



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.7) – FEBRUARY 2014

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
(CEDD)

| Date | Reference No. | Prepared By | Certified By |
|---------------|-------------------------|---|--|
| 12 March 2014 | TCS00670/13/600/R0133v2 |  Ben Tam (Environmental Consultant) |  Tam Tak Wing (Environmental Team Leader) |

| Version | Date | Remarks |
|---------|---------------|---|
| 1 | 7 March 2014 | First Submission |
| 2 | 12 March 2014 | Amended against the IEC's comments on 10 March 2014 |
| | | |

13 March 2014

Our ref: 7076192/L15583/RV/AB/AW/rw
Your ref:

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

By Email & Post

Attention: Mr Kelvin LEE

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. 7) – February 2014

With reference to the updated Monthly EM&A Report No. 7 for February 2014 (Version 2) certified by the ET Leader we received on 12 March 2014, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-404/2011/A.

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

Yours faithfully
For and on behalf of
SMEC Asia Limited



Antony WONG
Independent Environmental Checker

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

EXECUTIVE SUMMARY

ES01 This is the 7th monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 to 28 February 2014** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES02 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 | 4 | 60 |
| | 24-hour TSP | 4 | 20 |
| Construction Noise | L _{eq(30min)} Daytime | 5 | 25 |
| Water Quality | Water sampling | 5 | 11(*) |
| Joint Site Inspection / Audit | IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing | Contract 3 | 4 |
| | | Contract 5 | 4 |

(*) Monitoring day

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES03 No exceedances of air quality and construction noise were registered in the Reporting Period. For water quality monitoring, one (1) Limit Level exceedance was recorded at WM4 on 4 February 2014. The summary of breach of environmental performance is shown below.

| Environmental Aspect | Monitoring Parameters | Action Level | Limit Level | Event & Action | | |
|----------------------|--------------------------------|--------------|-------------|----------------|---------------------|--------------------|
| | | | | NOE Issued | Investigation | Corrective Actions |
| Air Quality | 1-hour TSP | 0 | 0 | 0 | 0 | 0 |
| | 24-hour TSP | 0 | 0 | 0 | 0 | 0 |
| Construction Noise | L _{eq(30min)} Daytime | 0 | 0 | 0 | 0 | 0 |
| Water Quality | DO | 0 | 0 | 0 | 0 | 0 |
| | Turbidity | 0 | 0 | 0 | 0 | 0 |
| | SS | 0 | 1 | 1 | Not project related | 0 |

ENVIRONMENTAL COMPLAINT

ES04 In the Reporting Period, no environmental complaint is received.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES05 No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGE

ES06 No reporting changes were made in the Reporting Period.

SITE INSPECTION

ES07 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, 10, 17 and 24 February 2014**. No non-compliance was noted.

ES08 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 **6, 13, 20 and 27 February 2014**. No non-compliance was noted.

FUTURE KEY ISSUES

ES09 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.

ES10 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.

ES11 In addition, the potential water quality impact at the nearby rivers should be highly alerted. The Contractors including Contract 3 and Contract 5 should prevent muddy water and other water pollutants via site surface water runoff get into the Kong Yiu Channel and Ma Wat Channel, water quality mitigation measures should be properly implemented.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1 Civil Engineering and Development Department is the Project Proponent and the Permit Holder of Agreement No. CE 45/2008 (CE) Liantang / Heung Yuen Wai Boundary Control Point and Associated Works, which is a Designated Project to be implemented under Environmental Permit number EP-404/2011/A issued on 28 October 2013.
- 1.1.2 The Project consists of two main components: Construction of a Boundary Control Point (hereinafter referred as “BCP”); and Construction of a connecting road alignment. Layout plan of the Project is shown in *Appendix A*.
- 1.1.3 The proposed BCP is located at the boundary with Shenzhen near the existing Chuk Yuen Village, comprising a main passenger building with passenger and cargo processing facilities and the associated customs, transport and ancillary facilities. The connecting road alignment consists of six main sections:
- 1) Lin Ma Hang to Frontier Closed Area (FCA) Boundary – this section comprises at-grade and viaducts and includes the improvement works at Lin Ma Hang Road;
 - 2) Ping Yeung to Wo Keng Shan – this section stretches from the Frontier Closed Area Boundary to the tunnel portal at Cheung Shan and comprises at-grade and viaducts including an interchange at Ping Yeung;
 - 3) North Tunnel – this section comprises the tunnel segment at Cheung Shan and includes a ventilation building at the portals on either end of the tunnel;
 - 4) Sha Tau Kok Road – this section stretches from the tunnel portal at Wo Keng Shan to the tunnel portal south of Loi Tung and comprises at-grade and viaducts including an interchange at Sha Tau Kok and an administration building;
 - 5) South Tunnel – this section comprises a tunnel segment that stretches from Loi Tung to Fanling and includes a ventilation building at the portals on either end of the tunnel as well as a ventilation building in the middle of the tunnel near Lau Shui Heung;
 - 6) Fanling – this section comprises the at-grade, viaducts and interchange connection to the existing Fanling Highway.
- 1.1.4 Action-United Environmental Services & Consulting has been commissioned as an Independent ET to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties. As part of the EM&A program, the baseline monitoring has carried out between **13 June 2013** and **12 July 2013** for all parameters including air quality, noise and water quality before construction work commencement. The Baseline Monitoring Report summarized the key findings and the rationale behind determining a set of Action and Limit Levels (A/L Levels) from the baseline data. Also, the Project baseline monitoring report which verified by the IEC has been submitted to EPD on **16 July 2013** for endorsement. The major construction works of the Project was commenced on **16 August 2013** in accordance with the EP Section 5.3 stipulation.
- 1.1.5 This is 7th monthly EM&A report presenting the monitoring results and inspection findings for reporting period from **1** to **28 February 2014**.

1.2 REPORT STRUCTURE

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

| | |
|------------------|---|
| Section 1 | <i>Introduction</i> |
| Section 2 | <i>Project Organization and Construction Progress</i> |
| Section 3 | <i>Summary of Impact Monitoring Requirements</i> |
| Section 4 | <i>Air Quality Monitoring</i> |
| Section 5 | <i>Construction Noise Monitoring</i> |
| Section 6 | <i>Water Quality Monitoring</i> |
| Section 7 | <i>Waste Management</i> |

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

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 CONSTRUCTION CONTRACT PACKAGING

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

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

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

Contract 2 (CV/2012/08)

2.1.3 Contract 2 has awarded in December 2013. Date of contract works commencement has yet to decide. Major Scope of Work of the Contract 2 is listed below:

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

Contract 3 (CV/2012/09)

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

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

Contract 4 (Contract number to be assigned)

2.1.5 Contract 4 has not yet 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 not yet awarded. Major Scope of Work of the Contract 6 will be included below:
- construction of an approximately 4.6km long dual two-lane connecting road (with about 0.6km of at-grade road, 3.3km of viaduct and 0.7km of tunnel) connecting the BCP with the proposed Sha Tau Kok Road Interchange and the associated ventilation buildings;
 - associated diversion/modification works at access roads to the resite of Chuk Yuen Village;
 - provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village;
 - construction of a pedestrian subway linking the BCP to Lin Ma Hang Road;
 - provisioning of the affected facilities including Wo Keng Shan Road garden; and
 - construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

2.2 PROJECT ORGANIZATION

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

Civil Engineering and Development Department (CEDD)

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

Environmental Protection Department (EPD)

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

Engineer or Engineers Representative (ER)

- 2.2.4 The ER is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:
- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
 - Monitor Contractors's, ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
 - Facilitate ET's implementation of the EM&A programme
 - Participate in joint site inspection by the ET and IEC
 - Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
 - Adhere to the procedures for carrying out complaint investigation
 - Liaison with DSD, Engineer/Engineer's Representative, ET, IEC and the Contractor of the "Construction of the DSD's Regulation of Shenzhen River Stage 4 (RSR 4)" Project discussing regarding the cumulative impact issues.

The Contractor(s)

- 2.2.5 There will be one contractor for each individual works contract. The Contractor(s) should report

to the ER. The duties and responsibilities of the Contractor are:

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

Environmental Team (ET)

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

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

Independent Environmental Checker (IEC)

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

- Provide proactive advice to the ER and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction

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

2.3 CONCURRENT PROJECTS

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

- (a) Regulation of Shenzhen River Stage IV (Environmental Permit EP-430/2011);
- (b) Building works and road works by contractors of Architectural Services Department (ArchSD) (Environmental Permit EP-404/2011/A);
- (c) Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange – Contract No. HY/2012/06;
- (d) Construction of cross-boundary vehicular and pedestrian bridges (total 5 numbers) across the Shenzhen River; and
- (e) Construction of BCP facilities in Shenzhen.

2.4 CONSTRUCTION PROGRESS

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

Contract 2 (CV/2012/08)

- The contract has not yet commenced.

Contract 3 (CV/2012/09)

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

- Cable detection and trial trenches
- Tree Felling Works
- Pre-drilling works and piling works
- Extension of box culvert ID04, ID05 & BC01
- Bored pile wall construction
- Construction of haul road and temporary soil platform for geotechnical works
- Slope upgrading works
- Noise barrier installation
- Waterworks

Contract 4 (Contract number to be assigned)

- The contract has not yet awarded.

Contract 5 (CV/2013/03)

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

- Piling works at Bridge J
- Construction of retaining wall No.1
- Drainage works at Lin Ma Hang (LMH) Road
- Water works at LMH Road
- Western Lift shaft's pile cap construction
- Eastern Lift Shaft's construction
- Transplanting, Pruning/Felling of trees
- Formation works at BCP Area

Contract 6 (CV/2013/08)

- The contract is still yet awarded

2.5 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

- Project Layout Plans of Contracts 3 and 5
- Landscape Plan
- Topsoil Management Plan
- Environmental Monitoring and Audit Programme
- Baseline Monitoring Report (TCS00690/13/600/R0030v3) for the Project
- Waste Management Plan of the Contracts 3 and 5

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

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

| Item | Description | License/Permit Status | | |
|------|--|---|--|-------------------|
| | | Contract 3 | Contract 5 | Contract 2, 4 & 6 |
| 1 | Air pollution Control (Construction Dust) Regulation | Ref. No: 362101 Notification received by EPD on 17 Jul 2013 | Ref. No: 359338 Notified EPD on 13 May 2013 | -- |
| 2 | Chemical Waste Producer Registration - Waste Producers Number | No.:5113-634-C3817-01 Valid form 7 Oct 2013 till the end of Contract | No.: 5213-642-S3735-01 Valid form 8 Jun 2013 till the end of Contract | -- |
| 3 | Water Pollution Control Ordinance - Discharge License | No.:WT00016832 – 2013 Valid from 28 Aug 13 to 31 Aug 2018 | No.: W5/1G44/1 Valid from 8 Jun 13 to 30 Jun 2018 | -- |
| 4 | Waste Disposal Regulation - Billing Account for Disposal of Construction Waste | Account No. 7017914 Valid form 2 Aug 13 till the end of Contract | Account No. 7017351 Valid form 29 Apr 13 till the end of Contract | -- |
| 5 | Construction Noise Permit | GW-RN0004-14 Valid on 7 Jan 14 till 22 Jun 2014 GW-RN0109-14 Valid on 24 Feb 14 till 17 May 2014 | NA | -- |

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

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

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

3.2 MONITORING PARAMETERS

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

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

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

Table 3-1 Summary of EM&A Requirements

| Environmental Issue | Parameters |
|---------------------|--|
| Air Quality | <ul style="list-style-type: none"> • 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler. |
| Noise | <ul style="list-style-type: none"> • $L_{eq(30min)}$ 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 <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Water depth (m); and • Temperature (°C). |
| | Laboratory Analysis <ul style="list-style-type: none"> • 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 |
|------------|--|-----------------------------|------------------------------|
| AM1 | Tsung Yuen Ha Village House No. 63 | BCP | Contract 5 |
| AM2 | Village House near Lin Ma Hang Road | LMH to Frontier Closed Area | Contract 5, Contract 6 |
| AM3 | Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village. | LMH to Frontier Closed Area | Contract 5, Contract 6 |
| AM4a | A village house located at about 160m east side | LMH to Frontier | Contract 6 |

| Station ID | Description | Works Area | Related to the Work Contract |
|------------|---|----------------------------|------------------------------|
| | of the original point AM4 | Closed Area | |
| AM5 | Ping Yeung Village House | Ping Yeung to Wo Keng Shan | Contract 6 |
| AM6 | Wo Keng Shan Village House | Ping Yeung to Wo Keng Shan | Contract 6 |
| AM7a | Another village (nameless) aligns to Sha Tau Kok Road – Wo Hang Section proximity to Tai Tong Wu Village. The location is about 140m away from the original point AM7 | Sha Tau Kok Road | Contract 2 |
| AM8 | Po Kat Tsai Village No. 4 | Po Kat Tsai | Contract 2 |
| AM9b# | Nam Wa Po Village House No. 80 | Fanling | Contract 3 |

Proposal for the change of air quality monitoring location from AM9a to AM9b was submitted to EPD on 4 Nov 2013 after verified by the IEC and it was approved by EPD (EPD's ref.: (15) in EP 2/N7/A/52 Pt.10 dated 8 Nov 2013).

Table 3-3 Impact Monitoring Stations - Construction Noise

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

Table 3-4 Impact Monitoring Stations - Water Quality

| Station ID | Description | Designated / Alternative Location | | Nature of the location | Related to the Work Contract |
|--------------|--------------------------------|-----------------------------------|----------|---|------------------------------|
| | | Coordinates | | | |
| | | Easting | Northing | | |
| WM1 | Downstream of Kong Yiu Channel | 833679 | 845421 | Alternative location located at upstream 51m of the designated location | Contract 5 |
| WM1-Control | Upstream of Kong Yiu Channel | 834185 | 845917 | NA | Contract 5 |
| WM2A | Downstream of River Ganges | 834204 | 844471 | Alternative location located at downstream 81m of the designated location | Contract 6 |
| WM2A-Control | Upstream of River Ganges | 835270 | 844243 | Alternative location located at upstream 78m of the designated location | Contract 6 |
| WM2B | Downstream of River Ganges | 835433 | 843397 | NA | Contract 6 |
| WM2B-Control | Upstream of River Ganges | 835835 | 843351 | Alternative location located at downstream 31m of the designated location | Contract 6 |
| WM3 | Downstream of River Indus | 836324 | 842407 | NA | Contract 6 |

| Station ID | Description | Designated / Alternative Location | | Nature of the location | Related to the Work Contract |
|---------------|------------------------------|-----------------------------------|----------|---|------------------------------|
| | | Coordinates | | | |
| | | Easting | Northing | | |
| WM3-Control | Upstream of River Indus | 836763 | 842400 | Alternative location located at downstream 26m of the designated location | Contract 6 |
| WM4 | Downstream of Ma Wat Channel | 833850 | 838338 | Alternative location located at upstream 11m of the designated location | Contract 3 |
| WM4-Control A | Kau Lung Hang Stream | 834028 | 837695 | Alternative location located at downstream 28m of the designated location | Contract 3 |
| WM4-Control B | Upstream of Ma Wat Channel | 833760 | 837395 | Alternative location located at upstream 15m of the designated location | Contract 3 |

3.4 MONITORING FREQUENCY AND PERIOD

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

Air Quality Monitoring

3.4.1 Frequency of impact air quality monitoring is as follows:

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

Noise Monitoring

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

Water Quality Monitoring

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

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve.

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

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

Table 3-5 Air Quality Monitoring Equipment

| Equipment | Model |
|-------------------------|--|
| 24-Hr TSP | |
| High Volume Air Sampler | TISCH High Volume Air Sampler, HVS Model TE-5170 |
| Calibration Kit | TISCH Model TE-5025A |
| 1-Hour TSP | |

| Equipment | Model |
|---------------------|--|
| Portable Dust Meter | Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter |

Wind Data Monitoring Equipment

- 3.5.4 According to the approved EM&A Manual, wind data monitoring equipment shall also be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET and agreed with the IEC. For installation and operation of wind data monitoring equipment, the following points shall be observed:
- 1) The wind sensors should be installed 10 m above ground so that they are clear of obstructions or turbulence caused by buildings.
 - 2) The wind data should be captured by a data logger. The data shall be downloaded for analysis at least once a month.
 - 3) The wind data monitoring equipment should be re-calibrated at least once every six months.
 - 4) Wind direction should be divided into 16 sectors of 22.5 degrees each.
- 3.5.5 ET has liaised with the landlords of the successful granted HVS installation premises. However, the owners rejected to provide premises for wind data monitoring equipment installation.
- 3.5.6 Under this situation, the ET proposed alternative methods to obtain representative wind data. Meteorological information as extracted from “the Hong Kong Observatory Ta Kwu Ling Station” is alternative method to obtain representative wind data. For Ta Kwu Ling Station, it is located nearby the Project site. Moreover, this station is located at 15m above mean sea level while its anemometer is located at 13m above the existing ground which in compliance with the general setting up requirement. Furthermore, this station also can be to provide the humidity, rainfall, and air pressure and temperature etc. meteorological information. In Hong Kong of a lot development projects, weather information extracted from Hong Kong Observatory is common alternative method if weather station installation not allowed.

Noise Monitoring

- 3.5.7 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s⁻¹.
- 3.5.8 Noise monitoring equipment to be used for monitoring is listed in **Table 3-6**.

Table 3-6 Construction Noise Monitoring Equipment

| Equipment | Model |
|-------------------------------|---|
| Integrating Sound Level Meter | B&K Type 2238 or Rion NL-14 or Rion NL-31 |
| Calibrator | B&K Type 4231 |
| Portable Wind Speed Indicator | Testo Anemometer |

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

Water Quality Monitoring

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

- a DO level in the range of 0-20 mg/l and 0-200% saturation; and
 - a temperature of between 0 and 45 degree Celsius.
- 3.5.11 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions accordingly to the APHA Standard Methods.
- 3.5.12 The instrument should be portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- 3.5.13 A portable, battery-operated echo sounder or tape measure will be used for the determination of water depth at each designated monitoring station as appropriate.
- 3.5.14 A water sampler e.g. Kahlsico Water Sampler, which is a transparent PVC cylinder with capacity not less than 2 litres, will be used for water sampling if water depth over than 0.5m. For sampling from very shallow water depths e.g. <0.5 m, water sample collection will be directly from water surface below 100mm use sampling plastic bottle to avoid inclusion of bottom sediment or humus. Moreover, Teflon/stainless steel bailer or self-made sampling buckets maybe used for water sampling. The equipment used for sampling will be depended the sampling location and depth situations.
- 3.5.15 Water samples for laboratory measurement of SS will be collected in high density polythene bottles, packed in ice (cooled to 4 °C 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 PRO20 Handheld Dissolved Oxygen Instrument |
| pH meter | The EcoSense [®] pH10A pen-style instrument |
| Turbidimeter | Hach 2100Q |
| Sample Container | High density polythene bottles (provided by laboratory) |
| Storage Container | 'Willow' 33-liter plastic cool box with Ice pad |

3.6 MONITORING METHODOLOGY

1-hour TSP Monitoring

- 3.6.1 The 1-hour TSP monitor was a brand named “Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter” which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
- (a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - (b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
 - (c.) A built-in data logger compatible with Windows based program to facilitate data collection,

analysis and reporting.

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

24-hour TSP Monitoring

- 3.6.3 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:
- (a.) An anodized aluminum shelter;
 - (b.) A 8"x10" stainless steel filter holder;
 - (c.) A blower motor assembly;
 - (d.) A continuous flow/pressure recorder;
 - (e.) A motor speed-voltage control/elapsed time indicator;
 - (f.) A 7-day mechanical timer, and
 - (g.) A power supply of 220v/50 Hz
- 3.6.4 The HVS is operated and calibrated on a regular basis in accordance with the manufacturer's instruction using Tisch Calibration Kit Model TE-5025A. Calibration would carry out in two month interval.
- 3.6.5 24-hour TSP is collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET keep all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25°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}). $L_{eq(30min)}$ in six consecutive $L_{eq(5min)}$ measurements will use as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $L_{eq(15min)}$ in three consecutive $L_{eq(5min)}$ 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 4⁰C 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. Before each round of monitoring, the dissolved oxygen probe would be calibrated by the wet bulb method.
- 3.6.15 A portable EcoSense[®] pH10A pen-style instrument 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. Standard buffer solutions of pH 7 and pH 10 are used for calibration of the instrument before and after measurement.
- 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. StablCal[®] Standards 10NTU and 100NTU are used for calibration of the instrument before and after measurement.
- 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 ($\mu\text{g}/\text{m}^3$) | | Limit Level ($\mu\text{g}/\text{m}^3$) | |
|--------------------|---|-------------|--|-------------|
| | 1-hour TSP | 24-hour TSP | 1-hour TSP | 24-hour TSP |
| AM1 | 265 | 143 | 500 | 260 |
| AM2 | 268 | 149 | | |
| AM3 | 269 | 145 | | |
| AM4a | 267 | 148 | | |
| AM5 | 268 | 143 | | |
| AM6 | 269 | 148 | | |
| AM7a | 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) and 65 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 |
| | Limit Level | AND 120% of upstream control station of the same day | | | | |
| SS (mg/L) | Action Level | 54.5 | 14.6 | 11.8 | 12.6 | 39.4 |
| | Limit Level | AND 120% of upstream control station of the same day | | | | |
| | | 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 properly 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 3 and 5 and air quality monitoring was performed at 4 relevant designated locations as below:

- AM1 - Tsung Yuen Ha Village House No. 63;
- AM2 - Village House near Lin Ma Hang Road;
- AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village; and
- AM9b - Nam Wa Po Village House No. 80

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

4.2 AIR QUALITY MONITORING RESULTS IN REPORTING MONTH

4.2.1 In the Reporting Period, a total of **60** events of 1-hour TSP and **20** events of 24-hours TSP monitoring were carried out and the monitoring results are summarized in *Tables 4-1 to 4-4*. The detailed 24-hour TSP monitoring data are presented in *Appendix I* and the relevant graphical plots are shown in *Appendix J*.

4.2.2 There were 2 events of power failure incident of HVS during the course of 24-hour TSP monitoring which happened at AM1 on 26 February 2014 and at AM9b on 8 February 2014. Our technician reported that the power socket at both locations was found unplugged by others when they collected the sampled filter paper after monitoring. Since the samples were run less than 24 hours, the results would be considered as invalid and for reference purpose only. We did contact the resident of AM1 and AM9b about the power supply issue and they explained that the power sockets were unplugged by the surrounding village residents, possibly due to noise nuisance. We will consider to find alternative monitoring locations if it repeatedly happened.

Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results – AM1

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|---------------------------|-------------------------|-------------------------|
| | | Date | Start Time | 1 st reading | 2 nd reading | 3 rd reading |
| 4-Feb-14 | 60 | 4-Feb-14 | 11:25 | 156 | 144 | 125 |
| 8-Feb-14 | 37 | 10-Feb-14 | 15:12 | 208 | 229 | 232 |
| 14-Feb-14 | 54 | 15-Feb-14 | 13:26 | 190 | 217 | 176 |
| 20-Feb-14 | 66 | 21-Feb-14 | 12:09 | 162 | 143 | 131 |
| 26-Feb-14 | 61# | 27-Feb-14 | 10:21 | 141 | 123 | 162 |
| Average (Range) | 54 (37 – 66) | Average (Range) | | 169 (123 – 232) | | |

Invalidated result as the monitoring was run for 18.7 hours only.

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|---------------------------|-------------------------|-------------------------|
| | | Date | Start Time | 1 st reading | 2 nd reading | 3 rd reading |
| 4-Feb-14 | 72 | 4-Feb-14 | 12:27 | 134 | 123 | 134 |
| 8-Feb-14 | 42 | 10-Feb-14 | 14:59 | 202 | 218 | 232 |
| 14-Feb-14 | 82 | 15-Feb-14 | 13:07 | 173 | 186 | 195 |
| 20-Feb-14 | 83 | 21-Feb-14 | 12:17 | 132 | 119 | 104 |
| 26-Feb-14 | 75 | 27-Feb-14 | 10:29 | 141 | 124 | 142 |
| Average (Range) | 71 (42 – 83) | Average (Range) | | 157 (104 - 232) | | |

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|--------------------------|-------------------------|-------------------------|
| | | Date | Start Time | 1 st reading | 2 nd reading | 3 rd reading |
| 4-Feb-14 | 38 | 4-Feb-14 | 12:54 | 125 | 124 | 133 |
| 8-Feb-14 | 93 | 10-Feb-14 | 14:40 | 177 | 193 | 207 |
| 14-Feb-14 | 56 | 15-Feb-14 | 12:57 | 193 | 220 | 215 |
| 20-Feb-14 | 79 | 21-Feb-14 | 12:26 | 116 | 104 | 88 |
| 26-Feb-14 | 67 | 27-Feb-14 | 10:34 | 152 | 163 | 199 |
| Average (Range) | 67 (38 – 93) | Average (Range) | | 161 (88 – 220) | | |

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|--------------------------|-------------------------|-------------------------|
| | | Date | Start Time | 1 st reading | 2 nd reading | 3 rd reading |
| 4-Feb-14 | 61 | 4-Feb-14 | 10:06 | 154 | 151 | 117 |
| 8-Feb-14 | 93# | 10-Feb-14 | 13:33 | 153 | 205 | 222 |
| 14-Feb-14 | 77 | 15-Feb-14 | 13:47 | 194 | 223 | 184 |
| 20-Feb-14 | 96 | 21-Feb-14 | 11:34 | 102 | 100 | 84 |
| 26-Feb-14 | 52 | 27-Feb-14 | 14:03 | 144 | 120 | 103 |
| Average (Range) | 76 (52 – 96) | Average (Range) | | 150 (84 - 223) | | |

Invalidated result as the monitoring was run for 9.5 hours only.

- 4.2.3 As shown in **Tables 4-1 to 4-4**, the 24-hour and 1-hour TSP monitoring results were below the Action/ Limit Level. No Notification of Exceedances (NOE) of air quality criteria or corrective action was therefore required.
- 4.2.4 Two months interval calibration has been carried out at AM1, AM2, AM3 and AM9b in accordance with the EM&A Manual requirements. The updated calibration certificates are attached in **Appendix F**.
- 4.2.5 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 3 and 5 and noise monitoring was performed at 5 relevant designated locations as below:

- NM1 - Tsung Yuen Ha Village House No. 63;
- NM2 - Village House near Lin Ma Hang Road;
- NM8 - Village House, Tong Hang;
- NM9 - Village House, Kiu Tau Village; and
- NM10 - Nam Wa Po Village House No. 80

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

5.2 NOISE MONITORING RESULTS IN REPORTING MONTH

5.2.1 In the Reporting Period, a total of **25** 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, NM8 and NM9. Therefore, no façade correction (+3 dB(A)) is added according to acoustical principles and EPD guidelines. However, free-field status was performed at NM10. So, façade correction (+3 dB(A)) has added according to the requirement in this month. The noise monitoring results at the designated locations are summarized in *Tables 5-1*. The detailed noise monitoring data are presented in *Appendix I* and the relevant graphical plots are shown in *Appendix J*.

Table 5-1 Summary of Construction Noise Monitoring Results

| Date | NM1 ($L_{eq30min}$) | NM2 ($L_{eq30min}$) | NM8 ($L_{eq30min}$) | NM9 ($L_{eq30min}$) | (*) NM10 ($L_{eq30min}$) |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|
| 4-Feb-14 | 43 | 60 | 60 | 59 | 65 |
| 10-Feb-14 | 67 | 59 | 61 | 60 | 60 |
| 15-Feb-14 | 55 | 57 | 61 | 59 | 75 |
| 21-Feb-14 | 50 | 64 | 58 | 57 | 69 |
| 27-Feb-14 | 47 | 64 | 56 | 54 | 75 |
| Limit Level | 75 dB(A) | | | | |

Remarks

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

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

6 WATER QUALITY MONITORING

6.1 GENERAL

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

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

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

6.2 RESULTS OF WATER QUALITY MONITORING

6.2.1 In the Reporting Period, a total of **11** sampling days were performed for water quality monitoring at Contracts 3 and 5. The key monitoring parameters including Dissolved Oxygen, Turbidity and Suspended Solids are summarized in *Tables 6-1 and 6-2*. Breaches of water quality monitoring criteria are shown in *Table 6-3*. Detailed monitoring database including in-situ measurements and laboratory analysis data are shown in *Appendix I* and the relevant graphical plot are shown in *Appendix J*.

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

| Date | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------------|--------|--------|-----------------|--------|--------|-------------------------|--------|--------|
| | WM4 | WM4-CA | WM4-CB | WM4 | WM4-CA | WM4-CB | WM4 | WM4-CA | WM4-CB |
| 4-Feb-14 | 8.9 | 7.2 | 5.7 | 27.8 | 5.0 | 6.4 | <u>50.0</u> | 3.0 | 6.0 |
| 6-Feb-14 | 9.3 | 7.8 | 7.6 | 12.1 | 4.8 | 7.6 | 33.0 | 3.5 | 8.0 |
| 8-Feb-14 | 5.7 | 6.2 | 4.1 | 11.9 | 4.4 | 7.4 | 19.0 | 2.5 | 8.0 |
| 10-Feb-14 | 9.9 | 7.4 | 7.3 | 15.2 | 25.0 | 8.6 | 5.0 | 26.5 | 6.5 |
| 12-Feb-14 | 7.6 | 9.3 | 6.1 | 11.8 | 4.6 | 3.6 | 7.5 | 3.0 | 3.0 |
| 15-Feb-14 | 6.0 | 7.4 | 5.2 | 11.4 | 3.8 | 4.9 | 8.5 | 2.0 | 3.5 |
| 17-Feb-14 | 7.3 | 6.9 | 6.2 | 9.5 | 35.5 | 4.6 | 9.5 | 17.5 | 8.0 |
| 19-Feb-14 | 8.2 | 9.6 | 8.1 | 16.3 | 7.1 | 7.6 | 8.0 | 3.5 | 2.0 |
| 21-Feb-14 | 6.9 | 6.5 | 5.2 | 11.4 | 6.6 | 7.9 | 7.5 | 2.0 | 5.5 |
| 25-Feb-14 | 7.3 | 7.6 | 6.2 | 12.7 | 4.6 | 9.9 | 20.0 | 4.0 | 11.5 |
| 27-Feb-14 | 6.7 | 7.4 | 5.2 | 11.7 | 3.3 | 9.7 | 20.5 | 4.0 | 15.0 |

Remark: bold and underlined indicated limit level exceedance.

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

| Date | Dissolved Oxygen (mg/L) | | Turbidity (NTU) | | Suspended Solids (mg/L) | |
|-----------|-------------------------|-------------|-----------------|-------------|-------------------------|-------------|
| | WM1 | WM1-Control | WM1 | WM1-Control | WM1 | WM1-Control |
| 4-Feb-14 | 6.62 | 6.07 | 23.5 | 50.0 | 15.0 | 31.0 |
| 6-Feb-14 | 7.38 | 6.11 | 16.6 | 73.8 | 8.5 | 25.5 |
| 8-Feb-14 | 6.33 | 6.29 | 26.4 | 40.8 | 15.5 | 19.5 |
| 10-Feb-14 | 7.78 | 10.31 | 29.1 | 57.5 | 10.5 | 15.0 |
| 12-Feb-14 | 8.35 | 10.09 | 26.3 | 11.7 | 15.50 | 4.50 |
| 15-Feb-14 | 7.36 | 9.66 | 15.5 | 22.3 | 10.00 | 8.00 |
| 17-Feb-14 | 6.72 | 9.74 | 11.5 | 12.6 | 9.00 | 3.50 |
| 19-Feb-14 | 6.12 | 8.68 | 17.8 | 450.0 | 12.00 | 171.00 |
| 21-Feb-14 | 4.37 | 9.85 | 44.0 | 10.4 | 9.00 | 3.50 |
| 25-Feb-14 | 15.10 | 12.25 | 26.3 | 15.5 | 18.00 | 6.50 |
| 27-Feb-14 | 6.87 | 5.85 | 23.2 | 26.3 | 20.00 | 22.00 |

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

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

- 6.2.2 In view of the monitoring results of Dissolved Oxygen (DO) at W1 and W4, all the measured results were higher than Action Level.
- 6.2.3 One (1) Limit Level exceedance of SS was recorded at WM4 on 4 February 2014. The Notification on Exceedances (NOEs) was issued to all relevant parties upon the results confirmed. The investigation for the cause of exceedance was completed and submitted to relevant parties.
- 6.2.4 During the course of water sampling at WM4, cloudy water and algae were observed throughout the stream course. According to the site information provided by the Contractor, the site was closed during 31st January 2014 and 4th February 2014 for the Lunar New Year holidays. Therefore, no construction works were carried out on the exceedance day. It is concluded that the exceedance was not related to the works under the Project and no remedial actions are required.

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 3 | | Contract 5 | | Total Quantity for the Project |
|--|------------|-------------------|------------|-------------------|--------------------------------|
| | Quantity | Disposal Location | Quantity | Disposal Location | |
| C&D Materials (Inert) (in '000m ³) | 1.697 | - | 0 | -- | 1.697 |
| Reused in this Project (Inert) (in '000 m ³) | 0.38 | - | 0 | -- | 0.38 |
| Reused in other Projects (Inert) (in '000 m ³) | 0 | - | 0 | -- | 0 |
| Disposal as Public Fill (Inert) (in '000 m ³) | 1.473 | Tuen Mun 38 | 0 | -- | 1.473 |

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

| Type of Waste | Contract 3 | | Contract 5 | | Total Quantity for the Project |
|---|------------|-----------------------|------------|-------------------|--------------------------------|
| | Quantity | Disposal Location | Quantity | Disposal Location | |
| Recycled Metal (in '000m ³) | 0.002 | By Licensed Collector | 0 | -- | 0.002 |
| Recycled Paper / Cardboard Packing (in '000m ³) | 0 | - | 0 | -- | 0 |
| Recycled Plastic (in '000m ³) | 0 | - | 0 | -- | 0 |
| Chemical Wastes (in '000m ³) | 0.019 | By Licensed Collector | 0 | -- | 0.019 |
| General Refuses (in '000m ³) | 0.040 | NENT | 0.005 | NENT | 0.046 |

8 SITE INSPECTION

8.1 REQUIREMENTS

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

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

The Contract 3

8.2.1 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, 10, 17 and 24 February 2014**. No non-compliance was noted.

8.2.2 The findings / deficiencies of **Contract 3** that observed during the weekly site inspection are listed in **Table 8-1**.

Table 8-1 Site Observations for Contract 3

| Date | Findings / Deficiencies | Follow-Up Status |
|--|---|---|
| 27 Jan 2014 (last Reporting Period) | <ul style="list-style-type: none"> Water barriers stored at BC02 was very close tree protection zone. The contractor was reminded to remove from it and make sure no objects placed on the root. | <ul style="list-style-type: none"> Sufficient protection fencing for trees has been provided and water barriers have been moved away from tree root. |
| 5 Feb 2014 | <ul style="list-style-type: none"> The Contractor should keep the water barriers away from trees to be retained in EC02 and provide sufficient protection. | <ul style="list-style-type: none"> Sufficient protection fencing for trees has been provided and water barriers have been moved away from tree root. |
| 10 Feb 2014 | <ul style="list-style-type: none"> The Contractor should provide proper mitigation measure to prevent muddy tail trail on public access road at Nam Wa Po (SA4). The Contractor should provide proper mitigation measure to prevent waste accumulation at BC02 (SA14). | <ul style="list-style-type: none"> The Contractor has arranged a worker to clean the public access road at Nam Wa Po (SA4) regularly. The condition of public road is clean and acceptable. A rubbish collection point has been provided at BC02 (SA14). |
| 17 Feb 2014 | <ul style="list-style-type: none"> The Contractor was reminded to ensure all wastewater generated from site is treated before discharge to river. The Contractor was reminded to ensure drip tray was provided to all chemical containers in the construction site. The Contractor was reminded to clean all U-channel within site regularly. The Contractor was reminded to implement regular check and maintenance to all machineries in construction site. | <ul style="list-style-type: none"> No wastewater generated from site was direct discharge to river. Drip tray was provided for all chemical containers in the construction site. U-channel within site was clean. The Contractor was noted. |
| 24 Feb 2014 | <ul style="list-style-type: none"> The Contractor was reminded to maintain sufficient protective fence for tree to be retained at BC02 (SA14). The Contractor was reminded to prevent dusty trail on public access road at BC02 (SA14). | <ul style="list-style-type: none"> Protective fence was provided for tree to be retained at BC02 (SA14). Dust mitigation measure has implemented on site. |

8.2.3 Moreover, the general housekeeping such as tidiness of weekly and cleanliness of daily should be

maintained in accordance with the PS requirements.

The Contract 5

8.2.4 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 **6, 13, 20 and 27 February 2014**. No non-compliance was noted.

8.2.5 The findings / deficiencies of **Contract 5** that observed during the weekly site inspection are listed in **Table 8-2**.

Table 8-2 Site Observations for Contract 5

| Date | Findings / Deficiencies | Follow-Up Status |
|-------------|--|--|
| 6 Feb 2014 | <ul style="list-style-type: none"> At location temporary diversion of police patrol road, the Contractor should improve the mitigation measures to prevent muddy road and loose of soil on the public road. Chemical container with drip tray was observed, the Contractor was reminded to provide drip tray for any chemical container. (Rebar fixing area) | <ul style="list-style-type: none"> The Contractor increase the road washing frequency and provided manpower for road cleaning and wheel washing at the temporary diversion of police patrol road to prevent muddy road. Chemical container was removed and no free standing chemical was observed. |
| 13 Feb 2014 | <ul style="list-style-type: none"> At rebar fixing area, muddy tracks were observed, the Contractor was reminded to maintain and prevent the public road from loose of soil. | <ul style="list-style-type: none"> A labor was arranged at the site exit for wheel washing and the Contractor enhanced the frequency of water browser watering at site exit. |
| 20 Feb 2014 | <ul style="list-style-type: none"> The Contractor was reminded to store all chemical in proper and designated area. | <ul style="list-style-type: none"> The Contractor was noted. |
| 27 Feb 2014 | <ul style="list-style-type: none"> At Location LMH, dusty trails were observed and the Contractor was reminded to maintain cleanliness of the road. | <ul style="list-style-type: none"> The site boundary was fenced properly. Road washing was provided more frequently to prevent dust trails if necessary. |

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

Other Contracts

8.2.7 Since the construction works at the Contract 2 and Contract 4 and Contract 6 are not yet commenced, no site inspection is performed for these Contracts.

9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

The Contract 3

9.1.1 The Liantang/Heung Yuen Wai Boundary Control Point and Associated Works, no environmental complaint, summons and prosecution under the EM&A Programme was received in the Reporting Period. 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 |
| 06 Nov 2013 - 31 Jan 2014 | Contract 3 | 0 | 0 | NA |
| 16 Aug 2013 - 31 Jan 2014 | Contract 5 | 1 | 0 | (1) Air Quality |
| 1 – 28 Feb 2014 | Contract 3 | 0 | 0 | NA |
| | Contract 5 | 0 | 1 | NA |

Table 9-2 Statistical Summary of Environmental Summons

| Reporting Period | Contract No | Environmental Summons Statistics | | |
|---------------------------|-------------|----------------------------------|------------|------------------|
| | | Frequency | Cumulative | Complaint Nature |
| 06 Nov 2013 - 31 Jan 2014 | Contract 3 | 0 | 0 | NA |
| 16 Aug 2013 - 31 Jan 2014 | Contract 5 | 0 | 0 | NA |
| 1 – 28 Feb 2014 | Contract 3 | 0 | 0 | NA |
| | Contract 5 | 0 | 0 | NA |

Table 9-3 Statistical Summary of Environmental Prosecution

| Reporting Period | Contract No | Environmental Prosecution Statistics | | |
|---------------------------|-------------|--------------------------------------|------------|------------------|
| | | Frequency | Cumulative | Complaint Nature |
| 06 Nov 2013 - 31 Jan 2014 | Contract 3 | 0 | 0 | NA |
| 16 Aug 2013 - 31 Jan 2014 | Contract 5 | 0 | 0 | NA |
| 1 – 28 Feb 2014 | Contract 3 | 0 | 0 | NA |
| | Contract 5 | 0 | 0 | NA |

The Other Contracts

9.1.2 Since the construction works at the Contract 2, Contract 4 and Contract 6 are not yet commenced, no environmental complaint, summons and prosecution under the EM&A Programme are registered in the Reporting Period.

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.1 GENERAL REQUIREMENTS

- 10.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in *Appendix M*.
- 10.1.2 All contracts under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by Contracts 3 and 5 in this Reporting Period are summarized in *Table 10-1*.

Table 10-1 Environmental Mitigation Measures

| Issues | Environmental Mitigation Measures |
|-------------------------------|--|
| Water Quality | <ul style="list-style-type: none"> Wastewater to be treated by the filtration systems i.e. sedimentation tank or AquaSed before to discharge. |
| Air Quality | <ul style="list-style-type: none"> Maintain damp / wet surface on access road Keep slow speed in the sites All vehicles must use wheel washing facility before off site Sprayed water during breaking works A cleaning truck was regularly performed on the public road to prevent fugitive dust emission |
| Noise | <ul style="list-style-type: none"> Restrain operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants 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 | <ul style="list-style-type: none"> On-site sorting prior to disposal Follow requirements and procedures of the “Trip-ticket System” Predict required quantity of concrete accurately Collect the unused fresh concrete at designated locations in the sites for subsequent disposal |
| General | <ul style="list-style-type: none"> The site was generally kept tidy and clean. |

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 3

- Cable detection and trial trenches
- Pre-drilling works and piling works
- Extension of box culvert ID04, ID05 & BC01
- Pile cap works
- Tree felling and transplanting works, waterwork
- Slope upgrading works
- Noise barrier installation
- Construction of haul road and temporary soil platform for geotechnical works
- Laying of concrete pipe works
- Bored pile wall construction

Contract 5

- Construction of retaining wall No.1
- Construction of Village House at RS4
- Piling works at life shaft, Bridge J & footbridge
- Construction of pedestrian subway and pump room at LMH

- Pipe jacking across Kong Yuen River
- Transplantation, Pruning/felling of existing tree
- Drainage and Sewerage works at LMH Road
- Formation Works at BCP Area
- Piling Works for Architectural Services Department (ArchSD) permanent office
- Construction of Bridge J
- Water works at LMH Road
- Remaining works at RS1 & RS3
- Construction of footbridge and staircase at RS4

10.3 KEY ISSUES FOR THE COMING MONTH

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

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

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

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

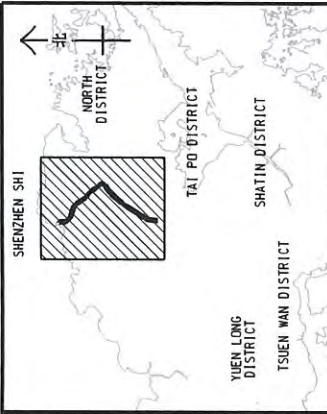
- 11.1.1 This is 7th monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from 1 to 28 February 2014.
- 11.1.2 No 24-hour or 1-hour TSP monitoring results that triggered the Action or Limit Levels were recorded. No NOEs or the associated corrective actions were therefore issued.
- 11.1.3 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.
- 11.1.4 For water quality monitoring, one (1) Limit Level exceedance of SS was recorded at WM4 on 4 February 2014. The Notification on Exceedances (NOEs) was issued to all relevant parties. Based on investigation findings to conclude that the exceedance should not be due to the Project works.
- 11.1.5 No environmental complaint, notification of summons or successful prosecution under the EM&A Programme of the Liantang/Heung Yuen Wai Boundary Control Point and Associated Works was received in the reporting period.
- 11.1.6 During the Reporting Period, four (4) events of Joint site inspection by the RE, IEC, ET and Main-contractor were carried out for Contracts 3 and 5 in accordance with the EM&A Manual stipulation. No non-compliance observed during the site inspection. During dry season, air quality mitigation measures such as increase the water spray frequency (at least eight times per day) in haul road to prevent construction dust emission is reminded. The environmental performance of the Project of Contracts 3 and 5 was therefore considered as satisfactory.

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 Moreover, muddy water and other water quality pollutants via site surface water runoff get into Kong Yiu Channel and Ma Wat Channel to public areas should be avoided. Mitigation measures for water quality should be properly 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.

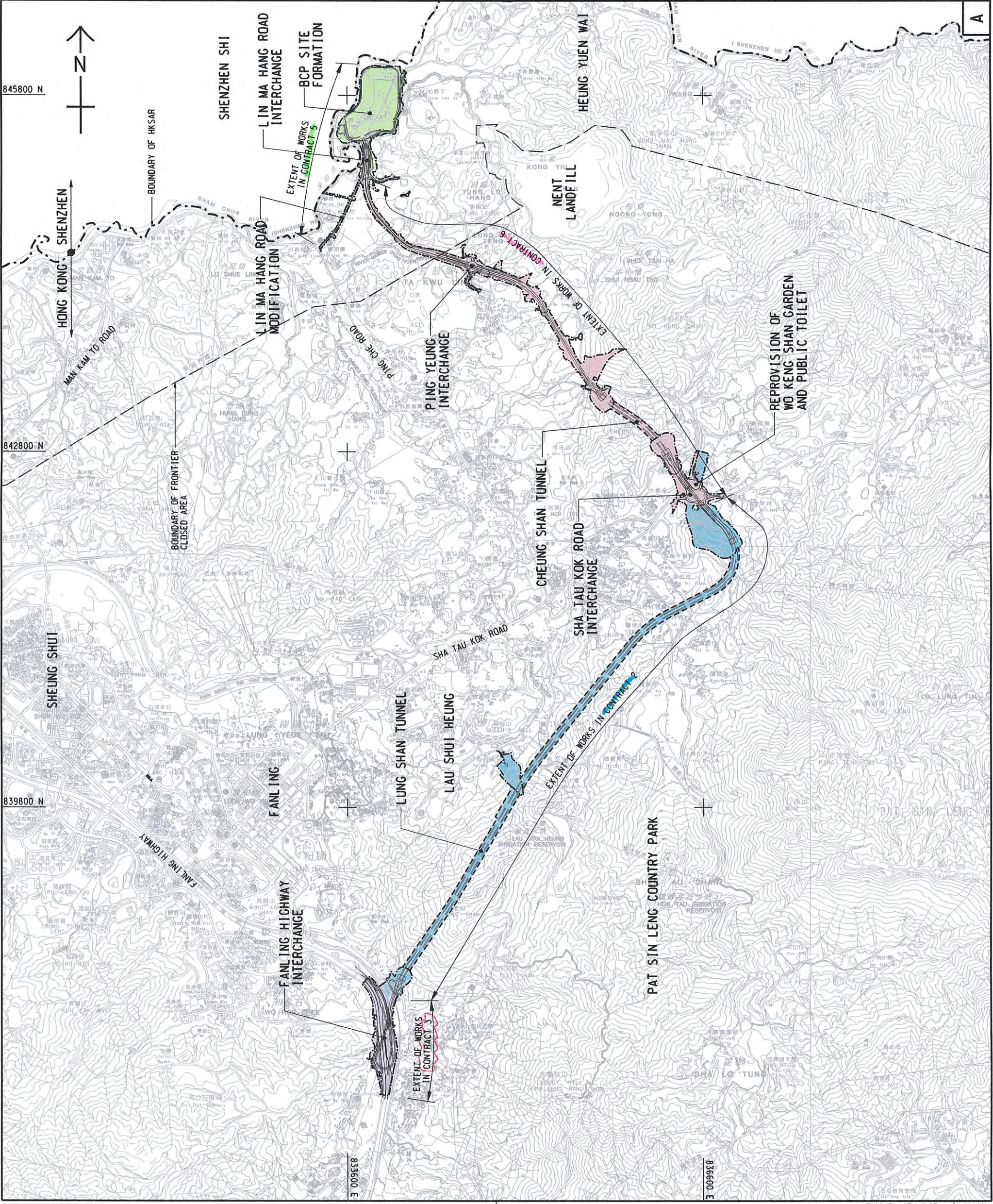
Appendix A

Layout plan of the Project



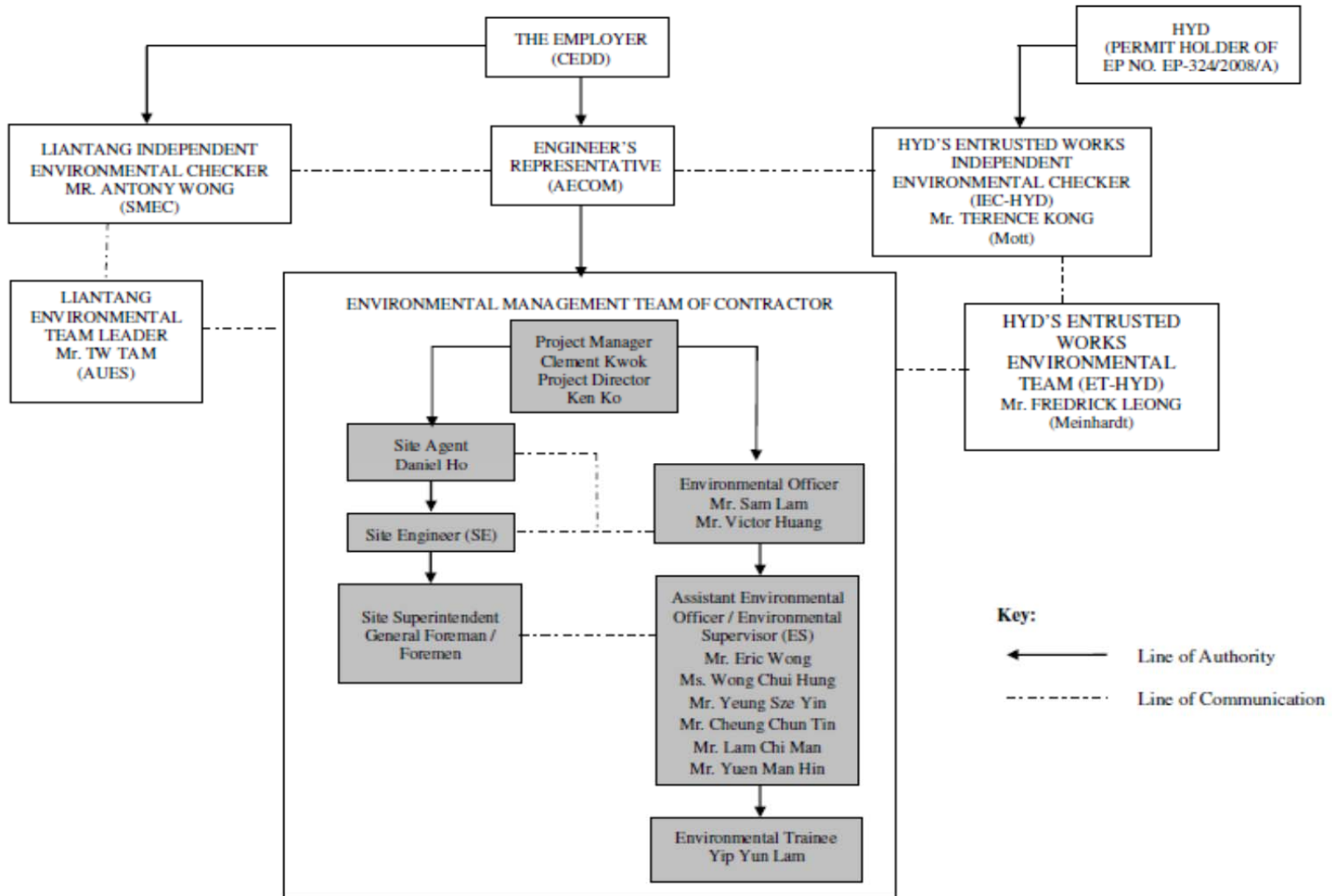
LEGEND:
 --- SITE BOUNDARY
 - - - UNDERGROUND WORKS SITE BOUNDARY

| | |
|--|--------------------------------|
| 土木工程拓展署 Civil Engineering and Development Department | |
| LANTAU/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS (SITE FORMATION AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION | |
| PROJECT LAYOUT PLAN | |
| | |
| DRGNO. 60212563/PLP/001 圖紙編號 | CONTRACT NO. P/LP/0000 合約編號 |
| DRAWN BY ZJ 繪圖員 | CHECKED BY 校核員 |
| SCALE 1 : 15000 縮尺 | DATE 日期 |
| METRES 公尺 | |
| © COPYRIGHT RESERVED 版權保留 | |



Appendix B

Organization Chart



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

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

| Organization | Project Role | Name of Key Staff | Tel No | Fax No. |
|--------------|-----------------------------------|-------------------|-----------|-----------|
| AECOM | Engineer's Representative | Alan Lee | 2472 0212 | 2472 0132 |
| SMEC | Independent Environmental Checker | Antony Wong | 3995 8120 | 3995 8101 |
| Chun Wo | Project Director | Ken Ko | 3758 8735 | 2638 7077 |
| Chun Wo | Project Manager | Clement Kwok | 2638 6136 | 2638 7077 |
| Chun Wo | Site Agent | Daniel Ho | 2638 6144 | 2638 7077 |
| Chun Wo | Environmental Officer | Victor Huang | 2638 6115 | 2638 7077 |
| Chun Wo | Environmental Supervisor | Wong Chui Hing | 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:

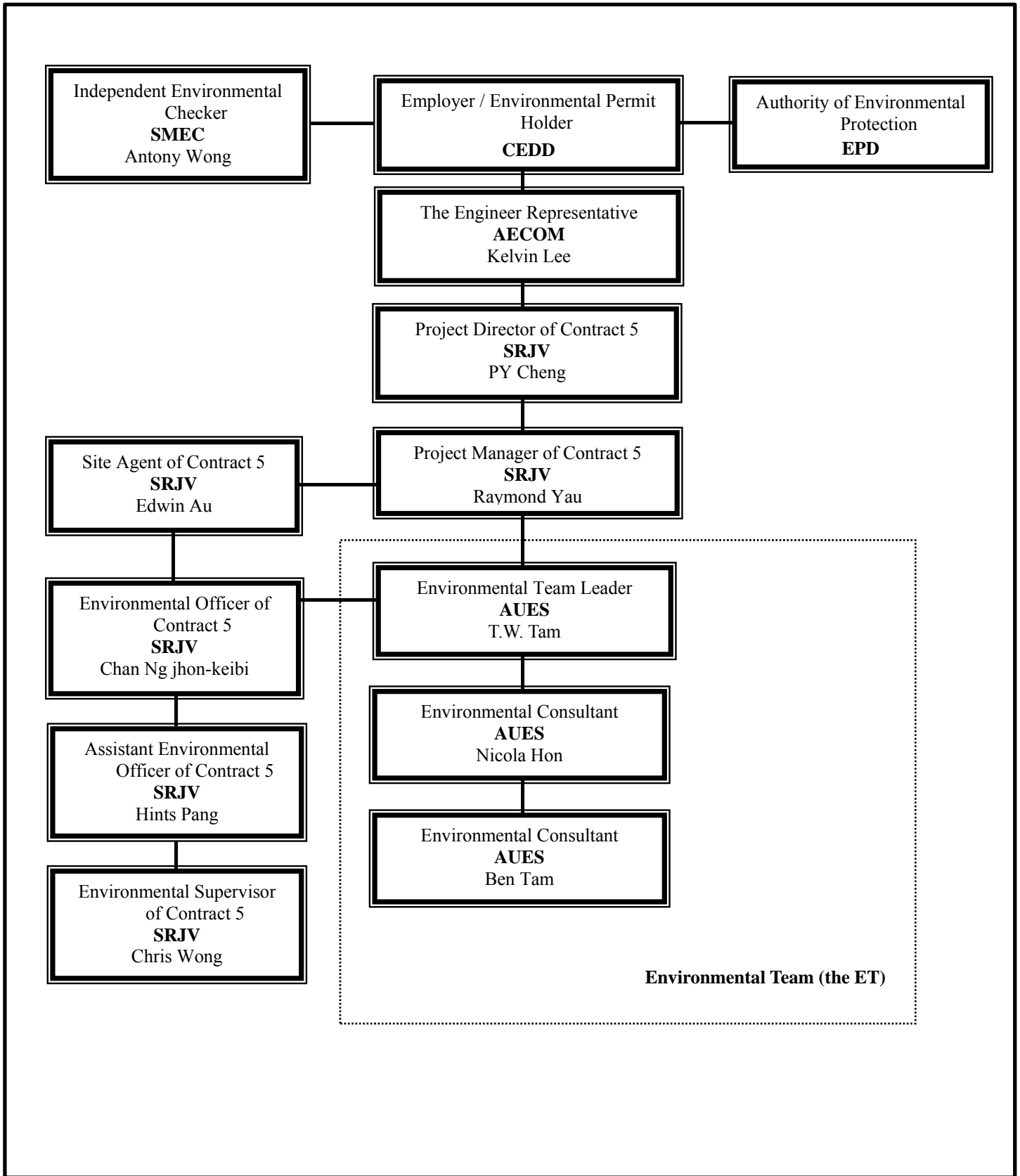
CEDD (Employer) – Civil Engineering and Development Department

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 | 3992 9797 |
| SMEC | Independent Environmental Checker | Antony Wong | 3995 8120 | 3995 8101 |
| SRJV | Project Director | PY Cheng | 9023 4821 | 2403 1162 |
| SRJV | Contract Manager | Raymond Yu | 9041 1620 | 2403 1162 |
| SRJV | Project Manager | Aaron Mak | 9464 7095 | 2403 1162 |
| SRJV | Site Agent | Edwin Au | 9208 7329 | 2403 1162 |
| SRJV | Environmental Officer | Chan Ng jhon-keibi | 6090 0183 | 2403 1162 |
| SRJV | Environmental Supervisor | Chris Wong | 6387 4683 | 2403 1162 |
| AUES | Environmental Team Leader | T. W. Tam | 2959 6059 | 2959 6079 |
| AUES | Environmental Consultant | Nicola Hon | 2959 6059 | 2959 6079 |
| AUES | Environmental Consultant | Ben Tam | 2959 6059 | 2959 6079 |

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

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

SMEC (IEC) – SMEC Asia Limited

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

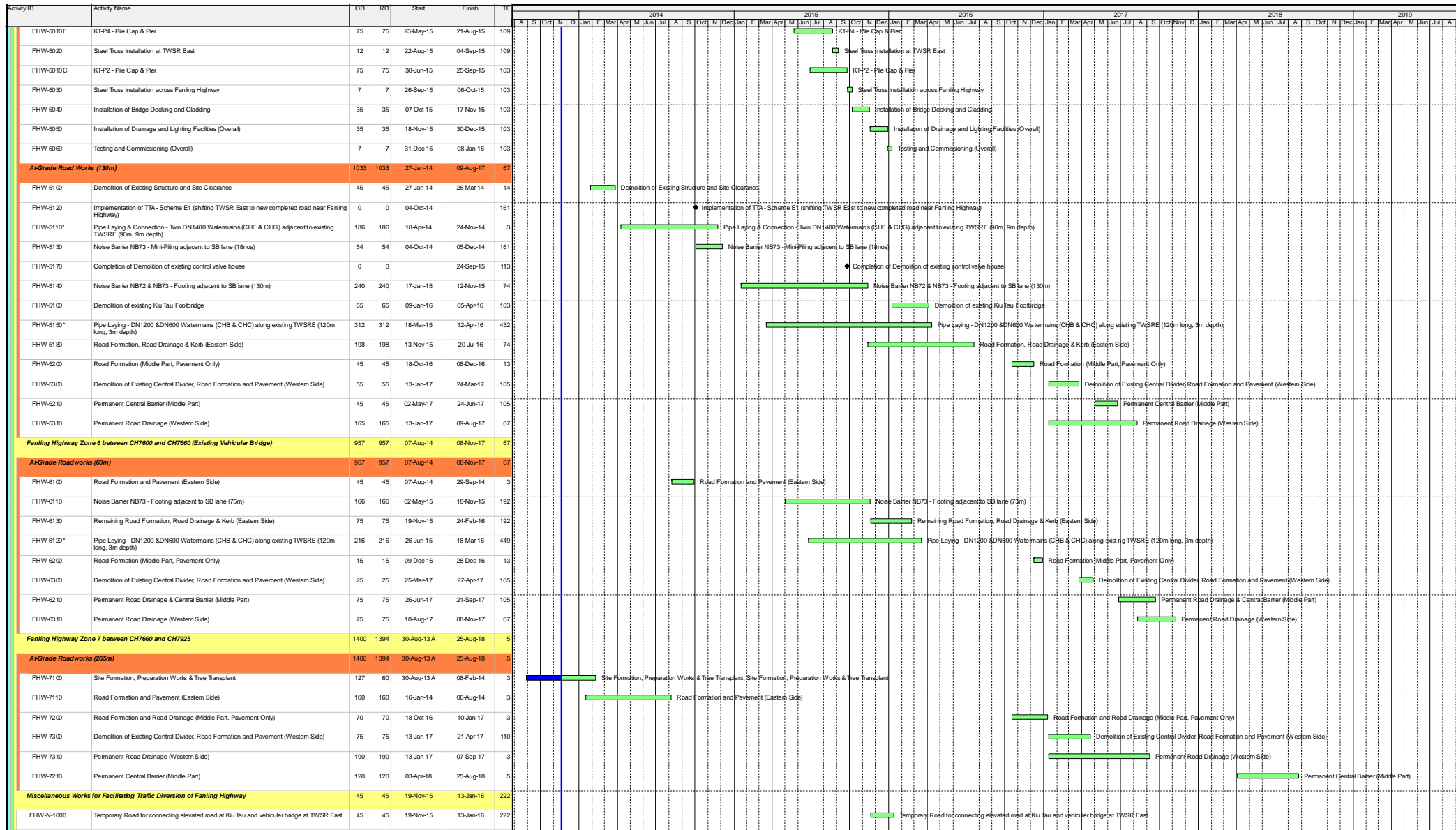
Appendix C

Master Construction Programme

Contract 3

| Activity ID | Activity Name | OD | RD | Start | Finish | IF | 2014 | | | | | 2015 | | | | | 2016 | | | | | 2017 | | | | | 2018 | | | | | 2019 | | | | | | | | | | | | | | | | |
|--------------------------------------|---|----|----|------------|------------|-----|---|------|------------|-----------|----|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | A | S | O | N | D | J | M | A | M | J | J | A | S | O | N | D | J | M | A | M | J | J | A | S | O | N | D | J | M | A | M | J | J | A | S | O | N | D | J | M | A | M |
| Initial Works Programme Rev 4 | | | | | | | 1786 | 1892 | 31-Jul-13A | 31-Aug-19 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Dates (Contractual) | | | | | | | 1786 | 1480 | 31-Jul-13A | 31-Aug-19 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0010 | Commencement of Works | 0 | 0 | 31-Jul-13A | 31-Aug-19 | 0 | ◆ Commencement of Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1000 | KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests | 0 | 0 | | 14-Aug-14* | 0 | ◆ KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1500 | KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD | 0 | 0 | | 31-Oct-15* | 0 | ◆ KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1100 | KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic | 0 | 0 | | 16-Jan-16* | 0 | ◆ KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1600 | KD14: Stage N4B - Commissioning of Roundabout A by connecting to Slip Rd Y, Access Rd A & the realigned TWSRE | 0 | 0 | | 01-Jan-16* | 0 | ◆ KD14: Stage N4B - Commissioning of Roundabout A by connecting to Slip Rd Y, Access Rd A & the realigned TWSRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1300 | KD10: Stage S4 - Completion of road widening of Fanling Highway within SB22 and allow access for HY/2012/06 | 0 | 0 | | 28-Nov-16* | 0 | ◆ KD10: Stage S4 - Completion of road widening of Fanling Highway within SB22 and allow access for HY/2012/06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1200 | KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other | 0 | 0 | | 01-Apr-17* | 0 | ◆ KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0900 | KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces | 0 | 0 | | 01-Apr-17* | 0 | ◆ KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1400 | KD11: Stage N4 - Completion of road widening of Fanling Highway within NB21 and allow access for HY/2012/06 | 0 | 0 | | 11-Sep-17* | 0 | ◆ KD11: Stage N4 - Completion of road widening of Fanling Highway within NB21 and allow access for HY/2012/06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0100 | KD1: Section 1A - all HyD's entrustment works in Zone3 and SB22 excluding Landscape Softworks and Establishment Works | 0 | 0 | | 29-Jan-18* | 0 | ◆ KD1: Section 1A - all HyD's entrustment works in Zone3 and SB22 excluding Landscape Softworks and Establishment Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0300 | KD3: Section 2 - the remainder of the Works | 0 | 0 | | 29-Jan-18* | 0 | ◆ KD3: Section 2 - the remainder of the Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0400 | KD4: Section 3 - Remainder of Landscape Softworks not included in Section 3A | 0 | 0 | | 29-Jan-18* | 0 | ◆ KD4: Section 3 - Remainder of Landscape Softworks not included in Section 3A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0200 | KD2: Section 1B - all HyD's entrustment works in NB21 excluding Landscape Softworks and Establishment Works | 0 | 0 | | 31-Aug-18* | 0 | ◆ KD2: Section 1B - all HyD's entrustment works in NB21 excluding Landscape Softworks and Establishment Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0600 | KD6: Section 5 - Preservation and Protection of Trees | 0 | 0 | | 31-Aug-18* | 0 | ◆ KD6: Section 5 - Preservation and Protection of Trees | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0500 | KD4A: Section 3A - Landscape Softworks in NB21 | 0 | 0 | | 31-Aug-18* | 0 | ◆ KD4A: Section 3A - Landscape Softworks in NB21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0600 | KD5: Section 4 - Establishment Works for Landscape Softworks under Section 3 | 0 | 0 | | 29-Jan-19* | 0 | ◆ KD5: Section 4 - Establishment Works for Landscape Softworks under Section 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0020 | Completion of Contract CV/2012/09 | 0 | 0 | | 31-Aug-19* | 0 | ◆ Completion of Contract CV/2012/09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0700 | KD5A: Section 4A - Establishment Works for Landscape Softworks under Section 3A | 0 | 0 | | 31-Aug-19* | 0 | ◆ KD5A: Section 4A - Establishment Works for Landscape Softworks under Section 3A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Dates (Forecast) | | | | | | | 1525 | 1525 | 30-May-14 | 11-Aug-19 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1005 | KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests | 0 | 0 | | 30-May-14 | 76 | ◆ KD6B: Section 7 - All specified geotechnical fieldworks and all associated lab tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1505 | KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD | 0 | 0 | | 28-Oct-15 | 3 | ◆ KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1105 | KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic | 0 | 0 | | 13-Jan-16 | 3 | ◆ KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1605 | KD14: Stage N4B - Commissioning of Roundabout A by connecting to Slip Rd Y, Access Rd A & the realigned TWSRE | 0 | 0 | | 23-May-16 | 9 | ◆ KD14: Stage N4B - Commissioning of Roundabout A by connecting to Slip Rd Y, Access Rd A & the realigned TWSRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1305 | KD10: Stage S4 - Completion of road widening of Fanling Highway within SB22 and allow access for HY/2012/06 | 0 | 0 | | 24-Nov-16 | 4 | ◆ KD10: Stage S4 - Completion of road widening of Fanling Highway within SB22 and allow access for HY/2012/06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0905 | KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces | 0 | 0 | | 17-Feb-17 | 43 | ◆ KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1205 | KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other | 0 | 0 | | 30-Mar-17 | 2 | ◆ KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-1405 | KD11: Stage N4 - Completion of road widening of Fanling Highway within NB21 and allow access for HY/2012/06 | 0 | 0 | | 07-Sep-17 | 4 | ◆ KD11: Stage N4 - Completion of road widening of Fanling Highway within NB21 and allow access for HY/2012/06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0405 | KD4: Section 3 - Remainder of Landscape Softworks not included in Section 3A | 0 | 0 | | 16-Jan-18 | 11 | ◆ KD4: Section 3 - Remainder of Landscape Softworks not included in Section 3A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0305 | KD3: Section 2 - the remainder of the Works | 0 | 0 | | 25-Jan-18 | 4 | ◆ KD3: Section 2 - the remainder of the Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0105 | KD1: Section 1A - all HyD's entrustment works in Zone3 and SB22 excluding Landscape Softworks and Establishment Works | 0 | 0 | | 26-Jan-18 | 3 | ◆ KD1: Section 1A - all HyD's entrustment works in Zone3 and SB22 excluding Landscape Softworks and Establishment Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0805 | KD6: Section 5 - Preservation and Protection of Trees | 0 | 0 | | 24-Apr-18 | 129 | ◆ KD6: Section 5 - Preservation and Protection of Trees | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0505 | KD4A: Section 3A - Landscape Softworks in NB21 | 0 | 0 | | 11-Aug-18 | 17 | ◆ KD4A: Section 3A - Landscape Softworks in NB21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0205 | KD2: Section 1B - all HyD's entrustment works in NB21 excluding Landscape Softworks and Establishment Works | 0 | 0 | | 25-Aug-18 | 6 | ◆ KD2: Section 1B - all HyD's entrustment works in NB21 excluding Landscape Softworks and Establishment Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0605 | KD5: Section 4 - Establishment Works for Landscape Softworks under Section 3 | 0 | 0 | | 16-Jan-19 | 13 | ◆ KD5: Section 4 - Establishment Works for Landscape Softworks under Section 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD-0705 | KD5A: Section 4A - Establishment Works for Landscape Softworks under Section 3A | 0 | 0 | | 11-Aug-19 | 20 | ◆ KD5A: Section 4A - Establishment Works for Landscape Softworks under Section 3A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Possession of Site | | | | | | | 180 | 0 | 31-Jul-13A | 27-Jan-14 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PS-P01 | Possession of Portion FH1, NB21, SB22 and ZONE3 | 0 | 0 | 31-Jul-13A | | 0 | ◆ Possession of Portion FH1, NB21, SB22 and ZONE3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PS-P02 | Possession of Portion FH2 | 0 | 0 | 27-Jan-14* | | 0 | ◆ Possession of Portion FH2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PS-P03 | Possession of Portion FH3 | 0 | 0 | 27-Jan-14* | | 0 | ◆ Possession of Portion FH3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Date | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 29-Jan-14 | Rev4 | Sam | Daniel |
| 21-Dec-13 | Rev3 | Dennis | Daniel |
| 23-Oct-13 | Rev2 | Dennis | Daniel |
| 17-Sep-13 | Rev1 | Dennis | Daniel |
| 09-Jul-13 | Rev0 | Anselm | Daniel |
| | | | |
| | | | |



- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- ◆ Milestone

CEDD Contract No. CV/2012/09

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

Initial Works Programme Rev 4

| Date | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 29-Jan-14 | Rev4 | Sam | Daniel |
| 21-Dec-13 | Rev3 | Dennis | Daniel |
| 23-Oct-13 | Rev2 | Dennis | Daniel |
| 17-Sep-13 | Rev1 | Dennis | Daniel |
| 09-Jul-13 | Rev0 | Anselm | Daniel |
| | | | |

IWP04
Page 7 of 24
30-Jan-14

| Activity ID | Activity Name | OD | RD | Start | Finish | IF | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | | 2016 | | | | | | | | | | | | 2017 | | | | | | | | | | | | 2018 | | | | | | | | | | | | 2019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-----|-----|-------------|-------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|---|--|--|
| | | | | | | | A | | | S | | | O | | | N | | | D | | | J | | | F | | | M | | | A | | | M | | | J | | | J | | | A | | | S | | | O | | | N | | | D | | | J | | | F | | | M | | | A | | | M | | | J | | | J | | | A | | | S | | | O | | | N | | | D | | | J | | | F | | | M | | | A | | | M | | | J | | | J | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1030 | Bay 2 - Base Slab | 21 | 21 | 14-Dec-13 | 10-Jan-14 | 122 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1040 | Bay 1 - Wall and Top Slab | 35 | 35 | 23-Dec-13 | 11-Feb-14 | 136 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1050 | Bay 2 - Wall and Top Slab | 35 | 35 | 11-Jan-14 | 27-Feb-14 | 122 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| At-Grade Roadworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1100 | Installation of Mini-Pile for PC01 & PC02 (22nos) | 66 | 66 | 14-Feb-15 | 14-May-15 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1110 | Noise Barrier NB3 - PC01 & PC02 Pile Cap Construction | 55 | 55 | 15-May-15 | 21-Jul-15 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1130 | Retaining Wall Construction for FLRW5 | 55 | 55 | 22-Jul-15 | 23-Sep-15 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1120 | Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m) | 170 | 170 | 22-Jul-15 | 18-Feb-16 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-1160 | Road Formation, Road Drainage, Kerb, Planter and Pavement (Incl. FL/F8A, FL/F9) | 190 | 190 | 24-Sep-15 | 23-May-16 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE Zone 2 between CH270 and CH380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| At-Grade Roadworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2020* | Pipe laying - DN600, DN1400 & DN1200 Watermain (CHB, CHK & CHC) along Realigned TWSR East | 116 | 116 | 26-Feb-15 | 20-Jul-15 | 164 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2010 | Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m) | 170 | 170 | 15-Jan-15 | 17-Aug-15 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2020 | Retaining Wall Construction for FLRW6 | 55 | 55 | 24-Sep-15 | 30-Nov-15 | 53 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2030 | Road Formation, Road Drainage, Kerb, Planter and Pavement | 90 | 90 | 01-Dec-15 | 24-Mar-16 | 53 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2040 | Completion of New Vehicular Bridge by Other Contractor | 0 | 0 | 25-Aug-16 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2050 | Erection of Scaffolding for Demolition Works | 60 | 60 | 16-Jun-16 | 25-Aug-16 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2070 | Commissioning of Realigned TWSR East | 0 | 0 | 15-Oct-16 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-2060 | Demolition of Existing Vehicular Bridge | 95 | 95 | 26-Aug-16 | 17-Dec-16 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE Zone 3 between CH380 and CH456 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| At-Grade Roadworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-3010 | Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (62m) | 85 | 85 | 04-Oct-14 | 14-Jan-15 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-3020* | Pipe Laying - DN600 & DN1200 Watermain (CHB & CHC) along Realigned TWSR East | 78 | 78 | 16-Dec-14 | 26-Mar-15 | 164 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-3030 | Road Formation, Road Drainage, Kerb, Planter and Pavement (Incl. FL/F10) | 90 | 90 | 27-Mar-15 | 18-Jul-15 | 255 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Roundabout A, Slip Road and Access Road | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4000 | Site Formation, Preparation Works & Tree Transplant | 65 | 65 | 21-Jan-14 | 14-Apr-14 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4010B | Filling Works for Slip Road Y | 120 | 120 | 15-Apr-14 | 10-Sep-14 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4010A | Implementation of TTA - Scheme E1 (Shifting Ext. TWSR East to Farling Highway S/B) | 0 | 0 | 04-Oct-14 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4050* | Pipe laying - DN600, DN1200 & DN2300 Watermain (CHB, CHC & CHJ) along Access Road A & Roundabout | 144 | 144 | 04-Oct-14 | 31-Mar-15 | 732 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4030 | Noise Barrier NB74 - Footing adjacent to Realigned TWSR East (72m) | 166 | 166 | 04-Oct-14 | 30-Apr-15 | 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4020 | Slip Road Y (CH260-CH404) - Road Formation, Road Drainage, Kerb, Planter and Pavement | 184 | 184 | 04-Oct-14 | 22-May-15 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4040 | Slip Road Y (CH100-CH230) - Road Formation, Road Drainage, Kerb, Planter and Pavement | 155 | 155 | 05-Jan-15 | 20-Jul-15 | 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4060 | Access Road A - Road Formation, Road Drainage, Kerb, Planter and Pavement | 130 | 130 | 23-May-15 | 28-Oct-15 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-4070 | Roundabout A - Road Formation, Road Drainage, Kerb, Planter and Pavement | 120 | 120 | 21-Jul-15 | 10-Dec-15 | 134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Remaining Works for Noise Barrier along realigned TWSR East | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-NB-110 | Installation of Steelwork & Transparent Panel - Noise Barrier NB74 (90m) | 35 | 35 | 11-Dec-15 | 23-Jan-16 | 591 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TWSRE-NB-120 | Installation of Steelwork & Transparent Panel - Noise Barrier NB3 (254m) | 65 | 65 | 15-Oct-16 | 31-Dec-16 | 316 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stage 1C - Vadhut Structure & TCSS Civil Provisions (KD-9) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preliminaries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2020 | Completion of Cable Detection & CLP Underground 11KV Cable Diversion at Area A | 0 | 0 | | 31-Oct-13 A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-3000 | Plant Mobilization for Piling Rig (Plant 1) | 13 | 0 | 05-Nov-13 A | 19-Nov-13 A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Activity ID | Activity Name | OD | RD | Start | Finish | IF | Gantt Chart (2014-2019) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|-----|-----|-------------|-----------|-----|--|---|---|---|---|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|-----|-----|-----|-----|-----|
| | | | | | | | A | S | O | N | D | Jan | Feb | Mar | Apr | May | Jun | Jul | A | S | O | N | D | Jan | Feb | Mar | Apr | May | Jun | Jul | A | S | O | N | D | Jan | Feb | Mar | Apr | May | Jun | Jul | A | S | O | N | D | Jan | Feb | Mar | Apr | May | Jun | Jul | A | S | O | N | D | Jan | Feb | Mar | Apr | May |
| B-3040 | Plant Mobilization for Piling Rig (Plant 5) | 25 | 25 | 29-Nov-13* | 30-Dec-13 | 35 | [Gantt Bar: Plant Mobilization for Piling Rig (Plant 5)] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-3010 | Plant Mobilization for Piling Rig (Plant 2) | 25 | 25 | 16-Dec-13* | 16-Jan-14 | 8 | [Gantt Bar: Plant Mobilization for Piling Rig (Plant 2)] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-3020 | Plant Mobilization for Piling Rig (Plant 3) | 25 | 25 | 27-Jan-14* | 03-Mar-14 | 2 | [Gantt Bar: Plant Mobilization for Piling Rig (Plant 3)] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-3030 | Plant Mobilization for Piling Rig (Plant 4) | 25 | 25 | 27-Jan-14* | 03-Mar-14 | 2 | [Gantt Bar: Plant Mobilization for Piling Rig (Plant 4)] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-1000 | ADMS Installation inside MTRCL Railway | 21 | 21 | 05-Mar-14 | 28-Mar-14 | 77 | [Gantt Bar: ADMS Installation inside MTRCL Railway] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-1010 | Demonstration to MTRCL | 1 | 1 | 29-Mar-14 | 29-Mar-14 | 77 | [Milestone: Demonstration to MTRCL] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-1020 | Base-line Monitoring | 7 | 7 | 31-Mar-14 | 08-Apr-14 | 77 | [Gantt Bar: Base-line Monitoring] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2030 | Completion of CLP Overhead 11KV Cable Diversion at Area B | 0 | 0 | | | 28 | [Milestone: Completion of CLP Overhead 11KV Cable Diversion at Area B] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2000 | CLP 11KV Cable Diversion at Area C | 80 | 80 | 27-Jan-14 | 13-May-14 | 144 | [Gantt Bar: CLP 11KV Cable Diversion at Area C] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2010 | CLP LV Cable Diversion at Area D | 80 | 80 | 27-Jan-14 | 13-May-14 | 19 | [Gantt Bar: CLP LV Cable Diversion at Area D] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2040 | Completion of CLP 11KV Cable Diversion at Area C | 0 | 0 | | | 144 | [Milestone: Completion of CLP 11KV Cable Diversion at Area C] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-2050 | Completion of CLP LV Cable Diversion at Area D | 0 | 0 | | | 19 | [Milestone: Completion of CLP LV Cable Diversion at Area D] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-3050 | Relocation of Plant including Pre-drilling Works | 14 | 14 | 16-Mar-16 | 05-Apr-16 | 20 | [Gantt Bar: Relocation of Plant including Pre-drilling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Foundation & Pier Construction | | 861 | 847 | 20-Nov-13 A | 13-Oct-16 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bridge A | | 827 | 827 | 14-Dec-13 | 13-Oct-16 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-12-1000 | Pier AA12 - Piling Works | 24 | 24 | 14-Dec-13 | 14-Jan-14 | 13 | [Gantt Bar: Pier AA12 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-05-1000 | Pier AA5 - Piling Works | 12 | 12 | 17-Jan-14 | 30-Jan-14 | 8 | [Gantt Bar: Pier AA5 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-12-1010 | Pier AA12 - Pile Test | 14 | 14 | 15-Feb-14 | 03-Mar-14 | 46 | [Gantt Bar: Pier AA12 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-05-1010 | Pier AA5 - Pile Test | 14 | 14 | 04-Mar-14 | 19-Mar-14 | 16 | [Gantt Bar: Pier AA5 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-13-1000 | Pier AA13 - Piling Works | 24 | 24 | 22-Feb-14 | 21-Mar-14 | 55 | [Gantt Bar: Pier AA13 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-17-1000 | Pier AA17 - Piling Works | 24 | 24 | 24-Feb-14 | 22-Mar-14 | 8 | [Gantt Bar: Pier AA17 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-12-1020 | Pier AA12 - Pile Cap | 30 | 30 | 14-Mar-14 | 22-Apr-14 | 37 | [Gantt Bar: Pier AA12 - Pile Cap] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-05-1020 | Pier AA5 - Pile Cap | 30 | 30 | 20-Mar-14* | 28-Apr-14 | 16 | [Gantt Bar: Pier AA5 - Pile Cap] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-13-1010 | Pier AA13 - Pile Test | 14 | 14 | 17-Apr-14 | 08-May-14 | 55 | [Gantt Bar: Pier AA13 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-17-1010 | Pier AA17 - Pile Test | 14 | 14 | 22-Apr-14 | 09-May-14 | 19 | [Gantt Bar: Pier AA17 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-14-1000 | Pier AA14 - Piling Works | 12 | 12 | 17-May-14 | 30-May-14 | 141 | [Gantt Bar: Pier AA14 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-04-1000 | Pier AA4 - Piling Works | 12 | 12 | 27-May-14 | 10-Jun-14 | 8 | [Gantt Bar: Pier AA4 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-05-1030 | Pier AA5 - Pier Construction | 17 | 17 | 26-May-14 | 14-Jun-14 | 16 | [Gantt Bar: Pier AA5 - Pier Construction] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-17-1020 | Pier AA17 - Pile Cap | 30 | 30 | 10-Jun-14 | 14-Jun-14 | 19 | [Gantt Bar: Pier AA17 - Pile Cap] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-02-2000 | Pier AA2E - Piling Works | 12 | 12 | 04-Jun-14 | 17-Jun-14 | 22 | [Gantt Bar: Pier AA2E - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-03-1000 | Pier AA3 - Piling Works | 12 | 12 | 07-Jun-14 | 20-Jun-14 | 8 | [Gantt Bar: Pier AA3 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-12-1030 | Pier AA12 - Pier Construction | 31 | 31 | 20-May-14 | 25-Jun-14 | 126 | [Gantt Bar: Pier AA12 - Pier Construction] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-09-1000 | Pier AA9 - Piling Works | 24 | 24 | 04-Jun-14 | 02-Jul-14 | 2 | [Gantt Bar: Pier AA9 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-02-1000 | Pier AA2W - Piling Works | 12 | 12 | 20-Jun-14 | 04-Jul-14 | 22 | [Gantt Bar: Pier AA2W - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-13-1020 | Pier AA13 - Pile Cap | 30 | 30 | 30-May-14 | 05-Jul-14 | 37 | [Gantt Bar: Pier AA13 - Pile Cap] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-15-1000 | Pier AA15 - Piling Works | 24 | 24 | 09-Jun-14 | 07-Jul-14 | 221 | [Gantt Bar: Pier AA15 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-14-1010 | Pier AA14 - Pile Test | 14 | 14 | 26-Jun-14 | 12-Jul-14 | 211 | [Gantt Bar: Pier AA14 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-04-1010 | Pier AA4 - Pile Test | 14 | 14 | 07-Jul-14 | 22-Jul-14 | 23 | [Gantt Bar: Pier AA4 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-01-1000 | Abutment AA1 - Piling Works | 24 | 24 | 02-Jul-14 | 29-Jul-14 | 22 | [Gantt Bar: Abutment AA1 - Piling Works] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-02-2010 | Pier AA2E - Pile Test | 14 | 14 | 14-Jul-14 | 29-Jul-14 | 82 | [Gantt Bar: Pier AA2E - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BA-03-1010 | Pier AA3 - Pile Test | 14 | 14 | 17-Jul-14 | 01-Aug-14 | 31 | [Gantt Bar: Pier AA3 - Pile Test] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- Milestone

CEDD Contract No. CV/2012/09

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

Initial Works Programme Rev 4

| Date | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 29-Jan-14 | Rev4 | Sam | Daniel |
| 21-Dec-13 | Rev3 | Dennis | Daniel |
| 23-Oct-13 | Rev2 | Dennis | Daniel |
| 17-Sep-13 | Rev1 | Dennis | Daniel |
| 09-Jul-13 | Rev0 | Anselm | Daniel |

| Activity ID | Activity Name | OD | RD | Start | Finish | IF | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|------------|-----------|-----|--|-----|------------|-----------|------|-----|---|---|------|---|-----|-----|------|---|---|---|------|-----|---|---|------|---|-----|-----|---|---|---|---|---|-----|---|---|-----|---|-----|-----|---|---|---|---|---|-----|---|---|-----|---|
| | | | | | | | A | S | O | N | D | Jan | F | M | Apr | M | Jun | Jul | A | S | O | N | D | Jan | F | M | Apr | M | Jun | Jul | A | S | O | N | D | Jan | F | M | Apr | M | Jun | Jul | A | S | O | N | D | Jan | F | M | Apr | M |
| Section III - Remainder of Landscaping Softworks Not Included in Section IIIA | | | | | | | 589 | 589 | 14-Jan-16 | 16-Jan-18 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-1000 | Transplanting along Reallocated TWSR West | 120 | 120 | 14-Jan-16 | 16-Jun-16 | 330 | Transplanting along Reallocated TWSR West | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-1020 | Transplanting near MTR East Rail Line | 240 | 240 | 10-Jun-16 | 31-Mar-17 | 96 | Transplanting near MTR East Rail Line | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-1010 | Transplanting along Farling Highway | 180 | 180 | 01-Dec-16 | 18-Jul-17 | 11 | Transplanting along Farling Highway | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-1030 | Landscaping Softworks | 150 | 150 | 19-Jul-17 | 16-Jan-18 | 11 | Landscaping Softworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Establishment Works for Landscape Softworks under Section IIIA | | | | | | | 365 | 365 | 12-Aug-18 | 11-Aug-19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4A-1000 | Establishment Works at NBZ1 | 365 | 365 | 12-Aug-18 | 11-Aug-19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Establishment Works for Landscape Softworks under Section III | | | | | | | 365 | 365 | 17-Jan-18 | 16-Jan-19 | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4-1000 | Establishment Works for Remaining Part of Site | 365 | 365 | 17-Jan-18 | 16-Jan-19 | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preservation and Protection of Trees | | | | | | | 0 | 0 | 24-Apr-18 | 24-Apr-18 | 107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-1000 | Substantial Completion of Works | 0 | 0 | 24-Apr-18 | 24-Apr-18 | 107 | ◆ Substantial Completion of Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section VII - All Geotechnical Fieldworks & All Associated Laboratory Tests (KD-6B) | | | | | | | 143 | 149 | 05-Nov-13A | 30-May-14 | 63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Installation of Geotechnical Instruments / Ground Investigation | | | | | | | 108 | 114 | 05-Nov-13A | 14-Apr-14 | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-2000 | Trial Pit - No. A-ATP1 | 7 | 7 | 05-Nov-13A | 28-Nov-13 | 205 | Trial Pit - No. A-ATP1; Trial Pit - No. A-ATP1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-2010 | Trial Pit - No. A-ATP2 | 7 | 7 | 05-Nov-13A | 28-Nov-13 | 205 | Trial Pit - No. A-ATP2; Trial Pit - No. A-ATP2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-2020 | Trial Pit - No. A-ATP3 | 7 | 7 | 05-Nov-13A | 28-Nov-13 | 205 | Trial Pit - No. A-ATP3; Trial Pit - No. A-ATP3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-2030 | Trial Pit - No. A-ATP4 | 7 | 7 | 05-Nov-13A | 28-Nov-13 | 205 | Trial Pit - No. A-ATP4; Trial Pit - No. A-ATP4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1000 | Ground Investigation Works - Drithole No. BDH1 | 15 | 15 | 28-Nov-13 | 14-Dec-13 | 93 | Ground Investigation Works - Drithole No. BDH1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1030 | Ground Investigation Works - Drithole No. VDH1 | 15 | 15 | 28-Nov-13 | 14-Dec-13 | 81 | Ground Investigation Works - Drithole No. VDH1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3040 | Installation of Groundwater Instrument at Drithole No. ADH149 | 12 | 12 | 16-Dec-13 | 31-Dec-13 | 93 | Installation of Groundwater Instrument at Drithole No. ADH149 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1040 | Ground Investigation Works - Drithole No. VDH2 | 15 | 15 | 16-Dec-13 | 04-Jan-14 | 81 | Ground Investigation Works - Drithole No. VDH2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3000 | Installation of Groundwater Instrument at Drithole No. ADH3 | 12 | 12 | 02-Jan-14 | 15-Jan-14 | 93 | Installation of Groundwater Instrument at Drithole No. ADH3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1080 | Ground Investigation Works - Drithole No. VDH6 | 15 | 15 | 06-Jan-14 | 22-Jan-14 | 81 | Ground Investigation Works - Drithole No. VDH6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3010 | Installation of Groundwater Instrument at Drithole No. ADH4 | 12 | 12 | 16-Jan-14 | 29-Jan-14 | 93 | Installation of Groundwater Instrument at Drithole No. ADH4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1050 | Ground Investigation Works - Drithole No. VDH3 | 15 | 15 | 23-Jan-14 | 15-Feb-14 | 81 | Ground Investigation Works - Drithole No. VDH3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3030 | Installation of Groundwater Instrument at Drithole No. ADH7 | 12 | 12 | 27-Jan-14 | 15-Feb-14 | 84 | Installation of Groundwater Instrument at Drithole No. ADH7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1010 | Ground Investigation Works - Drithole No. BDH2 | 15 | 15 | 27-Jan-14 | 19-Feb-14 | 63 | Ground Investigation Works - Drithole No. BDH2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3020 | Installation of Groundwater Instrument at Drithole No. ADH5 | 12 | 12 | 30-Jan-14 | 19-Feb-14 | 93 | Installation of Groundwater Instrument at Drithole No. ADH5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-3050 | Installation of Groundwater Instrument at Drithole No. RND/A2 | 12 | 12 | 17-Feb-14 | 01-Mar-14 | 84 | Installation of Groundwater Instrument at Drithole No. RND/A2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1100 | Ground Investigation Works - Drithole No. VDH8 | 15 | 15 | 17-Feb-14 | 05-Mar-14 | 81 | Ground Investigation Works - Drithole No. VDH8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1020 | Ground Investigation Works - Drithole No. BDH3 | 15 | 15 | 20-Feb-14 | 08-Mar-14 | 63 | Ground Investigation Works - Drithole No. BDH3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1070 | Ground Investigation Works - Drithole No. VDH5 | 15 | 15 | 20-Feb-14 | 08-Mar-14 | 93 | Ground Investigation Works - Drithole No. VDH5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1120 | Ground Investigation Works - Drithole No. VDH10 | 15 | 15 | 03-Mar-14 | 19-Mar-14 | 84 | Ground Investigation Works - Drithole No. VDH10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1130 | Ground Investigation Works - Drithole No. VDH11 | 15 | 15 | 04-Mar-14 | 20-Mar-14 | 118 | Ground Investigation Works - Drithole No. VDH11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1060 | Ground Investigation Works - Drithole No. VDH4 | 15 | 15 | 06-Mar-14 | 22-Mar-14 | 81 | Ground Investigation Works - Drithole No. VDH4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1090 | Ground Investigation Works - Drithole No. VDH7 | 15 | 15 | 10-Mar-14 | 26-Mar-14 | 63 | Ground Investigation Works - Drithole No. VDH7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-1110 | Ground Investigation Works - Drithole No. VDH9 | 15 | 15 | 27-Mar-14 | 14-Apr-14 | 63 | Ground Investigation Works - Drithole No. VDH9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Submission of Laboratory Tests | | | | | | | 128 | 128 | 16-Dec-13 | 30-May-14 | 63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-5000 | Testing & Submission of Laboratory Test Report (Drithole No. BDH1) | 35 | 35 | 16-Dec-13 | 28-Jan-14 | 156 | Testing & Submission of Laboratory Test Report (Drithole No. BDH1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-5030 | Testing & Submission of Laboratory Test Report (Drithole No. VDH1) | 35 | 35 | 16-Dec-13 | 28-Jan-14 | 156 | Testing & Submission of Laboratory Test Report (Drithole No. VDH1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-5040 | Testing & Submission of Laboratory Test Report (Drithole No. VDH2) | 35 | 35 | 06-Jan-14 | 21-Feb-14 | 141 | Testing & Submission of Laboratory Test Report (Drithole No. VDH2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Contract 5

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | | | | | |
|----|--------|--|-----------|------------|------------|------------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | | | | |
| 1 | 1 | Key Dates | 1110 days | 28/3/2013 | 10/4/2016 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 2 | 1.1 | Contract Award & Commencement | 15 days | 28/3/2013 | 11/4/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 3 | 1.1.1 | Letter of Acceptance | 0 days | 28/3/2013 | 28/3/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 4 | 1.1.2 | Commencement of Works | 0 days | 11/4/2013 | 11/4/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 5 | 1.2 | Site Possession Date | 330 days | 11/4/2013 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 6 | 1.2.1 | Portion BCP 1 | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 7 | 1.2.2 | Portion BCP 2 | 0 days | 10/6/2013 | 10/6/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 8 | 1.2.3 | Portion BCP 3 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 9 | 1.2.4 | Portion BCP 4 | 0 days | 7/3/2014 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 10 | 1.2.5 | Portion BCP 5 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 11 | 1.2.6 | Portion BCP 6 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 12 | 1.2.7 | Portion BCP 7 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 13 | 1.2.8 | Portion CR 2 | 0 days | 7/12/2013 | 7/12/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 14 | 1.2.9 | Portion CR 40 | 0 days | 7/3/2014 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 15 | 1.2.10 | Portion CR 41 | 0 days | 7/3/2014 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 16 | 1.2.11 | Portion CR 42 | 0 days | 7/3/2014 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 17 | 1.2.12 | Portion CR 44 | 0 days | 5/2/2014 | 5/2/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 18 | 1.2.13 | Area LMH 0 | 0 days | 11/4/2013 | 11/4/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 19 | 1.2.14 | Area LMH 1 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 20 | 1.2.15 | Area LMH 2 | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 21 | 1.2.16 | Area LMH 3 | 0 days | 7/3/2014 | 7/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 22 | 1.2.17 | Area LMH 4 | 0 days | 8/9/2013 | 8/9/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 23 | 1.2.18 | Area LMH 5 | 0 days | 8/10/2013 | 8/10/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 24 | 1.2.19 | Area RS 1 | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 25 | 1.2.20 | Area RS 2 (Omitted) | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 26 | 1.2.21 | Area RS 3 | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 27 | 1.2.22 | Area RS 4 | 0 days | 11/5/2013 | 11/5/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 28 | 1.3 | Section Completion Date | 976 days | 8/8/2013 | 10/4/2016 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 29 | 1.3.1 | KD-1 Section I of the Works - G.I. field works | 0 days | 4/2/2014 | 4/2/2014 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 30 | 1.3.2 | KD-2 Section II of the Works - All laboratory tests for Section I | 0 days | 6/3/2014 | 6/3/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 31 | 1.3.3 | KD-3 Section III of the Works - Site formation works for portion RS1, RS2 & RS3 | 0 days | 8/8/2013 | 8/8/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 32 | 1.3.4 | KD-4 Section IV of the Works - Village house within portion RS4 | 0 days | 5/1/2014 | 5/1/2014 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 33 | 1.3.5 | KD-5 Section V of the Works - All works within portion RS4 exclude Section IV | 0 days | 5/1/2014 | 5/1/2014 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 34 | 1.3.6 | KD-7 Section VII of the Works - All works within Area CRD | 0 days | 15/5/2014 | 15/5/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 35 | 1.3.7 | KD-8 Section VIII of the Works - All works within Area BCPA | 0 days | 12/10/2014 | 12/10/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 36 | 1.3.8 | KD-8 Section IX of the Works - All works within Area BCPB | 0 days | 11/4/2015 | 11/4/2015 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 37 | 1.3.9 | KD-10 Section X of the Works - All works within Area BCPC | 0 days | 4/6/2014 | 4/6/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 38 | 1.3.10 | KD-11 Section XI of the Works - All works within Area BCPD | 0 days | 11/4/2015 | 11/4/2015 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 39 | 1.3.11 | KD-12 Section XII of the Works - All works within Area LMH | 0 days | 1/12/2014 | 1/12/2014 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 40 | 1.3.12 | KD-13 Section XIII of the Works - Works not covered in any other Sections | 0 days | 11/4/2015 | 11/4/2015 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 41 | 1.3.13 | KD-14 Section XIV of the Works - Trees preservation and protection | 0 days | 11/4/2015 | 11/4/2015 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 42 | 1.3.14 | KD-15 Section XV of the Works - Landscape soft works | 0 days | 11/4/2015 | 11/4/2015 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 43 | 1.3.15 | KD-16 Section XVI of the Works - Establishment works for landscape soft works | 0 days | 10/4/2016 | 10/4/2016 | 0% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 44 | 1.4 | Stage Completion Date | 60 days | 8/8/2013 | 7/10/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 45 | 1.4.1 | KD-17 Stage I of the Works - Temporary vehicular bridge J and temporary Lin Ma Hang Road | 0 days | 7/10/2013 | 7/10/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 46 | 1.4.2 | KD-18 Stage II of the Works - Temporary ArchSD Depot | 0 days | 8/8/2013 | 8/8/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 47 | 2 | Preliminaries and Statuary / Contractual Submissions | 424 days | 11/4/2013 | 9/6/2014 | 83% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 48 | 2.1 | Site Establishment | 399 days | 11/4/2013 | 15/5/2014 | 78% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 49 | 2.1.1 | Take over of the Engineer Accommodation | 0 days | 11/4/2013 | 11/4/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 50 | 2.1.3 | Initial Survey | 399 days | 12/4/2013 | 15/5/2014 | 71% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |
| 51 | 2.1.5 | Setup and Management of TMLG | 60 days | 12/4/2013 | 10/6/2013 | 100% | [Gantt bar from Jan to Aug] | | | | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | 3rd Quarter Aug |
|-----|---------|--|------------------|------------------|------------------|-------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | | | 1st Quarter Jan | 2nd Quarter May | 3rd Quarter Jul | |
| 52 | 2.1.6 | Setup and Management of ULG | 60 days | 12/4/2013 | 10/6/2013 | 100% | | | | |
| 53 | 2.2 | Applications to Government Department | 89 days | 12/4/2013 | 9/7/2013 | 100% | | | | |
| 54 | 2.2.1 | Application of excavation permit | 89 days | 12/4/2013 | 9/7/2013 | 100% | | | | |
| 55 | 2.2.2 | Application of Waste water discharge license | 44 days | 12/4/2013 | 25/5/2013 | 100% | | | | |
| 56 | 2.2.3 | Application of chemical waste producer permit | 44 days | 12/4/2013 | 25/5/2013 | 100% | | | | |
| 57 | 2.2.4 | Application of trip ticket system | 44 days | 12/4/2013 | 25/5/2013 | 100% | | | | |
| 58 | 2.3 | Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd | 131 days | 12/4/2013 | 20/8/2013 | 100% | | | | |
| 59 | 2.3.1 | Submission / approval of traffic consultant | 6 days | 12/4/2013 | 17/4/2013 | 100% | | | | |
| 60 | 2.3.2 | Preparation of TTA scheme | 45 days | 18/4/2013 | 1/6/2013 | 100% | | | | |
| 61 | 2.3.3 | Comment & approval of TTA scheme by TD & RMO | 66 days | 2/6/2013 | 6/8/2013 | 100% | | | | |
| 62 | 2.3.4 | Obtain roadwork advice from RMO | 14 days | 7/8/2013 | 20/8/2013 | 100% | | | | |
| 63 | 2.4 | Liaison with Utility Undertakers | 363 days | 12/4/2013 | 9/4/2014 | 80% | | | | |
| 64 | 2.4.1 | Obtain most update utility drawings from various utility undertakers | 29 days | 12/4/2013 | 10/5/2013 | 100% | | | | |
| 65 | 2.4.2 | Liaise with various utility undertakers | 363 days | 12/4/2013 | 9/4/2014 | 79% | | | | |
| 66 | 2.5 | Environmental Baseline & Impact Monitoring | 132 days | 11/4/2013 | 21/8/2013 | 100% | | | | |
| 67 | 2.5.1 | Obtain Environmental Permit (EP) -- EP-404/2011 | 0 days | 11/4/2013 | 11/4/2013 | 100% | | | | |
| 68 | 2.5.2 | Appointment of ET | 0 days | 11/4/2013 | 11/4/2013 | 100% | | | | |
| 69 | 2.5.3 | Approval of ET from EPD | 6 days | 13/4/2013 | 18/4/2013 | 100% | | | | |
| 70 | 2.5.4 | Preparation of method statement for baseline monitoring by ET | 20 days | 19/4/2013 | 8/5/2013 | 100% | | | | |
| 71 | 2.5.5 | Submission of relevant management plans & reports by Others | 35 days | 12/4/2013 | 16/5/2013 | 100% | | | | |
| 72 | 2.5.6 | Certify the method statement, management plans & reports by ET | 15 days | 17/5/2013 | 31/5/2013 | 100% | | | | |
| 73 | 2.5.7 | Verify the EM&A manual, management plans & reports by IEC | 20 days | 22/5/2013 | 10/6/2013 | 100% | | | | |
| 74 | 2.5.8 | Management plans & reports submitted to EPD three month before commencement of Construction works | 97 days | 17/5/2013 | 21/8/2013 | 100% | | | | |
| 75 | 2.5.9 | Carry out the baseline monitoring and preparation of report | 35 days | 11/6/2013 | 15/7/2013 | 100% | | | | |
| 76 | 2.5.10 | Baseline monitoring report submitted to EPD one month before commencement of Construction works | 36 days | 16/7/2013 | 20/8/2013 | 100% | | | | |
| 77 | 2.6 | General Site Clearance | 424 days | 12/4/2013 | 9/6/2014 | 67% | | | | |
| 78 | 3 | Stage of the Works | 180 days | 11/4/2013 | 7/10/2013 | 100% | | | | |
| 79 | 3.1 | Stage I of the Works - Temporary vehicular bridge B and temporary Lin Ma Hang Road | 179 days | 12/4/2013 | 7/10/2013 | 100% | | | | |
| 80 | 3.1.1 | Submissions | 69 days | 12/4/2013 | 19/6/2013 | 100% | | | | |
| 81 | 3.1.2 | Approval of Submissions | 69 days | 14/6/2013 | 21/8/2013 | 100% | | | | |
| 82 | 3.1.3 | Construction of temporary vehicular bridge "B" | 47 days | 22/8/2013 | 7/10/2013 | 100% | | | | |
| 83 | 3.1.3.1 | Preparation of UBs | 9 days | 22/8/2013 | 30/8/2013 | 100% | | | | |
| 84 | 3.1.3.2 | Construct concrete footings | 24 days | 24/8/2013 | 16/9/2013 | 100% | | | | |
| 85 | 3.1.3.3 | construct main beam for bridge | 17 days | 17/9/2013 | 3/10/2013 | 100% | | | | |
| 86 | 3.1.3.4 | backfill with general fill adjacent to pile caps to form access roads | 4 days | 4/10/2013 | 7/10/2013 | 100% | | | | |
| 87 | 3.1.4 | Construction of temporary Lin Ma Hang Road | 47 days | 22/8/2013 | 7/10/2013 | 100% | | | | |
| 88 | 3.1.4.1 | Section 1 : chainage 100 - 730 | 47 days | 22/8/2013 | 7/10/2013 | 100% | | | | |
| 89 | 3.1.4.2 | Section 2 : Chuk Yuen Tsuen (South) Sewage Pumping Station to Existing Lin Ma Hang Road Bridge | 47 days | 22/8/2013 | 7/10/2013 | 100% | | | | |
| 90 | 3.2 | Stage II of the Works - Temporary ArchSD Depot (LMH2) | 78 days | 11/4/2013 | 27/6/2013 | 100% | | | | |
| 91 | 3.2.1 | Liaison with ArchSD | 49 days | 11/4/2013 | 29/5/2013 | 100% | | | | |
| 92 | 3.2.2 | Construction of Temporary ArchSD Depot | 29 days | 30/5/2013 | 27/6/2013 | 100% | | | | |
| 93 | 3.2.3 | Handover of Temporary ArchSD Depot | 0 days | 27/6/2013 | 27/6/2013 | 100% | | | | |
| 94 | 4 | Section of the Works | 1095 days | 12/4/2013 | 10/4/2016 | 21% | | | | |
| 95 | 4.1 | Section I of the Works - Ground Investigation field works (Drg. 7101A-7111A) | 251 days | 30/5/2013 | 4/2/2014 | 100% | | | | |
| 96 | 4.1.1 | Submit method statement and specialist | 48 days | 30/5/2013 | 16/7/2013 | 100% | | | | |
| 97 | 4.1.2 | Approve method statement and specialist from ER | 45 days | 17/7/2013 | 30/8/2013 | 100% | | | | |
| 98 | 4.1.3 | 56nrs. Inspection pits (IP) & 56nrs. Boreholes (BO) | 154 days | 22/8/2013 | 22/1/2014 | 100% | | | | |
| 99 | 4.1.4 | G.I works including installation of Settlement Plate (SP84 nrs.), Extensometer (EX16 nrs.), Ground Settlement Marker (GSM18nrs.) | 167 days | 22/8/2013 | 4/2/2014 | 100% | | | | |
| 100 | 4.2 | Section II of the Works - All laboratory tests for Section I | 188 days | 31/8/2013 | 6/3/2014 | 70% | | | | |
| 101 | 4.2.1 | Propose laboratory | 45 days | 31/8/2013 | 14/10/2013 | 100% | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|-------------|---|----------|------------|------------|------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 102 | 4.2.2 | Approve laboratory from ER | 42 days | 15/10/2013 | 25/11/2013 | 100% | | | | | | | | |
| 103 | 4.2.3 | Laboratory preparation and Carry out laboratory tests | 93 days | 26/11/2013 | 26/2/2014 | 61% | | | | | | | | |
| 104 | 4.2.4 | Preparation of lab report | 90 days | 7/12/2013 | 6/3/2014 | 51% | | | | | | | | |
| 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/J5/1308/00416 dated 23/8/2013) | 89 days | 12/5/2013 | 8/8/2013 | 100% | | | | | | | | |
| 106 | 4.3.1 | General Site Clearance for RS1,RS2, and RS3 | 14 days | 12/5/2013 | 25/5/2013 | 100% | | | | | | | | |
| 107 | 4.3.2 | Submission & approval of method statement | 28 days | 12/5/2013 | 8/6/2013 | 100% | | | | | | | | |
| 108 | 4.3.3 | RS1 - Site formation (1500m3) for re-site and dwarf wall construction (length approx. 84m) | 76 days | 25/5/2013 | 8/8/2013 | 100% | | | | | | | | |
| 109 | 4.3.4 | RS2 - Omitted under VO No.1 | 0 days | 12/5/2013 | 12/5/2013 | 100% | | | | | | | | |
| 110 | 4.3.5 | RS3 - Site formation for re-site and dwarf wall construction (approx. 840m3, wall length app. 135m) | 74 days | 27/5/2013 | 8/8/2013 | 100% | | | | | | | | |
| 111 | 4.4 | Section IV of the Works - Village house within portion RS4 - 8.25m(L) x 7.88m(W) x 10.3m (H) | 269 days | 12/4/2013 | 5/1/2014 | 91% | | | | | | | | |
| 112 | 4.4.1 | Site Instruction from the Engineer | 31 days | 12/4/2013 | 12/5/2013 | 100% | | | | | | | | |
| 113 | 4.4.2 | Submissions / Approval of material | 44 days | 13/5/2013 | 25/6/2013 | 100% | | | | | | | | |
| 114 | 4.4.3 | Foundation (House 1 to 4) | 61 days | 1/6/2013 | 31/7/2013 | 100% | | | | | | | | |
| 115 | 4.4.4 | G/F - Ground beam, slab, wall (House 1 to 4) | 51 days | 20/6/2013 | 9/8/2013 | 100% | | | | | | | | |
| 116 | 4.4.5 | 1/F - Beam, wall, slab (House 1 to 4) | 48 days | 31/7/2013 | 16/9/2013 | 100% | | | | | | | | |
| 117 | 4.4.6 | 2/F - Beam, wall, slab (House 1 to 4) | 53 days | 31/8/2013 | 22/10/2013 | 100% | | | | | | | | |
| 118 | 4.4.7 | R/F - Beam, slab (House 1 to 4) | 23 days | 7/10/2013 | 29/10/2013 | 100% | | | | | | | | |
| 119 | 4.4.8 | SH and Parapet (House 1 to 4) | 24 days | 16/10/2013 | 8/11/2013 | 100% | | | | | | | | |
| 120 | 4.4.9 | Building Services (House 1 to 4) | 75 days | 23/10/2013 | 5/1/2014 | 50% | | | | | | | | |
| 121 | 4.5 | Section V of the Works-All works within portion RS4 exclude Section IV | 269 days | 12/4/2013 | 5/1/2014 | 14% | | | | | | | | |
| 122 | 4.5.1 | Submissions and method statement | 37 days | 12/4/2013 | 18/5/2013 | 100% | | | | | | | | |
| 123 | 4.5.2 | Approvals from ER | 30 days | 26/4/2013 | 25/5/2013 | 100% | | | | | | | | |
| 124 | 4.5.3 | Construction of footbridge and staircase with mini-piles 8 nos. x Ø 273 and staircase (Drq. 2201A to 2207B, 6001B) | 235 days | 16/5/2013 | 5/1/2014 | 0% | | | | | | | | |
| 125 | 4.5.3.1 | Mini-piles | 61 days | 16/5/2013 | 15/7/2013 | 0% | | | | | | | | |
| 126 | 4.5.3.2 | Pile Caps | 52 days | 19/6/2013 | 9/8/2013 | 0% | | | | | | | | |
| 127 | 4.5.3.3 | Abutments | 45 days | 13/7/2013 | 26/8/2013 | 0% | | | | | | | | |
| 128 | 4.5.3.4 | Wing walls | 45 days | 30/7/2013 | 12/9/2013 | 0% | | | | | | | | |
| 129 | 4.5.3.5 | Mass concrete | 41 days | 16/8/2013 | 25/9/2013 | 0% | | | | | | | | |
| 130 | 4.5.3.6 | Remove sheetpiles from abutments | 11 days | 26/9/2013 | 6/10/2013 | 0% | | | | | | | | |
| 131 | 4.5.3.7 | Beams | 45 days | 7/10/2013 | 20/11/2013 | 0% | | | | | | | | |
| 132 | 4.5.3.8 | Deck | 34 days | 21/11/2013 | 24/12/2013 | 0% | | | | | | | | |
| 133 | 4.5.3.9 | Compact fill behind abutments | 14 days | 7/10/2013 | 20/10/2013 | 0% | | | | | | | | |
| 134 | 4.5.3.10 | New footpath | 21 days | 21/10/2013 | 10/11/2013 | 0% | | | | | | | | |
| 135 | 4.5.3.11 | New staircase | 36 days | 11/11/2013 | 16/12/2013 | 0% | | | | | | | | |
| 136 | 4.5.3.12 | Miscellaneous (pedestrian parapet, granite tile etc.) | 20 days | 17/12/2013 | 5/1/2014 | 0% | | | | | | | | |
| 137 | 4.6 | Section VII of the Works - All works within Area CRD | 249 days | 9/9/2013 | 15/5/2014 | 9% | | | | | | | | |
| 138 | 4.6.1 | Submission of pipe jacking | 30 days | 9/9/2013 | 8/10/2013 | 100% | | | | | | | | |
| 139 | 4.6.2 | Approval of submissions of pipe jacking | 31 days | 23/9/2013 | 23/10/2013 | 80% | | | | | | | | |
| 140 | 4.6.3 | Remaining works at other portions within CRD | 120 days | 16/1/2014 | 15/5/2014 | 0% | | | | | | | | |
| 141 | 4.6.3.1 | Chain link fence, Modified CEDD hoarding Type III & Temporary Boundary Fence | 120 days | 16/1/2014 | 15/5/2014 | 0% | | | | | | | | |
| 142 | 4.6.3.1.1 | Temporary Boundary Fence (180m) | 120 days | 16/1/2014 | 15/5/2014 | 0% | | | | | | | | |
| 143 | 4.6.3.1.1.1 | discuss & agree the arrangement with HKPF | 28 days | 16/1/2014 | 12/2/2014 | 0% | | | | | | | | |
| 144 | 4.6.3.1.1.2 | approval of submission XPM Mesh | 25 days | 13/2/2014 | 9/3/2014 | 0% | | | | | | | | |
| 145 | 4.6.3.1.1.3 | place material order for XPM mesh | 8 days | 10/3/2014 | 17/3/2014 | 0% | | | | | | | | |
| 146 | 4.6.3.1.1.4 | arrival of XPM mesh | 25 days | 18/3/2014 | 11/4/2014 | 0% | | | | | | | | |
| 147 | 4.6.3.1.1.5 | footings (after filling of B5, B9) | 19 days | 12/4/2014 | 30/4/2014 | 0% | | | | | | | | |
| 148 | 4.6.3.1.1.6 | fabricate temporary boundary fence & post | 44 days | 18/3/2014 | 30/4/2014 | 0% | | | | | | | | |
| 149 | 4.6.3.1.1.7 | fix temporary boundary fence | 24 days | 22/4/2014 | 15/5/2014 | 0% | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|-------------|--|----------|------------|------------|------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 150 | 4.6.3.1.2 | chain link fence (Drg. 1032B) & modified CEDD hoarding Type III (Drg. 1032B) (after filling of Areas B5,B9) | 62 days | 15/3/2014 | 15/5/2014 | 0% | | | | | | | | |
| 151 | 4.6.3.1.2.1 | modified CEDD hoarding Type III (after RW2, 2137-2090) | 42 days | 15/3/2014 | 25/4/2014 | 0% | | | | | | | | |
| 152 | 4.6.3.1.2.2 | chain link fence (after filling B5,B9) | 20 days | 26/4/2014 | 15/5/2014 | 0% | | | | | | | | |
| 153 | 4.6.4 | 4 nos. of Ø 1650 pipe jacking LV006 works including jacking / receiving pit at BCP3 (approx. 60m in BQ, 25m in Drg. 8401A) | 184 days | 24/10/2013 | 25/4/2014 | 0% | | | | | | | | |
| 154 | 4.6.4.1 | Pits construction | 49 days | 24/10/2013 | 11/12/2013 | 0% | | | | | | | | |
| 155 | 4.6.4.1.1 | utility detection of the area | 2 days | 24/10/2013 | 25/10/2013 | 0% | | | | | | | | |
| 156 | 4.6.4.1.2 | inspection pits for jacking pit and receiving pit | 5 days | 26/10/2013 | 30/10/2013 | 0% | | | | | | | | |
| 157 | 4.6.4.1.3 | temporary work & excavation for jacking pit | 21 days | 31/10/2013 | 20/11/2013 | 0% | | | | | | | | |
| 158 | 4.6.4.1.4 | temporary work & excavation for receiving pit | 21 days | 21/11/2013 | 11/12/2013 | 0% | | | | | | | | |
| 159 | 4.6.4.2 | Jack Sleeve Pipes | 128 days | 21/11/2013 | 28/3/2014 | 0% | | | | | | | | |
| 160 | 4.6.4.2.1 | For jacking the 1st pipe | 32 days | 21/11/2013 | 22/12/2013 | 0% | | | | | | | | |
| 161 | 4.6.4.2.2 | For jacking the 2nd pipe | 32 days | 23/12/2013 | 23/1/2014 | 0% | | | | | | | | |
| 162 | 4.6.4.2.3 | For jacking the 3rd pipe | 34 days | 24/1/2014 | 26/2/2014 | 0% | | | | | | | | |
| 163 | 4.6.4.2.4 | For jacking the 4th pipe | 30 days | 27/2/2014 | 28/3/2014 | 0% | | | | | | | | |
| 164 | 4.6.4.3 | HDPE pipes | 28 days | 29/3/2014 | 25/4/2014 | 0% | | | | | | | | |
| 165 | 4.6.4.3.1 | Lay HDPE pipes | 11 days | 29/3/2014 | 8/4/2014 | 0% | | | | | | | | |
| 166 | 4.6.4.3.2 | Grout HDPE pipes | 9 days | 9/4/2014 | 17/4/2014 | 0% | | | | | | | | |
| 167 | 4.6.4.3.3 | Remove temporary works and backfilling | 8 days | 18/4/2014 | 25/4/2014 | 0% | | | | | | | | |
| 168 | 4.6.5 | 132kV Overhead Terminal Pole Relocation | 90 days | 15/2/2014 | 15/5/2014 | 0% | | | | | | | | |
| 169 | 4.6.5.1 | fill area for terminal pole installation by CLP 132kV | 20 days | 15/2/2014 | 6/3/2014 | 0% | | | | | | | | |
| 170 | 4.6.5.2 | install terminal pole inside & outside site boundary by CLP 132kV | 20 days | 7/3/2014 | 26/3/2014 | 0% | | | | | | | | |
| 171 | 4.6.5.3 | ducts laying under DSD Contract by CLP 132kV | 38 days | 19/3/2014 | 25/4/2014 | 0% | | | | | | | | |
| 172 | 4.6.5.4 | remove existing cable by CLP 132kV | 15 days | 26/4/2014 | 10/5/2014 | 0% | | | | | | | | |
| 173 | 4.6.5.5 | filling for relevant areas | 8 days | 8/5/2014 | 15/5/2014 | 0% | | | | | | | | |
| 174 | 4.7 | Section VIII of the Works - All works within Area BCPA | 489 days | 11/6/2013 | 12/10/2014 | 24% | | | | | | | | |
| 175 | 4.7.1 | Submission for Site Formation Works & import fill | 72 days | 11/6/2013 | 21/8/2013 | 100% | | | | | | | | |
| 176 | 4.7.2 | Approval of submission for Site Formation Works | 50 days | 22/8/2013 | 10/10/2013 | 100% | | | | | | | | |
| 177 | 4.7.3 | Approval for sources of import fill | 69 days | 28/9/2013 | 5/12/2013 | 100% | | | | | | | | |
| 178 | 4.7.4 | Site formation of land (import fill 121433m3) | 263 days | 11/10/2013 | 30/6/2014 | 13% | | | | | | | | |
| 179 | 4.7.4.1 | site formation (A1-A9) | 82 days | 11/10/2013 | 31/12/2013 | 30% | | | | | | | | |
| 180 | 4.7.4.2 | site formation (A10-13, A15-20, A23, A24-A25) | 90 days | 1/1/2014 | 31/3/2014 | 10% | | | | | | | | |
| 181 | 4.7.4.3 | site formation (A14, A22, A26) | 91 days | 1/4/2014 | 30/6/2014 | 0% | | | | | | | | |
| 182 | 4.7.5 | Slope drainage works (Drg. 7156B-7159B) | 284 days | 2/1/2014 | 12/10/2014 | 0% | | | | | | | | |
| 183 | 4.7.5.1 | submission of design of sedimentation tank/pond | 38 days | 2/1/2014 | 8/2/2014 | 0% | | | | | | | | |
| 184 | 4.7.5.2 | approval of design of sedimentation tank/pond | 36 days | 9/2/2014 | 16/3/2014 | 0% | | | | | | | | |
| 185 | 4.7.5.3 | discharge to existing Box Culvert No. 4 & sedimentation tank | 16 days | 17/3/2014 | 1/4/2014 | 0% | | | | | | | | |
| 186 | 4.7.5.4 | DN1050 from CP to sedimentation tank | 73 days | 2/4/2014 | 13/6/2014 | 0% | | | | | | | | |
| 187 | 4.7.5.5 | shortcreted TC (from A3,A2,A1,A5) | 31 days | 31/5/2014 | 30/6/2014 | 0% | | | | | | | | |
| 188 | 4.7.5.6 | shortcreted TC (from A10-13) | 30 days | 1/7/2014 | 30/7/2014 | 0% | | | | | | | | |
| 189 | 4.7.5.7 | shortcreted TC (from A10,A15,A19) | 25 days | 31/7/2014 | 24/8/2014 | 0% | | | | | | | | |
| 190 | 4.7.5.8 | shortcreted TC (from A20-24A26,A14) | 49 days | 25/8/2014 | 12/10/2014 | 0% | | | | | | | | |
| 191 | 4.7.6 | Chain link fence (1120m) | 195 days | 1/4/2014 | 12/10/2014 | 0% | | | | | | | | |
| 192 | 4.7.6.1 | chain link fence (A1-5,A10,A15,A19) | 102 days | 1/4/2014 | 11/7/2014 | 0% | | | | | | | | |
| 193 | 4.7.6.2 | chain link fence (A4,A9,A14,A26,A24) | 58 days | 12/7/2014 | 7/9/2014 | 0% | | | | | | | | |
| 194 | 4.7.6.3 | chain link fence (A21-24) | 35 days | 8/9/2014 | 12/10/2014 | 0% | | | | | | | | |
| 195 | 4.8 | Section IX of the Works - All works within Area BCPB | 492 days | 6/12/2013 | 11/4/2015 | 5% | | | | | | | | |
| 196 | 4.8.1 | Submission for demolition of existing building structures | 37 days | 20/12/2013 | 25/1/2014 | 89% | | | | | | | | |
| 197 | 4.8.2 | Approval of submission for demolish existing building structures | 41 days | 26/1/2014 | 7/3/2014 | 0% | | | | | | | | |
| 198 | 4.8.3 | Demolition of existing building structures UPON instruction (Drg. 6152A, 6153A) | 118 days | 8/3/2014 | 3/7/2014 | 0% | | | | | | | | |
| 199 | 4.8.4 | Site formation works (import fill 370523m3) | 492 days | 6/12/2013 | 11/4/2015 | 2% | | | | | | | | |
| 200 | 4.8.4.1 | site formation works (B20) | 28 days | 6/12/2013 | 2/1/2014 | 0% | | | | | | | | |
| 201 | 4.8.4.2 | site formation works (B1,3,6,9,21,22) | 89 days | 3/1/2014 | 1/4/2014 | 10% | | | | | | | | |
| 202 | 4.8.4.3 | site formation works (B2,5) | 92 days | 2/4/2014 | 2/7/2014 | 0% | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|------------|--|-----------------|-------------------|------------------|------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 203 | 4.8.4.4 | site formation works (B7,11,12) | 93 days | 3/7/2014 | 3/10/2014 | 0% | | | | | | | | |
| 204 | 4.8.4.5 | site formation works (4,8,10,13,14,16,17) | 91 days | 4/10/2014 | 2/1/2015 | 0% | | | | | | | | |
| 205 | 4.8.4.6 | site formation works (B15,18,19) | 99 days | 3/1/2015 | 11/4/2015 | 0% | | | | | | | | |
| 206 | 4.8.5 | Temp. boundary fence, chain link fence (Drg.1002C, 1032B, 1033B) | 320 days | 27/5/2014 | 11/4/2015 | 0% | | | | | | | | |
| 207 | 4.8.5.1 | chain link fence (780m) | 99 days | 3/1/2015 | 11/4/2015 | 0% | | | | | | | | |
| 208 | 4.8.5.2 | fabricate temporary boundary fence & post | 37 days | 27/5/2014 | 2/7/2014 | 0% | | | | | | | | |
| 209 | 4.8.5.3 | fix temporary boundary fence (105m) | 35 days | 3/7/2014 | 6/8/2014 | 0% | | | | | | | | |
| 210 | 4.9 | Section X of the Works - All works within Area BCP | 269 days | 9/9/2013 | 4/6/2014 | 9% | | | | | | | | |
| 211 | 4.9.1 | Submission for retaining wall no. 2 | 12 days | 9/9/2013 | 20/9/2013 | 100% | | | | | | | | |
| 212 | 4.9.2 | Approval of Submission for retaining wall no. 2 | 25 days | 21/9/2013 | 15/10/2013 | 100% | | | | | | | | |
| 213 | 4.9.3 | Construction of retaining wall RW2-CH840-1025 (length 185m) | 150 days | 16/10/2013 | 14/3/2014 | 0% | | | | | | | | |
| 214 | 4.9.3.1 | Phase 1A - Bay 2137-2110 (28 bays) | 150 days | 16/10/2013 | 14/3/2014 | 0% | | | | | | | | |
| 215 | 4.9.3.1.1 | excavation / sheetpile | 35 days | 16/10/2013 | 19/11/2013 | 0% | | | | | | | | |
| 216 | 4.9.3.1.2 | grade 200 rock fill | 28 days | 25/10/2013 | 21/11/2013 | 0% | | | | | | | | |
| 217 | 4.9.3.1.3 | blinding layer | 25 days | 30/10/2013 | 23/11/2013 | 0% | | | | | | | | |
| 218 | 4.9.3.1.4 | bases | 83 days | 4/11/2013 | 25/1/2014 | 0% | | | | | | | | |
| 219 | 4.9.3.1.5 | walls | 120 days | 15/11/2013 | 14/3/2014 | 0% | | | | | | | | |
| 220 | 4.9.4 | Site Formation works (import fill 24936m ³)(C1-C8) | 92 days | 2/1/2014 | 3/4/2014 | 10% | | | | | | | | |
| 221 | 4.9.5 | Drainage Works & Irrigation System (Drg.1305C, 1975B) | 62 days | 4/4/2014 | 4/6/2014 | 0% | | | | | | | | |
| 222 | 4.9.5.1 | drainage for CP26 (SMH9962-CP26) | 20 days | 4/4/2014 | 23/4/2014 | 0% | | | | | | | | |
| 223 | 4.9.5.2 | drainage for CP24 (SMH9924 to CP24) | 16 days | 8/4/2014 | 23/4/2014 | 0% | | | | | | | | |
| 224 | 4.9.5.3 | drainage for CP23 (SMH9923 to CP23) | 13 days | 24/4/2014 | 6/5/2014 | 0% | | | | | | | | |
| 225 | 4.9.5.4 | irrigation system in Area BCP | 58 days | 8/4/2014 | 4/6/2014 | 0% | | | | | | | | |
| 226 | 4.10 | Section XI of the Works - All works within Area BCPD | 598 days | 22/8/2013 | 11/4/2015 | 2% | | | | | | | | |
| 227 | 4.10.1 | Submissions | 23 days | 22/8/2013 | 13/9/2013 | 100% | | | | | | | | |
| 228 | 4.10.2 | Approval of Submissions | 37 days | 14/9/2013 | 20/10/2013 | 100% | | | | | | | | |
| 229 | 4.10.3 | Construction of retaining wall RW2 - CH0 to 840 (length 840m) | 281 days | 21/10/2013 | 28/7/2014 | 0% | | | | | | | | |
| 230 | 4.10.3.1 | Phase 1 - Bay 2001-2036 (36 bays) | 281 days | 21/10/2013 | 28/7/2014 | 0% | | | | | | | | |
| 231 | 4.10.3.1.1 | excavation / sheetpile | 41 days | 21/10/2013 | 30/11/2013 | 0% | | | | | | | | |
| 232 | 4.10.3.1.2 | grade 200 rock fill | 35 days | 30/10/2013 | 3/12/2013 | 0% | | | | | | | | |
| 233 | 4.10.3.1.3 | blinding layer | 32 days | 4/11/2013 | 5/12/2013 | 0% | | | | | | | | |
| 234 | 4.10.3.1.4 | Bay 2001 to Bay 2036 | 263 days | 8/11/2013 | 28/7/2014 | 0% | | | | | | | | |
| 235 | 4.10.3.2 | Phase 2 - Bay 2037-2072 (36 bays) | 281 days | 21/10/2013 | 28/7/2014 | 0% | | | | | | | | |
| 236 | 4.10.3.2.1 | excavation / sheetpile | 41 days | 21/10/2013 | 30/11/2013 | 0% | | | | | | | | |
| 237 | 4.10.3.2.2 | grade 200 rock fill | 35 days | 30/10/2013 | 3/12/2013 | 0% | | | | | | | | |
| 238 | 4.10.3.2.3 | blinding layer | 32 days | 4/11/2013 | 5/12/2013 | 0% | | | | | | | | |
| 239 | 4.10.3.2.4 | Bay 2037 to Bay 2072 | 263 days | 8/11/2013 | 28/7/2014 | 0% | | | | | | | | |
| 240 | 4.10.3.3 | Phase 3 - Bay 2073-2109 (37 bays) | 281 days | 21/10/2013 | 28/7/2014 | 0% | | | | | | | | |
| 241 | 4.10.3.3.1 | excavation / sheetpile | 43 days | 21/10/2013 | 2/12/2013 | 0% | | | | | | | | |
| 242 | 4.10.3.3.2 | grade 200 rock fill | 35 days | 30/10/2013 | 3/12/2013 | 0% | | | | | | | | |
| 243 | 4.10.3.3.3 | blinding layer | 32 days | 4/11/2013 | 5/12/2013 | 0% | | | | | | | | |
| 244 | 4.10.3.3.4 | Bay 2109 to Bay 2109 | 263 days | 8/11/2013 | 28/7/2014 | 0% | | | | | | | | |
| 245 | 4.10.4 | Boundary fence (Drg.1002C, 1003A) | 267 days | 12/4/2014 | 3/1/2015 | 0% | | | | | | | | |
| 246 | 4.10.4.1 | fabricate boundary fence including Section XII | 108 days | 12/4/2014 | 28/7/2014 | 0% | | | | | | | | |
| 247 | 4.10.4.2 | fix boundary fence (after RW2) | 156 days | 29/7/2014 | 31/12/2014 | 0% | | | | | | | | |
| 248 | 4.10.4.3 | fix boundary fence (after Bridge J & subway) | 67 days | 12/7/2014 | 16/9/2014 | 0% | | | | | | | | |
| 249 | 4.10.4.4 | fix boundary fence (after RW1 & 1A) | 109 days | 17/9/2014 | 3/1/2015 | 0% | | | | | | | | |
| 250 | 4.10.5 | Modified CEDD hoarding Type III (Drg. 1032B) | 176 days | 18/10/2014 | 11/4/2015 | 0% | | | | | | | | |
| 251 | 4.10.5.1 | hoarding (after RW2) | 101 days | 1/1/2015 | 11/4/2015 | 0% | | | | | | | | |
| 252 | 4.10.5.2 | hoarding (after Bridge J & subway) | 75 days | 18/10/2014 | 31/12/2014 | 0% | | | | | | | | |
| 253 | 4.10.5.3 | hoarding (after RW1 & 1A) | 98 days | 4/1/2015 | 11/4/2015 | 0% | | | | | | | | |
| 254 | 4.10.6 | Site Formation works (import fill 104958m ³) including slope drainage works (Drg. 7155B-7159B) | 423 days | 7/1/2014 | 5/3/2015 | 2% | | | | | | | | |
| 255 | 4.10.6.1 | D1-D2 | 84 days | 7/1/2014 | 31/3/2014 | 10% | | | | | | | | |
| 256 | 4.10.6.2 | D3, D10, D11, D17, D12- D14 | 95 days | 27/5/2014 | 29/8/2014 | 0% | | | | | | | | |
| 257 | 4.10.6.3 | D4, D15, D16 | 94 days | 30/8/2014 | 1/12/2014 | 0% | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | |
|-----|-----------|--|-----------------|-------------------|------------------|------------|---------------------------|---|---------------------------|
| | | | | | | | 1st Quarter Jan Feb | 2nd Quarter Mar Apr May Jun | 3rd Quarter Jul Aug |
| 258 | 4.10.6.4 | D5-D9 | 94 days | 2/12/2014 | 5/3/2015 | 0% | | | |
| 259 | 4.10.7 | Sewerage, Drainage & Water Works (Drg. 1323B,1305C,1309A) | 368 days | 21/10/2013 | 23/10/2014 | 0% | | | |
| 260 | 4.10.7.1 | Sequence 1a - Sewer for FMH511 to Box Culvert No. 3 (DN300) | 82 days | 21/10/2013 | 10/1/2014 | 0% | | | |
| 261 | 4.10.7.2 | Sequence 1b - Sewer for FMH515 to temp cap after FMH520 (DN300) | 26 days | 11/1/2014 | 5/2/2014 | 0% | | | |
| 262 | 4.10.7.3 | Sequence 1c - Sewer for temp. cap to connect from BCP (DN300) | 25 days | 6/2/2014 | 2/3/2014 | 0% | | | |
| 263 | 4.10.7.4 | Sequence 1d - Rising main CHC799.644-650m (2xDN100DI) | 36 days | 3/3/2014 | 7/4/2014 | 0% | | | |
| 264 | 4.10.7.5 | Sequence 1e - Pipe laying for SMH9930, 9929 to 9922 (DN300-525) | 91 days | 7/5/2014 | 5/8/2014 | 0% | | | |
| 265 | 4.10.7.6 | Sequence 1aa -Drainage for SMH9937 to 9961 (DN300,450,900) | 87 days | 11/1/2014 | 7/4/2014 | 0% | | | |
| 266 | 4.10.7.7 | Sequence 1-1 Pipe laying for CP25 to SMH9702, 9702A, 9651 to Pump Room | 127 days | 21/10/2013 | 24/2/2014 | 0% | | | |
| 267 | 4.10.7.8 | Sequence 1-2 Rising main CHA 0-157.882 (DN400) | 137 days | 15/11/2013 | 31/3/2014 | 0% | | | |
| 268 | 4.10.7.9 | Sequence 2-1a Watermain CHL229-283(DN250) | 25 days | 8/4/2014 | 2/5/2014 | 0% | | | |
| 269 | 4.10.7.10 | Sequence 2-1b Watermain CHL150-229(DN250) | 37 days | 3/5/2014 | 8/6/2014 | 0% | | | |
| 270 | 4.10.7.11 | Sequence 2-2 Pipe laying for SMH9937 to 9930 (DN525,750,900) | 58 days | 9/6/2014 | 5/8/2014 | 0% | | | |
| 271 | 4.10.7.12 | Sequence 2-3 Drainage for SMH9941, 9952 to 9942 (DN300, 525) | 28 days | 6/8/2014 | 2/9/2014 | 0% | | | |
| 272 | 4.10.7.13 | Sequence 2-3 Pipe laying for SMH9931 to 9942 (DN450) | 20 days | 3/9/2014 | 22/9/2014 | 0% | | | |
| 273 | 4.10.7.14 | Sequence 2-4 Watermain CHL283-335.749(DN250) | 31 days | 23/9/2014 | 23/10/2014 | 0% | | | |
| 274 | 4.10.8 | Irrigation system (sequence 3)(see Appendix C) adjacent to underpass & depressed road | 44 days | 29/8/2014 | 11/10/2014 | 0% | | | |
| 275 | 4.10.9 | Irrigation system (sequence 4) (see Appendix C) next to BCPC | 44 days | 29/8/2014 | 11/10/2014 | 0% | | | |
| 276 | 4.10.10 | Utilities works (Drg. 1405A) (see Appendix A) | 369 days | 18/12/2013 | 21/12/2014 | 0% | | | |
| 277 | 4.10.10.1 | Sequence 1 - allow ducts for 11kV & LV across the underpass | 13 days | 18/12/2013 | 30/12/2013 | 0% | | | |
| 278 | 4.10.10.2 | Sequence 5a - 132kV | 12 days | 12/10/2014 | 23/10/2014 | 0% | | | |
| 279 | 4.10.10.3 | Sequence 5b - 11kV | 24 days | 24/10/2014 | 16/11/2014 | 0% | | | |
| 280 | 4.10.10.4 | Sequence 5c - LV | 23 days | 17/11/2014 | 9/12/2014 | 0% | | | |
| 281 | 4.10.10.5 | Sequence 5d - PCCW | 12 days | 10/12/2014 | 21/12/2014 | 0% | | | |
| 282 | 4.10.11 | Road works and Road lighting works (Drg.1205A,1505C,1605B) | 111 days | 22/12/2014 | 11/4/2015 | 0% | | | |
| 283 | 4.10.12 | Construction of depressed road & underpass-9.3m wide x168m long | 241 days | 31/12/2013 | 28/8/2014 | 0% | | | |
| 284 | 4.10.12.1 | Bay 16015-16012 | 54 days | 31/12/2013 | 22/2/2014 | 0% | | | |
| 285 | 4.10.12.2 | Bay 16011-16008 | 50 days | 23/2/2014 | 13/4/2014 | 0% | | | |
| 286 | 4.10.12.3 | Bay 16007-16004 | 52 days | 14/4/2014 | 4/6/2014 | 0% | | | |
| 287 | 4.10.12.4 | Bay 16003-16001 | 50 days | 5/6/2014 | 24/7/2014 | 0% | | | |
| 288 | 4.10.12.5 | miscellaneous works | 85 days | 5/6/2014 | 28/8/2014 | 0% | | | |
| 289 | 4.11 | Section XII of the Works - All works within Area LMH | 467 days | 22/8/2013 | 1/12/2014 | 22% | | | |
| 290 | 4.11.1 | Submissions for method statement of subway & staircase | 70 days | 22/8/2013 | 30/10/2013 | 100% | | | |
| 291 | 4.11.2 | Approval of Submissions for method statement of subway & staircase | 68 days | 30/8/2013 | 5/11/2013 | 100% | | | |
| 292 | 4.11.3 | Construction of retaining wall RW1 - CH0 to 561.053m | 213 days | 26/9/2013 | 26/4/2014 | 69% | | | |
| 293 | 4.11.3.1 | Bay 1075 to Bay 1068 (8 bays) -H1 | 77 days | 26/9/2013 | 11/12/2013 | 100% | | | |
| 294 | 4.11.3.2 | Bay 1067 to Bay 1060 (8 bays) -H2 | 77 days | 8/10/2013 | 23/12/2013 | 100% | | | |
| 295 | 4.11.3.3 | Bay 1059 to Bay 1052 (8 bays) - H3 | 93 days | 15/11/2013 | 15/2/2014 | 100% | | | |
| 296 | 4.11.3.4 | Bay 1051 to Bay 1044 (8 bays) -H4 | 80 days | 29/11/2013 | 16/2/2014 | 100% | | | |
| 297 | 4.11.3.5 | Bay 1043 to Bay 1036 (8 bays) - H5 | 79 days | 13/12/2013 | 1/3/2014 | 80% | | | |
| 298 | 4.11.3.6 | Bay 1035 to Bay 1028 (8 bays) -H5,H6 | 83 days | 17/1/2014 | 9/4/2014 | 68% | | | |
| 299 | 4.11.3.7 | Bay 1027 to Bay 1020 (8 bays) -H6 | 79 days | 16/12/2013 | 4/3/2014 | 60% | | | |
| 300 | 4.11.3.8 | Bay 1019 to Bay 1012 (8 bays) -H7 | 105 days | 28/12/2013 | 11/4/2014 | 50% | | | |
| 301 | 4.11.3.9 | Bay 1011 to Bay 1004 (8 bays) H7,H8 | 87 days | 30/12/2013 | 26/3/2014 | 0% | | | |
| 302 | 4.11.3.10 | Bay 1003 to Bay 1001 (3 bays) - H8 | 31 days | 27/3/2014 | 26/4/2014 | 0% | | | |
| 303 | 4.11.4 | Construction of retaining wall RW1A-CH561.053 to 612.457m (length approx.. 51.4m) | 368 days | 11/9/2013 | 13/9/2014 | 45% | | | |
| 304 | 4.11.4.1 | Bay 1076 to Bay 1078 (base & wall) | 49 days | 11/9/2013 | 29/10/2013 | 100% | | | |
| 305 | 4.11.4.2 | Bay 1079 to Bay 1082 (after divert existing Rd i.e. after Staircase & Lift Shaft) | 60 days | 16/7/2014 | 13/9/2014 | 0% | | | |
| 306 | 4.11.5 | Filling & Slope drainage behind RW1A (involve TTA) | 79 days | 14/9/2014 | 1/12/2014 | 0% | | | |
| 307 | 4.11.6 | Site formation works (import fill 15300m3) including slope drainage works (Drg. 7154B, 7159B) (see Appendix B) | 294 days | 24/12/2013 | 13/10/2014 | 0% | | | |
| 308 | 4.11.6.1 | site formation (H1-H8) & slope drainage works | 157 days | 24/12/2013 | 29/5/2014 | 0% | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|--------------|---|----------|------------|------------|------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 309 | 4.11.6.1.1 | fill H1 | 36 days | 24/4/2014 | 29/5/2014 | 0% | | | | | | | | |
| 310 | 4.11.6.1.2 | fill H2 | 20 days | 24/12/2013 | 12/1/2014 | 0% | | | | | | | | |
| 311 | 4.11.6.1.3 | fill H3 | 17 days | 17/2/2014 | 5/3/2014 | 0% | | | | | | | | |
| 312 | 4.11.6.1.4 | fill H4 | 17 days | 17/2/2014 | 5/3/2014 | 0% | | | | | | | | |
| 313 | 4.11.6.1.5 | fill H5 | 18 days | 10/4/2014 | 27/4/2014 | 0% | | | | | | | | |
| 314 | 4.11.6.1.6 | fill H6 | 19 days | 16/4/2014 | 4/5/2014 | 0% | | | | | | | | |
| 315 | 4.11.6.1.7 | fill H7 | 18 days | 12/4/2014 | 29/4/2014 | 0% | | | | | | | | |
| 316 | 4.11.6.1.8 | fill H8 | 19 days | 27/3/2014 | 14/4/2014 | 0% | | | | | | | | |
| 317 | 4.11.6.2 | Remove existing Lin Ma Hang Road | 13 days | 1/10/2014 | 13/10/2014 | 0% | | | | | | | | |
| 318 | 4.11.6.3 | Fill H9 & B15 for slope | 21 days | 23/9/2014 | 13/10/2014 | 0% | | | | | | | | |
| 319 | 4.11.7 | Boundary fence & chain link fence on top of slope | 49 days | 14/10/2014 | 1/12/2014 | 0% | | | | | | | | |
| 320 | 4.11.8 | Drainage works at Lin Ma Hang Road (Drg. 1304B, 1306A, 1307A, 1309A) (see Appendix B) | 244 days | 6/11/2013 | 7/7/2014 | 0% | | | | | | | | |
| 321 | 4.11.8.1 | H1-SM16-9062, 9201 & 9105A-9062, 9054-9062, 9101-9105 | 244 days | 6/11/2013 | 7/7/2014 | 0% | | | | | | | | |
| 322 | 4.11.8.1.1 | Temporary Traffic Arrangement (TTA) Schemes | 92 days | 6/11/2013 | 5/2/2014 | 0% | | | | | | | | |
| 323 | 4.11.8.1.1.1 | Preparation of TTA scheme | 35 days | 6/11/2013 | 10/12/2013 | 0% | | | | | | | | |
| 324 | 4.11.8.1.1.2 | Comment & approval of TTA scheme by TD & RMO | 37 days | 11/12/2013 | 16/1/2014 | 0% | | | | | | | | |
| 325 | 4.11.8.1.1.3 | Obtain roadwork advice from RMO | 20 days | 17/1/2014 | 5/2/2014 | 0% | | | | | | | | |
| 326 | 4.11.8.1.2 | Pipe laying | 152 days | 6/2/2014 | 7/7/2014 | 0% | | | | | | | | |
| 327 | 4.11.8.2 | SMH6895-6808, 6804-6808 | 49 days | 10/5/2014 | 27/6/2014 | 0% | | | | | | | | |
| 328 | 4.11.8.3 | H2 - SMH9054-45,44, 9043 | 52 days | 13/1/2014 | 5/3/2014 | 0% | | | | | | | | |
| 329 | 4.11.8.4 | H3 - SMH9043-37, 9036 (DN900) | 41 days | 6/3/2014 | 15/4/2014 | 0% | | | | | | | | |
| 330 | 4.11.8.5 | H4 - SMH9036-30,9029 (DN900) | 32 days | 15/3/2014 | 15/4/2014 | 0% | | | | | | | | |
| 331 | 4.11.8.6 | H5 - SMH9029-22,9021 (DN750,900) | 43 days | 28/4/2014 | 9/6/2014 | 0% | | | | | | | | |
| 332 | 4.11.8.7 | H6 - SMH9021-14,9013 (DN750) | 36 days | 5/5/2014 | 9/6/2014 | 0% | | | | | | | | |
| 333 | 4.11.8.8 | H7 - SMH9013-06,9005 (DN600,750) | 35 days | 30/4/2014 | 3/6/2014 | 0% | | | | | | | | |
| 334 | 4.11.8.9 | H8 - SMH9005-03,9002 (DN450) | 23 days | 8/5/2014 | 30/5/2014 | 0% | | | | | | | | |
| 335 | 4.11.8.10 | H8 - SMH9002-9001 (DN300) | 9 days | 31/5/2014 | 8/6/2014 | 0% | | | | | | | | |
| 336 | 4.11.9 | Water works at Lin Ma Hang Road (Drg.1914B-1917B) | 128 days | 11/3/2014 | 16/7/2014 | 0% | | | | | | | | |
| 337 | 4.11.10 | Irrigation System at Lin Ma Hang Road (Drg.1974B, 1976A, 1977A) from Phase H2-H8 | 42 days | 4/6/2014 | 15/7/2014 | 0% | | | | | | | | |
| 338 | 4.11.10.1 | | 37 days | 4/6/2014 | 10/7/2014 | 0% | | | | | | | | |
| 339 | 4.11.10.2 | for Phase H1 | 8 days | 8/7/2014 | 15/7/2014 | 0% | | | | | | | | |
| 340 | 4.11.10.3 | after Phase H8 | 13 days | 28/6/2014 | 10/7/2014 | 0% | | | | | | | | |
| 341 | 4.11.11 | Utility Works | 168 days | 16/4/2014 | 30/9/2014 | 0% | | | | | | | | |
| 342 | 4.11.11.1 | CLP - LV (west side of new Lin Ma Hang Road) | 103 days | 16/4/2014 | 27/7/2014 | 0% | | | | | | | | |
| 343 | 4.11.11.1.1 | from chainage 840 to chainage 1125 | 15 days | 16/4/2014 | 30/4/2014 | 0% | | | | | | | | |
| 344 | 4.11.11.1.2 | from chainage 630 to chainage 840 | 22 days | 10/6/2014 | 1/7/2014 | 0% | | | | | | | | |
| 345 | 4.11.11.1.3 | from chainage 475 to chainage 630 | 11 days | 17/7/2014 | 27/7/2014 | 0% | | | | | | | | |
| 346 | 4.11.11.1.4 | from chainage 1125 to chainage 1270 | 10 days | 8/7/2014 | 17/7/2014 | 0% | | | | | | | | |
| 347 | 4.11.11.2 | CLP - LV (east side of new Lin Ma Hang Road) | 36 days | 6/7/2014 | 10/8/2014 | 0% | | | | | | | | |
| 348 | 4.11.11.2.1 | from chainage 840 to chainage 1125 | 15 days | 6/7/2014 | 20/7/2014 | 0% | | | | | | | | |
| 349 | 4.11.11.2.2 | from chainage 630 to chainage 840 | 21 days | 21/7/2014 | 10/8/2014 | 0% | | | | | | | | |
| 350 | 4.11.11.2.3 | from chainage 475 to chainage 630 | 10 days | 8/7/2014 | 17/7/2014 | 0% | | | | | | | | |
| 351 | 4.11.11.2.4 | from chainage 1125 to chainage 1270 | 10 days | 17/7/2014 | 26/7/2014 | 0% | | | | | | | | |
| 352 | 4.11.11.3 | CLP - 11kV (west side of new Lin Ma Hang Road) | 97 days | 2/5/2014 | 6/8/2014 | 0% | | | | | | | | |
| 353 | 4.11.11.3.1 | from chainage 840 to chainage 1125 | 15 days | 2/5/2014 | 16/5/2014 | 0% | | | | | | | | |
| 354 | 4.11.11.3.2 | from chainage 630 to chainage 840 | 21 days | 2/7/2014 | 22/7/2014 | 0% | | | | | | | | |
| 355 | 4.11.11.3.3 | from chainage 475 to chainage 630 | 10 days | 28/7/2014 | 6/8/2014 | 0% | | | | | | | | |
| 356 | 4.11.11.3.4 | from chainage 1125 to chainage 1270 | 11 days | 18/7/2014 | 28/7/2014 | 0% | | | | | | | | |
| 357 | 4.11.11.4 | CLP - 11kV (east side of new Lin Ma Hang Road) | 46 days | 18/7/2014 | 1/9/2014 | 0% | | | | | | | | |
| 358 | 4.11.11.4.1 | from chainage 840 to chainage 1125 | 15 days | 22/7/2014 | 5/8/2014 | 0% | | | | | | | | |
| 359 | 4.11.11.4.2 | from chainage 630 to chainage 840 | 21 days | 12/8/2014 | 1/9/2014 | 0% | | | | | | | | |
| 360 | 4.11.11.4.3 | from chainage 475 to chainage 630 | 11 days | 18/7/2014 | 28/7/2014 | 0% | | | | | | | | |
| 361 | 4.11.11.4.4 | from chainage 1125 to chainage 1270 | 11 days | 27/7/2014 | 6/8/2014 | 0% | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|--------------|--|----------|------------|------------|------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 362 | 4.1.1.11.5 | PCCW (west side of new Lin Ma Hang Road) | 114 days | 2/5/2014 | 23/8/2014 | 0% | | | | | | | | |
| 363 | 4.1.1.11.5.1 | from chainage 840 to chainage 1125 | 25 days | 5/6/2014 | 29/6/2014 | 0% | | | | | | | | |
| 364 | 4.1.1.11.5.2 | from chainage 630 to chainage 840 | 34 days | 2/5/2014 | 4/6/2014 | 0% | | | | | | | | |
| 365 | 4.1.1.11.5.3 | from chainage 475 to chainage 630 | 17 days | 7/8/2014 | 23/8/2014 | 0% | | | | | | | | |
| 366 | 4.1.1.11.5.4 | from chainage 1125 to chainage 1270 | 16 days | 29/7/2014 | 13/8/2014 | 0% | | | | | | | | |
| 367 | 4.1.1.11.6 | HGC (west side of new Lin Ma Hang Road) | 91 days | 5/6/2014 | 3/9/2014 | 0% | | | | | | | | |
| 368 | 4.1.1.11.6.1 | from chainage 840 to chainage 1125 | 16 days | 30/6/2014 | 15/7/2014 | 0% | | | | | | | | |
| 369 | 4.1.1.11.6.2 | from chainage 630 to chainage 840 | 21 days | 5/6/2014 | 25/6/2014 | 0% | | | | | | | | |
| 370 | 4.1.1.11.6.3 | from chainage 475 to chainage 630 | 11 days | 24/8/2014 | 3/9/2014 | 0% | | | | | | | | |
| 371 | 4.1.1.11.6.4 | from chainage 1125 to chainage 1270 | 10 days | 20/8/2014 | 29/8/2014 | 0% | | | | | | | | |
| 372 | 4.1.1.11.7 | NWT (west side of new Lin Ma Hang Road) | 84 days | 26/6/2014 | 17/9/2014 | 0% | | | | | | | | |
| 373 | 4.1.1.11.7.1 | from chainage 840 to chainage 1125 | 15 days | 16/7/2014 | 30/7/2014 | 0% | | | | | | | | |
| 374 | 4.1.1.11.7.2 | from chainage 630 to chainage 840 | 22 days | 26/6/2014 | 17/7/2014 | 0% | | | | | | | | |
| 375 | 4.1.1.11.7.3 | from chainage 475 to chainage 630 | 12 days | 4/9/2014 | 15/9/2014 | 0% | | | | | | | | |
| 376 | 4.1.1.11.7.4 | from chainage 1125 to chainage 1270 | 12 days | 6/9/2014 | 17/9/2014 | 0% | | | | | | | | |
| 377 | 4.1.1.11.8 | Street lighting work | 29 days | 2/9/2014 | 30/9/2014 | 0% | | | | | | | | |
| 378 | 4.1.1.11.8.1 | west side of new Lin Ma Hang Road | 15 days | 16/9/2014 | 30/9/2014 | 0% | | | | | | | | |
| 379 | 4.1.1.11.8.2 | east side of new Lin Ma Hang Road | 29 days | 2/9/2014 | 30/9/2014 | 0% | | | | | | | | |
| 380 | 4.1.1.12 | Roadwork of carriageway (new Lin Ma Hang Road for BCPA) | 72 days | 21/7/2014 | 30/9/2014 | 0% | | | | | | | | |
| 381 | 4.1.1.13 | Construction of footpath (for BCPA) | 72 days | 21/7/2014 | 30/9/2014 | 0% | | | | | | | | |
| 382 | 4.1.1.14 | Construction of pedestrian subway & pump room | 202 days | 6/11/2013 | 26/5/2014 | 18% | | | | | | | | |
| 383 | 4.1.1.14.1 | prepare formation of sheetpiling/excavation | 9 days | 6/11/2013 | 14/11/2013 | 100% | | | | | | | | |
| 384 | 4.1.1.14.2 | excavation &/or sheetpiling | 33 days | 15/11/2013 | 17/12/2013 | 85% | | | | | | | | |
| 385 | 4.1.1.14.3 | rubble mound | 16 days | 2/12/2013 | 17/12/2013 | 20% | | | | | | | | |
| 386 | 4.1.1.14.4 | cast blinding layer | 17 days | 11/12/2013 | 27/12/2013 | 20% | | | | | | | | |
| 387 | 4.1.1.14.5 | pump house | 30 days | 16/12/2013 | 14/1/2014 | 0% | | | | | | | | |
| 388 | 4.1.1.14.6 | subway 8th bay | 27 days | 15/1/2014 | 10/2/2014 | 0% | | | | | | | | |
| 389 | 4.1.1.14.7 | subway 7th bay | 23 days | 11/2/2014 | 5/3/2014 | 0% | | | | | | | | |
| 390 | 4.1.1.14.8 | subway 6th bay | 17 days | 25/2/2014 | 13/3/2014 | 0% | | | | | | | | |
| 391 | 4.1.1.14.9 | miscellaneous works | 74 days | 14/3/2014 | 26/5/2014 | 0% | | | | | | | | |
| 392 | 4.1.1.15 | Construction of staircase with lift shaft with 6 nos. of mini pile | 225 days | 14/10/2013 | 26/5/2014 | 25% | | | | | | | | |
| 393 | 4.1.1.15.1 | mini-piles | 54 days | 14/10/2013 | 6/12/2013 | 100% | | | | | | | | |
| 394 | 4.1.1.15.2 | lift shaft | 41 days | 7/12/2013 | 16/1/2014 | 30% | | | | | | | | |
| 395 | 4.1.1.15.3 | Bay 9 | 33 days | 17/1/2014 | 18/2/2014 | 0% | | | | | | | | |
| 396 | 4.1.1.15.4 | Staircase | 64 days | 19/2/2014 | 23/4/2014 | 0% | | | | | | | | |
| 397 | 4.1.1.15.5 | miscellaneous works | 73 days | 15/3/2014 | 26/5/2014 | 0% | | | | | | | | |
| 398 | 4.1.1.16 | 1 no. DN1650 pipe jacking LV009 including jacking & receiving pits | 147 days | 6/11/2013 | 1/4/2014 | 0% | | | | | | | | |
| 399 | 4.1.1.16.1 | Pits construction | 36 days | 6/11/2013 | 11/12/2013 | 0% | | | | | | | | |
| 400 | 4.1.1.16.1.1 | utility detection of the area | 3 days | 6/11/2013 | 8/11/2013 | 0% | | | | | | | | |
| 401 | 4.1.1.16.1.2 | inspection pits for jacking pit and receiving pit | 5 days | 9/11/2013 | 13/11/2013 | 0% | | | | | | | | |
| 402 | 4.1.1.16.1.3 | temporary work & excavation for receiving pit | 14 days | 28/11/2013 | 11/12/2013 | 0% | | | | | | | | |
| 403 | 4.1.1.16.1.4 | temporary work & excavation for jacking pit | 14 days | 14/11/2013 | 27/11/2013 | 0% | | | | | | | | |
| 404 | 4.1.1.16.2 | Jack sleeve Pipes | 89 days | 12/12/2013 | 10/3/2014 | 0% | | | | | | | | |
| 405 | 4.1.1.16.2.1 | establishment of jacking equipment | 15 days | 12/12/2013 | 26/12/2013 | 0% | | | | | | | | |
| 406 | 4.1.1.16.2.2 | jack pipe and excavate | 74 days | 27/12/2013 | 10/3/2014 | 0% | | | | | | | | |
| 407 | 4.1.1.16.3 | HDPE pipes | 22 days | 11/3/2014 | 1/4/2014 | 0% | | | | | | | | |
| 408 | 4.1.1.16.3.1 | Lay HDPE pipes | 7 days | 11/3/2014 | 17/3/2014 | 0% | | | | | | | | |
| 409 | 4.1.1.16.3.2 | Grout HDPE pipes | 7 days | 18/3/2014 | 24/3/2014 | 0% | | | | | | | | |
| 410 | 4.1.1.16.3.3 | Remove temporary works and backfilling | 8 days | 25/3/2014 | 1/4/2014 | 0% | | | | | | | | |
| 411 | 4.1.1.17 | Construction of retaining wall RW9 - CH0 to 75m (length 75m) | 110 days | 2/4/2014 | 20/7/2014 | 0% | | | | | | | | |
| 412 | 4.1.1.17.1 | drive sheetpile & excavation | 14 days | 2/4/2014 | 15/4/2014 | 0% | | | | | | | | |
| 413 | 4.1.1.17.2 | grade 200 rock fill | 14 days | 6/4/2014 | 19/4/2014 | 0% | | | | | | | | |
| 414 | 4.1.1.17.3 | cast blinding layer | 14 days | 14/4/2014 | 27/4/2014 | 0% | | | | | | | | |
| 415 | 4.1.1.17.4 | Bay 9001-9010 | 94 days | 18/4/2014 | 20/7/2014 | 0% | | | | | | | | |
| 416 | 4.1.1.18 | Construction of Bridge J with 6 x Ø 1500 bored piles | 217 days | 7/12/2013 | 11/7/2014 | 2% | | | | | | | | |

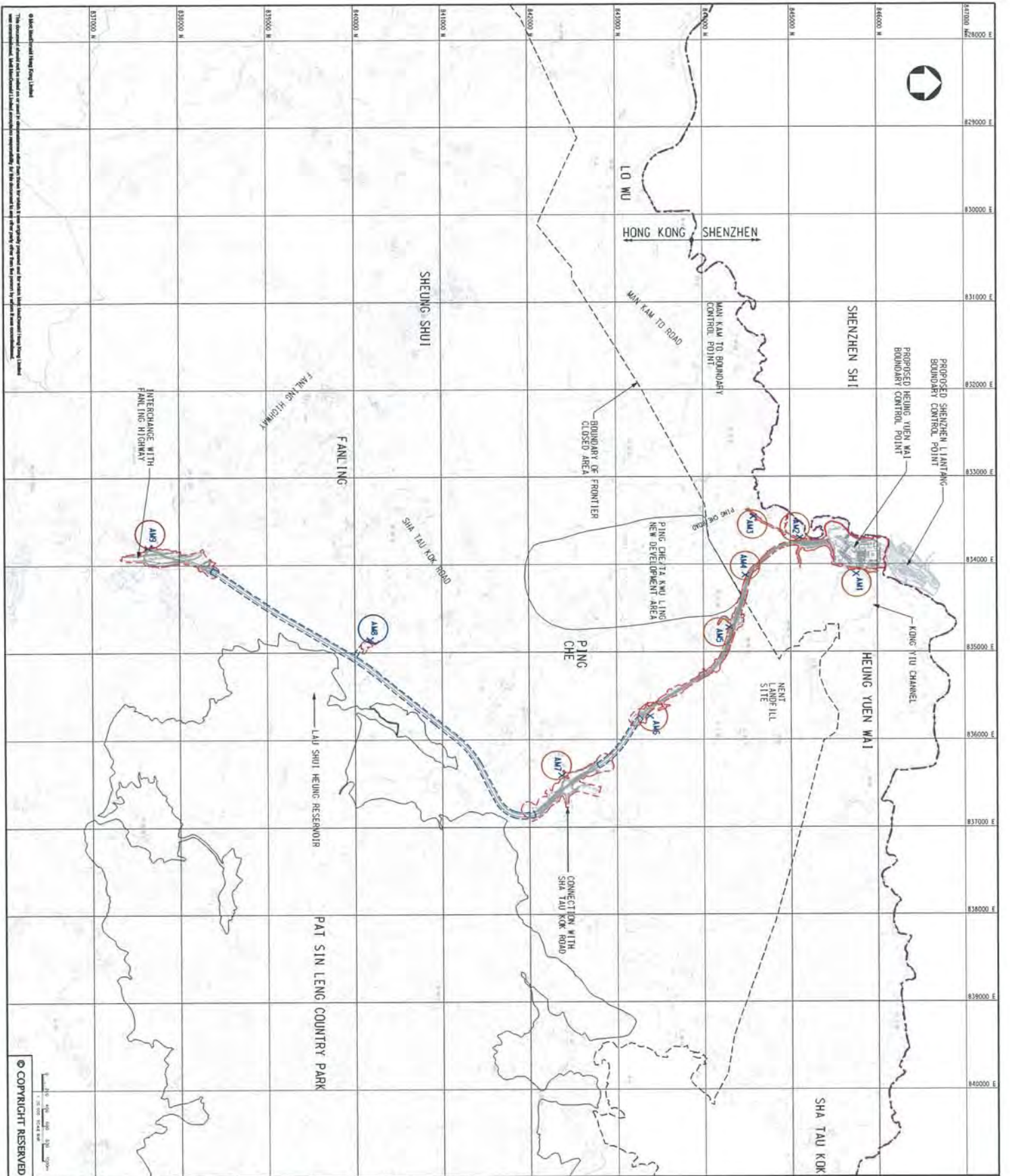
| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | |
|-----|--------------|--|-----------------|-------------------|-------------------|-------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|
| | | | | | | | 1st Quarter | 2nd Quarter | 3rd Quarter | | | | | |
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
| 417 | 4.11.18.1 | bored piles | 73 days | 7/12/2013 | 17/2/2014 | 5% | | | | | | | | |
| 418 | 4.11.18.2 | pile caps | 15 days | 18/2/2014 | 4/3/2014 | 0% | | | | | | | | |
| 419 | 4.11.18.3 | abutment walls | 24 days | 3/3/2014 | 26/3/2014 | 0% | | | | | | | | |
| 420 | 4.11.18.4 | falsework for deck | 15 days | 25/3/2014 | 8/4/2014 | 0% | | | | | | | | |
| 421 | 4.11.18.5 | deck | 55 days | 9/4/2014 | 2/6/2014 | 0% | | | | | | | | |
| 422 | 4.11.18.6 | parapet | 39 days | 3/6/2014 | 11/7/2014 | 0% | | | | | | | | |
| 423 | 4.11.19 | Construction of retaining wall RW5 - CH0 to 60m (length 60m) | 44 days | 27/3/2014 | 9/5/2014 | 0% | | | | | | | | |
| 424 | 4.11.19.1 | drive sheepile & excavation | 11 days | 27/3/2014 | 6/4/2014 | 0% | | | | | | | | |
| 425 | 4.11.19.2 | grade 200 rock fill | 4 days | 7/4/2014 | 10/4/2014 | 0% | | | | | | | | |
| 426 | 4.11.19.3 | cast blinding layer | 5 days | 11/4/2014 | 15/4/2014 | 0% | | | | | | | | |
| 427 | 4.11.19.4 | Bay 5001-5008 | 24 days | 16/4/2014 | 9/5/2014 | 0% | | | | | | | | |
| 428 | 4.12 | Section XIII of the Works - Works not covered in any other Sections | 598 days | 22/8/2013 | 11/4/2015 | 16% | | | | | | | | |
| 429 | 4.12.1 | Submissions | 70 days | 22/8/2013 | 30/10/2013 | 100% | | | | | | | | |
| 430 | 4.12.2 | Approval of Submissions | 68 days | 16/9/2013 | 22/11/2013 | 100% | | | | | | | | |
| 431 | 4.12.3 | Temporary Traffic Arrangement (TTA) Scheme for Works at existing LMH Rd | 92 days | 23/8/2013 | 22/11/2013 | 100% | | | | | | | | |
| 432 | 4.12.3.1 | Preparation of TTA scheme | 21 days | 23/8/2013 | 12/9/2013 | 100% | | | | | | | | |
| 433 | 4.12.3.2 | Comment & approval of TTA scheme by TD & RMO | 55 days | 13/9/2013 | 6/11/2013 | 100% | | | | | | | | |
| 434 | 4.12.3.3 | Obtain roadwork advice from RMO | 16 days | 7/11/2013 | 22/11/2013 | 100% | | | | | | | | |
| 435 | 4.12.4 | Northbound of Re-aligned Lin Ma Hang Road (west side) | 382 days | 23/11/2013 | 9/12/2014 | 6% | | | | | | | | |
| 436 | 4.12.4.1 | Works from chainage 190 to chainage 310 | 229 days | 23/11/2013 | 9/7/2014 | 26% | | | | | | | | |
| 437 | 4.12.4.1.1 | Drainage & slope drain | 76 days | 23/11/2013 | 6/2/2014 | 79% | | | | | | | | |
| 438 | 4.12.4.1.2 | Waterwork | 38 days | 7/2/2014 | 16/3/2014 | 0% | | | | | | | | |
| 439 | 4.12.4.1.3 | Irrigation System | 18 days | 17/3/2014 | 3/4/2014 | 0% | | | | | | | | |
| 440 | 4.12.4.1.4 | Roadwork | 40 days | 4/4/2014 | 13/5/2014 | 0% | | | | | | | | |
| 441 | 4.12.4.1.5 | Utilities works | 38 days | 14/5/2014 | 20/6/2014 | 0% | | | | | | | | |
| 442 | 4.12.4.1.5.1 | 11kV | 9 days | 14/5/2014 | 22/5/2014 | 0% | | | | | | | | |
| 443 | 4.12.4.1.5.2 | LV | 9 days | 23/5/2014 | 31/5/2014 | 0% | | | | | | | | |
| 444 | 4.12.4.1.5.3 | NWT | 10 days | 1/6/2014 | 10/6/2014 | 0% | | | | | | | | |
| 445 | 4.12.4.1.5.4 | Highway lighting | 10 days | 11/6/2014 | 20/6/2014 | 0% | | | | | | | | |
| 446 | 4.12.4.1.6 | Footpath | 19 days | 21/6/2014 | 9/7/2014 | 0% | | | | | | | | |
| 447 | 4.12.4.2 | Works from chainage 380 to chainage 580 | 263 days | 23/11/2013 | 12/8/2014 | 3% | | | | | | | | |
| 448 | 4.12.4.2.1 | Drainage | 76 days | 23/11/2013 | 6/2/2014 | 10% | | | | | | | | |
| 449 | 4.12.4.2.2 | Waterwork | 35 days | 7/2/2014 | 13/3/2014 | 0% | | | | | | | | |
| 450 | 4.12.4.2.3 | Irrigation System | 18 days | 14/3/2014 | 31/3/2014 | 0% | | | | | | | | |
| 451 | 4.12.4.2.4 | Roadwork | 43 days | 1/4/2014 | 13/5/2014 | 0% | | | | | | | | |
| 452 | 4.12.4.2.5 | Utilities works | 57 days | 14/5/2014 | 9/7/2014 | 0% | | | | | | | | |
| 453 | 4.12.4.2.5.1 | 11kV | 15 days | 14/5/2014 | 28/5/2014 | 0% | | | | | | | | |
| 454 | 4.12.4.2.5.2 | LV | 16 days | 29/5/2014 | 13/6/2014 | 0% | | | | | | | | |
| 455 | 4.12.4.2.5.3 | NWT | 15 days | 14/6/2014 | 28/6/2014 | 0% | | | | | | | | |
| 456 | 4.12.4.2.5.4 | Highway lighting | 11 days | 29/6/2014 | 9/7/2014 | 0% | | | | | | | | |
| 457 | 4.12.4.2.6 | Footpath | 34 days | 10/7/2014 | 12/8/2014 | 0% | | | | | | | | |
| 458 | 4.12.4.3 | Works from chainage 310 to chainage 380 | 99 days | 14/5/2014 | 20/8/2014 | 0% | | | | | | | | |
| 459 | 4.12.4.3.1 | Drainage | 30 days | 14/5/2014 | 12/6/2014 | 0% | | | | | | | | |
| 460 | 4.12.4.3.2 | Waterwork | 12 days | 13/6/2014 | 24/6/2014 | 0% | | | | | | | | |
| 461 | 4.12.4.3.3 | Irrigation System | 9 days | 25/6/2014 | 3/7/2014 | 0% | | | | | | | | |
| 462 | 4.12.4.3.4 | Roadwork | 18 days | 4/7/2014 | 21/7/2014 | 0% | | | | | | | | |
| 463 | 4.12.4.3.5 | Utilities works | 22 days | 22/7/2014 | 12/8/2014 | 0% | | | | | | | | |
| 464 | 4.12.4.3.5.1 | 11kV | 5 days | 22/7/2014 | 26/7/2014 | 0% | | | | | | | | |
| 465 | 4.12.4.3.5.2 | LV | 6 days | 27/7/2014 | 1/8/2014 | 0% | | | | | | | | |
| 466 | 4.12.4.3.5.3 | NWT | 6 days | 2/8/2014 | 7/8/2014 | 0% | | | | | | | | |
| 467 | 4.12.4.3.5.4 | Highway lighting | 5 days | 8/8/2014 | 12/8/2014 | 0% | | | | | | | | |
| 468 | 4.12.4.3.6 | Footpath | 8 days | 13/8/2014 | 20/8/2014 | 0% | | | | | | | | |
| 469 | 4.12.4.4 | Works from chainage 580 to chainage 780 | 210 days | 14/5/2014 | 9/12/2014 | 0% | | | | | | | | |
| 470 | 4.12.4.4.1 | Drainage | 72 days | 14/5/2014 | 24/7/2014 | 0% | | | | | | | | |
| 471 | 4.12.4.4.2 | Waterwork | 35 days | 25/7/2014 | 28/8/2014 | 0% | | | | | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | 3rd Quarter Aug |
|-----|-----------------|--|-----------------|-------------------|-------------------|------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | | | 1st Quarter Jan | 2nd Quarter May | 3rd Quarter Jul | |
| 472 | 4.12.4.4.3 | Irrigation System | 19 days | 29/8/2014 | 16/9/2014 | 0% | | | | |
| 473 | 4.12.4.4.4 | Sewerage | 13 days | 17/9/2014 | 29/9/2014 | 0% | | | | |
| 474 | 4.12.4.4.5 | Roadwork | 44 days | 30/9/2014 | 12/11/2014 | 0% | | | | |
| 475 | 4.12.4.4.6 | Utilities works | 56 days | 30/9/2014 | 24/11/2014 | 0% | | | | |
| 476 | 4.12.4.4.6.1 | 11kV | 17 days | 30/9/2014 | 16/10/2014 | 0% | | | | |
| 477 | 4.12.4.4.6.2 | LV | 15 days | 17/10/2014 | 31/10/2014 | 0% | | | | |
| 478 | 4.12.4.4.6.3 | NWT | 15 days | 1/11/2014 | 15/11/2014 | 0% | | | | |
| 479 | 4.12.4.4.6.4 | Highway lighting | 9 days | 16/11/2014 | 24/11/2014 | 0% | | | | |
| 480 | 4.12.4.4.7 | Footpath | 15 days | 25/11/2014 | 9/12/2014 | 0% | | | | |
| 481 | 4.12.4.5 | Works from chainage 80 to chainage 190 | 170 days | 14/5/2014 | 30/10/2014 | 0% | | | | |
| 482 | 4.12.4.5.1 | Drainage | 58 days | 14/5/2014 | 10/7/2014 | 0% | | | | |
| 483 | 4.12.4.5.2 | Waterwork | 35 days | 11/7/2014 | 14/8/2014 | 0% | | | | |
| 484 | 4.12.4.5.3 | Irrigation System | 16 days | 15/8/2014 | 30/8/2014 | 0% | | | | |
| 485 | 4.12.4.5.4 | Roadwork | 37 days | 31/8/2014 | 6/10/2014 | 0% | | | | |
| 486 | 4.12.4.5.5 | Utilities works | 37 days | 31/8/2014 | 6/10/2014 | 0% | | | | |
| 487 | 4.12.4.5.5.1 | 11kV | 10 days | 31/8/2014 | 9/9/2014 | 0% | | | | |
| 488 | 4.12.4.5.5.2 | LV | 10 days | 10/9/2014 | 19/9/2014 | 0% | | | | |
| 489 | 4.12.4.5.5.3 | NWT | 10 days | 20/9/2014 | 29/9/2014 | 0% | | | | |
| 490 | 4.12.4.5.5.4 | Highway lighting | 7 days | 30/9/2014 | 6/10/2014 | 0% | | | | |
| 491 | 4.12.4.5.6 | Footpath | 24 days | 7/10/2014 | 30/10/2014 | 0% | | | | |
| 492 | 4.12.5 | Southbound of Re-aligned Lin Ma Hang Road (east side) | 163 days | 31/10/2014 | 11/4/2015 | 0% | | | | |
| 493 | 4.12.5.1 | Works from chainage 60 to chainage 200 | 111 days | 31/10/2014 | 18/2/2015 | 0% | | | | |
| 494 | 4.12.5.1.1 | Drainage | 16 days | 31/10/2014 | 15/11/2014 | 0% | | | | |
| 495 | 4.12.5.1.2 | Irrigation System | 7 days | 16/11/2014 | 22/11/2014 | 0% | | | | |
| 496 | 4.12.5.1.3 | Roadwork | 24 days | 23/11/2014 | 16/12/2014 | 0% | | | | |
| 497 | 4.12.5.1.4 | Utilities works | 43 days | 17/12/2014 | 28/1/2015 | 0% | | | | |
| 498 | 4.12.5.1.4.1 | 11kV | 13 days | 17/12/2014 | 29/12/2014 | 0% | | | | |
| 499 | 4.12.5.1.4.2 | LV | 11 days | 30/12/2014 | 9/1/2015 | 0% | | | | |
| 500 | 4.12.5.1.4.3 | HGC | 10 days | 10/1/2015 | 19/1/2015 | 0% | | | | |
| 501 | 4.12.5.1.4.4 | Highway lighting | 9 days | 20/1/2015 | 28/1/2015 | 0% | | | | |
| 502 | 4.12.5.1.5 | Footpath | 21 days | 29/1/2015 | 18/2/2015 | 0% | | | | |
| 503 | 4.12.5.2 | Works from chainage 400 to chainage 600 | 133 days | 13/11/2014 | 25/3/2015 | 0% | | | | |
| 504 | 4.12.5.2.1 | Waterwork | 4 days | 13/11/2014 | 16/11/2014 | 0% | | | | |
| 505 | 4.12.5.2.2 | Irrigation System | 5 days | 17/11/2014 | 21/11/2014 | 0% | | | | |
| 506 | 4.12.5.2.3 | Roadwork | 26 days | 22/11/2014 | 17/12/2014 | 0% | | | | |
| 507 | 4.12.5.2.4 | Utilities works | 63 days | 18/12/2014 | 18/2/2015 | 0% | | | | |
| 508 | 4.12.5.2.4.1 | 11kV | 17 days | 18/12/2014 | 3/1/2015 | 0% | | | | |
| 509 | 4.12.5.2.4.2 | LV | 16 days | 4/1/2015 | 19/1/2015 | 0% | | | | |
| 510 | 4.12.5.2.4.3 | HGC | 15 days | 20/1/2015 | 3/2/2015 | 0% | | | | |
| 511 | 4.12.5.2.4.4 | Highway lighting | 15 days | 4/2/2015 | 18/2/2015 | 0% | | | | |
| 512 | 4.12.5.2.5 | Footpath | 35 days | 19/2/2015 | 25/3/2015 | 0% | | | | |
| 513 | 4.12.5.3 | Works from chainage 200 to chainage 400 | 115 days | 18/12/2014 | 11/4/2015 | 0% | | | | |
| 514 | 4.12.5.3.1 | Slope drain | 5 days | 18/12/2014 | 22/12/2014 | 0% | | | | |
| 515 | 4.12.5.3.2 | Irrigation System | 5 days | 23/12/2014 | 27/12/2014 | 0% | | | | |
| 516 | 4.12.5.3.3 | Waterwork | 4 days | 28/12/2014 | 31/12/2014 | 0% | | | | |
| 517 | 4.12.5.3.4 | Roadwork | 25 days | 1/1/2015 | 25/1/2015 | 0% | | | | |
| 518 | 4.12.5.3.5 | Utilities works | 62 days | 26/1/2015 | 28/3/2015 | 0% | | | | |
| 519 | 4.12.5.3.5.1 | 11kV | 15 days | 26/1/2015 | 9/2/2015 | 0% | | | | |
| 520 | 4.12.5.3.5.2 | LV | 17 days | 10/2/2015 | 26/2/2015 | 0% | | | | |
| 521 | 4.12.5.3.5.3 | HGC | 15 days | 27/2/2015 | 13/3/2015 | 0% | | | | |
| 522 | 4.12.5.3.5.4 | Highway lighting | 15 days | 14/3/2015 | 28/3/2015 | 0% | | | | |
| 523 | 4.12.5.3.6 | Footpath | 17 days | 26/3/2015 | 11/4/2015 | 0% | | | | |
| 524 | 4.12.5.4 | Works from chainage 600 to chainage 780 | 115 days | 18/12/2014 | 11/4/2015 | 0% | | | | |
| 525 | 4.12.5.4.1 | Sewerage | 20 days | 18/12/2014 | 6/1/2015 | 0% | | | | |
| 526 | 4.12.5.4.2 | Irrigation System | 9 days | 7/1/2015 | 15/1/2015 | 0% | | | | |
| 527 | 4.12.5.4.3 | Roadwork | 21 days | 16/1/2015 | 5/2/2015 | 0% | | | | |

| ID | WBS | Task Name | Duration | Start | Finish | % Complete | 2014 | | | | | | | | | | | | | |
|-----|--------------|--|----------|------------|------------|------------|------|-----|-----|-----|-----|-----|-----|-----------------|--|--|--|--|--|--|
| | | | | | | | Jan | Feb | Mar | Apr | May | Jun | Jul | 3rd Quarter Aug | | | | | | |
| 528 | 4.12.5.4.4 | Utilities works | 55 days | 6/2/2015 | 1/4/2015 | 0% | | | | | | | | | | | | | | |
| 529 | 4.12.5.4.4.1 | 11kV | 13 days | 6/2/2015 | 18/2/2015 | 0% | | | | | | | | | | | | | | |
| 530 | 4.12.5.4.4.2 | LV | 16 days | 19/2/2015 | 6/3/2015 | 0% | | | | | | | | | | | | | | |
| 531 | 4.12.5.4.4.3 | HGC | 13 days | 7/3/2015 | 19/3/2015 | 0% | | | | | | | | | | | | | | |
| 532 | 4.12.5.4.4.4 | Highway lighting | 13 days | 20/3/2015 | 1/4/2015 | 0% | | | | | | | | | | | | | | |
| 533 | 4.12.5.4.4.5 | Footpath | 18 days | 25/3/2015 | 11/4/2015 | 0% | | | | | | | | | | | | | | |
| 534 | 4.12.6 | Archaeological survey (Sections T1 to T3)(Drg. 6403A) | 167 days | 24/10/2013 | 8/4/2014 | 66% | | | | | | | | | | | | | | |
| 535 | 4.12.6.1 | AMO Permit issue | 0 days | 24/10/2013 | 24/10/2013 | 100% | | | | | | | | | | | | | | |
| 536 | 4.12.6.2 | Notice commencement of excavation to AMO | 16 days | 24/10/2013 | 8/11/2013 | 100% | | | | | | | | | | | | | | |
| 537 | 4.12.6.3 | Phase 1 - ch 380 to ch 580 (Section T1) | 14 days | 9/11/2013 | 22/11/2013 | 100% | | | | | | | | | | | | | | |
| 538 | 4.12.6.4 | Phase 3 - ch 580 to ch 780 (Section T2 (AWB)) | 31 days | 16/1/2014 | 15/2/2014 | 100% | | | | | | | | | | | | | | |
| 539 | 4.12.6.5 | Phase 4 - ch 730 to ch 780 (Section T3) | 32 days | 8/3/2014 | 8/4/2014 | 0% | | | | | | | | | | | | | | |
| 540 | 4.12.7 | Construction of retaining wall RW8 - CH0 to 22 (3 bays) | 70 days | 13/8/2014 | 21/10/2014 | 0% | | | | | | | | | | | | | | |
| 541 | 4.12.7.1 | Bay 8001 to Bay 8003 (3 bays) | 70 days | 13/8/2014 | 21/10/2014 | 0% | | | | | | | | | | | | | | |
| 542 | 4.12.8 | Site Formation works for ArchSD Depot (Drg. 1001B) | 35 days | 22/10/2014 | 25/11/2014 | 0% | | | | | | | | | | | | | | |
| 543 | 4.12.9 | Existing road to be improved & run-in to the site to be constructed at RS1 (Drg.1203A, 1001B) | 108 days | 4/8/2014 | 19/11/2014 | 0% | | | | | | | | | | | | | | |
| 544 | 4.12.10 | Access road to be re-constructed / upgraded at RS3 (Drg/1203) | 111 days | 20/11/2014 | 10/3/2015 | 0% | | | | | | | | | | | | | | |
| 545 | 4.13 | Section XIV of the Works - Trees preservation and protection | 730 days | 12/4/2013 | 11/4/2015 | 34% | | | | | | | | | | | | | | |
| 546 | 4.13.1 | Submissions | 69 days | 12/4/2013 | 19/6/2013 | 100% | | | | | | | | | | | | | | |
| 547 | 4.13.2 | Approval of Submissions | 70 days | 20/6/2013 | 28/8/2013 | 100% | | | | | | | | | | | | | | |
| 548 | 4.13.3 | Tree felling/removal works and tree transplanting works | 499 days | 6/9/2013 | 17/1/2015 | 28% | | | | | | | | | | | | | | |
| 549 | 4.13.4 | Preservation and Protection of Existing Trees in all Portion of the Site | 591 days | 29/8/2013 | 11/4/2015 | 25% | | | | | | | | | | | | | | |
| 550 | 4.14 | Section XV of the Works - Landscape soft works (including transplant trees to permanent locations) | 524 days | 4/11/2013 | 11/4/2015 | 15% | | | | | | | | | | | | | | |
| 551 | 4.15 | Section XVI of the Works - Establishment works for landscape soft works | 365 days | 12/4/2015 | 10/4/2016 | 0% | | | | | | | | | | | | | | |

Appendix D

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



LEGEND:

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

Mott MacDonald

200 The Landmark Centre
 20th Floor
 100 Queen's Road East
 Hong Kong

CEDD

CIVIL ENGINEERING
 AND DEVELOPMENT
 DEPARTMENT

Project:
 AGREEMENT NO. CE45/2008(CE3)
 LIANTANG/HENG YUEN WAI BOUNDARY
 CONTROL POINT AND ASSOCIATED WORKS

Title:
 PROPOSED LOCATION OF CONSTRUCTION
 AIR QUALITY MONITORING STATIONS

| Discipline | DC | Eng/CAE | EC |
|---------------|----|---------|----|
| Design | DC | | |
| Draw/CAD | DC | | |
| Check | DC | | |
| Approval | DC | | |
| Project | | 253228 | |
| Scale of A1 | | 1:20000 | |
| Scale of A2 | | | |
| Scale of A3 | | | |
| Scale of A4 | | | |
| Scale of A5 | | | |
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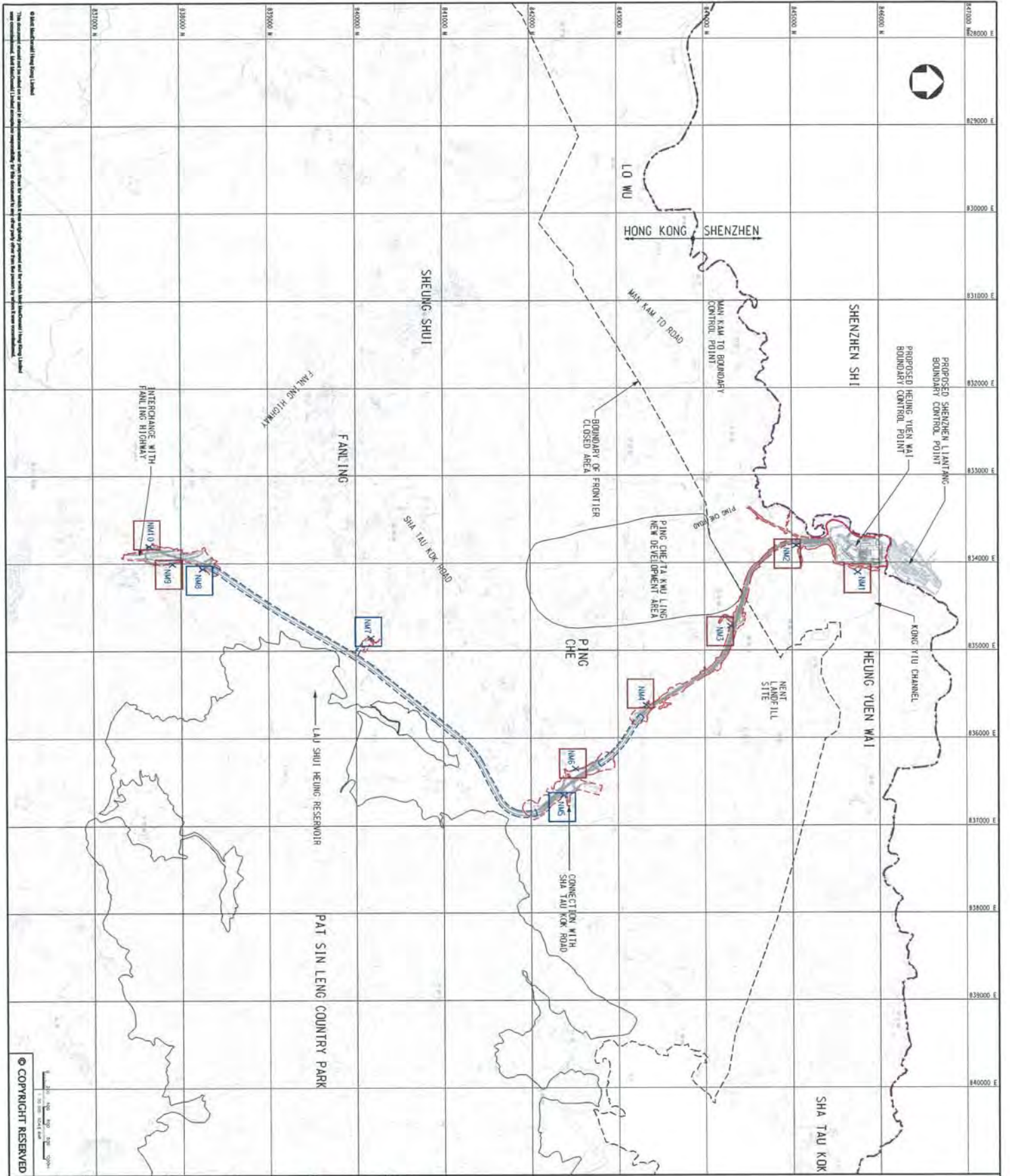
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- LEGEND:**
- BOUNDARY OF HK SAR
 - - - WORKS AREA (ABOVE GROUND)
 - - - WORKS AREA (TUNNEL)
 - X CONSTRUCTION NOISE MONITORING STATIONS

Mott MacDonald

300, The Hong Kong Airport Authority Building, 5/F, Airport Authority Building, 900 Airport Road, Hong Kong

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

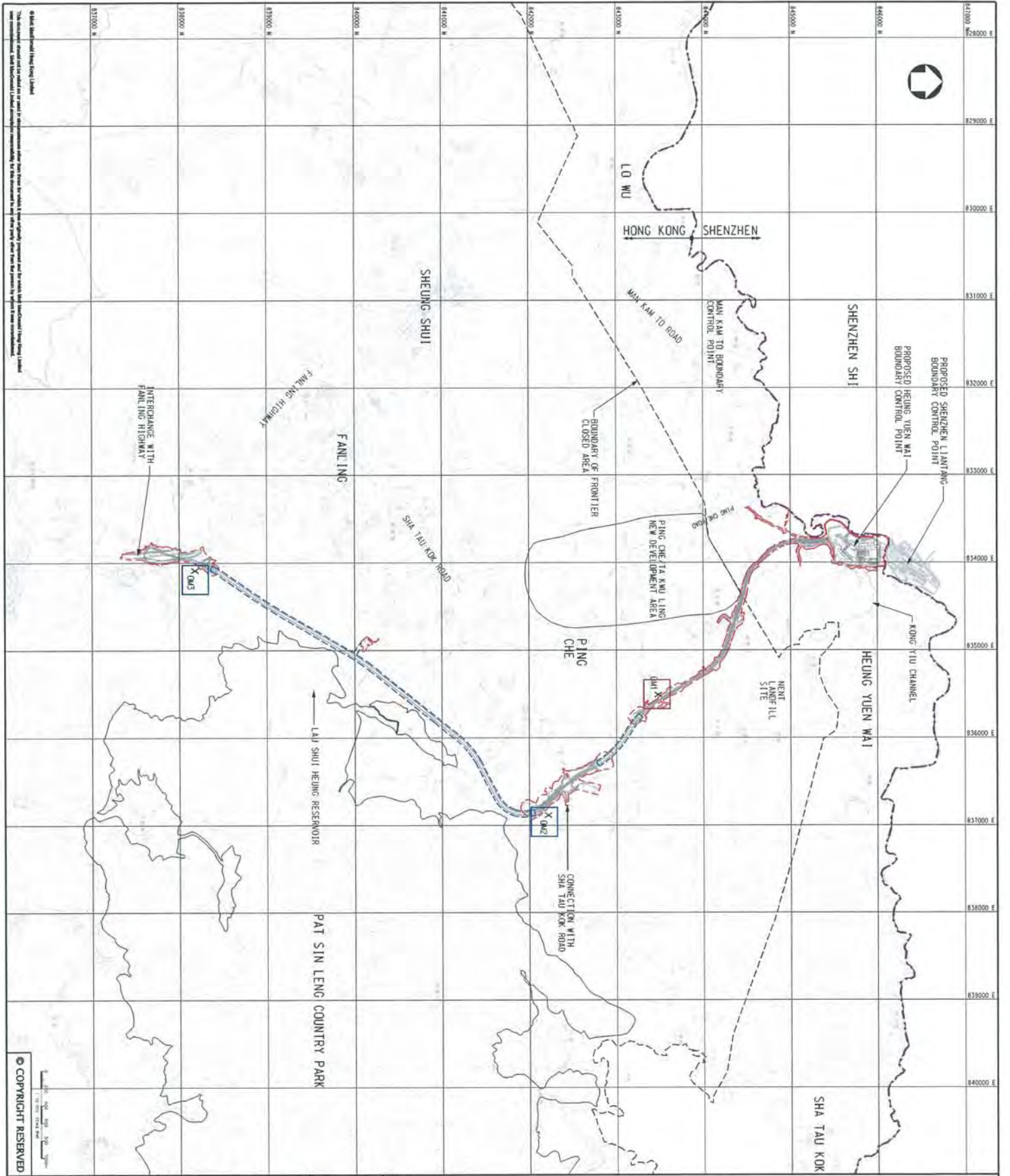
AGREEMENT NO. CE45/2008(CE)

LIAN TANG/HONG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

PROPOSED LOCATION OF CONSTRUCTION NOISE MONITORING STATIONS

| | | | |
|---------------|---------|---------------|---------|
| Design | DC | Pre-CDE | EC |
| Design | MHC | Construction | EC |
| Design | DC | Approval | BT |
| Scale of A1 | 1:20000 | Project | 255228 |
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LEGEND:

- BOUNDARY OF HKSAR
- WORKS AREA (ARBOE GROUND)
- WORKS AREA (TUNNEL)
- X OPERATIONAL NOISE MONITORING STATIONS

| Rev | Date | Drawn | Description | DC | HT |
|-----|--------|-------|-------------|----|----|
| P1 | DEC 10 | WING | FIRST ISSUE | | |

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30/F The Landmark Centre
 182 Queen's Road East
 Hong Kong
 Tel: +852 2222 8600
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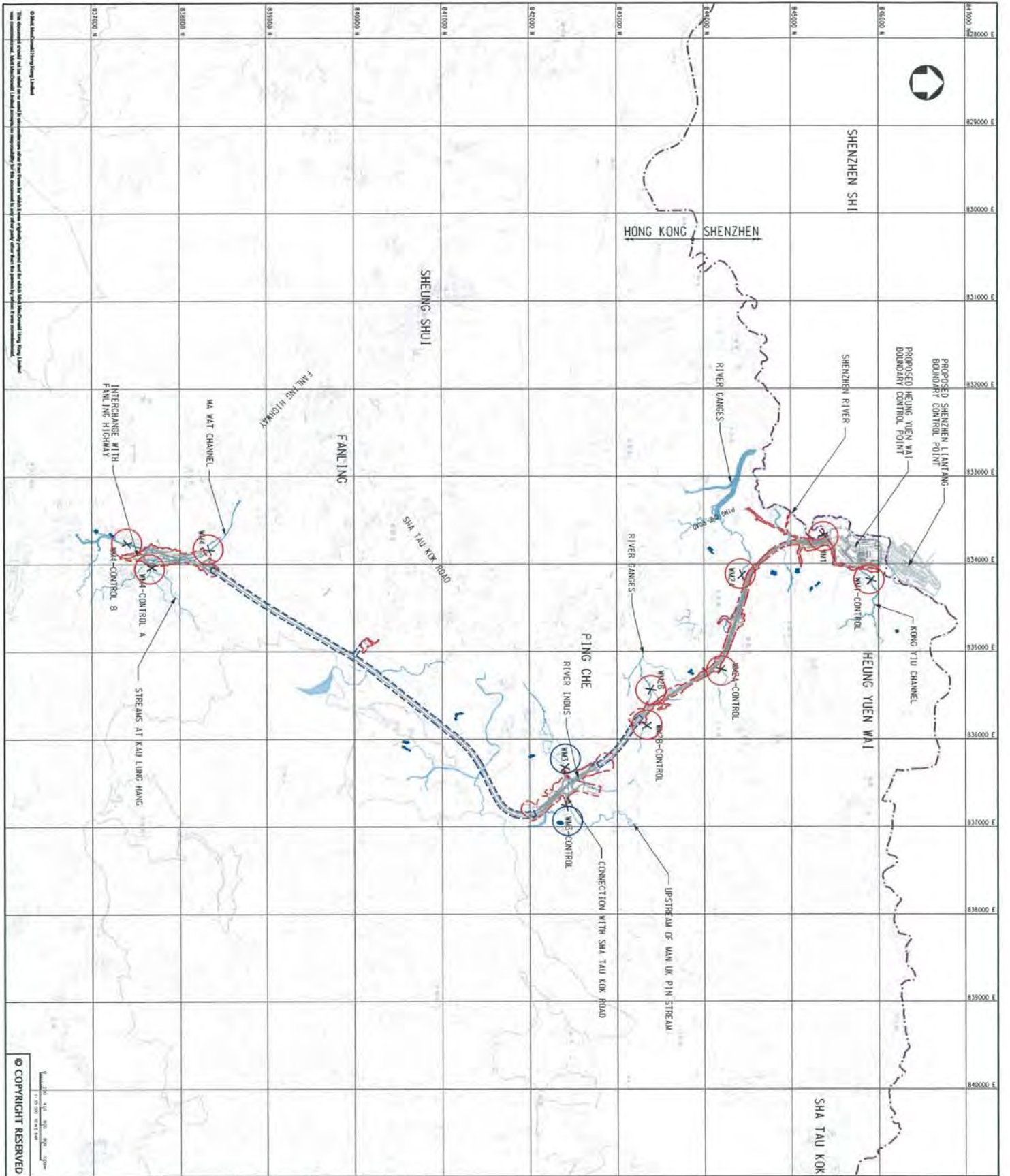
Project: AGREEMENT NO. CE45/2008(CE)
 LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Proposed Location of Operational Noise Monitoring Stations

| Designated | DC | HT | Eng/CHK | EC |
|--------------|-------------|----|----------|----|
| Checked | | | | |
| Design | | | | |
| Eng/CHK | DC | | Approved | HT |
| Number of A1 | 255/228 | | | |
| Scale | 1:20000 | | | |
| Drawing No. | FIDURLE 3.2 | | | |
| Sheet No. | P1 | | | |

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LEGEND:

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

| MONITORING STATION | COORDINATES |
|--------------------|---|
| MA1 | EASTING: 83168.452 NORTHING: 84531.693 |
| MA2 | EASTING: 83418.462 NORTHING: 84516.642 |
| MA3 | EASTING: 83412.153 NORTHING: 84443.917 |
| MA4 | EASTING: 83556.329 NORTHING: 84420.157 |
| MA5 | EASTING: 83544.744 NORTHING: 84334.606 |
| MA6 | EASTING: 83566.878 NORTHING: 84334.625 |
| MA7 | EASTING: 83623.627 NORTHING: 84250.977 |
| MA8 | EASTING: 83653.419 NORTHING: 84255.507 |
| MA9 | EASTING: 83340.783 NORTHING: 83834.484 |
| MA10 | EASTING: 83403.937 NORTHING: 83788.995 |
| MA11 | EASTING: 83369.123 NORTHING: 83746.936 |

| Rev | Date | Drawn | Description | CHKD | APPD |
|-----|--------|-------|------------------|------|------|
| P2 | NOV 10 | HC | GENERAL REVISION | HC | HT |
| T1 | OCT 10 | HC | FIRST ISSUE | HC | HT |



CEDD
CIVIL ENGINEERING
AND DEVELOPMENT
DEPARTMENT

PROJECT:
AGREEMENT NO. CE45/2008 (CE)
LIANGTANG/HUANG YUEN WAI BOUNDARY
CONTROL POINT AND ASSOCIATED WORKS

TITLE:
LOCATIONS OF PROPOSED WATER QUALITY
MONITORING STATIONS

| Checked | By | Eng. Ck. | EC |
|------------|----|-----------|----|
| Drawn | HT | Completed | EC |
| Design Ck. | HC | Approved | HT |

Scale: A4
1:20000
Drawing No: **FIGURE 4.1**
Rev: **P2**

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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 | Checked | App'd |
|-----|--------|-------|---------|-------|
| P1 | AUG 10 | MING | DC | HT |

Mott MacDonald

20/F Two Landmark East
100-How Ming Street
Kowloon Tong, Kowloon
Hong Kong
Tel: +852 2628 9292
Fax: +852 2627 1823
www.mottmac.com.hk

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DEPARTMENT

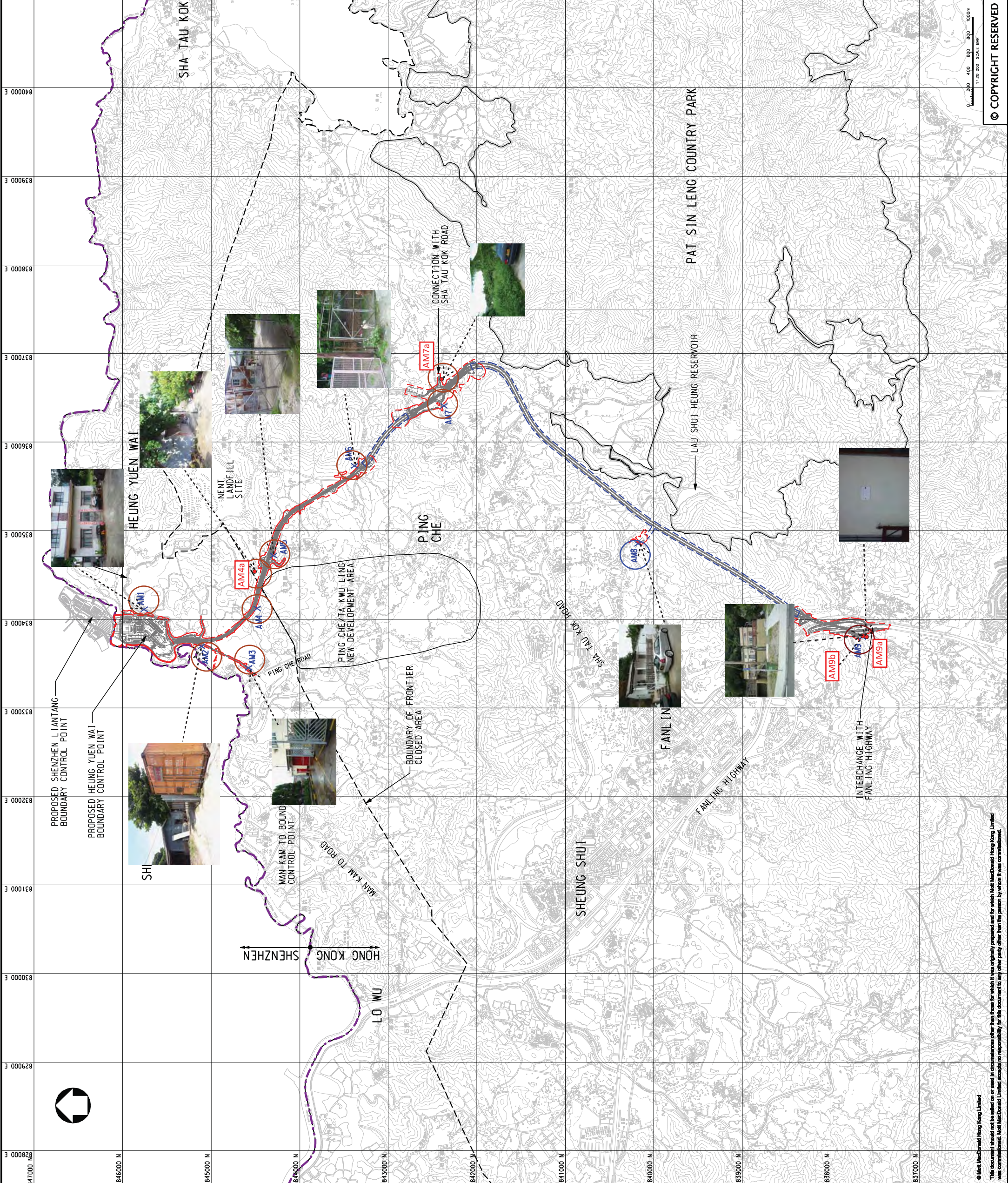
Project

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

Title

PROPOSED LOCATION OF CONSTRUCTION
AIR QUALITY MONITORING STATIONS

| Designed | DC | Eng. Chk. | EC |
|-------------|---------|--------------|--------|
| Drawn | MING | Coordination | EC |
| Dwg. Chk. | DC | Approved | HT |
| Scale at A1 | 1:20000 | Project | 255228 |
| Scale at A2 | 1:20000 | CAD File | PRE |
| Drawing No | | Report File | PRE |
| | | Revision | P1 |



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LEGEND:

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

| PI | ADD TO | NO. | DATE | DESCRIPTION | DC | RT |
|----|--------|-----|------|-------------|----|----|
| | | | | | | |



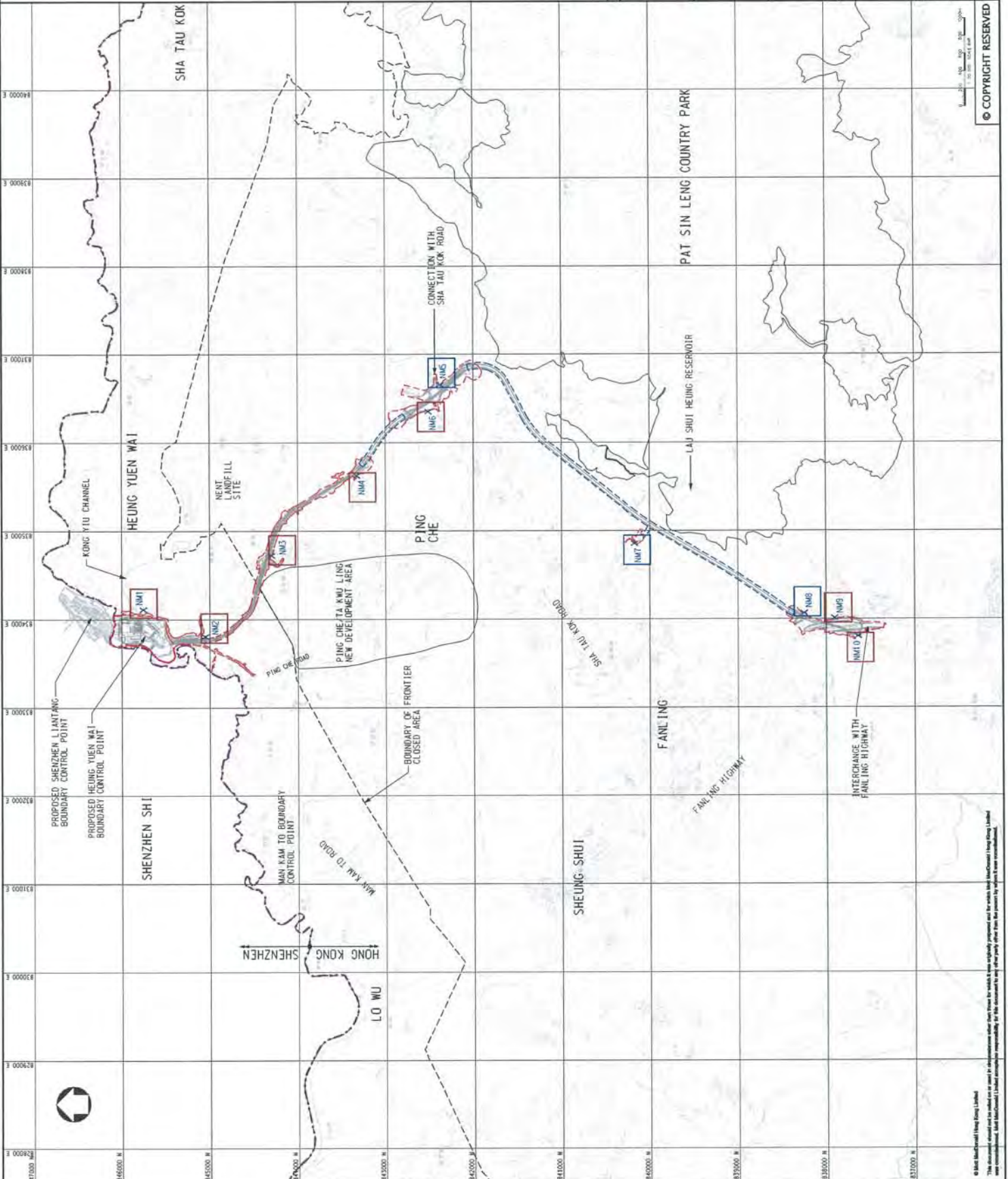
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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

PROPOSED LOCATION OF CONSTRUCTION NOISE MONITORING STATIONS

| Designated Station | DC | HT | DC | HT | EC | EC |
|--------------------|----|----|----|----|----|----|
| | | | | | | |

Scale at A1: 1:20000
 Project: 255228
 Date: 15/05/2008
 Drawing No: CE45/2008(CE) 15/05/08
 PRE
 P1



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LEGEND:
 - - - BOUNDARY OF HKSAR
 - - - WORKS AREA (ABOVE GROUND)
 - - - WORKS AREA (TUNNEL)
 X OPERATIONAL NOISE MONITORING STATIONS

| Rev | Date | Drawn | Description | DC | IT |
|-----|------|-------|-------------|----|----------|
| P1 | | MSB | FIRST ISSUE | | CHW/AYPL |

Mott MacDonald
 2007 New Lantang Road
 Kowloon, Hong Kong
 Tel: +852 2429 8888
 Fax: +852 2429 8888
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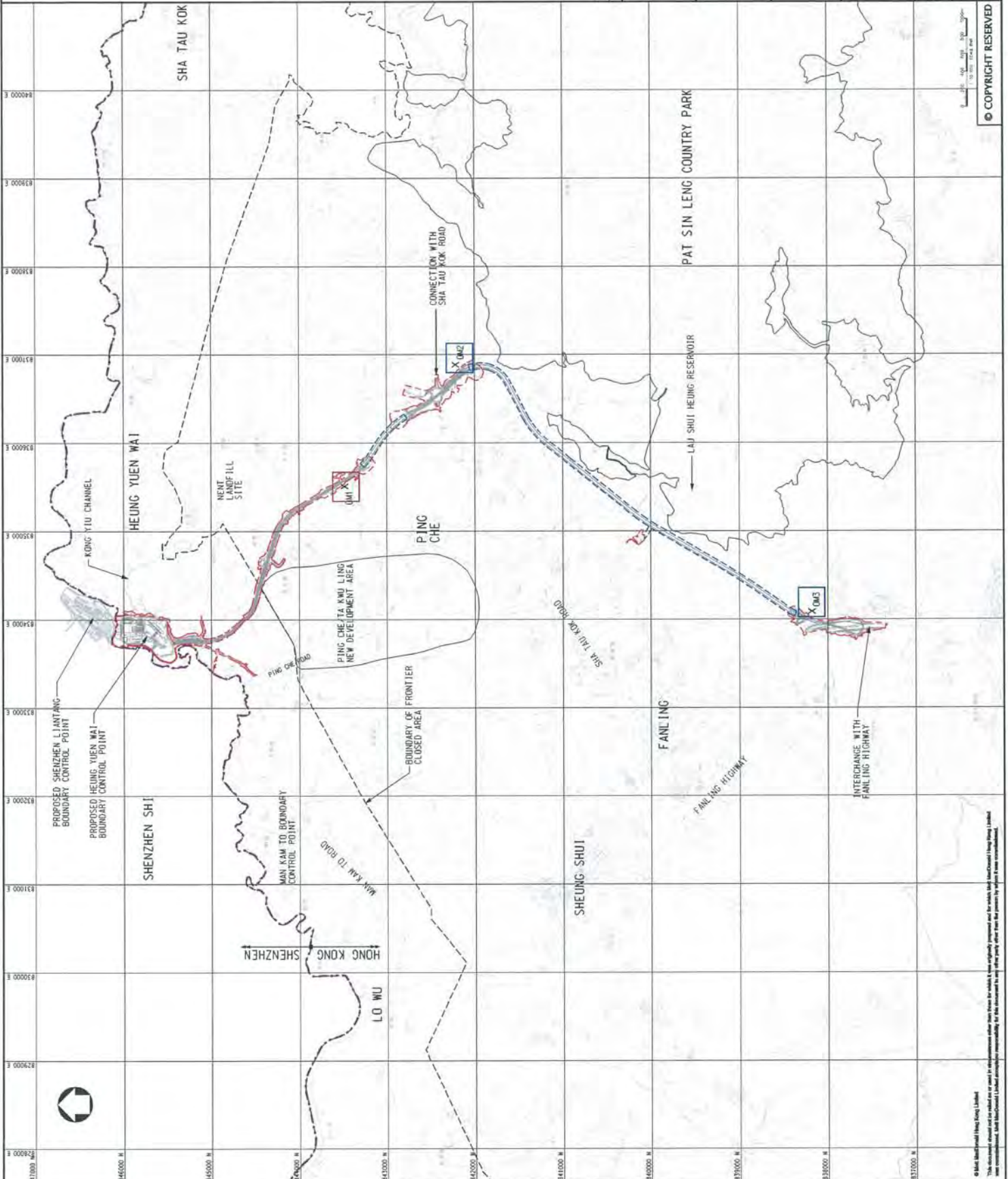
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 LANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

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 Scale of A2: 1:20000
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Designed by: DC
 Checked by: HFC
 Drawn by: DC
 Date of A1: 1:20000
 Date of A2: 1:20000

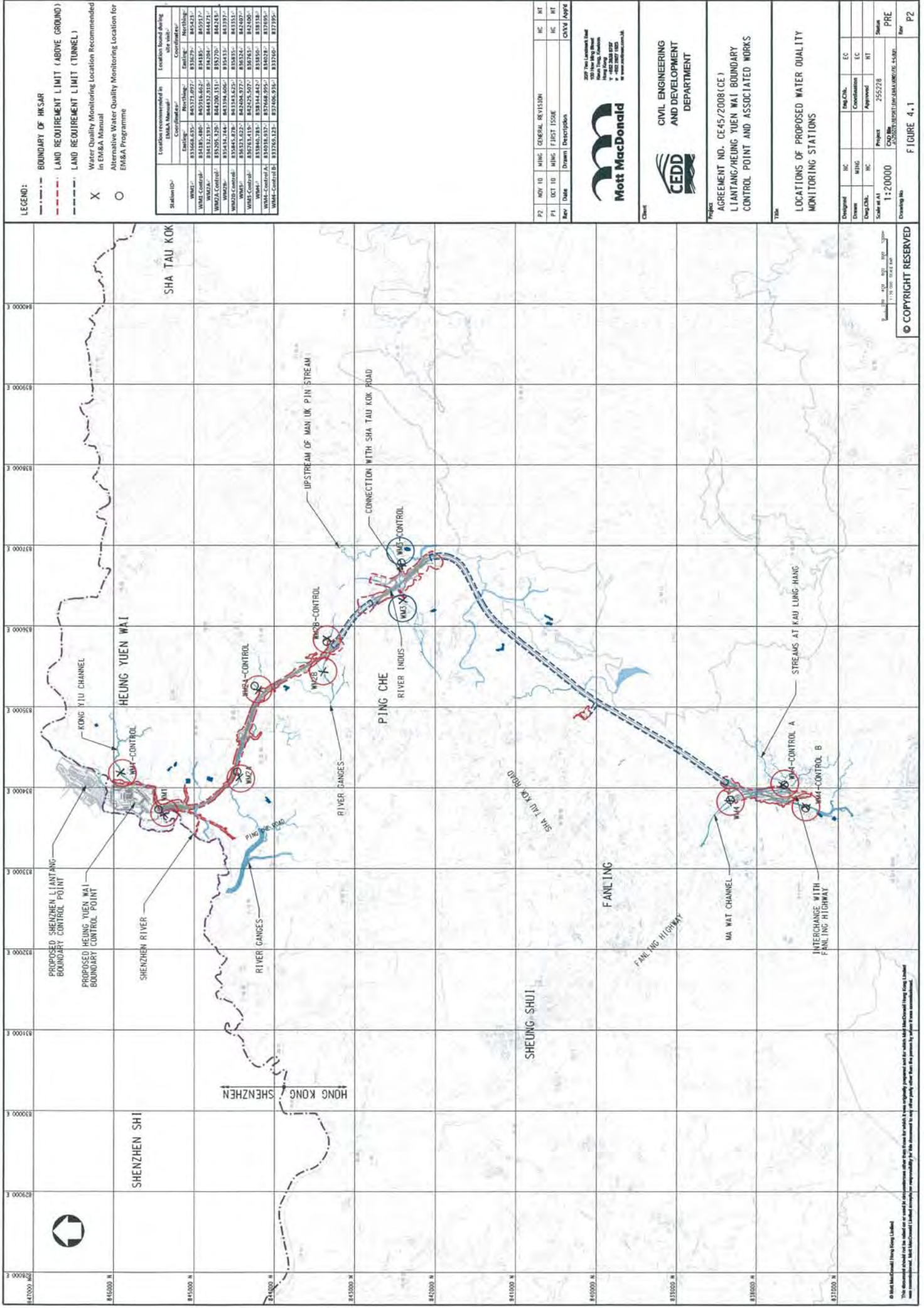
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 Date of A1: 25/2/2009

Figure No: P1
 Figure 3.2



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LEGEND:

- BOUNDARY OF HK SAR
- - - 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 | | | Location based on the site visit | | |
|------------|-------------------------------------|------------|------------|----------------------------------|----------|------------|
| | Easting | Northing | Coordinate | Easting | Northing | Coordinate |
| WMA-1 | 83366.433 | 845372.097 | 83367.0 | 83379.0 | 845473.0 | 83380.0 |
| WMA-2 | 84412.183 | 844452.816 | 84413.0 | 84424.0 | 84427.0 | 84428.0 |
| WMA-3 | 85205.326 | 844200.331 | 85206.0 | 84421.0 | 84422.0 | 84423.0 |
| WMA-4 | 83484.744 | 843358.606 | 83485.0 | 84336.0 | 84337.0 | 84338.0 |
| WMA-5 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-6 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-7 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-8 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-9 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-10 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-11 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-12 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-13 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-14 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-15 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-16 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-17 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-18 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-19 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |
| WMA-20 | 83485.878 | 843348.625 | 83486.0 | 84335.0 | 84336.0 | 84337.0 |

| Rev | Date | Drawn | Description | CHKD | Appd |
|-----|--------|-------|------------------|------|------|
| P2 | NOV 10 | MHC | GENERAL REVISION | HC | HT |
| P1 | OCT 10 | MHC | FIRST ISSUE | HC | HT |

207 The Landmark Road
20th Floor
Hong Kong
Tel: +852 2871 1000
Fax: +852 2871 1001
www.mottmacdonald.com.hk

Civil Engineering and Development Department

Client: **CEDD**

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

Scale at A1: 1:20000

Drawn No. PRE

Revision No. P2

FIGURE 4.1

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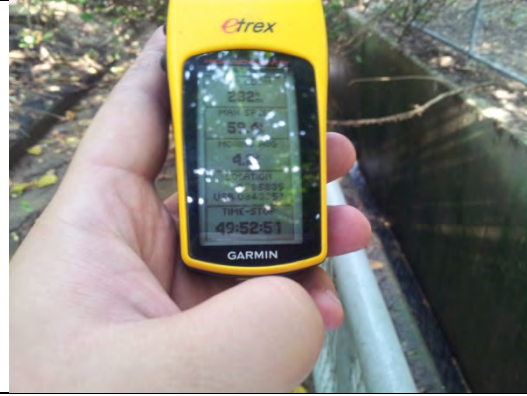
© COPYRIGHT RESERVED

Photographic Records for Water Quality Monitoring Location

| | |
|---|--|
|  |  |
| <p>Alternative Location of WM1</p> | <p>Co-ordinates of Alternative Location of WM1</p> |
|  |  |
| <p>Alternative Location of WM1 - Control</p> | <p>Co-ordinates of Alternative Location of WM1 - Control</p> |
|  |  |
| <p>Alternative Location of WM2A</p> | <p>Co-ordinates of Alternative Location of WM2A</p> |
|  |  |
| <p>Alternative Location of WM2-Control A</p> | <p>Co-ordinates of Alternative Location of WM2 - Control</p> |



Location of WM2B-Control



Co-ordinates of WM2B-Control



Location of WM2B



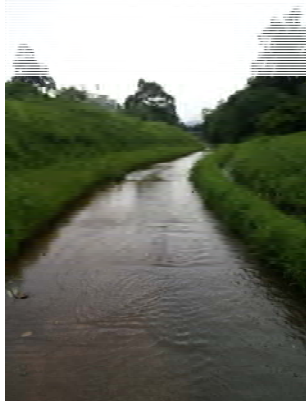
Co-ordinates of WM2B



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 : Tsung Yuen Ha Village House No. 63 | Date of Calibration: 25/2/2014 |
| Location ID : AM1 | Next Calibration Date: 25/4/2014 |
| | Technician: Keung Chi Young |

CONDITIONS

| | |
|---|---|
| Sea Level Pressure (hPa) 1018.6 | Corrected Pressure (mm Hg) 763.95 |
| Temperature (°C) 18.7 | Temperature (K) 292 |

CALIBRATION ORIFICE

| | |
|--|--|
| Make-> TISCH | Qstd Slope -> 2.11662 |
| Model-> 5025A | Qstd Intercept -> -0.01714 |
| Serial # -> 1941 | |

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION | | |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|-------------------|-------------|----------------|
| | | | | | | | Slope = | Intercept = | Corr. coeff. = |
| 18 | 6.7 | 6.7 | 13.4 | 1.761 | 48 | 48.64 | Slope = | 31.0604 | |
| 13 | 5.4 | 5.4 | 10.8 | 1.581 | 42 | 42.56 | Intercept = | -6.0004 | |
| 10 | 4.1 | 4.1 | 8.2 | 1.379 | 37 | 37.49 | Corr. coeff. = | 0.9987 | |
| 7 | 2.4 | 2.4 | 4.8 | 1.057 | 27 | 27.36 | | | |
| 5 | 1.6 | 1.6 | 3.2 | 0.865 | 20 | 20.27 | | | |

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

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:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

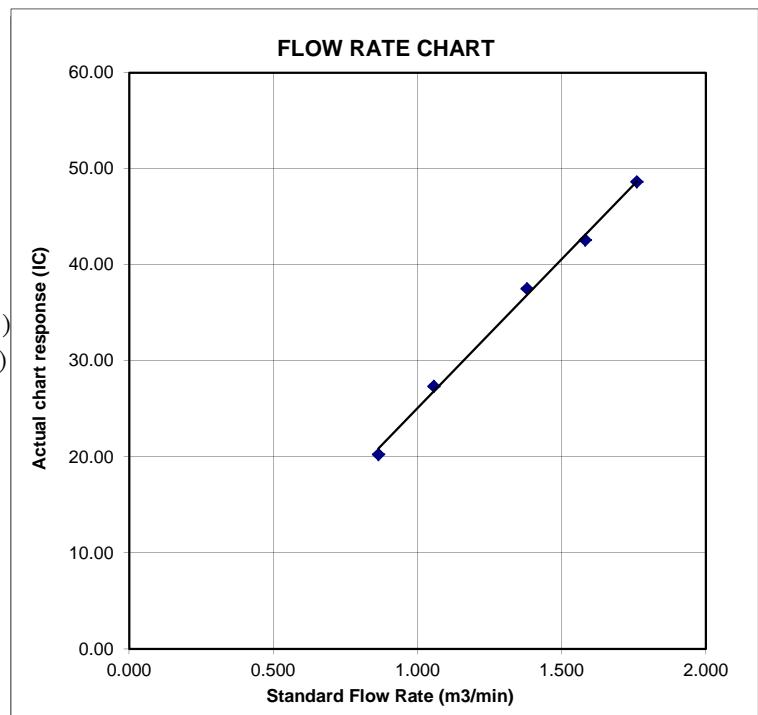
m = sampler slope

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 | Date of Calibration: | 25/2/2014 |
| Location ID : AM2 | Next Calibration Date: | 25/4/2014 |
| | Technician: | Keung Chi Young |

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|--------|
| Sea Level Pressure (hPa) | 1018.6 | Corrected Pressure (mm Hg) | 763.95 |
| Temperature (°C) | 18.7 | Temperature (K) | 292 |

CALIBRATION ORIFICE

| | | | |
|-------------|-------|-------------------|----------|
| Make-> | TISCH | Qstd Slope -> | 2.11662 |
| Model-> | 5025A | Qstd Intercept -> | -0.01714 |
| Serial # -> | 1941 | | |

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18 | 6.9 | 6.9 | 13.8 | 1.787 | 58 | 58.78 | Slope = 32.7005 Intercept = 1.4743 Corr. coeff. = 0.9964 |
| 13 | 5.1 | 5.1 | 10.2 | 1.537 | 52 | 52.69 | |
| 10 | 3.9 | 3.9 | 7.8 | 1.345 | 46 | 46.61 | |
| 7 | 2.7 | 2.7 | 5.4 | 1.121 | 37 | 37.49 | |
| 5 | 1.6 | 1.6 | 3.2 | 0.865 | 29 | 29.39 | |

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H20(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

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:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

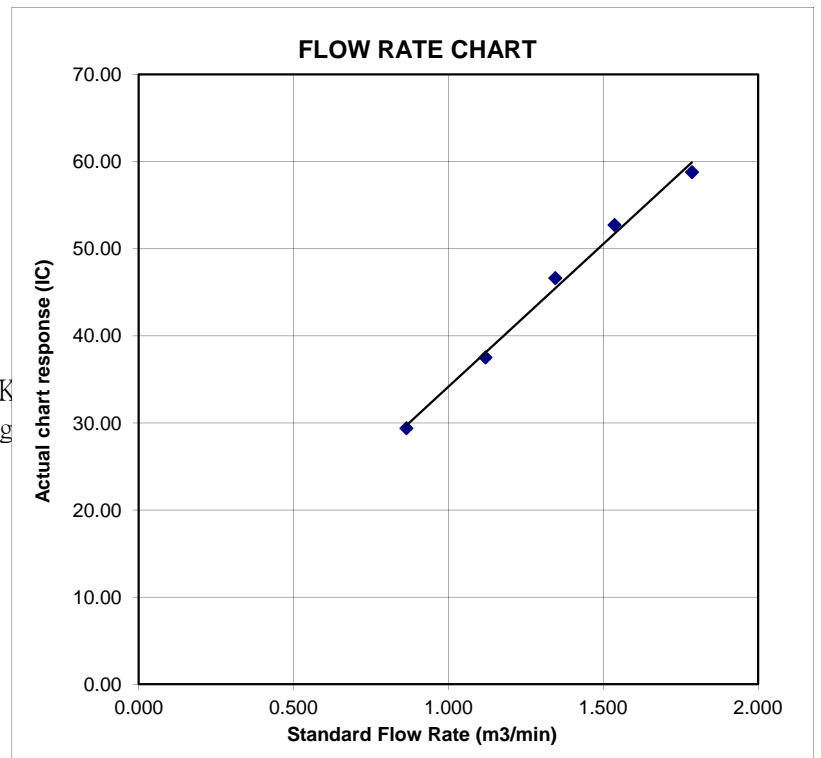
m = sampler slope

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: 25/2/2014
 Next Calibration Date: 25/4/2014
 Technician: Keung Chi Young

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|--------|
| Sea Level Pressure (hPa) | 1018.6 | Corrected Pressure (mm Hg) | 763.95 |
| Temperature (°C) | 18.7 | Temperature (K) | 292 |

CALIBRATION ORIFICE

| | | | |
|-------------|-------|-------------------|----------|
| Make-> | TISCH | Qstd Slope -> | 2.11662 |
| Model-> | 5025A | Qstd Intercept -> | -0.01714 |
| Serial # -> | 1941 | | |

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18 | 6.7 | 6.7 | 13.4 | 1.761 | 55 | 55.74 | Slope = 33.1772 Intercept = -1.8416 Corr. coeff. = 0.9985 |
| 13 | 5.3 | 5.3 | 10.6 | 1.567 | 50 | 50.67 | |
| 10 | 4.1 | 4.1 | 8.2 | 1.379 | 44 | 44.59 | |
| 7 | 2.7 | 2.7 | 5.4 | 1.121 | 35 | 35.47 | |
| 5 | 1.6 | 1.6 | 3.2 | 0.865 | 26 | 26.35 | |

Calculations :

$$Q_{std} = 1/m[\text{Sqrt}(H2O(Pa/P_{std})(T_{std}/T_a))-b]$$

$$IC = I[\text{Sqrt}(Pa/P_{std})(T_{std}/T_a)]$$

Qstd = standard flow rate

IC = corrected chart responses

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:

$$1/m((I)[\text{Sqrt}(298/T_{av})(P_{av}/760)]-b)$$

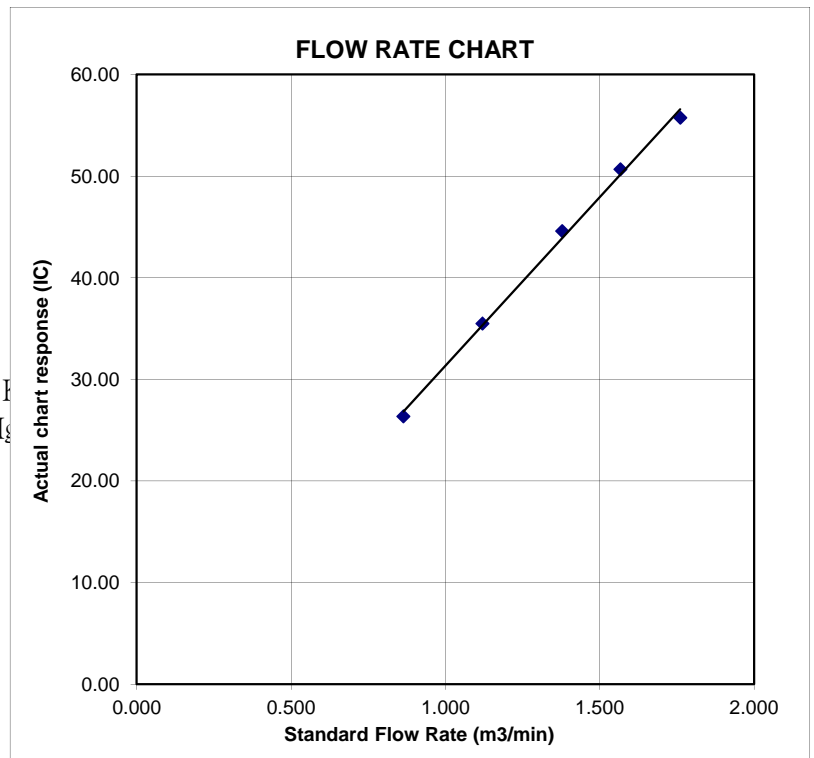
m = sampler slope

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: 25/2/2014 |
| Location ID : AM9b | Next Calibration Date: 25/4/2014 |
| | Technician: Keung Chi Young |

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|--------|
| Sea Level Pressure (hPa) | 1018.6 | Corrected Pressure (mm Hg) | 763.95 |
| Temperature (°C) | 18.7 | Temperature (K) | 292 |

CALIBRATION ORIFICE

| | |
|------------------|----------------------------|
| Make-> TISCH | Qstd Slope -> 2.11662 |
| Model-> 5025A | Qstd Intercept -> -0.01714 |
| Serial # -> 1941 | |

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18 | 5.9 | 5.9 | 11.8 | 1.653 | 57 | 57.76 | Slope = 39.6816 Intercept = -7.2952 Corr. coeff. = 0.9995 |
| 13 | 5 | 5 | 10.0 | 1.522 | 53 | 53.71 | |
| 10 | 3.7 | 3.7 | 7.4 | 1.310 | 44 | 44.59 | |
| 7 | 2 | 2 | 4.0 | 0.966 | 31 | 31.41 | |
| 5 | 1.3 | 1.3 | 2.6 | 0.780 | 23 | 23.31 | |

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

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:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope

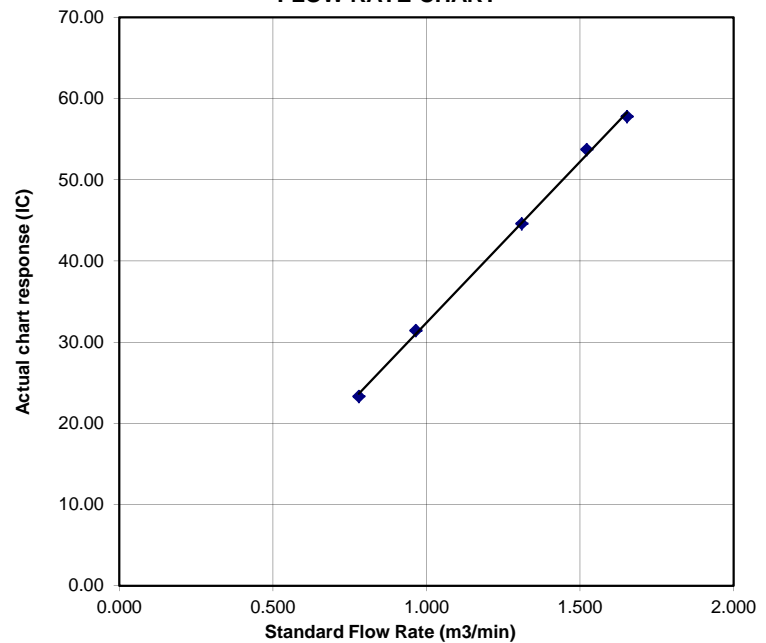
b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

FLOW RATE CHART





TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Roots-meter S/N 0438320 Ta (K) - 296
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORIFICE DIFF H2O (in.) |
|----------------|-------------------|------------------|------------------|-----------------|--------------------|------------------------|
| 1 | NA | NA | 1.00 | 1.4710 | 3.3 | 2.00 |
| 2 | NA | NA | 1.00 | 1.0370 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.9270 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8840 | 8.8 | 5.50 |
| 5 | NA | NA | 1.00 | 0.7300 | 12.8 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|--|---------------|----------|---|-------------|----------|
| 0.9916 | 0.6741 | 1.4113 | 0.9956 | 0.6768 | 0.8874 |
| 0.9874 | 0.9521 | 1.9959 | 0.9914 | 0.9560 | 1.2549 |
| 0.9854 | 1.0630 | 2.2315 | 0.9894 | 1.0673 | 1.4030 |
| 0.9843 | 1.1134 | 2.3405 | 0.9883 | 1.1180 | 1.4715 |
| 0.9790 | 1.3410 | 2.8227 | 0.9829 | 1.3465 | 1.7747 |
| Qstd slope (m) = 2.11662 | | | Qa slope (m) = 1.32539 | | |
| intercept (b) = -0.01714 | | | intercept (b) = -0.01078 | | |
| coefficient (r) = 0.99999 | | | coefficient (r) = 0.99999 | | |
| y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$ | | | y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$ | | |

CALCULATIONS

$$\text{Vstd} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$$

$$\text{Qstd} = \text{Vstd} / \text{Time}$$

$$\text{Va} = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$$

$$\text{Qa} = \text{Va} / \text{Time}$$

For subsequent flow rate calculations:

$$\text{Qstd} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$$

$$\text{Qa} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))] - b \}$$

CALIBRATION CERTIFICATE

Date: June 20, 2013

| | | |
|------------------------|---|---------------------------------|
| Equipment Name | : | Laser Dust Monitor, Model LD-3B |
| Code No. | : | 080000-42 |
| Quantity | : | 1 unit |
| Serial No. | : | 366407 |
| Sensitivity | : | 0.001 mg/m ³ |
| Sensitivity Adjustment | : | 563 CPM |
| Scale Setting | : | June 17, 2013 |

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

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Kentaro Togo

Overseas Sales Division

CALIBRATION CERTIFICATE

Date: June 20, 2013

| | | |
|------------------------|---|---------------------------------|
| Equipment Name | : | Laser Dust Monitor, Model LD-3B |
| Code No. | : | 080000-42 |
| Quantity | : | 1 unit |
| Serial No. | : | 366410 |
| Sensitivity | : | 0.001 mg/m ³ |
| Sensitivity Adjustment | : | 668 CPM |
| Scale Setting | : | June 17, 2013 |

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

A handwritten signature in black ink, appearing to read "Kentaro Togo".

Kentaro Togo

Overseas Sales Division

CALIBRATION CERTIFICATE

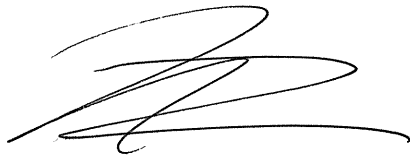
Date: June 20, 2013

| | | |
|------------------------|---|---------------------------------|
| Equipment Name | : | Laser Dust Monitor, Model LD-3B |
| Code No. | : | 080000-42 |
| Quantity | : | 1 unit |
| Serial No. | : | 366409 |
| Sensitivity | : | 0.001 mg/m ³ |
| Sensitivity Adjustment | : | 527 CPM |
| Scale Setting | : | June 17, 2013 |

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.



Kentaro Togo

Overseas Sales Division

CALIBRATION CERTIFICATE

Date: June 20, 2013

| | | |
|------------------------|---|---------------------------------|
| Equipment Name | : | Laser Dust Monitor, Model LD-3B |
| Code No. | : | 080000-42 |
| Quantity | : | 1 unit |
| Serial No. | : | 366418 |
| Sensitivity | : | 0.001 mg/m ³ |
| Sensitivity Adjustment | : | 664 CPM |
| Scale Setting | : | June 17, 2013 |

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.



Kentaro Togo

Overseas Sales Division



Certificate of Calibration 校正證書

Certificate No. : C132568
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

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 : $(23 \pm 2)^\circ\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

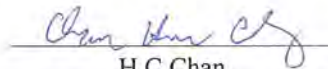
DATE OF TEST / 測試日期 : 27 April 2013

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, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By : 
測試 H C Chan

Certified By : 
核證 K C Lee

Date of Issue : 30 April 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C132568
證書編號

- 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.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| Equipment ID | Description | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280 | 40 MHz Arbitrary Waveform Generator | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

- Test procedure : MA101N.

- 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 _{AFF} | A | F | 94.00 | 1 | 93.6 |

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 _{AFF} | A | F | 94.00 | 1 | 94.0 | ± 0.7 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 50 - 130 | L _{AFF} | 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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載按正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C132568
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting | Level (dB) | Burst Duration | | |
| 30 - 110 | L _{AFP} | A | F | 106.0 | Continuous | 106.0 | Ref. |
| | L _{AFMax} | | | | 200 ms | 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 | 67.9 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.8 | -16.1 ± 1.0 |
| | | | | | 250 Hz | 85.3 | -8.6 ± 1.0 |
| | | | | | 500 Hz | 90.7 | -3.2 ± 1.0 |
| | | | | | 1 kHz | 94.0 | Ref. |
| | | | | | 2 kHz | 95.2 | +1.2 ± 1.0 |
| | | | | | 4 kHz | 95.0 | +1.0 ± 1.0 |
| | | | | | 8 kHz | 92.9 | -1.1 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 89.8 | -4.3 (+3.0 ; -6.0) |

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Certificate of Calibration

校正證書

Certificate No. : C132568
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 | 93.3 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.8 | -0.2 ± 1.0 |
| | | | | | 250 Hz | 94.0 | 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 | 90.9 | -3.0 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 87.8 | -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 |
| | | | | | | | | 90 | 89.8 | ± 0.5 |
| | | | | | | | | 80 | 79.4 | ± 1.0 |
| | | | | | | | | 70 | 69.2 | ± 1.0 |

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

- Uncertainties of Applied Value :

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

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

Note :

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

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Certificate of Calibration 校正證書

Certificate No. : C132567
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)
Description / 儀器名稱 : Integrating Sound Level Meter (EQ010)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285721
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 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

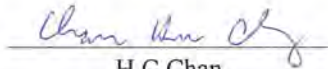
DATE OF TEST / 測試日期 : 27 April 2013

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, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By : 
測試 H C Chan

Certified By : 
核證 K C Lee

Date of Issue : 30 April 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C132567
證書編號

- 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.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| Equipment ID | Description | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280 | 40 MHz Arbitrary Waveform Generator | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

- Test procedure : MA101N.

- 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 _{AFF} | A | F | 94.00 | 1 | 94.7 |

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 _{AFF} | 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 _{AFF} | A | F | 94.00 | 1 | 94.1 (Ref.) |
| | | | | 104.00 | | 104.1 |
| | | | | 114.00 | | 114.0 |

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate No. : C132567
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 | 105.0 | -1.0 ± 1.0 |
| | L _{ASP} | S | Continuous | | 106.0 | Ref. | |
| | L _{ASMax} | | 500 ms | | 102.0 | -4.1 ± 1.0 | |

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 50 - 130 | L _{AFP} | A | F | 94.00 | 31.5 Hz | 54.7 | -39.4 ± 1.5 |
| | | | | | 63 Hz | 67.9 | -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 | 92.9 | -1.1 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 89.8 | -4.3 (+3.0 ; -6.0) |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate No. : C132567
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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 | 91.2 | -3.0 ± 1.5 |
| | | | | | 63 Hz | 93.3 | -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 | 91.0 | -3.0 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 87.9 | -6.2 (+3.0 ; -6.0) |

6.4 Time Averaging

| UUT Setting | | | | Applied Value | | | | | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | | |
| 30 - 110 | L _{Aeq} | A | 10 sec. | 4 | 1 | 1/10 | 110.0 | 100 | 99.9 | ± 0.5 |
| | | | 60 sec. | | | | | 90 | 90.0 | ± 0.5 |
| | | | 5 min. | | | | | 80 | 79.9 | ± 1.0 |
| | | | | | | | | 70 | 69.7 | ± 1.0 |

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

- Uncertainties of Applied Value :

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

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

Note :

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

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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 - 校正及檢測實驗室

c/o 香港新界屯門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: callba@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C132979
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Sound Level Meter (EQ068)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00410247
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 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 May 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : K C Lee

Certified By : 
核證 : K M Wu

Date of Issue : 20 May 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C132979
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 | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

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 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 120 | L _A | A | Fast | 94.00 | 1 | 94.0 | ± 0.7 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 30 - 120 | L _A | A | Fast | 94.00 | 1 | 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.

6.2 Time Weighting

6.2.1 Continuous Signal

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 120 | L _A | A | Fast | 94.00 | 1 | 94.0 | Ref. |
| | | | Slow | | | | |

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Certificate of Calibration

校正證書

Certificate No. : C132979

證書編號

6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Burst Duration | | |
| 20 -110 | L _A | A | Fast | 106.00 | Continuous | 106.0 | Ref. |
| | L _A max | | | | 200 ms | 105.1 | -1.0 ± 1.0 |
| | L _A | | Slow | | Continuous | 106.0 | Ref. |
| | L _A max | | | | 500 ms | 102.0 | -4.1 ± 1.0 |

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 120 | L _A | A | Fast | 94.00 | 31.5 Hz | 54.2 | -39.4 ± 1.5 |
| | | | | | 63 Hz | 67.7 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.7 | -16.1 ± 1.0 |
| | | | | | 250 Hz | 85.2 | -8.6 ± 1.0 |
| | | | | | 500 Hz | 90.7 | -3.2 ± 1.0 |
| | | | | | 1 kHz | 94.0 | Ref. |
| | | | | | 2 kHz | 95.2 | +1.2 ± 1.0 |
| | | | | | 4 kHz | 95.1 | +1.0 ± 1.0 |
| | | | | | 8 kHz | 92.9 | -1.1 (+1.5; -3.0) |
| | | | | | 12.5 kHz | 90.0 | -4.3 (+3.0; -6.0) |

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 120 | L _C | C | Fast | 94.00 | 31.5 Hz | 90.9 | -3.0 ± 1.5 |
| | | | | | 63 Hz | 93.1 | -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 | 93.9 | -0.2 ± 1.0 |
| | | | | | 4 kHz | 93.3 | -0.8 ± 1.0 |
| | | | | | 8 kHz | 91.0 | -3.0 (+1.5; -3.0) |
| | | | | | 12.5 kHz | 88.2 | -6.2 (+3.0; -6.0) |

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Certificate of Calibration

校正證書

Certificate No. : C132979

證書編號

6.4 Time Averaging

| UUT Setting | | | | Applied Value | | | | | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|------------------|---------------|---------------------|-------------------|------------------|-----------------------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Integrating Time | Freq. (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | | |
| 20 - 110 | L _{Aeq} | A | 10 sec. | 4 | 1 | 1/10 | 110.0 | 100 | 100.0 | ± 0.5 |
| | | | | | | 1/10 ² | | 90 | 90.0 | ± 0.5 |
| | | | 60 sec. | | | 1/10 ³ | | 80 | 80.0 | ± 1.0 |
| | | | 5 min. | | | 1/10 ⁴ | | 70 | 70.0 | ± 1.0 |

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 319841

- 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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

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 – 校正及檢測實驗室

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. : C132229
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Precision Integrating Sound Level Meter (EQ012)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-14
Serial No. / 編號 : 10303225
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 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 April 2013

TEST RESULTS / 測試結果

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

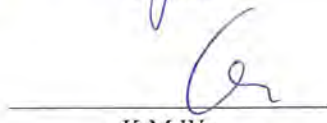
The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試


K C Lee

Certified By
核證


K M Wu

Date of Issue : 16 April 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C132229

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 | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

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 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 40 - 100 | L _p | A | Fast | 94.00 | 1 | 93.8 | ± 0.7 |

- 6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 60 - 120 | L _p | A | Fast | 94.00 | 1 | 93.7 (Ref.) |
| | | | | 104.00 | | 103.7 |
| | | | | 114.00 | | 113.8 |

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

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 - 校正及檢測實驗室

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. : C132229

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) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 40 - 100 | L _p | A | Fast | 94.00 | 1 | 93.8 | Ref. |
| | | | Slow | | | 93.8 | ± 0.1 |
| | | | Imp | | | 93.8 | ± 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) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Burst Duration | | |
| 50 - 110 | L _p | A | Fast | 106.0 | Continuous | 106.0 | Ref. |
| | L _{Amax} | | | | 200 ms | 105.2 | -1.0 ± 1.0 |
| | L _p | | Slow | | Continuous | 106.0 | Ref. |
| | L _{Amax} | | | | 500 ms | 102.1 | -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) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 40 - 100 | L _p | A | Fast | 94.00 | 31.5 Hz | 54.4 | -39.4 ± 1.5 |
| | | | | | 63 Hz | 67.7 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.8 | -16.1 ± 1.0 |
| | | | | | 250 Hz | 85.3 | -8.6 ± 1.0 |
| | | | | | 500 Hz | 90.6 | -3.2 ± 1.0 |
| | | | | | 1 kHz | 93.8 | Ref. |
| | | | | | 2 kHz | 95.0 | +1.2 ± 1.0 |
| | | | | | 4 kHz | 94.7 | +1.0 ± 1.0 |
| | | | | | 8 kHz | 92.5 | -1.1 (+1.5 ; -3.0) |
| 12.5 kHz | 89.3 | -4.3 (+3.0 ; -6.0) | | | | | |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C132229

證書編號

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 40 - 100 | L _p | C | Fast | 94.00 | 31.5 Hz | 90.8 | -3.0 ± 1.5 |
| | | | | | 63 Hz | 93.0 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.7 | -0.2 ± 1.0 |
| | | | | | 250 Hz | 93.9 | 0.0 ± 1.0 |
| | | | | | 500 Hz | 93.9 | 0.0 ± 1.0 |
| | | | | | 1 kHz | 93.9 | Ref. |
| | | | | | 2 kHz | 93.7 | -0.2 ± 1.0 |
| | | | | | 4 kHz | 93.0 | -0.8 ± 1.0 |
| | | | | | 8 kHz | 90.7 | -3.0 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 87.5 | -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) | Mode | Frequency Weighting | Time Weighting | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | | |
| 50 - 110 | L _{Aeq} | A | 10 sec. | 4 | 1 | | 110.0 | 100 | 99.8 | ± 0.5 |
| | | | 60 sec. | | | | | 90 | 89.6 | ± 0.5 |
| | | | 5 min. | | | | | 80 | 79.3 | ± 1.0 |
| | | | | | | | | 70 | 70.0 | ± 1.0 |

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 319944

- 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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration 校正證書

Certificate No. : C132565
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Acoustical Calibrator (EQ082)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2713428
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 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

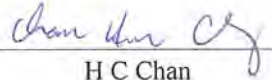
DATE OF TEST / 測試日期 : 27 April 2013

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, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By : 
測試 H C Chan

Certified By : 
核證 K C Lee

Date of Issue : 30 April 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C132565
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| <u>Equipment ID</u> | <u>Description</u> | <u>Certificate No.</u> |
|---------------------|-----------------------------------|------------------------|
| CL130 | Universal Counter | C123541 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |
| TST150A | Measuring Amplifier | C120886 |

- Test procedure : MA100N.

- 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.



ALS Technichem (HK) Pty Ltd
11/F, Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung, N.T., Hong Kong
T: +852 2610 1044
F: +852 2610 2021
www.alsglobal.com

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: HK1401665
LABORATORY: HONG KONG
DATE RECEIVED: 15/01/2014
DATE OF ISSUE: 18/01/2014

PROJECT: --

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen, Temperature
Equipment Type: DO
Brand Name: YSI
Model No.: YSI PRO 20
Serial No.: 12C100570
Equipment No.: --
Date of Calibration: 15 January, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.


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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK1401665
Date of Issue: 18/01/2014
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: DO
Brand Name: YSI
Model No.: YSI PRO 20
Serial No.: 12C100570
Equipment No.: --
Date of Calibration: 15 January, 2014 **Date of next Calibration:** 15 April, 2014

Parameters:

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

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------------|--------------------------|------------------|
| 3.26 | 3.32 | 0.06 |
| 6.64 | 6.74 | 0.10 |
| 9.17 | 9.03 | -0.14 |
| Tolerance Limit (\pm 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 ($^{\circ}$ C) | Displayed Reading ($^{\circ}$ C) | Tolerance ($^{\circ}$ C) |
|---------------------------------------|-----------------------------------|---------------------------|
| 8.5 | 8.3 | -0.2 |
| 22.0 | 22.0 | 0.0 |
| 42.0 | 42.8 | 0.8 |
| Tolerance Limit (\pm $^{\circ}$ 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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK1401663
Date of Issue: 18/01/2014
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 12060C018266
Equipment No.: --
Date of Calibration: 15 January, 2014 **Date of next Calibration:** 15 April, 2014

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0 | 0.20 | -- |
| 4 | 4.07 | 1.8 |
| 40 | 36.7 | -8.2 |
| 80 | 75.3 | -5.9 |
| 400 | 385 | -3.8 |
| 800 | 783 | -2.1 |
| | 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



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



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 the implementation 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 | 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 | 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; | 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 |
| | 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. | the ER accordingly; 5. Monitor the implementation of remedial measures. | 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. | 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 CONTRACTOR | | | |
|--|---|--|--|---|
| | ET | IEC | ER | |
| Action level being exceeded by one sampling day | <ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Repeat measurement on next day of exceedance. | <ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures. |
| Action Level being exceeded by more than two consecutive sampling days | <ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance. | <ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. |
| Limit Level being exceeded by one sampling day | <ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level. | <ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. |
| Limit level being exceeded by more than one consecutive sampling days | <ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. | <ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; 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. | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures; 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 – February 2014

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

Air Quality Monitoring Location:

- Contract 3 – AM9b
- Contract 5 – AM1, AM2 and AM3

Construction Noise Monitoring Location:

- Contract 3 – NM8, NM9 and NM10
- Contract 5 – NM1 and NM2

Water Quality Monitoring Location:

- Contract 3 – W4 , W4-Control A and W4-Control B
- Contract 5 – W1 and W1-Control

| | |
|--|--------------------------|
| | Monitoring Day |
| | Sunday or Public Holiday |

Impact Monitoring Schedule for next Reporting Period – March 2014

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

Air Quality Monitoring Location:

- Contract 3 – AM9b
- Contract 5 – AM1, AM2 and AM3

Construction Noise Monitoring Location:

- Contract 3 – NM8, NM9 and NM10
- Contract 5 – NM1 and NM2

Water Quality Monitoring Location:

- Contract 3 – W4 , W4-Control A and W4-Control B
- Contract 5 – W1 and W1-Control

| | |
|--|--------------------------|
| | Monitoring Day |
| | Sunday or Public Holiday |

Appendix I

Database of Monitoring Result

24-Hour TSP Monitoring Data

| DATE | SAMPLE NUMBER | ELAPSED TIME | | | CHART READING | | | AVG TEMP (°C) | AVG AIR PRESS (hPa) | STANDARD FLOW RATE (m ³ /min) | AIR VOLUME (std m ³) | FILTER WEIGHT (g) | | DUST WEIGHT COLLECTED (g) | 24-hr TSP (µg/m ³) |
|--|---------------|--------------|----------|---------|---------------|-----|------|------------------|------------------------|---|-------------------------------------|-------------------|--------|------------------------------|-----------------------------------|
| | | INITIAL | FINAL | (min) | MIN | MAX | AVG | | | | | INITIAL | FINAL | | |
| AM1 - Tsung Yuen Ha Village House No. 63 | | | | | | | | | | | | | | | |
| 4-Feb-14 | 26401 | 8048.15 | 8071.37 | 1393.20 | 51 | 52 | 51.5 | 15.8 | 1020.0 | 1.76 | 2452 | 2.7595 | 2.9056 | 0.1461 | 60 |
| 8-Feb-14 | 26407 | 8071.37 | 8095.26 | 1433.40 | 41 | 42 | 41.5 | 16.4 | 1019.1 | 1.54 | 2204 | 2.7505 | 2.8310 | 0.0805 | 37 |
| 14-Feb-14 | 26417 | 8095.26 | 8120.48 | 1513.20 | 49 | 50 | 49.5 | 17.3 | 1017.3 | 1.71 | 2590 | 2.7650 | 2.9056 | 0.1406 | 54 |
| 20-Feb-14 | 26413 | 8120.48 | 8144.03 | 1413.00 | 43 | 44 | 43.5 | 16.7 | 1018.3 | 1.58 | 2234 | 2.7755 | 2.9233 | 0.1478 | 66 |
| 26-Feb-14 | 26468 | 8144.03 | 8162.81 | 1126.80 | 46 | 47 | 46.5 | 16.9 | 1018.2 | 1.71 | 1932 | 2.7045 | 2.8220 | 0.1175 | 61 # |
| <i># Invalidated result as the monitoring was run for 18.7 hours only.</i> | | | | | | | | | | | | | | | |
| AM2 - Village House near Lin Ma Hang Road | | | | | | | | | | | | | | | |
| 4-Feb-14 | 26395 | 3491.04 | 3515.40 | 1461.60 | 36 | 37 | 36.5 | 15.8 | 1020 | 1.09 | 1591 | 2.7475 | 2.8614 | 0.1139 | 72 |
| 8-Feb-14 | 26408 | 3515.40 | 3539.11 | 1422.60 | 40 | 41 | 40.5 | 16.4 | 1019.1 | 1.22 | 1735 | 2.7438 | 2.8161 | 0.0723 | 42 |
| 14-Feb-14 | 26419 | 3539.11 | 3562.76 | 1419.00 | 39 | 41 | 40.0 | 17.3 | 1017.3 | 1.20 | 1703 | 2.7780 | 2.9174 | 0.1394 | 82 |
| 20-Feb-14 | 26414 | 3562.76 | 3586.40 | 1418.40 | 50 | 51 | 50.5 | 16.7 | 1018.3 | 1.55 | 2200 | 2.7156 | 2.8980 | 0.1824 | 83 |
| 26-Feb-14 | 26469 | 3586.40 | 3610.01 | 1416.60 | 44 | 45 | 44.5 | 16.9 | 1018.2 | 1.34 | 1895 | 2.7383 | 2.8801 | 0.1418 | 75 |
| AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village | | | | | | | | | | | | | | | |
| 4-Feb-14 | 26393 | 4500.16 | 4523.67 | 1410.60 | 41 | 42 | 41.5 | 15.8 | 1020.0 | 1.33 | 1877 | 2.6605 | 2.7320 | 0.0715 | 38 |
| 8-Feb-14 | 26409 | 4523.67 | 4547.56 | 1433.40 | 43 | 44 | 43.5 | 16.4 | 1019.1 | 1.38 | 1980 | 2.7587 | 2.9431 | 0.1844 | 93 |
| 14-Feb-14 | 26415 | 4547.56 | 4571.79 | 1453.80 | 49 | 50 | 49.5 | 17.3 | 1017.3 | 1.53 | 2231 | 2.7807 | 2.9060 | 0.1253 | 56 |
| 20-Feb-14 | 26445 | 4571.79 | 4595.48 | 1421.40 | 43 | 44 | 43.5 | 16.7 | 1018.3 | 1.38 | 1961 | 3.5608 | 3.7164 | 0.1556 | 79 |
| 26-Feb-14 | 26470 | 4595.48 | 4618.73 | 1395.00 | 43 | 43 | 43.0 | 16.9 | 1018.2 | 1.37 | 1915 | 2.7351 | 2.8642 | 0.1291 | 67 |
| AM9b - Nam Wa Po Village House No. 80 | | | | | | | | | | | | | | | |
| 4-Feb-14 | 26392 | 13538.11 | 13562.12 | 1440.60 | 31 | 32 | 31.5 | 15.8 | 1020.0 | 1.02 | 1467 | 2.7387 | 2.8289 | 0.0902 | 61 |
| 8-Feb-14 | 26406 | 13562.12 | 13571.57 | 567.00 | 31 | 32 | 31.5 | 16.4 | 1019.1 | 1.02 | 577 | 2.8212 | 2.8750 | 0.0538 | 93 # |
| 14-Feb-14 | 26418 | 13571.57 | 13595.80 | 1453.80 | 31 | 32 | 31.5 | 17.3 | 1017.3 | 1.01 | 1475 | 2.7412 | 2.8542 | 0.1130 | 77 |
| 20-Feb-14 | 26416 | 13595.80 | 13618.89 | 1385.40 | 31 | 32 | 31.5 | 16.7 | 1018.3 | 1.02 | 1408 | 2.7420 | 2.8777 | 0.1357 | 96 |
| 26-Feb-14 | 26467 | 13618.59 | 13642.10 | 1410.60 | 31 | 32 | 31.5 | 16.9 | 1018.2 | 0.99 | 1397 | 2.7178 | 2.7908 | 0.0730 | 52 |
| <i># Invalidated result as the monitoring was run for 9.5 hours only.</i> | | | | | | | | | | | | | | | |

Construction Noise Monitoring Results, dB(A)

| Date | Start Time | 1 st Leq _{5min} | L10 | L90 | 2 nd Leq _{5min} | L10 | L90 | 3 rd Leq _{5min} | L10 | L90 | 4 th Leq _{5min} | L10 | L90 | 5 th Leq _{5min} | L10 | L90 | 6 th Leq _{5min} | L10 | L90 | Leq30 | façade correction |
|--|------------|--|------|------|--|------|------|--|------|------|--|------|------|--|------|------|--|------|------|-------|-------------------|
| NM1 - Tsung Yuen Ha Village House No. 63 | | | | | | | | | | | | | | | | | | | | | |
| 4-Feb-14 | 11:30 | 44.3 | 45.8 | 38.4 | 40.9 | 42.9 | 37.9 | 41.1 | 42.6 | 37.9 | 40.6 | 42.1 | 37.8 | 44.1 | 44.8 | 38.3 | 45.8 | 48.1 | 37.8 | 43 | NA |
| 10-Feb-14 | 15:12 | 65.4 | 67.7 | 55.2 | 68.4 | 69.6 | 55.2 | 68.7 | 71.1 | 55.1 | 64.8 | 66.1 | 54.2 | 63.6 | 65.7 | 53.7 | 70.0 | 72.6 | 54.7 | 67 | NA |
| 15-Feb-14 | 17:00 | 60.1 | 63.1 | 46.4 | 54.9 | 57.7 | 48.0 | 53.0 | 55.5 | 49.2 | 51.4 | 53.0 | 48.2 | 49.8 | 51.9 | 46.9 | 48.1 | 50.4 | 45.7 | 55 | NA |
| 21-Feb-14 | 14:00 | 49.0 | 50.3 | 46.6 | 48.6 | 51.7 | 43.9 | 49.6 | 52.0 | 45.6 | 49.2 | 51.8 | 4.9 | 52.1 | 54.0 | 48.3 | 51.2 | 53.5 | 46.9 | 50 | NA |
| 27-Feb-14 | 11:18 | 48.4 | 49.4 | 46.5 | 48.3 | 49.5 | 46.4 | 46.9 | 48.2 | 44.5 | 46.3 | 48.2 | 42.5 | 45.5 | 47.4 | 42.4 | 48.2 | 50.3 | 44.5 | 47 | NA |
| NM2 - Village House near Lin Ma Hang Road | | | | | | | | | | | | | | | | | | | | | |
| 4-Feb-14 | 16:50 | 59.4 | 62.2 | 45.5 | 54.8 | 55.4 | 45.3 | 58.5 | 60.8 | 51.2 | 61.9 | 62.1 | 51.1 | 64.2 | 65.2 | 51.6 | 57.7 | 58.2 | 50.4 | 60 | NA |
| 10-Feb-14 | 15:00 | 55.2 | 56.6 | 53.6 | 55.0 | 56.4 | 53.4 | 55.7 | 57.0 | 53.7 | 55.8 | 57.7 | 53.3 | 54.9 | 56.3 | 53.3 | 65.6 | 57.6 | 53.0 | 59 | NA |
| 15-Feb-14 | 17:01 | 49.9 | 51.8 | 46.1 | 48.5 | 49.2 | 46.5 | 55.3 | 51.1 | 47.2 | 59.7 | 58.2 | 47.8 | 61.6 | 56.7 | 47.0 | 51.9 | 54.4 | 46.3 | 57 | NA |
| 21-Feb-14 | 15:07 | 69.4 | 70.0 | 44.8 | 59.6 | 62.3 | 42.7 | 58.7 | 58.3 | 43.3 | 58.8 | 60.8 | 43.7 | 58.0 | 61.7 | 46.4 | 62.5 | 65.7 | 48.5 | 64 | NA |
| 27-Feb-14 | 17:21 | 68.0 | 70.9 | 51.5 | 62.0 | 63.3 | 48.7 | 63.2 | 67.1 | 51.0 | 64.0 | 68.3 | 50.6 | 63.0 | 66.0 | 49.5 | 63.7 | 68.2 | 49.6 | 64 | NA |
| NM8 - Village House, Tong Hang | | | | | | | | | | | | | | | | | | | | | |
| 4-Feb-14 | 13:06 | 61.7 | 64.5 | 50.5 | 60.5 | 64.0 | 49.0 | 60.5 | 66.0 | 49.5 | 60.0 | 65.0 | 51.0 | 58.1 | 62.5 | 51.5 | 60.8 | 66.0 | 51.0 | 60 | NA |
| 10-Feb-14 | 13:20 | 63.6 | 67.5 | 56.0 | 59.7 | 63.0 | 54.5 | 62.1 | 65.0 | 55.5 | 59.4 | 61.5 | 54.0 | 60.6 | 62.5 | 54.5 | 59.8 | 62.0 | 55.0 | 61 | NA |
| 15-Feb-14 | 13:21 | 61.8 | 66.5 | 53.5 | 61.3 | 65.5 | 53.0 | 60.4 | 64.0 | 52.0 | 60.5 | 65.0 | 52.0 | 62.3 | 67.0 | 52.0 | 61.4 | 65.5 | 52.0 | 61 | NA |
| 21-Feb-14 | 13:27 | 59.5 | 63.0 | 49.5 | 57.6 | 61.0 | 49.5 | 58.3 | 63.5 | 48.0 | 59.8 | 63.5 | 49.5 | 56.1 | 58.0 | 47.5 | 57.2 | 59.5 | 48.5 | 58 | NA |
| 27-Feb-14 | 13:22 | 56.9 | 60.3 | 48.5 | 55.6 | 60.0 | 47.5 | 54.5 | 57.5 | 48.0 | 54.9 | 57.0 | 46.0 | 54.9 | 60.5 | 45.5 | 55.9 | 60.5 | 46.0 | 56 | NA |
| NM9 - Village House, Kiu Tau Village | | | | | | | | | | | | | | | | | | | | | |
| 4-Feb-14 | 13:50 | 57.4 | 61.0 | 49.5 | 58.2 | 63.0 | 50.5 | 61.3 | 64.5 | 52.0 | 58.4 | 61.5 | 50.5 | 57.8 | 62.0 | 49.5 | 57.3 | 62.0 | 49.0 | 59 | NA |
| 10-Feb-14 | 14:04 | 57.3 | 61.0 | 50.5 | 57.4 | 61.0 | 52.0 | 57.2 | 61.5 | 51.5 | 61.0 | 65.0 | 51.0 | 63.7 | 68.0 | 52.5 | 55.5 | 58.0 | 51.5 | 60 | NA |
| 15-Feb-14 | 14:01 | 62.6 | 65.0 | 51.0 | 57.7 | 60.0 | 51.0 | 54.6 | 58.0 | 50.5 | 57.1 | 60.0 | 50.0 | 56.4 | 60.5 | 51.0 | 57.8 | 61.0 | 52.0 | 59 | NA |
| 21-Feb-14 | 14:11 | 56.2 | 60.5 | 48.5 | 54.7 | 58.5 | 46.5 | 58.5 | 62.5 | 46.0 | 57.1 | 61.0 | 44.5 | 56.5 | 58.5 | 50.0 | 57.1 | 60.0 | 52.5 | 57 | NA |
| 27-Feb-14 | 14:07 | 52.9 | 57.5 | 43.0 | 51.7 | 55.0 | 44.0 | 54.7 | 58.0 | 45.5 | 54.8 | 59.0 | 46.5 | 53.8 | 57.0 | 47.0 | 56.2 | 60.0 | 48.0 | 54 | NA |
| NM10 - Nam Wa Po Village House No. 80 | | | | | | | | | | | | | | | | | | | | | |
| 4-Feb-14 | 15:28 | 57.7 | 61.4 | 52.8 | 54.6 | 56.2 | 52.1 | 56.3 | 59.2 | 52.8 | 55.3 | 57.4 | 51.9 | 68.9 | 73.4 | 53.2 | 55.2 | 58.2 | 51.8 | 62 | 65 |
| 10-Feb-14 | 17:47 | 56.3 | 57.7 | 54.0 | 56.0 | 57.5 | 54.3 | 56.4 | 57.6 | 54.4 | 56.9 | 58.5 | 53.9 | 55.9 | 57.5 | 54.1 | 57.5 | 56.7 | 53.6 | 57 | 60 |
| 15-Feb-14 | 9:54 | 64.4 | 65.5 | 62.0 | 68.2 | 66.5 | 61.0 | 75.6 | 66.5 | 61.5 | 63.2 | 64.5 | 61.0 | 75.8 | 73.0 | 60.0 | 61.7 | 63.5 | 59.0 | 72 | 75 |
| 21-Feb-14 | 10:06 | 69.6 | 72.0 | 64.0 | 66.4 | 68.0 | 63.0 | 64.9 | 66.5 | 63.0 | 64.8 | 66.0 | 62.0 | 65.3 | 66.5 | 62.5 | 65.2 | 66.0 | 63.5 | 66 | 69 |
| 27-Feb-14 | 15:00 | 72.9 | 76.0 | 67.5 | 72.5 | 75.0 | 68.5 | 71.7 | 74.5 | 64.5 | 73.4 | 77.0 | 66.0 | 71.7 | 75.0 | 67.5 | 71.4 | 74.5 | 67.5 | 72 | 75 |

Water Quality Monitoring Results

| Date | | 4-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM1-C | 11:52 | 0.32 | 20.8 | 20.8 | 6.09 | 6.1 | 67.1 | 66.9 | 50.8 | 50.0 | 7.8 | 7.8 | 30 | 31.0 | |
| | | | 20.8 | | 6.04 | | 66.6 | | 49.2 | | 7.8 | | 32 | | |
| WM1 | 12:12 | 0.69 | 20.5 | 20.5 | 6.65 | 6.6 | 75.9 | 75.4 | 23.2 | 23.5 | 7.8 | 7.8 | 15 | 15.0 | |
| | | | 20.5 | | 6.59 | | 74.9 | | 23.8 | | 7.7 | | 15 | | |

| Date | | 6-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM1-C | 11:15 | 0.22 | 19.5 | 19.5 | 6.04 | 6.1 | 66.6 | 67.1 | 73.3 | 73.8 | 7.8 | 7.8 | 25 | 25.5 | |
| | | | 19.5 | | 6.17 | | 67.5 | | 74.3 | | 7.8 | | 26 | | |
| WM1 | 10:33 | 0.64 | 20.3 | 20.3 | 7.57 | 7.4 | 82.4 | 80.4 | 17.3 | 16.6 | 7.2 | 7.2 | 8 | 8.5 | |
| | | | 20.3 | | 7.18 | | 78.4 | | 15.9 | | 7.2 | | 9 | | |

| Date | | 8-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM1-C | 13:51 | 0.31 | 17 | 17.0 | 6.30 | 6.3 | 65.3 | 65.1 | 40.3 | 40.8 | 7.9 | 7.9 | 20 | 19.5 | |
| | | | 17 | | 6.28 | | 64.8 | | 41.2 | | 7.9 | | 19 | | |
| WM1 | 14:10 | 0.69 | 18 | 18.0 | 6.40 | 6.3 | 66.7 | 66.1 | 26.5 | 26.4 | 7.8 | 7.8 | 15 | 15.5 | |
| | | | 18 | | 6.25 | | 65.5 | | 26.3 | | 7.8 | | 16 | | |

| Date | | 10-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|------|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM1-C | 15:30 | 0.29 | 10.5 | 10.5 | 10.13 | 10.3 | 89.3 | 90.3 | 57.3 | 57.5 | 7.9 | 7.9 | 15 | 15.0 | |
| | | | 10.5 | | 10.48 | | 91.2 | | 57.6 | | 7.9 | | 15 | | |
| WM1 | 16:00 | 0.71 | 11.5 | 11.5 | 7.89 | 7.8 | 70.2 | 69.5 | 29.5 | 29.1 | 7.6 | 7.6 | 10 | 10.5 | |
| | | | 11.5 | | 7.67 | | 68.7 | | 28.7 | | 7.6 | | 11 | | |

| Date | | 12-Feb-14 | | | | | | | | | | | | | |
|------|--|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|
|------|--|-----------|--|--|--|--|--|--|--|--|--|--|--|--|--|

| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
|----------|-------|-----------|-----------|------|-----------|------|--------|------|-----------------|------|-----|-----|----------|------|
| | | | | | | | | | | | | | | |
| WM1-C | 14:10 | 0.29 | 10 | 10.0 | 10.11 | 10.1 | 88.8 | 88.7 | 11.5 | 11.7 | 7.5 | 7.5 | 4 | 4.5 |
| | | | 10 | | 10.07 | | 88.5 | | 11.9 | | 7.5 | | 5 | |
| WM1 | 14:50 | 0.66 | 10 | 10.0 | 8.29 | 8.3 | 72.3 | 72.7 | 25.8 | 26.3 | 7.7 | 7.7 | 15 | 15.5 |
| | | | 10 | | 8.4 | | 73.1 | | 26.7 | | 7.7 | | 16 | |

| Date | 15-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| | | | | | | | | | | | | | | |
| WM1-C | 17:10 | 0.17 | 13 | 13.0 | 9.68 | 9.7 | 90.2 | 90.0 | 22.6 | 22.3 | 7.7 | 7.7 | 9 | 8.0 |
| | | | 13 | | 9.64 | | 89.8 | | 21.9 | | 7.7 | | 7 | |
| WM1 | 16:49 | 0.87 | 14.4 | 14.4 | 7.37 | 7.4 | 70.8 | 70.7 | 15.5 | 15.5 | 7.9 | 7.9 | 9 | 10.0 |
| | | | 14.4 | | 7.34 | | 70.6 | | 15.5 | | 7.9 | | 11 | |

| Date | 17-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|-------|-----------------|------|-----|-----|----------|-----|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| | | | | | | | | | | | | | | |
| WM1-C | 12:25 | 0.24 | 22.5 | 22.5 | 9.88 | 9.7 | 111.2 | 109.6 | 12.5 | 12.6 | 7.4 | 7.4 | 3 | 3.5 |
| | | | 22.5 | | 9.59 | | 107.9 | | 12.7 | | 7.4 | | 4 | |
| WM1 | 12:43 | 0.68 | 19 | 19.0 | 6.76 | 6.7 | 74.1 | 73.6 | 11.6 | 11.5 | 7.2 | 7.2 | 8 | 9.0 |
| | | | 19 | | 6.67 | | 73.1 | | 11.4 | | 7.2 | | 10 | |

| Date | 19-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|-------|-----|-----|----------|-------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| | | | | | | | | | | | | | | |
| WM1-C | 10:47 | 0.26 | 10.5 | 10.5 | 8.62 | 8.7 | 79.3 | 78.0 | 442.0 | 450.0 | 7.7 | 7.7 | 174 | 171.0 |
| | | | 10.5 | | 8.73 | | 76.7 | | 458.0 | | 7.7 | | 168 | |
| WM1 | 11:14 | 0.71 | 13.5 | 13.5 | 6.03 | 6.1 | 56.4 | 57.3 | 18.1 | 17.8 | 7.8 | 7.8 | 12 | 12.0 |
| | | | 13.5 | | 6.21 | | 58.1 | | 17.4 | | 7.8 | | 12 | |

| Date | 21-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|-------|-----------------|------|-----|-----|----------|-----|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| | | | | | | | | | | | | | | |
| WM1-C | 14:00 | 0.34 | 16 | 16.0 | 9.78 | 9.8 | 100.9 | 101.3 | 10.6 | 10.4 | 8.1 | 8.1 | 4 | 3.5 |
| | | | 16 | | 9.91 | | 101.6 | | 10.2 | | 8.1 | | 3 | |

| | | | | | | | | | | | | | | |
|-----|-------|------|----|------|------|-----|------|------|------|------|-----|-----|---|-----|
| WM1 | 14:45 | 0.44 | 16 | 16.0 | 4.37 | 4.4 | 43.3 | 43.3 | 44.6 | 44.0 | 7.8 | 7.8 | 9 | 9.0 |
| | | | 16 | | 4.36 | | 43.2 | | 43.4 | | 7.8 | | 9 | |

| Date | 25-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|------|--------|-------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM1-C | 14:45 | 0.39 | 22 | 22.0 | 12.33 | 12.2 | 137.2 | 136.5 | 15.1 | 15.5 | 7.4 | 7.4 | 7 | 6.5 |
| | | | 22 | | 12.16 | | 135.7 | | 15.9 | | 7.4 | | 6 | |
| WM1 | 15:35 | 0.87 | 23 | 23.0 | 14.91 | 15.1 | 172.5 | 174.4 | 26.0 | 26.3 | 7.4 | 7.4 | 18 | 18.0 |
| | | | 23 | | 15.28 | | 176.2 | | 26.5 | | 7.4 | | 18 | |

| Date | 27-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM1-C | 11:18 | 0.40 | 21 | 21.0 | 5.78 | 5.9 | 67.2 | 68.1 | 26.5 | 26.3 | 7.7 | 7.7 | 21 | 22.0 |
| | | | 21 | | 5.92 | | 68.9 | | 26.1 | | 7.7 | | 23 | |
| WM1 | 10:51 | 0.85 | 20 | 20.0 | 7 | 6.9 | 76.6 | 75.2 | 23.5 | 23.2 | 7.5 | 7.5 | 19 | 20.0 |
| | | | 20 | | 6.74 | | 73.8 | | 22.9 | | 7.5 | | 21 | |

| Date | 4-Feb-14 | | | | | | | | | | | | | |
|----------|----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 15:00 | 0.11 | 20.5 | 20.5 | 7.24 | 7.2 | 79.8 | 79.1 | 5.0 | 5.0 | 7.6 | 7.6 | 3 | 3.0 |
| | | | 20.5 | | 7.2 | | 78.4 | | 5.0 | | 7.5 | | 3 | |
| WM4-CB | 14:15 | 0.18 | 21 | 21.0 | 5.82 | 5.7 | 64.8 | 63.9 | 6.1 | 6.4 | 7.3 | 7.3 | 6 | 6.0 |
| | | | 21 | | 5.66 | | 62.9 | | 6.6 | | 7.3 | | 6 | |
| WM4 | 15:15 | 0.24 | 22.5 | 22.5 | 9 | 8.9 | 99.5 | 98.8 | 28.1 | 27.8 | 7.2 | 7.2 | 48 | 50.0 |
| | | | 22.5 | | 8.89 | | 98.0 | | 27.5 | | 7.2 | | 52 | |

| Date | 6-Feb-14 | | | | | | | | | | | | | |
|----------|----------|-----------|-----------|------|-----------|-----|--------|-------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 13:20 | 0.17 | 23.5 | 23.5 | 7.94 | 7.8 | 91.6 | 90.5 | 4.5 | 4.8 | 8.5 | 8.5 | 4 | 3.5 |
| | | | 23.5 | | 7.73 | | 89.3 | | 5.1 | | 8.5 | | 3 | |
| WM4-CB | 12:51 | 0.14 | 23.0 | 23.0 | 7.6 | 7.6 | 87.8 | 87.8 | 7.9 | 7.6 | 7.8 | 7.8 | 8 | 8.0 |
| | | | 23.0 | | 7.52 | | 87.8 | | 7.3 | | 7.8 | | 8 | |
| WM4 | 13:45 | 0.29 | 22.5 | 22.5 | 9.39 | 9.3 | 106.8 | 105.1 | 12.3 | 12.1 | 8.0 | 8.0 | 33 | 33.0 |

| | | | | | | | | | | | | | | |
|--|--|--|------|--|------|--|-------|--|------|--|-----|--|----|--|
| | | | 22.5 | | 9.17 | | 103.3 | | 11.8 | | 8.0 | | 33 | |
|--|--|--|------|--|------|--|-------|--|------|--|-----|--|----|--|

| Date | | 8-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM4-CA | 12:10 | 0.14 | 17.2 | 17.2 | 6.24 | 6.2 | 64.6 | 64.5 | 4.7 | 4.4 | 8.2 | 8.2 | 3 | 2.5 | |
| | | | 17.2 | | 6.21 | | 64.3 | | 4.2 | | 8.2 | | 2 | | |
| WM4-CB | 11:45 | 0.17 | 17.5 | 17.5 | 4.07 | 4.1 | 42.5 | 43.1 | 7.5 | 7.4 | 8.1 | 8.1 | 8 | 8.0 | |
| | | | 17.5 | | 4.18 | | 43.6 | | 7.4 | | 8.1 | | 8 | | |
| WM4 | 12:20 | 0.29 | 17.3 | 17.3 | 5.77 | 5.7 | 59.4 | 59.1 | 11.8 | 11.9 | 7.9 | 7.9 | 19 | 19.0 | |
| | | | 17.3 | | 5.71 | | 58.7 | | 11.9 | | 7.9 | | 19 | | |

| Date | | 10-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM4-CA | 13:29 | 0.12 | 12.4 | 12.4 | 7.45 | 7.4 | 68.5 | 68.4 | 25.2 | 25.0 | 7.8 | 7.8 | 26 | 26.5 | |
| | | | 12.4 | | 7.42 | | 68.2 | | 24.8 | | 7.8 | | 27 | | |
| WM4-CB | 13:18 | 0.11 | 13.5 | 13.5 | 7.19 | 7.3 | 63.2 | 63.5 | 8.7 | 8.6 | 7.9 | 7.9 | 5 | 6.5 | |
| | | | 13.5 | | 7.34 | | 63.8 | | 8.6 | | 7.9 | | 8 | | |
| WM4 | 13:41 | 0.24 | 11.5 | 11.5 | 9.97 | 9.9 | 81.4 | 81.0 | 15.3 | 15.2 | 7.7 | 7.7 | 4 | 5.0 | |
| | | | 11.5 | | 9.84 | | 80.6 | | 15.0 | | 7.7 | | 6 | | |

| Date | | 12-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|-----|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM4-CA | 16:30 | 0.18 | 9.1 | 9.1 | 9.3 | 9.3 | 79.2 | 79.0 | 4.8 | 4.6 | 7.9 | 7.9 | 3 | 3.0 | |
| | | | 9.1 | | 9.25 | | 78.7 | | 4.4 | | 7.9 | | 3 | | |
| WM4-CB | 16:43 | 0.11 | 11.5 | 11.5 | 6.22 | 6.1 | 56.6 | 54.4 | 3.6 | 3.6 | 7.6 | 7.6 | 3 | 3.0 | |
| | | | 11.5 | | 5.93 | | 52.1 | | 3.6 | | 7.6 | | 3 | | |
| WM4 | 16:10 | 0.26 | 11.5 | 11.5 | 7.71 | 7.6 | 69.8 | 69.1 | 11.8 | 11.8 | 7.6 | 7.6 | 8 | 7.5 | |
| | | | 11.5 | | 7.53 | | 68.3 | | 11.7 | | 7.6 | | 7 | | |

| Date | | 15-Feb-14 | | | | | | | | | | | | | |
|----------|-------|-----------|-----------|------|-----------|-----|--------|------|-----------------|-----|-----|-----|----------|-----|--|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | | |
| WM4-CA | 15:44 | 0.19 | 13.5 | 13.5 | 7.4 | 7.4 | 71.0 | 70.5 | 3.8 | 3.8 | 8.3 | 8.3 | <2 | 2.0 | |

| | | | | | | | | | | | | | | |
|--------|-------|------|------|------|------|-----|------|------|------|------|-----|-----|----|-----|
| | | | 13.5 | | 7.3 | | 70.0 | | 3.8 | | 8.3 | | <2 | |
| WM4-CB | 16:00 | 0.19 | 14.5 | 14.5 | 5.23 | 5.2 | 50.4 | 49.9 | 5.1 | 4.9 | 7.8 | 7.8 | 3 | 3.5 |
| | | | 14.5 | | 5.13 | | 49.4 | | 4.7 | | 7.8 | | 4 | |
| WM4 | 15:20 | 0.21 | 14.5 | 14.5 | 6.01 | 6.0 | 59.4 | 59.1 | 11.3 | 11.4 | 7.9 | 7.9 | 9 | 8.5 |
| | | | 14.5 | | 5.95 | | 58.8 | | 11.5 | | 7.9 | | 8 | |

| Date | 17-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 11:17 | 0.15 | 19.0 | 19.0 | 6.82 | 6.9 | 75.0 | 75.1 | 34.8 | 35.5 | 7.3 | 7.3 | 17 | 17.5 |
| | | | 19.0 | | 6.95 | | 75.2 | | 36.1 | | 7.3 | | 18 | |
| WM4-CB | 11:00 | 0.17 | 18.5 | 18.5 | 6.16 | 6.2 | 64.8 | 64.8 | 4.9 | 4.6 | 7 | 7.0 | 8 | 8.0 |
| | | | 18.5 | | 6.14 | | 64.8 | | 4.4 | | 7 | | 8 | |
| WM4 | 11:39 | 0.29 | 20.0 | 20.0 | 7.31 | 7.3 | 80.1 | 79.8 | 9.4 | 9.5 | 7.3 | 7.3 | 9 | 9.5 |
| | | | 20.0 | | 7.25 | | 79.5 | | 9.6 | | 7.3 | | 10 | |

| Date | 19-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|-----|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 14:20 | 0.17 | 13.0 | 13.0 | 9.57 | 9.6 | 87.5 | 88.6 | 7.0 | 7.1 | 7.4 | 7.4 | 3 | 3.5 |
| | | | 13.0 | | 9.71 | | 89.6 | | 7.3 | | 7.4 | | 4 | |
| WM4-CB | 14:42 | 0.18 | 13.0 | 13.0 | 8.05 | 8.1 | 70.8 | 71.6 | 7.8 | 7.6 | 7.2 | 7.2 | <2 | 2.0 |
| | | | 13.0 | | 8.17 | | 72.4 | | 7.5 | | 7.2 | | <2 | |
| WM4 | 14:00 | 0.29 | 13.0 | 13.0 | 8.2 | 8.2 | 76.9 | 76.7 | 16.4 | 16.3 | 7.5 | 7.5 | 8 | 8.0 |
| | | | 13.0 | | 8.14 | | 76.4 | | 16.1 | | 7.4 | | 8 | |

| Date | 21-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|-----|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 11:24 | 0.11 | 16.5 | 16.5 | 6.54 | 6.5 | 65.0 | 64.8 | 6.4 | 6.6 | 7.9 | 7.9 | <2 | 2.0 |
| | | | 16.5 | | 6.49 | | 64.5 | | 6.9 | | 7.9 | | <2 | |
| WM4-CB | 11:31 | 0.15 | 16.0 | 16.0 | 5.17 | 5.2 | 49.0 | 49.3 | 7.8 | 7.9 | 7.4 | 7.4 | 5 | 5.5 |
| | | | 16.0 | | 5.21 | | 49.6 | | 7.9 | | 7.4 | | 6 | |
| WM4 | 11:16 | 0.19 | 16.0 | 16.0 | 6.9 | 6.9 | 68.2 | 67.7 | 11.2 | 11.4 | 7.4 | 7.4 | 7 | 7.5 |
| | | | 16.0 | | 6.81 | | 67.1 | | 11.6 | | 7.4 | | 8 | |

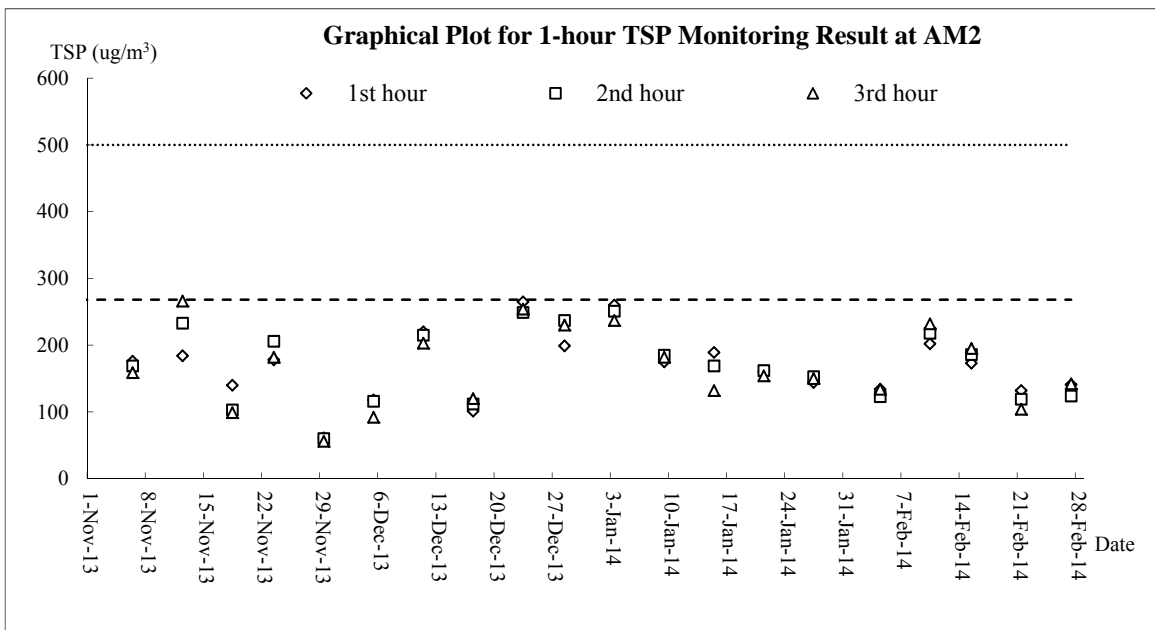
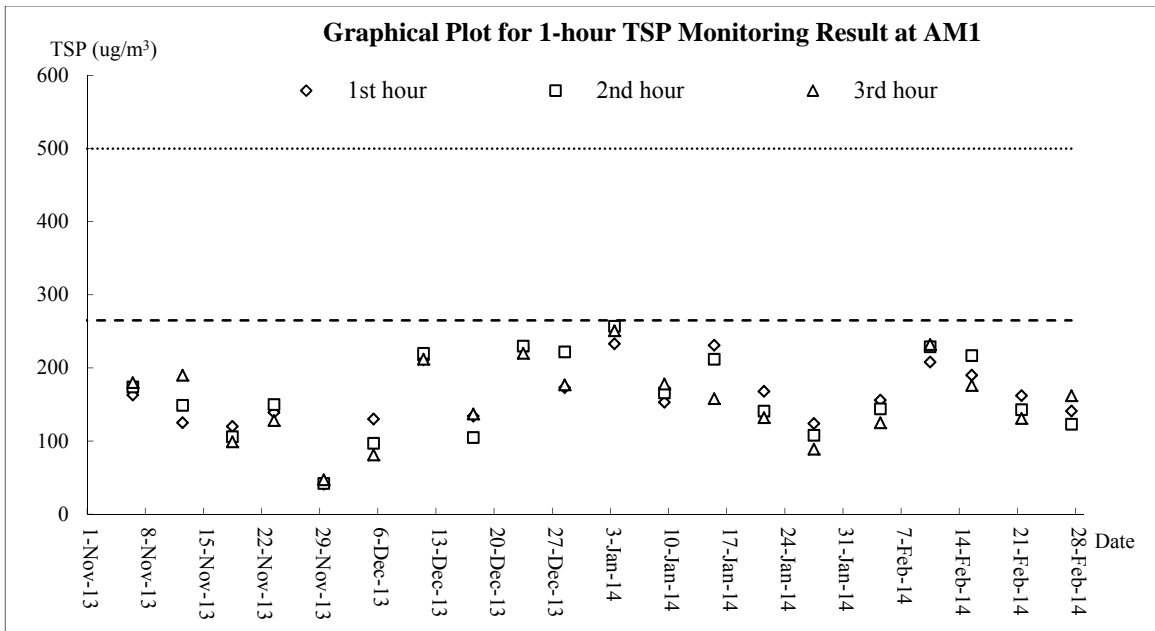
| Date | 25-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 13:03 | 0.11 | 21.5 | 21.5 | 7.66 | 7.6 | 87.5 | 86.5 | 4.8 | 4.6 | 7.9 | 7.9 | 4 | 4.0 |
| | | | 21.5 | | 7.49 | | 85.5 | | 4.3 | | 7.9 | | 4 | |
| WM4-CB | 12:30 | 0.14 | 22.5 | 22.5 | 6.11 | 6.2 | 70.2 | 71.4 | 10.1 | 9.9 | 7.0 | 7.0 | 12 | 11.5 |
| | | | 22.5 | | 6.31 | | 72.5 | | 9.7 | | 7.0 | | 11 | |
| WM4 | 13:19 | 0.19 | 23.0 | 23.0 | 7.25 | 7.3 | 83.7 | 84.1 | 12.6 | 12.7 | 7.4 | 7.4 | 21 | 20.0 |
| | | | 23.0 | | 7.31 | | 84.4 | | 12.7 | | 7.4 | | 19 | |

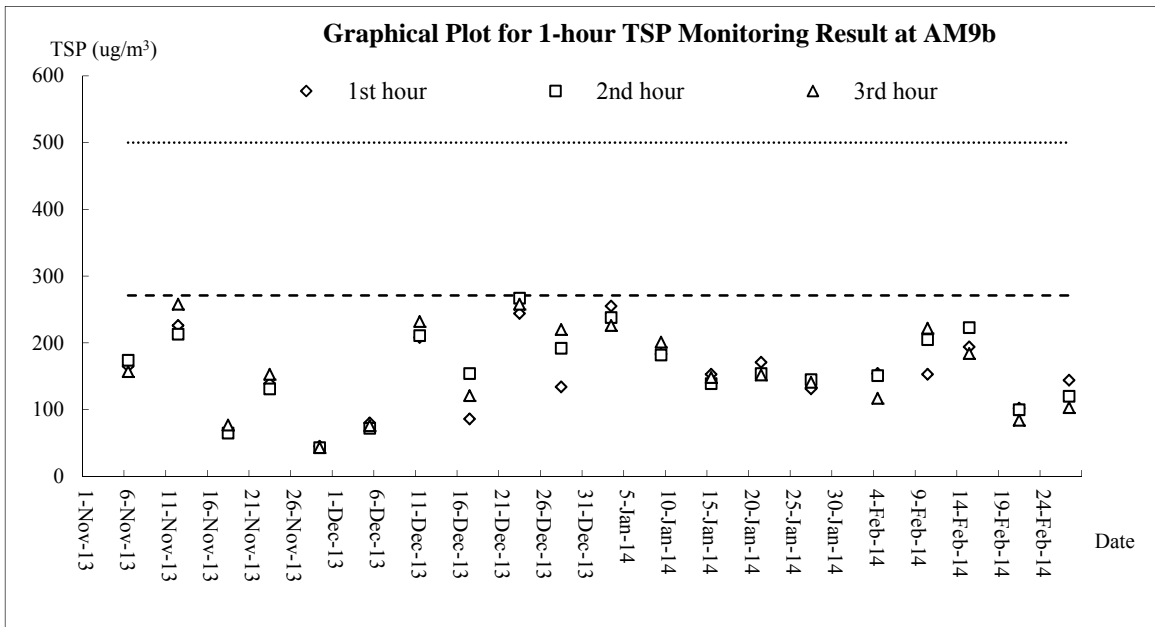
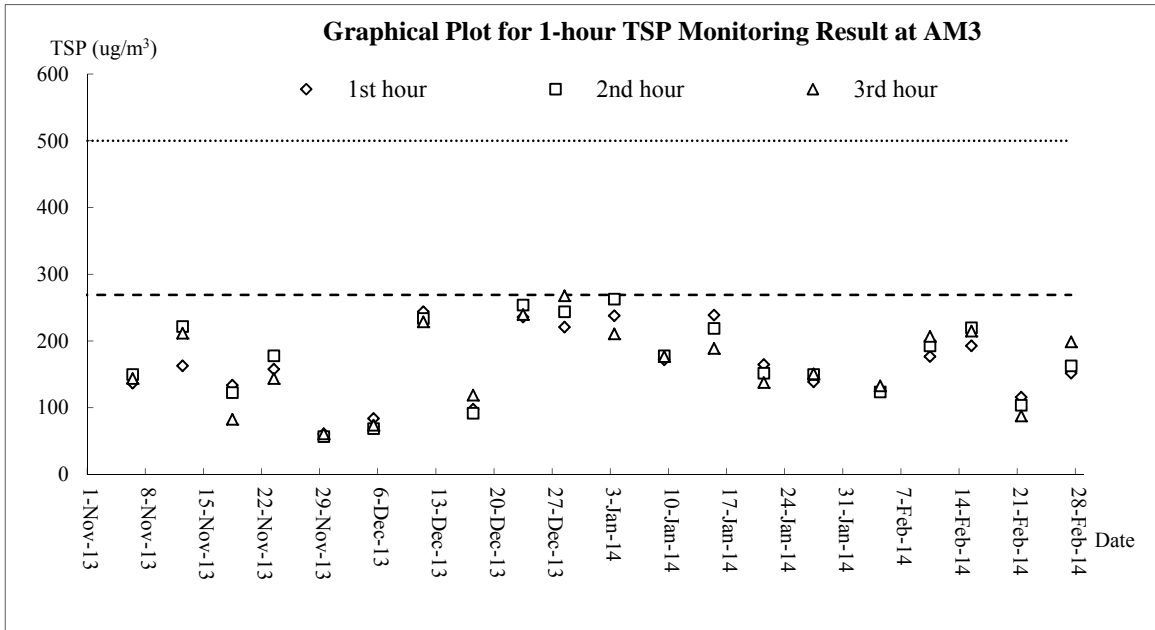
| Date | 27-Feb-14 | | | | | | | | | | | | | |
|----------|-----------|-----------|-----------|------|-----------|-----|--------|------|-----------------|------|-----|-----|----------|------|
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DO (%) | | Turbidity (NTU) | | pH | | SS(mg/L) | |
| WM4-CA | 15:46 | 0.14 | 20.5 | 20.5 | 7.46 | 7.4 | 82.5 | 82.1 | 3.6 | 3.3 | 7.4 | 7.4 | 4 | 4.0 |
| | | | 20.5 | | 7.39 | | 81.7 | | 3.1 | | 7.4 | | 4 | |
| WM4-CB | 15:05 | 0.11 | 23.2 | 23.2 | 5.23 | 5.2 | 60.1 | 60.0 | 9.9 | 9.7 | 7.3 | 7.3 | 15 | 15.0 |
| | | | 23.2 | | 5.2 | | 59.8 | | 9.4 | | 7.3 | | 15 | |
| WM4 | 16:00 | 0.22 | 21.5 | 21.5 | 6.81 | 6.7 | 76.9 | 75.3 | 11.5 | 11.7 | 7.0 | 7.0 | 21 | 20.5 |
| | | | 21.5 | | 6.53 | | 73.6 | | 11.9 | | 7.0 | | 20 | |

Appendix J

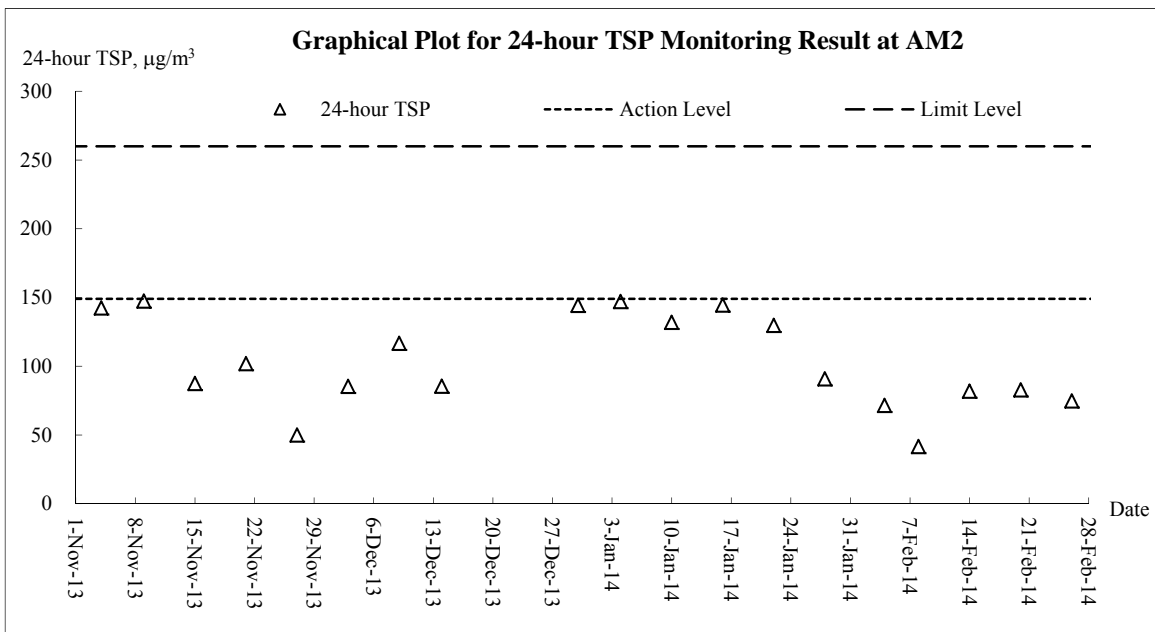
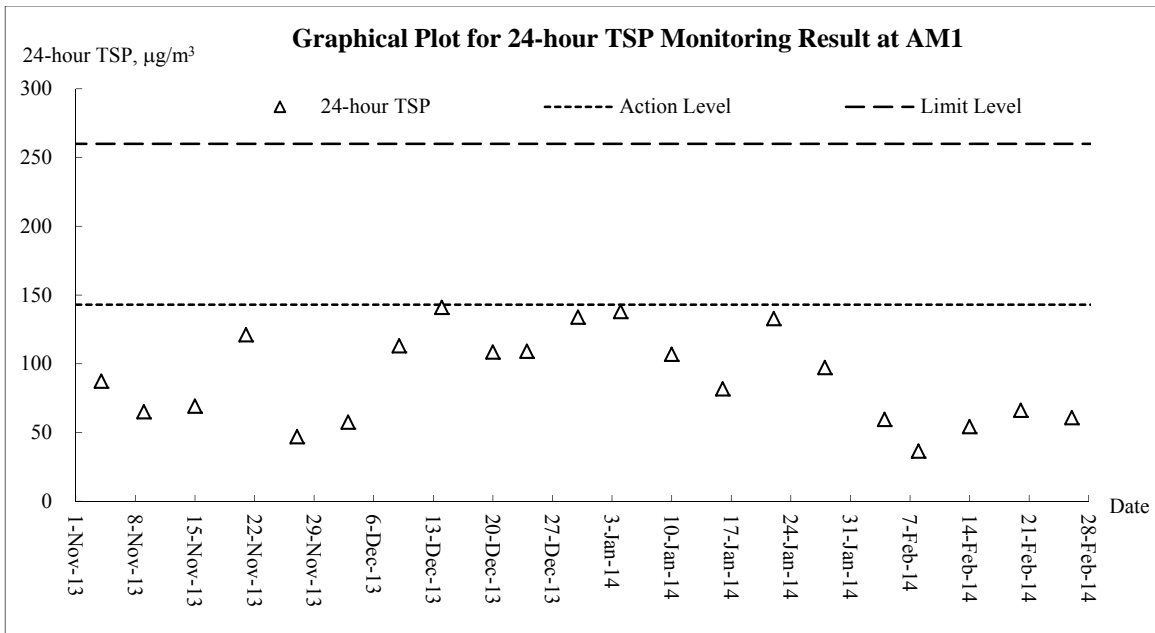
Graphical Plots for Monitoring Result

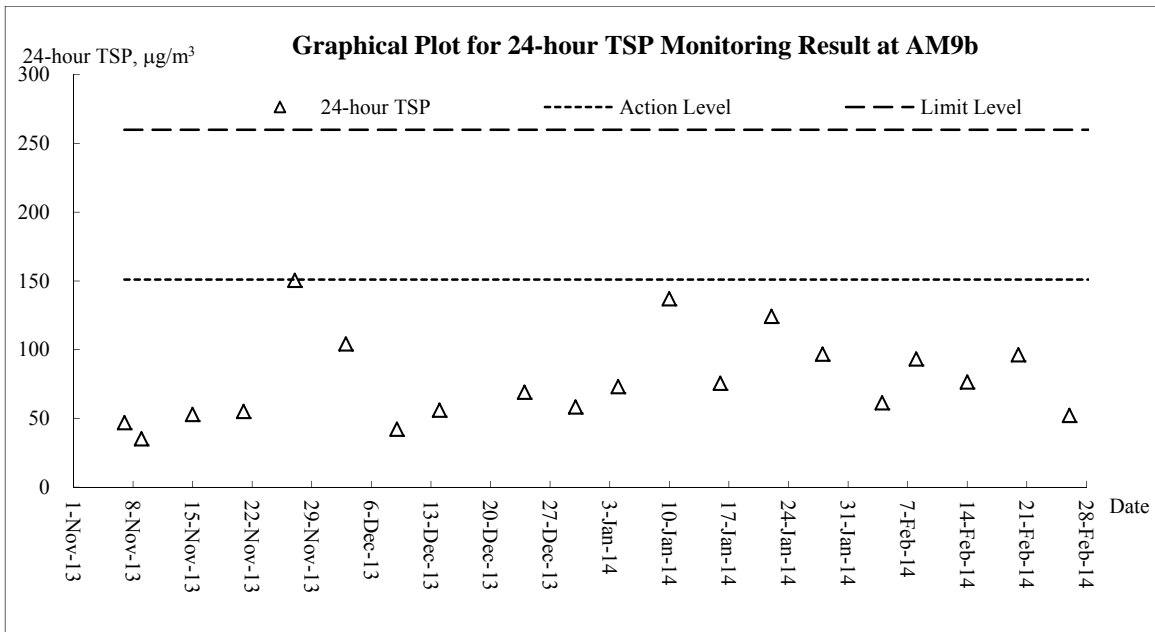
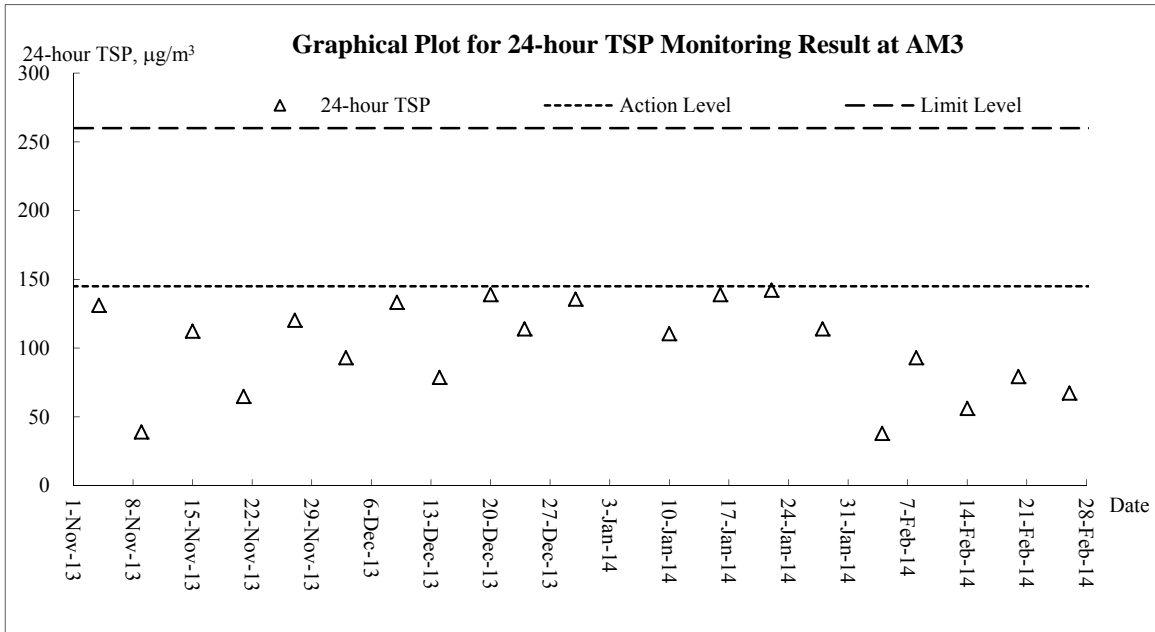
Air Quality – 1-hour TSP



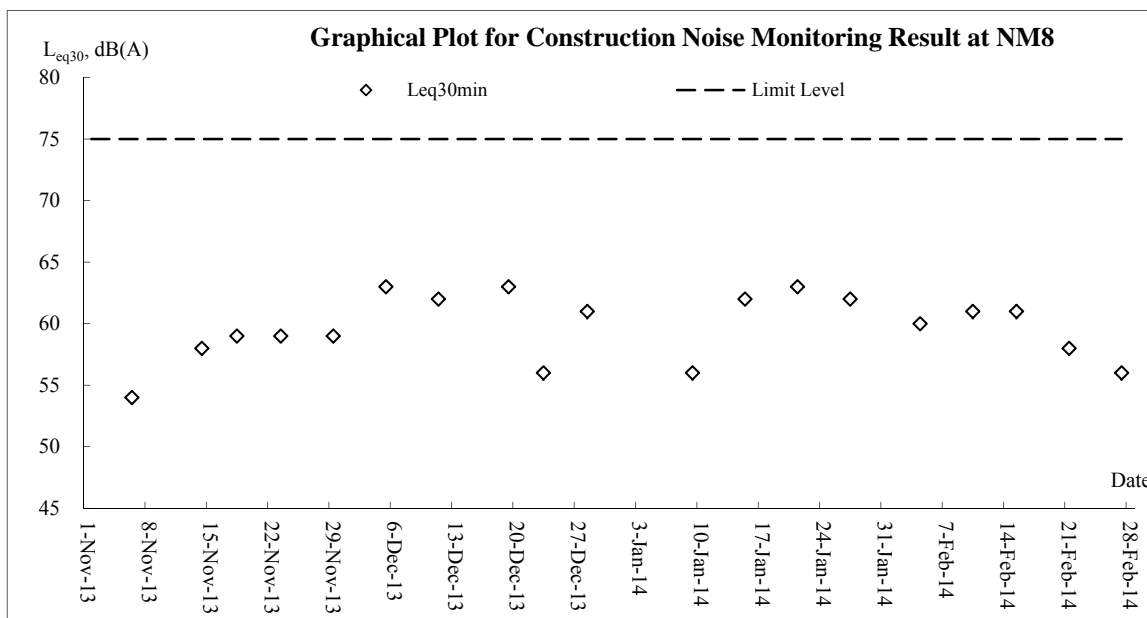
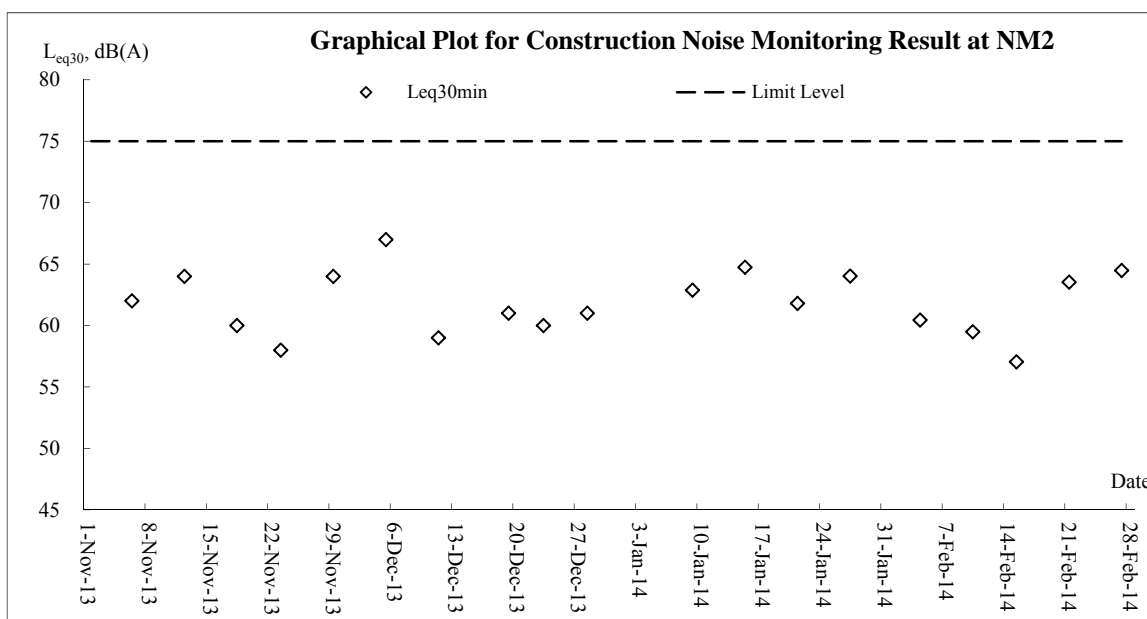
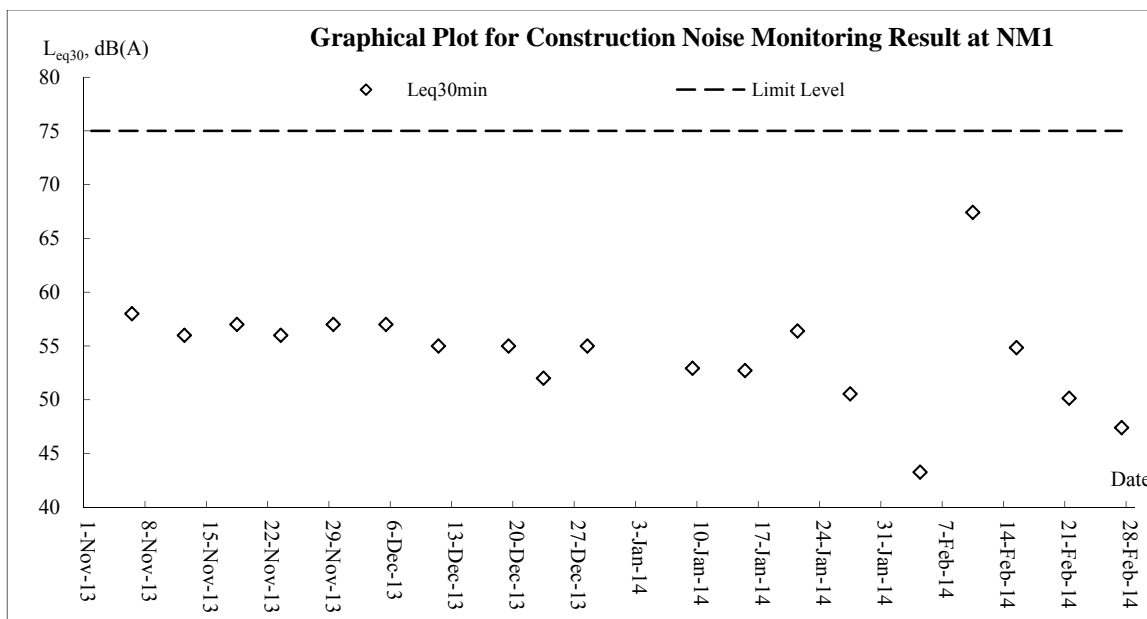


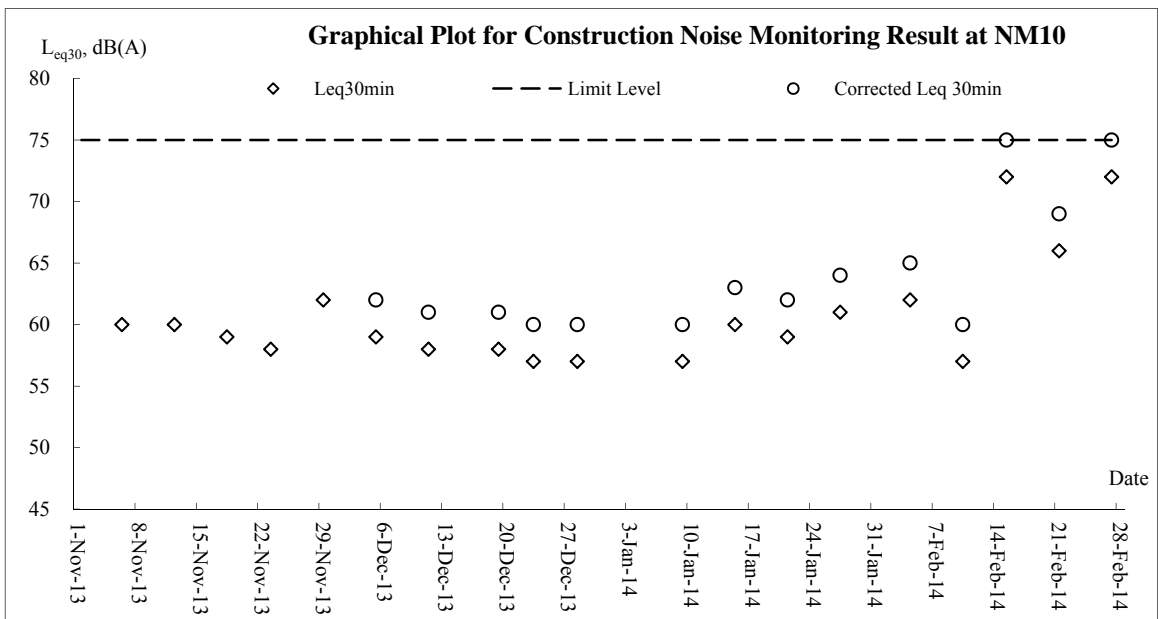
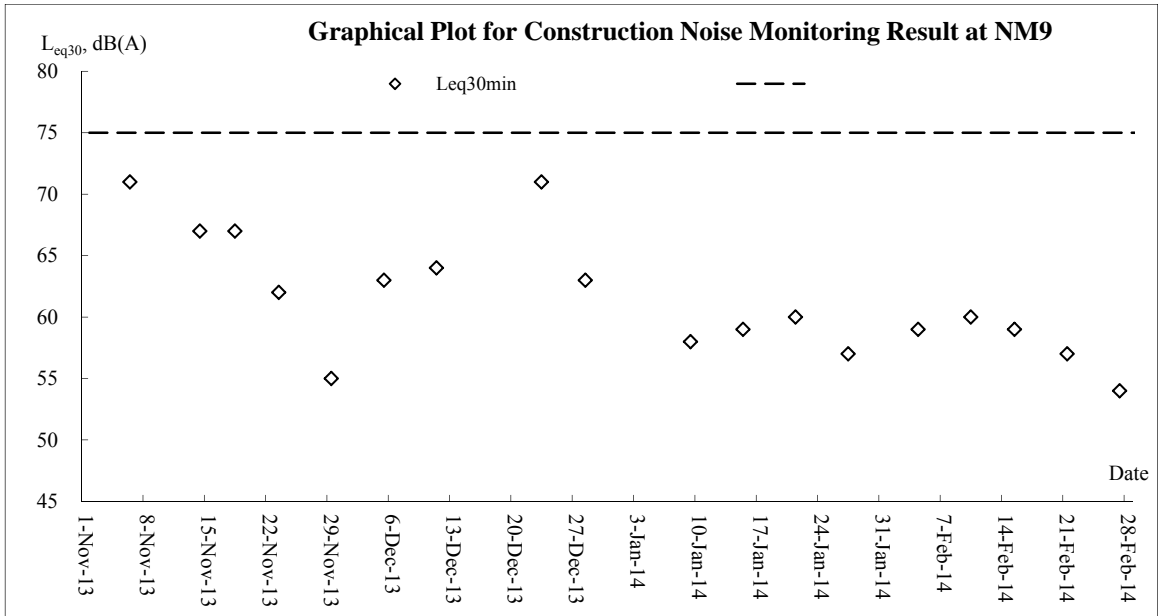
Air Quality – 24-hour TSP



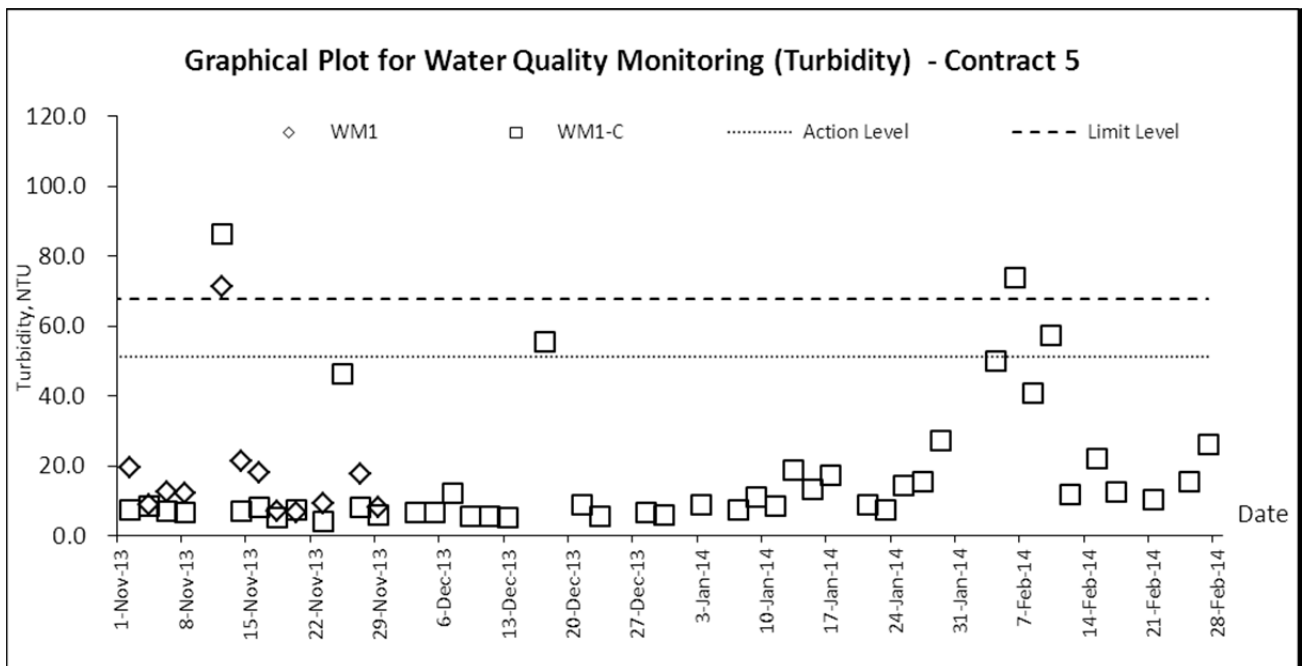
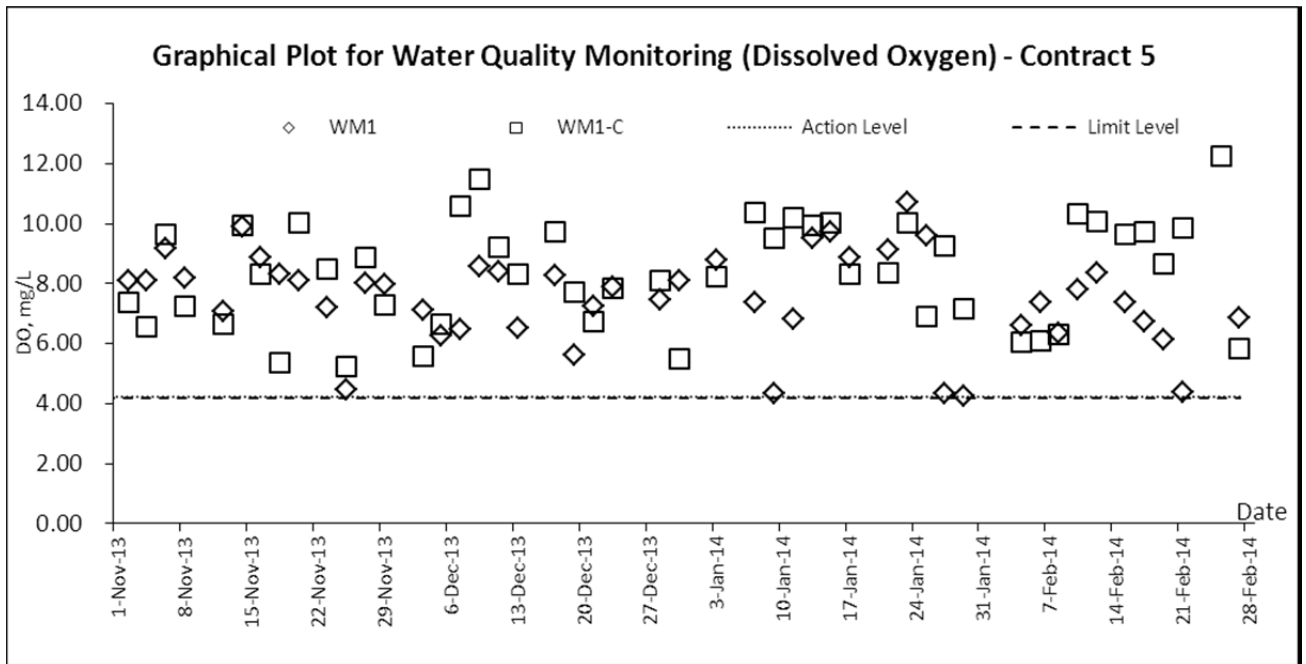


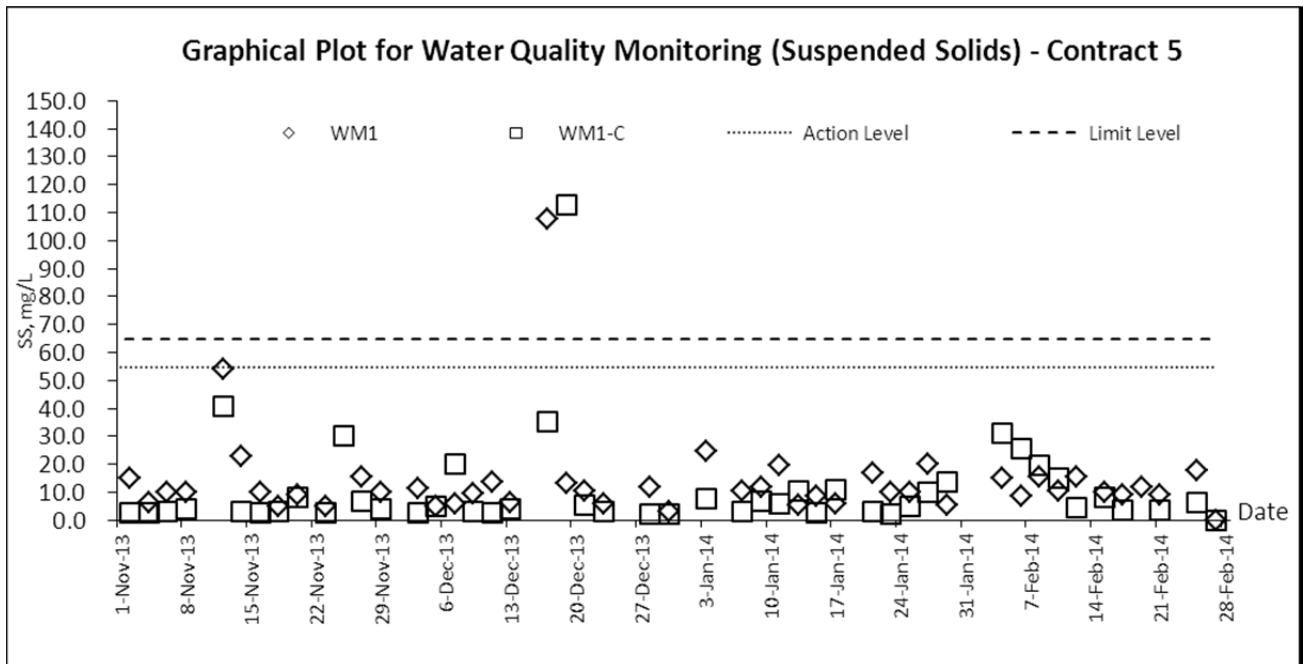
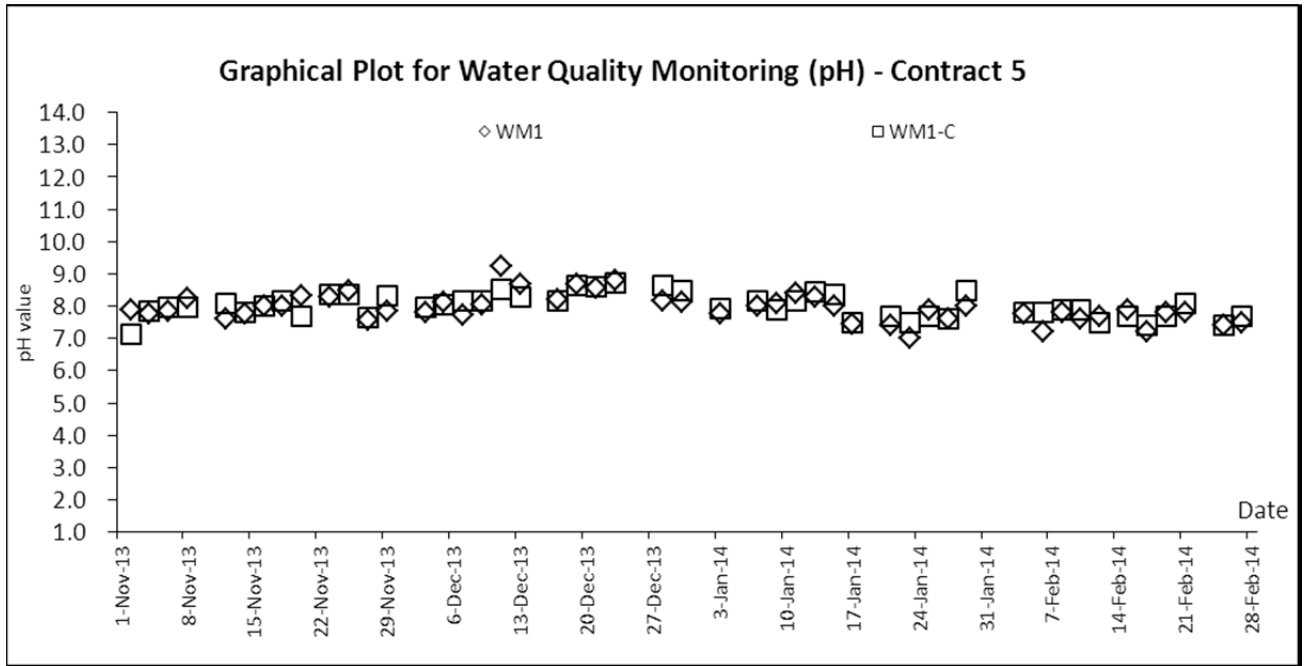
Noise

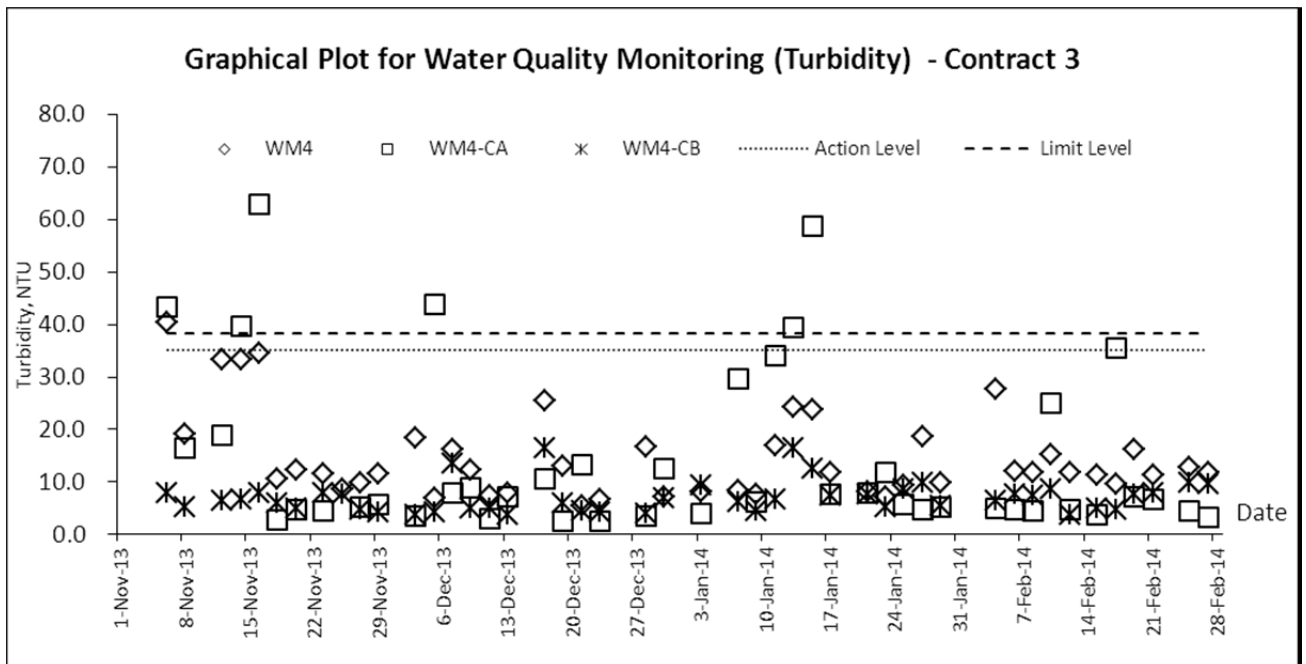
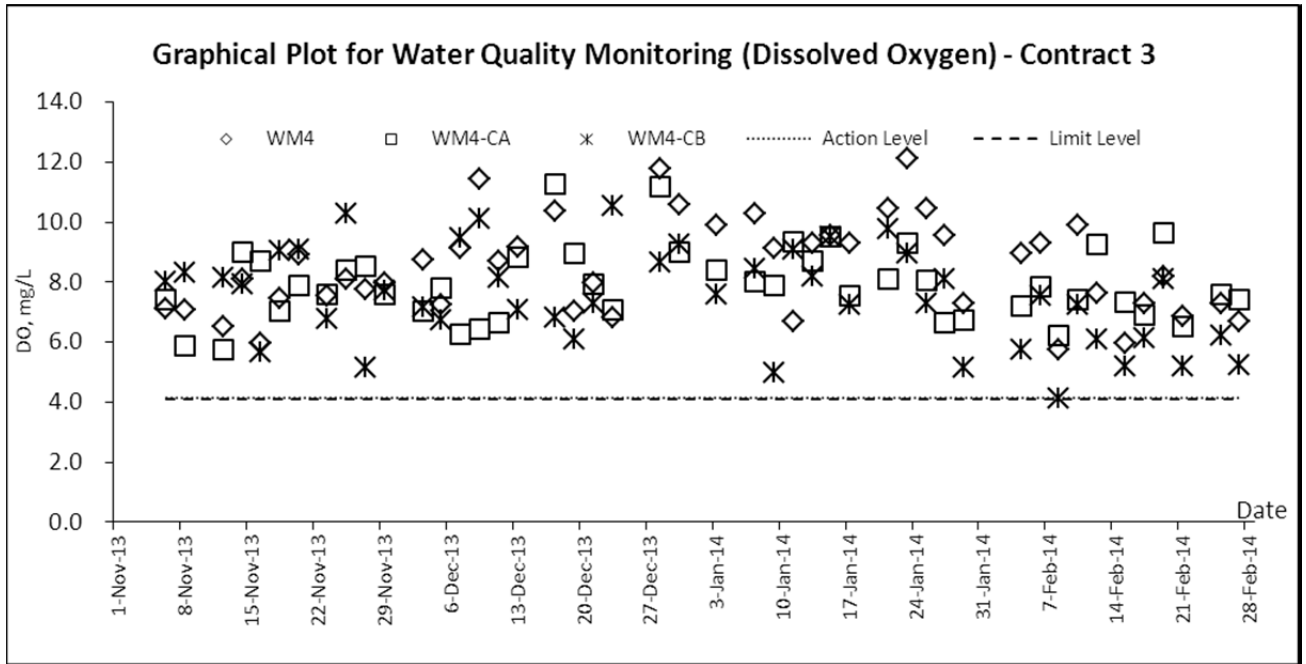


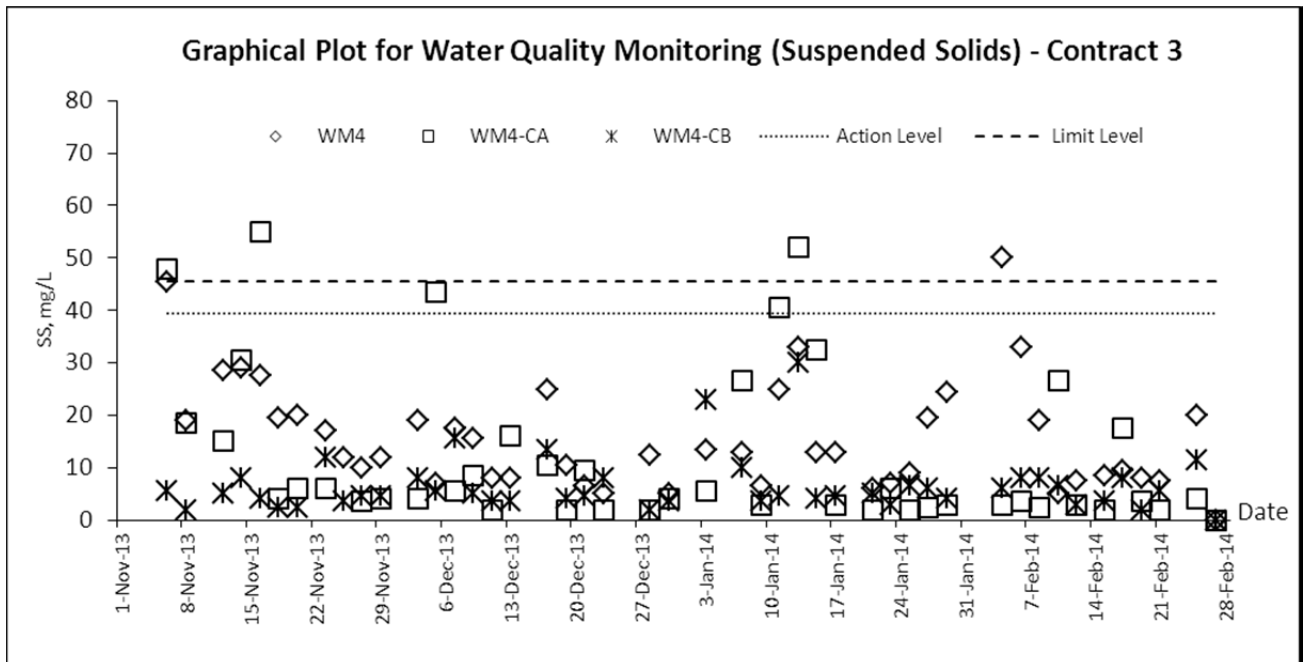
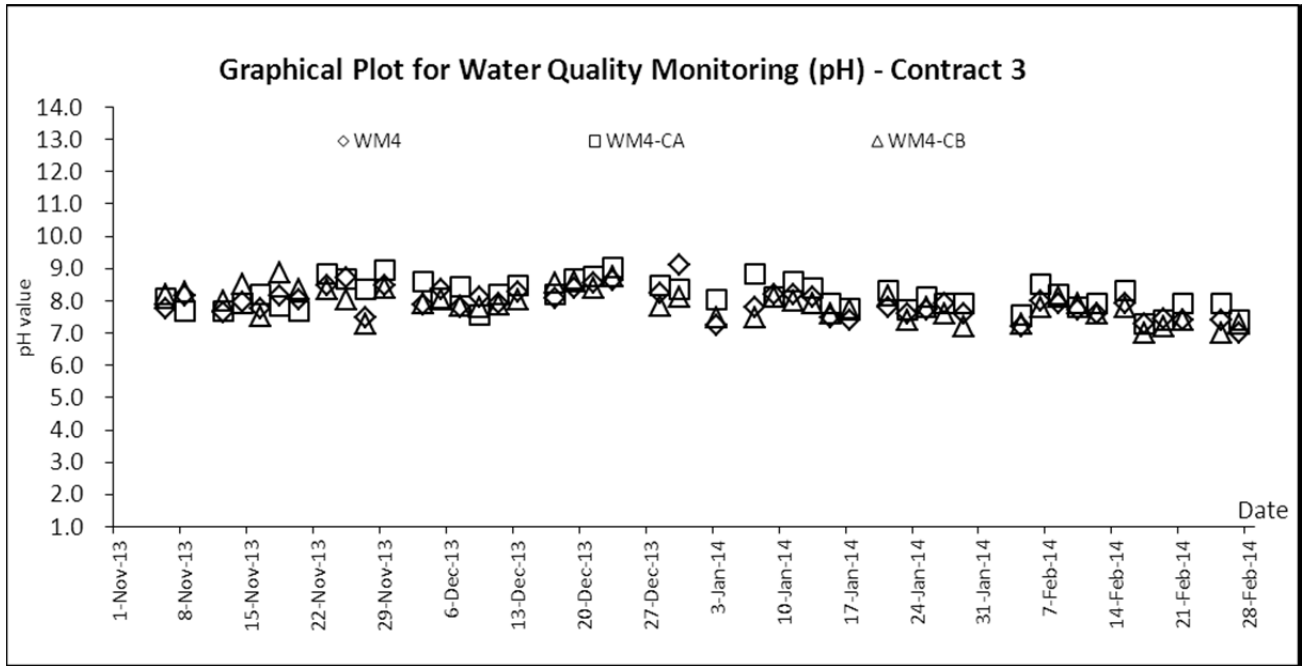


Water Quality









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-Feb-14 | Sat | Warm with sunny periods during the day. Light to moderate east to southeasterly winds. | 0 | 19.7 | 6.5 | 70.5 | E/NE |
| 2-Feb-14 | Sun | Warm with sunny periods during the day. Light to moderate east to southeasterly winds. | 0 | 19.2 | 6 | 70.5 | W/SW |
| 3-Feb-14 | Mon | Cloudy with a few rain patches. Fresh easterly winds, strong at times. | 0 | 19.1 | 5 | 68.7 | N/NW |
| 4-Feb-14 | Tue | Cloudy. One or two rain patches later. Moderate to fresh easterly winds, strong at times. | Trace | 17.2 | 9.7 | 78.5 | E/SE |
| 5-Feb-14 | Wed | Cloudy with one or two rain patches. Fresh easterly winds, strong at times. | Trace | 18.1 | 10.5 | 73.2 | E |
| 6-Feb-14 | Thu | Mainly cloudy. Sunny intervals in the afternoon. Moderate easterly winds. | Trace | 20 | 8.5 | 77.7 | E |
| 7-Feb-14 | Fri | Cloudy, mist ,sunny periods. Light to moderate easterly winds. | Trace | 20.7 | 8.8 | 81.2 | E |
| 8-Feb-14 | Sat | Cold and cloudy with a few rain patches. Fresh northerly winds. | 0.3 | 15.3 | 16.2 | 91 | E/SE |
| 9-Feb-14 | Sun | Cold and cloudy with a few rain patches. Fresh northerly winds. | 13.1 | 11.8 | 10.9 | 84.7 | W/NW |
| 10-Feb-14 | Mon | Cold and cloudy with a few rain patches. Fresh northerly winds. | 0.3 | 7 | 18.8 | 70 | N |
| 11-Feb-14 | Tue | Cold, cloudy, rain. Moderate to fresh north to northeasterly winds. | Trace | 6.1 | 14 | 58.7 | N |
| 12-Feb-14 | Wed | Cold, cloudy to overcast with a few rain patches. Moderate northeasterly winds. | 0.4 | 8.3 | 6.2 | 79 | N |
| 13-Feb-14 | Thu | Cloudy, very cold. Moderate to fresh north to northeasterly winds | 21.4 | 6.8 | 10.4 | 84.5 | N/NW |
| 14-Feb-14 | Fri | Dry, sunny periods, Mainly cloudy, cold. Moderate to fresh north to northeasterly winds. | 0 | 10.4 | 13.7 | 55 | N |
| 15-Feb-14 | Sat | Dry, sunny periods, Mainly cloudy, cold. Moderate to fresh north to northeasterly winds. | Trace | 9.6 | 6.5 | 60.7 | E |
| 16-Feb-14 | Sun | Cloudy, very cold. Moderate to fresh north to northeasterly winds | Trace | 14.5 | 11.7 | 82.5 | E/SE |
| 17-Feb-14 | Mon | Humid with fog. Sunny intervals at first. Moderate northerly winds. | 0 | 19.3 | 8.8 | 84 | E/SE |
| 18-Feb-14 | Tue | Humid with fog. Sunny intervals at first. Moderate northerly winds. | Trace | 16.8 | 9.7 | 83.5 | W/SW |
| 19-Feb-14 | Wed | Cloudy and cold. A few rain patches at first. Fresh to strong northerly winds. | 3.8 | 8.3 | 13.7 | 72 | N |
| 20-Feb-14 | Thu | Sunny periods, mainly cloudy. Fresh easterly winds, strong at times. | 0 | 20.6 | 7 | 57.5 | E/SE |
| 21-Feb-14 | Fri | Sunny periods, mainly cloudy. Fresh easterly winds, strong at times. | 0 | 11.3 | 8.3 | 72.7 | E/NE |
| 22-Feb-14 | Sat | Sunny periods, mainly cloudy. Fresh easterly winds, strong at times. | 0.2 | 15.3 | 9.1 | 62.2 | E |
| 23-Feb-14 | Sun | Mainly cloudy with a few light rain patches at first. Moderate easterly winds. | 0 | 17.4 | 11.4 | 67.5 | E/NE |
| 24-Feb-14 | Mon | Mainly cloudy with a few light rain patches at first. Moderate easterly winds. | Trace | 18 | 11.8 | 71.5 | E |
| 25-Feb-14 | Tue | Mainly cloudy with a few light rain patches at first. Moderate easterly winds. | 0 | 19.7 | 11.7 | 77 | E |
| 26-Feb-14 | Wed | Sunny periods, cloudy, rain. Moderate east to northeasterly winds. | Trace | 21.4 | 5.5 | 80 | E/SE |
| 27-Feb-14 | Thu | Sunny periods, cloudy, rain. Moderate east to northeasterly winds. | 0 | 20.4 | 10 | 84 | E |
| 28-Feb-14 | Fri | Sunny periods, cloudy, rain. Moderate east to northeasterly winds. | Trace | 18.9 | 12.8 | 80.2 | E/SE |

Appendix L

Waste Flow Table

Monthly Summary Waste Flow Table for 2014 (year)

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|------------------|--|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|----------------------------|--------------------------|--------------------------|-----------------------------|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) |
| Jan | 0.409 | 0.084 | 0 | 0 | 0.409 | 0.200 | 0 | 0 | 0.010 | 0 | 0.110 |
| Feb | 1.697 | 0.356 | 0.380 | 0 | 1.473 | 0 | 0.002 | 0 | 0 | 0.019 | 0.040 |
| Mar | | | | | | | | | | | |
| Apr | | | | | | | | | | | |
| May | | | | | | | | | | | |
| Jun | | | | | | | | | | | |
| Sub-total | 2.106 | 0.440 | 0.380 | 0.000 | 1.882 | 0.200 | 0.002 | 0.000 | 0.010 | 0.019 | 0.150 |
| Jul | | | | | | | | | | | |
| Aug | | | | | | | | | | | |
| Sep | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 2.106 | 0.440 | 0.380 | 0.000 | 1.882 | 0.200 | 0.002 | 0.000 | 0.010 | 0.019 | 0.150 |

- Note:**
1. Assume the density of soil fill is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³.
 3. Assume each truck of C&D wastes is 5m³.
 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/m³.

Name of Department: CEDD

Monthly Summary Waste Flow Table for 2014

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|------------------|--|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|----------------------------|-------------|----------------|-----------------------------|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m ³) |
| JAN | 0 | 0 | 0 | 0 | 0 | 16.571 | 0 | 0 | 0 | 0 | 0.85 |
| FEB | 0 | 0 | 0 | 0 | 0 | 18.672 | 0 | 0 | 0 | 0 | 0.005 |
| MAR | | | | | | | | | | | |
| APRIL | | | | | | | | | | | |
| MAY | | | | | | | | | | | |
| JUN | | | | | | | | | | | |
| Sub Total | 0 | 0 | 0 | 0 | 0 | 35.243 | 0 | 0 | 0 | 0 | 0.855 |
| JUL | | | | | | | | | | | |
| AUG | | | | | | | | | | | |
| SEP | | | | | | | | | | | |
| OCT | | | | | | | | | | | |
| NOV | | | | | | | | | | | |
| DEC | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 35.24 | 0 | 0 | 0 | 0 | 0.855 |

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 = 8m³
 - Metal = Estimated by the Contractor
 - Paper/cardboard packaging = Estimated by the Contractor
 - Plastics = Estimated by the Contractor
 - Chemical Waste = Estimated by the Contractor (Spent lubricating oil, assume density 0.9kg/L)
 - Other, e.g. general refuse = Estimated by the Contractor

Appendix M

Implementation Schedule for Environmental Mitigation Measures

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|--|-----------|--|---|-------------------------------|--------------------------|--------------------------------|---|
| Air Quality Impact (Construction) | | | | | | | |
| 3.6.1.1 | 2.1 | General Dust Control Measures The following dust suppression measures should be implemented: <ul style="list-style-type: none"> ■ 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: <p><i>Good site management</i></p> <ul style="list-style-type: none"> ■ 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. <p><i>Disturbed Parts of the Roads</i></p> <ul style="list-style-type: none"> ■ Each and every main temporary access should be paved with | To minimize adverse dust emission generated from various construction activities of the works sites | Contractor | Construction Works Sites | During Construction | EIA Recommendation and Air Pollution Control (Construction Dust) Regulation |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|----------|-----------|--|--|-------------------------------|-------------------------|--------------------------------|--|
| | | <p>concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or</p> <ul style="list-style-type: none"> Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. <p><i>Exposed Earth</i></p> <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seeding 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. <p><i>Loading, Unloading or Transfer of Dusty Materials</i></p> <ul style="list-style-type: none"> All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. <p><i>Debris Handling</i></p> <ul style="list-style-type: none"> 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. <p><i>Transport of Dusty Materials</i></p> <ul style="list-style-type: none"> 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. <p><i>Wheel washing</i></p> <ul style="list-style-type: none"> 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. <p><i>Use of vehicles</i></p> <ul style="list-style-type: none"> Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle. | | | | | |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|--|-----------|--|--|-------------------------------|-------------------------|--------------------------------|--|
| | | <p><i>Site hoarding</i></p> <ul style="list-style-type: none"> 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. <p><i>Blasting</i></p> <ul style="list-style-type: none"> The areas within 30m from the blasting area should be wetted with water prior to blasting. | | | | | |
| <u>Air Quality Impact (Operation)</u> | | | | | | | |
| 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: <ul style="list-style-type: none"> 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 |
| <u>Noise Impact (Construction)</u> | | | | | | | |
| 4.4.1.4 | 3.1 | Adoption of Quieter PME Use of the recommended quieter PME such as those given in the BS5228: Part 1:2009 and presented in Table 4.14 , which can be found in Hong Kong. | To minimize the construction air-borne noise impact | Contractors | Construction Work Sites | During Construction | EIA recommendation, EIAO and Noise Control Ordinance (NCO) |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|----------|-----------|---|--|-------------------------------|-------------------------|--------------------------------|--|
| 4.4.1.4 | 3.1 | <p>Use of Movable Noise Barrier</p> <p>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/m² is recommended to achieve the predicted screening effect.</p> | 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 | <p>Use of Noise Enclosure/ Acoustic Shed</p> <p>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.</p> | 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 | <p>Use of Noise Insulating Fabric</p> <p>Noise insulating fabric can be adopted for certain PME (e.g. drill rig, piling 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.</p> | To minimize the construction air-borne noise impact | Contractors | Construction Work Sites | During Construction | EIA recommendation, EIAO and NCO |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|--|-----------|--|---|--|--|--------------------------------|--|
| 4.4.1.4 | 3.1 | <p>Good Site Practice</p> <p>The good site practices listed below should be followed during each phase of construction:</p> <ul style="list-style-type: none"> 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) | | | | | | | |
| <u>Road Traffic Noise</u> | | | | | | | |
| 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 |
| <u>Fixed Plant Noise</u> | | | | | | | |
| Table 4.46 | 3.2 | Specification of the maximum allowable sound power levels of the proposed fixed plants during daytime and night-time. | To minimize the fixed plant noise impact | Managing Authority of the buildings / Contractor | BCP, Administration Building and all ventilation buildings | Before Operation | EIA recommendation, EIAO and NCO |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to implement the measure? | Location of the measure | When to implement the measure? | What requirements or standards for the measure to achieve? |
|---|-----------|--|---|---|---|--------------------------------|--|
| 4.5.2.4 | 3.2 | <p>The following noise reduction measures shall be considered as far as practicable during operation:</p> <ul style="list-style-type: none"> • Choose quieter plant such as those which have been effectively silenced; • Include noise levels specification when ordering new plant (including chiller and E/M equipment); • Locate fixed plant/fouler 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. | <p>To minimize the fixed plant noise impact</p> | <p>Managing Authority of the buildings / Contractor</p> | <p>BCP, Administration Building and all ventilation buildings</p> | <p>Before Operation</p> | <p>EIAO and NCO</p> |
| <u>Water Quality Impact (Construction)</u> | | | | | | | |
| 5.6.1.1 | 4.1 | <p>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:</p> <ul style="list-style-type: none"> ■ 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. | <p>To control site runoff and drainage; prevent high sediment loading from reaching the nearby watercourses</p> | <p>Contractor</p> | <p>Construction Works Sites</p> | <p>Construction Phase</p> | <p>Practice Note for Professional Persons on Construction Site Drainage (ProPECC Note PN 1/94)</p> |

| 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? |
|----------|-----------|---|--|-------------------------------|-------------------------|--------------------------------|--|
| | | <p>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.</p> <ul style="list-style-type: none"> ■ 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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| | | <p>the erosive potential of surface water flows.</p> <ul style="list-style-type: none"> ■ 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 | <p>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:</p> | 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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| | | | <ul style="list-style-type: none"> ■ 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 from 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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| | | <p>Water Supplies.</p> <ul style="list-style-type: none"> ■ 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 | <p>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.</p> | To minimize water quality impacts | Contractor | All construction works sites | Construction phase | EIA Recommendation |
| 5.6.1.3 | 4.1 | <p>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.</p> | 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 | <p>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.</p> | To minimize water quality impacts | Contractor | Construction works sites of the drill and blast tunnel | Construction phase | EIA Recommendation and WPCO |
| <p><u>Water Quality Impact (Operation)</u></p> <p>No mitigation measure is required.</p> | | | | | | | |

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Sewage and Sewerage Treatment Impact (Construction)

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| 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 WPCCO |
| <u>Sewage and Sewerage Treatment Impact (Operation)</u> | | | | | | | |
| 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 WPCCO |
| 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 WPCCO |

Waste Management Implication (Construction)

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| 7.6.1.1 | 6 | <p>Good Site Practices</p> <p>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:</p> <ul style="list-style-type: none"> ■ 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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| | | <p>such odour is not anticipated to be an issue to distant sensitive receivers</p> <ul style="list-style-type: none"> ■ 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 | <p>Waste Reduction Measures</p> <p>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:</p> <ul style="list-style-type: none"> ■ 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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| 7.6.1.3 | 6 | <p>of waste generated and avoid unnecessary generation of waste</p> <ul style="list-style-type: none"> 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. | <p>C&D Materials</p> <p>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:</p> <ul style="list-style-type: none"> 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. | Contractor | Construction Works Sites (General) | Construction Phase | EIA recommendation; Waste Disposal Ordinance; and ETWB TCW No. 31/2004 |
| 7.6.1.4 | 6 | <p>General refuse</p> <p>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.</p> | <p>To minimize impacts resulting from collection and transportation of general refuse for off-site disposal</p> | Contractor | Construction works sites (General) | Construction phase | Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Prevention of Nuisances Regulation |
| 7.6.1.5 | 6 | <p>Chemical waste</p> <p>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 <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i>. 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</p> | <p>To minimize impacts resulting from collection and transportation of chemical waste for off-site disposal</p> | 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 |