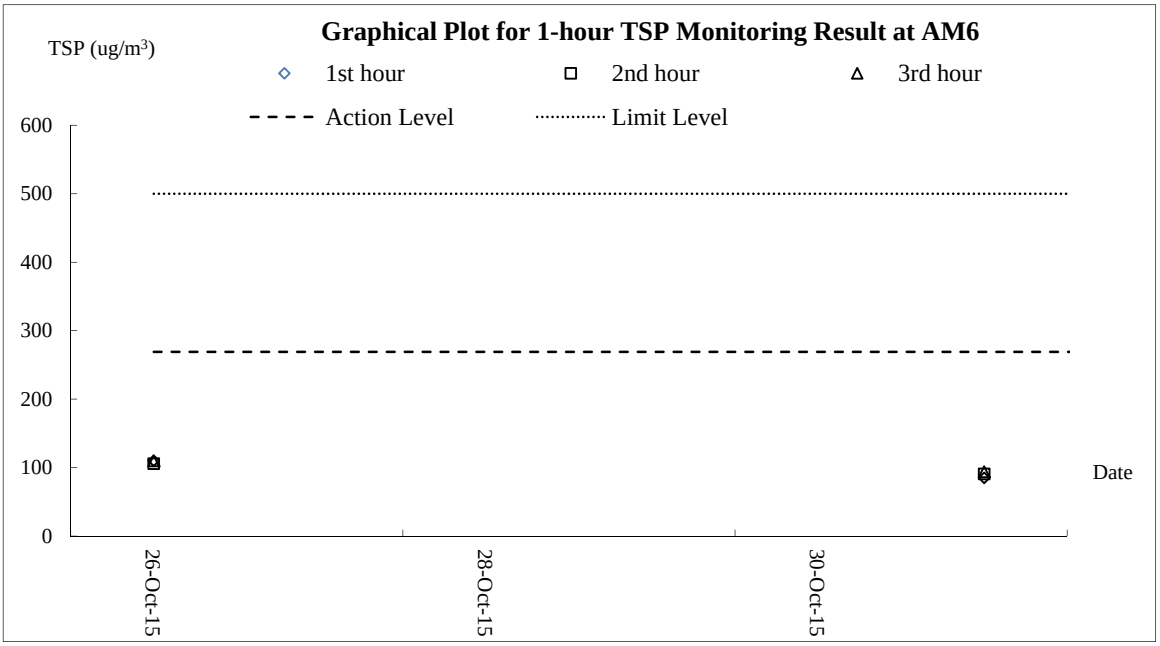


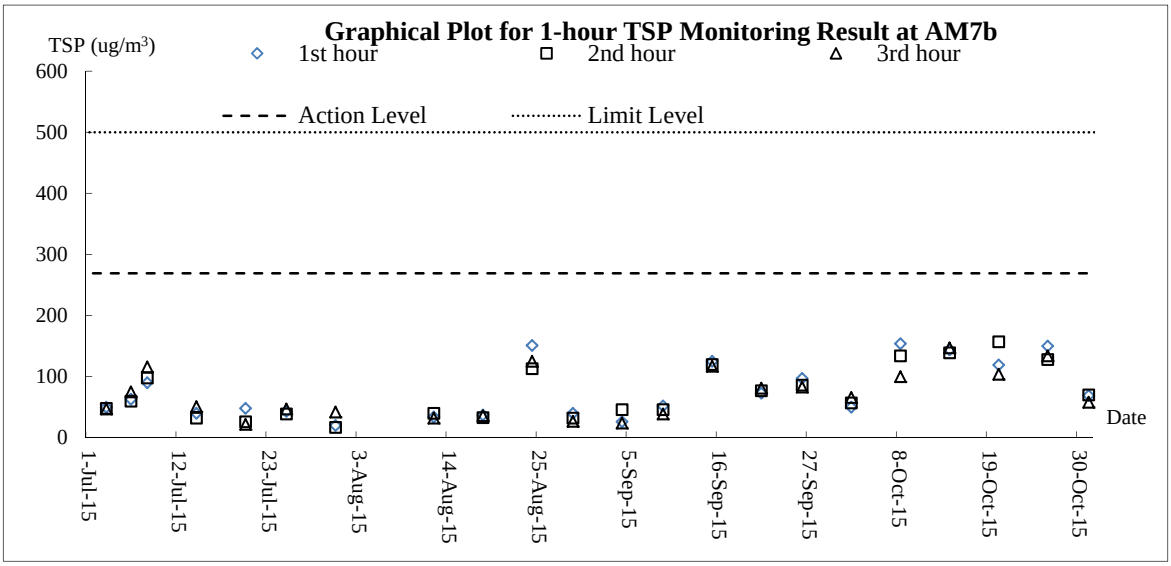


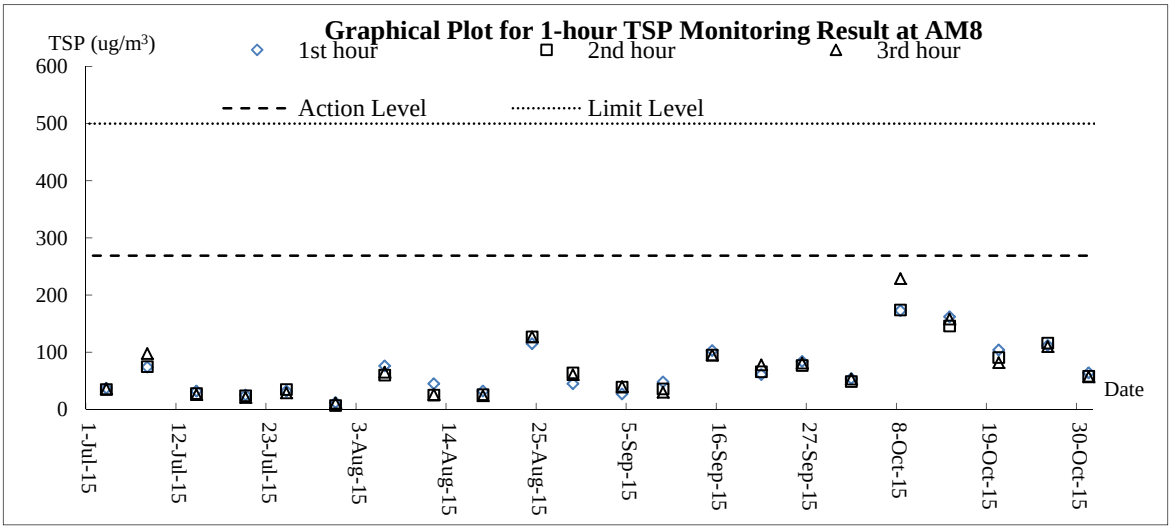


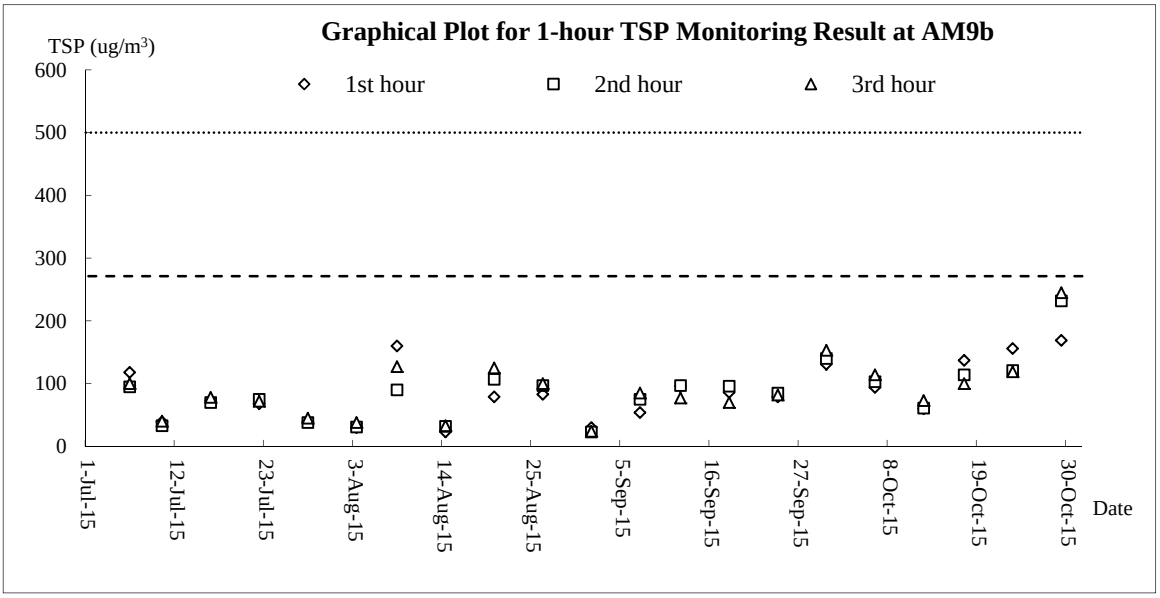

Graphical Plot for 1-hour TSP Monitoring Result at AM4b
TSP (ug/m3)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
26-Oct-15
28-Oct-15
30-Oct-15


Graphical Plot for 1-hour TSP Monitoring Result at AM5a
TSP (ug/m3)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
26-Oct-15
28-Oct-15
30-Oct-15

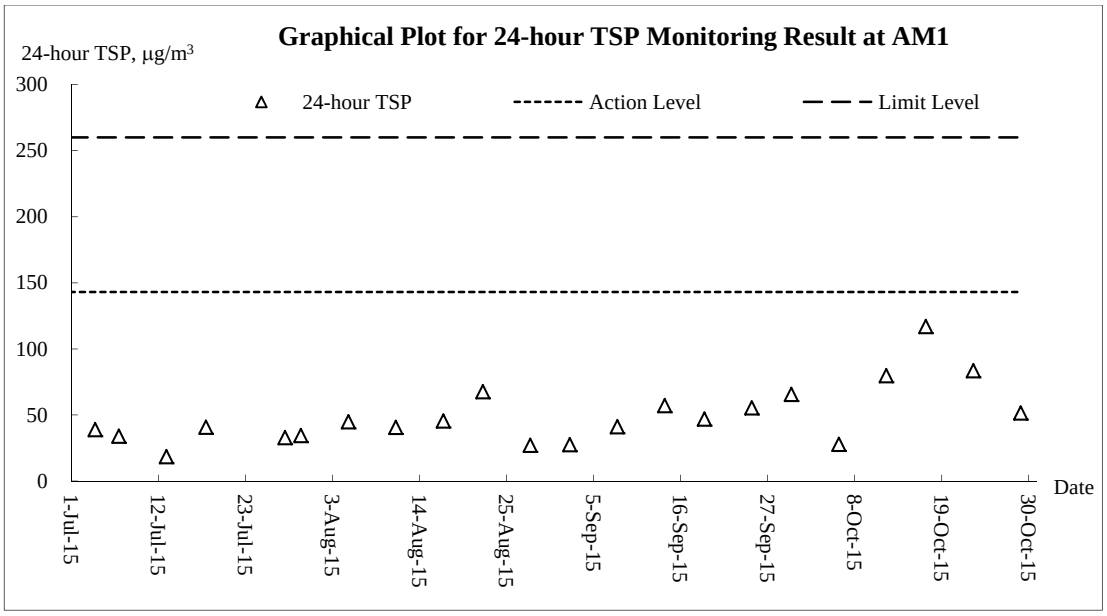

Graphical Plot for 1-hour TSP Monitoring Result at AM6
TSP (ug/m3)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
26-Oct-15
28-Oct-15
30-Oct-15

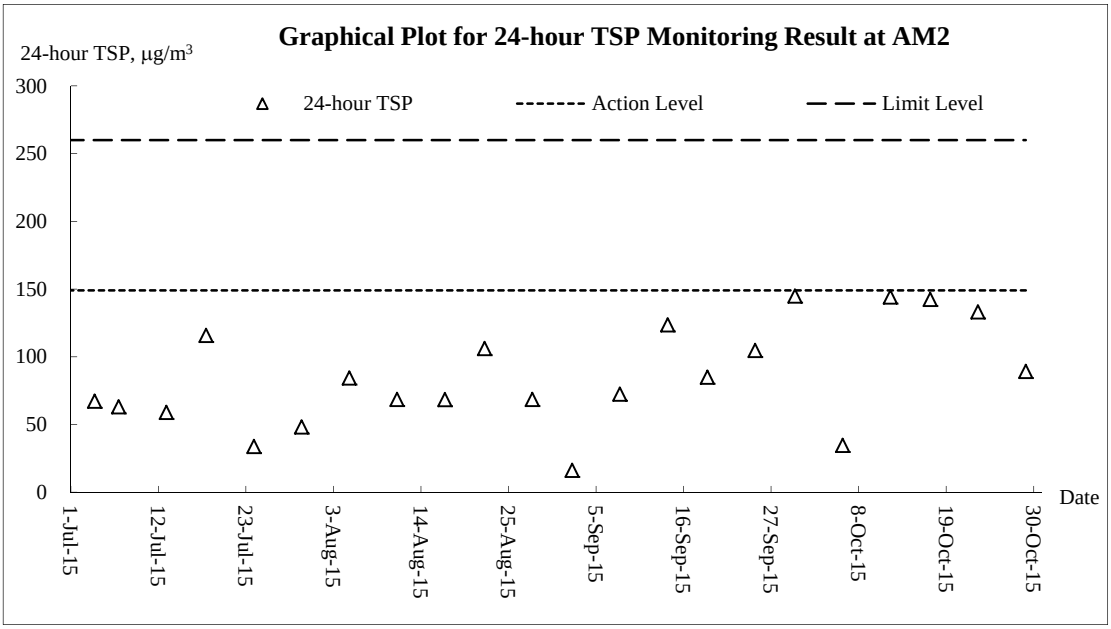

Graphical Plot for 1-hour TSP Monitoring Result at AM7b
TSP (ug/m3)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

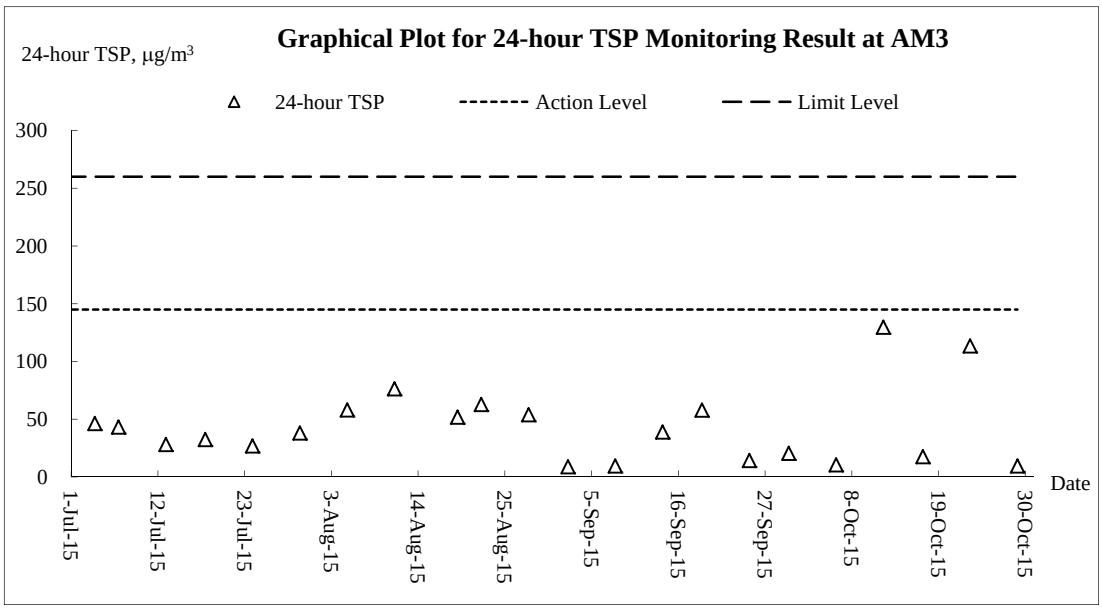

Graphical Plot for 1-hour TSP Monitoring Result at AM8
TSP (ug/m3)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

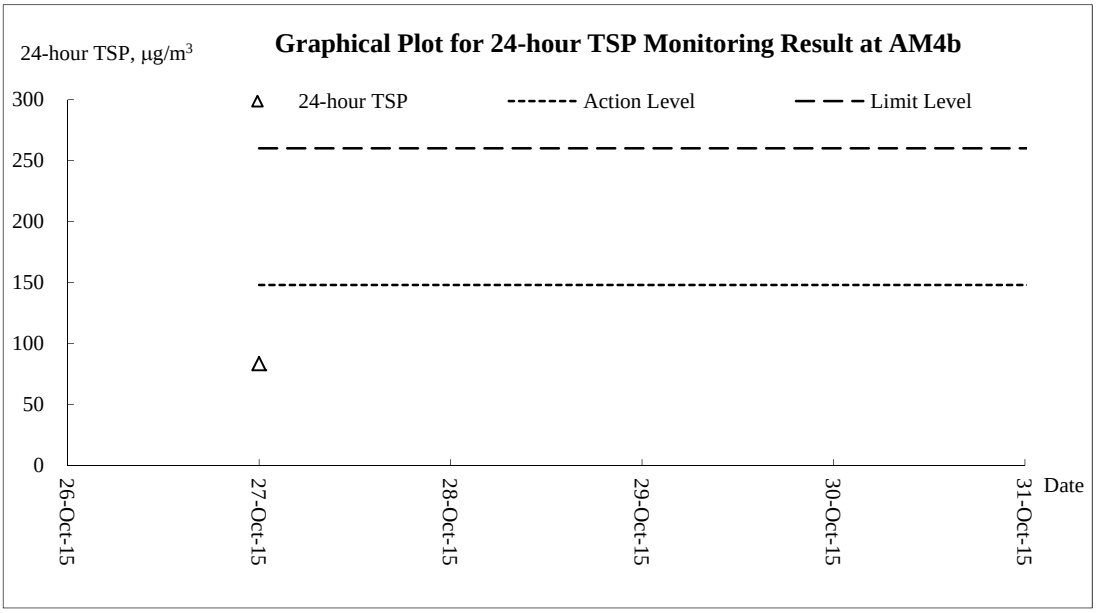

Graphical Plot for 1-hour TSP Monitoring Result at AM9b
TSP (ug/m3)
1st hour
2nd hour
3rd hour
600
500
400
300
200
100
0
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15
Date

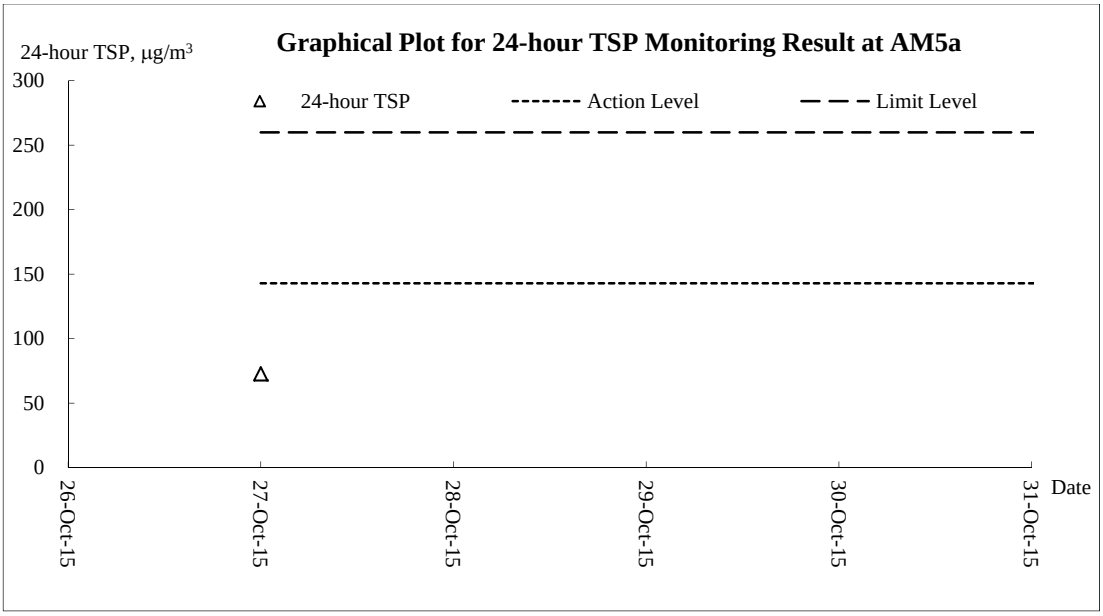
Air Quality – 24-hour TSP

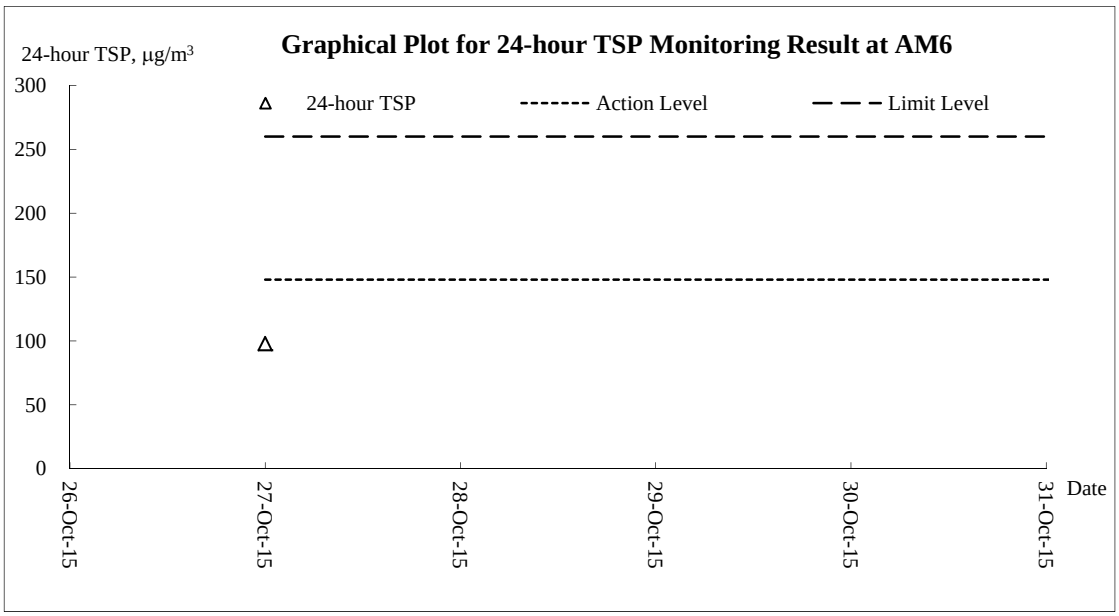


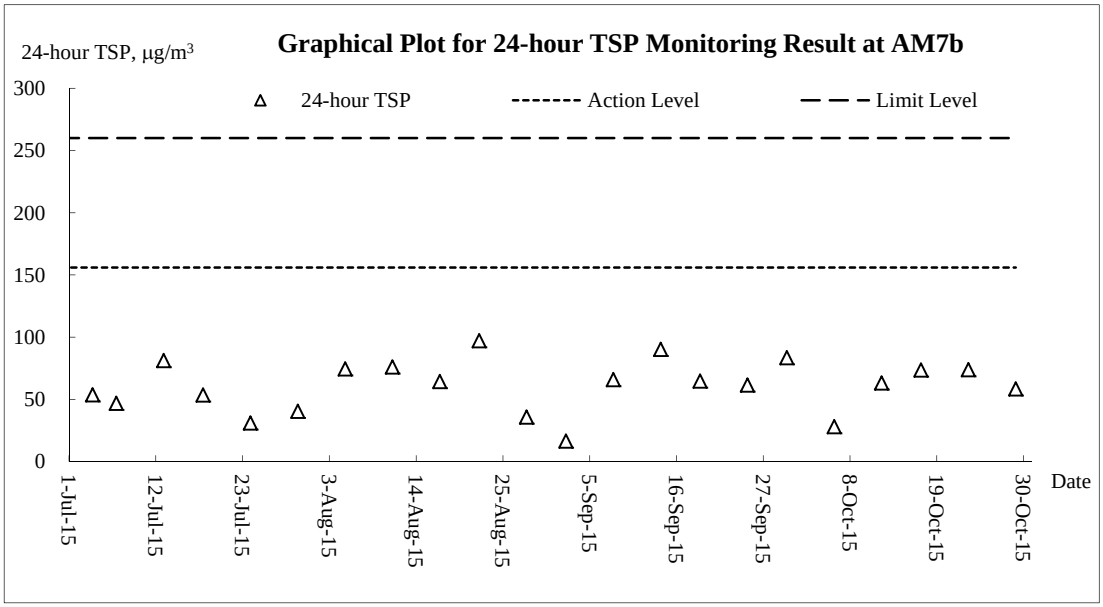


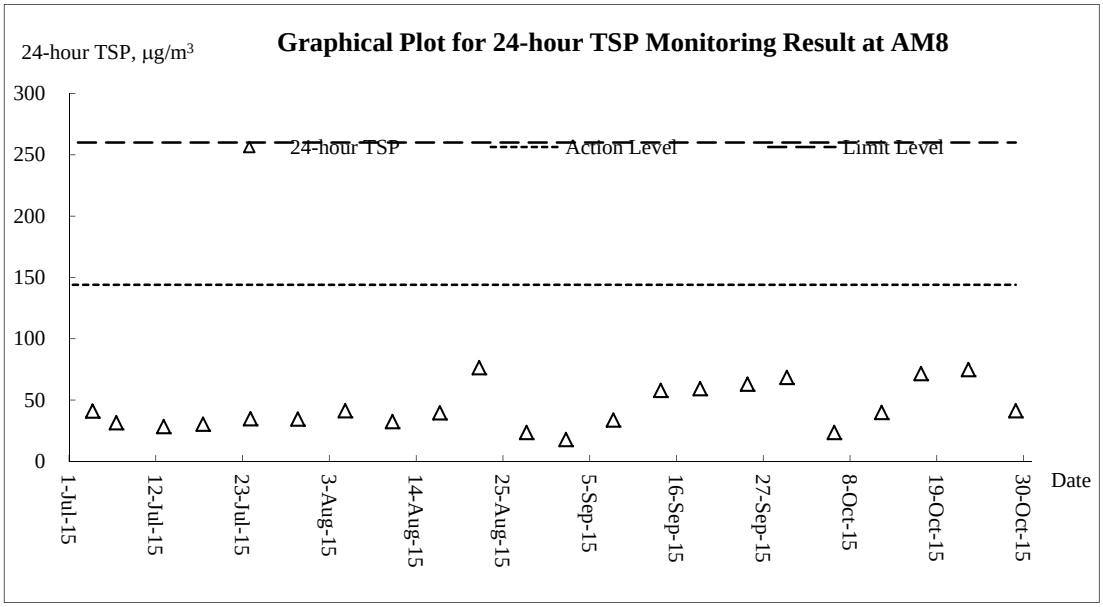


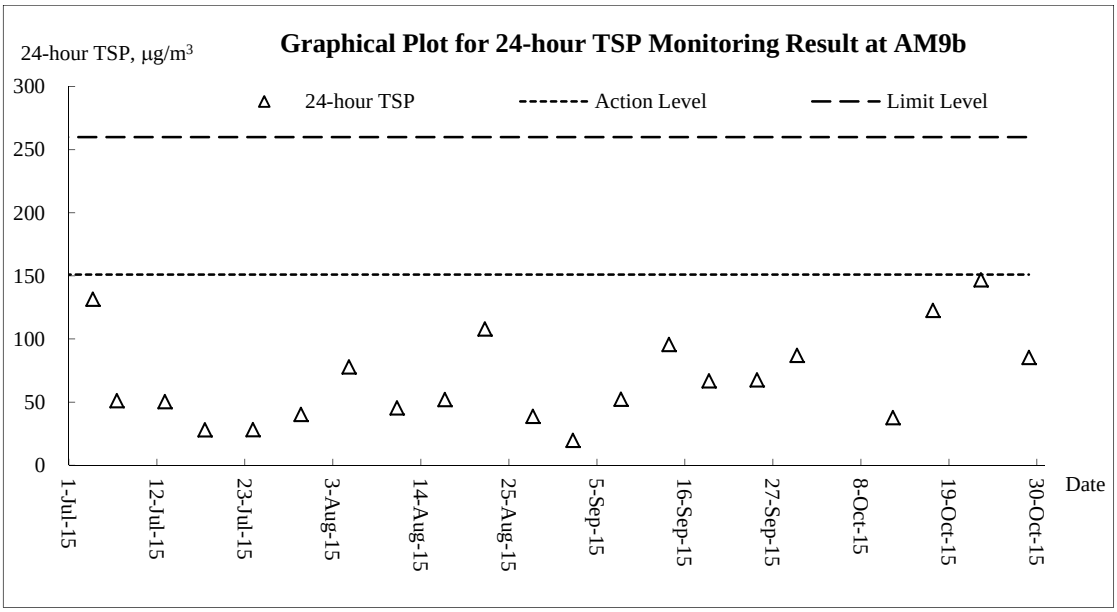

Graphical Plot for 24-hour TSP Monitoring Result at AM4b
24-hour TSP, μg/m3
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15
Date


Graphical Plot for 24-hour TSP Monitoring Result at AM5a
24-hour TSP, μg/m3
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15
Date

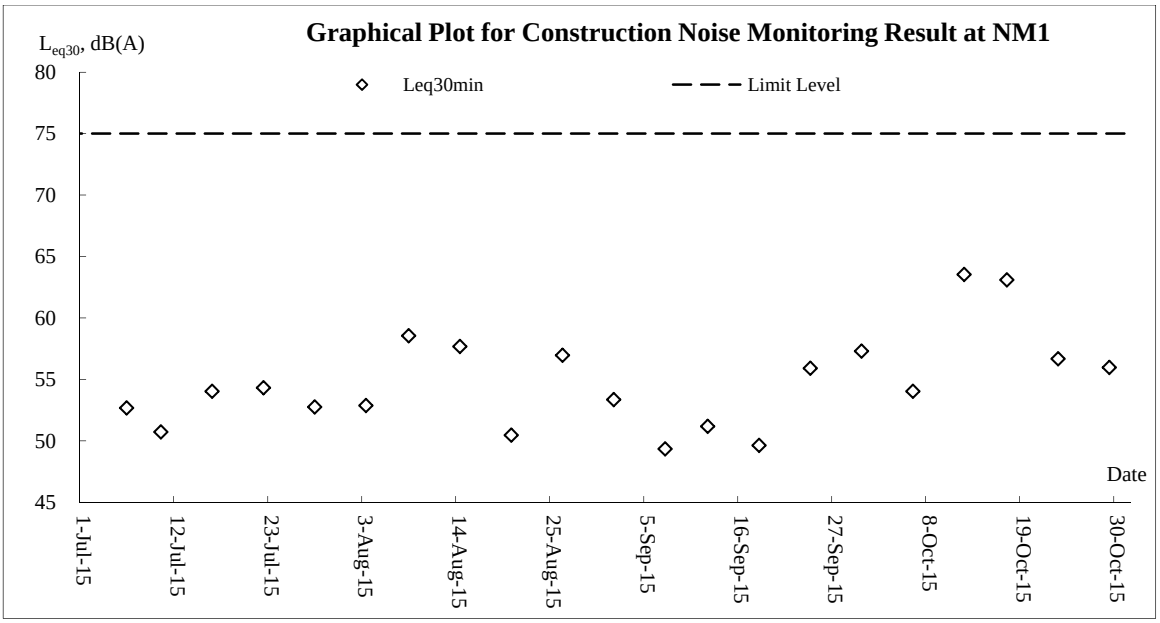

Graphical Plot for 24-hour TSP Monitoring Result at AM6
24-hour TSP, μg/m3
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15
Date

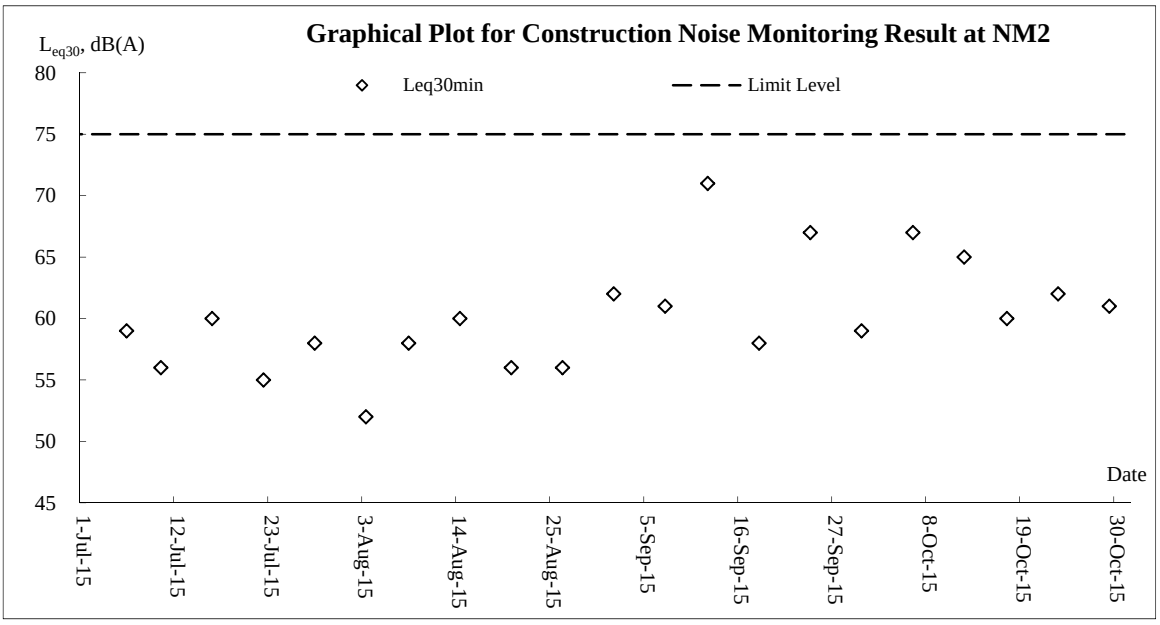

Graphical Plot for 24-hour TSP Monitoring Result at AM7b
24-hour TSP, µg/m3
24-hour TSP
Action Level
Limit Level
300
250
200
150
100
50
0
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15
Date


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
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15
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-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15
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-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15


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-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
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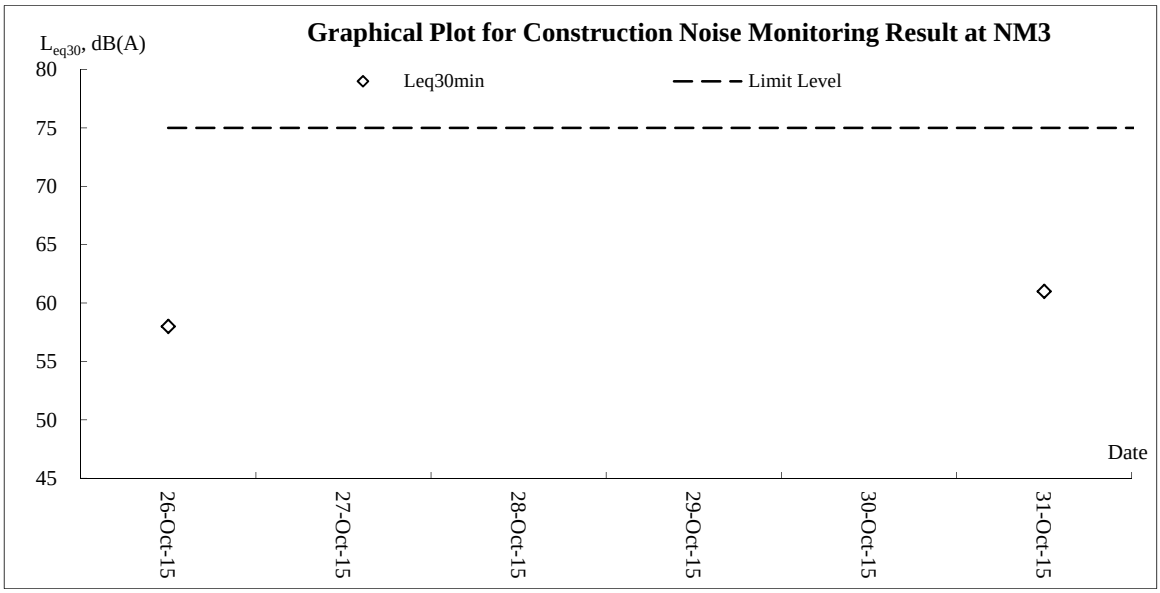
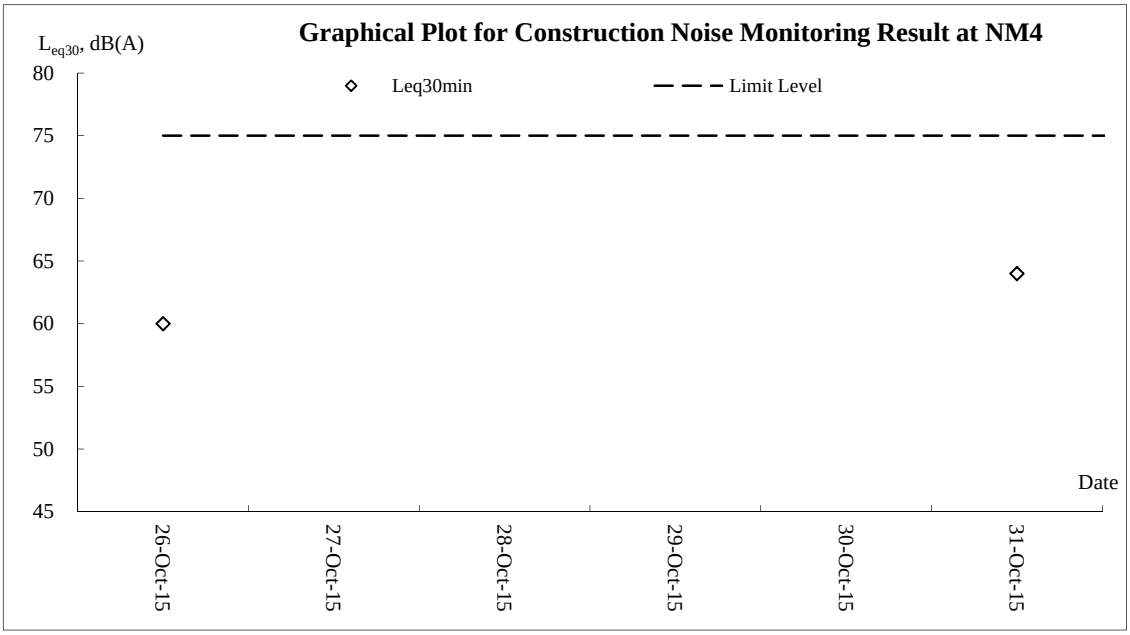
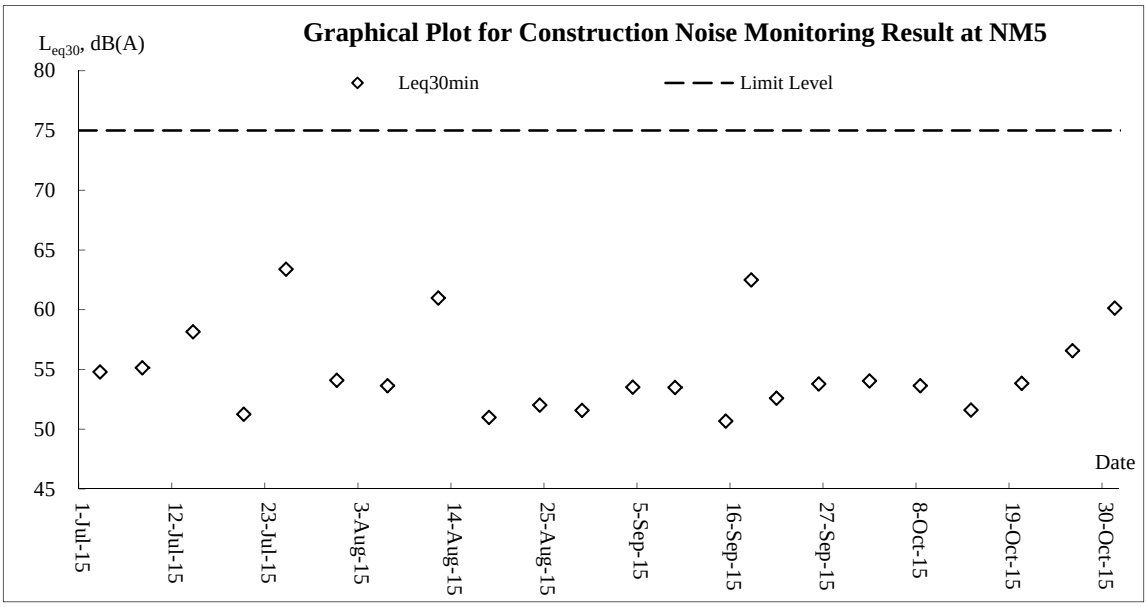
8-Oct-15
19-Oct-15
30-Oct-15


Graphical Plot for Construction Noise Monitoring Result at NM3
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Construction Noise Monitoring Result at NM4
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


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
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
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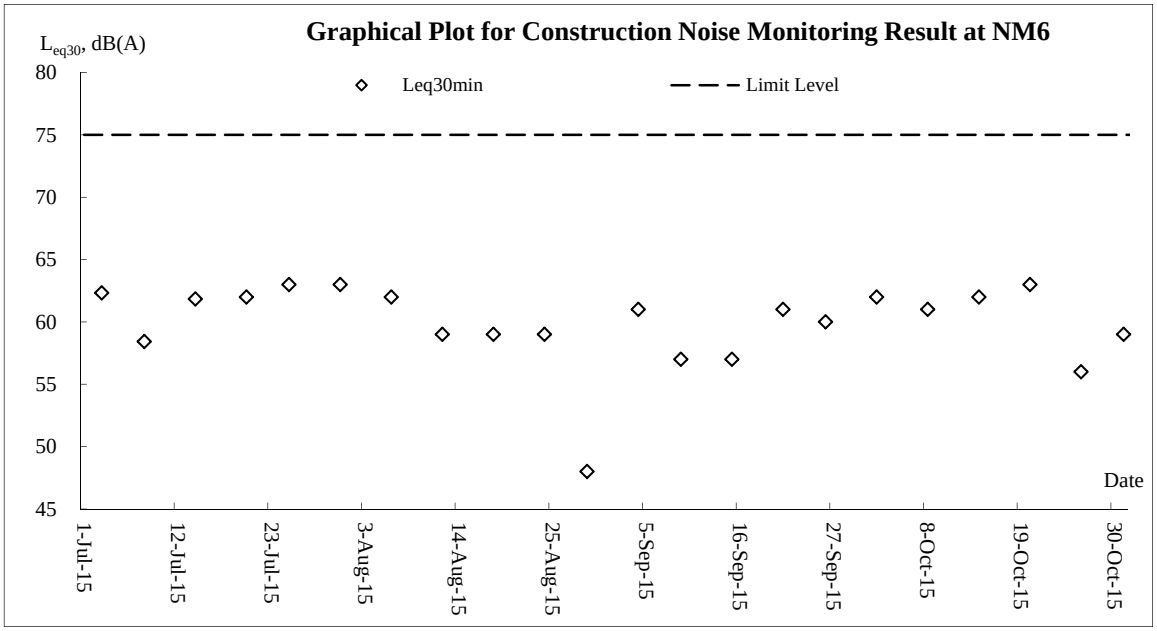
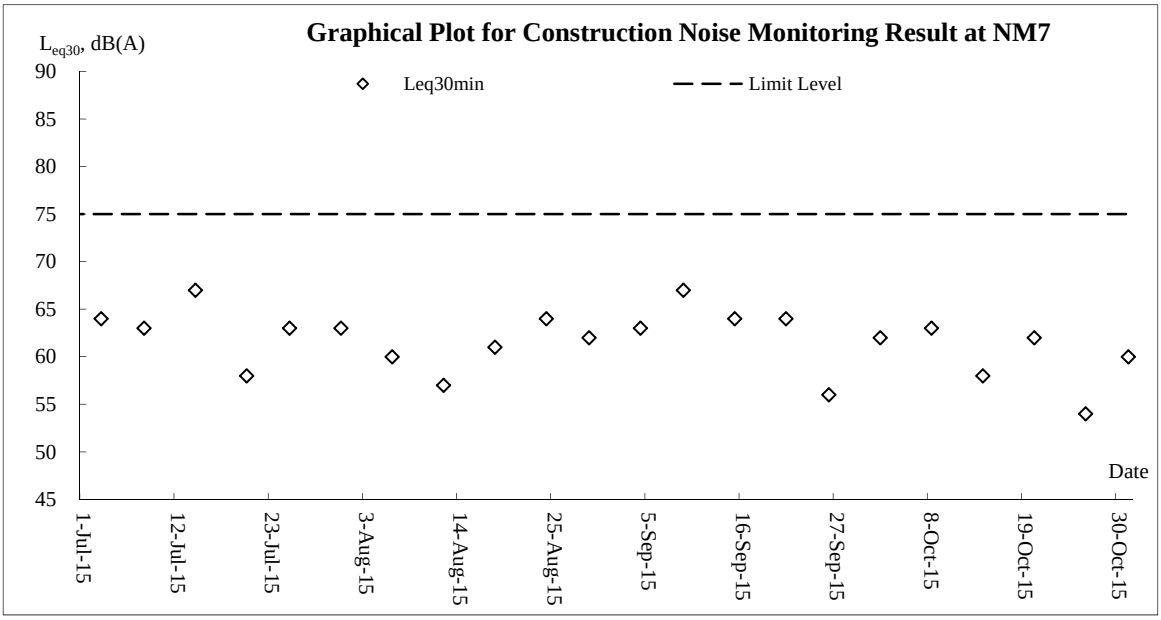
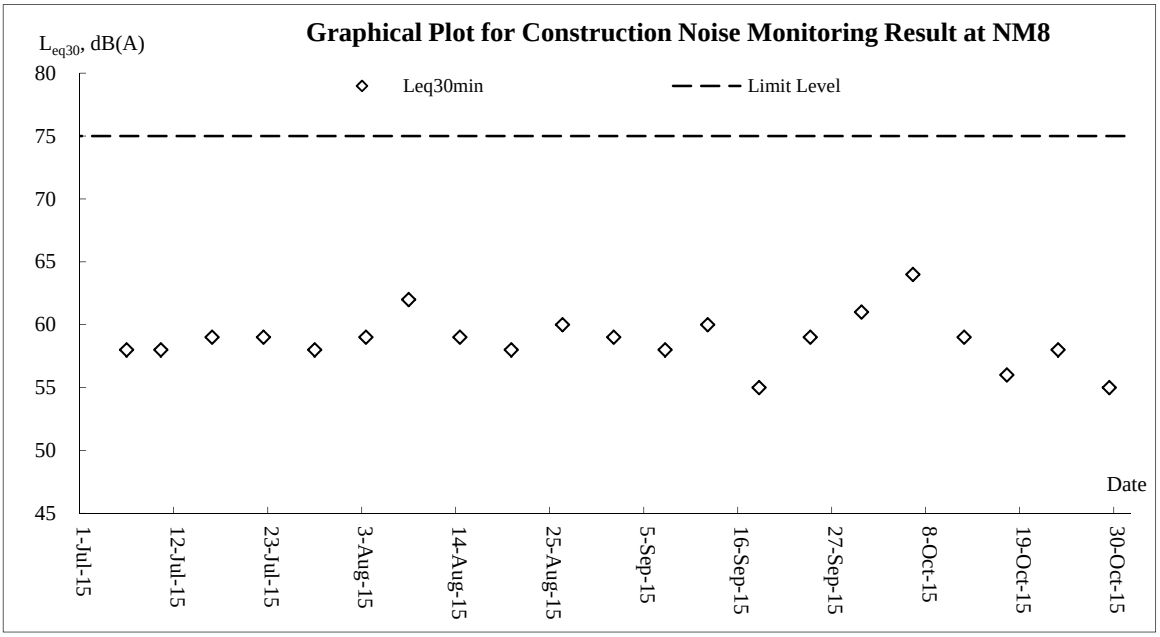
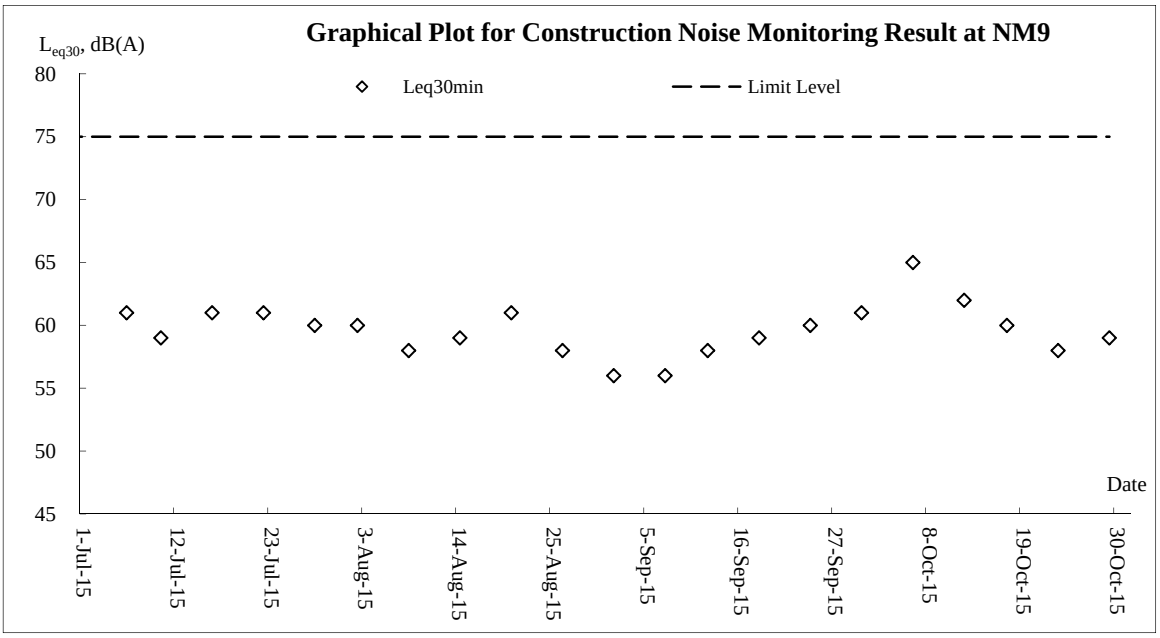
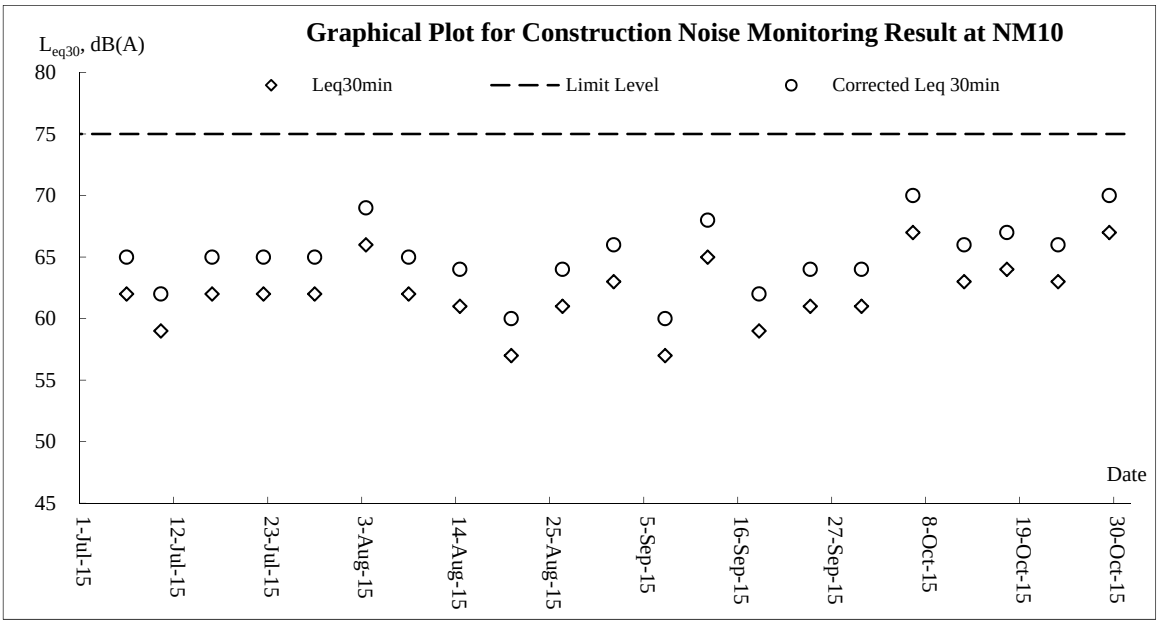
8-Oct-15
19-Oct-15
30-Oct-15


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
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

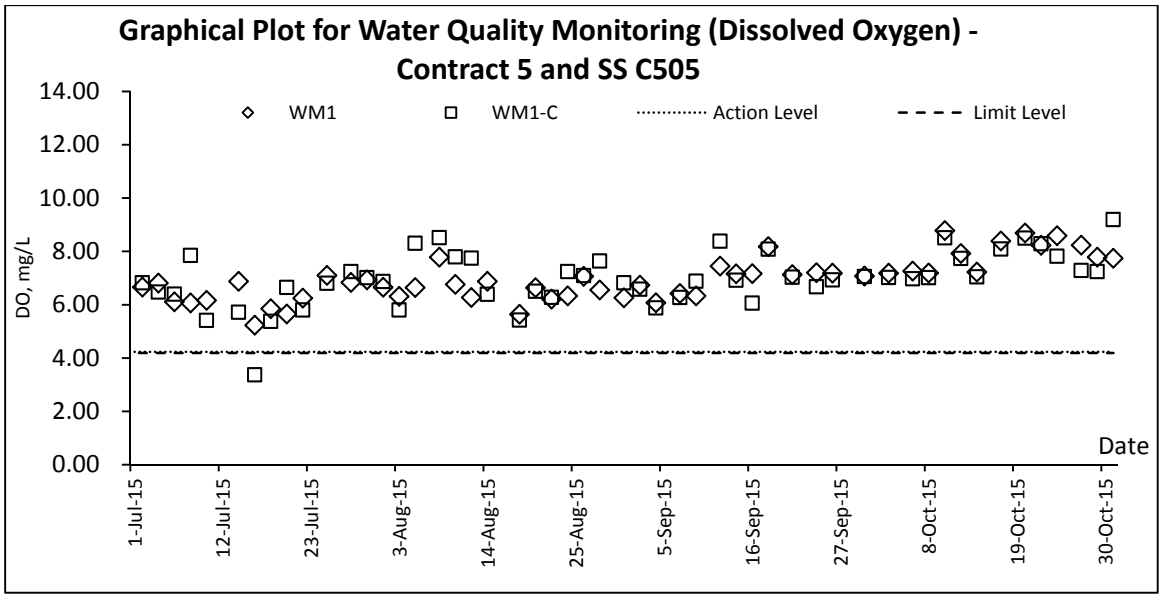

Graphical Plot for Construction Noise Monitoring Result at NM7
L_{eq30}, dB(A)
Leq30min
Limit Level
90
85
80
75
70
65
60
55
50
45
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

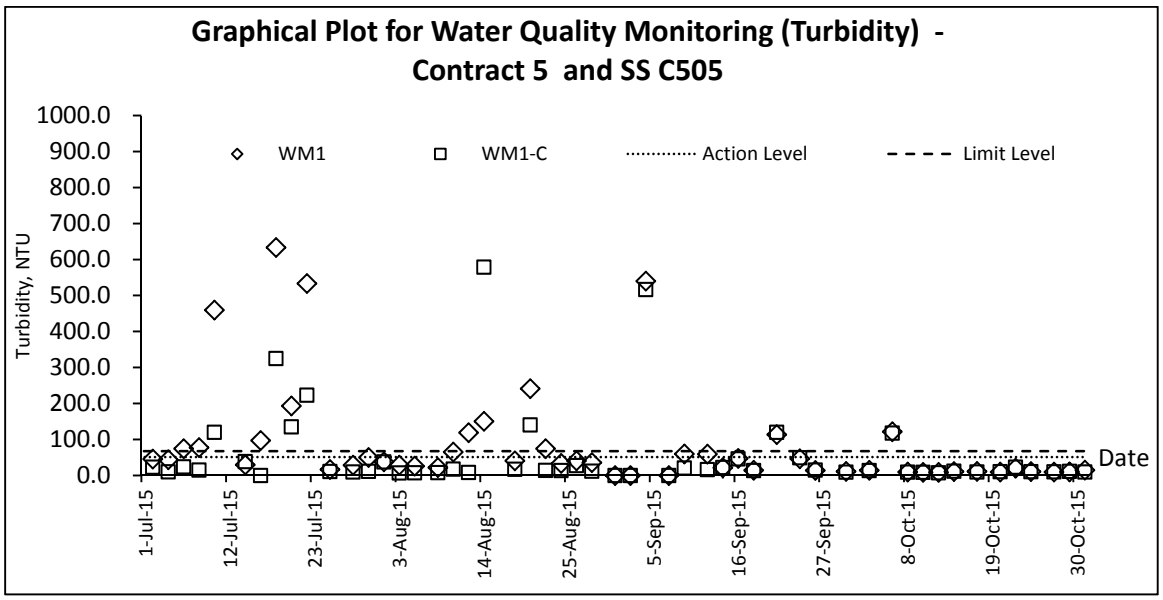

Graphical Plot for Construction Noise Monitoring Result at NM8
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

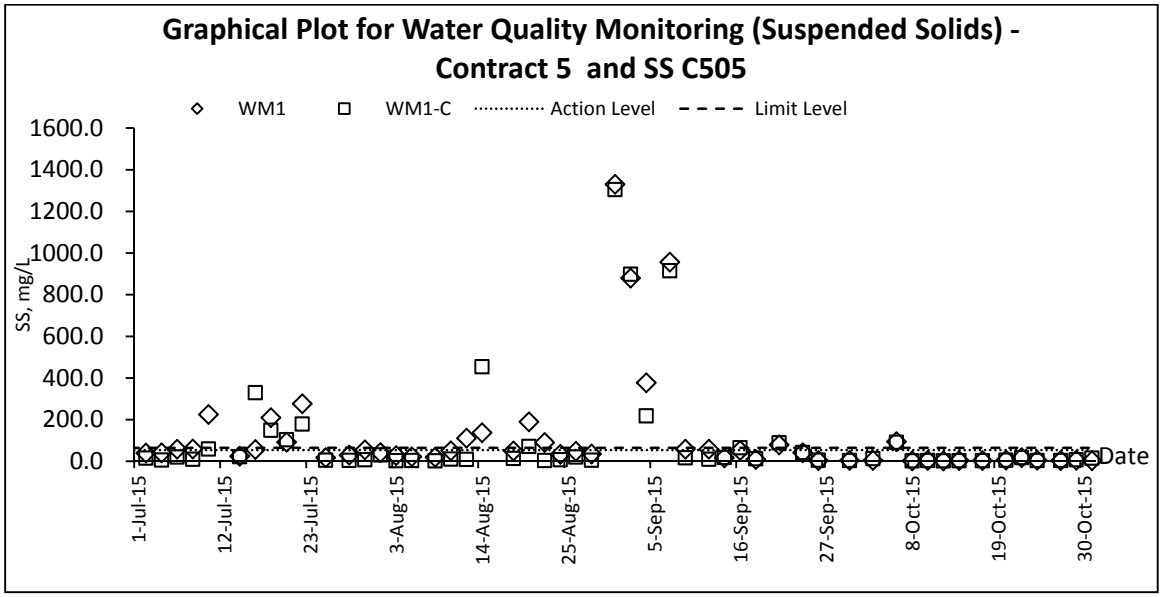

Graphical Plot for Construction Noise Monitoring Result at NM9
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

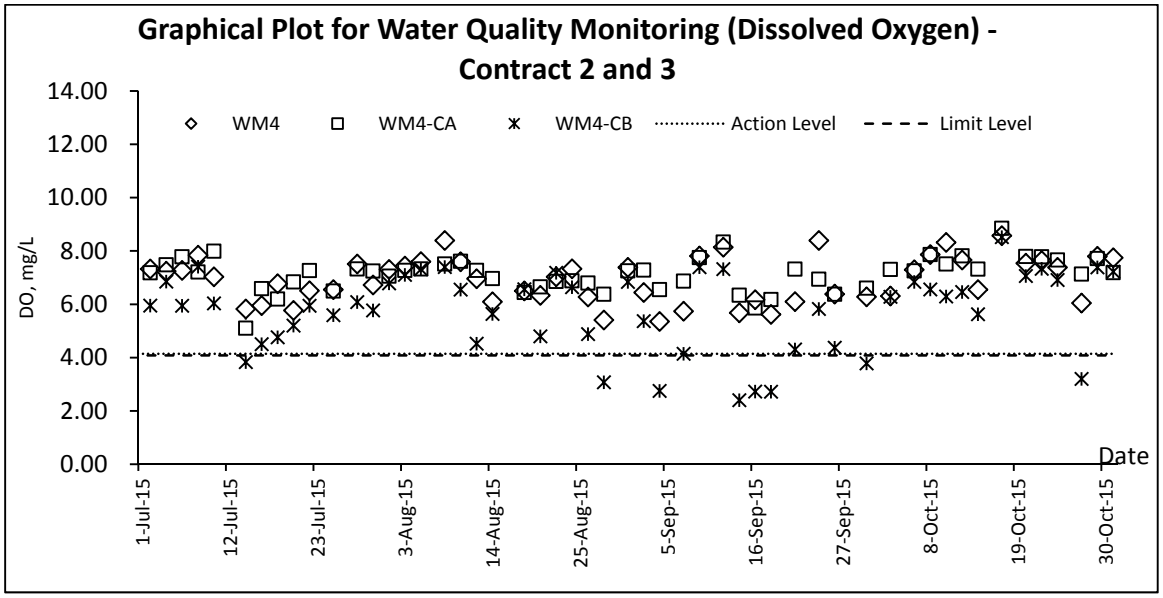

Graphical Plot for Construction Noise Monitoring Result at NM10
L_{eq30}, dB(A)
Leq30min
Limit Level
Corrected Leq 30min
80
75
70
65
60
55
50
45
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

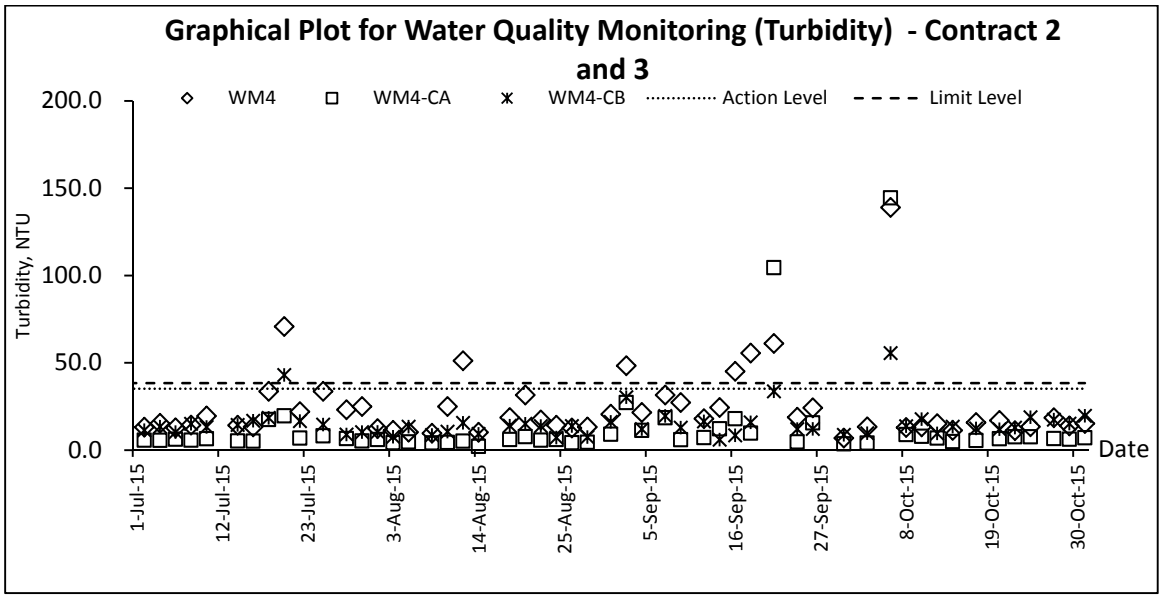
Water Quality

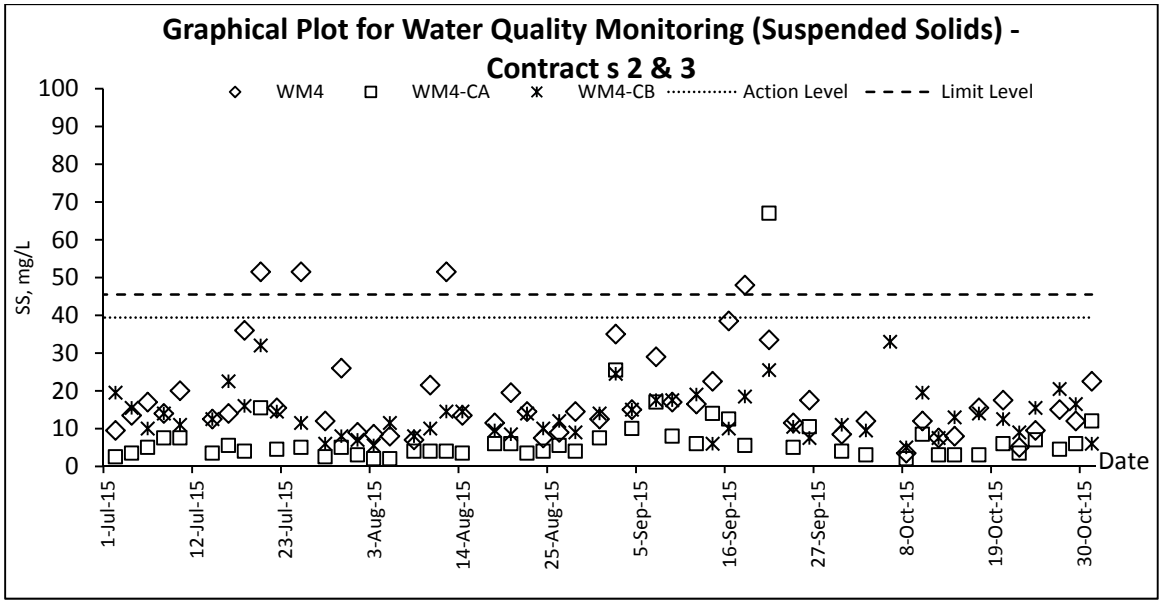


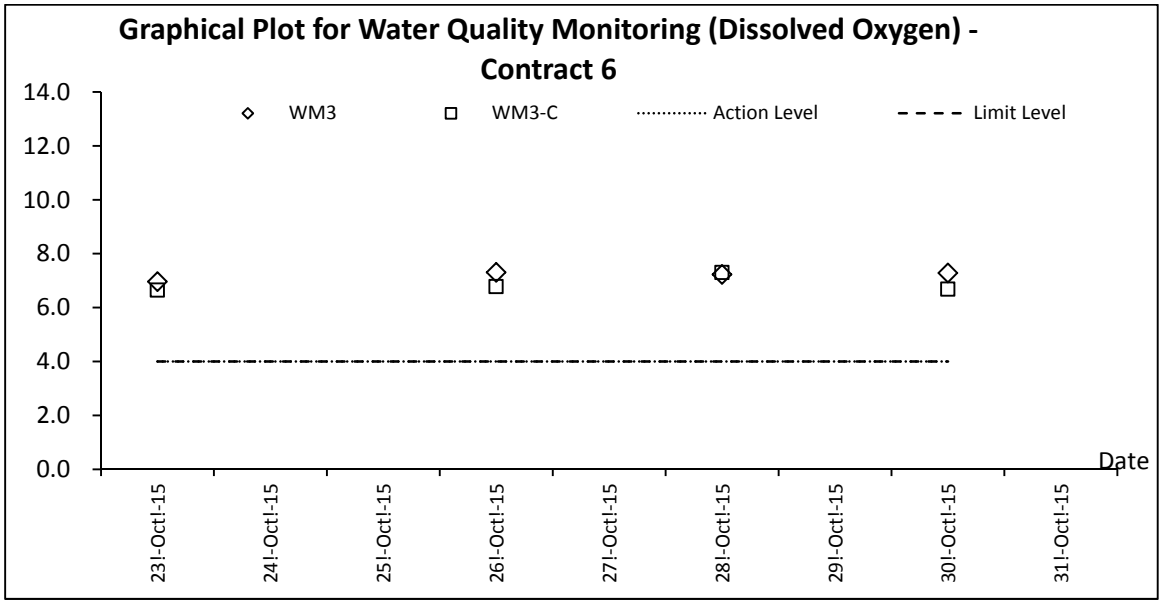


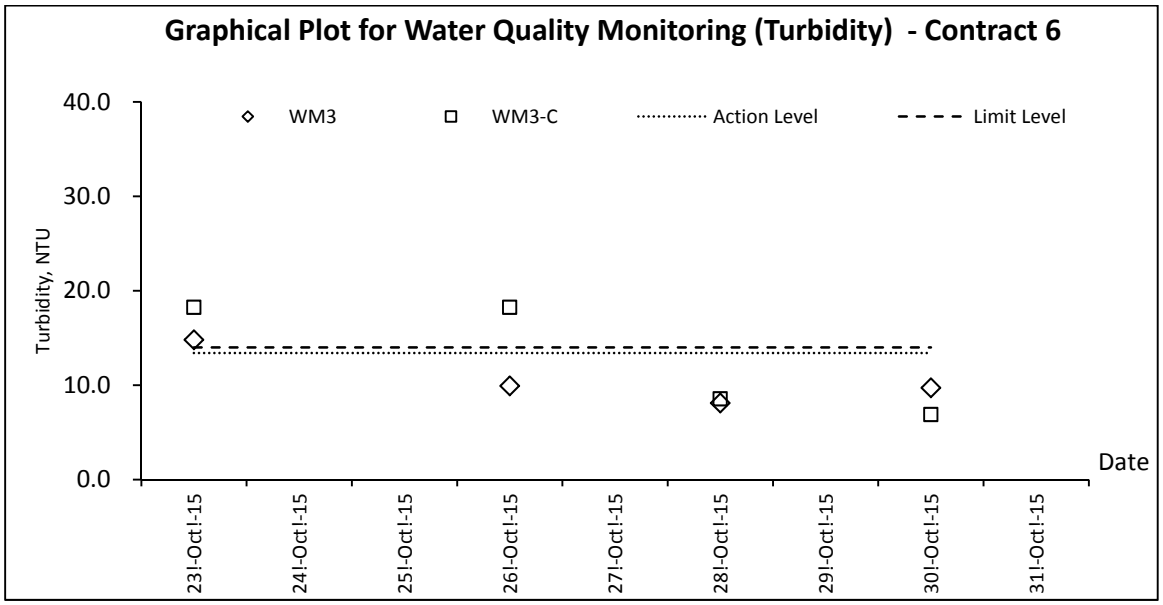


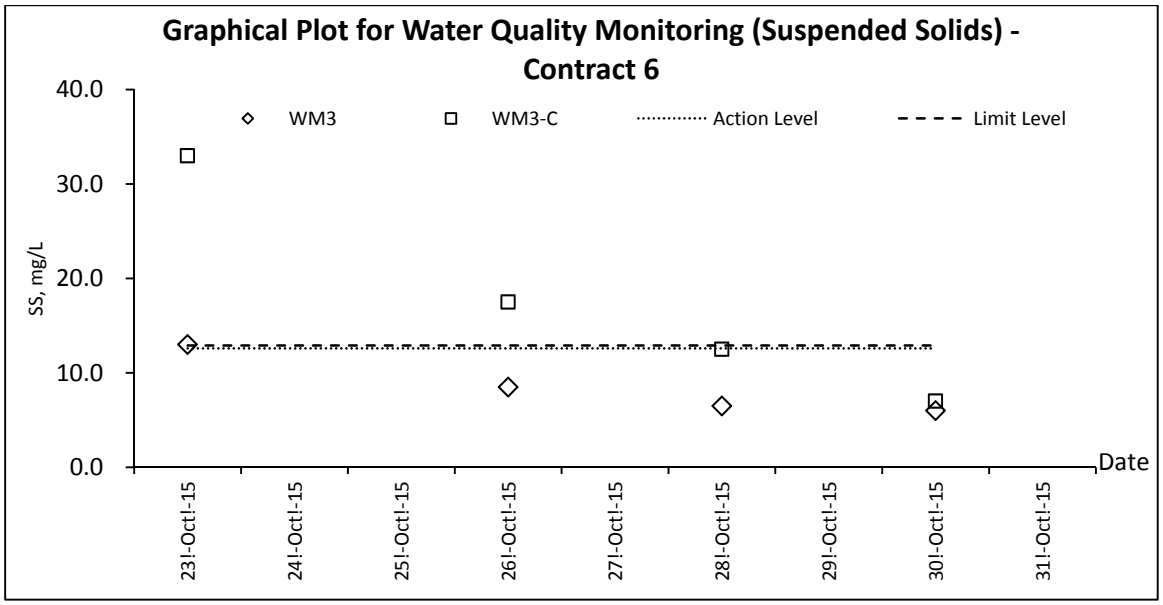

Graphical Plot for Water Quality Monitoring (Dissolved Oxygen) - Contract 2 and 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
DO, mg/L
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

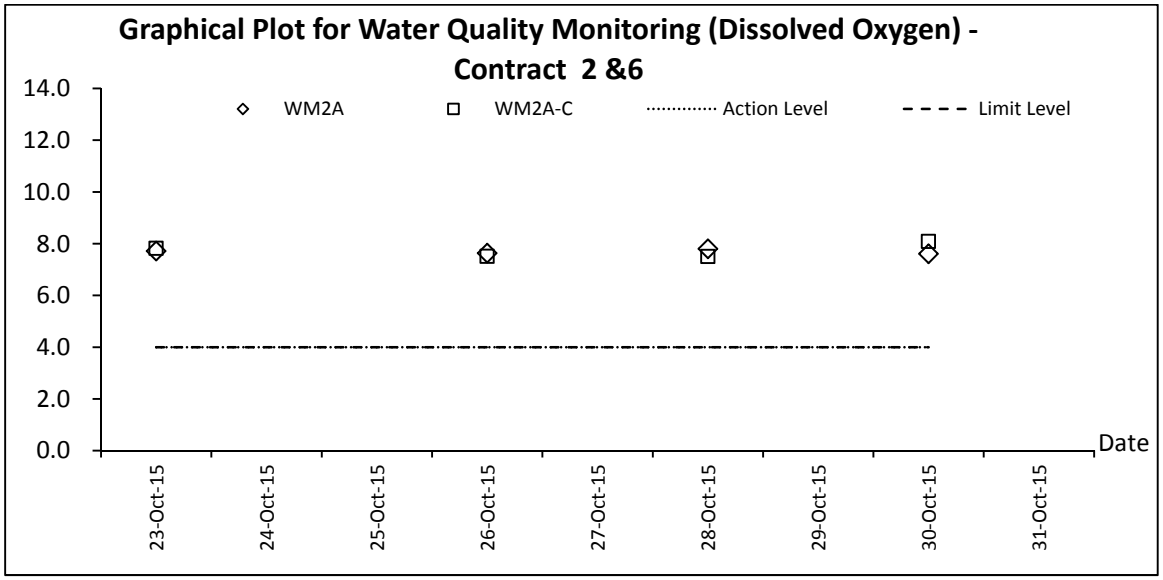

Graphical Plot for Water Quality Monitoring (Turbidity) - Contract 2 and 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
Turbidity, NTU
200.0
150.0
100.0
50.0
0.0
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

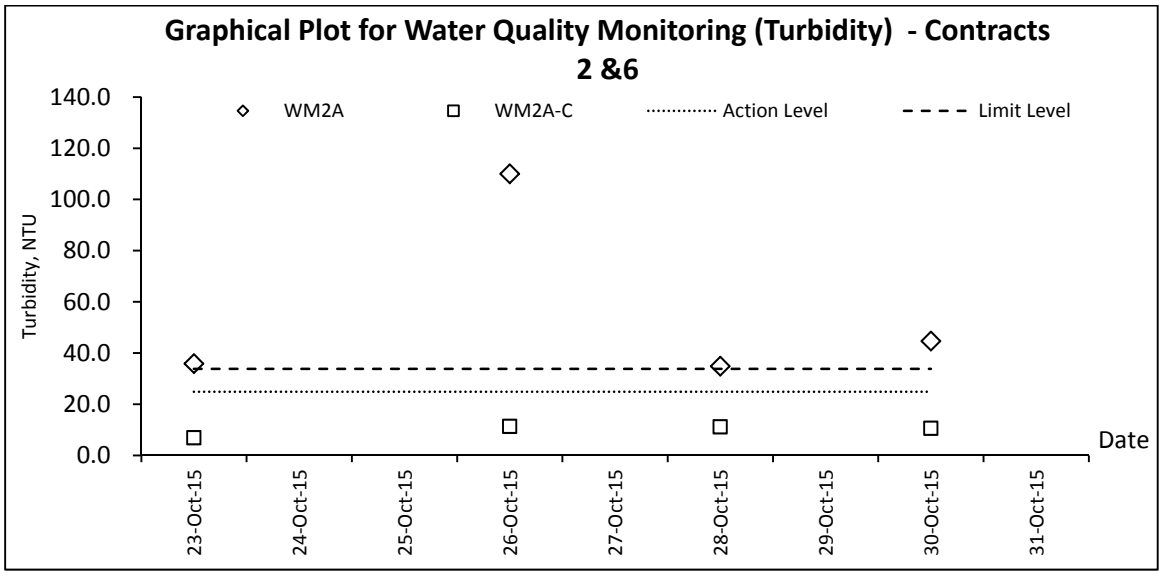

Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contract s 2 & 3
WM4
WM4-CA
WM4-CB
Action Level
Limit Level
SS, mg/L
100
90
80
70
60
50
40
30
20
10
0
Date
1-Jul-15
12-Jul-15
23-Jul-15
3-Aug-15
14-Aug-15
25-Aug-15
5-Sep-15
16-Sep-15
27-Sep-15
8-Oct-15
19-Oct-15
30-Oct-15

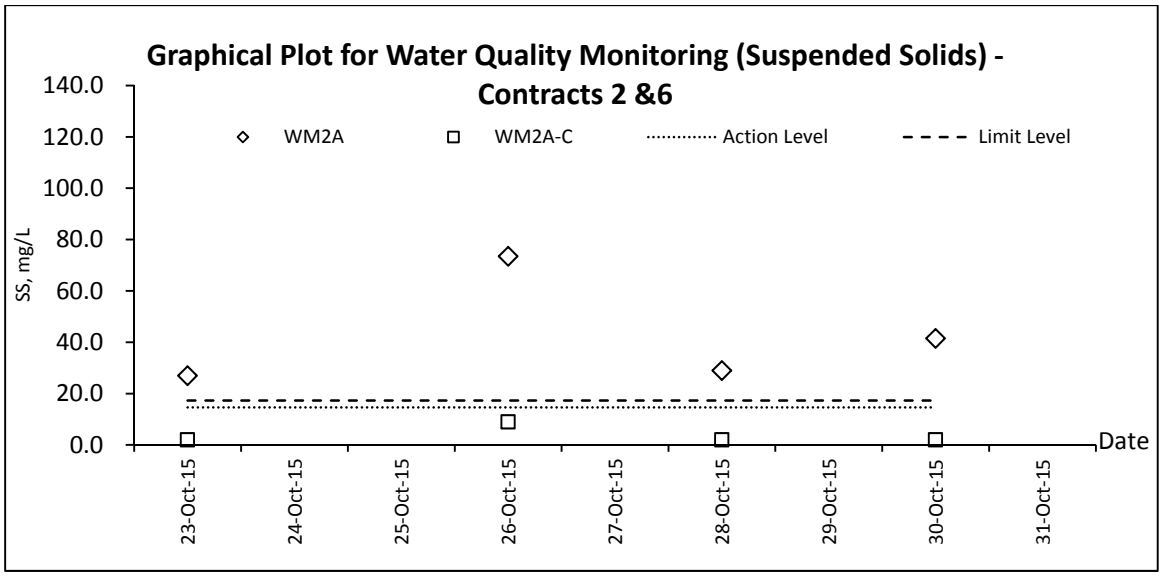

Graphical Plot for Water Quality Monitoring (Dissolved Oxygen) - Contract 6
WM3
WM3-C
Action Level
Limit Level
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Date
23I-Oct-15
24I-Oct-15
25I-Oct-15
26I-Oct-15
27I-Oct-15
28I-Oct-15
29I-Oct-15
30I-Oct-15
31I-Oct-15

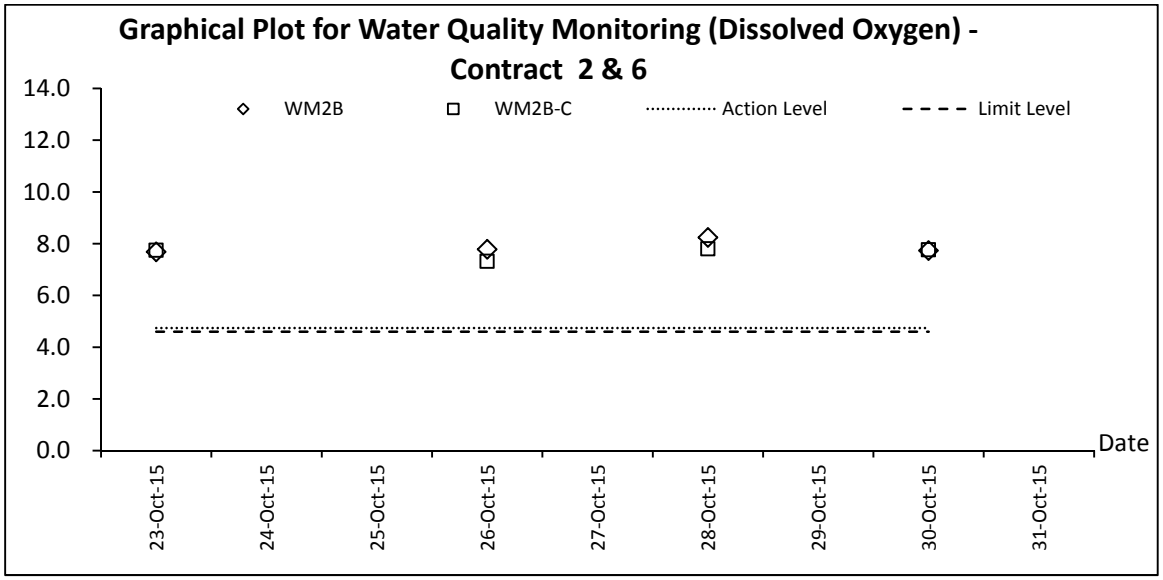

Graphical Plot for Water Quality Monitoring (Turbidity) - Contract 6
WM3
WM3-C
Action Level
Limit Level
Turbidity, NTU
40.0
30.0
20.0
10.0
0.0
Date
23I-Oct-15
24I-Oct-15
25I-Oct-15
26I-Oct-15
27I-Oct-15
28I-Oct-15
29I-Oct-15
30I-Oct-15
31I-Oct-15

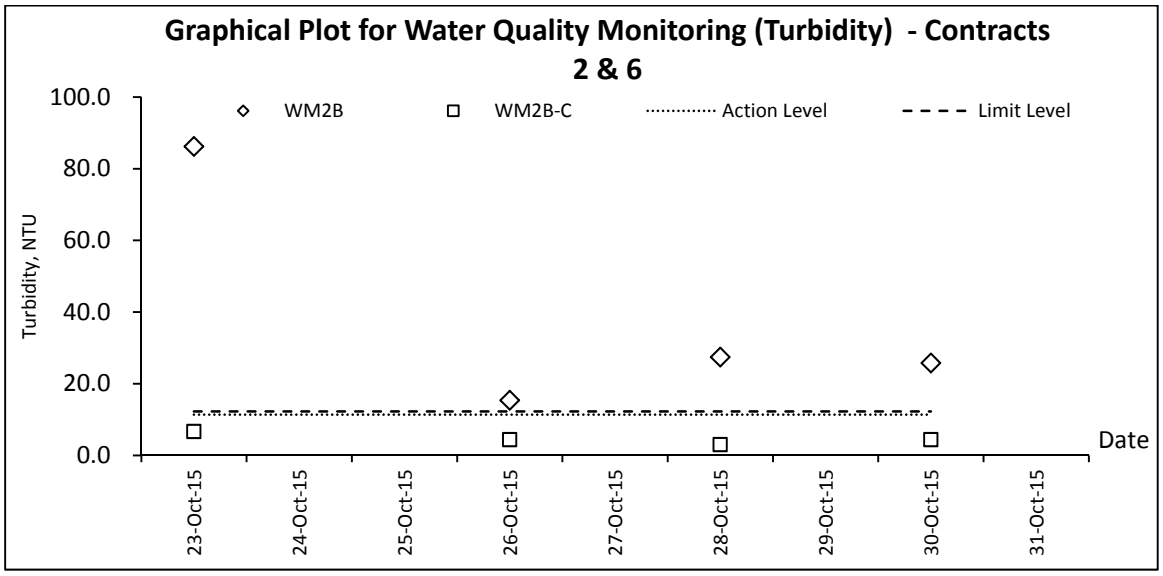

Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contract 6
WM3
WM3-C
Action Level
Limit Level
SS, mg/L
40.0
30.0
20.0
10.0
0.0
Date
23I-Oct-15
24I-Oct-15
25I-Oct-15
26I-Oct-15
27I-Oct-15
28I-Oct-15
29I-Oct-15
30I-Oct-15
31I-Oct-15

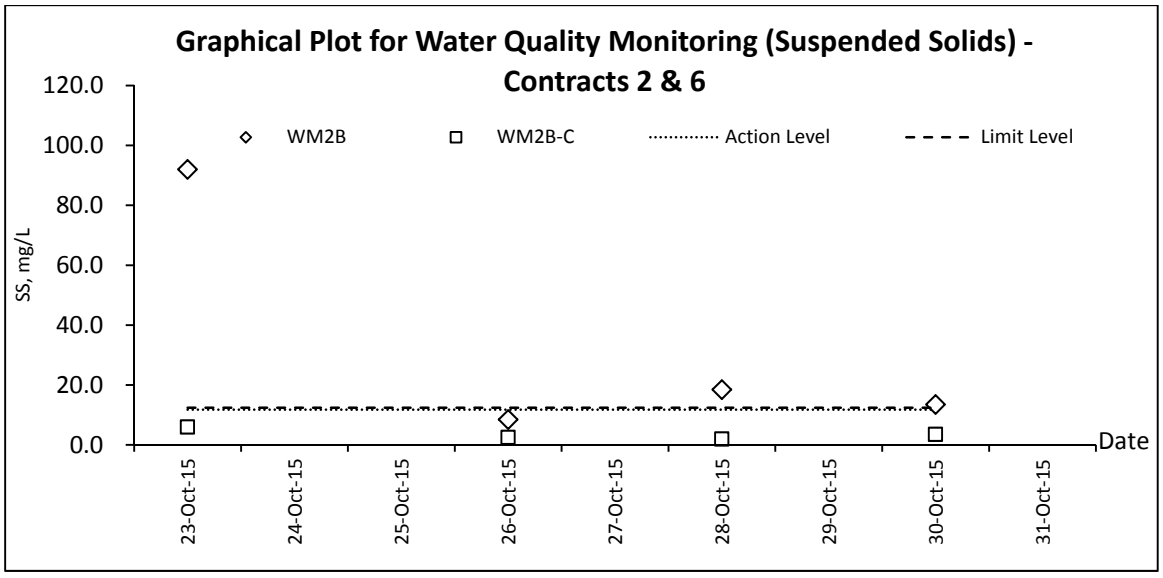

Graphical Plot for Water Quality Monitoring (Dissolved Oxygen) - Contract 2 &6
WM2A
WM2A-C
Action Level
Limit Level
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Water Quality Monitoring (Turbidity) - Contracts 2 &6
WM2A
WM2A-C
Action Level
Limit Level
Turbidity, NTU
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contracts 2 &6
WM2A
WM2A-C
Action Level
Limit Level
SS, mg/L
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Water Quality Monitoring (Dissolved Oxygen) - Contract 2 & 6
WM2B
WM2B-C
Action Level
Limit Level
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Water Quality Monitoring (Turbidity) - Contracts 2 & 6
WM2B
WM2B-C
Action Level
Limit Level
Turbidity, NTU
100.0
80.0
60.0
40.0
20.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15


Graphical Plot for Water Quality Monitoring (Suspended Solids) - Contracts 2 & 6
WM2B
WM2B-C
Action Level
Limit Level
SS, mg/L
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Date
23-Oct-15
24-Oct-15
25-Oct-15
26-Oct-15
27-Oct-15
28-Oct-15
29-Oct-15
30-Oct-15
31-Oct-15

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-Oct-15	Thu	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	0.3	28.8	5	79.7	E/SE
2-Oct-15	Fri	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	7	27.3	7.7	74.5	N
3-Oct-15	Sat	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	46.4	26.5	14.1	81	E/NE
4-Oct-15	Sun	Cloudy with showers and a few thunderstorms. Moderate east to southeasterly winds.	38.1	26.1	18.7	87	E
5-Oct-15	Mon	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	15.6	26.5	14	89.5	E
6-Oct-15	Tue	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	50.7	26.5	8.9	89.5	E
7-Oct-15	Wed	Cloudy with showers and a few thunderstorms. Moderate east to southeasterly winds.	5.8	26.2	6	87	E/SE
8-Oct-15	Thu	Sunny periods apart from some haze. There will be one or two showers later. Light winds.	0	27.3	4.5	77.5	N/NW
9-Oct-15	Fri	Fine and dry apart from some haze. Light to moderate northeasterly winds.	Trace	27	8.9	73	N
10-Oct-15	Sat	Cloudy with showers and a few thunderstorms. Moderate east to southeasterly winds.	1	22	14.2	74.5	N
11-Oct-15	Sun	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	2	19.9	10.8	74	N
12-Oct-15	Mon	Mainly cloudy with showers and isolated squally thunderstorms. Moderate to fresh easterly winds.	Trace	22.2	3.3	70.5	N
13-Oct-15	Tue	Fine and dry apart from some haze. Light to moderate northeasterly winds.	Trace	25.3	6	67.5	E/SE
14-Oct-15	Wed	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	24.8	6.5	77.2	E
15-Oct-15	Thu	Fine and dry apart from some haze. Light to moderate northeasterly winds.	0	24.7	5.5	72.2	E
16-Oct-15	Fri	Fine and dry apart from some haze. Light to moderate northeasterly winds.	0	25	4.4	67.2	N/NW
17-Oct-15	Sat	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	25	7	62.5	N/NW
18-Oct-15	Sun	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	23.6	7.5	66.7	N/NE
19-Oct-15	Mon	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	22.9	8.2	70	N/NE
20-Oct-15	Tue	It will be dry. Mainly cloudy overnight. Sunny periods tomorrow. Moderate northerly winds.	0	24.2	8.2	67	N
21-Oct-15	Wed	Mainly cloudy. Sunny periods during the day tomorrow. Light to moderate northerly winds.	Trace	25	5	68.7	S/SE
22-Oct-15	Thu	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	26.5	5.7	68.7	E/NE
23-Oct-15	Fri	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	25.8	6.9	69	N
24-Oct-15	Sat	It will be dry. Mainly cloudy overnight. Sunny periods tomorrow. Moderate northerly winds.	Trace	25.8	5	69	E/NE
25-Oct-15	Sun	Mainly cloudy. Sunny periods during the day tomorrow. Light to moderate northerly winds.	0.2	26.6	5	69	N
26-Oct-15	Mon	Fine and dry apart from some haze. Light to moderate northeasterly winds.	0.7	25.3	8.5	78.5	E
27-Oct-15	Tue	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	26.6	5	76.2	N
28-Oct-15	Wed	Mainly fine. Dry in the afternoon. Moderate northerly winds.	Trace	5.6	8	83.7	E/NE
29-Oct-15	Thu	Fine and dry apart from some haze. Light to moderate northeasterly winds.	Trace	26.6	11.6	73.7	E
30-Oct-15	Fri	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0	26.4	10	51	E
31-Oct-15	Sat	Mainly fine. Dry in the afternoon. Moderate northerly winds.	0.5	24.7	11	69	E

Appendix L

Waste Flow Table

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

Appendix I - Monthly Summary Waste Flow Table for 2015

(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	66.2666	0.0000	0.0670	65.6529	0.5467	0.1150	0.0000	0.2500	0.0000	0.0000	0.0617
February	57.9980	0.0000	0.0000	57.3858	0.6121	0.3505	3.3200	0.3900	0.0000	0.5280	0.0908
March	66.0198	0.0000	0.3614	65.3359	0.3225	0.0729	0.0000	0.2920	0.0000	0.7040	0.1293
April	49.2562	0.0000	0.2770	48.7725	0.2066	0.1928	0.0000	0.2300	0.0000	0.0000	0.2423
May	41.7957	0.0000	8.7663	32.6095	0.4199	0.8683	0.0000	0.1300	0.0000	2.6400	0.0511
June	32.4389	0.0000	5.2132	26.7733	0.4524	0.9260	0.0000	0.5400	0.0000	0.5280	0.1703
Half-year total	313.7751	0.0000	14.6850	296.5299	2.5602	2.5255	3.3200	1.8320	0.0000	4.4000	0.7454
July	28.0854	0.0000	0.5171	26.7761	0.7922	1.0930	0.0000	0.6600	0.0000	0.8800	0.0496
August	47.6646	0.0000	0.4526	46.9470	0.2650	0.3577	0.0000	0.4500	0.6000	1.4080	0.1021
September	39.4931	0.0000	0.1339	38.4616	0.8975	0.3062	0.0000	0.0000	0.0000	1.0560	0.0611
October	45.0442	0.0000	1.6666	43.0977	0.2800	0.0680	0.0000	0.5800	0.9000	2.9920	0.0716
November	0.0000										
December	0.0000										
Yearly Total	474.0624	0.0000	17.4552	451.8124	4.7948	4.3504	3.3200	3.5220	1.5000	10.7360	1.0297

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

Year	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)
2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2014	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609
2015											
2016											
2017											
2018											
Total	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609

Remark:

1) Density of C&D material to be 2.2 metric ton/m3
2) Density of General Refuse to be 1.6 metric ton/m3
3) Density of Spent Oil to be 0.88 metric ton/m3

Name of Department: CEDD

Contract No.: CV/2012/09

Monthly Summary Waste Flow Table for 2015 (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	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 m^3)	(in '000m^3)
Jan	3.864	0.105	0.648	0.000	3.216	0.118	0.000	0.000	0.000	0.040	0.080
Feb	2.429	0.049	1.518	0.000	0.911	0.100	0.000	0.000	0.003	0.900	0.070
Mar	3.713	0.029	0.270	0.000	3.443	0.100	0.000	0.000	0.006	0.000	0.080
Apr	3.597	0.115	2.308	0.000	1.289	0.090	0.003	0.000	0.000	0.000	0.065
May	1.357	0.197	0.108	0.000	1.249	0.100	0.000	0.000	0.012	0.000	0.065
Jun	2.515	0.053	0.840	0.000	1.675	0.125	0.000	0.000	0.030	0.800	0.060
Sub-total	17.475	0.547	5.692	0.000	11.783	0.633	0.003	0.000	0.051	1.740	0.420
Jul	1.177	0.030	0.351	0.000	0.826	1.564	0.000	0.000	0.000	0.000	0.065
Aug	1.966	0.164	0.294	0.000	1.672	0.956	0.002	0.000	0.001	0.000	0.130
Sep	2.092	0.027	0.264	0.000	1.828	1.141	0.000	0.000	0.001	0.000	0.115
Oct	2.462	0.381	1.500	0.000	0.962	0.226	0.000	0.000	0.001	0.000	0.125
Nov											
Dec											
Total	25.173	1.150	8.101	0.000	17.072	4.520	0.005	0.000	0.054	1.740	0.855

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 2015

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	33.3285	4.16	0.24	0	0	0.42
FEB	0	0	0	0	0	11.82	0.99	0	0	0	0.18
MAR	0	0	0	0	0	8.592	0	0	0	0	0.375
APRIL	0	0	0	0	0	12.81	0	0	0	0	0.04
MAY	0	0	0	0	0	**16.609**	**0**	**0.154**	**0**	**0**	**0**
JUN	0	0	0	0	0	13.676	0	0	0	0	0.015
Sub Total	0	0	0	0	0	96.8355	5.15	0.394	0	0	1.03
JUL	0	0	0	0	0	10.285	0	0	0	0	0.02
AUG	0	0	0	0	0	9.129	0	0	0	0	0.43
SEP	0	0	0	0	0	2.457	0	0	0	0	0.005
OCT	0	0	0	0	0	16.218	0	0.099	0	0	0.145
NOV											
DEC											
Total	0	0	0	0	0	134.92	5.15	0.493	0	0	1.63

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

CRBC-CEC-KADEN Joint Venture

Monthly Summary Waste Flow Table for 2015 (year)

Name of Person completing the record: KM LUI (EO)

Project : Liangtang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 6 Contract No.: CV/2013/08

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan											
Feb											
Mar											
Apr											
May											
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	27.831	0	5.110	0.516	22.205	0	0	0	0	0	1.783
Sep	35.826	0	1.517	1.629	32.680	0	0	0	0	0	0.434
Oct	37.297	0	0.113	5.356	31.643	0	0	0	0	0	0.185
Nov											
Dec											
Total	100.954	0	6.740	7.501	86.528	0	0	0	0	0	2.402

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.

(3) Broken concrete for recycling into aggregates.

Architectural Services Department	**Form No. D/OI.03/09.002**

Contract No. / Works Order No.: - SSC505

Monthly Summary Waste Flow Table for 2015 [year] [to be submitted not later than the 15th day of each month following reporting month]

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

Month	Actual Quantities of Inert Construction Waste Generated Monthly				
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Broken Concrete (see Note 4)	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	-	-	-	-	-
Feb	-	-	-	-	-
Mar	-	-	-	-	-
Apr	-	-	-	-	-
May	-	-	-	-	-
Jun	-	-	-	-	-
Sub-total	-	-	-	-	-
Jul	0.00	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.00	0.00
Sep	0.94	0.00	0.94	0.00	0.00
Oct	3.82	0.00	3.82	0.00	0.00
Nov					
Dec					
Total	4.76	0.00	4.76	0.00	0.00

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly												
	Timber		Metals		Paper/ cardboard packaging		Plastics (see Note 3)		Chemical Waste		Other Recyclable Materials _____ (pls. specify)		General Refuse disposed of at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m^3)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr	-	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0068
Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0129
Nov													
Dec													
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0197

Description of mode and details of recycling if any for the month e.g. XX kg of used timber was sent to YY site for transformation into fertilizers					
0	0	0	0	0	0

Notes: (1) The performance targets are given in the Particular Specification on Environmental Management Plan.
(2) The waste flow table shall also include construction waste that are specified in the Contract to be imported for use at the site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(4) Broken concrete for recycling into aggregates.
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m^3 by volume.

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

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		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.				

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		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)

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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

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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

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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)

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		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					

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		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

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		▪ 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		

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		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.					

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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

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		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

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		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