

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.25) – August 2015

PREPARED FOR CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
11 September 2015	TCS00670/13/600/R0478v2	Anh	Am

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Version	Date	Remarks
1	9 September 2015	First Submission
2	11 September 2015	Amended against the IEC's comments on 10 September 2015



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14 September 2015

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By Email & Post

Attention: Mr Simon LEUNG

Dear Sirs

Agreement No. CE 45/2008 (CE) Liantang/Heung Yuen Wai Boundary Control Point and Associated Works Independent Environmental Checker – Investigation Monthly EM&A Report (No. 25) – August 2015

With reference to the Monthly EM&A Report No. 25 for August 2015 (Version 2) certified by the ET Leader provided to us on 11 September 2015, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-404/2011/C.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995 8120 or by email to antony.wong@smec.com; or our Mr Francis LEE on tel. 3995 8144 or by email to francis.lee@smec.com.

Yours faithfully for and on behalf of SMEC Asia Limited

Antony WONG

Independent Environmental Checker

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EXECUTIVE SUMMARY

ES01 This is the **25th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1 to 31 August 2015** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES02 To facilitate the project management and implementation, Liantang/Heung Yuen Wai Boundary Control Point and Associated Works of the Project is divided to six CEDD contracts including Contract 2 (CV/2012/08), Contract 3 (CV/2012/09), Contract 4 (TCSS), Contract 5 (CV/2013/03), Contract 6 (CV/2013/08) and Contract 7 (NE/2014/03) and one ArshSD contract (Contract SS C505).
- ES03 Currently, the construction works have been undertaking for Contract 2, Contract 3 and Contract 5. Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

		Reporting Pe	Reporting Period	
Environmental Aspect	Environmental Monitoring Parameters / Inspection	Number of Monitoring Locations to undertake	Total Occasions	
Ain Opelity	1-hour TSP	6	90	
Air Quality	24-hour TSP	6	30 (#)	
Construction Noise	L _{eq(30min)} Daytime	8	40	
Woton Quality	Water compline	3 (Contract 2&3)	14 ^(*)	
Water Quality	Water sampling	2 (Contract 5)	14 ^(*)	
	IEC, ET, the Contractor and RE joint	Contract 2	4	
Joint Site Inspection / Audit	site Environmental Inspection and	Contract 3	5	
	Auditing	Contract 5	4	

^(*) Monitoring day

(#) 2 events were incomplete due to power issue

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES04 In the Reporting Period, no air quality and noise exceedance was registered for the Project. For water quality, a total of six (6) Limit Level exceedances, namely four (4) exceedances recorded at WM1 and two (2) exceedances at WM4. The summary of exceedance in the Reporting Period is shown below.

	Manitaning	Action	T ::4	Event & Action		
Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	NOE Issued	Investigation Result	Corrective Actions
Air Quality	1-hour TSP	0	0	0		
Air Quality	24-hour TSP	0	0	0		
Construction Noise	L _{eq(30min)} Daytime	0	0	0		
	DO	0	0	0		
Water Quality	Turbidity	0	3	3	 Exceedances at WM4 were not project 	
Quanty	SS	0	3	3	related - Exceedance at WM1 is under investigation	N/A



ENVIRONMENTAL COMPLAINT

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

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

REPORTING CHANGE

ES07 No reporting changes were made in the Reporting Period.

SITE INSPECTION

- ES08 In this Reporting Period, joint site inspection to evaluate the site environmental performance at *Contract 2* has been carried out by the RE, IEC, ET and the Contractor on **7**, **14**, **21 and 28** August 2015. No non-compliance was noted.
- ES09 In the Reporting Period, joint site inspection to evaluate the site environmental performance at *Contract 3* has been carried out by the RE, IEC, ET and the Contractor on **3**, **12**, **17**, **24** and **31** August 2015. No non-compliance was noted.
- ES10 In the Reporting Period, joint site inspection to evaluate the site environmental performance at *Contract 5* has been carried out by the RE, IEC, ET and the Contractor on 6, 13, 20 and 27 August 2015. No non-compliance was noted.

FUTURE KEY ISSUES

- ES11 During raining season, muddy water or other water pollutants from site surface flow to local stream such as Kong Yiu Channel and Ma Wat Channel or public area will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should paid attention and fully implement.
- ES12 Construction noise would be a key environmental issue during construction work of the Project. Noise mitigation measures such as using quiet plants should be implemented in accordance with the EM&A requirement.
- ES13 Since most of construction sites under the Project are located adjacent to villages, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission.



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1 INTRODUCTION

1.1 **PROJECT BACKGROUND**

- 1.1.1 Civil Engineering and Development Department is the Project Proponent and the Permit Holder of Agreement No. CE 45/2008 (CE) Liantang / Heung Yuen Wai Boundary Control Point and Associated Works, which is a Designated Project to be implemented under Environmental Permit number EP-404/2011/C granted on 12 March 2015.
- 1.1.2 The Project consists of two main components: Construction of a Boundary Control Point (hereinafter referred as "BCP"); and Construction of a connecting road alignment. Layout plan of the Project is shown in *Appendix A*.
- 1.1.3 The proposed BCP is located at the boundary with Shenzhen near the existing Chuk Yuen Village, comprising a main passenger building with passenger and cargo processing facilities and the associated customs, transport and ancillary facilities. The connecting road alignment consists of six main sections:
 - 1) Lin Ma Hang to Frontier Closed Area (FCA) Boundary this section comprises at-grade and viaducts and includes the improvement works at Lin Ma Hang Road;
 - 2) Ping Yeung to Wo Keng Shan this section stretches from the Frontier Closed Area Boundary to the tunnel portal at Cheung Shan and comprises at-grade and viaducts including an interchange at Ping Yeung;
 - 3) North Tunnel this section comprises the tunnel segment at Cheung Shan and includes a ventilation building at the portals on either end of the tunnel;
 - 4) Sha Tau Kok Road this section stretches from the tunnel portal at Wo Keng Shan to the tunnel portal south of Loi Tung and comprises at-grade and viaducts including an interchange at Sha Tau Kok and an administration building;
 - 5) South Tunnel this section comprises a tunnel segment that stretches from Loi Tung to Fanling and includes a ventilation building at the portals on either end of the tunnel as well as a ventilation building in the middle of the tunnel near Lau Shui Heung;
 - 6) Fanling this section comprises the at-grade, viaducts and interchange connection to the existing Fanling Highway.
- 1.1.4 Action-United Environmental Services & Consulting has been commissioned as an Independent ET to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties. As part of the EM&A program, the baseline monitoring has carried out between **13 June 2013** and **12 July 2013** for all parameters including air quality, noise and water quality before construction work commencement. The Baseline Monitoring Report summarized the key findings and the rationale behind determining a set of Action and Limit Levels (A/L Levels) from the baseline data. Also, the Project baseline monitoring report which verified by the IEC has been submitted to EPD on **16 July 2013** for endorsement. The major construction works of the Project was commenced on **16 August 2013** in accordance with the EP Section 5.3 stipulation.
- 1.1.5 This is 25th monthly EM&A report presenting the monitoring results and inspection findings for reporting period from 1 to 31 August 2015.

1.2 REPORT STRUCTURE

- 1.2.1 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-
 - Section 1 Introduction
 - Section 2 Project Organization and Construction Progress
 - Section 3 Summary of Impact Monitoring Requirements
 - Section 4 Air Quality Monitoring
 - Section 5 Construction Noise Monitoring
 - Section 6 Water Quality Monitoring
 - Section 7 Waste Management



Section 8Site InspectionsSection 9Environmental Complaints and Non-ComplianceSection 10Implementation Status of Mitigation MeasuresSection 11Conclusions 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 (NE/2014/02)
 - Contract 5 (CV/2013/03)
 - Contract 6 (CV/2013/08)
 - Contract 7 (NE/2014/03)
 - ArchSD Contract No. SS C505
- 2.1.2 The details of each contracts is summarized below and the delineation of each contracts is shown in *Appendix A*.

Contract 2 (CV/2012/08)

- 2.1.3 Contract 2 has awarded in December 2013 and construction work was commenced on 19 May 2014. Major Scope of Work of the Contract 2 is listed below:
 - construction of an approximately 5.2km long dual two-lane connecting road (with about 0.4km of at-grade road and 4.8km of tunnel) connecting the Fanling Interchange with the proposed Sha Tau Kok Interchange;
 - construction of a ventilation adit tunnel and the mid-ventilation building;
 - construction of the north and south portal buildings of the Lung Shan Tunnel and their associated slope works;
 - provision and installation of ventilation system, E&M works and building services works for Lung Shan tunnel and Cheung Shan tunnel and their portal buildings;
 - construction of Tunnel Administration Building adjacent to Wo Keng Shan Road and the associated E&M and building services works; and
 - construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 3 (CV/2012/09)

- 2.1.4 Contract 3 was awarded in July 2013 and construction work was commenced on 5 November 2013. Major Scope of Work of the Contract 3 is listed below:
 - construction of four link roads connecting the existing Fanling Highway and the south portal of the Lung Shan Tunnel;
 - realignment of the existing Tai Wo Service Road West and Tai Wo Service Road East;
 - widening of the existing Fanling Highway (HyD's entrustment works);
 - demolishing existing Kiu Tau vehicular bridge and Kiu Tau footbridge and reconstruction of the existing Kiu Tau Footbridge (HyD's entrustment works); and
 - construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 4 (NE/2014/02)

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

Contract 5 (CV/2013/03)

- 2.1.6 Contract 5 has awarded in April 2013 and construction work was commenced in August 2013. Major Scope of Work of the Contract 5 is listed below:
 - site formation of about 23 hectares of land for the development of the BCP;

- construction of an approximately 1.6 km long perimeter road at the BCP including a 175m long depressed road;
- associated diversion/modification works at existing local roads and junctions including Lin Ma Hang Road;
- construction of pedestrian subway linking the BCP to Lin Ma Hang Road;
- provision of resite area with supporting infrastructure for reprovisioning of the affected village houses; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 6 (CV/2013/08)

- 2.1.7 Contract 6 has awarded in June 2015 and construction work was expected to be commenced on 1 November 2015. Major Scope of Work of the Contract 6 would be included below:
 - construction of an approximately 4.6km long dual two-lane connecting road (with about 0.6km of at-grade road, 3.3km of viaduct and 0.7km of tunnel) connecting the BCP with the proposed Sha Tau Kok Road Interchange and the associated ventilation buildings;
 - associated diversion/modification works at access roads to the resite of Chuk Yuen Village;
 - provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village;
 - construction of a pedestrian subway linking the BCP to Lin Ma Hang Road;
 - provisioning of the affected facilities including Wo Keng Shan Road garden; and
 - construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 7 (NE/2014/03)

- 2.1.8 Contract 7 has not yet been awarded. Major Scope of Work of the Contract 7 would be included below:
 - construction of the Hong Kong Special Administrative Region (HKSAR) portion of four vehicular bridge
 - construction of one pedestrian bridge crossing Shenzhen (SZ) River (cross boundary bridges)

ArchSD Contract No. SS C505

- 2.1.9 SS C505 has awarded in July 2015 and construction work was expected to be commenced on 1 September 2015. Major Scope of Work of the SS C505 would be included below:
 - passenger-related facilities including processing kiosks and examination facilities for private cars and coaches, passenger clearance building and halls, the interior fitting works for the pedestrian bridge crossing Shenzhen River, etc.;
 - cargo processing facilities including kiosks for clearance of goods vehicles, customs inspection platforms, X-ray building, etc.;
 - accommodation for the facilities inside of the Government departments providing services in connection with the BCP;
 - transport-related facilities inside the BCP including road networks, public transport interchange, transport drop-off and pick-up areas, vehicle holding areas and associated road furniture etc;
 - a public carpark; and
 - other ancillary facilities such as sewerage and drainage, building services provisions and electronic systems, associated environmental mitigation measure and landscape works.

2.2 **PROJECT ORGANIZATION**

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



Civil Engineering and Development Department (CEDD)

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

Architectural Services Department (ArchSD)

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

Environmental Protection Department (EPD)

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

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

- 2.2.5 Ronald Lu & Partners (Hong Kong) Ltd is appointed by ArchSD as an Architect for Contract SS C505 Liantang/ Heung Yuen Wai Boundary Control Point (BCP) BCP Buildings and Associated Facilities. It responsible for overseeing the construction works of Contract SS C505 and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the Architect with respect to EM&A are:
 - Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
 - Monitor Contractors' and ET's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
 - Facilitate ET's implementation of the EM&A programme
 - Participate in joint site inspection by the ET and IEC
 - Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
 - Adhere to the procedures for carrying out complaint investigation
 - Liaison with DSD, Engineer/Engineer's Representative, ET, IEC and the Contractor of the "Construction of the DSD's Regulation of Shenzhen River Stage 4 (RSR 4)" Project discussing regarding the cumulative impact issues.

Engineer or Engineers Representative (ER)

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

The Contractor(s)

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

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

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

Environmental Team (ET)

- 2.2.9 Once the ET is appointed, the EPD, CEDD, ER, Architect and IEC will be notified the details of the ET.
- 2.2.10 The ET shall not be in any way an associated body of the Contractor(s), and shall be employed by the Project Proponent/Contractor to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitably qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. The ET shall report to the Project Proponent and the duties shall include:
 - Monitor and audit various environmental parameters as required in this EM&A Manual
 - Analyse the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
 - Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
 - Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
 - Audit environmental conditions on site
 - Report on the environmental monitoring and audit results to EPD, the ER, the Architect, the IEC and Contractor or their delegated representatives
 - Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
 - Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
 - Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
 - Adhere to the procedures for carrying out complaint investigation
 - Liaison with the client departments, Engineer/Engineer's Representative, ET, 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)

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

- 2.2.12 The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 10 years' experience in EM&A and have relevant professional qualifications. The appointment of IEC should be subject to the approval of EPD. The IEC should:
 - Provide proactive advice to the ER and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
 - Review and audit all aspects of the EM&A programme implemented by the ET
 - Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
 - Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
 - Check compliance with the agreed Event / Action Plan in the event of any exceedance
 - Check compliance with the procedures for carrying out complaint investigation
 - Check the effectiveness of corrective measures
 - Feedback audit results to ET by signing off relevant EM&A proforma
 - Check that the mitigation measures are effectively implemented
 - Verify the log-book(s) mentioned in Condition 2.2 of the EP, notify the Director by fax, within one working day of receipt of notification from the ET Leader of each and every occurrence, change of circumstances or non-compliance with the EIA Report and/or the EP, which might affect the monitoring or control of adverse environmental impacts from the Project
 - Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the ER and Project Proponent on a monthly basis
 - Liaison with the client departments, Engineer/Engineer's Representative, the Architect, ET, IEC and the Contractor of the concurrent projects as listed under Section 2.3 below regarding the cumulative impact issues.

2.3 CONCURRENT PROJECTS

- 2.3.1 The concurrent construction works that may be carried out include, but not limited to, the following:
 - (a) Regulation of Shenzhen River Stage IV;
 - (b) Widening of Fanling Highway Tai Hang to Wo Hop Shek Interchange Contract No. HY/2012/06;
 - (c) Construction of BCP facilities in Shenzhen.

2.4 CONSTRUCTION PROGRESS

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

Contract 2 (CV/2012/08)

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

Mid-Vent Portal	•	Cavern excavation
Mild-vent Portai	•	A did imment alab

Adit invert slab

North Portal

- Permanent slope and composite wall
 - Tunnel Boring Machine (TBM) onsite assembly and cradle construction
 - Southbound bench excavation
 - Associated PME installation for operation of TBM (mortar plant,



cooling system etc.)

South Portal	•	Rock Excavation to Vent. Bldg. Formation Southbound excavation and foundation works
	•	Northbound excavation and bored piles works
	•	Drill and Blast Set Up + Site installation
Admin Building	•	Backfilling for surcharge
	•	Drainage works

Contract 3 (CV/2012/09)

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

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

Contract 4 (Contract number to be assigned)

2.4.4 The contract has not yet been awarded.

Contract 5 (CV/2013/03)

- 2.4.5 The Contract awarded in April 2013 and commenced on August 2013. In this Reporting Period, construction activities conducted are listed below:
 - Diversion of UU at existing LMH Road
 - Construction of secondary boundary fencing
 - Construction of Depressed Road at BCP3
 - Additional works (Access Works) for Village House at RS4
 - Drainage works at existing/proposed LMH Road
 - Drainage works (Connection to Box 3) at BCP Area
 - Brick laying at footpath of proposed LMH road
 - Water works at proposed LMH Road
 - Formation works at BCPB Area
 - Installation of Underground utilities at proposed and existing LMH road
 - Road works (kerb laying) for proposed and existing LMH road
 - Bituminous laying at existing & proposed LMH road

Contract 6 (CV/2013/08)

2.4.6 Contract 6 has awarded in June 2015 and construction work was expected to be commenced on 1 November 2015.

Contract 7 (NE/2014/03)

2.4.7 Contract 7 has not yet awarded.

Contract SS C505

2.4.8 Contract SS C505 has awarded in July 2015 and construction work was expected to be commenced on 1 September 2015.

2.5 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.5.1 In according to the EP, the required documents have submitted to EPD for retention which listed in below:
 - Project Layout Plans of Contracts 2, 3, 5 and Contract SS C505
 - Landscape Plan
 - Topsoil Management Plan
 - Environmental Monitoring and Audit Programme
 - Baseline Monitoring Report (*TCS00690/13/600/R0030v3*) for the Project
 - Waste Management Plan of the Contracts 2, 3 and 5
 - Contamination Assessment Plan (CAP) for Po Kat Tsai, Loi Tung and the workshops in Fanling
 - Contamination Assessment Report (CAR) for Po Kat Tsai, Loi Tung and the workshops in Fanling
 - Vegetation Survey Report
 - Woodland Compensation Plan
 - Habitat Creation Management Plan
- 2.5.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project of each contracts are presented in *Table 2-1*.

Item	Description	License/Permit Status				
	Contract 2					
1	Air pollution Control (Construction Dust) Regulation	Ref No.: 368864	31 Dec 2013			
2	Chemical Waste Producer Registration	<i>North Portal</i> Waste Producers Number: No. 5213-652-D2523-01	Valid from 25 Mar 2014			
		<i>Mid-Vent Portal</i> Waste Producers Number: No. 5213-634-D2524-01	Valid from 25 Mar 2014			
		<i>South Portal</i> Waste Producers Number: No. 5213-634-D2526-01	Valid from 9 Apr 2014			
3	Water Pollution Control Ordinance - Discharge License	No.WT00018374-2014	Valid from 3 Mar 2014 to 28 Feb 2019			
		No.: W5/1I389	Valid from 28 Mar 2014 to 31 Mar 2019			
		No.: W5/1I390	Valid from 24 Mar 2014			

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



Item	Description	License/Permit Status			
			to 31 Mar 2019 Surrendered, effective 19 June 2014		
		No.: W5/11391	Valid from 28 Mar 2014 to 31 Mar 2019		
		No.: W5/1I392	Valid from 28 Mar 2014 to 31 Mar 2019		
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7019105	Valid from 8 Jan 2014		
5	Construction Noise Permit	GW-RN0279-15	Valid 12 May 2015 - 29 Aug 2015		
		GW-RN0305-15	Valid 19 May 2015 - 18 Aug 2015		
		GW-RN0304-15	Valid 19 May 2015 - 14 Nov 2015		
		GW-RN0298-15	Valid 30 May 2015 - 29 Aug 2015		
		GW-RN0299-15	Valid 23 May 2015 - 22 Aug 2015		
		GW-RN0479-15	Valid 31 Jul 2015 - 29 Jan 2016		
		GW-RN0468-15	Valid 29 Aug 2015 - 28 Nov 2015		
		GW-RN0467-15	Valid 23 Aug 2015 - 22 Nov 2015		
		GW-RN0477-15	Valid 14 Aug 2015 - 31 Oct 2015		
		GW-RN0479-15	Valid 31 Jul 2015 - 29 Jan 2016		
		Contract 3			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 362101	Notification received by EPD on 17 Jul 2013		
2	Chemical Waste Producer Registration	Waste Producers Number: No.:5113-634-C3817-01	Valid form 7 Oct 2013 till the end of Contract		
3	Water Pollution Control Ordinance - Discharge License	No.:WT00016832 – 2013	Valid from 28 Aug 13 to 31 Aug 2018		
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017914	Valid form 2 Aug 13 till the end of Contract		
5	Construction Noise Permit	GW-RN0230-15	Valid on 15 Apr 2015 till 14 Oct 2015		
		GW-RN0334-15	Valid on 8 Jun 2015 till 7 Dec 2015		
		GW-RN0428-15	Valid on 9 Ju1 2015 till 31 Dec 2015		

Item	Description	License/Permit Status		
		GW-RN0275-15	Valid on 7 May 2015 till 15 Aug 2015	
		GW-RN0295-15	Valid on 31 May 2015 till 30 Aug 2015	
		GW-RN0326-15	Valid on 2 Jun 2015 till 29 Aug 2015	
		GW-RN0430-15	Valid on 9 Jul 2015 till 22 Aug 2015	
		GW-RN0466-15	Valid on 3 Aug 2015 till 30 Sep 2015	
		GW-RN0492-15	Valid on 11 Aug 2015 till 30 Sep 2015	
		GW-RN0473-15	Valid on 29 Jul 2015 till 17 Dec 2015	
		GW-RN0461-15	Valid on 5 Aug 2015 till 8 Jan 2016	
		GW-RN0495-15	Valid on 12 Aug 2015 till 11 Feb 2016	
		GW-RN0497-15	Valid on 14 Aug 2015 till 13 Feb 2016	
		GW-RN0488-15	Valid on 6 Sep 2015 till 22 Nov 2015	
		GW-RN0525-15	Valid on 29 Aug 2015 till 13 Feb 2016	
		GW-RN0542-15	Valid on 1 Sep 2015 till 25 Feb 2016	
		GW-RN0548-15	Valid on 1 Sep 2015 till 30 Sep 2015	
		Contract 5		
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 359338	Notified EPD on 13 May 2013	
2	Chemical Waste Producer Registration	WasteProducersNumberNo.:5213-642-S3735-01	Valid form 8 Jun 2013 till the end of Contract	
3	Water Pollution Control Ordinance - Discharge License	No.: W5/1G44/1	Valid from 8 Jun 13 to 30 Jun 2018	
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017351	Valid form 29 Apr 13 till the end of Contract	
5	Construction Noise Permit	NA	NA	
	Contract SS C505			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 390974	Notified EPD on 13 Jul 2015	
2	Chemical Waste Producer Registration	In progress	In progress	
3	Water Pollution Control Ordinance - Discharge License	In progress	In progress	

Item	Description	License/Permit Status	
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7022831	Valid form 23 Jul 2015 till the end of Contract
5	Construction Noise Permit	GW-RN0518-15	Valid on 22 Aug 2015 till 20 Feb 2016
		PP-RN0020-15	Valid on 17 Aug 2015 till 27 Aug 2015
		PP-RN0023-15	Valid on 28 Aug 2015 till 27 Feb 2016



3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

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

3.2 MONITORING PARAMETERS

- 3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:
 - Air quality;
 - Construction noise; and
 - Water quality
- 3.2.2 A summary of the monitoring parameters is presented in *Table 3-1*.

 Table 3-1
 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	 1-hour TSP by Real-Time Portable Dust Meter; and
	• 24-hour TSP by High Volume Air Sampler.
	• L _{eq(30min)} in normal working days (Monday to Saturday) 07:00-19:00
	except public holiday; and
Noise	• 3 sets of consecutive L _{eq(5min)} on restricted hours i.e. 19:00 to 07:00
100150	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.
	In-situ Measurements
	 Dissolved Oxygen Concentration (mg/L);
	 Dissolved Oxygen Saturation (%);
	• Turbidity (NTU);
Water Quality	• pH unit;
	• Water depth (m); and
	• Temperature (°C).
	Laboratory Analysis
	• Suspended Solids (mg/L)

3.3 MONITORING LOCATIONS

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

Station ID	Description	Works Area	Related to the Work Contract
AM1a*	Garden Farm, Tsung Yuen Ha Village	BCP	ArchSD SS C505
			Contract 5
AM2	Village House near Lin Ma Hang Road	LMH to Frontier	Contract 5,
		Closed Area	Contract 6
AM3	Ta Kwu Ling Fire Service Station of Ta	LMH to Frontier	Contract 5,

Table 3-2Impact Monitoring Stations - Air Quality



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

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

* Proposal for the change of air quality monitoring location from AM1to AM1a was submitted to EPD on 24 March 2014 after verified by the IEC. It was approved by EPD (EPD's ref.: (6) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

@ Proposal for the change of air quality monitoring location from AM7a to AM7b was submitted to EPD on 4 June 2014 after verified by the IEC. It was approved by EPD (EPD's ref.: (7) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

Table 3-3	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	ВСР	ArchSD SS C505 Contract 5		
NM2	Village House near Lin Ma Hang Road	Lin Ma Hang to Frontier Closed Area	Contract 5, Contract 6		
NM3	Ping Yeung Village House (facade facing northeast)	Ping Yeung to Wo Keng Shan	Contract 6		
NM4	Wo Keng Shan Village House	Ping Yeung to Wo Keng Shan	Contract 6		
NM5	Village House, Loi Tung	Sha Tau Kok Road	Contract 2, Contract 6		
NM6	Tai Tong Wu Village House 2	Sha Tau Kok Road	Contract 2, Contract 6		
NM7	Po Kat Tsai Village	Po Kat Tsai	Contract 2		
NM8	Village House, Tong Hang	Fanling	Contract 2 Contract 3		
NM9	Village House, Kiu Tau Village	Fanling	Contract 3		
NM10	Nam Wa Po Village House No. 80	Fanling	Contract 3		

Table 3-4 Impact Monitoring Stations - Water Quality

Station ID	Description	Design Altern	nates of nated / native ation	Nature of the location	Related to the Work Contract
WM1	Downstream of Kong Yiu Channel	833 679	845 421	Alternative location located at upstream 51m of the designated location	ArchSD SS C505 Contract 5
WM1- Control	Upstream of Kong Yiu Channel	834 185	845 917	NA	ArchSD SS C505 Contract 5
WM2A	Downstream	834 204	844 471	Alternative location located	Contract 6



Station ID	Description	Coordinates of Designated / Alternative Location		Nature of the location	Related to the Work Contract
	of River Ganges			at downstream 81m of the designated location	
WM2A- Control	Upstream of River Ganges	835 270	844 243	Alternative location located at upstream 78m of the designated location	Contract 6
WM2B	Downstream of River Ganges	835 433	843 397	NA	Contract 6
WM2B- Control	Upstream of River Ganges	835 835	843 351	Alternative location located at downstream 31m of the designated location	Contract 6
WM3	Downstream of River Indus	836 324	842 407	NA	Contract 2 Contract 6
WM3- Control	Upstream of River Indus	836 763	842 400	Alternative location located at downstream 26m of the designated location	Contract 2 Contract 6
WM4	Downstream of Ma Wat Channel	833 850	838 338	Alternative location located at upstream 11m of the designated location	Contract 2 Contract 3
WM4– Control A	Kau Lung Hang Stream	834 028	837 695	Alternative location located at downstream 28m of the designated location	Contract 2 Contract 3
WM4– Control B	Upstream of Ma Wat Channel	833760	837395	Alternative location located at upstream 15m of the designated location	Contract 2 Contract 3

3.4 MONITORING FREQUENCY AND PERIOD

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

Air Quality Monitoring

- 3.4.1 Frequency of impact air quality monitoring is as follows:
 - 1-hour TSP 3 times every six days during course of works
 - 24-hour TSP Once every 6 days during course of works.

<u>Noise Monitoring</u>

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

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

Wind Data Monitoring Equipment

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

Noise Monitoring

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

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238* or Rion NL-31 or Rion NL-52*
Calibrator	B&K Type 4231* or Cesva CB-5* or Rion NC-74*
Portable Wind Speed Indicator	Testo Anemometer

Table 3-6Construction Noise Monitoring Equipment

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

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

Water Quality Monitoring

- 3.5.10 DO and water temperature should be measured in-situ by a DO/temperature meter. The instrument should be portable and weatherproof using a DC power source. It should have a membrane electrode with automatic temperature compensation complete with a cable. The equipment should be capable of measuring:
 - a DO level in the range of 0-20 mg/l and 0-200% saturation; and
 - a temperature of between 0 and 45 degree Celsius.
- 3.5.11 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions accordingly to the APHA Standard Methods.
- 3.5.12 The instrument should be portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- 3.5.13 A portable, battery-operated echo sounder or tape measure will be used for the determination of water depth at each designated monitoring station as appropriate.
- 3.5.14 A water sampler e.g. Kahlsico Water Sampler, which is a transparent PVC cylinder with capacity not less than 2 litres, will be used for water sampling if water depth over than 0.5m. For sampling from very shallow water depths e.g. <0.5 m, water sample collection will be directly from water surface below 100mm use sampling plastic bottle to avoid inclusion of bottom sediment or humus. Moreover, Teflon/stainless steel bailer or self-made sampling buckets maybe used for water sampling. The equipment used for sampling will be depended the sampling location and depth situations.
- 3.5.15 Water samples for laboratory measurement of SS will be collected in high density polythene bottles, packed in ice (cooled to 4 °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.*



Equipment	Model
Water Depth Detector	Eagle Sonar or tape measures
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or teflon/stainless steel bailer or self-made sampling bucket
Thermometer & DO meter	YSI Professional Plus* /YSI PRO20 Handheld Dissolved Oxygen Instrument* / YSI 550A Multifunctional Meter/ YSI 6820/ 650MDS*
pH meter	YSI Professional Plus* / AZ8685 pH pen-style meter w/ serial no. 212632*/ YSI 6820/ 650MDS*
Turbidimeter	Hach 2100Q*/ YSI 6820/ 650MDS*
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-liter plastic cool box with Ice pad

Table 3-7Water Quality Monitoring Equipment

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

3.6 MONITORING METHODOLOGY

1-hour TSP Monitoring

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

24-hour TSP Monitoring

- 3.6.3 The equipment used for 24-hour TSP measurement is Tisch Environmental, Inc. Model TE-5170 TSP high volume air sampling system, which complied with *EPA Code of Federal Regulation*, *Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:
 - (a.) An anodized aluminum shelter;
 - (b.) A 8"x10" stainless steel filter holder;
 - (c.) A blower motor assembly;
 - (d.) A continuous flow/pressure recorder;
 - (e.) A motor speed-voltage control/elapsed time indicator;
 - (f.) A 7-day mechanical timer, and
 - (g.) A power supply of 220v/50 Hz
- 3.6.4 The HVS is operated and calibrated on a regular basis in accordance with the manufacturer's instruction using Tisch Calibration Kit Model TE-5025A. Calibration would carry out in two month interval.
- 3.6.5 24-hour TSP is collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET keep all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25°C, for six months prior to disposal.

Noise Monitoring

3.6.6 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq})

measured in decibels dB(A). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.

- 3.6.7 During the monitoring, all noise measurements would be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). Leq_(30min) in six consecutive Leq_(5min) measurements will use as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also Leq_(15min) in three consecutive Leq_(5min) measurements would be used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.
- 3.6.8 Prior of noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking is performed before and after the noise measurement.

Water Quality

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

Sampling Procedure

- 3.6.10 A Digital Global Positioning System (GPS) is used to identify the designated monitoring stations prior to water sampling. A portable, battery-operated echo sounder is used for the determination of water depth at each station. At each station, water sample would be collected from 0.1m below water surface or the water surface to prevent the river bed sediment for stirring.
- 3.6.11 The sample container will be rinsed with a portion of the water sample. The water sample then will be transferred to the high-density polythene bottles as provided by the laboratory, labeled with a unique sample number and sealed with a screw cap.
- 3.6.12 Before sampling, general information such as the date and time of sampling, weather condition as well as the personnel responsible for the monitoring would be recorded on the field data sheet.
- 3.6.13 A 'Willow' 33-liter plastic cool box packed with ice will be used to preserve the water samples prior to arrival at the laboratory for chemical determination. The water temperature of the cool box is maintained at a temperature as close to 4^oC as possible without being frozen. Samples collected are delivered to the laboratory upon collection.

In-situ Measurement

- 3.6.14 YSI PRO20 Handheld Dissolved Oxygen Instrument is used for water in-situ measures, which automates the measurements and data logging of temperature, dissolved oxygen and dissolved oxygen saturation.
- 3.6.15 A portable AZ Model 8685 pH pen-style meter is used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 14 and readable to 0.1.
- 3.6.16 A portable Hach 2100Q Turbidimeter is used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 1000 NTU.
- 3.6.17 All in-situ measurement equipment are calibrated by HOKLAS accredited laboratory of three month interval.

Laboratory Analysis

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

3.7 EQUIPMENT CALIBRATION

- 3.7.1 Calibration of the HVS is performed upon installation and thereafter at bimonthly intervals in accordance with the manufacturer's instruction using the certified standard calibrator (TISCH Model TE-5025A). Moreover, the Calibration Kit would be calibrated annually. The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.7.2 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment would be checked before and after each monitoring event. Annually calibration with the High Volume Sampler (HVS) in same condition would be undertaken by the Laboratory.
- 3.7.3 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.7.4 All water quality monitoring equipment would be calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.7.5 The calibration certificates of all monitoring equipment used for the impact monitoring program in the Reporting Period and the HOKLAS accredited certificate of laboratory are attached in *Appendix F*.

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

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

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

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

Table 3-9	Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)		
Monitoring Location	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.

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

Table 3-10	Action and	l Limit I	evels for	Water Qualit	v
1abic 5-10	Action and	i L'IIIII I		Water Quant	y

Remarks:

(*) The Proposed <u>Action Level</u> of Dissolved Oxygen is adopted to be used 5%-ile of baseline data

(**) The Proposed <u>Action & Limit Level</u> of Dissolved Oxygen is used 4mg/L

(#) The Proposed Limit Level of Dissolved Oxygen is adopted to be used 1%-ile of baseline data

3.8.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in *Appendix G*.

3.9 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.9.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.
- 3.9.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.



4 AIR QUALITY MONITORING

4.1 GENERAL

- 4.1.1 In the Reporting Period, construction works under the project have been commenced in Contracts 2, 3 and 5 and air quality monitoring was performed at *6* relevant designated locations as below:
 - AM1a Garden Farm, Tsung Yuen Ha Village;
 - AM2 Village House near Lin Ma Hang Road;
 - AM3 Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village;
 - AM7b Loi Tung Village;
 - AM8 Po Kat Tsai Village;
 - AM9b Nam Wa Po Village House No. 80
- 4.1.2 The air quality monitoring schedule is presented in *Appendix H* and the monitoring results are summarized in the following sub-sections.

4.2 AIR QUALITY MONITORING RESULTS IN REPORTING MONTH

4.2.1 In the Reporting Period, a total of *90* events of 1-hour TSP and *30* events (in which 2 event were incomplete due to power issue) 24-hours TSP monitoring were carried out and the monitoring results are summarized in *Tables 4-1 to 4-6*. The detailed 24-hour TSP monitoring data are presented in *Appendix I* and the relevant graphical plots are shown in *Appendix J*.

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

24-hour 1-hour TSP (µg/m ³)						
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading
5-Aug-15	45	3-Aug-15	10:31	19	16	13
11-Aug-15	41	8-Aug-15	11:00	104	85	94
17-Aug-15	46	14-Aug-15	11:03	32	26	28
22-Aug-15	68	20-Aug-15	11:07	163	225	172
28-Aug-15	27	26-Aug-15	10:27	158	129	113
Average	45	Average		92		
(Range)	(27-68)	(Rang	ge)		(13 - 225)	

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

	24-hour		1-hour TSP (µg/m ³)					
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading		
5-Aug-15	84	3-Aug-15	10:17	29	29	23		
11-Aug-15	68	8-Aug-15	10:56	132	107	128		
17-Aug-15	68	14-Aug-15	10:55	38	35	32		
22-Aug-15	106	20-Aug-15	10:59	153	246	178		
28-Aug-15	69	26-Aug-15	10:15	197	240	121		
Average	79	Average		113				
(Range)	(68-106)	(Rang	ge)		(23 - 246)			

	24-hour	1-hour TSP (µg/m ³)						
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading		
5-Aug-15	58	3-Aug-15	10:13	26	21	14		
11-Aug-15	76	8-Aug-15	10:50	121	102	105		
19-Aug-15#	52	14-Aug-15	10:53	34	32	24		
22-Aug-15	59 (*)	20-Aug-15	10:50	16	121	78		
28-Aug-15	54	26-Aug-15	10:09	175	186	159		



	24-hour	1-hour TSP (µg/m ³)				
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading
Average	60	Avera	ge		81	
(Range)	(52-76)	(Range)		(14 – 186)		

Remark:

(#) monitoring was rescheduled from 17 August 2015 to 19 August 2015 due to power failure. (*) 24-hour TSP monitoring on 22 August was over run and the result was invalidated.

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

	24-hour	1-hour TSP (µg/m ³)					
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading	
5-Aug-15	75	6-Jul-15	9:36	63	60	75	
11-Aug-15	76	12-Aug-15	9:20	34	40	32	
19-Aug-15	64	18-Aug-15	9:12	37	33	36	
22-Aug-15	97	24-Aug-15	9:18	151	113	125	
28-Aug-15	36	29-Aug-15	13:04	40	32	27	
Average	70	Average		60			
(Range)	(36-97)	(Rang	ge)		(27 – 151)		

Table 4-5	Summary of 24-hour and 1-hour	TSP Monitoring Results – AM8
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	24-hour	1-hour TSP (μg/m ³)					
Date	TSP (µg/m ³)	DateStartTime1st		1 st reading	2 nd reading	3 rd reading	
5-Aug-15	41	6-Aug-15	10:57	76	60	65	
11-Aug-15	32	12-Aug-15	11:01	45	25	26	
19-Aug-15	40	18-Aug-15	10:20	32	26	24	
22-Aug-15	76	24-Aug-15	10:59	115	127	127	
28-Aug-15	24	29-Aug-15	13:19	45	64	61	
Average (Range)	43 (24-76)	Avera (Rang	0		61 (24 - 127)		

	24-hour	1-hour TSP (µg/m ³)						
Date	TSP (µg/m ³)	Date	Start Time	1 st reading	2 nd reading	3 rd reading		
5-Aug-15	78 (*)	3-Aug-15	13:04	30	31	38		
11-Aug-15	45	8-Aug-15	10:33	160	90	127		
19-Aug-15	52	14-Aug-15	13:01	23	32	33		
22-Aug-15	108	20-Aug-15	10:13	79	107	125		
28-Aug-15	39	26-Aug-15	11:45	83	97	100		
Average	61	Average			77			
(Range)	(39-108)	(Range) (23 – 160)						

Remark:

(*)24-hour TSP monitoring on 5 August 2015 was ram less than 24 hours due to power failure and the result was invalidated.

- 4.2.2 As shown in *Tables 4-1 to 4-6*, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action/Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.
- 4.2.3 The meteorological data during the impact monitoring days are summarized in *Appendix K*.



5 CONSTRUCTION NOISE MONITORING

5.1 GENERAL

- 5.1.1 In the Reporting Period, construction works under the project have been commenced in Contracts 2, 3 and 5 and noise monitoring was performed at **8** relevant designated locations as below:
 - NM1 Tsung Yuen Ha Village House No. 63;
 - NM2 Village House near Lin Ma Hang Road;
 - NM5 Village House, Loi Tung
 - NM6 Tai Tong Wu Village House 2
 - NM7 Po Kat Tsai Village
 - NM8 Village House, Tong Hang;
 - NM9 Village House, Kiu Tau Village; and
 - NM10 Nam Wa Po Village House No. 80
- 5.1.2 The noise monitoring schedule is presented in *Appendix H* and the monitoring results are summarized in the following sub-sections.

5.2 NOISE MONITORING RESULTS IN REPORTING MONTH

5.2.1 In the Reporting Period, a total of **40** event noise measurements were carried out at the designated locations. The sound level meter was set in 1m from the exterior of the building façade including noise monitoring locations NM1, NM2, NM5, NM6, NM7, NM8 and NM9. Therefore, no façade correction (+3 dB(A)) is added according to acoustical principles and EPD guidelines. However, free-field status was performed at NM10. So, façade correction (+3 dB(A)) has added according to the requirement in this month. The noise monitoring results at the designated locations are summarized in *Table 5-1*. The detailed noise monitoring data are presented in *Appendix I* and the relevant graphical plots are shown in *Appendix J*.

	Construction Noise Level (L _{eq30min}), dB(A)								
Date	NM1	NM2	NM8	NM9	NM10 ^(*)	Date	NM5	NM6	NM7
3-Aug-15	53	52	59	60	69	6-Aug-15	54	62	60
8-Aug-15	59	58	62	58	65	12-Aug-15	61	59	57
14-Aug-15	58	60	59	59	64	18-Aug-15	51	59	61
20-Aug-15	50	56	58	61	60	24-Aug-15	52	59	64
26-Aug-15	57	56	60	58	64	29-Aug-15	52	48	62
Limit 75 dB(A)									
Level		75 UD (A)							

Table 5-1Summary of Construction Noise Monitoring Results

Remarks

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

5.2.2 As shown in *Table 5-1*, the noise level measured at the designated monitoring locations NM1, NM2, NM5, NM6, NM7, NM8, NM9 and NM10, were below 75dB(A). Furthermore, there was no noise complaints (Action Level exceedance) received by the RE, Contractors or CEDD in the Reporting Period. Therefore, no Action or Limit Level exceedance was triggered and no corrective action was required.



6 WATER QUALITY MONITORING

6.1 GENERAL

- 6.1.1 In the Reporting Period, construction works under the project has been commenced in Contracts 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 –South Portal of Contract 2 and 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, there were **fourteen** (14) sampling days of water quality monitoring conducted at the designated water monitoring location.
- 6.2.2 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 0-1	D u	Summary of Water Quarty Monitoring Results for Contracts 2 and 5								
Date	Di	Dissolved Oxygen (mg/L)			Turbidity (NTU)	y	Suspended Solids (mg/L)			
	WM4	WM4-CA	WM4-CB	WM4	WM4-CA	WM4-CB	WM4	WM4-CA	WM4-CB	
1-Aug-15	7.31	7.06	6.79	12.4	6.1	10.4	9.0	3.0	7.0	
3-Aug-15	7.44	7.27	7.11	11.3	4.2	7.6	8.5	2.0	5.5	
5-Aug-15	7.61	7.33	7.32	10.4	4.7	13.4	8.0	2.0	11.5	
8-Aug-15	8.40	7.52	7.40	9.7	4.2	8.7	7.0	4.0	8.0	
10-Aug-15	7.60	7.62	6.55	25.0	4.4	10.6	21.5	4.0	10.0	
12-Aug-15	6.96	7.27	4.53	51.2	5.2	15.7	51.5	4.0	14.5	
14-Aug-15	6.10	6.97	5.64	10.2	2.2	9.4	13.5	3.5	14.5	
18-Aug-15	6.51	6.45	6.57	18.7	6.1	14.0	11.5	6.0	9.5	
20-Aug-15	6.34	6.66	4.80	31.6	7.7	15.1	19.5	6.0	8.5	
22-Aug-15	7.04	6.86	7.18	17.3	5.7	13.8	14.5	3.5	14.0	
24-Aug-15	7.34	6.88	6.64	14.3	6.1	7.2	7.5	4.0	10.0	
26-Aug-15	6.28	6.80	4.89	12.7	4.3	13.8	9.0	5.5	12.0	
28-Aug-15	5.41	6.38	3.08	13.3	4.5	7.5	14.5	4.0	9.0	
31-Aug-15	7.39	7.26	6.84	20.6	9.1	16.2	12.5	7.5	14.0	

Table 6-1Summary of Water Quality Monitoring Results for Contracts 2 and 3

Remark:

i. bold and underlined indicated Limit Level exceedance.

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

Date		Dissolved Oxygen (mg/L)		oidity ΓU)	Suspended Solids (mg/L)		
Date	WM1	WM1- Control	WM1	WM1- Control	WM1	WM1- Control	
1-Aug-15#	6.66	6.87	38.2	37.6	42.0	30.5	
3-Aug-15#	6.31	5.81	28.9	7.1	28.0	3.0	
5-Aug-15#	6.64	8.31	25.9	7.5	22.0	3.5	
8-Aug-15#	7.79	8.52	21.9	8.0	20.0	2.0	
10-Aug-15#	6.76	7.80	65.3	17.4	51.0	10.5	
12-Aug-15#	6.27	7.75	119.0	8.2	111.5	9.0	
14-Aug-15	6.88	6.39	150.3	578.8	137.5	454.0	



Date		d Oxygen g/L)		oidity ΓU)	-	ed Solids g/L)
Date	WM1	WM1- Control	WM1	WM1- Control	WM1	WM1- Control
18-Aug-15	5.64	5.43	40.5	17.2	50.0	13.5
20-Aug-15	6.64	6.51	<u>241.0</u>	140.5	<u>190.0</u>	71.5
22-Aug-15	6.21	6.28	74.5	14.2	<u>90.5</u>	4.0
24-Aug-15	6.33	7.24	33.5	13.5	34.0	7.5
26-Aug-15	7.07	7.09	40.6	27.5	48.5	20.5
28-Aug-15	6.55	7.64	35.9	11.9	35.5	5.5
31-Aug-15	6.26	6.83	over range	over range	1330.0	1305.0

Remark:

i bold and underlined indicated Limit Level exceedance.

water sampling was not able to carry out due to shallow water and water monitoring was conducted at box culvert 2 downstream for reference

Location	Dissolved Oxygen (mg/L)		Turbidity (NTU)Suspended S (mg/L)			Tot Exceed		
	Action	Limit	Action	Limit	Action	Limit	Action	Limit
WM1	0	0	0	2	0	2	0	3
WM4	0	0	0	1	0	1	0	3
No of Exceedance	0	0	0	3	0	3	0	6

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

- 6.2.3 During water monitoring on 1, 3, 5, 8, 10 and 12 August 2015, very shallow water was observed at the proposed water monitoring location and water sampling at WM1 was unable to carry out. Water sampling was then carried out near the box culvert 2 at close downstream and the data is served as reference only.
- 6.2.4 In this Reporting Period, total of six (6) Limit Level exceedances, namely two (2) exceedances of turbidity and two (2) exceedances of suspended solids recorded at WM1 and one (1) exceedance of turbidity and one (1) exceedance of suspended solids recorded at WM4.
- 6.2.5 NOE was issued to relevant parties upon confirmation of the monitoring result. The investigation for the cause of exceedance is presented in below.

<u>Investigation Result for SS Exceedance at WM4 on 25 July 2015 (Contract 2) (follow up of last Reporting Period)</u>

- 6.2.6 According to the site information provided from the Contractor of C2 (DHK), construction activities carried out on 25 July 2015 at South Portal included tunnel excavation and ventilation building formation and piling works which undertaken away from the Ma Wat River.
- 6.2.7 According to the site record from the monitoring team, no abnormality was observed at both control station WM4-CA and WM4-CB. However, muddy water was observed at impact station WM4. During the course of monitoring, there were no observable water impacts such as muddy water discharge from the site, therefore, the Contractor and ET carried out a visit at the upstream area to trace the source of muddy water.
- 6.2.8 As shown in the photo record, muddy water has been flowed from other upstream location which was not under monitored by the Contract. This situation was also frequently recorded during weekly joint site inspection by the RE, IEC, Contractor and ET since the contract commencement. In conclusion, it is considered that the exceedance was due to the external muddy water from upstream and not related to the works under the Contract.

<u>Investigation Result for SS Exceedance at WM4 on 25 July 2015 (Contract 3) (follow up of last Reporting Period)</u>

- 6.2.9 According to the site diary provided by the Contractor, construction works carried out on 25 July 2015 included erection of formwork. The works were carried out away from the watercourse and no wastewater was generated. Surface runoff of the site was all diverted to the wastewater treatment facilities for de-silting prior to discharge.
- 6.2.10 According to the site record from the monitoring team, no abnormality was observed at both control station WM4-CA and WM4-CB. However, muddy water was observed at impact station WM4. During the course of monitoring, there were no observable water impacts such as muddy water discharge from the site, therefore, the Contractor and ET carried out a visit at the upstream area to trace the source of muddy water.
- 6.2.11 As shown in the photo record, muddy water has been flowed from other upstream location which was not under monitored by the Contract. This situation was also frequently recorded during weekly joint site inspection by the RE, IEC, Contractor and ET since the contract commencement. In conclusion, it is considered that the exceedance was due to the external muddy water from upstream and not related to the works under the Contract.

Investigation Result for Turbidity and SS Exceedance at WM4 on 12 August 2015 (Contract <u>3)</u>

- 6.2.12 According to the site diary provided by the Contractor, construction works carried out on 12 August 2015 included shotcrete, erection of formwork and watermain works. The works were carried out away from the watercourse. Surface runoff and wastewater generated from site was all diverted and treated by wastewater treatment facilities prior to discharge.
- 6.2.13 According to the site record from the monitoring team, no abnormality was observed at both control station WM4-CA and WM4-CB but muddy water was observed at impact station WM4.
- 6.2.14 Joint site inspection was carried out by the RE, IEC, Contractor and ET on 12 August 2015. It was observed that muddy water has been flowing from an upstream location which was not under monitored by the Contract. Turbid water was also observed at Bridge D2 and it was considered that the stream water was affected by the muddy water from upstream location.
- 6.2.15 Inspection was also conducted near the box culvert (Location AB3) which received water from the works area of Bridge E. The water quality in the box culvert was clear which revealed that no water impact was raised due to the construction near Bridge E. In conclusion, it is considered that the exceedance was due to the external muddy water from upstream and not related to the works under the Contract.

Investigation Result for Turbidity and SS Exceedance at WM4 on 12 August 2015 (Contract 2)

- 6.2.16 According to the site information provided from the Contractor of C2 (DHK), construction activities carried out on 12 August 2015 at South Portal included tunnel excavation and ventilation building formation and piling works which undertaken away from the Ma Wat River.
- 6.2.17 According to the site record from the monitoring team, no abnormality was observed at both control station WM4-CA and WM4-CB but muddy water was observed at impact station WM4. Moreover, no muddy discharge from Contract 2 was observed.
- 6.2.18 Joint site inspection was carried out by the RE, IEC, Contractor and ET on 12 August 2015. It was observed that muddy water has been flowing from an upstream location which was not under monitored by the Contract. Turbid water was also observed at Bridge D2 and it was considered that the stream water was affected by the muddy water from upstream location.
- 6.2.19 In conclusion, it is considered that the exceedance was due to the external muddy water from



upstream and not related to the works under the Contract.

Investigation Result for Turbidity and SS Exceedance at WM1 on 20 and 22 August 2015

6.2.20 To be reported in next Reporting Period.



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

Tune of Wests	Cont	Contract 2		Contract 3		Contract 5		
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	
C&D Materials (Inert) (in '000m ³)	47.1885		1.966		0		20.7614	
Reused in this Project (Inert) (in '000 m ³)	0.4526		0.294		0		0.8681	
Reused in other Projects (Inert) (in '000 m ³)	46.4710	C5	0		0		18.2752	
Disposal as Public Fill (Inert) (in '000 m ³)	0.2650	Tuen Mun 38	1.672	Tuen Mun 38	0		1.6182	

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

Turne of Words	Cont	ract 2	Cont	ract 3	Cont	ract 5	
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location	Fotal Quantity
Recycled Metal ('000kg) #	0	-	0.0002	Licensed collector	0		0.2m ³
Recycled Paper / Cardboard Packing ('000kg) #	0.4500	Licensed collector	0	-	0		0.2500
Recycled Plastic ('000kg) #	0.6000	Licensed collector	0.0001	Licensed collector	0		600kg+0.1m ³
Chemical Wastes ('000kg) #	0.7040	Licensed collector	0	-	0		0.8800
General Refuses ('000m ³)	0.1021	NENT	0.130	NENT	0.43	NENT	0.1346

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

8 SITE INSPECTION

8.1 **REQUIREMENTS**

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

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

The Contract 2

- 8.2.1 In the Reporting Period, joint site inspection for Contract 2 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on 7, 14, 21 and 28 August 2015. No non-compliance was noted.
- 8.2.2 The findings / deficiencies of *Contract 2* that observed during the weekly site inspection are listed in *Table 8-1*.

Date	Findings / Deficiencies	Follow-Up Status				
7 August 2015	• No adverse environmental were observed.	• NA				
14 August 2015	 Stagnant water cumulated inside the drip tray should be cleaned after the rain storm. (South Portal) It was reminded that mosquito control record should update properly. (South Portal & Mid-Vent). 	inside the drip tray was removed.				
21 August 2015	• No adverse environmental were observed.	• NA				
28 August 2015	• No adverse environmental were observed.	• NA				

Table 8-1Site Observations for Contract 2

The Contract 3

- 8.2.3 In the Reporting Period, joint site inspection for Contract 3 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on **3**, **12**, **17**, **24 and 31** August 2015. No non-compliance was noted.
- 8.2.4 The findings / deficiencies of *Contract 3* that observed during the weekly site inspection are listed in *Table 8-2*.

Table 8-2Site Observations for Contract 3

Date	Findings / Deficiencies	Follow-Up Status
3 August 2015	• No adverse environmental were observed.	• NA
12 August 2015	• Stockpile of C&D waste was observed near Bridge E, the Contractor should provide on-site sorting and fence off the C&D waste sorting area properly.	
	• Stockpile of C&D waste was observed near Bridge E, the Contractor should provide on-site sorting and fence off the C&D waste sorting area properly.	*
	• The Contractor was reminded to cover the rock fill slope near the Pier AC5 to prevent water pollution.	
Date	Findings / Deficiencies	Follow-Up Status
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	• The Contractor was reminded to remove any stagnant water after rain to prevent mosquito breeding. (all areas)	• Not required for reminder.
17 August 2015	• The pH reading shown on Wetsep was out of 6-9, the Contractor should monitor the pH reading and repair the Wetsep if necessary.	• The pH reading is in noraml range.
	• Oil stain on bare ground was observed at Pier AB6, the Contract should clean the stain in accordance with the chemical waste ordinance.	• The oil stain has been cleaned and temporary stored in a proper chemical waste container before collected by the licence collector.
	• Oil drum without drip tray was observed at Pier AB6, the Contactor should provide drip tray underneath.	• Drip tray has been provided for the oil drums.
24 August 2015	• Muddy trail was observed at an exit near Bridge E, the Contractor should clean the muddy trail regularly.	• Muddy trail at exit near Bridge E was cleaned.
	• Dark smoke emitted from an excavator was observed near Bridge E, the Contractor should check the condition of the excavator and repair if required.	• The excavator has been removed.
	• Dry and dusty haul road was observed near Bridge E, the Contractor should provide water spraying on the haul road to minimize dust impact.	• Water spraying was provided on the haul road.
31 August 2015	• Chemical container without drip tray was observed near Bridge E, the Contractor should provide drip tray underneath.	• The chemical container was removed.
	• Continuous white smoke emitted from a generator was observed near the exit of SA14, the Contractor should check the condition of the generator and maintenance if required.	• To be followed.

The Contract 5

- 8.2.5 In the Reporting Period, joint site inspection for Contract 5 to evaluate the site environmental performance has been carried out by the RE, IEC, ET and the Contractor on 6, 13, 20 and 27 August 2015. No non-compliance was noted.
- 8.2.6 The findings / deficiencies of *Contract 5* that observed during the weekly site inspection are listed in *Table 8-3*.

Table 8-3Site Observations for Contract 5

Date	Findings / Deficiencies	Follow-Up Status
6 August 2015	• Black exhaust smoke from a construction plant was observed, the Contractor should provide regular maintenance.	• Plant maintenance was provided to avoid dark smoke emission.
13 August	• The Contractor was reminded to maintain cleanliness on public road near	• Not required for reminder.



Date	Findings / Deficiencies	Follow-Up Status
2015	 1500 pipe. The Contractor was reminded to improve the mitigation measures on dust control and surface run-off for the construction works adjacent to public road at 1500 pipe. 	• Not required for reminder.
20 August 2015	• No adverse environmental were observed.	• NA
27 August 2015	• The Contractor was reminded to cut the grass and trim the bushes to prevent mosquito breeding.	• Not required for reminder.

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

Other Contracts

8.2.8 Since the construction works at the Contract 4, Contract 6, Contract 7 and Contract SS C505 have not yet been commenced, no site inspection is performed for these Contracts.

9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.1 Environmental Complaint, Summons and Prosecution

- 9.1.1 In the Reporting Period, no environmental complaints, summons and prosecution under the EM&A Programme was lodged.
- 9.1.2 The statistical summary table of environmental complaint is presented in *Tables 9-1, 9-2* and *9-3*.

Table 9-1Statistical Summary of Environmental Complaints

Domontin a Donio d	Contract	Environmental Complaint Statistics			
Reporting Period Contract Distribution No Frequency Cumulative		Cumulative	Complaint Nature		
19 May 2014 – 31 Jul 2015	Contract 2	0	13	 (6) Water Quality (5) Construction Dust (2) Noise 	
06 Nov 2013 – 31 Jul 2015	Contract 3	0	3	 (1) Construction Dust (2) Water quality 	
16 Aug 2013 – 31 Jul 2015	Contract 5	0	2	• (2) Construction Dust	
1 21 Arra 2015	Contract 2	0	13	 (6) Water Quality (5) Construction Dust (2) Noise 	
1 – 31 Aug 2015	Contract 3	0	3	 (1) Construction Dust (2) Water quality 	
	Contract 5	0	2	• (2) Construction Dust	

Table 9-2 Statistical Summary of Environmental Summons

Donouting Douiod	Contract	Environmental Summons Statistics			
Reporting Period	No	Frequency	Cumulative	Complaint Nature	
19 May 2014 – 31 Jul 2015	Contract 2	0	0	NA	
06 Nov 2013 – 31 Jul 2015	Contract 3	0	0	NA	
16 Aug 2013 – 31 Jul 2015	Contract 5	0	0	NA	
	Contract 2	0	0	NA	
1 – 31 Aug 2015	Contract 3	0	0	NA	
	Contract 5	0	0	NA	

Table 9-3	Statistical Summary of Environmental Prosecution
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Departing Deviad	Contract	Environmental Prosecution Statistics			
Reporting Period	No	Frequency	Cumulative	Complaint Nature	
19 May 2014 – 31 Jul 2015	Contract 2	0	0	NA	
06 Nov 2013 – 31 Jul 2015	Contract 3	0	0	NA	
16 Aug 2013 – 31 Jul 2015	Contract 5	0	0	NA	
	Contract 2	0	0	NA	
1 – 31 Aug 2015	Contract 3	0	0	NA	
	Contract 5	0	0	NA	

The Other Contracts

9.1.3 Since the construction works at the Contract 4, Contract 6, Contact 7 and Contract SS C505 have not yet commenced, no environmental complaint, summons and prosecution under the EM&A Programme are registered in the Reporting Period.

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.1 GENERAL REQUIREMENTS

- 10.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in *Appendix M*.
- 10.1.2 All contracts under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by Contracts 2, 3 and 5 in this Reporting Period are summarized in *Table 10-1*.

Issues	Environmental Mitigation Measures				
Water	• Wastewater to be treated by the wastewater treatment facilities i.e.				
Quality	sedimentation tank or AquaSed before discharge.				
Air Quality	Maintain damp / wet surface on access road				
	• Keep slow speed in the sites				
	All vehicles must use wheel washing facility before off site				
	Sprayed water during breaking works				
	• A cleaning truck was regularly performed on the public road to prevent				
	fugitive dust emission				
Noise	• Restrain operation time of plants from 07:00 to 19:00 on any working day				
	except for Public Holiday and Sunday.				
	Keep good maintenance of plants				
	• Place noisy plants away from residence or school				
	• Provide noise barriers or hoarding to enclose the noisy plants or works				
	• Shut down the plants when not in used.				
Waste and	On-site sorting prior to disposal				
Chemical	• Follow requirements and procedures of the "Trip-ticket System"				
Management					
U	• Collect the unused fresh concrete at designated locations in the sites for				
	subsequent disposal				
General	The site was generally kept tidy and clean.				

Table 10-1Environmental Mitigation Measures

10.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

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

Contract 2

Mid-Vent Portal	•	Adit invert slab

Cavern excavation

North Portal

South Portal

- Permanent slope
- South Bound invert grouting
- North Bound blast door installation
- North Bound top heading canopies
- TBM sliding to face
- Associated equipment installation for operation of TBM (mortar plant, cooling system etc.)
- TBM initial drive
- Rock Excavation to Vent. Bldg. Formation
- Southbound foundation works
- Northbound bored piles works & pile tests
- Drill and blast set up and site installation
- Installation of blast door for Southbound tunnel
- Admin Building Backfilling for surcharge



Contract 3

- Cable detection and trial trenches
- Decking construction for Bridge E
- E&M work for new valve control & Telemetry House
- Filling works at Tong Hang East
- Storm Drains Laying
- Noise barrier construction
- Pier / Pier Table construction
- Pile cap works
- Portal beam erection
- Pre-drilling works and piling works for viaduct
- Retaining Wall construction
- Road works at Fanling Highway
- Slope works
- Socket H-pile installation
- Tree felling works
- Utilities duct laying
- Viaduct segment erection
- Construction of temporary steel ramp for Kiu Tau Footbridge

Contract 5

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

Contract SS C505

- Site clearance
- Pre-drilling
- Piling

10.3 KEY ISSUES FOR THE COMING MONTH

- 10.3.1 Key issues to be considered in the coming month for Contracts 2, 3, 5 and SS C505 include:
 - Implementation of control measures for rainstorm;
 - Regular clearance of stagnant water during wet season;
 - Implementation of dust suppression measures at all times;
 - Potential wastewater quality impact due to surface runoff;
 - Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
 - Disposal of empty engine oil containers within site area;
 - Ensure dust suppression measures are implemented properly;
 - Sediment catch-pits and silt removal facilities should be regularly maintained;

- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures
- 10.3.2 Contract 4, Contract 6, Contact 7 and Contract SS C505 have not yet commenced and no environmental issue is presented.



11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

- 11.1.1 This is **25th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **31 August 2015**.
- 11.1.2 For air quality monitoring, no 1-hour and 24-hour TSP monitoring results triggered the Action or Limit Levels were recorded. No NOEs or the associated corrective actions were therefore issued.
- 11.1.3 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.
- 11.1.4 For water quality monitoring, a total of six (6) Limit Level exceedances were recorded, namely four (4) exceedances at WM1 and two (2) exceedances at WM4. It was concluded that the exceedances at WM4 were all not project related whereas investigation for WM1 is in progress.
- 11.1.5 No notification of summons or successful prosecution under the EM&A Programme of the Project was received in the reporting period for Contract 2, 3 and 5.
- 11.1.6 No environmental complaint under the EM&A Programme of the Project was received in the reporting period for Contract 2, 3 and 5.
- 11.1.7 During the Reporting Period, four (4), five (5) and four (4) events of joint site inspection by the RE, IEC, ET with the relevant Main-contractor were carried out for Contracts 2, 3 and 5 respectively in accordance with the EM&A Manual stipulation. No non-compliance observed during the site inspection.

11.2 RECOMMENDATIONS

- 11.2.1 During wet season, muddy water or other water pollutants from site surface runoff into Kong Yiu Channel and Ma Wat Channel will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies and public areas should be paid on special attention. The Contractors should fully implement the water quality mitigation measures.
- 11.2.2 Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants or temporary noise barrier installation at the construction noise predominate area should be implemented as accordance with the EM&A requirement.
- 11.2.3 Since most of construction sites under the Project are adjacent to villages, the contractors should be paid attention on the construction dust emission. The Contractor should fully implement the construction dust mitigation measures properly.
- 11.2.4 Furthermore, daily cleaning and weekly tidiness shall be properly performed and maintained. In addition, mosquito control should be kept to prevent mosquito breeding on site.



Appendix A

Layout plan of the Project



Q:\STO Group\TO-General\User Drawing\Ricco\20150310-PLP\PLP_001C.dgn



Appendix B

Organization Chart



Project Organization Structure





Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Gregory Lo	2171 3300	2171 3498
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
DHK	Project Director	Daniel Altier	2171 3004	2171 3299
DHK	Deputy Project Manager	Raymond Cheng / Pierre Pascual	2171 3004	2171 3299
DHK	QSE Manager	Roger Lee	6293 8726	2171 3299
DHK	Environmental Officer	Lam Chung Hei	2171 3004	2171 3299
DHK	QSE Officer (Environmental)	Simon Wong	9281 4346	2171 3299
DHK	QSE Officer (Environmental)	Sophie Baycheuer	6321 5001	2171 3299
DHK	QSE Officer (Environmental)	Tony Tsoi	6028 5623	2171 3299
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

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

Legend:

CEDD (Employer) – Civil Engineering and Development Department AECOM (Engineer) – AECOM Asia Co. Ltd. DHK(Main Contractor) –Dragages Hong Kong Ltd. SMEC (IEC) – SMEC Asia Limited AUES (ET) – Action-United Environmental Services & Consulting



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

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Alan Lee	2171 3300	2171 3498
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
Chun Wo	Project Director	Clement Kwok	3758 8735	2638 7077
Chun Wo	Project Manager	Ken Ko	2638 6136	2638 7077
Chun Wo	Site Agent	Daniel Ho	2638 6144	2638 7077
Chun Wo	Environmental Officer	Victor Huang Tiffany Tsang Dennis So	2638 6115	2638 7077
Chun Wo	Assistant Environmental Officer	Yip Yun Lam Law Pui Fan	2638 6125	2638 7077
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

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

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

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
AECOM	Engineer's Representative	Kelvin Lee	2674 2273	2674 7732
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
SRJV	Project Director	PY Cheng	9023 4821	2403 1162
SRJV	Contract Manager	Raymond Yu	9041 1620	2403 1162
SRJV	Project Manager	Aaron Mak	9464 7095	2403 1162
SRJV	Site Agent	Edwin Au	9208 7329	2403 1162
SRJV	Environmental Officer	Chan Ng jhon-keibi / Kenny Chan	6090 0183	2403 1162
SRJV	Environmental Supervisor	Thomas Ma	-	2403 1162
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

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

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

3-month rolling construction program



Contract 2

MPR19; HKLTH Works Programme update 20-August-2015 [wpd]; DHK_HKLTH_Works Programme new 3MRP; 24-Aug-15; 16:48

Activity ID		Activity Name	Workina	BL Project Start	BL Project				2015
			Duration		Finish		Aug		Sep
Total			1001.0	17-Apr-14	14-Jun-17			1	
	Works	Programme update 20-August-2015 [wpd]	1001.0	17-Apr-14	14-Jun-17			1	
2 Gener			1001.0	17-Apr-14	14-Jun-17		 	1	1 1 1
Noise I		S	122.0	03-Jul-15	01-Dec-15			1	
	Submis		122.0	03-Jul-15	01-Dec-15				1 1 1 1
CONTDS		Preparation of DDA for formal submission to ER/ICE/IP	45.0	03-Jul-15	29 Aug 15		 +		'
CONTDS		IPs'/ ER's Review		29-Aug-15	28-Aug-15 03-Oct-15		1		ı
									, ,
CONTDS		Preparation of DDA with ICE Certification for resubmission to ER/ICE/IP ER/IP's Approval		05-Oct-15 30-Oct-15	29-Oct-15 01-Dec-15				;
				17-Apr-14	14-Jun-17		 		1 1 1
Project				•					
		& Engineering Works		17-Apr-14	29-Aug-15				
		esign Submission		17-Apr-14	12-Jun-15				
PD.EC.I		Tunnel Ventilation System Submission and Approval by the Engineer		17-Apr-14	12-Jun-15				
	_	& Builder's Drawing Submission		17-Dec-14	29-Aug-15				, , , ,
PD.DW.		Shop Drawings & Builder's Drawings Preparation		17-Dec-14	27-Jul-15				, ,
PD.DW.		Shop Drawings & Builder's Drawings Submission & Approval		22-Jan-15	29-Aug-15		1 1 1		1 1 1
Equip	ment S	Selection & Submission	409.0	01-Aug-14	14-Dec-15				1 1 1 1
PD.PQ.10	080	Electrical Services System Submission and Approval by the Engineer	338.0	27-Oct-14	14-Dec-15				
PD.PQ.11	150	Tunnel Ventilation System Submission and Approval by the Engineer	228.0	07-Nov-14	15-Aug-15				· · · · · · · · · · · · · · · · · · ·
PD.PQ.14	480	ELV System Submission and Approval by the Engineer	294.0	01-Aug-14	29-Jul-15				
PD.PQ.20	010	FS System Submission and Approval by the Engineer	278.0	01-Nov-14	09-Oct-15		1		
Manuf	facturir	ng & Delivery of Major Equipment	581.0	29-Jun-15	14-Jun-17				
PD.PQ.1	070	Manufacturing and Delivery of Turnel Ventilation System	581.0	29-Jun-15	14-Jun-17		1		J
3 South	n Portal	Area	303.6	17-Apr-15	25-Feb-16				
		rtal Subcontract & Procurement	256.0	17-Apr-15	16-Jan-16				1 1 1
SPS&P007		Subcontract : Retaining Wall Structure Works	60.0	17-Apr-15	29-Jun-15			-	
SPS&P008	80	Subcontract : Ventilation Building Structure Works		30-Jun-15	08-Sep-15		Ч т		<u></u>
SPS&P009	90	Subcontract : Tunnel Lining Works	60.0	13-Jul-15	19-Sep-15		<u>.</u>		
SPS&P010	00	Subcontract : Tunnel Lining Form works (Design, Fabrication, Delivery, & On-Site Assembly)	150.0	13-Jul-15	09-Jan-16				
SPS&P011	10	Subcontract : Tunnel Concreting Works	60.0	24-Aug-15	04-Nov-15				
SPS&P012	20	Subcontract : Tunnel Finishing Works		05-Nov-15	16-Jan-16		<u>+</u>		
3.2 Sol	uth Por	tal Design Submission	195.6	07-May-15	27-Dec-15	1			
		Permanent Lining	56.5	22-May-15	11-Jul-15		1 1 1		1 1 1 1
					11-Jul-15		1 1 1		1 1 1
				22-May-15				-	;
STPL10 STPL10		Preparation for resubmission to ER/ICE/IP with ICE Certification ER/IP's Approval		22-May-15	13-Jun-15		 		, , , ,
				14-Jun-15 28-May-15	11-Jul-15 22-Aug-15				
		I Internal Structures					1 1 1		1 1 1 1
	Submissi			28-May-15	22-Aug-15				
	.1023570	IPs'/ ER's Review		28-May-15	25-Jun-15	<u> </u>			, , , ,
	1023590	Preparation for resubmission to ER/ICE/IP with ICE Certification		26-Jun-15	25-Jul-15		<u> </u>	<u> </u>	
	.1023690	ER/IP's Approval		26-Jul-15	22-Aug-15			-	1 1 1 1
		ges -Temp Works D&B Tunnel - Soft Ground		07-May-15	06-Jul-15		I I I		1 1 1
	Submissi		51.0	07-May-15	06-Jul-15				
DSN270		Preparation for resubmission to ER/ICE/IP with ICE Certification		07-May-15	08-Jun-15				' '
DSN271		ER/IP's Approval		09-Jun-15	06-Jul-15				
Cross	Passa	ges -Temp Works D&B Tunnel - Rock	55.0	15-Jun-15	07-Oct-15				1 1 1
							•	•	

			1			MAIN CONTRACTOR	CLIENT	THE ENGINEER	PROJECT
						香寶嘉	CEDD 土木工程拓展署	AECOM	Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Con Site Formation and Infrastructure Works Co
A	Monthly Report No.20	20/08/2015	RAN	RBS/SJO	DAL	Dragages HongKong	CEDD Civil Engineering and Development Department		TITLE
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ctivity ID	Activity Name	Working	BL Project Start	BL Project			2015
		Duration	-	Finish	Aug		Sep
DDA Submis	sion	55.0	15-Jun-15	07-Oct-15			
FL326930	Preparation for formal submission to ER/ICE/IP	18.0	15-Jun-15	07-Jul-15			
FL326980	IPs'/ ER's Review	28.0	08-Jul-15	08-Aug-15	· · · · · · · · · · · · · · · · · · ·		
FL327000	Preparation for resubmission to ER/ICE/IP with ICE Certification	27.0	10-Aug-15	09-Sep-15			
FL327100	ER/IP's Approval	28.0	10-Sep-15	07-Oct-15			
As-Built Dr	awings [Contractor's Design/ Contractor's Alternative Design]	60.0	29-Oct-15	27-Dec-15			
SC1650	As-Built Drawings Submission - South Portal Ventilation Bldg Foundation	60.0	29-Oct-15	27-Dec-15			
3.3 South Pe	ortal Method Statement Submission	103.0	01-Jun-15	04-Jul-15			
·		28.0	01-Jun-15	04-Jul-15			
FL2022096	al: Tunnel Mechanical Excavation						
	Engineer's Approval		01-Jun-15	04-Jul-15			
	al: Bored Piling Works		01-Jun-15	04-Jul-15			·
A25488	Engineer's Approval		01-Jun-15	04-Jul-15		_	
3.5 South Po	ortal Works	214.6	06-May-15	25-Feb-16			
South Porta	al: Slopeworks	36.0	19-May-15	06-Jul-15			
SV2710	Rock Excavation to Vent. Bldg. Formation	36.0	19-May-15	06-Jul-15			
South Port:	al: Foundation & Substructure	104.0	29-Jun-15	28-Oct-15		+	
SV2180	South Bound Foundation	54.0	29-Jun-15	04-Sep-15	· · · · · · · · · · · · · · · · · · ·		·
SV2190	Handover to SB Tunneing		04-Sep-15	04-Sep-15			· · ·
SV2210	N/B Bored Piles 4nos & Pile Test		07-Jul-15	04-Sep-15	1		
SV2740	N/B Pile Caps & Tie Beams		05-Sep-15	20-Oct-15			· · · · · · · · · · · · · · · · · · ·
SV2745	N/B Backfilling	6.0	22-Oct-15	28-Oct-15			
SV2750	Handover to NB Tunneing	1.0	28-Oct-15	28-Oct-15			
South Port:	al: Superstructure	74.0	22-Oct-15	19-Jan-16			
SV2325	Retaining Walls (LSTSP/ RW3 & LSTSP/ RW4 & S1,S2 & S3)	74.0	22-Oct-15	19-Jan-16			
	els: Southbound Tunnel		06-May-15	21-Dec-15		+	
DB6300	D&B Setup / Site Installation	101.0	06-May-15	04-Sep-15		<u></u>	
DB6310	Top Heading Excavation (Canopies) (CRP: Ch1,751>Ch1,787) 36m		05-Sep-15	11-Nov-15			
DB6320	Bottom Bench Excavation (CRP:Ch1,751>Ch1,787)		12-Nov-15	21-Dec-15			
South Tunn	els: Northbound Tunnel		30-Oct-15	25-Feb-16			
DB6340dwp1	Top Heading Excavation (Canopies) (P20/NB Ch: 139 to 178); 39m; (CRP: Ch1,750>Ch1,789)	67.0	30-Oct-15	18-Jan-16			
DB6350	Bottom Bench Excavation (P20/NB - 139>200); 61m; (CRP: Ch1,750>Ch1,811)		14-Dec-15	25-Feb-16			
				02-Jan-16			
4 Middle Por							
	ortal Subcontract & Procurement	279.6	05-Feb-15	04-Dec-15			· · · · · · · · · · · · · · · · · · ·
MPS&P0050	Subcontract : Tunnel Lining Form works (Design, Fabrication, Delivery, & On-Site Assembly)		05-Feb-15	11-Aug-15			
MPS&P0070	Subcontract : Ventilation Building Structure Works		02-May-15	14-Jul-15			
MPS&P0080	Subcontract : Ventilation Building ABWF Works		15-Jul-15	22-Sep-15			
MPS&P0090	Subcontract : Tunnel Concreting Works for Internal Structures		31-Aug-15	11-Nov-15			
MPS&P0100	Subcontract : External Works and Landscaping Works		23-Sep-15	04-Dec-15			
4.2 Middle P	ortal Design Submission		16-Apr-15	26-Sep-15			
Mid Vent Ad	lit Internal Structure	147.0	16-Apr-15	25-Sep-15			
DDA Submis	sion	147.0	16-Apr-15	25-Sep-15			
DSN29082	Preparation for formal submission to ER/ICE/IP	49.0	16-Apr-15	13-Jun-15			
DSN29083	IPs'/ ER's Review	28.0	15-Jun-15	18-Jul-15			· · · · · · · · · · · · · · · · · · ·
DSN29084	Preparation for resubmission to ER/ICE/IP with ICE Certification	35.0	20-Jul-15	28-Aug-15			
DSN29085	ER/IP's Approval	28.0	29-Aug-15	25-Sep-15			
Mid Vent Ad	lit/Junction Permanent Lining & Backfill	47.0	30-May-15	28-Jul-15			
DDA Submis		47.0	30-May-15	28-Jul-15		_	
DSN29096	Preparation for resubmission to ER/ICE/IP with ICE Certification	26.0	30-May-15	30-Jun-15			
DSN29097	ER/IP's Approval	28.0	01-Jul-15	28-Jul-15			

						MAIN CONTRACTOR 港寶嘉			PROJECT Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Cont
.01			1.52			Dragages	CEDD Civil Engineering and	CONTRACTOR'S DESIGNER	Site Formation and Infrastructure Works Co
Α	Monthly Report No.20	20/08/2015	RAN	RBS/SJO	DAL	HongKong	Development Department	ATKING	TITLE Marshie Barrat No 20 2 Marsha Balling Ba
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED	A member of the Bouygues Construction group	Development Department	AIRINS	Monthly Report No.20 3-Months Rolling Pr (Approved Works Programme Rev. I

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Contract 2	LTH/DHI DOC. STATUS	K/PGR CREA	TION DATE 0/08/2015	REVISION
	LTH/DHI DOC. STATUS FOR INFO.	K/PGR CREA	TION DATE 0/08/2015	REVISION A

Control Partial Number of	Act	ivity ID	Activity Name	Working BL Project Start	BL Project		
Hit Vert Junction Internal Structure 0.0 5. Market Market DDA Seminaria 0.0 4.0 DDA Seminaria 0.0 0.0 Detarti 0.0 0.0 A Seminaria 0.0 0.0 Micide Vential Market 0.0 0.0 Micide Vential Market 0.0 0.0 Corrent Permanent Lining 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works (Internal Structures) 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works (Internal Structures) 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works 0.0 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works 0.0 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works 0.0 0.0 0.0 Micide Ventialion Adt Lininel Concreting Works 0.0 0.0 0.0 Mit	/ 101						
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		Mid Vent Iu	oction Internal Structure	131.6 21-Apr-15	 26-Sep-15		
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5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		Middle Venti	lation Adit Tunnel Concreting Works (Internal Structures)	185.3 31-Aug-15	30-Nov-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		A25517	Prepare Method Statement	48.0 31-Aug-15	28-Oct-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		A25518	Engineer's Comment	28.0 29-Oct-15	30-Nov-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		Mid Vent Blo	lg. Foundation - ELS	52.0 21-May-15	23-Jul-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		A25511	Re-submission Method Statement	24.0 21-May-15	18-Jun-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		A25512	Engineer's Approval	28.0 19-Jun-15	23-Jul-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0		Mid Vent Bu	Iding Construction	28.0 20-May-15	23-Jun-15		
5 North Portal Area 617.8 0848vn14 22-Feb 16 5.0 North Portal Site Possession Contract Dates 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0 0.0 19-Aug-15 0.0			-	28.0 20-May-15	23-Jun-15		
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Shorth Portal Site Possession Contract Dates 0.0 19Aug15 19Aug15 1 A1920 LS7 (near North Vart Store) 0.0. 19Aug15 05-Jan 16 0 19Aug15 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 1 0							
Artiso L.S7 (new North veri Sope) 0.0 19-Aug-15 0 S.1 North Portal Subcontract & Procurement 437.8 05-Jun-16 05-Jun-16 05-Jun-16 NPS&P0070 Subcontract : Turnel Uning Yorks 60.0 05-Jun-15 15-Aug-15 1 NPS&P0070 Subcontract : Turnel Uning Yorks 60.0 05-Jun-15 15-Aug-15 1 NPS&P0080 Subcontract : Turnel Uning Structure Works 60.0 05-Jun-15 02-Dec-15 1 NPS&P0100 Subcontract : Ventilation Building Structure Works 60.0 12-Aug-15 2 1 NPS&P0103 Subcontract : Ventilation Building ABWF Works 60.0 12-Aug-15 2 1 1 NPS&P0130 Subcontract : Ventilation Building ABWF Works 60.0 12-Aug-15 16-Nex15 1		5 North Porta	Area	617.8 08-Nov-14	22-Feb-16		
		5.0 North Po	tal Site Possession Contract Dates	0.0 19-Aug-15	19-Aug-15		
		A1920	LS7 (near North Vent Slope)	0.0 19-Aug-15		•	
		5.1 North Po	tal Subcontract & Procurement	437.8 05-Jun-15	05-Jan-16		
		NPS&P0070		60.0 05-Jun-15	15-Aug-15		
		NPS&P0080			-		
		NPS&P0090			-		
		NPS&P0110					
		NPS&P0120					
		NPS&P0130					
		5 2 North Po	tal Design Submission	294.0 17-Mar-15	16-Nov-15		
		Bered Tunn		28.0 08-May-15	04-Jun-15		
		Bored Tunne					
		DDA Submiss					
		FL2022168					
		Bored Tunne	el Internal Structure (except OHVD Slab)				
		DDA Submiss	ion	28.0 08-May-15	04-Jun-15		
		FL2022176	ER/IP's Approval	28.0 08-May-15	04-Jun-15		
		Bored Tunne	el/ D&B Tunnel Transition - Headwall Structure (N/B & S/B)	173.0 17-Mar-15	17-Oct-15		
		DDA Submiss		173.0 17-Mar-15	17-Oct-15		
		FL2022181		95.0 17-Mar-15	14-Jul-15		

						MAIN CONTRACTOR	CLIENT	THE ENGINEER	PROJECT
						香寶嘉	+木丁程拓展署	AECOM	Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Con
101			1.12			Dragages	CEDD Civil Engineering and	CONTRACTOR'S DESIGNER	Site Formation and Infrastructure Works (
Α	Monthly Report No.20	20/08/2015	RAN	RBS/SJO	DAL	HongKong	Development Department	ATKINC	TITLE
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED	A rembin of the Bouygues Construction group	Development Department	MIKINS	Monthly Report No.20 3-Months Rolling P (Approved Works Programme Rev.

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		Duration		Finish		Aug		Sep
FL2022182	IPs'/ ER's Review	28.0	15-Jul-15	15-Aug-15		Aug		Sep
				-		······································		
FL2022183 FL2022184	Preparation for resubmission to ER/ICE/IP with ICE Certification		17-Aug-15 20-Sep-15	19-Sep-15 17-Oct-15				
	ER/IP's Approval		20-Sep-15 29-May-15	24-Oct-15				
	nel Curved Section Cross Passages - Temp Works							
DA Submis			29-May-15	24-Oct-15		· ·		
L2022189	Preparation for formal submission to ER/ICE/IP		29-May-15	18-Jul-15				
L2022190	IPs'/ ER's Review		20-Jul-15	20-Aug-15				
L2022191	Preparation for resubmission to ER/ICE/IP with ICE Certification		21-Aug-15	26-Sep-15		·		
L2022192	ER/IP's Approval		27-Sep-15	24-Oct-15				
ored Tunr	nel Cross Passages Temp Works (Soft Ground)	51.0	07-May-15	06-Jul-15		1		
DA Submis	sion	51.0	07-May-15	06-Jul-15				
L2022199	Preparation for resubmission to ER/ICE/IP with ICE Certification	27.0	07-May-15	08-Jun-15		 		
L2022200	ER/IP's Approval		09-Jun-15	06-Jul-15				
ored Tunr	nel Cross Passages Temp Works (Rock)	51.0	07-May-15	06-Jul-15				
DA Submis	sion	51.0	07-May-15	06-Jul-15		- - - -		
L2022203	Preparation for resubmission to ER/ICE/IP with ICE Certification	27.0	07-May-15	08-Jun-15		1		
L2022204	ER/IP's Approval	28.0	09-Jun-15	06-Jul-15				
ored Tunr	nel Cross Passages Permanent Lining (Soft Ground)	234.6	24-Mar-15	13-Oct-15				
DA Submis		234.6	24-Mar-15	13-Oct-15		1		
L2022209	Preparation for formal submission to ER/ICE/IP	72.0	24-Mar-15	23-Jun-15				
L2022210	IPs'/ ER's Review	28.0	24-Jun-15	27-Jul-15		·		
L2022211	Preparation for resubmission to ER/ICE/IP with ICE Certification	43.0	28-Jul-15	15-Sep-15		+	· · · · · · · · · · · · · · · · · · ·	
FL2022212	ER/IP's Approval	28.0	16-Sep-15	13-Oct-15		. ±		
ored Tunr	nel Cross Passages Permanent Lining (Rock)	270.6	24-Mar-15	13-Oct-15				
DA Submis		270.6	24-Mar-15	13-Oct-15				
FL2022217	Preparation for formal submission to ER/ICE/IP	92.0	24-Mar-15	17-Jul-15			· <mark>-</mark>	
L2022218	IPs'/ ER's Review	28.0	18-Jul-15	19-Aug-15		+		
L2022219	Preparation for resubmission to ER/ICE/IP with ICE Certification	23.0	20-Aug-15	15-Sep-15		. <u>.</u>	·····	
L2022220	ER/IP's Approval	28.0	16-Sep-15	13-Oct-15				
ored Tunr	nel Cross Passages Internal Structures	165.0	18-May-15	16-Nov-15		1		
DA Submis	-	165.0	18-May-15	16-Nov-15		1 1 1		
L2022225	Preparation for formal submission to ER/ICE/IP		18-May-15	15-Aug-15		·		
FL2022226	IPs'/ ER's Review		17-Aug-15	17-Sep-15		·	· · · · · · · · · · · · · · · · · · ·	
FL2022227	Preparation for resubmission to ER/ICE/IP with ICE Certification		18-Sep-15	19-Oct-15		· · · · · · · · · · · · · · · · · · ·		
L2022228	ER/IP's Approval		20-Oct-15	16-Nov-15			· <mark>-</mark>	
	ortal Method Statement Submission		04-May-15	31-Dec-15				
		95.0	01-Jun-15	21-Sep-15				
	nel (Cross Passages) Blasting Method Statement						····	
_2022111	Preparation and Submission of Blasting Method Statement		01-Jun-15	22-Aug-15		· •		
_2022112	Engineer's/IP's Review & Approval		14-Jul-15	21-Sep-15		1		
S for TBN	/ Break-out	96.5	17-Sep-15	05-Dec-15				
_2022544	Prepare & Submit Method Statement	24.0	17-Sep-15	16-Oct-15]
_2022554	ER's Comment for Method Statement		17-Oct-15	15-Nov-15				
2022564	Prepare & Re-submit Method Statement		16-Nov-15	05-Dec-15				_
S for TBN	/ Turn	143.7	17-Oct-15	14-Dec-15				
_3875	Prepare & Submit Method Statement	24.0	17-Oct-15	14-Nov-15		· · · · · · · · · · · · · · · · · · ·		
_3880	ER's Comment for Method Statement	30.0	15-Nov-15	14-Dec-15				
S for Ren	noval of Left-in HDC Drill Rods within N/B TBM Excavation	40.0	13-Nov-15	31-Dec-15				
_2022584	Prepare & Submit Method Statement	40.0	13-Nov-15	31-Dec-15		+		
orth Ports	al: MS for Cross Passage Ground Treatment		04-May-15	07-Sep-15				
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				-		MAIN CONTRACTOR	CLIENT	THE ENGINEER	PROJECT
						香寶嘉	← +★T程拓展署	AECOM	Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Cor
101			1.50			Dragages	CEDD Civil Engineering and	CONTRACTOR'S DESIGNER	Site Formation and Infrastructure Works (
Α	Monthly Report No.20 2	20/08/2015	RAN	RBS/SJO	DAL	HongKong	Development Department	ATKINC	TITLE
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED	A rembin of the Bouygues Construction group	bevelopment Department	MINING	Monthly Report No.20 3-Months Rolling P (Approved Works Programme Rev.



Activity ID	Activity Name	Working	BL Project Start	BL Project				201	15
		Duration		Finish		Aug		Sep	
FL2022066	ER's Comment for Method Statement	30.0	20-Jun-15	19-Jul-15	-				
FL2022067	Prepare & Re-submit Method Statement	18.0	20-Jul-15	08-Aug-15		<u>+</u>			
FL2022068	ER's Approval for Method Statement	30.0	09-Aug-15	07-Sep-15		1]	
North Porta	al: MS for Cross Passage Excavation in Rock	64.0	12-Sep-15	30-Nov-15				<u> </u>	
FL2022069	Prepare & Submit Method Statement	40.0	12-Sep-15	31-Oct-15		1 1 1 1			
FL2022070	ER's Comment for Method Statement		01-Nov-15	30-Nov-15		; ; ;			·
	al: MS for Cross Passage Excavation in Soft		12-Sep-15	30-Nov-15					
FL2022073	Prepare & Submit Method Statement		12-Sep-15	31-Oct-15		; 			<u></u>
FL2022073	ER's Comment for Method Statement		01-Nov-15	30-Nov-15					
			08-Nov-14	22-Feb-16		1			
5.5 North Po						1			
North Porta	al: Site Formation	366.0	08-Nov-14	30-Oct-15		! ! !			
N20505	Permanent Slope Formation (Remaining)	200.0	08-Nov-14	25-Jul-15	—	i ! !			
N20655	NB: Stage 3 Permanent Slope from +75mPD to +30mPD	192.0	21-Jan-15	30-Sep-15					
N20665	NB: Stage 4 Excavation from +18mPD to +9.5mPD w/4 rows Soil Nail		02-Oct-15	30-Oct-15	_				
Southbound	d Tunnel (Mined Excavation) inc Enlargement	137.0	23-Jul-15	04-Jan-16					
TD0910	SB - Invert Grouting	60.0	23-Jul-15	03-Oct-15					
TD0920	SB - Gallery	60.0	21-Aug-15	31-Oct-15	1	+			
TD0930	SB - Crown Grouting	60.0	19-Sep-15	28-Nov-15	1	1 			
TD0940a	Top Heading Enlargement (Ch6355>Ch6268); 87m; [P21: 4755 to 4668]	47.0	09-Nov-15	04-Jan-16		T			
Northbound	d Tunnel (Mined Excavation)	176.0	04-May-15	30-Nov-15		1			
DB6400a1	Blast door installation + Noise Measurement and 24Hr permit approval	30.0	04-May-15	08-Jun-15		+			
DB6400a2	Top Heading Canopies (Ch6410>Ch6350); 60m; [P20: 4788 to 4728]	70.0	09-Jun-15	31-Aug-15		÷	- <mark>-</mark> ii		
DB6400a3	Top Heading Canopies (Ch6350>Ch6284); 66m; [P20: 4728 to 4662]	76.0	01-Sep-15	30-Nov-15		1	· · · · · · · · · · · · · · · · · · ·		
Southbound	d Tunnel (TBM Tunneling)	219.0	26-May-15	12-Feb-16					
TD0995a	Erection of Thrust Frame / Preparation to Start TBM Launch	12.0	26-May-15	09-Jun-15					
TD1000a	TBM DT (Ch6,355>Ch6,077) 278m		10-Jun-15	16-Sep-15					
TD1000a10	TBM DT (Ch6,355>Ch6,268) 87m	26.0	10-Jun-15	10-Jul-15					
TD1000a20	TBM DT (Ch6,268>Ch6,148) 120m - WSD Restriction Zone	35.0	11-Jul-15	21-Aug-15		<u>+</u>			
TD1000a30	TBM DT (Ch6,148>Ch6,077) 71m	21.0	22-Aug-15	16-Sep-15			ii		
TD1010a	TBM DT (Ch6,077>Ch5,950) 127m	17.0	17-Sep-15	07-Oct-15		±			
TD1010b	TBM DT (Ch5,950>Ch5,713) 237m	31.0	08-Oct-15	12-Nov-15					
TD1050	TBM DT (Ch5,713>Ch4,904) 809m	77.0	13-Nov-15	12-Feb-16	1	+			
Bored Tunn	nel (S/B & N/B) Internal Works & Finishes	99.0	28-Oct-15	22-Feb-16					
	Tunnel Internal Works & Finishes	99.0	28-Oct-15	22-Feb-16		1			
TD1470a	Tunnel Backfilling (Ch5,950 >Ch5,153) 797m- (Stage 1)	85.0	28-Oct-15	05-Feb-16		<u>1</u>			
TD1480a	Bottom Drilling for Cross Passage (fr. Ch5953)	70.0	14-Nov-15	05-Feb-16		+			
TD1490a	Tunnel Backfilling (Ch5,950 >Ch5,153) 797m- (Stage 2)	80.0	19-Nov-15	22-Feb-16		1			
TD1500a	Drilling for Cross Passage (Remaining) (Ch5,950 >Ch5,153) 797m	80.0	19-Nov-15	22-Feb-16		÷			
North Porta	al: Retaining Wall & Site Formation	102.0	03-Aug-15	05-Dec-15					
N20930	*Retaining Wall & Site Formation (STK/RW1)	57.0	03-Aug-15	13-Oct-15					<u></u>
N20940	Retaining Wall & Site Formation (STK/RW3)		14-Oct-15	05-Dec-15					
5.6 Administ	tration Building:		01-Jun-15	05-Jan-16		1			
		106.0	01-Jun-15	05-Jan-16		1			
	nistration Building: Works								
	on Building:Demolition		01-Jun-15	15-Aug-15			-		
SV2925	Precautionary Measures		01-Jun-15	02-Jul-15	L				
SV2940	Demolish Existing Building (AB1 - GLL T11742)		03-Jul-15	23-Jul-15	 				
SV2945	Demolish Existing Building (AB3 - GLL 36508)		24-Jul-15	15-Aug-15					
	on Building: Site Formation		17-Aug-15	05-Jan-16					<u></u>
AD2070	Backfilling for Surcharge		17-Aug-15	06-Nov-15					
AD2080	Surcharge (2 months Consolidation)	60.0	07-Nov-15	05-Jan-16					

1.0			1	_		MAIN CONTRACTOR	CLIENT	THE ENGINEER	PROJECT
-						香寶嘉	→ +木T程拓展署	AECOM	Contract No. CV/2012/08 Liantang/Heung Yuen Wai Boundary Con
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Α	Monthly Report No.20 2	20/08/2015	RAN	RBS/SJO	DAL	HongKong	Development Department	ATKINC	TITLE
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED	A rembin of the Bouygues Construction group	Development Department	MININS	Monthly Report No.20 3-Months Rolling Pr (Approved Works Programme Rev. I

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Contract 3

Activity ID	Activity Name	OD	RD	Start	Finish	TF				2015	5				
-								Aug		Sep		Oct	Nov	/	Dec
3-Month R	olling Programme 2015-08-21		I												
Key Dates	(Contractual)														
KD-1500	KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment	0	0		31-Oct-15*	0	-						KD13: Stage N4	A - Connection	of Access Rc
12 1000	Boundary CD	0	Ū			0									
Key Dates	(Forecast)														
													KD13: Stage N4	A - Connection	of Access Pc
KD-1505	KD13: Stage N4A - Connection of Access Road A and Slip Road Y at Entrustment Boundary CD	0	0		31-Oct-15	0	,						ND 15. Stage 114		
Major Pro	urement & Delivery									\					
	· · · · · · · · · · · · · · · · · · ·														
Water Sup	ply Pipeworks														
MM-1060	E&M equipment for the re-provisioned WSD Valve Control House	60	0	27-Apr-15	A 21-Jul-15 A			E&M equipment for	he re-provis	sioned WSD Valve Control House					
								Law equipment for	ne re-provid	ioned wood valve control riodse					
Footbridg	e Steel Truss														
MM 2050	Exhibition of factbridge start trues (Kin Ten Exatbridge)	100	100	O4 Nev 4	5 40 Mar 40	50									
MM-3050	Fabrication of footbridge steel truss (Kiu Tau Footbridge)	108	108	04-Nov-1	5 18-Mar-16	52	-								
Design an	d Submissions						1								
Statutory	Approval														
PRE-1050	Submission & approval of CDIA report for construction of temporary platform for	185	59	27-Nov-14	A 31-Oct-15	56		!						approval of Cl	DIA report fo
	segment erection works														
PRE-1200	Consent for Dong Jiang watermains connection for DN2200, DN2300 - WSD	0	0		01-Sep-15*	0)			Consent for Dong Jiang water	nains coi	nnection for DN2200, DI	12300 - WSD		
Design Co	nfirmation														
Design Co	nfirmation														
PRE-1220		d 45	5	09-Apr-14	A 26-Aug-15	62	2		Col	firmation of Noise Barrier Footing	Design	(NB1a) near WSD Tau I	Palss Restricted Zone	e, Confirmation	of Noise Bar
	Zone										-				
Method S	atement and Design (Major) Approved by AECOM														
PRE-2020	Submission of noise barrier design for absorptive panels, transparent panels and	60	0	11-Mar-14	A 27-Jul-15 A		Su	hmission of noise barri	r desian for	absorptive panels, transparent pa	nels and	associated fixing details			
	associated fixing details								i design for			associated lixing details			
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	60	21-Aug-1	5 02-Nov-15	228	5						Submission of	E&M design fo	lighting of K
PRE-2050	Submission of Shop Drawing for fabrication of Kiu Tau Footbridge Steelworks	60	60	21-Aug-1	5 02-Nov-15	53	-							Ohan Danaian	6 6 - h - i 6 - 1
FRE-2050	Submission of Shop Drawing for fabrication of Kid fad Poolorbye Steelworks	00	00	21-Aug-1	5 02-1107-15	- 55	'						Submission of	Shop Drawing	for tabrication
Section IA	& IB - Fanling Highway Widening (KD-1 & KD-2)														
Fanling H	ghway South Portion between CH6935 and CH7470														
Fanling I	ighway Zone 1 between CH6935 and CH7130 (within SBZ2)														
At-Grad	Roadworks (195m)														
FHW-1	30* Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m	182	59	20-Feb-14	A 31-Oct-15	154	1						Pipe Laying - DN	1200 Waterma	ins (CHC) al
1110/-1	depth)	.02		20.0014		104	1								
Fanling I	ighway Zone 2 between CH7130 and CH7290														
At Crod	Postworks (160m)														
At-Grad	Roadworks (160m)														
FHW-2	10B Noise Barrier NB71 - Footing adjacent to SB lane (96m) (under VO.79)	341	53	26-Jul-14	A 24-Oct-15	0				: - -			Noise Barrie	er NB71 - Footi	ng adjacent to
		0.5				10-	_								
FHW-2	30* Pipe Laying - DN1200 & DN600 Watermains (CHB & CHC) along Fanling Highway (183m long, 4m depth)	95	113	13-Jul-15	A 06-Jan-16	100)								
	· · · · · · · · · · · · · · ·	1				1	4	1		1					
	Actual	l Work					CEDD	Contract No. CV/	2012/09			, Ŭ	Programme upd		
	Rema	iining W	ork		iontona / Hours - >	1				ture Works Contract 2		Date	Revision	Checked	Appr
		•			antang / Heung Y	uen	wai BCP - S	one Formation &	mrastru	cture Works, Contract 3		20-Aug-15 Re	ev.0	SL	
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	UN WO CONSTRUCTION & ENGINEERING CO., LTD.	al Rema	ining W	/ork			o M								
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tivity ID	Activity Name	OD	RD	Star	rt Finish	TF	A · ·		2015	04	AL.	N/	Dee
FHW-2140	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard	79	79	27-Aug	g-15 30-Nov-15	0	Aug		Sep	Oct	No		Dec Road For
Fanling Highwi	should) ay Zone 3 between CH7290 and CH7380												
Box Culvert Ex	xtension - ID4												
ID4-3090	Bay 1 - Remaining Base Slab (To be carried out after diversion of DN1400 water mains)	45	45	02-Nov	v-15 23-Dec-15	268							
At-Grade Road	dworks (130m)					1							
FHW-3130	Noise Barrier NB71 - Footing adjacent to SB lane (130m) Including pile cap	324	5	23-May	-14 A 26-Aug-15	0		No	ise Barrier NB71 - Footing adjacent t	o SB lane (130m) Including pile	cap, Noise Barrier	NB71 - Footing	adjacent to
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling High way (90m long, 3m depth)	150	48	07-Jun-	-14 A 17-Oct-15	165	E			Pipe Laying	DN600, DN1200	Watermains (CH	HB &CHC)
FHW-3160	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard should)	79	79	27-Aug	g-15 30-Nov-15	0							Road For
Fanling Highway	y North Portion between CH7470 and CH7925												
Fanling Highwa	ay Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)												
	oridge Reprovision (East)												-
		. 1											
FHW-5000E	KT-P4 - Pling Works (8 out of 8 nos of Pile) - Phase 2, conflict with temp cycle track/ existing tree	40	40	10-Oct	t-15 26-Nov-15	0						КТ	T-P4 - Piling
At-Grade Road	d Works (130m)												
FHW-5120C	Preparation Works for Implementation of TTA Scheme E3A	78	78	14-Sep	p-15 16-Dec-15	8							<u> </u>
Fanling Highwa	ay Zone 7 between CH7660 and CH7925												
At-Grade Road	dworks (265m)												
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	62	30-Aug-	-13 A 04-Nov-15	2					Sito Formo	tion, Preparation	n Worke 8
			02	007.09		-					Sile Forma		I WOIKS & I
	ainder of the Works (KD-3)												
At Grade Link Ro	load at Fanling Highway Interchange												
Link Road 3 (ne	ear Abut ment AD1)												
FHI-LR3-3000	Completion of WSD works incl. DN600, DN1200 & DN1400	0	0		31-Oct-15	525					Completion of V	VSD works incl.	DN600, DN
WSD Works													
DN450 Fire Mair	ins (CHA)												
		70		00 14-	45.4	04							
WA-1050	Pipe Laying - CHA 420 - 520 (DN450) near Realigned TWSR West (Re-TWSRW: CH530 - 640), 100m long & 2m depth	70	7	29-May	-15 A 28-Aug-15	21			Pipe Laying - CHA 42) - 520 (DN450) near Realigne	d TWSR West (Re	e-TWSRW: CH5	30 - 640), 1
DN600 Water Ma	lains (CHB)												
WB-1030A	Pipe Laying - CHB 335 - 350 (DN600) near crossing TWSRE 15m long & 3m depth	n 30	20	09-Jun-	-15 A 12-Sep-15	8			Pipe Laying - CHB 3	35 - 350 (DN600) near crossin	g TWSRE 15m lon	ng & 3m depth, F	ipe Laying
WB-1080	Pipe Laying - CHB 700 - 756 (DN600) near Realigned TWSR East (along Roundabout), 56m long & GL	66	20	17-Jun-	-15 A 12-Sep-15	39						ying - CHB 700	
WB-1000	Pipe Laying - CHB 100 - 153 (DN600) near Fanling Highway S/B (FHW: CH7130-7290), 53m long (common trench with NB)	45	96	13-Jul-	15 A 06-Jan-16	100							
WB-1070	Pipe Laying - CHB 635 - 700 (DN600) near Realigned TWSR East (TWSRE: CH380-456), 65m long & GL	78	32	18-Jul-	15 A 26-Sep-15	30				Pipe Layir	g - CHB 635 - 700	(DN600) near F	Realigned T
8		al Work							1	3-Month Rolling	Programme up	dated to 2015	5-08-20
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		•			Liantang / Heung Y	uen	Wai BCP - Site Formation & In	nfrastru	cture Works, Contract 3	20-Aug-15 Re	ev.0	SL	
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12. 1-	Vo Construction & Engineering Co., Ltd.	al Rema	ming v	VOIK			3-Month Rolling Pro	ogram	me				
	VO CONSTRUCTION & ENGINEERING CO., LTD.									1			
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ty ID	Activity Name	OD	RD	Start	Finish	TF	F2015	
							Aug Sep Oct Nov	De
WB-1010	Pipe Laying - CHB 153 - 245 (DN600) near Fanling Highway S/B (FHW: CH7290-7380), 92m long (common trench with NB)	43	43	27-Aug-15	17-Oct-15	165	5 Pipe Laying - CHB 153 - 245 (DN600) near F	anling Hi
WB-1030C	Pipe Laying - CHB 350 - 450 (DN600) from Portal AB7/AD9/AC12 to Portal AB8	85	85	14-Sep-15	24-Dec-15	578		
WB-1060	Pipe Laying - CHB 538 - 635 (DN600) near Realigned TWSR East (TWSRE: CH270-380), 97m long & GL	68	68	29-Sep-15	18-Dec-15	67	7	
DN1200 Water	Mains (CHC)							
WC-1050A	Pipe Laying - CHC 155 - 200 (DN1200) near Fanling Highway S/B (FHW: CH6935-7130), 45m long, 4m depth	120	59	15-Oct-14 A	31-Oct-15	154	4 Pipe Laying - CHC 155 - 200	(DN1200
WC-1090A	Pipe Laying - CHC 600 - 615 (DN1200) near crossing TWSRE 15m long & 3m depth	30	20	09-Jun-15 A	12-Sep-15	8	8 Pipe Laying - CHC 600 - 615 (DN1200) near crossing TWSRE 15m long & 3m dept	h, Pipe L
WC-1140	Pipe Laying - CHC 980 - 1030 (DN1200) near Realigned TWSR East (along Roundabout), 50m long & GL	66	20	17-Jun-15 A	12-Sep-15	39	Pip	be Laying
WC-1130	Pipe Laying - CHC 910 - 980 (DN1200) near Realigned TWSR East (TWSRE: CH380-456), 70m long & GL	78	32	07-Jul-15 A	26-Sep-15	30	0 Pipe Laying - CHC 910 - 9	980 (DN1
WC-1060	Pipe Laying - CHC 235 - 420 (DN1200) near Fanling Highway S/B (FHW: CH7130-7290), 185m long (common trench with NB)	95	95	21-Aug-15	12-Dec-15	118	8	
WC-1090C	Pipe Laying - CHC 615 - 720 (DN1200) from Portal AB7/AD9/AC12 to Portal AB8	85	85	14-Sep-15	24-Dec-15	219	9	
WC-1120	Pipe Laying - CHC 810 - 910 (DN1200) near Realigned TWSR East (TWSRE: CH270-380), 100m long & GL	85	85	29-Sep-15	11-Jan-16	50		
Twin DN1400 V	Nater Mains (CHE & CHG)							
WE-1030	Pipe Laying - CHE & CHG 225 - 240 (Twins DN1400) near crossing TWSRE 15m long & 3m depth	30	20	09-Jun-15 A	12-Sep-15	8	Pipe Laying - CHE & CHG 225 - 240 (Twins DN1400) near crossing TWSRE 15m lo	ng & 3m
DN2300 Water	Mains and Leakage Collection System (CHJ & CHKA/CHK)							
WJ-1010C	Pipe Laying - CHJ 50 - 100 (DN2200) near existing TWSR East, 50m long & 6m depth	75	32	08-Jun-15 A	26-Sep-15	39	9 Pipe Laying - CHJ 50 - 100 (DN2200) near exi	isting TV
WJ-1000	Implementation of TTA - Scheme E2 (Shifting TWSRE toward newly formation area beside Fanling Highway)	17	0	29-Jun-15 A	27-Jul-15 A		Implementation of TTA - Scheme E2 (Shifting TWSRE toward newly formation area beside Fahling Highway)	
WJ-1010B	Pipe Laying - CHJ 10 - 50 (DN2200) crossing existing TWSR East, 40m long & 6m depth	78	57	28-Jul-15 A	29-Oct-15	14	4 Pipe Laying - CHJ 10 - 50	(DN220
WJ-1020B	Pipe Laying - CHKA 0 - 73 (DN1400) near Realigned TWSR East, 73m long & 4m depth	46	46	28-Aug-15	12-Oct-15	46	6 Pipe Laying - CHKA 0 - 73 (DN1400) near Realign	ed TWS
WJ-1020A	Pipe Laying - CHK 0 - 80 (DN1400) near RealignedTWSR East, 80m long & 4m depth	55	55	13-Oct-15	16-Dec-15	39		
WJ-2000B	Pressure Test for CHJ	7	7	30-Oct-15	06-Nov-15	14	4 Pressure Test for CHU	
WJ-2010A	Cleaning & CCTV Inspection for CHJ	14	14	07-Nov-15	23-Nov-15	14	4 Clea	aning &
WJ-2020	Installation of Connecting Pipe for Connection to Existing Mains	20	20	07-Nov-15	30-Nov-15	14	4	Insta
Kau Lung Hang	g Valve Control & Telemetry House Reprovision							
VCTH-1010	BS and E&M Works	30	24	15-Jul-15 A	17-Sep-15	28	BS and E&M Works, BS and E&M Works	
VCTH-1020	Testing and Commissioning	60	60	02-Sep-15	13-Nov-15	28	18 Testing and Co	mmissio
VCTH-1030	Demolition of Existing KLH Valve Control & Telemetry House	90	90	14-Nov-15	08-Mar-16	227	7	
Stage 1A - Rea	lignment of Tai Wo Service Road West (KD-7)							
TWSRW Zone 1	I betweeen CH100 and CH155							
At-Grade Road	dworks							
_								
	Actua	al Work					CEDD Contract No. CV/2012/09 3-Month Rolling Programme updated to 201	
	Rema	aining W	/ork	Lion	tong / Houng)	Vuon	Date Revision Checker	d A
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	WO CONSTRUCTION & ENGINEERING CO., LTD.		ine Por	Pre	ogramme ID		3-Month Rolling Programme MPR025 (Data Date: 21-Aug-15)Print Date:25-Aug-15	
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ivity ID	Activity Name	OD	RD	Star	t Finish	TF				2015				_
TWSRW-116	0 Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	286	89	15-Nov-	14 A 05-Dec-15	33		Aug		Sep	Oct	No	ov	Dec
TWSPW/ Zong	2 betweeen CH155 and CH280													
At-Grade Ro	adworks													
TWSRW-212	Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	165	89	16-Oct-	14 A 05-Dec-15	33								
TWSRW Zone	3 betweeen CH280 and CH315													
At-Grade Ro	adworks													
TWSRW-312	20 Road Formation, Road Drainage, Kerb, Planter and Pavement	181	116	22-Jun-	15 A 16-Jan-16	0								
TWSRW-31	0 Retaining Structure RW3 (to be covered by VO)	85	67	18-Jul-1	15 A 10-Nov-15	0								
						-								
	Installation of Cable Ducts for Utilities Diversion Works at Zone 2 (Approx. 120m) (by utilities undertakers)	111	107	21-Jul-1	15 A 05-Dec-15	5							_	Ir
TWSRW-310	00 Noise Barrier NB1a - Footing adjacent Realigned TWSR West	25	25	11-Nov	-15 09-Dec-15	0								
TWSRW Zone	4 betweeen CH315 and CH376													
Construction	n of Bridge E													
TWSRW-407	0 Bridge Segment (North Bay & Middle Bay)	80	8	01-Apr-	15 A 29-Aug-15	26				Bridge Segment (North Bay & Middle I	Bay), Bridge Segment (Nort	h Bay & Middle Bay)		
TWSRW-408	0 Bridge Segment (South Bay)	40	34	14-Aug-	15 A 30-Sep-15	0					Bridge Segment (Sou	th Bay) Bridge Sec	ment (South Bay)	••••••
		24	24	02-Oct		0					Bhage eegment (eee			
	0 Permanent Prestressing & Abutment Wall					0						 Permanent Pres 	tressing & Abutme	ent Wal
TWSRW-410	00 Remove Scaffold System and Temporary Work together with Slope Reinstatement	110	110	02-Nov	-15* 18-Mar-16*	8						L		
At-Grade Ro	adworks													
TWSRW-420	00 Cast Parapet, Lay Surfacing and Road Furniture for Footpath and Carriageway	60	60	31-Oct	-15 12-Jan-16	4								
TWSRW Zone	5 betweeen CH376 and CH520													
Construction	n of Retaining Structures													
	0 Construction of Mass Concrete Wall (FL/RW4)	70	14	15-Jun-	15 A 05-Sep-15	78								- 0
											nstruction of Mass Concrete			
TWSRW-508	Retaining Structure along Slope no. 3SW-C/C898 (to be covered by VO. 78)	50	43	29-Jun-	15 A 12-Oct-15	49							Retaining Structu	ire along
At-Grade Ro	adworks													
TWSRW-51	0B Road Drainage SMH800-SMH802 (to be covered by VO)	24	18	14-Aug-	15 A 10-Sep-15	0				Road Drainage SMH800	-SMH802 (to be covered by	VO), Road Drainag	e SMH800-SMH8	802 (to l
TWSRW-510	Noise Barrier NB2 - Footing and Retaining Structure adjacent to Realigned TWSR	98	98	11-Sep	-15 09-Jan-16	0								
TWSRW Zone	West (66m) 6 between CH520 and CH530													
At-Grade Ro	adworks													
		65	26	22 140	16 A 10 Can 45	-								
	10 Slope Upgrading Works for unregistered feature beside Slope 3SW-D/C80 (to be Covered by VO. 68)	65	26	22-May-		2				Slope Upgradi	ng Works for unregistered fe	ature beside Slope	35W-D/C80 (to b	be Cover
TWSRW-610	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the edge of extended box culvert	19	19	23-Sep	-15 16-Oct-15	0					Preparation	Works for Implemer	ntation of TTA (shif	fting TW
	Actual	Work							0040/00		3-Month Rolling	Programme up	dated to 2015-	08-20
	Remai		ork		Lientenn / Lienne M		CEDD Contra			oturo Morko Contront 2	Date	Revision	Checked	Appr
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ivity ID	Activity Name	OD	RD	Start	Finish	TF			2015	Oct	New		Dee
TWSRW Zone 7	betweeen CH530 and CH640					I	Aug		Sep	Uct	Nov		Dec
At-Grade Roady	works												
		222	33	20. Jan 1	E A 22 Con 45								
	Installation of Cable Ducts for Utilities Diversion Works at Area 4 (Approx. 150m) (by utilities undertakers)			28-Jan-1		0					e Ducts for Utilities Diver	sion Works a	t Area 4 (A
TWSRW-7120*	Pipe Laying - DN450 Watermains (CHA)	70	7	29-May-	15 A 28-Aug-15	21			Pipe Laying - DN450 Watermains (C	HA)			
TWSRW-7160	Pipe Laying - DN150	25	19	13-Jul-1	5 A 11-Sep-15	9			Pipe Laying - DN150,	, Pipe Laying - DN150			
TWSRW-7100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the cut-slope)	18	18	23-Sep-	-15 15-Oct-15	0				Preparation V	Norks for Implementatio	n of TTA (shift	ting TWSF
TWSRW-7110	Implementation of TTA - Scheme W 3	0	0	17-Oct-	15	0				Implementa	ation of TTA - Scheme W	3	
TWSRW-7150	Remaining Road Drainage, Road Formation, Kerb, Planter and Pavement (ind. Zone 6 & Zone 7)	75	75	17-Oct-	15 16-Jan-16	0							
TWSRW Zone 8	betweeen CH640 and CH695												
Kiu Tau Footbri	ridge Rep rovision (West)												
TWSRW-8010B	Installation of Socket H-Pile for Proposed Kiu Tau Footbridge (13 nos of Pile)	75	34	07-Jul-1	5 A 30-Sep-15	0				Installation of	of Socket H-Pile for Prop	osed Kiu Tau	Footbrida
TW/SRW-8020	Construction of Pile Cap and Abutment	45	45	02-Oct-	15 24-Nov-15	0							truction of
	· · · · · · · · · · · · · · · · · · ·	-10	-10	02 001									
At-Grade Road										_			
TWSRW-8100	Fill Replacement Works	60	60	27-Oct-	15 07-Jan-16	0				-			
Remainder of the	e Works												
TWSRW-9040*	Utilities Diversion in Area 4 (along Re-aligned TWSRW CH530 - CH640)	233	33	28-Jan-1	15 A 22-Sep-15	0			Utilities D	liversion in Area 4 (along Re-a	alighed TWSRW CH530	- CH640)	
TWSRW-9020*	Utilities Diversion in Area 2 (along Re-aligned TWSRW CH 280 - CH315)	111	107	21-Jul-1	5 A 05-Dec-15	5	-						Uti
TWSRW-9030	Utilities Diversion in Area 3 (along existing TWSRW, Approx. 150m) (by utilities undertakers)	157	157	21-Aug-	-15 24-Jan-16	-20	-						
Remaining Work	ks for Noise Barrier along realigned TWSR West												
TWSRW-NB-110	Noise Barrier Steelworks & Panel for NB4 at Zones 1 & 2	30	30	06-Nov-	-15 10-Dec-15	166							
Stage N4A & N4	4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)												
TWSRE Zone 1 b	between CH100 and CH270												
At-Grade Road													
TWSRE-1120	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m)	110	8	29-Dec-1	14 A 29-Aug-15	361						1	loise Barri
TWSRE-1150	Construct no fine concrete, U-channel and filling to required level for pipe laying works	30	6	06-Jan-1	5 A 27-Aug-15	37		(Construct no fine concrete, U-channel	and filling to required level for			concrete, l
TWSRE-1140*	Pipe laying - DN1400 Watermains (CHKA) along Realigned TWSR East	46	46	28-Aug-	-15 12-Oct-15	46	-			Pipe laying - DN	1400 Watermains (CHK	A) along Real	lign ed TW
TWSRE Zone 2 b	between CH270 and CH380												
At-Grade Road	works												
TWSRE-2030A*	* Pipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR	85	85	29-Sep	-15 11-Jan-16	50							
	East												
	Actual	Work					CEDD Contract No. CV	/2012/09			g Programme update		-
	Remain	ning W	/ork		Liantang / Heung \	/uen	Wai BCP - Site Formation &	Infrastru	cture Works, Contract 3	Date 20-Aug-15 R	Revision S	Checked	Appr
14 7-		ary Bai	r							20-Aug-15 K	3	L	
	建 祭 工 程 有 限 公 司 Vo Construction & Engineering Co., Ltd.	Rema	ining W	Vork			2 Manth Dalling Du						
CHUN W	CONSTRUCTION & ENGINEERING CO., LTD.	ne					3-Month Rolling Pr	-					
	Project	Basel	ine Bar	r	Programme ID	: 3N	IPR025 (Data Date: 21-A		Print Date:25-Aug-15	5			
							Page 5 of 9)					

	ctivity Name	OD	RD	Star	t Finish	TF			201	5		
THORE COORT 2		55		40.0	45 40 D 45		Aug		Sep	Oct	Nov	De
TWSRE-2030B* Pi	ipe laying - DN1400 Watermains (CHK) alon g Realigned TWSR East	55	55	13-Oct	-15 16-Dec-15	39						
TWSRE Zone 3 betw	ween CH380 and CH456											
At-Grade Roadwor	rks											
TWSRE-3010 N	loise Barrier NB3 - Footing adjacent to Realigned TWSR East (75.6m)	85	8	19-Mar-	15 A 29-Aug-15	361			Noise Barrier NB3 - Footing adjac	ent to Realigned TWSR East (75	6m), Noise Barrier NB3 - F	ooting adjacent
	ipe Laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR	78	32	07-Jul-	15 A 26-Sep-15	30			Pip	e Laying - DN600 & DN1200 Wa	termains (CHB & CHC) alc	ng Realigned T
	ast toad Formation, Kerb, Footpath, Cycle Track, Planter and Pavement (Incl. FL/F10)	165	165	29-Sep	-15 25-Apr-16	30						
Roundabout A, Sli	p Road and Access Road											
	v lipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Roundabout A	66	20	17-Jun-	15 A 12-Sep-15	39			Pipe laving - DN60	0 & DN1200 Watermains (CHB &	CHC) along Roundabout	A
											_	
TWSRE-4060B Ad	ccess Road A - Road Formation, Kerb, Planter and Pavement	44	59	22-Jun-	15 A 31-Oct-15	0					Access Road A - Road I	ormation, Kerb
TWSRE-4080 Pr	reparation Works for Implementation of TTA Scheme E1	42	24	24-Jun-	15 A 31-Oct-15	0					Preparation Works for I	mplementation
TWSRE-4100A D	warf Wall DW1 (ch.53-66) at Access Road A (covered by VO 83)	40	5	02-Jul-	15 A 26-Aug-15	0			Dwarf Wall DW1 (ch.53-66)	at Access Road A (covered by VC	083), Dwarf Wall DW1 (ch	.53-66) at Acce
TWSRE-4100B D	warf Wall DW1 (ch.44-53) at Access Road A (covered by VO 83)	40	40	27-Aug	14-Oct-15	0				Dwarf Wall DW	1 (ch.44-53) at Access Roa	d A (covered by
TWSRE-4090 Im	nplementation of TTA - Scheme E1 (Drawing No. CW/009/015)	0	0	02-Nov	-15	0					 Implementation of TTA 	- Scheme E1 (
TWSRE-4070 R	toundabout A - Road Formation, Kerb, Planter and Pavement	90	90	02-Nov	-15 24-Feb-16	0						
TWSRE-4110 Pr	reparation Works for Implementation of TTA Scheme E1A	30	30	02-Nov	-15 05-Dec-15	195						
		00	00	02 1101		100						
	t Structure & TCSS Civil Provisions (KD-9)											
Foundation & Pier	Construction											
Bridge A												
BA-05-1030 Pi	ier AA5 - Pier Construction (Twin Pier)	27	52	29-Oct-	14 A 23-Oct-15	83				Pier A	A5 - Pier Construction (Twi	in Pier), Pier AA
BA-16-1030 Pi	ier AA16 - Pier Construction	35	0	29-Apr-	15 A 17-Aug-15 A		P	ier AA16 - Pi	er Construction			
BA-02-1020A Pi	ier AA2E - Pile Cap	30	8	04-May-	15 A 29-Aug-15	41			Pier AA2E - Pile Cap, Pier AA2E -	Pile Cap		
BA-18-1030 Pi	vier AA18 - Pier Construction	56	14	08-May-	15 A 05-Sep-15	98					Construction, Pier AA18 - P	ier Construction
	ier AA4 - Pier Construction	14	0	29-Jun-			Disc AAA D	0				
							Pier AA4 - P	er Construct	ion			
BA-09-1010 Pi	ier AA9 - Pile Test	7	0	09-Jul-	15 A 22-Jul-15 A		Pier AA9 - Pile Test					
BA-11-1000A Pi	ier AA11 - Piling Works (P1)	12	0	25-Jul-	15 A 01-Aug-15 A				Pier	AA11 - Piling Works (P1)		
BA-03-1030 Pi	ier AA3 - Pier Construction	14	12	17-Aug-	15 A 03-Sep-15	120			—	Pier AA3 - Pier Construction, Pie	AA3 - Pier Construction	
BA-12-1030 Pi	tier AA12 - Pier Construction	42	42	21-Aug	10-Oct-15	80				Pier AA12 - Pier Cor	struction	
BA-07-1000 Pi	ier AA7 - Piling Works	24	24	07-Sep	06-Oct-15	36				Pier AA7 - Piling Works		
BA-09-1020 Pi	ier AA9 - Pile Cap	30	30	14-Sep	-15 20-Oct-15	82				Pier A A9	- Pile Can	
	Actual	Work					CEDD Contract No. CV	/2012/09			Programme updated to	
	Remai	ning W	/ork		Liantang / Heung Y	uen	Vai BCP - Site Formation &	Infrastru	cture Works, Contract 3	Date 20-Aug-15 Re		ecked Ap
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	建築工程有限公司 Construction & Engineering Co., Ltd.	l Rema	ining W	/ork			2 Manth Dalling Dr					
CHUN WO	Milesto	one					3-Month Rolling Pr	-				
	Project	t Basel	line Bar		Programme ID:	3M	PR025 (Data Date: 21-A Page 6 of 9		Print Date:25-Aug-1	5		

ctivity ID	Activity Name	OD	RD	Start	Finish	TF	TF 2015
BA-11-1000B	Pier AA11 - Piling Works (P2)	12	12	07-Oct-	15 20-Oct-15	36	Aug Sep Oct Nov Dec 36 Pier AA11 - Piling Works (P2) Pier AA11 - Piling Works (P2) Pier AA11 - Piling Works (P2) Pier AA11 - Piling Works (P2)
BA-09-1030	Pier AA9 - Pier Construction (Twin Pier)	49	49	22-Oct-	15 17-Dec-15	82	82
BA-11-1010	Pier AA11 - Pile Test	7	7	22-Oct-	15 29-Oct-15	52	52 Pier AA11 - Pile Test
BA-07-1010	Pier AA7 - Pile Test	7	7	24-Oct-	15 31-Oct-15	109	09 Pier AA7 - Pile Test
BA-11-1020	Pier AA11 - Pile Cap	30	30	12-Nov-	-15 16-Dec-15	41	41
BA-10-1000	Pier AA10 - Piling Works	24	24	19-Nov-	-15 16-Dec-15	36	36
Bridge B							
BB-05-1030	Pier AB5 - Pier Construction	35	0	29-Apr-1	15 A 28-Jul-15 A		Pier AB5 - Pier Construction
BB-08-1050	Portal AB8 - Portal Beam Construction together with Kicker	26	8	13-Jun-1	15 A 29-Aug-15	3	3 Portal AB8 - Portal Beam Construction together with Kicker, Portal AB8 - Portal Beam Construction together with
BB-10-1030	Pier AB10 - Pier Construction	25	8	22-Jun-1	15 A 29-Aug-15	16	16 Pier AB10 - Pier Construction, Pier AB10 - Pier Construction
BB-09-1030	Pier AB9 - Pier Construction	24	14	17-Jul-1	5 A 05-Sep-15	374	74 Pier AB9 - Pier Construction, Pier AB9 - Pier Construction
BB-11-1010	Pier AB11 - Pile Test	7	0	10-Aug-1	15 A 14-Aug-15 A		Pier AB11 - Pile Test
BB-03-1000	Pier AB3 - Piling Works	24	14	10-Aug-1	15 A 05-Sep-15	36	36 Pier AB3 - Piling Works, Pier AB3 - Piling Works
BB-06-1040	Pier AB6W - Pier Construction	48	48	14-Sep-	-15 11-Nov-15	63	63 Pier AB6W - Pier Constructio
BB-11-1020	Pier AB11 - Pile Cap	30	30	15-Sep-	-15 22-Oct-15	7	7 Pier AB11 - Pile Cap
BB-03-1010	Pier AB3 - Pile Test	7	7	23-Sep-	-15 02-Oct-15	103	03 Pier AB3 - Pile Test
BB-06-1030	Pier AB6E - Pier Construction	48	48	14-Oct-	15 09-Dec-15	63	63
BB-03-1020	Pier AB3 - Pile Cap	30	30	22-Oct-	15 25-Nov-15	88	88 Piet AB3 - Piet
BB-11-1030	Pier AB11 - Pier Construction	24	24	23-Oct-	15 19-Nov-15	7	7 Pier AB11 - Pier Co
Bridge C							
BC-05-1030	Pier AC5 - Pier Construction (Twin Pier)	38	21	22-Dec-1	14 A 14-Sep-15	62	62 Pier AC5 - Pier Construction (Twin Pier), Pier AC5 - Pier Construction (Twin Pier)
BC-09-1030	Pier AC9 - Pier Construction	28	0	02-Mar-1			Pier AC9 - Pier Construction
						=0	
BC-11-1030	Pier AC11 - Pier Construction (Twin Pier)	55	38	27-May-		70	70 Pier AC11 - Pier Construction (Twin Pier), Pier AC11 - Pier Construction
BC-12-1030	Pier AC12 - Pier Construction	28	20	10-Jun-1	15 A 12-Sep-15	40	40 Pier AC12 - Pier Construction, Pier AC12 - Pier Construction
BC-01-1020	Abutment AC1 - Pile Cap	30	20	31-Jul-1	5 A 12-Sep-15	82	82 Abutment AC1 - Pile Cap, Abutment AC1 - Pile Cap
BC-01-1030	Abutment AC1 - Abutment Construction	50	50	14-Sep-	-15 13-Nov-15	338	38 Abutment AC1 - Abutment
BC-02-1020	Pier AC2 - Pile Cap	30	30	07-Oct-	15 11-Nov-15	41	41 Pier AC2 - Pile Cap
BC-04-1030	Pier AC4 - Pier Construction	28	28	12-Oct-	15 13-Nov-15	80	80 Pier AC4 - Pier Construction
BC-03-1000	Pier AC3 - Piling Works	24	24	22-Oct-	15 18-Nov-15	36	36 Pier AC3 - Piling Wor
	<u> </u>			I			
	Actual						CEDD Contract No. CV/2012/09 3-Month Rolling Programme updated to 2015-08-20 Date Revision Checked Appr
	Remain	ning W	/ork		Liantang / Heung Y	uen	n Wai BCP - Site Formation & Infrastructure Works, Contract 3 Date Revision Checked Appr 20-Aug-15 Rev.0 SL
	Summa	ary Bai	r		5 5		20-Aug-10 Revu SL
	建築工程有限公司	-		/ork			
CHUN W	O CONSTRUCTION & ENGINEERING CO., LTD.						3-Month Rolling Programme
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	Project	t Basel	ine Bar	·	ogramme ID.		
							Page 7 of 9



	Activity Name	OD	RD	Start	Finish	TF				2015				
DO 1050	Dist Table Operative at Dist AOF (4 and)			00 Nov 45	04 Dec 45	45		Aug	Sep	Oct		Nov	/	Dec
PC-1050	Pier Table Construction at Pier AC5 (4 nos.)	30	30	20-Nov-15	24-Dec-15	15								
Bridge D														
PD-1050	Pier Table Construction at Pier AD5 (4 nos.)	30	13	28-Jul-15 A	04-Sep-15	35			Pier Table Constru	ction at Pier AD5 (4 nos.)	Pier Table Co	hstruction at Pier A	D5 (4 nos.)	
PD-1060	Pier Table Construction at Pier AD6 (3 nos.)	30	30	28-Aug-15	03-Oct-15	35				Pier Table Con:	struction at Pie	er AD6 (3 nos.)		
PD-1100	Pier Table Construction at Pier AD10 (4 nos.) incl. in-situ cross head	35	35	02-Sep-15	14-Oct-15	0				Pie	er Table Const	truction at Pier AD1	0 (4 nos.) ind. ii	n-situ cr
PD-1040	Pier Table Construction at Pier AD4 (3 nos.)	30	30	07-Oct-15	11-Nov-15	38							Table Construc	
												Plei		
PD-1070	Pier Table Construction at Pier AD7 (3 nos.)	30	30	24-Oct-15	27-Nov-15	44							P	ier Tabl
Viadu ct Bridge	e Segement Erection													
Bridge A														
EA-1140	Bridge Deck Construction at Pier AA14 by Typical Lifting Frame (17 nos)	12	12	22-Aug-15	04-Sep-15	7			Bridge Deck Construct	tion at Pier AA14 by Typic	al Lifting Fram	ne (17 nos)		
EA-1130	Bridge Deck Construction at Pier AA13 by Typical Lifting Frame (23 nos)	15	15	26-Sep-15	15-Oct-15	7				в	ridge Deck Co	hstruction at Pier A	A13 by Typical	Lifting F
EA-1150	Bridge Deck Construction at Pier AA15 by Typical Lifting Frame (17 nos)	11	11	16-Oct-15	29-Oct-15	7						Bridge Deck Const	ruction at Pier A	A 15 b
EA-1160	Bridge Deck Construction at Pier AA16 by Typical Lifting Frame (25 nos)	13	13	11-Nov-15	25-Nov-15	7								
	bidge beek construction at her AK to by typical Litting Frame (25 hos)	15	13	11-1400-13	23-1404-13	′							Brid	
Bridge B														
EB-1080	Bridge Deck Construction at Portal AB8 by Special Lifting Frame (26 nos)	20	20	21-Sep-15	15-Oct-15	3				B	ridge Deck Co	hstruction at Porta	AB8 by Specia	l Lifting
EB-1100	Bridge Deck Construction at Pier AB10 by Special Lifting Frame (54 nos in which 13 nos above MTRCL Railway)	76	76	09-Nov-15	15-Feb-16	0								
Bridge C														
EC-1080	Bridge Deck Construction at Pier AC8 by Typical Lifting Frame (18 nos)	25	0	08-May-15 A	25-Jul-15 A		Bridge Dec	ck Construction at	Pier AC8 by Typical Lifting Frame (18 no	s)				
EC-1070	Bridge Deck Construction at Pier AC7 by Typical Lifting Frame (25 nos)	12	1	06-Jun-15 A	21-Aug-15	7			Bridge Deck Construction at Pier AC 7		25 noc) Bride	h Deck Construction	n at Pier AC7 H	w Typic
									bildge beck constitución at her Ac 7					y typic
EC-1060	Bridge Deck Construction at Pier AC6 by Typical Lifting Frame (15 nos)	18	18	05-Sep-15	25-Sep-15					Bridge Deck Construction	on at Pier AC6	by Typical Lifting F	rame (15 nos)	
Bridge D														
	Bridge Deels Operation of Deels AD40 have on evid Lifeting Frances (FO and)	16	16	20-Oct-15	07-Nov-15	0						Bridge D	eck Constructio	n at Po
ED-1100	Bridge Deck Construction at Portal AD10 by Special Lifting Frame (56 nos)											Bridge B		
ED-1100 ED-1050	Bridge Deck Construction at Portal AD 10 by Special Lifting Frame (56 hos) Bridge Deck Construction at Pier AD 5 by Typical Lifting Frame (12 nos)	10	10	30-Oct-15	10-Nov-15	7					E		e Deck Constru	
ED-1050			10	30-Oct-15	10-Nov-15	7								
ED-1050 Section VI - Wo	Bridge Deck Construction at Pier AD5 by Typical Lifting Frame (12 nos)		10	30-Oct-15	10-Nov-15	7								
ED-1050	Bridge Deck Construction at Pier AD5 by Typical Lifting Frame (12 nos)		221	30-Oct-15	10-Nov-15	155								

Project Baseline Bar

3-Month Rolling Programme Programme ID: 3MPR025 (Data Date: 21-Aug-15)_Print Date:25-Aug-15 Page 9 of 9



Contract 5

2 Predimaterize and schemery (Conterestal Submissions 424 days The 110113 Min 2011 4 11 Sin E Ladokhamer 394 days The 110113 Min 2011 4 21 The property Tolls Arcseque of TD S Schem for tarp, LMI Rd 311 days Fil 12043 The 20013 23 Preference of Line Order & Lagost Musicing 32 days Fil 12043 The 20013 24 Line Nuclei Carlos Arcseque of TD Schem for tarp, LMI Rd 30 days Fil 12043 Min 20013 25 Section of the Works The 20014 The 20013 The 20013 The 20013 24 Schem of the Works Concord Chilling 153 days Fil 2003 The 20013 The 20013 24 Schem of the Works Concord Chilling 153 days Fil 2003 The 20013 The 20013 <t< th=""><th>)</th><th>WBS</th><th>Task Name</th><th>Duration</th><th>Start</th><th>Finish</th><th>Predecessors</th></t<>)	WBS	Task Name	Duration	Start	Finish	Predecessors
Profession Profession 44 days The 11.04/13 Mar 2014 4 1 Statisticity Statisticity Statisticity Statisticity The 15.04/13 The 15.04/14 The 15.04/14 <td< td=""><td></td><td></td><td>Kau Datas</td><td>1110 days</td><td>The 29/2/12</td><td>Sun 10/4/16</td><td></td></td<>			Kau Datas	1110 days	The 29/2/12	Sun 10/4/16	
21 22 23 24 29 479 100		1					4
2.1 Appleidung to Gavernance Ingentations: 99 days Pil 124/33 Tue 97/13 2.3 Appleidung to Gavernance Ingentations: 99 days Pil 124/33 Tue 97/13 2.4 Ladies with Life Varies 90 days Pil 124/33 Tue 97/13 2.4 Ladies with Life Varies 90 days Pil 124/33 Tue 97/13 2.4 Ladies with Life Varies 90 days Pil 124/33 Wei 213/57 2.3 Stage of the Works 180 days Tue 14/33 Mee 7/183 2.4 Steel Inf day Varies Tue 14/33 Wei 213/57 2.3 Steel Inf day Varies Tue 14/33 Wei 213/57 2.4 Steel Inf day Varies Tue 14/33 Wei 213/57 2.3 Steel Inf day Varies Tue 14/33 Wei 213/57 2.4 Steel Inf day Varies Steel Inf day Varies Yaries 2.4 Steel Inf day Varies Steel Steel Inf day Varies Yaries 2.4 Steel Inf day Varies Yaries Yaries Yaries		2.1					
2.3 Tomportor Turlity Arrangement (TA) Scheme for then LMI Rd El days Pri 124/13 Werd 20013 2.4 Lation with fully interview: Sch days Pri 124/13 Werd 20013 2.4 Lation with fully interview: Sch days Pri 124/13 Werd 20013 2.4 Lation with fully interview: Sch days Pri 124/13 Werd 20013 2.5 State 161 ht Werks - Temportor vehickler fully fully interview: Sch days Pri 124/13 Werd 20013 2.4 Sch day Pri 124/13 Werd 20013 E 2.4 Sch day Pri 124/13 Werd 20013 E 2.4 Sch day Pri 124/13 Werd 20013 E 2.5 Sch day The 20013 Pri 124/13 Day 124/13 2.5 Sch day The 20014 Pri 124/13 Day 124/13 2.6 Sch day 116 Werd 20015 Pri 124/13 Day 124/14 Day 124/14 2.6 Sch day 116 Werd 20015 The 20013 Pri 124/14 Day 125/14 Sch day 116<		2.2			Fri 12/4/13	Tue 9/7/13	
22 Environmental Backine & Impert Monitoring (2) 4 days The 114/31 More 2010/14 SSE 23 Single of Ba Works (2) 4 days The 114/31 More 2010/14 SSE 24 Single of Ba Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Single of Ba Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 25 Single of Ba Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 24 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 25 Steel of IA Works (2) 4 days (2) 4 days (2) 4 days (2) 4 days 25 Steel of IA Mark (2) 4 days (2) 4 days (2) 4 days (2) 4 days 26 Steel of IA Mark (2) 4 days (2) 4 days (2) 4 days <t< td=""><td></td><td>2.3</td><td>Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd</td><td>131 days</td><td>Fri 12/4/13</td><td></td><td></td></t<>		2.3	Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd	131 days	Fri 12/4/13		
2.6 Convert 42.4 43.5 97.7 <		2.4		363 days			
5 Sugge of the Works - Transports versionar bridge 2 and fermionary Lin M Ling 100 days The LL (MA) Meet 70003 - 2.3 Server Loff & Works - Transports versionar bridge 2 and fermionary Lin M Ling 179 days 180 days<		2.5		•			
Singe Life Works - Company which in triding and temperate Lin Ma Ham 179-27. Fri 12001 Med 2003 4 22 Singe Life Life Works - Company Archiko D Brond LMD21 11137. Fri 12001 100 a 20033 <		2.6					222
Bade The ULL Ide Nords - Compare Archio Deport (MUE) The ULL Ide Nords The ULL Ide				-			4
3.3 Since 11 after Works - Transport ArceSD Depart (MD12) 3.4 7.1 111 days The 11 24/13 The 226/13 4.4 Section 1 of the Works - Consult Investigation field works (Dramatic Mark 1107, 2101, 2111) 25.1 1.83 days 1.83 days 1.83 days 1.84 days		5.1		119 days	111 12/ 4/15	1104 110110	-
4.1 Section 1.0 C fue Varies - Consult Proceedingtoon field works (Drg. 2010.AV211A) 4.1 <)	3.2		78 days	Thu 11/4/13	Thu 27/6/13	
And Controls And Contres And Controls And Controls </td <td>ļ</td> <td>4</td> <td></td> <td></td> <td></td> <td>and the second se</td> <td></td>	ļ	4				and the second se	
44 Section 111 of the Vorde as Electronic works for Partian BS1, RS2, RS1 effects P2 data Section 12203 Dis RS2 24.52.8 4.4 Children Million 11 Litter Control SAV MAT 5000 VIE VIE VIE SAV MAT 5000 VIE SAV MAT 5000 VIE SAV MAT 5000 VIE SAV MAT 5000 VIE VIE VIE VIE SAV MAT 5000 VIE VIE VIE VIE VIE SAV MAT 5000 VIE		<u>4.1</u>	Section 1 of the Works - Ground Investigation field works (Drg. 7101A-7111A)	251 days	Thu 30/5/13	<u>Tue 4/2/14</u>	74SS+13 days
44 Section 111 of the Vorde as Electronic works for Partian BS1, RS2, RS1 effects P2 data Section 12203 Dis RS2 24.52.8 4.4 Children Million 11 Litter Control SAV MAT 5000 VIE VIE VIE SAV MAT 5000 VIE SAV MAT 5000 VIE SAV MAT 5000 VIE SAV MAT 5000 VIE VIE VIE VIE SAV MAT 5000 VIE VIE VIE VIE VIE SAV MAT 5000 VIE	0	4.2	Castian II of the Washer All Johannians tests for Castian I	199 days	Set 31/8/13	Thu 6/3/14	97
Image: control track of completion in letter aref. SRUVAV47502/JSU28890816 dated Section 1 Of the Works - Village house within parties RS4 - EOT3 completion 292 dats Fd 124/13 The 155/14 4 44 Section 1/1 of the Works - All works within Area (RCPA - EOT3 completion 2//2015 272 dats Fd 124/13 The 155/14 8 43 Section VII of the Works - All works within Area (RCPA - EOT3 completion 2//2015 272 dats The 110/21 The 155/14 8 44 Section VII of the Works - All works within Area (RCPA - EOT3 completion 2//2015 272 dats The 110/21 The 155/14 8 43 Chain No. 609 - Delays due to Dela)0)5						
44 Section V of the Varies within parties RS4 - EOT3 commettion 292 days Fil 12/213 The 155714 4 4.5 Section V of the Varies at Warks within parties RS4 - EOT3 commettion V-D days Fil 12/213 The 155714 5 4.6 Section V of the Varies - All works within Area BCPA - EOT6 commettion 21/2015 Sci days Fil 22/013 The 155714 8 4.6 Section VIII of the Works - All works within Area BCPA - EOT6 commettion 12 600 axy Fil 26/014 Fil 25/014 8 4.8.1 Chain No, 60° - Delays due to Belayed Procession of Parties BCP4 of the Size - 0 days Fil 26/014 Fil		10		02 04110			
Liss Liss <thliss< th=""> Liss Liss <thl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thl<></thliss<>							
4.5 State on V of the Works-All works within a res CRD 2/2 days Fr.124/13 The 224/15 4 4.6 Section VII of the Works - All works within A res CRD 242 days Man. 20/13 Fr.124/13 Fr.124/14	1	4.4		<u>399 days</u>	Fri 12/4/13	<u>Thu 15/5/14</u>	4
44 Competition 23/2015 Part 2012 Part 2012 Part 2012 Part 2012 Science N11 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201213 Science N2 of the Works - All works within Area BCPA - EDTO 2 commetries 2/12015 Part 201171 Part 201171	23	4.5		747 days	Fri 12/4/13	Tue 28/4/15	4
44 Stetic VII of the Works - All works within Area CRD 220 days Mon. 92/13 Pite LS214 8 4.3 Section VII of the Works - All works within Area CRD 220 days The LS214 Pite VIII Section 4.3 Section VII of the Works - All works within Area CRDP - EOTOT completion 12 662 days Pit220/213 Mon. 92/13 Pit220/213 Sature VIII of the Works - All works within Area CRD Pit2 FOTOT completion 12 662 days Pit220/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit220/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit220/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit220/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIIII of the Works - All works within Area CRD Pit200/213 Pit200/213 Sature VIIII of the Works - All w	J	1.0		14/ 04/3	111 14/4/15	100 20/4/15	-
5.2 Sterion VIII of the Works - All works within Area BCPA - EOTG commercion 2/12015 571 days Tue 1146/13 PE12/012 66.38 4.8 Section VIII of the Works - All works within Area BCPA - EOTG commercion 19 669 days Fri 280/14 Non 19/1015 7 5.8.1 Chain No. 109 - Delys dae to Delysel Possesion of Portion BCP4 of the Site - 0 days Fri 280/14 No1 19/1015 181 4.8.2 Approval of submission for denoible resting building structures 41 days No 20/1/14 Fri 73/0/14 213 4.8.3 Denoition of cristing building structures 41 days No 20/1/14 Wed 11/1/15 181 4.8.4 Denoition of cristing building structures 130 days Fri 260/14 Wed 11/1/15 181 4.8.5 Three effing/remoral works and fire transplaning works at BCP4 (include tree 130 days Sing 21/1/14 Sing 27/9/15 Trace 22/9/15 275 e57 24 gays 21/8 4.8.6 Chain No. 007 - Dely due to Non-Possesion of Parts o	40	4.6		249 days	Mon 9/9/13	Thu 15/5/14	8
October 2015 Fri 269/14 Fri 210/12/13 Stat 25/114 Stat 25/114 Stat 25/114 Stat 26/114 Fri 270/14 Fri 210/12/13 Stat 26/114 Fri 210/12/13 Stat 26/114 Fri 210/12/13 Stat 26/114 Fri 210/12 73885 43.6 Chain Nu 607 - Delay due to Nun-Poscession of Parts of Partion BCP3 due to 0 0 days Sun 21/114 Sun 270/15 7178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 209/20 2178/55 <td>77</td> <td>4.7</td> <td></td> <td>571 days</td> <td>Tue 11/6/13</td> <td>Fri 2/1/15</td> <td>6,7,18</td>	77	4.7		571 days	Tue 11/6/13	Fri 2/1/15	6,7,18
October 2015 Fri 269/14 Fri 210/12/13 Stat 25/114 Stat 25/114 Stat 25/114 Stat 26/114 Fri 270/14 Fri 210/12/13 Stat 26/114 Fri 210/12/13 Stat 26/114 Fri 210/12/13 Stat 26/114 Fri 210/12 73885 43.6 Chain Nu 607 - Delay due to Nun-Poscession of Parts of Partion BCP3 due to 0 0 days Sun 21/114 Sun 270/15 7178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 2178/55 209/20 2178/55 <td></td> <td>4.0</td> <td>Section 1V of the Works All works within Area BCPB FOTO7 completion 10</td> <td>660 days</td> <td>Fri 20/12/13</td> <td>Mon 19/10/15</td> <td>7</td>		4.0	Section 1V of the Works All works within Area BCPB FOTO7 completion 10	660 days	Fri 20/12/13	Mon 19/10/15	7
Organiz Organiz T32201 4 and possession of existing building structures 37 days Fri 2012/13 Sait 25/1/4 Wed 11/1/15 I 181 48.5 Chaim No.07 - Delty due to Non-Possession of Parts of Portion BCP3 due to Resistant by Least Resident (NOT VET) 330 days Sain 27/114 Sai		4.0		007 0475			-
4.8.2 Submission for denoilition of existing building structures 37 days Fri 20/173 Sut 25/1/4 4.8.3 Approval of submission for denoiking size building structures 11 days Sut 26/1/4 Fri 73/01/4 2135 4.8.4 Demolition of existing building structures LPON instruction (included Absetos 76 days Fri 30/01/4 Wed 11/1715 73885 4.8.5 Tree felling/removal works and tree transplanting works at ECP4 (include tree 139 days Fri 26/01/4 Wed 11/175 73885 4.8.6 C.bim No. 007 - Dely due to Non-Possession of Parts of Portion BCP3 due to 0 days Wed 14/175 181 4.8.7 Sin transition work (increambing ymax BF.3.65.4, 20) 200 days San 270/15 Tree 220/15 21755-53 209/2.528 4.8.7 site formation works (increambing ymax BF.3.65.4, 20) 200 days San 270/15 Tree 220/15 21854-64 days 4.8.2 site formation works (increambing ymax BF.3.75.4, 20) 200 days San 270/14 Jan 220/15 21854-64 days 4.8.2 site formation works (increambing ymax BF.3.75.4, 20) 200 days San 270/14 Jan 220/15 21854-64 days 4.9.2 Chaim King free(CP) 10/00.7, 10/21.4, 10/21.4, 10/21.4, 10/21.4, 10/21	2	4.8.1		0 days	Fri 26/9/14	Fri 26/9/14	181
44.3.3 Approval of subinision for denoish existing building structures 41 days Sum 25/01/14 Fri 73/01/14 213 45.4 Investigation, Report & Asheston Abatement Phan) Tree (Filing/remoral vortes) and tree transplanting vortes at BCP4 (include (ree 19 days Fri 26/91/4 Wed 17/171 212/54/7 days.214 45.5 Chaim No, 07 - Delay due to Non-Possession of Parts of Portion BCP3 due to 0 days Wed 14/175 Wed 14/175 181 45.7 Site formation works (aurrounding areas B1-3, B5-6, B9) 200 days Sam 211/14 Sam 270/15 2178-52 days.21585 45.7.1 site formation works (aurrounding areas B1-3, B5-6, B9) 200 days Sam 211/14 Sam 270/15 2178-52 days.21585 45.7.2 site formation works (B18-B21) 200 days Sam 211/14 Sam 270/15 2178-52 days.21585 45.7 site formation works (B18-B21) 200 days Sam 211/14 Sam 270/175 2178-52 days.21585 45.7 site formation works (aurounding areas B1-2, B10-6, B9) 200 days Sam 211/14 Sam 270/175 2178-55 2 days.21085 45.7 site formation works (B18-B21) 200 days Sam 211/14 Sam 210/175 228/177 2178-55 2 days.210/175 218 </td <td>13</td> <td>4.8.2</td> <td></td> <td>37 days</td> <td>Fri 20/12/13</td> <td>Sat 25/1/14</td> <td></td>	13	4.8.2		37 days	Fri 20/12/13	Sat 25/1/14	
Investigation, Report & Ashestos Ablatement Plan) Investigation, Report & Ashestos Ablatement Plan) 4.8.5 Tree felling/removal works and tree transplanting works at BCP4 (include tree 139 days Fri 26/9/14 Wed 11/2/15 7385S 4.8.6 Chiam No, 07 - Delay due to Non-Possession of Parks of Portion BCP3 due to 0 days Wed 14/1/15 Wed 14/1/15 181 4.8.7 Site formation works (auronucling areas 11-3, 85.6, 89) 200 days Sun 271/14 Sun 271/915 True 22/915 2178-54 2 days, 2185 4.8.7.2 site formation works (mB BCP4 = 04, 73, 10-B17) 300 days Sun 271/14 Sun 271/14 Sun 271/15 2178-54 2 days, 2185 4.8.7.2 site formation works (H18-B2) 200 days Sun 271/14 Sun 271/14 <td>4</td> <td>4.8.3</td> <td>0 0</td> <td>•</td> <td>Sun 26/1/14</td> <td>Fri 7/3/14</td> <td>213</td>	4	4.8.3	0 0	•	Sun 26/1/14	Fri 7/3/14	213
44.5. Tree felting/removal works and tree transplanting works at BCP4 (include tree 139 days Fri 269/14 Wed 11/215 738SS 43.6.6 Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to 0 days Wed 14/1/15 Wed 14/1/15 Hist 43.7.1 Site formation works (surrounding means H-3,85-6, 89) 200 days Sur 271/13 Sur 279/15 21775-52 days, 2254 43.7.2 site formation works (surrounding means H-3,85-6, 89) 200 days Sur 271/13 Sur 279/15 21775-52 days, 2254 43.7.2 site formation works (surrounding means H-3,85-6, 89) 200 days Sur 271/13 Sur 279/15 21755-46 days 43.7.3 site formation works (surrounding means H-3,85-6, 89) 200 days Sur 271/14 Sur 279/15 21755-46 days 43.8 chem link force (Drg: 1002C, 10338) 27 days Wed 239/15 Man 19/10/15 217 44.1 SSUEDE DOTS 124 days Thus 56/14 Tue 19/15 8 45.1 Filling Works, Drainagre & Irrigation System 21 days Tue 16/9/14 Mon 6/10/14 45.2 Chim No. 013 - VO No. 028 - Site Possession from DC/201/106 (Portion A) (from 0 days Tue 7/10/14 Tue 16/9/14	5	4.8.4		76 days	Fri 3/10/14	Wed 17/12/14	212FS+7 days,214
math survey etc) intervention other other other 43.6.6 Cilinin No.007. Delty due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Residen (NOT YET) 330 days Sur 1/11/5 Wed 14/1/15 Wed 14/1/15 Ved 14/1/15		4.0.5		120 dava	E.: 26/0/14	Wed 11/2/15	73855
43.6 Chaim No. 007 Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident (NOT YET) 130 days Wed 14/1/15 Wed 14/1/15 I81 43.7.1 Site formation works (arranding areas B1-3, B5-6, B9) 200 days San 270/15 21758+52 days, 21585 43.7.2 site formation works (area BCP4 - B4, 7.8, 0-B17) 300 days San 270/15 21758+52 days, 21585 43.3.3 site formation works (in B-B22) 200 days San 770/15 The 220/15 21758+52 days, 21585 43.3 chaim har (hore (Drg. 1002)) 10328, /0338) 27 days Wed 14/1/15 Men 19/01/15 221 43.4 Section X of the Works within Area BCPC - (Outstanding Works for SBP) 454 days Thu 5/6/14 Tue 7/10/14 21858-16 days 43.1 ISUED EOTS Its works within Area BCPC - (Outstanding Works for SBP) 454 days Tue 16/9/14 Tue 7/10/14 South West Works for CLP Sub-Station (VO No. 035) (Area CL, CS, C6) 64 days Mon 6/10/14 Mon 6/10/14 South West Works for CLP Sub-Station (VO No. 035) (Area CL, CS, C6)	16	4.8.5		139 Uays	F11 20/9/14	Weu 11/2/15	/30/3/3
Resistant by Local Resident (NOT YET) 44.7.1 Site formation works (surroumling areas H-3, B5-6, B9) 200 days San 2711/1 Sun 2790/15 217Fs-53 days, 215SS 44.7.2 site formation works (surrea DCH = AR, 3, 0-B17) 330 days San 2790/15 217Fs-54 days, 215SS 44.7.3 site formation works (surrea DCH = AR, 3, 0-B17) 300 days San 2790/15 215Fs-46 days 44.8.3 chaim link fonce (Drg, 1002C, 1032B, 1033B) 27 days San 2790/15 215Fs-46 days 50 Section X of the Works- All works within Area BCPC - (Outstanding Works for SBP) 454 days Thu 5/6/14 Tuc 1/9/15 8 49.1 ISSUED EOTS 125 days Thu 5/6/14 Tuc 1/9/14 100 49.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/7/14 100 100 49.4 Filing Works, Drainage & thrightion System 21 days Tuc 1/9/14 Mon 61/0/14 100 49.5 Sauth West Works for CLP Substation Area 0 days Tuc 1/9/14 Mon 61/0/14 228751 day 49.4 Gin andy works, Drainage & thrightion System 21	17	4.8.6	•	0 days	Wed 14/1/15	Wed 14/1/15	181
a. 2.7 istic formation works (surrounding areas BF3.455.6, B9) 200.days Sat 72/15 Twe 22/01/5 21775+52.4 days, 21585 48.7.2 site formation works (sarea BCP4 - B4,7,8,10-B17) 300 300 sat 72/15 Twe 22/01/5 21775+52.4 days, 21585 48.7.3 site formation works (B18-023) 200 days Sat 72/15 Twe 22/01/5 21785+66 days 48.7.3 stee formation works (B18-023) 200 days Sat 72/15 Twe 22/01/5 21785+66 days 48.7.3 chain link fence (Drg, 1002C, 1032b, 1032b) 27 days Wed 23/01/5 Mon 19/101/5 2217 48.4 Chain No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion A) (from Area 6CVC - (Dustanding Works for SBD) 424 days Twe 169/14 Twe 169/14 Twe 169/14 Twe 169/14 Works for 21/7 49.5 South West Works for CLP Substation 0 days Mon 21/7/14 Mon 61/014 400 49.6 Handing over CLP Substation Area 0 days Twe 71/01/4 Twe 71/01/4 Z28*9*1 day 49.7 YO 073 for Secondary Boundary Frencing extend to BCPC 125 days Thu 30/41/5 Thu 30/41/5 235/54*2 days 40.7.1 Handing over from CLP for the ex							
44.7.2 site formation works (area BCP4-B4,78,10-B17) 30 days Sun 211/114 Sun 271/15 2158:4-6 days 4.8.7.3 site formation works (B18-B22) 200 days Sur 771/15 Tue 22015 2178 4.8.8 Section X of the Works - All works within Area BCPC - (Outstanding Works for SBP) 454 days Tue 36014 Tue 1/01/5 221 4.9.1 ISSUED EOTS 0 days Tue 1/01/4 Tue 7/10/4 Tue 1/01/4 5 4.9.2 Chain Mo. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion A) (from Area C8 to D2) 0 days Tue 1/01/4 Tue 1/01/4 Tue 1/01/4 100 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Tue 1/01/4 Mon 21/7/14 Mon 21/7/14 Mon 21/7/14 4.9.4 Filling Works for CLP Substation (VO No. 035) (Area C1, C3, C4, C5, C6) 64 days Mon 4/8/14 Mon 6/10/14 4.9.5 South West Works for CLP Substation (VO No. 035) (Area C1, C3, C4, C5, C6) 64 days Tue 1/01/4 Tue 1/9/15 235/55×2 days 4.9.6 Handing over CLP Substation Area 0 days Tue 1/01/4 Tue 1/9/15 235/55×2 days 4.9.7 VO 073 for Seconlary Boundary Fencing cArea <t< td=""><td>8</td><td>4.8.7</td><td></td><td></td><td></td><td></td><td></td></t<>	8	4.8.7					
4.8.7.3 site formation works (B18-B22) 200 days Sar (73/15) The 229/15 21985 4.8.8 chain link fence (Drg. 1002C, 1032B, 1033B) 27 days Wed 23/9/15 Wed 23/9/15 221 4.9.1 ISSUED EOT5 125 days Thu 5/6/14 Tuc 109/15 21 4.9.1 ISSUED FOT5 125 days Thu 5/6/14 Tuc 109/14 190 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/7/14 Mon 21/7/14 Mon 21/7/14 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tuc 16/9/14 Tuc 7/10/14 190 4.9.5 South West Works for CLP Substation (VO No. 035) (Area CL, CS, C4, C5, C6) 64 days Mon 61/07/14 Mon 61/07/14 4.9.6 Handing over CLP Substation Area 0 days Tuc 10/9/15 Tuc 17/0/14 2287+1 day 4.9.7 YO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/415 Tuc 17/0/14 23375+2 days 4.9.7.1 Handing over form CLP for the calculated to BCPC 125 days Thu 11/0/15 23375+2 days 4.9.7.3 Construction of Scicennet / general fill slope adjacent to CLP Substation <	9	4.8.7.1					
4.8.8 chain link fence (Drg 1002C, 1032B) 27 days Wed 23:0/15 Mon 19/10/15 221 4.9.1 Section X of the Works - All works within Area BCPC - (Outstanding Works for SBE) 454 days Thu 5/6/14 Tue 1/0/15 8 4.9.1 LSSUED EOT5 125 days Thu 5/6/14 Tue 1/0/14 Tue 1/0/14 100 4.9.2 Claim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion A) (from Area C8 to D2) 0 days Tue 1/6/9/14 Tue 1/0/14 100 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Tue 16/9/14 Mon 21/7/14 Mon 6/10/14 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 6/10/14 4.9.5 South West Works for CLP Substation Area 0 days Tue 7/10/14 Tue 19/15 4.9.7 YO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/4/15 Tue 19/15 4.9.7.1 Handing over CLP Substation Area 0 days Sut 2/5/15 Thu 1/6/17 235FS+2 days 4.9.7.1 Handing over fon CLP for the extended area 0 days Sut 2/5/15 Thu 30/4/15 Tue 1/9/15 235FS+2 days 4.9.	0 1						
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49.1 ISSUED EOTS 125 days Thu 5/6/14 Tue 7/10/14 4.9.2 Chaim No. 013 - VO No. 023 - Site Possession from DC/2011/06 (Portion A) (from Area C8 to D2) 0 days Tue 16/9/14 Tue 16/9/14 Tue 16/9/14 Tue 16/9/14 180 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/7/14 Mon 21/7/14 Mon 06/10/14 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 6/10/14 4.9.5 South West Works for CLP Substation Area 0 days Mon 21/7/14 Mon 6/10/14 4.9.6 Handing over CLP Substation Area 0 days Tue 7/10/14 Tue 7/10/14 Z28551 day 4.9.7 YO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/415 Tue 10/15 235755+2 days 4.9.7.1 Handing over from CLP for the extended area 0 days Sat 25/15 Thu 10/015 235755+2 days 4.9.7.3 Construction of Soil cenent / general fill slope adjacent to CLP Substation 90 days Fri 15/8/14 Tue 27/10/15 235755+2 days 4.10 South West Works for additional 132kV (at Areas D1 & D2) at BCPD 33 days Fri 15/8/14 Tue 18/17	3	4.9		Contraction of the local division of the loc		Tue 1/9/15	<u>8</u>
49.2 Chaim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion A) (from Area C8 to D2) 0 days Tue 16/9/14 Tue 16/9/14 180 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/7/14 Mon 21/7/14 Mon 21/7/14 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 61/01/4 Mon 61/01/4 4.9.5 South West Works for CLP Substation Area 0 days Tue 71/0/14 Tue 71/0/14 Tue 71/0/14 Ze#5s1.day 4.9.6 Handing over CLP Substation Area 0 days Tue 71/0/14 Tue 1/9/15 Ze#5s1.day 4.9.7 VO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/4/15 Tue 1/9/15 235757+2 days 4.9.7.1 Handing over from CLP for the extended area 0 days Sat 2/5/15 Thu 30/1/15 235757+2 days 4.9.7.3 Construction of soil cennent / general fill slope adjacent to CLP Substation 90 days Fri 15/8/14 Tue 27/10/15 235757+2 days 4.10 South West Works for additional 132kV (at Areas D1 & D2) at BCPD 439 days Fri 15/8/14 Tue 20/9/14 40 days 4.10.1.1 fill platform for CLP. (132kV) from +12.8						T	
Area C8 to D2) Area C8 to D2) Area C2 to D2) Area C2 to D2) Area C2 to D2) Area C2 to D2) 4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/7/14 Mon 21/7/14 Mon 21/7/14 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 61/0/14 4.9.5 South West Works for CLP Substation (VO No. 035) (Area C1, C3, C4, C5, C6) 64 days Mon 4/8/14 Mon 61/0/14 4.9.6 Handing over CLP Substation Area 0 days Tue 10/9/15 Tue 10/9/15 Tue 10/9/15 4.9.7 VO 073 for Secondary Boundary Fencing extend to BCPC 125 days Tue 30/4/15 Tue 30/4/15 Tue 30/4/15 4.9.7.1 Handing over fom CLP for the extended area 0 days Sat 2/5/15 Thu 30/4/15 235/55+2 days 4.9.7.4 Secondary Boundary Fencing extend to BCPC 125 days Sat 2/5/15 Thu 30/1/15 235/55+2 days 4.9.7.4 Secondary Boundary Fencing extend to CLP Substation 90 days Sat 2/5/15 Thu 10/1/15 235/55+2 days 4.9.7.4 Secondary Boundary Fencing extend to CLP Substation 90 days Fri 15/8/14 Tue 2/9/1/25 237	24	4.9.1					180
4.9.3 Received Variation Order No. 035 for CLP Substation 0 days Mon 21/71/4 Mon 21/71/4 4.9.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 61/01/4 4.9.5 South West Works for CLP Substation (VO No. 035) (Area C1, C3, C4, C5, C6) 64 days Mon 4/8/14 Mon 61/01/4 4.9.6 Handing over CLP Substation Area 0 days Tue 7/10/14 Tue 7/10/14 Zue 7/10/14 4.9.7 VO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/4/15 Tue 1/9/15 4.9.7.2 Construction of Relating Woll 2/4 0 days Sat 2/5/15 Thu 30/4/15 235/53+2 days 4.9.7.3 Construction of Soil cement / general fill slope adjacent to CLP Substation 90 days Sat 2/5/15 Thu 30/7/15 235/53+2 days 4.10 Section X1 of the Works for additional 132kV (at Areas D1 & D2) at BCPD 134 days Mon 14/7/14 Wed 9/12/15 41/15 21/11/15 41/15 21/11/15 21/11/15 41/15 41/15 41/15 41/15 41/15 41/15 41/15 41/15 41/14 40/12/15 41/14 40/15 21/15 41/14 40/14 40/14 40/	25	4.9.2		o days	100/9/14	1 ue 10/9/14	100
49.4 Filling Works, Drainage & Irrigation System 21 days Tue 16/9/14 Mon 6/10/14 49.5 South West Works for CLP Sub-Station (VO No. 035) (Area CI, C3, C4, C5, C6) 64 days Mon 4/8/14 Mon 6/10/14 49.6 Handing over CLP Substation Area 0 days Tue 7/10/14 Tue 7/10/14 Z28FS+1 day 40.7 V0 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/4/15 Tue 19/15 49.7.1 Handing over from CLP for the extended area 0 days Sat 25/15 Thm 10/4/15 235FS+2 days 49.7.2 Construction of soil centent / general fill slope adjacent to CLP Substation 90 days Sat 25/15 Thu 30/4/15 Tue 19/15 235FS+2 days 49.7.3 Construction of soil centent / general fill slope adjacent to CLP Substation 90 days Sat 25/15 Thu 30/4/15 235FS+2 days 410 Section XI of the Works - All works within Area BCPD 514 days Won 14/7/14 Wed 9/12/15 410.1 fill platform for CLP (132kV) (at Areas D1 & D2) at BCPD 439 days Fri 15/8/14 Tue 30/9/14 10 adys 410.1.3 Uf or erection of overhead post & termination of electricity by CLP(132kV)(Area 28 days Tue 14/10/14	26	4.9.3		0 days	Mon 21/7/14	Mon 21/7/14	
4.9.5 South West Works for CLP Sub-Station (VO No. 035) (Area C1, C3, C4, C5, C6) 64 days Mon 4/8/14 Mon 6/10/14 4.9.6 Handing over CLP Substation Area 0 days Tue 7/10/14 Tue 7/10/14 28FS+1 day 4.9.7 VO 073 for Secondary Boundary Fencing extend to BCPC 125 days Thu 30/4/15 Tue 7/10/14 28FS+1 day 4.9.7.1 Handing over from CLP for the extended area 0 days Sat 2/5/15 Thu 10/0/15 235FS+2 days 4.9.7.2 Construction of Retaining Wall 2A 41 days Sat 2/5/15 Thu 10/0/15 233FS+2 days 4.9.7.3 Construction of soil cement/general fill slope adjacent to CLP Substation 90 days Sat 2/5/15 Thu 30//15 233FS+2 days 4.10 Section X1 of the Works - All works within Area BCPD 514 days Mon 14/7/14 Wed 9/12/15 247 4.10.1.1 fill platform for CLP (132kV) from +12.8 to +15.3 47 days Fri 15/8/14 Tue 30/9/14 40 1/4 241FS+13 days 4.10.1.2 UU for erection of overhead post & termination of electricity by CLP(132kV)(Area 28 days Tue 14/10/14 Mon 10/11/14 241FS+13 days 4.10.1.2 Glaim No. 007 - Delay due to Non-Possession of	27	4.9.4		•	Tue 16/9/14		
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4.9.7.3 A.9.7.4 Construction of soil cement / general fill slope adjacent to CLP Substation Secondary Boundary Fencing ChA+125 to ChA+250 (Bay 17 to 32) 90 days 33 days Sat 2/5/15 Fri 3/7/15 Thu 30/7/15 Tue 1/9/15 235FS+2 days 4.10 Section XI of the Works - All works within Area BCPD 514 days Mon 14/7/14 Wed 9/12/15 237 4.10.1 South West Works for additional 132kV (at Areas D1 & D2) at BCPD 439 days Fri 15/8/14 Tue 27/10/15 514 4.10.1.1 fill platform for CLP (132kV) from +12.8 to +15.3 47 days Fri 15/8/14 Tue 30/9/14 417 + 241FS+13 days 4.10.1.2 UU for erection of overhead post & termination of electricity by CLP(132kV)(Area D2) 28 days Tue 14/10/14 Mon 10/11/14 241FS+13 days 4.10.1.3 Claim No. 007 - Delay due to Non-Possession of Parts of Portion IA/1/2015 1 day Wed 14/1/15 217 4.10.1.4 site clearance, take initial survey 10 days Thu 15/1/15 Sat 24/1/15 243 4.10.1.6 assume filling party areas D1 & D2 to +13.5 for drain 20 days Sat 28/2/15 Fri 27/2/15 245 4.10.1.6 assume filling party areas D1 & D.2 to +13.5 for drain 20 days Sat 28/2/15 Fri 22/6/15 245 <td></td> <td>4.9.7.2</td> <td>-</td> <td>•</td> <td></td> <td></td> <td>235FS+2 days</td>		4.9.7.2	-	•			235FS+2 days
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4.10.1.4 site clearance, take initial survey 10 days Thu 15/1/15 Sat 24/1/15 243 4.10.1.5 tree felling / transplant 14 days Sun 25/1/15 Sat 7/2/15 244 4.10.1.6 assume filling partly areas D1 & D2 to +13.5 for drain 20 days Sun 8/2/15 Fri 27/2/15 245 4.10.1.7 PVO, Construct Special Manhole No.9937 60 days Sat 28/2/15 Tue 28/4/15 246 4.10.1.8 lay sewer FHM511 to 515 45 days Wed 29/4/15 Fri 12/6/15 247		1					
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4.10.1.6 assume filling partly areas D1 & D2 to +13.5 for drain 20 days Sun 8/2/15 Fri 27/2/15 245 4.10.1.7 PVO, Construct Special Manhole No.9937 60 days Sat 28/2/15 Tue 28/4/15 246 4.10.1.8 lay sewer FHM511 to 515 45 days Wed 29/4/15 Fri 12/6/15 247 Revision 1 Task Milestone Project Summary Critical Split Deadline ©	15	4.10.1.5		•			
4.10.1.7 PVO, Construct Special Manhole No.9937 60 days Sat 28/2/15 Tue 28/4/15 246 4.10.1.8 lay sewer FHM511 to 515 45 days Wed 29/4/15 Fri 12/6/15 247 Revision 1 Task Milestone Project Summary Critical Split Deadline Image: Critical Split	16	4.10.1.6				Fri 27/2/15	
Revision 1 Task Milestone Project Summary Critical Split Deadline	17	4.10.1.7	PVO, Construct Special Manhole No.9937				
Nevision 1 lask Milestone Project Summary Critical Spin	8	4.10.1.8	lay sewer FHM511 to 515	45 days	Wed 29/4/15	Fri 12/6/15	247
Milestopie Project Summary Critical Spire							
Fri 28/8/15 Split Summary Critical Progress		Revision 1	Task Milestone Project Summa	ry 🖓	Critical Split		Deadline 🖑

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Contract No. CV/2013/03 - Liantang/Heung Yuen Wai Boundary Control Point -

Site Formation and Infrastructure Works - Contract 5

1	WBS	Task Name	Duration	Start	Finish	Predecessors	2 Mar May
) !4	1.10.1.9	lay sewer STP-FMH520 & 515	35 days	Sat 13/6/15	Fri 17/7/15	248	Jan Mar May
	1.10,1,10	fill trench from laid sewer to drainage formation	10 days	Sat 18/7/15	Mon 27/7/15	249	
	10.1.11	lay drainage SMH9961 to 9966 & 9936 to 9937	30 days	Tue 28/7/15	Wed 26/8/15	250	
	10.1.12	filling of areas D1 & D2 to ± 15.3 with D2 soil cement slope	35 days	Wed 29/4/15	Tue 2/6/15	247	
	.10.1.13	Confirmation of Alignment for Secondary Boundary Fencing	35 days	Mon 29/12/14	Sun 1/2/15		
	10.12	Secondary Boundary Fencing Ch0 to Ch709 (Bay 1 to 93)	250 days	Mon 2/2/15	Fri 9/10/15	253	
	10.1.15	Secondary Boundary Fencing Ch709 to Ch1234 (Bay 94 to 158)	177 days	Mon 2/2/15	Tue 28/7/15	253	
1			-	Thu 26/2/15		253FS+24 days	
	10.1.16	Secondary Boundary Fencing Ch1234 to Ch1436 (Bay 159 to 184)	70 days		Wed 6/5/15		
1	10.1.17	Secondary Boundary Fencing ChA0 to ChA125 (Bay 1 to 16)	40 days	Mon 27/4/15	Fri 5/6/15	256FS-10 days	
4	10.1.18	Secondary Boundary Fencing Ch1436 to Ch1520 (Bay 185 to 197)	40 days	Fri 18/9/15	Tue 27/10/15	283FS+9 days	
4	.10.1.19	irrigation system at west D1 & D2	7 days	Wed 3/6/15	Tue 9/6/15	252	
4	10.1.20	additional 132kV (at Areas D1 & D2)	7 days	Wed 10/6/15	Tue 16/6/15	259	
4	.10.2	South West Works for Areas D1 & D2	398 days	Fri 3/10/14	Wed 4/11/15		
4	10.2.1	site clearance, take initial survey	10 days	Fri 3/10/14	Sun 12/10/14	181FS+7 days	
- 10	1.10.2.2	tree felling / transplant	25 days	Mon 13/10/14	Thu 6/11/14	262	
-42	1.10.2.3	fill trench to formation for Plug-FMH501-502-STP (approx. to +11)	20 days	Fri 7/11/14	Wed 26/11/14	263	
- 1 -	.10.2.4	lay sewer Plug-FMH501-502-STP	14 days	Sat 18/7/15	Fri 31/7/15	249,280	
-1-1	1.10.2.5	complete filling for Areas DI & D2 to formation area	28 days	Sat 18/7/15	Fri 14/8/15	263FS-7 days,265SS	
- 10	10.2.6	lay drainage SMH9941 to 9943-9931	20 days	Sat 1/8/15	Thu 20/8/15	265	
-40	10.2.7	lay drainage SMI19952 to 9953	10 days	Fri 21/8/15	Sun 30/8/15	267,260SS-5 days	
-1-	10.2.8	lay drainage SMH9930 to 9935	30 days	Mon 31/8/15	Tue 29/9/15	268	
- 1	1.10.2.9	lay drainage SMH9702A to 9935	10 days	Wed 30/9/15	Fri 9/10/15	269	
4	1.10.2.10	lay drainage CP25-SMH9701A-9902-9702A	10 days	Sat 10/10/15	Mon 19/10/15	270	
	10.2.11	lay drainage SMH9922 to 9930	30 days	Tue 6/10/15	Wed 4/11/15	271FS-14 days	
-17	10.2.12	water pipe DN250 CHL 150 to 335.749	18 days	Mon 31/8/15	Thu 17/9/15	268	
-12	10.2.13	rising main CHC	18 days	Sun 20/9/15	Wed 7/10/15	269FS-10 days	
	.10.3	Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident	0 days	Wed 14/1/15	Wed 14/1/15	217	
4	.10.4	South West Work for Construction of Depressed Road	223 days	Sun 8/2/15	Fri 18/9/15		
14.1	10.4.1	UU for 11kV & LV lay ducts across & underneath underpass	1 day	Mon 2/3/15	Mon 2/3/15	241FS+42 days,275FS+47 day	5
4	.10.4.2	structural work for Bay 16015-16012	40 days	Sun 8/2/15	Thu 19/3/15	245	
	10.4.3	structural work for Bay 16011-16008	60 days	Tue 10/3/15	Fri 8/5/15	278FS-10 days	
4	10.4.4	structural work for Bay 16007-16004	55 days	Wed 29/4/15	Mon 22/6/15	279FS-10 days	
4	10.4.5	structural work for Bay 16003-16001	60 days	Tue 23/6/15	Fri 21/8/15	280	
-0.3	10.4.6	drainage work inside depressed road (Bay 16015-16008)	18 days	Tue 4/8/15	Fri 21/8/15	279,281FF	
4	.10.4.7	drainage work inside depressed road (Bay 16007-16001)	18 days	Sat 22/8/15	Tue 8/9/15	281,282	
	10.4.8	backfill western side of depressed road	14 days	Sat 22/8/15	Fri 4/9/15	281	
-1-	10.4.9	irrigation system next to depressed road	14 days	Sat 5/9/15	Fri 18/9/15	284	
	.10.5	South West Work for Access Road	82 days	Sat 19/9/15	Wed 9/12/15		
4	10.5.1	completion of drainage SMH9922 to 9930, water pipe & rising main & backfill western side of depressed road	0 days	Wed 4/11/15	Wed 4/11/15	272,274,284	
	.10.5.2	UU for 132kV, 11kV & LV	7 days	Sat 19/9/15	Fri 25/9/15	285	
	.10.5.3	UU for PCCW	7 days	Sat 26/9/15	Fri 2/10/15	288	
	1.10.5.4	backfill to road formation with SRT98%	14 days	Sat 3/10/15	Fri 16/10/15	289	
4	.10.5.5	sub-base laying	7 days	Sat 17/10/15	Fri 23/10/15	290	
	.10.5.6	kerb bedding, laying & backing before bituminous material	14 days	Sat 24/10/15	Fri 6/11/15	291	
4	.10.5.7	AC - lay DBM & base course	7 days	Sat 7/11/15	Fri 13/11/15	292	
	.10.5.8	backfill footpath formation	7 days	Sat 7/11/15	Fri 13/11/15	292	
	.10.5.9	street lighting ducts, drawpits & controller	7 days	Sat 14/11/15	Fri 20/11/15	294	
2.1	.10.5.10	UU for CLP (lighting)	7 days	Sat 21/11/15	Fri 27/11/15	295	
a -	.10.5.11	footpath paving	7 days	Sat 28/11/15	Fri 4/12/15	296	
11.5	.10.5.12	AC - lay wearing course	10 days	Mon 30/11/15	Wed 9/12/15	296FS+2 days, 293FS	+14 days
4	.10.6	Claim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion B) (from Area D3 to D10)	0 days	Tue 12/8/14	Tue 12/8/14	179	
4	.10.7	Works at Areas D4 to D9 (shown in Section VIII)	449 days	Mon 14/7/14	Mon 5/10/15		
4	10.7.1	Retaining Wall BCP/RW2B	92 days	Mon 14/7/14	Mon 13/10/14	182SS	
	10.7.2	install 150UPVC perforated pipe behind retaining wall	4 days	Fri 17/10/14	Mon 20/10/14	197SS	
4	10.7.3	install geotextile filter & backfill D4, B6 & A4 to +15.0	28 days	Tue 21/10/14	Mon 17/11/14	198SS	
	.10.7.4	site formation work for Areas D4 to D6	45 days	Tue 4/11/14	Thu 18/12/14	317FS-14 days	
14.5	10.7.5	soil cement slopes for Areas D4 to D6	21 days	Fri 5/12/14	Thu 25/12/14	318FS-14 days	
	.10.7.6	site formation work for Areas D7 to D9	60 days	Fri 19/12/14	Mon 16/2/15	319FS-7 days	
4	10.7.7	PVO - U/J-Channel along Patoral Road (approx, 1200m)	150 days	Sat 9/5/15	Mon 5/10/15		
-	.11	Section XII of the Works - All works within Area LMH Section XIII of the Works - Works not covered in any other Sections	635 days 983 days	Thu 22/8/13 Thu 22/8/13	Mon 18/5/15 Sat 30/4/16	74 74	
				Thu 22/8/13	Wed 30/10/13		
14	Devision 1	Submissions	70 days		and he will be	Deadline 🗘	
	Revision 1 Fri 28/8/15	Task Milestone + Project Summa Split Critical	uy .	Critical Split Progress	The contraction of the second	Deadline 🖖	

				Works Programme (06) Data Date Fri 28/8/15			
Jul	Sep	1	Nov	Jan	Mar		
					1		
			20150	728 ++Updated S	Submitted WP(06)		
Site Formation and Infrastructure Works - Contract 5

ID	WBS	Task Name	Duration	Start	Finish	Predecessors 2		Mar	May	
93	4.12.2	Approval of Submissions	68 days	Mon 16/9/13	Fri 22/11/13	492SS+25 days	Jan	Mar	iviay	
	4 12.3	VO.080 Additional Footpath adjacent to the Eastern Side of Chuk Yuen	1 day	Tue 5/5/15	Tue 5/5/15					
95	4.12.4	Village Re-site Area Submissions	14 days	Wed 6/5/15	Tue 19/5/15	494				
	4.12.5	Approval of Submissions	7 days	Wed 20/5/15	Tue 26/5/15	495				
	4.12.6	Temporarty works and excavation	20 days	Wed 27/5/15	Mon 15/6/15	496				
	4127	Base slab	25 days	Tue 16/6/15	Fri 10/7/15	496FS+20 days				
99	1.12.8	Wall Stem	20 days	Sun 26/7/15	Fri 14/8/15	498FS+15 days				
00	4.12.9	Backfilling	20 days	Sat 15/8/15	Thu 3/9/15	499				
	4.12.10	DN150 watermain & Utilities Laying	14 days	Mon 14/9/15	Sun 27/9/15	500FS+10 days				
	4.12.11	Surfacing & U-Channel	7 days	Mon 28/9/15	Sun 4/10/15	501				
	1.12.12	Reinstatement of Gabion	14 days	Mon 5/10/15 Mon 5/10/15	Sun 18/10/15 Fri 9/10/15	502 502				
	<i>4.12.13</i> <i>4.12.14</i>	<i>Type 2 Railing</i> Temporary Traffic Arrangement (TTA) Scheme for Works at existing LMH Rd	5 <i>days</i> 92 days	Fri 23/8/13	Fri 22/11/13	492SS+1 day				
509	4.12.15	Lin Ma Hang Road Widening Section	920 days	Thu 24/10/13	Sat 30/4/16					
	4.12.15.1	PVO - Additional U-Channel along both Side of existing LMH Road 600m x 2) (Advanced works commenced)	0 days	Sat 27/6/15	Sat 27/6/15					
11	112 15 2	VO.061 Addition al Rising Main at LMH Road	0 days	Wed 31/12/14	Wed 31/12/14					
	4.12.15.2 4.12.15.3	place order for HDPE pipes	0 days	Tue 6/1/15	Tue 6/1/15	511FS+2 days				
	4.12.15.4	arrival of HDPE pipes	80 days	Tue 6/1/15	Thu 26/3/15	512				
	4.12.15.5	RECEIVE VO 053 ADDITIONAL CROSS ROAD DUCTS FOR EXISTING	0 days	Tue 7/10/14	Tue 7/10/14					
515	4.12.15.6	IRRIGATION PIPES RECEIVE VO 062 CABLE DUCTS LAYING FOR PUBLIC LIGHTING	0 days	Tue 14/10/14	Tue 14/10/14					
516	4.12.15.7	SYSTEM AT LIN MA HANG ROAD SYSTEM From chainage 190 to chainage 380 (west side carriageway &	231 days	Sun 24/8/14	Sat 11/4/15					
		footpath)		0	0 . 04/0/14					
	4.12.15.7.1	TTA for ch 310-380(west)	0 days	Sun 24/8/14	Sun 24/8/14 Sat 13/9/14	517				
	4.12.15.7.2	earthwork to lay drainage & waterwork	21 days 45 days	Sun 24/8/14 Sun 14/9/14	Sat 13/9/14 Tue 28/10/14	518				
	4.12.15.7.3 4.12.15.7.4	drainage & waterwork + backfill for CLP V0053 - crossing no. 1(whole), 2 (west)	45 days 18 days	Wed 29/10/14	Sat 15/11/14	519,514				
	4.12.15.7.4	UU for ch 190-380 (132kV,11kV,LV)	19 days	Sun 16/11/14	Thu 4/12/14	520				
	4.12.15.7.6	filling works to formation of road (include SRT98%)	7 days	Fri 5/12/14	Thu 11/12/14	521				
	4.12.15.7.7	street lighting drawpits & crossroads	7 days	Fri 12/12/14	Thu 18/12/14	522				
	4.12.15.7.8	kerb bedding, laying & backing before bituminous material	9 days	Fri 19/12/14	Sat 27/12/14	523				
525	4.12.15.7.9	filling works to formation of footpath	4 days	Sun 28/12/14	Wed 31/12/14	524				
526	4.12.15.7.10	UU for CLP (lighting)	5 days	Thu 1/1/15	Mon 5/1/15	525				
527	4.12.15.7.11	UU for ch 190-380 (PCCW)	7 days	Tue 6/1/15	Mon 12/1/15	526				
	4.12.15.7.12	irrigation system	7 days	Tue 13/1/15	Mon 19/1/15	527				
	4.12.15.7.13	preparation works to formation of footpath	3 days	Mon 19/1/15	Wed 21/1/15	528FS-1 day				
	4.12.15.7.14	footpath paving	9 days	Thu 22/1/15	Fri 30/1/15	529				
	4.12.15.7.15	VO.061 for renewal of rising main	6 days	Fri 27/3/15	Wed 1/4/15	513				
	4.12.15.7.16	sub-base laying for road	5 days	Thu 2/4/15 Tue 7/4/15	Mon 6/4/15 Sat 11/4/15	531 524,532				
	4.12.15.7.17 4.12.15.8	AC - lay DBM & base course 1 Works from chainage 380 to chainage 580 (west side carriageway &	5 days 402 days	Fri 22/11/13	Mon 29/12/14	505				
54	4.12.15.0	footpath)	402 Uays			505				
	4.12.15.8.1	TTA for ch 380-580(west)	0 days	Fri 22/11/13	Fri 22/11/13					
	4.12.15.8.2	watermain (include issue of alignment and laying)	120 days	Sat 23/11/13	Sat 22/3/14	535				
	4.12.15.8.3	drainage (pipe, manholes & gullies)	155 days	Sun 23/3/14	Sun 24/8/14	536				
	4.12.15.8.4	Received Variation Order Nos. 040 & 042	0 days	Mon 28/4/14	Mon 28/4/14 Sun 8/6/14	537SS+50 days,538FS	+14 days			
	4.12.15.8.5	construct DN450mm pipe with concrete surround	28 days 28 days	Mon 12/5/14 Mon 12/5/14	Sun 8/6/14	53755+30 uays,550re	14 days			
	4.12.15.8.5.1 4.12.15.8.6	low stream pipe & catchpit at western side construct 1900x950 box culvert with manholes SMH8052A & B	49 days	Mon 9/6/14	Sun 27/7/14	538,540				
542	4.12.15.8.6.1	support existing DN150mm sewer pipe & watermain	7 days	Mon 9/6/14	Sun 15/6/14					
	4.12.15.8.6.2	construct box culvert	14 days	Mon 16/6/14	Sun 29/6/14	542				
	4.12.15.8.6.3	construct manholes	28 days	Mon 30/6/14	Sun 27/7/14	543				
	4.12.15.8.7	found existing cables affected construction of gullies & discuss with CLP	18 days	Sat 26/7/14	Tue 12/8/14	537FF-12 days,544FS-2 days				
546	4.12.15.8.8	complete preparation work & fill footpath for 132kV, 11kV & LV	8 days	Wed 13/8/14	Wed 20/8/14	545				
	4.12.15.8.9	UU - 132kV+11kV & LV	35 days	Thu 21/8/14	Wed 24/9/14	546				
	4.12.15.8.10	temporary connection of cables	3 days	Thu 25/9/14	Sat 27/9/14	547				
	4.12.15.8.11	960x650 box culvert (low stream & west catchpit)	7 days	Sun 28/9/14	Sat 4/10/14	548				
	4.12.15.8.12	construct outstanding drainage & gullies	7 days	Wed 1/10/14	Tue 7/10/14	550FS-4 days				
52	4.12.15.8.13	filling work to formation of road (include SRT98%)	5 days	Wed 8/10/14	Sun 12/10/14	551				
53	4.12.15.8.14	VO053 - crossing no. 3, 4 (west)	10 days	Mon 13/10/14	Wed 22/10/14	514FS+6 days				
54	4.12.15.8.15	complete filling work to formation of road (include SRT98%)	5 days	Thu 23/10/14	Mon 27/10/14	553				
555	4.12.15.8.16	street lighting drawpits & crossing at ch 523	4 days	Mon 27/10/14	Thu 30/10/14	554FS-1 day				
	4.12.15.8.17	UU for CLP (lighting)	5 days	Fri 31/10/14	Tue 4/11/14	555				
			-						 	
	Revision 1 Fri 28/8/15	Task Milestone Project Summ	lary	Critical Split	I	Deadline 🖓				
		Split Critical		Progress						

Sang Hing Civil - Richwell Machinery JV



Site Formation and Infrastructure Works - Contract 5

ID	WBS	Task Name	Duration	Start	Finish	Predecessors
57	4.12.15.8.18	sub-base laying for road	4 days	Wed 5/11/14	Sat 8/11/14	556
	4.12.15.8.19	suo-base laying for road kerb bedding, laying & backing before bituminous material	12 days	Sat 8/11/14	Wed 19/11/14	557FS-1 day
	4.12.15.8.20	filling works to formation of footpath	5 days	Thu 20/11/14	Mon 24/11/14	558
			14 days	Tue 25/11/14	Mon 8/12/14	559
)	4.12.15.8.21	UU for ch 380-580 (PCCW)	14 aays	Tue 25/11/14	WION 0/12/14	339
	4.12.15.8.22	invication motors	4 days	Tue 9/12/14	Fri 12/12/14	560
1	4.12.15.8.23	irrigation system	3 days	Sat 13/12/14	Mon 15/12/14	561
2	100 D.	preparation works to formation of footpath	· ·			562
3	4.12.15.8.24	footpath paving	14 days	Tue 16/12/14	Mon 29/12/14	
4	4,12,15.8.25	AC - lay DBM & base course	5 days	Thu 20/11/14	Mon 24/11/14	558
5	4 12 15 0	2 Works from ch 380-580 (east side carriageway)	318 days	Wed 26/11/14	Sat 10/10/15	564FS+2 days
	4.12.15.9			Wed 26/11/14	Wed 26/11/14	504F512 Unys
5	4.12.15.9.1	TTA for ch 380-580 (east)	0 days		Sun 30/11/14	566
7	4.12.15.9.2	remove existing pavement	4 days	Thu 27/11/14		
8	4.12.15.9.3	PVO: 2 nos. U-Channel Drainage Crossing	14 days	Mon 1/12/14	Sun 14/12/14	567
)	4.12.15.9.4	VO.061 for rising main	40 days	Fri 27/3/15	Tue 5/5/15	513,568
	4.12.15.9.5	Waterworks - 150T FH, 150T Irrigation & 150T	14 days	Wed 6/5/15	Tue 19/5/15	569
	4.12.15.9.6	VO053 - crossing no. 2, 3, 4, 5 (east)	20 days	Wed 13/5/15	Mon 1/6/15	570FS-7 days
	4.12.15.9.7	PVO - Revised Design of VO.061 for Rising Mains	40 days	Fri 19/6/15	Tue 28/7/15	
	4.12.15.9.8	**Re-construction: VO.061 for Rising Mains	30 days	Wed 29/7/15	Thu 27/8/15	572
ŀ.	4.12.15.9.9	**Re-construction: Waterworks - 150T FH, 150T Irrigation & 150T	10 days	Fri 28/8/15	Sun 6/9/15	573
75	4.12.15.9.10	**Re-construction: RV0053 - crossing no. 2, 3, 4, 5 (east)	10 days	Mon 31/8/15	Wed 9/9/15	574FS-7 days
6	4.12.15.9.11	**Re-construction: PVO: 2 nos. U-Channel Drainage Crossing	10 days	Fri 28/8/15	Sun 6/9/15	573
7	4.12.15.9.12	middle stream box culvert 960x650	14 days	Mon 31/8/15	Sun 13/9/15	576FS-7 days
3	4.12.15.9.13	middle stream DN450mm pipe	12 days	Mon 7/9/15	Fri 18/9/15	577FS-7 days
9	4.12.15.9.14	street light crossing at ch 523	4 days	Sat 19/9/15	Tue 22/9/15	575,578
)	4.12.15.9.15	SRT Formation level	5 days	Wed 23/9/15	Sun 27/9/15	579
1	4.12.15.9.16	sub-base & east kerbing	8 days	Mon 28/9/15	Mon 5/10/15	575,580
2	1007		5 days	Tue 6/10/15	Sat 10/10/15	575,580
	4.12.15.9.17	AC - lay DBM & base course			Sat 10/10/15 Sat 26/9/15	516FS+2 days
3	4.12.15.10	3 Works from ch 190-380 (east side carriageway)	60 days	Wed 29/7/15	Wed 29/7/15	STOP ST2 days
4	4.12.15.10.1	TTA for ch 190-380 (east)	0 days	Wed 29/7/15		504
5	4.12.15.10.2	remove existing pavement	4 days	Wed 29/7/15	Sat 1/8/15	584
6	4.12.15.10.3	VO.061 for rising main	25 days	Sun 2/8/15	Wed 26/8/15	585
Ľ.	4.12.15.10.4	Waterworks - 150T FH, 150T x 2	14 days	Thu 27/8/15	Wed 9/9/15	586
8	4.12.15.10.5	RVO053 - crossing no. 1 (east)	6 days	Mon 7/9/15	Sat 12/9/15	587FS-3 days
9	4.12.15.10.6	PVO: 2 nos. U-Channel Drainage Crossing	10 days	Thu 27/8/15	Sat 5/9/15	586
0	4.12.15.10.7	street light crossings at ch 287, 350	4 days	Thu 3/9/15	Sun 6/9/15	589FS-3 days
1	4.12.15.10.8	PCCW crossings at ch 350	2 days	Sat 5/9/15	Sun 6/9/15	590FF
2	4.12.15.10.9	SRT Formation level	5 days	Mon 7/9/15	Fri 11/9/15	591
)3	4.12.15.10.10	sub-base & east kerbing	10 days	Sat 12/9/15	Mon 21/9/15	590,592
4	4.12.15.10.11	AC - lay DBM & base course	5 days	Tue 22/9/15	Sat 26/9/15	593
5	4.12.15.11	2,3,7 Works from chainage 580 to chainage 785 (west side carriageway &	265 days	Sun 5/10/14	Fri 26/6/15	
		footpath)				
6	4.12.15.11.1	UU for ch 580-785 (132kV,11kV,LV)	21 days	Sun 5/10/14	Sat 25/10/14	549
7	4.12.15.11.2	VO.091 Water Mains Diversion	50 days	Fri 8/5/15	Fri 26/6/15	
8	4.12.15.11.3	TTA for ch 580-785(west)	0 days	Wed 26/11/14	Wed 26/11/14	565SS
)	4.12.15.11.4	earthwork to lay drainage & waterwork	10 days	Thu 27/11/14	Sat 6/12/14	598
0	4.12.15.11.5	drainage & waterwork	120 days	Sun 7/12/14	Sun 5/4/15	599
)1	4.12.15.11.6	VO053 - crossing no. 5, 6, 7&8 & Ducts along ch613-700 (west)	14 days	Mon 6/4/15	Sun 19/4/15	600
		, soos a coord not of of two as press mong chore to a firedy				
12	4.12.15.11.7	filling works to formation of road (include SRT98%)	7 days	Mon 20/4/15	Sun 26/4/15	601
03	4.12.15.11.8	street lighting drawpits & crossings ch760,785	5 days	Mon 27/4/15	Fri 1/5/15	602
)4	4.12.15.11.9	sub-base laying for road	5 days	Sat 2/5/15	Wed 6/5/15	603
)4)5		suo-base laying for road kerb bedding, laying & backing before bituminous material	9 days	Thu 7/5/15	Fri 15/5/15	604
	4.12.15.11.10			Sat 16/5/15	Tue 19/5/15	605
6	4.12.15.11.11	filling works to formation of footpath	4 days	Sul 10/5/15	1 UC 19/J/1J	005
	1 10 10 11 10	101 for CLD (locking)	6 days	W/ad 20/8/18	Sun DAIEITE	606
7	4.12.15.11.12	UU for CLP (lighting)	5 days	Wed 20/5/15	Sun 24/5/15	606
8	4.12.15.11.13	UU for ch 580-785 (PCCW)	14 days	Mon 25/5/15	Sun 7/6/15	606,607
9	4.12.15.11.14	irrigation system	5 days	Mon 8/6/15	Fri 12/6/15	608
10	4.12.15.11.15	preparation works to formation of footpath	3 days	Sat 13/6/15	Mon 15/6/15	609
1	4.12.15.11.16	footpath paving	7 days	Tue 16/6/15	Mon 22/6/15	610
2	4.12.15.11.17	AC - lay DBM & base course	5 days	Sat 16/5/15	Wed 20/5/15	605
3	4.12.15.12	4,5,6 Works from ch 580-785 (east side carriageway)	58 days	Fri 22/5/15	Sun 19/7/15	612FS+2 days
4	4.12.15.12.1	TTA for ch 580-785 (east)	0 days	Fri 22/5/15	Fri 22/5/15	
5	4.12.15.12.2	remove existing pavement	5 days	Sat 23/5/15	Wed 27/5/15	614
	4.12.15.12.3	VO.061 for rising main	20 days	Thu 28/5/15	Tue 16/6/15	615
17	4.12.15.12.4	V0053 - crossing no. 5, 6, 7&8 (east)	14 days	Fri 12/6/15	Thu 25/6/15	616FS-5 days
18	4.12.15.12.5	street lighting crossings at ch 760, 785	7 days	Wed 24/6/15	Tue 30/6/15	617FS-2 days
	4 12.15.12 6	sub-base & east kerbing	14 days	Wed 1/7/15	Tue 14/7/15	618
	4.12.15.12.0	AC - lay DBM & base course	5 days	Wed 15/7/15	Sun 19/7/15	619
20				Mon 28/9/15	Sun 19///15 Sun 29/11/15	594FS+2 days
21	4.12.15.13	5 Works from chainage 125 to chainage 190 (west side carriageway &	62 days	NION 26/9/15	Sun 29/11/15	374F3T2 UAYS
		footpath)				
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Site Formation and Infrastructure Works - Contract 5

D	WBS	Task Name	Duration	Start	Finish	Predecessors	2 Jan Mar May
22	4.12.15.13.1	TTA for ch 125-190 (west)	0 days	Mon 28/9/15	Mon 28/9/15		Jan Mar May
	4.12.15.13.2	earthwork to lay drainage & waterwork	3 days	Tue 29/9/15	Thu 1/10/15	622	
	4.12.15.13.3	drainage & waterwork + backfill for CLP	18 days	Thu 1/10/15	Sun 18/10/15	623FS-1 day	
	4.12.15.13.4	UU for ch 125-190 (132kV, 11kV, LV)	8 days	Mon 19/10/15	Mon 26/10/15	624	
	4.12.15.13.5	filling works to formation of road (include SRT98%)	7 days	Sun 25/10/15	Sat 31/10/15	625FS-2 days	
	4.12.15.13.6	street lighting drawpits & crossing at ch 154	3 days	Sun 1/11/15	Tue 3/11/15	626	
	4.12.15.13.7	irrigation system	4 days	Mon 2/11/15	Thu 5/11/15	627FS-2 days	
	4.12.15.13.8	UU for CLP (lighting)	3 days	Fri 6/11/15	Sun 8/11/15	628	
	4.12.15.13.9	sub-base laying	3 days	Mon 9/11/15	Wed 11/11/15	629	
	4.12.15.13.10	kerb bedding, laying & backing before bituminous material	5 days	Thu 12/11/15	Mon 16/11/15	630	
	4.12.15.13.11	filling works to formation of footpath	3 days	Mon 16/11/15	Wed 18/11/15	631FS-1 day	
13	4.12.15.13.12	UU for ch 125-190 (PCCW)	5 days	Thu 19/11/15	Mon 23/11/15	632	
	4.12.15.13.13	footpath paving	7 days	Mon 23/11/15	Sun 29/11/15	633FS-1 day	
	4,12,15,13,14	AC - lay DBM & base course	4 days	Tue 17/11/15	Fri 20/11/15	631	
36	4.12.15.14	7 Works from chainage 80 to chainage 125 (west side carriageway & footpath)	67 days	Sat 21/11/15	Wed 27/1/16	635FS+1 day	
7	4.12.15.14.1	TTA for ch 80-125(west)	0 days	Sat 21/11/15	Sat 21/11/15		
8	4.12.15.14.2	earthwork to lay drainage & waterwork	3 days	Sun 22/11/15	Tue 24/11/15	637	
9	4.12.15.14.3	drainage & waterwork + backfill for CLP	18 days	Wed 25/11/15	Sat 12/12/15	638	
0	4.12.15.14.4	UU for ch 80-190 (132kV,11kV,LV)	6 days	Sun 13/12/15	Fri 18/12/15	639	
	4.12.15.14.5	filling works to formation of road (include SRT98%)	7 days	Sat 19/12/15	Fri 25/12/15	640	
	4.12.15.14.6	street lighting drawpits & crossing at ch 98	3 days	Sat 26/12/15	Mon 28/12/15	641	
-	4.12.15.14.7	irrigation system	3 days	Tue 29/12/15	Thu 31/12/15	642	
	4.12.15.14.8	UU for CLP (lighting)	3 days	Fri 1/1/16	Sun 3/1/16	643	
	4.12.15.14.9	sub-base laying	3 days	Mon 4/1/16	Wed 6/1/16	644	
	4.12.15.14.10	kerb bedding, laying & backing before bituminous material	5 days	Thu 7/1/16	Mon 11/1/16	645	
	4.12.15.14.11	filling works to formation of footpath	4 days	Tue 12/1/16	Fri 15/1/16	646	
3	4.12.15.14.12	UU for ch 80-190 (PCCW)	4 days	Sat 16/1/16	Tue 19/1/16	647	
	4.12.15.14.13	footpath paving	8 days	Wed 20/1/16	Wed 27/1/16	648	
	4.12.15.14.14	AC - lay DBM & base course	4 days	Tue 12/1/16	Fri 15/1/16	646	
	4.12.15.15	4 Works from chainage 125 to chainage 190 (east side carriageway & footpath)	42 days	Sat 16/1/16	Sat 27/2/16	650FS+1 day	
2	4.12.15.15.1	TTA for ch 125-190 (east)	0 days	Sat 16/1/16	Sat 16/1/16		
5	4.12.15.15.2	VO.061 for rising main	7 days	Sun 17/1/16	Sat 23/1/16	652	
F.	4.12.15.15.3	filling works to formation of road (include SRT98%)	4 days	Sat 23/1/16	Tue 26/1/16	653FS-1 day	
5	4.12.15.15.4	street lighting drawpits & crossing at ch 154	3 days	Wed 27/1/16	Fri 29/1/16	654	
5	4.12.15.15.5	irrigation system	3 days	Sat 30/1/16	Mon 1/2/16	655	
	4.12.15.15.6	UU for CLP (lighting)	3 days	Tue 2/2/16	Thu 4/2/16	656	
3	4.12.15.15.7	sub-base laying	2 days	Fri 5/2/16	Sat 6/2/16	657,656	
)	4.12.15.15.8	kerb bedding, laying & backing before bituminous material	5 days	Sun 7/2/16	Thu 11/2/16	658	
	4.12.15.15.9	filling works to formation of footpath	3 days	Fri 12/2/16	Sun 14/2/16	659	
h	4.12.15.15.10	UU for ch 125-200 (PCCW/HGC)	5 days	Mon 15/2/16	Fri 19/2/16	660	
2	4.12.15.15.11	footpath paving	8 days	Sat 20/2/16	Sat 27/2/16	661	
3	4.12.15.15.12	AC - lay DBM & base course	4 days	Fri 12/2/16	Mon 15/2/16	659	
1	4.12.15.16	6 Works from chainage 80 to chainage 125 (east side carriageway & footpath)	40 days	Tue 16/2/16	Sun 27/3/16	663FS+1 day	
-	4.12.15.16.1	TTA for ch 80-125 (east)	0 days	Tue 16/2/16	Tue 16/2/16		
	4.12.15.16.2	VO.061 for rising main	7 days	Wed 17/2/16	Tue 23/2/16	665	
ł	4.12.15.16.3	filling works to formation of road (include SRT98%)	5 days	Mon 22/2/16	Fri 26/2/16	666FS-2 days	
	4.12.15.16.4	street lighting drawpits & crossing at ch 98	3 days	Fri 26/2/16	Sun 28/2/16	667FS-1 day	
	4.12.15.16.5	irrigation system	3 days	Mon 29/2/16	Wed 2/3/16	668	
	4.12.15.16.6	UU for CLP (lighting)	3 days	Thu 3/3/16	Sat 5/3/16	669	
	4.12.15.16.7	sub-base laying	3 days	Sun 6/3/16	Tue 8/3/16	670	
	4.12.15.16.8	kerb bedding, laying & backing before bituminous material	5 days	Wed 9/3/16	Sun 13/3/16	671	
	4.12.15.16.9	filling works to formation of footpath	3 days	Mon 14/3/16	Wed 16/3/16	672	
	4.12.15.16.10	UU for ch 80-125 (PCCW/HGC)	4 days	Thu 17/3/16	Sun 20/3/16	673	
	4 12 15 16 11	for the officer of the section	7	Man 21/2/16	Sun 27/2/11	674	
-	4.12.15.16.11 4.12.15.16.12	footpath paving AC - lay DBM & base course	7 days 3 days	Mon 21/3/16 Mon 14/3/16	Sun 27/3/16 Wed 16/3/16	674 672	
1	4.12.15.17	Rising manholes & drawpit covers & Lay wearing course (with TTA)	44 days	Fri 18/3/16	Sat 30/4/16	676FS+1 day	
						UTUID'I Uay	
3	4 12.15 17 1	Chainage 80 to Chainage 180 (west side)	4 days	Fri 18/3/16	Mon 21/3/16		
	Revision 1	Task Milestone Project Summa	ry (noise is to	Critical Split	I	Deadline 🗘	
	Fri 28/8/15						

			 	Wor Da	ks Pro ta Dat	gramn te Fri 2	ne (06) 28/8/15
Jul	I	Sep	Nov		Jan	Ĩ	Mar

Site Formation and Infrastructure Works - Contract 5

Task Name	Duration	Start	Finish	Predecessors	2
		Tu: 00/0/1/	W 100/0417	679	Jan <u>M</u> ar
5.17.2 Chainage 80 to Chainage 180 (east side)	2 days	Tue 22/3/16	Wed 23/3/16	678 679	
5.17.3 Chainage 180 to Chainage 280 (west side)	4 days	Thu 24/3/16	Sun 27/3/16		
5.17.4 Chainage 180 to Chainage 280 (east side)	4 days	Mon 28/3/16	Thu 31/3/16	680	
5.17.5 Chainage 280 to Chainage 380 (west side)	4 days	Fri 1/4/16	Mon 4/4/16	681	
5.17.6 Chainage 280 to Chainage 380 (east side)	2 days	Tue 5/4/16	Wed 6/4/16	682	
5.17.7 Chainage 380 to Chainage 480 (west side)	4 days	Thu 7/4/16	Sun 10/4/16	683	
5.17.8 Chainage 380 to Chainage 480 (east side)	2 days	Mon 11/4/16	Tue 12/4/16	684	
5.17.9 Chainage 480 to Chainage 580 (west side)	4 days	Wed 13/4/16	Sat 16/4/16	685	
5.17.10 Chainage 480 to Chainage 580 (east side)	2 days	Sun 17/4/16	Mon 18/4/16	686	
5.17.11 Chainage 580 to Chainage 680 (west side)	4 days	Tue 19/4/16	Fri 22/4/16	687	
5.17.12 Chainage 580 to Chainage 680 (east side)	2 days	Sat 23/4/16	Sun 24/4/16	688	
5.17.13 Chainage 680 to Chainage 785 (west side)	4 days	Mon 25/4/16	Thu 28/4/16	689	
5.17.14 Chainage 680 to Chainage 785 (east side)	2 days	Fri 29/4/16	Sat 30/4/16	690	
5.18 Eastern Footpath from ch 380-580)	98 days	Sun 11/10/15	Sat 16/1/16	565	
5.18.1 remove existing pavement	3 days	Sun 11/10/15	Tue 13/10/15		
5.18.2 upper stream box culvert 960x650	14 days	Wed 14/10/15	Tue 27/10/15	693	
5.18.3 upper stream DN450mm pipe	12 days	Wed 28/10/15	Sun 8/11/15	694	
	•	Mon 9/11/15	Fri 13/11/15	695	
5.18.4 VO053 - crossing no. 2, 3, 4, 5 (east footpath)	5 days			696	
5.18.5 filling works to formation of footpath	5 days	Sat 14/11/15	Wed 18/11/15		
5.18.6 street light crossing at ch523	5 days	Thu 19/11/15	Mon 23/11/15	697	
5.18.7 UU for CLP (lighting)	5 days	Sun 29/11/15	Thu 3/12/15	698FS+5 days	0
5.18.8 sub-base & edging	6 days	Fri 4/12/15	Wed 9/12/15	699	
5.18.9 UU for ch 380-580 (PCCW/HGC)	14 days	Thu 10/12/15	Wed 23/12/15	700	
5.18.10 construct edging	10 days	Thu 24/12/15	Sat 2/1/16	701	
5.18.11 footpath paving	14 days	Sun 3/1/16	Sat 16/1/16	702	
5.19 Eastern Footpath from ch 190-380)	71 days	Sun 27/9/15	Sun 6/12/15	583	
5.19.1 remove existing pavement	3 days	Sun 27/9/15	Tue 29/9/15		
01	3 days	Wed 30/9/15	Fri 2/10/15	705	
5.19.2 VO053 - crossing no. 2 (east footpath)	•	Sat 3/10/15	Wed 7/10/15	706	
5.19.3 filling works to formation of footpath	5 days			707	
5.19.4 street light crossings at ch287,350	7 days	Thu 8/10/15	Wed 14/10/15		
5.19.5 UU for CLP (lighting)	5 days	Thu 15/10/15	Mon 19/10/15	708	
5.19.6 sub-base & edging	6 days	Tue 20/10/15	Sun 25/10/15	709	
5.19.7 UU for ch 190-380 (PCCW/HGC)	20 days	Mon 26/10/15	Sat 14/11/15	710	
5.19.8 construct edging	9 days	Sun 15/11/15	Mon 23/11/15	711	
5.19.9 footpath paving	13 days	Tue 24/11/15	Sun 6/12/15	712	
5.20 Eastern Footpath from ch 580-785)	71 days	Mon 20/7/15	Mon 28/9/15	613	
5.20.1 remove existing pavement	3 days	Mon 20/7/15	Wed 22/7/15		
5.20.2 VO053 - crossing no. 5, 6, 7&8 (east footpath)	7 days	Thu 23/7/15	Wed 29/7/15	715	
	5 days	Thu 30/7/15	Mon 3/8/15	716	
5.20.3 filling works to formation of footpath			Mon 10/8/15	717	
5.20.4 street light crossings at ch760,785	7 days	Tue 4/8/15			
5.20.5 UU for CLP (lighting)	5 days	Tue 11/8/15	Sat 15/8/15	718	
5.20.6 sub-base & edging	6 days	Sun 16/8/15	Fri 21/8/15	719	
5.20,7 UU for ch 580-785 (PCCW/HGC)	14 days	Sat 22/8/15	Fri 4/9/15	720	
5.20.8 construct edging	10 days	Sat 5/9/15	Mon 14/9/15	721	
5.20.9 footpath paving	14 days	Tue 15/9/15	Mon 28/9/15	722	
5.21 Construction of retaining wall RW8 - CH0 to 22 (3 bays)	70 days	Tue 30/12/14	Mon 9/3/15	534	
22 Site Formation works for ArchSD Danot (Drg. 1001B)	60 dans	Tue 10/3/15	Fri 8/5/15	724	
5.22Site Formation works for ArchaD Depot (Drg. 10018)5.23Archaeological survey (Sections T1 to T3)(Drg. 6403A)	147 days	Thu 24/10/13	Wed 19/3/14	/ = 1	
Section XIV of the Works - Trees preservation and protection	730 days	Fri 12/4/13	Sat 11/4/15	4	
Section XV of the Works - Landscape soft works (including transplant trees to	209 days	Thu 5/11/15	Tue 31/5/16	-	
	365 days	Wed 1/6/16	Wed 31/5/17	733,741	
5.22 5.23	Site Formation works for ArchSD Depot (Drg. 1001B) Archaeological survey (Sections T1 to T3)(Drg. 6403A) Section XIV of the Works - Trees preservation and protection	Site Formation works for ArchSD Depot (Drg. 1001B) 60 days Archaeological survey (Sections T1 to T3)(Drg. 6403A) 147 days Section XIV of the Works - Trees preservation and protection 730 days Section XV of the Works - Landscape soft works (including transplant trees to permanent locations) 209 days	Site Formation works for ArchSD Depot (Drg. 1001B)60 daysTue 10/3/15Archaeological survey (Sections T1 to T3)(Drg. 6403A)147 daysThu 24/10/13Section XIV of the Works - Trees preservation and protection730 daysFri 12/4/13Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)209 daysThu 5/11/15	Site Formation works for ArchSD Depot (Drg. 1001B)60 daysTue 10/3/15Fri 8/5/15Archaeological survey (Sections T1 to T3)(Drg. 6403A)147 daysThu 24/10/13Wed 19/3/14Section XIV of the Works - Trees preservation and protection730 daysFri 12/4/13Sat 11/4/15Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)209 daysThu 5/11/15Tue 31/5/16	Site Formation works for ArchSD Depot (Drg. 1001B) 60 days Tue 10/3/15 Fri 8/5/15 724 Archaeological survey (Sections T1 to T3)(Drg. 6403A) 147 days Thu 24/10/13 Wed 19/3/14 Section XIV of the Works - Trees preservation and protection 730 days Fri 12/4/13 Sat 11/4/15 4 Section XV of the Works - Landscape soft works (including transplant trees to permanent locations) 730 days Thu 5/11/15 Tue 31/5/16 4

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Critical

Sang Hing Civil - Richwell Machinery JV

Split

CI

Summary

Fri 28/8/15

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Progress

Page 6 of 6

				<u>Works Pro</u> Data Da	ogramn te Fri 2	ne (06) 28/8/15
Jul	Sep		Nov	Jan		Mar
		W				P



Appendix D

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









Appendix E

Monitoring Locations for Impact Monitoring







Photographic Records for Water Quality Monitoring Location









Appendix F

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

Location : Location I		Farm, Ts AM1a	sung Yu	en Ha Villa	ge		Date of Calibration:24/6/2015Next Calibration Date:24/8/2015Technician:Keung Chi Young
					(CONDITIONS	
	Se	a Level I Temp	Pressure perature		1005.3 28.3		Corrected Pressure (mm Hg) 753.975 Temperature (K) 301
					CALIE	BRATION OF	RIFICE
				Make-> Model-> Serial # ->	5025A]	Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					С	ALIBRATIO	Ν
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18 13 10 7 5	6 4.9 3.9 2.5 1.7	6 4.9 3.9 2.5 1.7	12.0 9.8 7.8 5.0 3.4	1.634 1.476 1.317 1.055 0.870	49 45 38 29 23	48.54 44.58 37.64 28.73 22.78	Slope = 34.5987 Intercept = -7.5049 Corr. coeff. = 0.9984
Calculatic Qstd = 1/r IC = I[Sqr	n[Sqrt(H			l/Ta))-b]		60.00	FLOW RATE CHART
Qstd = sta IC = corre I = actual m = calibr b = calibra	cted char chart res ator Qsto	rt respon ponse 1 slope				50.00 (j) 40.00	
Ta = actua	al temper	ature dur	ing cali	bration (de ation (mm		40.00 (C) 30.00 90.00 (C) 30.00 90.0	
For subse 1/m((I)[S	-			mpler flow: o)		Actual - 00.02	
m = samp b = samp I = chart r Tav = dail	ler interc esponse	-	otura			0.00	
Pav = dail		-				0.00	0 0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location : Location I	-	House ne AM2	ear Lin I	Ma Hang Ro	bad			Date of Calibration:24/6/2015Next Calibration Date:24/8/2015Technician: Keung Chi Young
					CC	ONDIT	IONS	
	Se	a Level I Temp	Pressure erature	. ,	1005. 28.			Corrected Pressure (mm Hg) 753.975 Temperature (K) 301
					CALIBR	RATIO		FICE
				Make-> Model-> Serial # ->	5025A			Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					CA	LIBRA	TION	
Plate	H20 (L)	• • •	H20	Qstd (m ² /min)	[(chart)		IC rected	LINEAR REGRESSION
No. 18 13 10 7 5	(in) 5.6 4.4 3.5 2.1 1.3	(in) 5.6 4.4 3.5 2.1 1.3	(in) 11.2 8.8 7.0 4.2 2.6	(m3/min) 1.578 1.399 1.248 0.967 0.761	(chart) 53 46 40 32 24	52 43 39 3	2.50 5.57 9.62 1.70 3.77	Slope = 34.3296 Intercept = -2.2451 Corr. coeff. = 0.9981
Calculatio Qstd = 1/r IC = I[Sq1	ons : n[Sqrt(H	20(Pa/Ps	td)(Tstd	•		60.		FLOW RATE CHART
Qstd = sta IC = corre I = actual m = calibi	cted char chart res	rt respone ponse	es			50. (C) 40.		
	al temper	ature dur	ing calib	oration (deg ation (mm		Actual chart response 05 07	00	
For subse 1/m((I)[S	•			npler flow:		20. Actin	00	
m = samp b = samp L = chart r	ler interc	ept				10.		
I = chart r Tav = dail Pav = dail	y averag	_				0.	00	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location : Location I		a Ling Fi AM3	re Servic	ce Station				Date of Calibration:24/6/2015Next Calibration Date:24/8/2015Technician: Keung Chi Young
					CO	NDIT	TIONS	
	Se	ea Level I Temp	Pressure perature	. ,	1005.3 28.3			Corrected Pressure (mm Hg) 753.975 Temperature (K) 301
					CALIBR	ATIO	N ORIF	ICE
				Make-> Model-> Serial # ->	5025A			Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					CAI	LIBR	ATION	
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)		IC rected	LINEAR REGRESSION
18	6.6	6.6	13.2	1.713	(chart) 55		4.48	$\frac{1}{\text{Slope} = 30.7637}$
13	5.2	5.2	10.4	1.521	50		9.53	Intercept = 1.7281
10	4	4	8.0	1.334	42		1.60	Corr. coeff. = 0.9972
7 5	2.5 1.3	2.5 1.3	5.0 2.6	1.055 0.761	34 26		3.68 5.75	
Calculatic Qstd = 1/r	ons :				20	60.0		FLOW RATE CHART
Qstd = I[Sqr Qstd = sta	t(Pa/Psto	l)(Tstd/T		(14))-0]		50.0		
IC = corre I = actual m = calibr	cted cha chart res	rt respone ponse	es		į	() 40.0	00	
	il temper	ature dur	ing calib	oration (deg ation (mm	g K) Hg)	chart response (I		
For subse 1/m((I)[S	-			npler flow:		Actual o	00	
m = samp b = samp I = chart r	ler slope ler interc esponse	ept				10.0 0.0	00	
Tav = dail Pav = dail							0.000	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location : Location I	-	House of AM7b	Loi Tur	ng Village			Date of Calibration:24/6/2015Next Calibration Date:24/8/2015					
							Technici	an: C Y Keung				
					COND	ITIONS						
	Se	a Level I Temp	Pressure perature	, ,	1005.3 28.3		Corrected Pressure (mm I Temperature (K)	Corrected Pressure (mm Hg) 753.975 Temperature (K) 301				
				C	ALIBRATI	ON ORIFICE						
				Make-> Model-> Serial # ->	5025A		Qstd Slope -> Qstd Intercept ->	2.10265 -0.00335				
					CALIB	RATION						
Plate	• • •	H2O (R)		Qstd	I	IC	LINEAR					
No. 18	(in) 4.3	(in) 4.3	(in) 8.6	(m3/min) 1.383	(chart) 56	corrected 55.47	REGRESSION Slope = 34.68	332				
13	3.4	3.4	6.8	1.230	50	49.53	Intercept = 7.0968					
10	2.6	2.6	5.2	1.076	44	43.58	Corr. coeff. = 0.99					
7	1.5	1.5	3.0	0.818	37	36.65						
5	1.0	1.0	2.0	0.668	30	29.72						
Calculatic Qstd = 1/r IC = I[Sqr	n[Sqrt(H			/Ta))-b]		60.00	FLOW RATE CHAR	т •				
Qstd = sta IC = corre I = actual m = calibra b = calibra Ta = actua Pstd = actu For subse 1/m((I)[S m = samp]	ndard flo cted char chart resp ator Qstd ator Qstd il temper- ual press equent ca Sqrt(298/ ler slope	ow rate et respon ponse l slope intercep ature durin ure durin alculatio Tav)(Pav	es t ing cali ng calibr n of san	bration (de, ation (mm npler flow:))		50.00 (1) 40.00 (2) 40.00 (1) 40.00 (1) 40.00 (1) 40.00 (1) 40.00 (1) 40.00 (1) 40.00 (1) 40.00 (1) (2) (2) (2) (2) (3) (3) (3) (4) (3) (4) (5) (4) (5) (5) (5) (5) (5) (5) (5) (5						
b = samp I = chart r Tav = dail	esponse		ature			0.00	0.500 1.000 Standard Flow Rate (m3/r					
Pav = dail		-				L						

Location : Location I		Tsai Vill AM8	age No.	4			Date of Calibration: 24/6/2015 Next Calibration Date: 24/8/2015			
							Technician: C Y Keung			
					COND	DITIONS				
	Se	a Level I Temp	Pressure perature	. ,	1005.2 28.2		Corrected Pressure (mm Hg) 753.975 Temperature (K) 301			
				C	ALIBRAT	ION ORIFICE				
				Make-> Model-> Serial # ->	5025A]	Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335			
					CALIB	RATION				
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC	LINEAR REGRESSION			
18 13 10 7 5	6.5 5.3 4.1 2.5 1.6	6.5 5.3 4.1 2.5 1.6	13.0 10.6 8.2 5.0 3.2	(m3/mm) 1.700 1.535 1.351 1.055 0.844	61 55 49 40 30	corrected 60.42 54.48 48.54 39.62 29.72	Slope = 34.7670 Intercept = 1.4600 Corr. coeff. = 0.9970			
Pstd = act	n[Sqrt(H t(Pa/Pstd ndard flc acted char chart resy rator Qstd al temper ual press equent ca Sqrt(298/ ler slope ler interc	d)(Tstd/T ow rate rt respon- ponse d slope intercep ature dur ure durin alculatio Tav)(Pav	a)] es t ring calil ng calibra n of san	pration (deg ation (mm apler flow:		70.00 60.00 50.00 50.00 0.00 20.00 10.00 0.00 0.000	FLOW RATE CHART			
Tav = dail Pav = dail							Standard Flow Rate (m3/min)			

Location : Location I		a Po Vill AM9b	age Hoi	ise No. 80			Next Calibra	Calibration: ation Date: Sechnician:		4/6/2015 4/8/2015 ni Young
						CONDITION	S		0	
	Se	a Level I Temp	Pressure perature		<u>1005</u> 28		Corrected Pressure Temperature			753.975 301
					CAL	IBRATION OF	RIFICE			
				Make-> Model-> Serial # ->	5025A		Qstd Slope -> Qstd Intercept ->		2.10265 -0.00335	
						CALIBRATIO	N			
Plate No.	(in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)		LINE REGRES	SSION		
18 13 10 7 5	6.5 5 3.7 2.7 1.2	6.5 5 3.7 2.7 1.2	13.0 10.0 7.4 5.4 2.4	1.700 1.491 1.283 1.096 0.731	56 48 43 35 25	55.47 47.55 42.59 34.67 24.76	Slope = Intercept = Corr. coeff. =	31.6602 1.1022 0.9971		
Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg)						60.00	FLOW RATE	CHART	•	
						40.00 4000 (C) 00.05 00.05 00.02		•		
For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						90.00 Y				
m = sampl b = sampl I = chart r Tav = dail Pav = dail	ler interce esponse y average	e tempera				0.00	0.500 1. Standard Flow R		1.500	2.000

Location : Location]		Farm, Ts AM1a	sung Yu	en Ha Villa	ge			Date of Calibration:24/8/2015Next Calibration Date:24/10/2015Technician:Keung Chi Young
					(CON	DITIONS	
Sea Level Pressure (hPa)1002.Temperature (°C)30.								Corrected Pressure (mm Hg) 751.8 Temperature (K) 304
					CALIE	BRAT	ION OR	RIFICE
Make-> TISCH Model-> 5025A Serial # -> 1941								Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					С	ALIE	BRATION	N
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)		IC rrected	LINEAR REGRESSION
18 13 10 7 5	6.1 4.9 3.8 2.6 1.6	6.1 4.9 3.8 2.6 1.6	12.2 9.8 7.6 5.2 3.2	1.638 1.468 1.293 1.070 0.840	50 45 37 29 22	4 3 2	4.33 6.45 28.57 21.67	Slope = 35.4741 Intercept = -8.7079 Corr. coeff. = 0.9978
Qstd = 1/n	Calculations : Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]						60.00	FLOW RATE CHART
Qstd = sta IC = corre I = actual m = calibr b = calibra	ected char chart res rator Qsto	rt respon ponse 1 slope					40.00	
Ta = actua	al temper	ature dur	ing cali	bration (de ation (mm		Actual chart response (IC)	30.00	
For subse 1/m((I)[S				mpler flow: o)		Actual	20.00	
b = samp I = chart r	m = sampler slope b = sampler intercept I = chart response						10.00	
Tav = dai Pav = dail		-					0.00	00 0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location : Location I	-	House ne AM2	ear Lin I	Ma Hang Ro	Date of Calibration:24/8/2015Next Calibration Date:24/10/2015Technician:Keung Chi Young			
					С	ON	IDITIONS	
Sea Level Pressure (hPa)1002Temperature (°C)30								Corrected Pressure (mm Hg) 751.8 Temperature (K) 304
					CALIB	RA	TION ORIF	FICE
Make-> TISCH Model-> 5025A Serial # -> 1941								Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					C	ALI	BRATION	
Plate							IC	LINEAR
No. 18 13 10 7 5	(in) 6.4 5.6 4.2 2.6 1.6	(in) 6.4 5.6 4.2 2.6 1.6	(in) 12.8 11.2 8.4 5.2 3.2	(m3/min) 1.678 1.570 1.360 1.070 0.840	(chart) 54 48 42 34 28)	corrected 53.20 47.29 41.38 33.50 27.59	REGRESSION Slope = 29.4287 Intercept = 2.2328 Corr. coeff. = 0.9941
Calculations: $Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]$ $IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]$							60.00	FLOW RATE CHART
Qstd = sta IC = corre I = actual m = calibr	cted char chart res ator Qsto	rt respone ponse 1 slope				se (IC)	50.00	
Ta = actua	b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg)					Actual chart response	30.00	
For subse 1/m((I)[S	-			npler flow:		Actua	20.00	
m = sampler slope b = sampler intercept							0.00	
Tav = dail	I = chart response Tav = daily average temperature Pav = daily average pressure						0.00	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)

Location : Location I		Ling Fir AM3	e Servio	ce Station				Date of Calibration:24/8/2015Next Calibration Date:24/10/2015Technician: Keung Chi Young	
					C	ONDI	TIONS		
Sea Level Pressure (hPa)1002Temperature (°C)30								Corrected Pressure (mm Hg) 751.8 Temperature (K) 304	
					CALIBR	RATIC	ON ORIF	ÎCE	
Make-> <u>TISCH</u> Model-> <u>5025A</u> Serial # -> <u>1941</u>								Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335	
					CA	LIBR	RATION		
Plate		H2O (R)	H20	Qstd	Ι		IC	LINEAR	
No. 18 13 10 7 5	(in) 6.4 5 4 2.5 1.6	(in) 6.4 5 4 2.5 1.6	(in) 12.8 10.0 8.0 5.0 3.2	(m3/min) 1.678 1.483 1.327 1.049 0.840	(chart) 53 48 44 36 28	2	orrected 52.22 47.29 43.35 35.47 27.59	$\frac{\text{REGRESSION}}{\text{Slope} = 29.0506}$ $\text{Intercept} = 4.1295$ $\text{Corr. coeff.} = 0.9967$	
Calculatio Qstd = 1/r IC = I[Squ	ons : n[Sqrt(H	20(Pa/Ps	td)(Tstd	•			FLOW RATE CHART		
Qstd = sta IC = corre I = actual m = calibr	cted char chart res	rt respone ponse	es			ତି ₄₀	0.00		
b = calibrator Qstd stope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg)						chart	0.00	•	
For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)						Actual 5	0.00		
m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure							0.00	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)	

Location : Location I	-	House of AM7b	È Loi Tur	Date of Calibrat Next Calibration D Technic				
					ITIONS			
	Se	a Level I Temp	Pressure perature	. ,	1002.4 30.7		Corrected Pressure (mm Temperature (K)	Hg) 751.8 304
				C	ALIBRATI	ON ORIFICE		
				Make-> Model-> Serial # ->	5025A		Qstd Slope -> Qstd Intercept ->	2.10265 -0.00335
					CALIB	RATION		
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION	I
18 13 10 7 5	6.4 5 4 2.6 1.6	6.4 5 4 2.6 1.6	12.8 10.0 8.0 5.2 3.2	1.678 1.483 1.327 1.070 0.840	58 53 47 36 28	58 57.14 Slope = 36.4399 53 52.22 Intercept = -2.8849 47 46.31 Corr. coeff. = 0.9970 36 35.47		
Pstd = act For subsection 1/m((I)[S m = samp b = samp I = chart r	n[Sqrt(H t(Pa/Pstd ndard flo ected char chart resp rator Qstd al tempera ual press equent ca Sqrt(298/ ler slope ler interco esponse)(Tstd/T w rate t respon ponse l slope intercep ature durin ure durin hlculatio Tav)(Pav	t ting calil ng calibra n of san //760)]-t	pration (de ation (mm apler flow:		70.00 60.00 50.00 50.00 (C) 90.00 10.00 0.000	FLOW RATE CHAR	1.500 2.000
Tav = dail Pav = dail		-					Standard Flow Rate (m3,	,

Location : Location I		Tsai Vill AM8	age No.	4			Date of Calibration: 24/8/2015 Next Calibration Date: 24/10/2015
							Technician: C Y Keung
					CONE	DITIONS	
	Se	a Level I Temp	Pressure perature	. ,	1002.4 30.7		Corrected Pressure (mm Hg) 751.8 Temperature (K) 304
				C	ALIBRAT	ION ORIFICE	
				Make-> Model-> Serial # ->	5025A		Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
					CALIB	RATION	
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.2	6.2	12.4	1.652	60	59.11	Slope = 34.7536
13	5	5	10.0	1.483	54	53.20	Intercept = 2.1501
10 7	4 2.5	4 2.5	8.0 5.0	1.327 1.049	50 40	49.26 39.41	Corr. coeff. = 0.9975
5	1.5	1.5	3.0	0.813	30	29.56	
Pstd = act For subse 1/m((I)[S m = samp b = samp	n[Sqrt(H t(Pa/Pstd ndard flc acted char chart resy rator Qstd al temper ual press equent ca Sqrt(298/ ler slope ler interc	d)(Tstd/T ow rate rt respon- ponse d slope intercep ature dur ure durin alculatio Tav)(Pav	a)] es t ring calil ng calibr n of san	oration (deg ation (mm npler flow:		Virtual Chart Char	FLOW RATE CHART
I = chart r Tav = dail	y averag					0.000	0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)
Pav = dail	y average	e pressur	e				

Location : Location I		a Po Vill AM9b	age Hoi	ise No. 80				Date of Calibration:24/8/2015Next Calibration Date:24/10/2015Technician:Keung Chi Young
						CON	NDITIONS	DNS
Sea Level Pressure (hPa)1002Temperature (°C)30								Corrected Pressure (mm Hg) 751.8 Temperature (K) 304
					CAL	IBRA	TION OR	ORIFICE
Make-> TISCH Model-> 5025A Serial # -> 1941								Qstd Slope -> 2.10265 Qstd Intercept -> -0.00335
						CAL	IBRATIO	ION
Plate No. 18 13 10	H20 (L) (in) 6.5 5.3 4.1	H2O (R) (in) 6.5 5.3 4.1	H20 (in) 13.0 10.6 8.2	Qstd (m3/min) 1.691 1.527 1.343	I (chart) 54 47 42		IC orrected 53.20 46.31 41.38	Slope = 31.6768 Intercept = -1.1273
7 5	2.7 1.6	2.7 1.6	5.4 3.2	1.090 0.840	34 26		33.50 25.62	
	n[Sqrt(H2 t(Pa/Pstd ndard flo cted char chart resp ator Qstd ator Qstd il tempera ual pressu)(Tstd/Ta w rate t respone ponse l slope intercept ature during alculation	a)] es ing calibra g calibra n of san	pration (deg ation (mm I apler flow:		Actual chart response (IC)	60.00 50.00 40.00 30.00 20.00	FLOW RATE CHART
m = sampl b = sampl I = chart ro Tav = dail Pav = dail	ler interce esponse y average	e tempera					0.00	000 0.500 1.000 1.500 2.000 Standard Flow Rate (m3/min)



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

perator	Tisch	Orifice I.	D	1941	Pa (mm) -	- 756.92
					METER	ORFICE
PLATE	VOLUME	VOLUME	DIFF	DIFF	DIFF	DIFF
OR	START	STOP	VOLUME	TIME	Hg	H2O
Run #	(m3)	(m3)	(m3)	(min)	(mm)	(in.)
1	NA	NA	1.00	1.4880	3.2	2.0
2	NA	NA	1.00	1.0510	6.4	4.0
3	NA	NA	1.00	0.9360	7.9	5.0
4	NA	NA	1.00	0.8920	8.8	5.5
5	NA	NA	1.00	0.7360	12.7	8.0

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0121 1.0078 1.0057 1.0046 0.9993	0.6802 0.9589 1.0745 1.1262 1.3578	1.4258 2.0163 2.2543 2.3644 2.8515	0.9958 0.9916 0.9895 0.9884 0.9832	0.6692 0.9434 1.0571 1.1080 1.3358	0.8784 1.2422 1.3888 1.4566 1.7568
Qstd slo intercep coeffici y axis =	ot (b) = lent (r) =	2.10265 -0.00335 0.99999 Pa/760)(298/Ta)]	Qa slop intercep coeffici y axis =	t (b) =	1.31664 -0.00206 0.99999 Ta/Pa)]

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Equipment Calibration Record

Equipment Calibrated:

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

Standard Equipment:

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

Equipment Calibration Results:

Calibration Date:	4 Janu
	1 0 0111

4 January 2015

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

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration)





Location : Location I	D :	Gold Ki Calibrati	2	trial Buildi n	ng, K	wai Chi	ing	Date of Calibration: 10-Nov-14 Next Calibration Date: 10-Feb-15
						COND	TIONS	
	Se	ea Level I Temp	Pressure perature	. ,		1017.3 23.3		Corrected Pressure (mm Hg) 762.975 Temperature (K) 296
					CAL	IBRATI		CE
Make-> TI Model-> 50 Calibration Date-> 7-A								Qstd Slope ->2.00757Qstd Intercept ->-0.01628Expiry Date->7-Apr-15
						CALIB	RATION	
Plate		H2O (R) (in)	H20 (in)	Qstd (m3/min)		I nart)	IC corrected	LINEAR REGRESSION
18 13 10 8 5	18 3.6 3.6 7.2 1.351 13 2.8 2.8 5.6 1.193 10 2.2 2.2 4.4 1.058 8 1.5 1.5 3.0 0.875					58 54 48 42 36	58.28 54.26 48.23 42.20 36.17	Slope = 33.8083 Intercept = 12.9642 Corr. coeff. = 0.9976
	n[Sqrt(H t(Pa/Pstc ndard flo cted char chart res ator Qstd tor Qstd l temper ual press equent ca cqrt(298/ er slope er interc	d)(Tstd/Ta ow rate rt respond ponse d slope intercept ature dur ure durin alculation Tav)(Pav	a)] es t ing calib g calibra n of sam	pration (deg ation (mm] apler flow:		70.0 60.0 50.0 40.0 40.0 40.0 50.0 20.0 20.0 10.0		FLOW RATE CHART Image: Chart in the second
Tav = dail Pav = dail	y averag							Standard Flow Rate (m3/min)

Equipment Calibration Record

Equipment Calibrated:

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

Standard Equipment:

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

Equipment Calibration Results:

Calibration Date:

4 January 2015

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

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration)





Location : Location I	D :	Gold Ki Calibrati	2	trial Buildi n	ng, K	wai Chi	ing	Date of Calibration: 10-Nov-14 Next Calibration Date: 10-Feb-15
						COND	TIONS	
	Se	ea Level I Temp	Pressure perature	. ,		1017.3 23.3		Corrected Pressure (mm Hg) 762.975 Temperature (K) 296
					CAL	IBRATI		CE
Make-> TI Model-> 50 Calibration Date-> 7-A								Qstd Slope ->2.00757Qstd Intercept ->-0.01628Expiry Date->7-Apr-15
						CALIB	RATION	
Plate		H2O (R) (in)	H20 (in)	Qstd (m3/min)		I nart)	IC corrected	LINEAR REGRESSION
18 13 10 8 5	18 3.6 3.6 7.2 1.351 13 2.8 2.8 5.6 1.193 10 2.2 2.2 4.4 1.058 8 1.5 1.5 3.0 0.875					58 54 48 42 36	58.28 54.26 48.23 42.20 36.17	Slope = 33.8083 Intercept = 12.9642 Corr. coeff. = 0.9976
	n[Sqrt(H t(Pa/Pstc ndard flo cted char chart res ator Qstd tor Qstd l temper ual press equent ca cqrt(298/ er slope er interc	d)(Tstd/Ta ow rate rt respond ponse d slope intercept ature dur ure durin alculation Tav)(Pav	a)] es t ing calib g calibra n of sam	pration (deg ation (mm] apler flow:		70.0 60.0 50.0 40.0 40.0 40.0 50.0 20.0 20.0 10.0		FLOW RATE CHART Image: Chart in the second
Tav = dail Pav = dail	y averag							Standard Flow Rate (m3/min)

Equipment Verification Report (TSP)

Equipment Calibrated:

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

Standard Equipment:

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

Equipment Verification Results:

Testing Date:

5 April 2015

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

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration) 607 (CPM) 602 (CPM)

Linear Regression of Y or X

Slope (K-factor):	0.0022
Correlation Coefficient	0.9940
Date of Issue	20 April 2015

Remarks:

1. Strong Correlation (R>0.8)

2. Factor 0.0022 should be apply for TSP monitoring

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





Location : Location I		Gold Kir Calibrati	-	strial Buildi m	ung	Date of Calibration: 6-Feb-15 Next Calibration Date: 6-May-15		
						COND	ITIONS	
	Se	a Level I Temp	Pressure erature	. ,]	1024.5 13.4		Corrected Pressure (mm Hg)768.375Temperature (K)286
					CALI	BRATI		CE
Make-> TIS Model-> 50 Calibration Date-> 7-A								Qstd Slope ->2.00757Qstd Intercept ->-0.01628Expiry Date->7-Apr-15
						CALIBI	RATION	
Plate No.	(in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	(ch	I nart)	IC corrected	
18 13 10 8 5	3.8 3 2.3 1.7 1.0	3.8 3 2.3 1.7 1.0	7.6 6.0 4.6 3.4 2.0	1.417 1.260 1.104 0.950 0.731	2	56 52 18 12 36	57.44 53.33 49.23 43.08 36.92	Slope = 30.5075 Intercept = 14.6821 Corr. coeff. = 0.9974
	n[Sqrt(H t(Pa/Psto ndard flo cted cha chart res ator Qsto ator Qsto ator Qsto d temper ual press equent ca Sqrt(298/	d)(Tstd/T ow rate rt respond ponse d slope l intercep rature durin ure durin alculatior Tav)(Pav	a)] es t ing cali g calibr n of sam	bration (de ation (mm	·	.07 .03 .05 .05 .02 .02 .02 .02 .02 .02		FLOW RATE CHART
b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure						0.	0.000	0.500 1.000 1.500 Standard Flow Rate (m3/min)

Equipment Verification Report (TSP)

Equipment Calibrated:

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

Standard Equipment:

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

Equipment Verification Results:

Testing Date:

5 April 2015

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

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration) 698 (CPM) 701 (CPM)

5

10

15

20

y = 0.0022x + 0.0014

 $R^2 = 0.9903$

25

30

0.07 0.06 0.05 0.04 0.03

0.02

0.01

0 🍝 0

Linear Regression of Y or X

Slope (K-factor):	0.0022		
Correlation Coefficient	0.9951		
Date of Issue	20 April 2015		

Remarks:

1. Strong Correlation (R>0.8)

2. Factor 0.0022 should be apply for TSP monitoring

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


TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Location I	Location ID : Calibration Room							Date of Calibration: 6-Feb-15 Next Calibration Date: 6-May-15
						COND	ITIONS	
	Se	a Level I Temp	Pressure erature	. ,]	1024.5 13.4		Corrected Pressure (mm Hg)768.375Temperature (K)286
					CALI	BRATI		CE
			Calibrat	Make-> Model-> ion Date->	502	SCH 25A pr-14		Qstd Slope ->2.00757Qstd Intercept ->-0.01628Expiry Date->7-Apr-15
						CALIBI	RATION	
Plate No.	(in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	(ch	I nart)	IC corrected	
18 13 10 8 5	3.8 3 2.3 1.7 1.0	3.8 3 2.3 1.7 1.0	7.6 6.0 4.6 3.4 2.0	1.417 1.260 1.104 0.950 0.731	2	56 52 18 12 36	57.44 53.33 49.23 43.08 36.92	Slope = 30.5075 Intercept = 14.6821 Corr. coeff. = 0.9974
	n[Sqrt(H t(Pa/Psto ndard flo cted cha chart res ator Qsto ator Qsto ator Qsto d temper ual press equent ca Sqrt(298/	d)(Tstd/T ow rate rt respond ponse d slope l intercep rature durin ure durin alculatior Tav)(Pav	a)] es t ing cali g calibr n of sam	bration (de ation (mm	·	.07 .03 .05 .05 .02 .02 .02 .02 .02 .02		FLOW RATE CHART
b = samp I = chart r Tav = dail Pav = dail	ler interc esponse y averag	ept se temper				0.	0.000	0.500 1.000 1.500 Standard Flow Rate (m3/min)

SIBATA

(EQIII)

SIBATA SCIENTIFIC TECHNOLOGY LTD.

1-1-62, Nakane, Soka, Saitama, 340-0005 Japan

TEL: 048-933-1582 FAX: 048-933-1591 -

CALIBRATION CERTIFICATE

Date: May 11, 2015

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

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

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

tong

For Kentaro Togo Overseas Sales Division



Certificate No.: C151969 證書編號

grating Sound Level Meter (EQ006)
el & Kjær
3
5762
on-United Environmental Services and Consulting
A, 20/F., Gold King Industrial Building,
1 Tai Lin Pai Road, Kwai Chung, N.T.
0

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 11 April 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	:	K C/Lee Project Engineer			
Certified By 核證	;	K-M Wu Engineer	Date of Issue 簽發日期	÷	14 April 2015

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。

Sun Creation Engineering Limited – Calibration & Testing Laboratory e'o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 – 校正及檢測實驗所 e'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 No.: C151969 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

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

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
 - 6.1.1 Reference Sound Pressure Level
 - 6.1.1.1 Before Self-calibration

	UUTS	Setting	Applied	UUT		
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	LAFP	A	F	94.00	1	94.3

6.1.1.2 After Self-calibration

	UUT Setting				d Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)
50 - 130	LAFP	А	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

	UU	Г Setting		Applied	d Value	UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	LAFP	A	F	94.00	1	94.1 (Ref.)
	0.141			104.00		104.0
				114.00		114.0

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

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。

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

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.



Certificate No. : C151969 證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

	UUT	Setting		App	lied Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAFP	А	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		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	LAFP	А	F	94.00	31.5 Hz	55.1	-39.4 ± 1.5
				1.000	63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	$+1.2 \pm 1.0$
					4 kHz	95.1	$+1.0 \pm 1.0$
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-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所書面批准。



Certificate No. : C151969 證書編號

6.3.2 C-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{CFP}	С	F	94.00	31.5 Hz	91.4	-3.0 ± 1.5
					63 Hz	93.4	-0.8 ± 1.5
				125 Hz	93.9	-0.2 ± 1.0	
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

6.4

Time Averaging

	UUT	Setting		Applied Value				UUT	IEC 60804	
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAca	L _{Aeq} A 10 sec.	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
- 11/					1/10 ²		90	90.1	± 0,5	
			60 sec.			1/103		80	79.4	± 1.0
			5 min.			1/104		70	69.2	± 1.0

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

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

- Uncertainties of Applied Value :	94 dB : 31.5 Hz - 125 Hz	$\cdot \pm 0.35 dB$
- Oncertainties of Applied Value .	250 Hz - 500 Hz	
	1 kHz	$: \pm 0.20 \text{ dB}$
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
	104 dB : 1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)
	114 dB : 1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)
	Burst equivalent level	$\pm 0.2 \text{ dB}$ (Ref. 110 dB)
	the state of the second state of the	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所書面批准。



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C153055 證書編號

ITEM TESTED / 送檢項目	(Job No. / 序引編號: IC15-0720)	Date of Receipt / 收件日期: 15 May 2015
Description / 儀器名稱 : Manufacturer / 製造商 :	Integrating Sound Level Meter (EQ065) Brüel & Kjær	
Model No. / 型號 :	2238	
Serial No. / 編號 : Supplied By / 委託者 :	2337676 Action-United Environmental Services and	Consulting
	Unit A, 20/F., Gold King Industrial Buildir 35-41 Tai Lin Pai Road, Kwai Chung, N.T.	
	5	

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 4 June 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	K Lee Project Engineer	3		
Certified By 核證	: K M Wu Engineer	_ Date of Issue 簽發日期	:	5 June 2015

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C153055 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

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

- 4. Test procedure : MA101N.
- 5. Results :
- 5.1 Sound Pressure Level

	UUT	Setting		Applie	d Value	UUT	IEC 60651	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)	
50 - 130	LAFP	Α	F	94.00	1	94.0	± 0.7	

5.1.2 Linearity

	UU	Γ Setting		Applie	UUT	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	LAFP	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
			1	114.00		114.0

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

5.2 Time Weighting

5.2.1 Continuous Signal

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

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C153055 證書編號

5.2.2 Tone Burst Signal (2 kHz)

	UUT	Setting		App	lied Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAFP	A	F	106.0	Continuous	106.0	Ref.
	LAFMax				200 ms	105.0	-1.0 ± 1.0
	LASP		S		Continuous	106.0	Ref.
	L _{ASMax}				500 ms	102.0	-4.1 ± 1.0

5.3 Frequency Weighting

5.3.1 A-Weighting

- 61	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	LAFP	A	F	94,00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
			125 Hz	77.8	-16.1 ± 1.0		
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	$+1.2 \pm 1.0$
					4 kHz	95.0	$+1.0 \pm 1.0$
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

5.3.2 C-Weighting

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



Certificate No. : C153055 證書編號

5.4 Time Averaging

	UUT Setting				Applied Value					IEC 60804
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAcq	A A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						1/10 ²		90	89.7	± 0.5
			60 sec.		1.1	1/103	1	80	79.8	± 1.0
			5 min.	1		1/104		70	69.7	± 1.0

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

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

- Uncertainties of Applied Value :	94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	
	1 kHz	$: \pm 0.20 \text{ dB}$
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
	104 dB : 1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)
	114 dB : 1 kHz	$\pm 0.10 \text{ dB}$ (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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C152552 證書編號

ITEM TESTED / 送檢	項目	(Job No. / 序引編號: IC15-0720)	Date of Receipt / 收件日期: 17 April 2015			
Description / 儀器名稱	:	Sound Level Meter (EQ011)				
Manufacturer / 製造商	:	Rion				
Model No. / 型號	:	NL-52				
Serial No. / 編號	:	01121362				
Supplied By / 委託者	:	Action-United Environmental Services and Consulting				
		Unit A, 20/F., Gold King Industrial Build	ding,			
		35-41 Tai Lin Pai Road, Kwai Chung, N	.Т.			
TEST CONDITIONS	測記	t條件				
Temperature / 溫度 :	(23	$3 \pm 2)^{\circ}C$	Relative Humidity / 相對濕度 : (55±20)%			
Line Voltage / 電壓 :						

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 May 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	:	K C Lee Project Engi nç er		
Certified By 核證	; _	K M/Wu Engineer	Date of Issue 簽發日期	\$ 12 May 2015

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 prim written approval of this laboratory.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C152552 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. Self-calibration was performed before the test.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

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

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L _A	A	Fast	94.00	I	93.6	± 1.1

6.1.2 Linearity

	UU	T Setting	Applied Value		UUT		
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	
30 - 130 L _A	A Fast	Fast	94.00	1	93.6 (Ref.)		
			104.00		103.6		
	(055-51)	A Transie of Area	114.00		113.6		

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 130	LA	A	Fast	94.00	1	93.6	Ref.
24 AL 27 1 244 1 1		Slow			93.6	± 0.3	

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C152552 證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

	UUT	Setting		Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec. (dB)
30 - 130	LA	A	Fast	94.00	63 Hz	67.3	-26.2 ± 1.5
					125 Hz	77.4	-16.1 ± 1.5
				250 Hz	84.9	-8.6 ± 1.4	
					500 Hz	90.3	-3.2 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	94.8	$+1.2 \pm 1.6$
				4 kHz	94.6	$+1.0 \pm 1.6$	
				8 kHz	92.6	-1.1 (+2.1;-3.1)	
			· · · · · · · · · · · · · · · · · · ·		12.5 kHz	89.2	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

	UUT	Setting	1.00	Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L _C	C	Fast	94.00	63 Hz	92.7	-0.8 ± 1.5
	1.1222111				125 Hz	93.4	-0.2 ± 1.5
	100				250 Hz	93.6	0.0 ± 1.4
					500 Hz	93.6	0.0 ± 1.4
					l kHz	93.6	Ref.
			2 kHz	93.4	-0.2 ± 1.6		
				4 kHz	92.8	-0.8 ± 1.6	
			8 kHz	90.7	-3.0 (+2.1 ; -3.1		
				12.5 kHz	87.2	-6.2 (+3.0 ; -6.0	

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

- Mfr's Spec. : IEC 61672 Class 1

Uncertainties of Applied Value :		$\pm 0.35 \text{ dB}$
	250 Hz - 500 Hz 1 kHz	$\pm 0.30 \text{ dB}$ $\pm 0.20 \text{ dB}$
	2 kHz - 4 kHz	$\pm 0.35 \text{ dB}$
	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	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)

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

Note :

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

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.



Certificate No. : C151967 證書編號

ITEM TESTED / 送檢环	頁目	(Job No./序引編號: IC15-0720)	Date of Receipt / 收件日期: 24 March 2015
Description / 儀器名稱	:	Sound Level Calibrator (EQ084)	
Manufacturer / 製造商	:	Cesva	
Model No. / 型號	:	CB-5	
Serial No. / 編號	:	030023	
Supplied By / 委託者	:	Action-United Environmental Services a	and Consulting
		Unit A, 20/F., Gold King Industrial Buil	ding,
		35-41 Tai Lin Pai Road, Kwai Chung, N	I.T.

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 11 April 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	:	K CLee Project Engineer			
Certified By 核證	:	K M Wu Engineer	Date of Issue 簽發日期	:	14 April 2015

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。

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



Certificate No. : C151967 證書編號

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

3. Test equipment :

Equipment ID CL130 CL281 TST150A

Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C143868 DC130171 C141558

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

5.1.1 Before Adjustment

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

Out of Mfr's Spec.

5.1.2 After Adjustment

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

5.2 Frequency Accuracy

5.2.1 Before Adjustment

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

5.2.2 After Adjustment

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

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.



Certificate No.: C151967 證書編號

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

Note :

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

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C152550 證書編號

ITEM TESTED / 送檢」 Description / 儀器名稱	-	(Job No. / 序引編號: IC15-0720) Acoustical Calibrator (EQ081)	Date of Receipt / 收件日期: 16 April 2015
Manufacturer / 製造商	8	Brüel & Kjær	
Model No. / 型號	:	4231	
Serial No. / 編號	1	2326408	
Supplied By / 委託者	:	Action-United Environmental Services an	nd Consulting
		Unit A, 20/F., Gold King Industrial Build	ling,
		35-41 Tai Lin Pai Road, Kwai Chung, N.	Τ.

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 May 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	K CLee Project Engineer			
Certified By 核證	: K M Wµ Engineer	Date of Issue 簽發日期	:	12 May 2015

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而批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory e/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 – 校正及檢測實驗所 e/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/網知:: www.suncreation.com



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C152550 證書編號

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

Equipment ID CL130 CL281 TST150A Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier Certificate No. C143868 DC130171 C141558

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	1.000 0	$1 \text{ kHz} \pm 0.1 \%$	± 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.

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C151968 證書編號

NC-74	
34246492	
Action-United Environmental Services an	d Consulting
Unit A, 20/F., Gold King Industrial Build	ing,
35-41 Tai Lin Pai Road, Kwai Chung, N.7	Γ.
4	Action-United Environmental Services an Jnit A, 20/F., Gold King Industrial Build

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 11 April 2015

TEST RESULTS / 測試結果

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

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

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

Tested By 測試	:	K C Lee Project Engineer			
Certified By 核證	:	K M/Wu Engineer	Date of Issue 簽發日期	i	14 April 2015

The test equipment used for ealibration 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.



Certificate No.: C151968 證書編號

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

Equipment ID CL130 CL281 TST150A Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C143868 DC130171 C141558

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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

Note :

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

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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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM CLIENT: ACTION UNITED ENVIRO SERVICES ADDRESS: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG.
 WORK ORDER:
 HK1516748

 SUB-BATCH:
 0

 LABORATORY:
 HONG KONG

 DATE RECEIVED:
 19/05/2015

 DATE OF ISSUE:
 28/05/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	10G101946
Equipment No.:	
Date of Calibration:	27 May, 2015

NOTES

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

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

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

	DERVICES	
Plus	Date of next Calibration:	27 August, 2015
		Tolerance (mg/L)
3.51 5.02	3.53 5.10 8.84	+0.02 +0.08 +0.04
I	onal Meter I Plus I 5 APHA (21st ed	I Plus Date of next Calibration: APHA (21st edition), 4500O: G Reading (mg/L) Displayed Reading (mg/L) 3.51 3.53 5.02 5.10

pH Value

Method Ref: APHA 21st Ed. 4500H:B

E

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.98	-0.02
7.0	6.96	-0.04
10.0	9.86	-0.14
	Tolerance Limit (pH unit)	±0.20

Tolerance Limit (mg/L)

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	9.32	-6.8
20	19.11	-4.5
30	28.90	-3.7
	Tolerance Limit (%)	±10.0

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	9.6	-0.4
20.0	19.2	-0.8
37.0	36.9	-0.1
	Tolerance Limit (°C)	±2.0

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

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±0.20





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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: CLIENT: ADDRESS:

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

WORK ORDER:	HK1529672
SUB-BATCH:	0
LABORATORY:	HONG KONG
DATE RECEIVED:	12/08/2015
DATE OF ISSUE:	20/08/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

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

NOTES

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

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

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: Sub-Batch: Date of Issue: Client:	HK1529672 0 20/08/2015 ACTION UNITED ENVIR	O SERVICES	ALS
Equipment Type:	Dissolved Oxygen Met	er	
Brand Name:	YSI		
Model No.:	Pro 20		
Serial No.:	12C100570		
Equipment No.:			
Date of Calibration:	19 August, 2015	Date of next Calibration:	19 November, 2015

Parameters:

Dissolved Oxygen Method Ref: APHA (21st edition), 45000: G

F

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.08	3.14	+0.06
5.60	5.71	+0.11
7.82	7.79	-0.03
	Tolerance Limit (mg/L)	±0.20

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
Expected Redding (C)	Displayed Redding (C)	rolerance (c)
12	13.2	+1.2
18	18.9	+0.9
35	34.1	-0.9
	Tolerance Limit (°C)	±2.0

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

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

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

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

NOTES

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

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order:HK1529670Sub-batch:0Date of Issue:20/08/2015Client:ACTION UNITED ENVIRO SERVICES



Date of next Calibration:

19 November, 2015

Parameters:

pH Value

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

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.1	+0.10
7.0	6.9	-0.10
10.0	10.0	0.00
	Tolerance Limit (pH Unit)	±0.20

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
12	11.5	-0.5
19	18.5	-0.5
38	37.5	-0.5
	Tolerance Limit (°C)	±2.0

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

HK1514895	
0	
HONG KONG	
06/05/2015	
13/05/2015	
	0 HONG KONG 06/05/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	HACH
Model No.:	2100Q
Serial No.:	12060C018266
Equipment No.:	-
Date of Calibration:	07 May, 2015

NOTES

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

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

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

	F-1
(ALS)

HK1514895
0
13/05/2015
ACTION UNITED ENVIRO SERVICES
Turbidimeter
HACH
2100Q

12060C018266 Equipment No.: ---Date of next Calibration: Date of Calibration: 07 May, 2015

07 August, 2015

Parameters:

Turbidity

Serial No .:

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.08	- AL
4	4.37	+9.3
40	43.7	+9.3
80	85.9	+7.4
400	427	+6.8
800	870	+8.8
· · · · · · ·	Tolerance Limit (%)	±10.0

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER:	HK1529917
SUB-BATCH:	0
LABORATORY:	HONG KONG
DATE RECEIVED:	13/08/2015
DATE OF ISSUE:	19/08/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	НАСН
Model No.:	2100Q
Serial No.:	11030C008499
Equipment No.:	-
Date of Calibration:	17 August, 2015

NOTES

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

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

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order:	HK1529917	
Sub-batch:	0	
Date of Issue:	19/08/2015	
Client:	ACTION UNITED ENVIRO SERVICES	
Equipment Type:	Turbidimeter	
Brand Name:	HACH	
Model No.:	2100Q	
Serial No.:	11030C008499	
Equipment No.:	140.000	
Date of Calibration:	17 August, 2015	Date of next Calibration:



Contraction of the second

17 November, 2015

Parameters:

1 11	rh	1 M	1231
ı u	ID	ıu	ity

Method	Ref: AP	HA 21	st Ed. 21	130B
-				I and the second s

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.00	
4	4.27	+6.7
40	38.7	-3.2
80	73.8	-7.8
400	377	-5.8
800	759	-5.1
	Tolerance Limit (%)	±10.0

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

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



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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER:	HK1521789
SUB-BATCH:	0
LABORATORY:	HONG KONG
DATE RECEIVED:	25/06/2015
DATE OF ISSUE:	02/07/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Conductivity, Dissolved Oxygen, pH, Salinity, Temperature and Turbidity
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	YSI 6820 / 650MDS
Serial No.:	02J0912/02K0788 AA
Equipment No.:	
Date of Calibration:	02 July, 2015

NOTES

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

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

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Page 1 of 3

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order:	HK1521789			
Sub-Batch:	0			
Date of Issue:	02/07/2015			ALS
Client:	ACTION UNITED ENVIR	O SERVICES		(ALS)
Equipment Type:	Multifunctional Meter			
Brand Name:	YSI			
Model No.:	YSI 6820 / 650MDS			
Serial No.:	02J0912/02K0788 AA			
Equipment No.:				
Date of Calibration:	02 July, 2015	Date of next Calibration:	02 October, 2015	
Parameters:				

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	150.1	+2.2
6667	6552	-1.7
12890	13060	+1.3
58670	58070	-1.0
	Tolerance Limit (%)	±10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.00		
2.98	2.99	+0.01
5.00	5.07	+0.07
7.80	7.88	+0.08
	and the second second second second	
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.08	+0.08
7.0	7.09	+0.09
10.0	9.97	-0.03
	Tolerance Limit (pH unit)	±0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	9.69	-3.1
20	19.71	-1.5
30	30.03	+0.1
	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 Chine & Hong Kong

ALS Technichem (HK) Pty Ltd **ALS Environmental**

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Sub-Batch: Date of Issue: Client:	
Equipment Type:	
Brand Name:	
Model No.:	
Serial No.:	
Equipment No.:	
Date of Calibration:	

HK1521789

02 July, 2015

0 02/07/2015 ACTION UNITED ENVIRO SERVICES



Multifunctional Meter YSI YSI 6820 / 650MDS 02J0912/02K0788 AA

Date of next Calibration:

02 October, 2015

Parameters:

Work Order:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Rea	ding (°C)	Displayed Reading (°C)	Tolerance (°C)
11.0		11.4	+0.4
20.0		19.8	-0.2
31.0		30.2	-0.8
	-	Tolerance Limit (°C)	±2.0

Turbidity

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
	251.02	
0	0.2	
4	4.0	+0.0
40	39.4	-1.5
80	81.3	+1.6
400	414.8	+3.7
800	833.6	+4.2
	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



Appendix G

Event and Action Plan



Event and Action Plan for Air Quality

Event	ET	IEC	ER	Action Contracto
Action Level				
 Exceedance for one sample 	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor.	 Rectify any unacceptable practice; Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source;	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Monitor the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Submit proposals for remedial to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal i appropriate.
Limit Level				
 Exceedance for one sample 	 I. Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Monitor theimplementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal i appropriate.
 Exceedance for two or more consecutive samples 		 Check monitoring data submitted by ET; Check Contractor's working method; Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise 	 Confirm receipt of notification of failure in writing; Notify Contractor; In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; 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	EF	Action Contractor
Action Level	 Notify ER, IEC and Contractor; Carry out investigation; Report the results of investigation to the IEC, ER and Contractor; Discuss with the IEC and Contractor on remedial measures required; Increase monitoring frequency to check mitigation effectiveness. 	 Review the investigation results submitted by the ET; Review the proposed remedial measures by the Contractor and advise the ER accordingly; Advise the ER on the effectiveness of the proposed remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; Supervise the implementation of remedial measures. 	 Submit noise mitigation proposals to IEC and ER; Implement noise mitigation proposals.
Limit Level	I. 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,	 Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	Confirm receipt of notification of failure in writino: Notify Contractor; S. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; S. Upervise the implementation of remedial measures; S. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	 Take immediate action to avoid further exceedance: Submit proposals for remedial actions to IEC and ER within 3 working days of notification; Implement the agreed proposals; Submit further proposal if problem still not under control; Stop the relevant portion of works as instructed by the ER until the exceedance is abated.


Event and Action Plan for Water Quality

EVENT	ET	IEC	EB	CONTRACTOR
Action level being exceeded by one sampling day	 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. 	 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 	 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 	 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	 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 malhyrke: 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 	 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 	 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 	 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 2 working neasures.
Limit Level being exceeded by one sampling day	exceedance. 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Lovel	 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 	 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 effoctiveness of the implemented mitigation measures 	 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	Level. 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	 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. 	 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. 	 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 o part of the construction activities.

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Appendix H

Impact Monitoring Schedule



C2& C3 & C5

C2& C3 & C5

Water Quality Date **Noise Monitoring** 1-hour TSP 24-hour TSP C2& C3 & C5 1-AUG-15 SAT 2-AUG-15 SUN MON 3-AUG-15 C3&C5 C3&C5 C2& C3 & C5 TUE 4-AUG-15 C2&C3 & C5 C2& C3 & C5 WED 5-AUG-15 C2 C2 THU 6-AUG-15 7-AUG-15 Fri C3&C5 C3&C5 C2& C3 & C5 SAT 8-AUG-15 SUN 9-AUG-15 C2& C3 & C5 10-AUG-15 MON C2&C3 & C5 TUE 11-AUG-15 **C2 C2** C2& C3 & C5 WED 12-AUG-15 THU 13-AUG-15 C3&C5 C3&C5 C2& C3 & C5 Fri 14-AUG-15 15-AUG-15 SAT SUN 16-AUG-15 17-AUG-15 C2&C3 & C5 MON C2 C2 C2& C3 & C5 TUE 18-AUG-15 WED 19-AUG-15 C3&C5 C3&C5 THU 20-AUG-15 C2& C3 & C5 Fri 21-AUG-15 C2&C3 & C5 SAT 22-AUG-15 C2& C3 & C5 23-AUG-15 SUN C2 **C2** C2& C3 & C5 MON 24-AUG-15 TUE 25-AUG-15 C3&C5 C3&C5 C2& C3 & C5 WED 26-AUG-15 THU 27-AUG-15

Dust Monitoring

Impact Monitoring Schedule for the Reporting Period – August 2015

Remark:

Fri

SAT

SUN

MON

(a) 24-hr TSP monitoring at AM3 was rescheduled from 17 Aug 2015 to 19 Aug 2015 due to power failure

C2&C3 & C5

C2

Monitoring Day
Sunday or Public Holiday

28-AUG-15

29-AUG-15

30-AUG-15

31-AUG-15

Monitoring Location

Contract 2 (C2)	Air Quality	AM7b & AM8
Contract 2 (C2)	Construction Noise	NM5, NM6, NM7
	Air Quality	AM9b
Contract 3 (C3)	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B
	Air Quality	AM1a, AM2 & AM3
Contract 5 (C5)	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control

C2



Impact Monitoring Schedule for next Reporting Period – September 2015

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

Monitoring Day
Sunday or Public Holiday

Monitoring Location

Contract 2 (C2)	Air Quality	AM7b & AM8
Contract 2 (C2)	Construction Noise	NM5, NM6, NM7
	Air Quality	AM9b
Contract 3 (C3)	Construction Noise	NM8, NM9 & NM10
	Water Quality	WM4, WM4-Control A & WM4-Control B



	Air Quality	AM1a, AM2 & AM3
Contract 5 (C5)	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control
	Air Quality	AM1a
Contract SS C505	Construction Noise	NM1, NM2
	Water Quality	WM1 & WM1-Control



Appendix I

Database of Monitoring Result



24-hour TSP Monitoring Data

DATE	SAMPLE NUMBE	ELA	APSED TI	ME		CHAR' EADIN		AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER V (g		DUST WEIGHT COLLECTED	24-HR TSP
	R	INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m ³ /min)	(std m ³)	INITIAL	FINAL	(g)	$(\mu g/m^3)$
AM1a - Gard	en Farm, '	Tsung Yue	en Ha Vill	age											
5-Aug-15	28203	10312.79	10336.51	1423.20	34	35	34.5	29.9	1008.7	1.20	1713	2.8444	2.9214	0.0770	45
11-Aug-15	28234	10336.51	10360.18	1420.20	34	36	35.0	29.2	1007.3	1.22	1730	2.8052	2.8756	0.0704	41
17-Aug-15	28251	10360.18	10383.91	1423.80	34	35	34.5	28.4	1005.4	1.20	1715	2.8289	2.9070	0.0781	46
22-Aug-15	28267		10407.63			35	35.0	30.2	1000.1	1.21	1727	2.8368	2.9537	0.1169	68
28-Aug-15	28281	10407.63	10431.22	1415.40	34	34	34.0	28.3	1006.5	1.20	1692	2.8131	2.8590	0.0459	27
AM2 - Village	e House ne	ear Lin Ma	a Hang Ro	oad											
5-Aug-15	28204	5856.95	5880.77		32	33	32.5	29.9	1008.7	1.00	1432	2.8592	2.9800	0.1208	84
11-Aug-15	28235	5880.77	5904.64		34	35	34.5	29.2	1007.3	1.06	1519	2.8005	2.9045	0.1040	68
17-Aug-15	28252	5904.64	5928.46	1429.20	32	33	32.5	28.4	1005.4	1.00	1434	2.8295	2.9276	0.0981	68
22-Aug-15	28266	5928.46	5952.23			35	35.0	30.2	1000.1	1.07	1525	2.8033	2.9651	0.1618	106
28-Aug-15	28282	5952.23	5976.06	1429.80	33	35	34.0	28.3	1006.5	1.07	1529	2.8033	2.9081	0.1048	69
AM3 - Ta Kw	u Ling Fii	re Service	Station of	Ta Kwu	Ling	Village	!								
5-Aug-15	28219	6947.51	6971.51			42	42.0	29.9	1008.7	1.29	1865	2.8223	2.9307	0.1084	58
11-Aug-15	28236	6971.51	6995.51			40	40.0	29.2	1007.3	1.23	1773	2.8252	2.9608	0.1356	76
19-Aug-15 (a)		6995.51	7019.51			41	40.5	28.4	1005.4	1.25	1797	2.8236	2.9168	0.0932	52
22-Aug-15	28268	7019.51	7050.18			37	36.5	30.2	1000.1	1.11	2047	2.8200	2.9486	0.1286	63 (b)
28-Aug-15	28283	7062.38	7086.38	1440.00	34	35	34.5	28.3	1006.5	1.03	1490	2.7941	2.8745	0.0804	54
AM7b - Loi T	ung Villag														
5-Aug-15	28221		14412.95			44	44.0	29.9	1008.7	1.05	1513	2.8086	2.9215	0.1129	75
11-Aug-15	28237		14436.95			44	43.5	29.2	1007.3	1.04	1493	2.8491	2.9627	0.1136	76
17-Aug-15	28240		14460.95			44	44.0	28.4	1005.4	1.05	1515	2.8273	2.9248	0.0975	64
22-Aug-15	28265		14484.95			44	44.0	30.2	1000.1	1.04	1505	2.8183	2.9645	0.1462	97
28-Aug-15	28284	14484.95	14508.95	1440.00	44	44	44.0	28.3	1006.5	1.28	1837	2.7888	2.8546	0.0658	36
AM8 - Po Kat	t Tsai Villa											-			
5-Aug-15	28222	8259.30	8283.30			48	48.0	29.9	1008.7	1.32	1907	2.7958	2.8746	0.0788	41
11-Aug-15	28224	8283.30	8307.30			48	48.0	29.2	1007.3	1.32	1908	2.7866	2.8486	0.0620	32
17-Aug-15	28254	8307.30	8331.30			48	48.0	28.4	1005.4	1.33	1909	2.8154	2.8910	0.0756	40
22-Aug-15	28263	8331.30	8355.30			49	48.5	30.2	1000.1	1.33	1918	2.8104	2.9570	0.1466	76
28-Aug-15	28269	8355.30	8379.30	1440.00	49	49	49.0	28.3	1006.5	1.34	1923	2.8293	2.8747	0.0454	24
AM9b - Nam	Wa Po Vi														
5-Aug-15	28223	15737.01	15753.98	1018.20	34	34	34.0	29.9	1008.9	1.03	1047	2.8037	2.8853	0.0816	78 (c)
11-Aug-15	28225	15754.03	15778.03	1440.00	32	34	33.0	29.2	1007.3	1.00	1436	2.8084	2.8737	0.0653	45
17-Aug-15	28239	15778.03	15802.03	1440.00	32	33	32.5	28.4	1005.4	0.98	1414	2.8310	2.9046	0.0736	52

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	SAMPLE	ELA		ME	CHART			AVG	AVG AIR	STANDARD	AIR	FILTER V	VEIGHT	DUST WEIGHT	24 LID TCD
DATE	NUMBE	ELAPSED TIME		READING		JG	TEMP	PRESS	FLOW RATE	VOLUME	(g)	COLLECTED	24-HR TSP	
	R	INITIAL FINAL (min)		MIN	MAX	AVG	(°C)	(hPa)	(m ³ /min)	(std m ³)	INITIAL FINAL		(g)	$(\mu g/m^3)$	
22-Aug-15	28264	15802.03	15826.03	1440.00	33	34	33.5	30.2	1000.1	1.01	1451	2.8037	2.9604	0.1567	108
28-Aug-15	28256	15826.03	15850.03	1440.00	33	34	33.5	28.3	1006.5	1.08	1561	2.8157	2.8753	0.0596	39

Remark:

(a) 24-hr TSP monitoring at AM3 was rescheduled from 17 August 2015 to 19 August 2015 due to power failure

(b) 24-hour TSP monitoring at AM3 on 22 August was over run and the result was invalidated.

(c) 24-hour TSP monitoring at AM9b on 5 August 2015 was ram less than 24 hours due to power failure and the result was invalidated.

Construction Noise Monitoring Results, dB(A)

	G4 4	1 st			2 nd			3 nd			4 th			5 th			6 th				façade
Date	Start Time	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq30	correctio
	- X 7	n	TT		n			n			n			n			n				n
$\frac{NM1 - Tsun}{2 - Aug - 15}$	0		0		1	52.0	40.4	527	55 1	10 7	50.5	52.0	40.5	540	55.6	40.0	516	57 4	50.9	52	NIA
3-Aug-15		50.6	53.6	46.6	50.2	53.0	49.4	53.7	55.1	48.7	50.5	53.0	49.5	54.9	55.6	49.0	54.6	57.4	50.8	53	NA
8-Aug-15		56.2	58.1	51.7	54.5	56.7	51.4	56.0	59.3	51.6	60.2	63.0	57.0	59.2	61.9	54.6	61.2	64.6	55.4	59 59	NA
14-Aug-15		57.7	59.9	54.3	58.1	60.2	55.2	59.5	63.2	55.3	56.4	58.6	53.6	56.2	58.3	53.6	57.3	59.5	54.1	58	NA
20-Aug-15		51.0	52.7	49.0	50.5	51.9	48.6	50.8	52.8	48.4	49.8	51.7	47.9	51.3	55.7	47.3	49.0	52.8	45.9	50	NA
26-Aug-15		62.4	58.1	50.7	54.9	56.4	51.9	52.8	54.9	50.4	54.6	57.4	50.6	52.9	54.8	50.6	54.1	54.8	50.3	57	NA
NM2 - Villa							40.0	52.2		10.7	52.2		50.1	525		15.0	52.0			50	27.4
3-Aug-15		51.8	55.0	45.5	52.1	54.1	49.0	52.3	54.7	48.7	53.3	55.0	50.1	52.5	55.8	45.8	52.0	55.1	47.2	52	NA
8-Aug-15		57.3	61.1	44.9	59.8	61.2	46.1	59.9	58.4	45.9	54.4	54.4	43.2	55.5	58.0	44.1	57.6	58.2	43.8	58	NA
14-Aug-15		58.8	61.6	46.8	62.7	63.5	45.1	58.3	60.2	46.3	59.2	61.4	47.8	59.1	60.1	47.3	58.5	63.4	46.9	60	NA
20-Aug-15		51.8	54.9	46.2	55.3	57.0	46.9	59.4	63.1	48.4	57.7	59.9	46.2	54.6	52.4	45.4	53.0	53.0	44.6	56	NA
26-Aug-15		57.2	61.1	50.1	57.4	59.2	50.6	58.3	61.3	50.7	54.3	54.2	46.4	52.6	53.6	47.4	52.7	53.3	47.2	56	NA
NM5-Ping	0	0			0					-	1 1			1			1				
0	10:50	53.9	57.5	48.7	52.5	55.0	47.2	51.3	54.2	46.6	51.1	53.1	45.8	55.7	58.5	48.4	55.2	58.1	48.5	54	NA
12-Aug-15	9:53	52.7	55.5	48.0	53.0	55.0	48.5	54.8	58.0	48.5	59.2	63.5	52.0	66.7	68.5	62.0	61.2	64.5	55.0	61	NA
18-Aug-15	9:53	50.1	53.0	42.5	50.7	53.0	44.5	52.4	55.0	44.5	50.9	54.0	45.0	51.3	54.0	45.5	50.1	52.5	44.5	51	NA
24-Aug-15	10:11	52.2	55.0	46.0	51.7	55.0	47.0	52.4	55.0	47.5	52.2	53.5	49.0	51.9	53.5	48.0	51.7	54.5	47.5	52	NA
29-Aug-15	17:16	52.1	54.9	43.1	49.7	53.7	42.7	52.1	54.9	43.1	49.7	53.7	42.7	52.9	56.4	47.3	52.0	55.8	44.1	52	NA
NM6 – Tai T	long W	u Villag	e House	2																	
6-Aug-15	11:32	60.0	63.1	53.0	62.1	64.5	53.5	67.0	70.1	56.4	60.3	62.4	55.8	59.9	62.1	56.5	59.2	61.8	55.7	62	NA
12-Aug-15	10:46	60.5	64.0	49.5	57.6	61.5	45.5	59.3	62.5	48.5	58.7	62.5	47.0	58.7	61.5	50.0	59.2	62.0	49.5	59	NA
18-Aug-15	10:37	58.5	62.0	52.5	58.0	62.0	43.5	58.7	62.0	48.0	57.9	61.5	47.0	59.1	63.0	47.5	59.2	62.0	49.0	59	NA
24-Aug-15	10:52	58.4	61.5	48.0	58.4	62.0	48.5	58.4	62.0	43.5	58.2	61.5	49.5	60.4	64.0	45.0	58.2	61.5	46.0	59	NA
29-Aug-15		52.1	56.2	44.9	46.0	46.4	44.5	45.5	46.6	44.5	45.1	45.5	44.1	46.4	47.7	44.5	47.2	50.1	44.9	48	NA
NM7 – Po K																					
6-Aug-15		59.3	63.1	52.3	59.7	62.3	52.7	64.2	66.6	53.9	61.6	66.1	51.6	55.9	57.4	50.1	56.1	58.4	48.5	60	NA
12-Aug-15		59.9	59.3	49.5	54.2	56.9	48.5	58.9	60.0	49.0	54.6	57.4	48.7	52.6	54.7	48.8	58.4	57.7	48.1	57	NA
18-Aug-15		64.2	62.4	53.5	53.7	55.1	49.6	56.9	55.5	53.5	61.6	66.5	52.8	61.1	63.7	54.0	61.7	63.7	53.8	61	NA
24-Aug-15		69.0	73.6	54.9	58.0	61.6	51.1	56.8	59.5	51.3	59.6	60.5	51.2	67.8	66.7	49.1	58.3	60.6	46.7	64	NA
29-Aug-15	13:08	60.5	55.1	47.7	53.8	51.7	46.9	53.8	48.5	44.7	59.1	50.4	43.4	52.3	51.9	46.0	68.6	62.1	47.0	62	NA
NM8 - Villag	ge Hous	se, Tong	g Hang																		
3-Aug-15	10:09	60.4	62.4	52.1	58.7	62.1	53.3	59.4	61.4	52.1	58.8	61.9	52.8	57.8	60.7	53.8	56.6	59.5	52.7	59	NA
											· · · · · · · · · · · · · · · · · · ·									· · · · · · · · · · · · · · · · · · ·	

AUES

 $\label{eq:loss_2013} CS00670(CV201303) \\ 600 \\ EM\&A \ Report \\ Monthly \ EM\&A \ Report \\ 25th \ (Aug \ 2015) \\ R0478v2. \\ docx \ R048v2. \\ docx \ R048v2.$

AUES

	G 1 1	1 st			2 nd			3 nd			4 th			5 th			6 th				façade
Date	Start Time	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq _{5mi}	L10	L90	Leq30	correctio
	TIME	n			n			n			n			n			n				n
8-Aug-15	12:54	58.1	64.1	49.2	57.6	64.2	48.2	56.3	56.4	50.2	58.4	63.3	51.8	68.4	66.5	51.3	57.0	61.2	49.3	62	NA
14-Aug-15	10:19	59.8	61.2	54.3	59.5	60.1	53.7	55.7	59.5	52.0	58.5	62.0	52.6	57.4	59.5	52.4	59.0	60.0	52.7	59	NA
20-Aug-15	15:57	58.9	62.7	50.9	57.9	60.3	51.4	58.1	63	50.9	57.9	64.1	49.3	58.6	64.1	50.8	57.5	65	50.4	58	NA
26-Aug-15	9:45	59.8	61.2	54.3	60.5	61.1	54.7	60.5	62.4	54.9	61.5	61.9	54.7	59.4	61.4	54.6	58.1	59.7	54.7	60	NA
NM9 - Villa	ge Hou	se, Kiu '	Tau Vill	lage																	
2-Aug-15	11:01	63.6	63.9	57.6	60.0	64.2	53.5	60.3	66.0	54.0	59.6	63.1	52.7	58.4	60.4	53.1	58.8	61.9	54.9	60	NA
8-Aug-15	11:22	57.6	61.6	52.5	57.1	61.1	52.2	60.3	63.6	53.4	56.9	59.0	53.0	59.3	63.3	55.7	58.4	62.6	53.5	58	NA
14-Aug-15	11:10	60.4	63.2	53.4	59.6	62.8	53.7	59.9	63.2	53.5	59.1	58.4	49.9	59.1	60.4	50.6	58.0	59.0	51.7	59	NA
20-Aug-15	16:39	58.7	61.7	54.2	60.3	63.2	55.0	61.3	64.4	54.8	59.8	63.1	54.0	65.0	68.8	55.9	60.4	64.6	55.9	61	NA
26-Aug-15	10:45	59.6	60.8	56.7	58.0	60.3	54.6	60.1	62.3	56.1	57.4	59.6	53.8	56.7	60.5	53.0	56.6	58.0	54.7	58	NA
NM10 - Nar	n Wa P	o Villag	e House	e No. 80																	
3-Aug-15	13:15	69.0	72.0	63.1	63.9	65.8	61.3	65.2	67.9	60.9	65.3	67.6	60.5	64.8	66.6	61.1	65.0	67.2	61.7	66	69
8-Aug-15	10:41	63.1	65.9	58.7	63.3	66.3	59.0	60.5	62.2	58.8	60.0	62.1	57.9	62.3	65.8	57.5	58.5	60.2	54.8	62	65
14-Aug-15	13:09	61.7	62.5	58.9	63.5	63.1	58.6	58.6	59.9	57.0	60.0	61.2	57.5	61.4	63.3	58.2	60.3	61.3	57.6	61	64
20-Aug-15	16:40	56.5	58.1	54.7	57.2	59.1	55.0	59.0	61.8	54.8	56.6	58.5	54.1	55.8	57.4	53.8	55.1	57.1	52.6	57	60
26-Aug-15	13:18	60.4	61.9	57.6	61.3	62.9	56.9	59.3	61.1	57.2	60.7	61.9	58.3	61.5	62.9	59.3	62.6	64.9	59.0	61	64

Water Quality Monitoring Data for Contract 5

Date	1-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	y (NTU)	р	H	SS(r	ng/L)
WM1-C	11.54	0.44	30.3	30.3	6.85	6.9	91.1	91.4	37.6	37.6	8	8.0	31	30.5
wmi-c	11:54	0.44	30.3	30.5	6.89	0.9	91.7	91.4	37.5	57.0	8	8.0	30	50.5
WM1*	12:24	0.21	29.7	29.7	6.68	6.7	81.8	84.5	38.9	38.2	7.4	7.4	43	42.0
VV IVI I	12.24	0.21	29.7	29.1	6.63	0.7	87.1	04.3	37.4	50.2	7.4	7.4	41	42.0

Date	3-Aug-15	-	-		-				-		-		-	
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidit	y (NTU)	р	H	SS(r	ng/L)
	14.00	0.29	30.6	20.6	5.82	5.0	77.7	77 (7.1	7.1	7.1	7 1	<2	2.0
WM1-C	14:09	0.38	30.6	30.6	5.79	5.8	77.5	77.6	7.2	7.1	7.1	/.1	3	3.0
WM1*	14:57	0.21	30.9	30.9	6.28	6.3	84.6	85.0	28.7	28.9	7.1	7.1	28	28.0
vv 1 v1 1	14.37	0.21	30.9	30.9	6.34	0.5	85.3	85.0	29.1	20.9	7.1	7.1	28	28.0

Date	5-Aug-15	-	-		-		- · · · · · · · · · · · · · · · · · · ·		•				-	
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	12.06	0.41	30.8	20.9	8.29	0.2	111.0	111 4	7.5	75	7	7.0	4	25
WM1-C	13:06	0.41	30.8	30.8	8.32	8.3	111.7	111.4	7.6	7.5	7	7.0	3	3.5
WM1*	13:29	0.20	30.3	30.3	6.62	6.6	87.9	88.2	25.7	25.9	6.8	69	21	22.0
vv 1 v 1 1 **	15:29	0.20	30.3	30.5	6.66	0.0	88.5	00.2	26.1	23.9	6.8	6.8	23	22.0

Date	8-Aug-15	-				-	-		-			-	-	-
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	p]	H	SS(n	ng/L)
WAAL C	11.24	0.42	29.9	20.0	8.52	0.5	112.5	110.4	8.1	8.0	8	8.0	<2	2.0
WM1-C	11:24	0.42	29.9	29.9	8.51	8.5	112.3	112.4	7.9	8.0	8	8.0	<2	2.0
WM1*	12.11	0.22	31.8	21.9	7.75	7.8	105.9	106.4	21.4	21.9	7.6	76	20	20.0
VV IVI I **	12:11	0.22	31.8	31.8	7.82	7.8	106.8	100.4	22.3	21.9	7.6	7.6	20	20.0

Date	10-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	p	H	SS(r	ng/L)
WM1-C	12.11	0.41	29.6	29.6	7.81	7.8	102.9	102.6	17.0	17.4	7.5	7.5	11	10.5
wmi-c	13:11	0.41	29.6	29.0	7.78	7.8	102.3	102.0	17.7	17.4	7.5	7.5	10	10.5
WM1*	13:36	0.21	30.2	30.2	6.82	6.8	90.5	89.9	65.2	65.3	7.2	7.2	51	51.0
VV IVI I *	13:30	0.21	30.2	30.2	6.7	0.8	89.2	69.9	65.4	05.5	7.2	1.2	51	51.0

Date	12-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	y (NTU)	р	H	SS(r	ng/L)
WM1-C	15:10	0.40	32	32.0	7.73	77	105.9	106.1	8.1	8.2	6.9	6.9	8	9.0
wmi-c	13:10	0.40	32	52.0	7.76	1.1	106.2	100.1	8.2	0.2	6.9	0.9	10	9.0
WM1*	15:26	0.23	31.5	31.5	6.25	6.3	84.7	85.0	117.0	119.0	6.7	6.7	109	111.5
VV IVI I	15.20	0.23	31.5	51.5	6.29	0.5	85.2	83.0	121.0	119.0	6.7	0.7	114	111.5

Date	14-Aug-15	-	-				-		-	-	-		-	
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	14.12	0.45	28.9	20.0	6.43	<i>C</i> 1	82.9	00.4	578.5	57 0.0	7.5	75	447	454.0
WM1-C	14:13	0.45	28.9	28.9	6.35	6.4	81.8	82.4	579.1	578.8	7.5	7.5	461	454.0
WM1	13:46	0.33	28	28.0	6.85	6.9	87.4	87.7	149.9	150.3	7.4	7.4	138	137.5
W WI I	15:40	0.55	28	28.0	6.9	0.9	88.0	87.7	150.7	130.5	7.4	7.4	137	157.5

Date	18-Aug-15	-	-			-			-		-		-	
Location	Time	Depth (m)	Temp	o (oC)	DO (1	ng/L)	DO	(%)	Turbidit	ty (NTU)	р	H	SS(r	ng/L)
	15.40	0.44	32.4	20.4	5.45	5 4	75.1	747	17.3	17.0	7.2	7.2	14	12.5
WM1-C	15:49	0.44	32.4	32.4	5.4	5.4	74.3	74.7	17.1	17.2	7.2	7.2	13	13.5
WM1	16:09	0.26	33.4	33.4	5.64	5.6	79.7	79.4	40.3	40.5	7.1	71	44	50.0
VV IVI I	10:09	0.20	33.4	55.4	5.64	5.0	79.0	79.4	40.7	40.5	7.1	/.1	56	50.0

Date	20-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(r	ng/L)
WAAL C	14.39	0.99	28.5	29.5	6.49	65	83.8	04.1	140.0	140 5	7.3	7.2	72	71.5
WM1-C	14:28	0.88	28.5	28.5	6.52	6.5	84.3	84.1	141.0	140.5	7.3	7.3	71	71.5
WM1	15:01	0.73	28.2	28.2	6.63	6.6	85.2	85.5	242.0	241.0	7.1	7.1	190	190.0
W WI I	13:01	0.75	28.2	28.2	6.64	6.6	85.7	83.3	240.0	241.0	7.1	/.1	190	190.0

Date	22-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	y (NTU)	р	H	SS(r	ng/L)
WALL C	11.40	0.47	29.7	20.7	6.24	()	81.7	92.1	14.0	14.0	6.9	6.0	3	4.0
WM1-C	11:40	0.47	29.7	29.7	6.31	6.3	82.5	82.1	14.3	14.2	6.9	6.9	5	4.0
WM1	12:05	0.31	30.6	30.6	6.28	6.2	84.1	82.8	74.3	74.5	6.6	6.6	91	90.5
VV 1VI 1	12:03	0.51	30.6	30.0	6.14	0.2	81.4	02.0	74.6	/4.3	6.6	0.0	90	90.5

Date	24-Aug-15	-	-				-		-				-	
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	12.20	0.42	3.8	17.2	7.2	7.2	96.9	07.2	13.3	12.5	7.4	7.4	7	7.5
WM1-C	12:20	0.42	30.8	17.3	7.28	1.2	97.7	97.3	13.7	13.5	7.4	7.4	8	7.5
WM1	12:48	0.27	31.1	31.1	6.37	6.3	85.8	85.3	33.3	33.5	8	8.0	34	34.0
VV IVI I	12.40	0.27	31.1	31.1	6.29	0.5	84.7	03.5	33.7	55.5	8	0.0	34	54.0

Date	26-Aug-15	-	-				-		-		-		-	
Location	Time	Depth (m)	Temj	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	11.02	0.41	31.1	21.1	7.1	7 1	94.5	04.0	27.2	27.5	7.8	7.0	21	20.5
WM1-C	11:03	0.41	31.1	31.1	7.08	/.1	95.3	94.9	27.8	27.5	7.8	7.8	20	20.5
WM1	11.29	0.26	30.1	30.1	7.05	7 1	92.8	93.0	40.4	40.6	7.5	75	47	48.5
VV IVI I	11:28	0.26	30.1	50.1	7.08	/.1	93.2	95.0	40.7	40.0	7.5	7.5	50	48.3

Date	28-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	14.47	0.42	29.9	20.0	7.61	7.6	100.5	100.8	12.1	11.0	7.4	7.4	6	5 5
WM1-C	14:47	0.42	29.9	29.9	7.67	7.6	101.1	100.8	11.6	11.9	7.4	7.4	5	5.5
WM1	15:06	0.25	29.8	29.8	6.6	6.6	87.0	86.6	35.7	35.9	7.5	7.5	36	35.5
VV IVI I	15:00	0.23	29.8	29.8	6.5	6.6	86.2	00.0	36.0	55.9	7.5	1.5	35	55.5

Date	31-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	12.56	0.80	28.4	29.4	6.8	6.9	87.3	97.6	overrange		7.6	7.6	1320	1205.0
WM1-C	12:56	0.89	28.4	28.4	6.85	6.8	87.9	87.6	overrange	overrange	7.6	7.6	1290	1305.0
WM1	12.07	0.41	28.3	28.3	6.2	6.3	79.5	80.3	overrange	0.110	7.8	7.8	1320	1330.0
W IVI I	13:27	0.41	28.3	28.3	6.32	0.5	81.1	80.5	overrange	overrange	7.8	7.8	1340	1550.0

Remark: * monitoring was conducted at box culvert 2 for reference.

Water Quality Monitoring Data for Contract 2 and 3

Date	1-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (1	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	Н	SS(n	ng/L)
WM4-CA	13:21	0.10	30.4	30.4	7.08	7 1	94.7	94.2	6.1	6.1	7.1	7.1	3	3.0
WM4-CA	15:21	0.10	30.4	50.4	7.03	/.1	93.7	94.2	6.1	6.1	7.1	/.1	3	5.0
WM4-CB	13:40	0.30	32.8	32.8	6.81	6.8	94.5	94.1	10.7	10.4	6.7	67	7	7.0
W W4-CD	15:40	0.50	32.8	52.8	6.76	0.8	93.6	94.1	10.1	10.4	6.7	6.7	7	7.0
WM4	12.57	0.28	32.2	22.2	7.3	7.2	99.7	100.0	12.5	12.4	7.4	7.4	9	0.0
W W14	12:57	0.28	32.2	32.2	7.32	7.3	100.3	100.0	12.2	12.4	7.4	7.4	9	9.0

Date	3-Aug-15	-		-			-		-	-				-
Location	Time	Depth (m)	Temj	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
	12.02	0.10	31.4	21.4	7.29	7.2	99.0	09.7	4.3	4.2	7.2	7.2	<2	2.0
WM4-CA	12:03	0.10	31.4	31.4	7.25	7.3	98.4	98.7	4.2	4.2	7.2	1.2	<2	2.0
WM4-CB	12:32	0.30	33.3	33.3	7.11	7.1	102.0	102.8	7.8	7.6	6.9	6.9	6	5.5
WINI4-CD	12:52	0.50	33.3	33.5	7.1	/.1	103.5	102.8	7.5	7.0	6.9	0.9	5	5.5
	11.21	0.20	31.6	21.6	7.22	7.4	104.8	104.2	10.7	11.2	7.1	7.1	8	0.5
WM4	11:31	0.29	31.6	31.6	7.65	7.4	103.6	104.2	11.9	11.3	7.1	/.1	9	8.5

Date	5-Aug-15													
Location	Time	Depth (m)	Temj	o (oC)	DO (1	ng/L)	DO	(%)	Turbidi	ty (NTU)	р	Н	SS(n	ng/L)
WM4-CA	12:02	0.10	31.3	31.3	7.37	7.3	99.7	98.8	4.6	4.7	7.1	7.2	<2	2.0
WW4-CA	12:02	0.10	31.3	51.5	7.28	7.5	97.9	90.0	4.8	4.7	7.2	1.2	<2	2.0
WM4-CB	11:02	0.31	32.3	32.3	7.33	7 2	100.7	100.6	13.1	13.4	7	7.0	11	11.5
W W14-CD	11:02	0.51	32.3	32.3	7.3	7.3	100.4	100.0	13.7	15.4	7	7.0	12	11.3
WIN4	11.25	0.28	32	22.0	7.63	76	104.0	102.9	10.2	10.4	7.1	7.1	8	8.0
WM4	11:35	0.28	32	32.0	7.58	7.6	103.6	103.8	10.5	10.4	7.1	/.1	8	8.0

Date	8-Aug-15				-		-		-	-		-		-
Location	Time	Depth (m)	Temp	(oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	р	H	SS(n	ng/L)
WM4-CA	13:49	0.11	32.6	32.6	7.53	75	104.0	103.9	4.3	4.2	7.4	7.4	4	4.0
WWH-CA	13.49	0.11	32.6	52.0	7.5	1.5	103.7	105.9	4.1	4.2	7.4	7.4	4	4.0
WM4-CB	14:18	0.32	33.3	33.3	7.36	7.4	103.0	103.7	8.5	8.7	7.4	7.4	8	8.0

 $\label{eq:loss_2013} CS00670(CV201303) \\ 600 \\ EM\&A \ Report \\ Monthly \ EM\&A \ Report \\ 25th \ (Aug \ 2015) \\ R0478v2. \\ docx \ R048v2. \\ docx \ R048v2.$

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-														
			33.3		7.44		104.3		8.8		7.4		8	
	12.24	0.29	33.6	22.6	8.34	0.4	117.7	110.4	9.8	07	7.6	7.0	7	7.0
WM4	13:24	0.29	33.6	33.6	8.45	8.4	119.0	118.4	9.5	9.7	7.6	/.6	7	7.0

Date	10-Aug-15													
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidit	ty (NTU)	р	Н	SS(n	ng/L)
WM4-CA	14.41	0.11	29.3	20.2	7.58	76	99.0	99.4	4.3	4.4	7.5	75	4	4.0
WWI4-CA	14:41	0.11	293	29.3	7.65	7.6	99.8	99.4	4.5	4.4	7.5	7.5	4	4.0
WM4-CB	15:06	0.29	30.4	30.4	6.57	6.6	87.5	87.1	10.4	10.6	7	7.0	10	10.0
WINI4-CD	13:00	0.29	30.4	50.4	6.53	0.0	86.7	07.1	10.8	10.0	7	7.0	10	10.0
WINAA	14.16	0.26	30	20.0	7.57	76	100.2	100 5	24.7	25.0	7.3	7.2	21	21.5
WM4	14:16	0.26	30	30.0	7.62	/.6	100.8	100.5	25.2	25.0	7.3	7.3	22	21.5

Date	12-Aug-15	-					-		-	-		-		-
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	p	H	SS(n	ng/L)
WM4-CA	13:07	0.11	31.1	31.1	7.25	7.2	97.7	98.0	5.1	5.2	6.9	6.9	4	4.0
WWWH-CA	13.07	0.11	31.1	51.1	7.29	7.3	98.3	96.0	5.2	5.2	6.9	0.9	4	4.0
WM4-CB	12:40	0.36	30.3	30.3	4.51	4.5	59.6	59.8	15.9	15.7	6.9	6.0	15	14.5
WM4-CD	12:40	0.30	30.3	50.5	4.54	4.5	60.0	39.8	15.4	13.7	6.9	6.9	14	14.5
	10.16	0.22	31.6	21.6	6.93	7.0	94.1	04.4	50.9	51.0	7	7.0	50	E1 E
WM4	12:16	0.33	31.6	31.6	6.99	7.0	94.7	94.4	51.4	51.2	7	7.0	53	51.5

Date	14-Aug-15													
Location	Time	Depth (m)	Temj	o (oC)	DO (I	ng/L)	DO	(%)	Turbidit	y (NTU)	р	H	SS(n	ng/L)
WM4-CA	10:00	0.11	27.2	27.2	6.97	7.0	87.7	87.7	2.2	2.2	8	8.0	4	3.5
WM4-CA	10:00	0.11	27.2	21.2	6.96	7.0	87.6	87.7	2.1	2.2	8	8.0	3	5.5
WM4-CB	10:21	0.30	28.4	28.4	5.62	56	72.4	72.5	9.3	9.4	7.4	7.4	14	14.5
WINI4-CD	10:21	0.50	28.4	28.4	5.66	5.6	72.6	12.5	9.4	9.4	7.4	/.4	15	14.3
	0.27	0.27	27.4	27.4	6.15	(1	77.6	77.0	10.1	10.2	8	0.1	13	12.5
WM4	9:37	0.27	27.4	27.4	6.04	6.1	76.3	77.0	10.3	10.2	8.1	8.1	14	13.5

Date	18-Aug-15	• • •				· · · ·	-	• •
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)	DO (%)	Turbidity (NTU)	рН	SS(mg/L)

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WM4-CA	12.55	0.11	32.5	22.5	6.45	6 1	89.1	89.0	6.2	6 1	7.5	75	6	6.0
WW4-CA	13:55	0.11	32.5	32.5	6.44	6.4	88.9	89.0	6.1	6.1	7.5	1.5	6	0.0
WM4-CB	13:00	0.28	33.8	33.8	6.59	6.6	92.9	92.6	13.5	14.0	7.1	71	9	9.5
W W14-CD	15:00	0.28	33.8	33.0	6.54	6.6	92.3	92.0	14.4	14.0	7.1	/.1	10	9.5
	12.21	0.20	34	24.0	6.48	65	91.6	02.1	18.5	107	7.3	7.2	11	11.5
WM4	13:31	0.30	34	34.0	6.53	6.5	92.6	92.1	18.8	18.7	7.3	7.3	12	11.5

Date	20-Aug-15	-		-			-		-	-		-		
Location	Time	Depth (m)	Temp	o (oC)	DO (1	mg/L)	DO	(%)	Turbidit	y (NTU)	р	Н	SS(n	ng/L)
WM4-CA	16:49	0.12	29.9	29.9	6.65	6.7	89.4	89.5	7.7	77	6.7	6.7	6	6.0
WM4-CA	10:49	0.13	29.9	29.9	6.66	0.7	89.6	89.5	7.7	1.1	6.7	0.7	6	0.0
WM4-CB	16:30	0.28	30.4	30.4	4.8	4.8	63.7	63.8	15.2	15.1	6.8	6.8	8	8.5
WM4-CD	10:50	0.28	30.4	50.4	4.8	4.0	63.8	05.8	15.0	13.1	6.8	0.8	9	0.5
	16.01	0.26	30.7	20.7	6.35	()	85.0	94.0	31.0	21.6	6.9	()	20	10.5
WM4	16:01	0.36	30.7	30.7	6.32	6.3	84.7	84.9	32.2	31.6	6.9+	6.9	19	19.5

Date	22-Aug-15	-			_		-		-	-	-	-	-	-
Location	Time	Depth (m)	Temp	o (oC)	DO (I	ng/L)	DO	(%)	Turbidit	ty (NTU)	p	Н	SS(n	ng/L)
WM4 CA	10.44	0.10	29.9	29.9	6.89	6.9	91.1	90.6	5.7	5.7	7	7.0	3	3.5
WM4-CA	10:44	0.10	29.9	29.9	6.83	0.9	90.0	90.0	5.7	5.7	7	7.0	4	5.5
WM4-CB	9:45	0.28	30	30.0	7.23	7 2	95.8	95.1	13.7	13.8	7.4	7.4	15	14.0
WIM4-CD	9:43	0.28	30	50.0	7.13	1.2	94.3	93.1	13.9	15.8	7.4	7.4	13	14.0
WM4	10.16	0.22	29.6	20.6	7.02	7.0	92.3	02.5	17.7	17.2	7.1	7.1	14	145
W 1V14	10:16	0.32	29.6	29.6	7.05	7.0	92.6	92.5	16.9	17.3	7.1	/.1	15	14.5

Date	24-Aug-15	-		-	_		-		-					
Location	Time	Depth (m)	Temp	o (oC)	DO (I	mg/L)	DO	(%)	Turbidi	ty (NTU)	p	H	SS(n	ng/L)
WM4 CA	14:20	0.10	32.6	32.6	6.86	6.9	94.6	94.9	6.1	6.1	8.1	8.1	4	4.0
WM4-CA	14:20	0.10	32.6	52.0	6.9	0.9	95.2	94.9	6.1	0.1	8.1	0.1	4	4.0
WM4-CB	14.42	0.30	33.8	33.8	6.62	6.6	93.1	93.3	7.2	7.2	8	8.0	9	10.0
WW4-CD	14:43	0.50	33.8	33.0	6.66	6.6	93.5	95.5	7.2	1.2	8	8.0	11	10.0
	12.40	0.22	33.7	22.7	7.34	7.2	103.2	102.0	14.8	14.2	7.6	7.0	8	7.5
WM4	13:49	0.32	33.7	33.7	7.33	7.3	103.1	103.2	13.8	14.3	7.6	7.6	7	7.5

Date	26-Aug-15													
Location	Time	Depth (m)	Temj	o (oC)	DO (1	ng/L)	DO	(%)	Turbidit	ty (NTU)	p	H	SS(n	ng/L)
WM4-CA	15:12	0.10	29.5	29.5	6.76	6.8	88.1	88.5	4.3	4.3	7.9	7.9	5	5 5
WM4-CA	15:12	0.10	29.5	29.5	6.84	0.8	88.8	88.5	4.2	4.5	7.9	7.9	6	5.5
WM4-CB	15:40	0.28	29.5	29.5	4.85	4.9	63.1	62.6	13.9	13.8	7.8	7.8	12	12.0
WM4-CD	13:40	0.28	29.5	29.5	4.92	4.9	64.1	63.6	13.7	15.8	7.8	7.8	12	12.0
WIN14	14.46	0.21	30.1	20.1	6.33	62	84.2	020	12.9	12.7	7.5	75	9	0.0
WM4	14:46	0.31	30.1	30.1	6.22	6.3	83.4	83.8	12.5	12.7	7.5	7.5	9	9.0

Date	28-Aug-15	-		-						-		-		-
Location	Time	Depth (m)	Temp	o (oC)	DO (1	ng/L)	DO	(%)	Turbidi	ty (NTU)	p	H	SS(n	ng/L)
	17.00	0.10	28.6	28.6	6.37	6.4	82.2	02.2	4.6	4.5	8	8.0	4	4.0
WM4-CA	17:22	0.10	28.6	28.6	6.39	6.4	82.4	82.3	4.5	4.5	8	8.0	4	4.0
WM4-CB	17:46	0.29	29	29.0	3.08	3.1	40.1	40.0	7.4	7.5	7.7	7.7	9	9.0
WINI4-CD	17:40	0.29	29	29.0	3.07	5.1	39.9	40.0	7.5	7.5	7.7	1.1	9	9.0
	17.01	0.20	29.6	20.6	5.36	5 4	70.8	71.2	13.4	12.2	7.5	75	14	145
WM4	17:01	0.30	29.6	29.6	5.46	5.4	71.8	71.3	13.1	13.3	7.5	7.5	15	14.5

Date	31-Aug-15	-		-			-			-		-		-
Location	Time	Depth (m)	Temj	o (oC)	DO (1	ng/L)	DO	(%)	Turbidit	y (NTU)	р	Н	SS(n	ng/L)
WM4 CA	11:40	0.09	29.1	29.1	7.24	7.2	94.4	94.4	9.2	9.1	7.8	7.8	8	7.5
WM4-CA	11:40	0.09	29.1	29.1	7.27	7.3	94.4	94.4	9.0	9.1	7.8	/.0	7	7.5
WAA CD	10.27	0.20	29.1	20.1	6.88	6.9	89.7	89.2	16.0	16.2	7.1	7 1	14	14.0
WM4-CB	10:37	0.30	29.1	29.1	6.8	6.8	88.6	89.2	16.4	16.2	7.1	/.1	14	14.0
	11.15	0.20	29.6	20.6	7.36	7 4	96.7	07.0	20.5	20.6	7.5	75	13	10.5
WM4	11:15	0.30	29.6	29.6	7.41	7.4	97.2	97.0	20.7	20.6	7.5	7.5	12	12.5



Appendix J

Graphical Plots for Monitoring Result



<u>Air Quality – 1-hour TSP</u>









AUES







<u>Air Quality – 24-hour TSP</u>















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<u>Noise</u>



















L_{eq30} , dB(A	()	(Graphica	l Plot for	Constr	uction No	oise Mon	itoring	Result	at NM1)
80		♦]	Leq30min	_	— – Lim	it Level	0	Correc	cted Leq 3	30min	
75 — —											
70 -					_			(0		
65 - O		0 ♦	0 0	0	0 (0	0 0	0	^ہ ہ	0	0
60 -	ο	0 ♦	\$	○	<	>	<u> </u>	\$	\$	۰ ⁽	\$
55 -	\$	~		V		~				\$	
50 -											
15						1					Date
45 	. 12-N	23-N	. 3-Ju	. 14-J	. 25-J	6-Jul-15	. 17-J	. 28-J	8-A	19-/	30-/
1-May-15	12-May-15	23-May-15	3-Jun-15	14-Jun-15	25-Jun-15	ıl-15	17-Jul-15	28-Jul-15	8-Aug-15	19-Aug-15	30-Aug-15



Water Quality















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Appendix K

Meteorological Data



					Ta Kwu	Ling Station	-
Date		Weather	Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Aug-15	Sat	Mainly fine and very hot apart from isolated showers. Light winds.	0	28	7.7	77.2	E/NE
2-Aug-15	Sun	Mainly fine and very hot apart from isolated showers. Light winds.	0	28	6	75.2	E/NE
3-Aug-15	Mon	Mainly fine and very hot apart from isolated showers. Light winds.	0	28.6	5.5	74.5	E/NE
4-Aug-15	Tue	Mainly fine and very hot apart from isolated showers. Light winds.	0	28.4	5.5	72.2	S/SE
5-Aug-15	Wed	Mainly fine and very hot apart from isolated showers. Light winds.	0	28.9	4.5	72	W/SW
6-Aug-15	Thu	Mainly fine and very hot apart from isolated showers. Light winds.	0	29.9	4.5	70	N/NE
7-Aug-15	Fri	Mainly fine and very hot apart from isolated showers. Light winds.	0	31	4.5	67.5	N/NW
8-Aug-15	Sat	Mainly fine and very hot apart from isolated showers. Light winds.	0	31.5	7.5	66.2	N/NW
9-Aug-15	Sun	Cloudy with showers and isolated thunderstorms. Moderate southwesterly winds.	11.6	30.7	8.5	70	W/SW
10-Aug-15	Mon	Cloudy with showers and isolated thunderstorms. Moderate southwesterly winds.	23.5	28.4	8.2	81.2	S/SE
11-Aug-15	Tue	Mainly fine apart from isolated showers. Very hot. Moderate southwesterly winds.	16.8	29.2	8.5	77.7	W/SW
12-Aug-15	Wed	Mainly fine and very hot. Light to moderate southwesterly winds.	Trace	29.3	5	80.5	E/SE
13-Aug-15	Thu	Mainly fine and very hot. Light to moderate southwesterly winds.	27.5	28.4	8.2	83	S/SW
14-Aug-15	Fri	Mainly fine and very hot apart from isolated showers. Light winds.	18.9	26	8.5	81.2	SW
15-Aug-15	Sat	Fine and very hot. Moderate south to southwesterly winds.	24.6	26.1	9.6	85	E/SE
16-Aug-15	Sun	Fine and very hot. Moderate south to southwesterly winds.	0.1	28.1	6.5	84.2	S/SW
17-Aug-15	Mon	Mainly fine apart from isolated showers. Very hot. Moderate southwesterly winds.	Trace	28.9	6.1	77.5	W/SW
18-Aug-15	Tue	Fine and very hot. Moderate south to southwesterly winds.	Trace	29.7	5	75.7	W/SW
19-Aug-15	Wed	Mainly fine and very hot. Light to moderate southwesterly winds.	0	29.7	5.5	Maintenance	SW
20-Aug-15	Thu	Very hot with isolated showers Light winds.	6.1	28.3	4.4	Maintenance	E/SE
21-Aug-15	Fri	Very hot with isolated showers Light winds.	0	30.1	6.5	Maintenance	N/NE
22-Aug-15	Sat	Very hot with isolated showers Light winds.	Trace	29.9	8.2	Maintenance	N
23-Aug-15	Sun	Very hot with isolated showers Light winds.	3.4	30	7.7	Maintenance	Ν
24-Aug-15	Mon	Very hot with isolated showers Light winds.	0	30.5	5.6	Maintenance	N/NE
25-Aug-15	Tue	Fine and dry apart from some haze. It will be very hot. Light winds.	0	29.4	7	Maintenance	N/NW
26-Aug-15	Wed	Mainly cloudy with a few showers and isolated thunderstorms. Light winds.	0.2	29.2	7	Maintenance	N
27-Aug-15	Thu	Fine and dry apart from some haze. It will be very hot. Light winds.	0	29.5	8.2	Maintenance	E/SE
28-Aug-15	Fri	Fine and dry apart from some haze. It will be very hot. Light winds.	Trace	28.1	5.5	79.5	E/SE
29-Aug-15	Sat	Mainly cloudy with a few showers and isolated thunderstorms. Light winds.	0.9	28.1	7.5	82.2	E/SE
30-Aug-15	Sun	Cloudy with a few showers and squally thunderstorms. Light to moderate southeasterly winds	9.7	27.2	5.4	86.2	E/SE
31-Aug-15	Mon	Cloudy with a few showers and squally thunderstorms. Light to moderate southeasterly winds	Trace	27.9	5.5	85.5	E/NE



Appendix L

Waste Flow Table



Name of Department : CEDD

Contract No./ Work Order No. :

CV/2012/08

Appendix I - Monthly Summary Waste Flow Table for 2015

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

		Actual Quantitie	es of Inert C&D Mater	ials Generated / Importe	ed (in '000 m3)			Actual Quantities of	f Other C&D Materials	Wastes Generated	
Month	Total Quantities Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported C&D Material	Metal	Paper/ Cardboard Packaging	Plastic (bottles/containers, plastic sheets/ foams from package material)	Chemical Waste	Others (e.g. General Refuse etc.)
	[a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
January	66.2666	0.0000	0.0670	65.6529	0.5467	0.1150	0.0000	0.2500	0.0000	0.0000	0.0617
February	57.9980	0.0000	0.0000	57.3858	0.6121	0.3505	3.3200	0.3900	0.0000	0.5280	0.0908
March	66.0198	0.0000	0.3614	65.3359	0.3225	0.0729	0.0000	0.2920	0.0000	0.7040	0.1293
April	49.2562	0.0000	0.2770	48.7725	0.2066	0.1928	0.0000	0.2300	0.0000	0.0000	0.2423
May	41.7957	0.0000	8.7663	32.6095	0.4199	0.8683	0.0000	0.1300	0.0000	2.6400	0.0511
June	32.4389	0.0000	5.2132	26.7733	0.4524	0.9260	0.0000	0.5400	0.0000	0.5280	0.1703
Half-year total	313.7751	0.0000	14.6850	296.5299	2.5602	2.5255	3.3200	1.8320	0.0000	4.4000	0.7454
July	28.0854	0.0000	0.5171	26.7761	0.7922	1.0930	0.0000	0.6600	0.0000	0.8800	0.0496
August	47.1885	0.0000	0.4526	46.4710	0.2650	0.3222	0.0000	0.4500	0.6000	0.7040	0.1021
September	0.0000										
October	0.0000										
November	0.0000										
December	0.0000										
Yearly Total	389.0490	0.0000	15.6547	369.7770	3.6173	3.9407	3.3200	2.9420	0.6000	5.9840	0.8971

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

		Actual Quantiti	es of Inert C&D Mater	ials Generated / Importe	ed (in '000 m3)			Actual Quantities o	f Other C&D Materials	Wastes Generated	
Year	Total Quantities Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported C&D Material	Metal	Paper/ Cardboard Packaging	Plastic (bottles/containers, plastic sheets/ foams from package material)	Chemical Waste	Others (e.g. General Refuse etc.)
	[a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2014	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609
2015											
2016											
2017											
2018											
Total	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609

Remark:

Density of C&D material to be
 Density of General Refuse to be

2.2 metric ton/m3 1.6 metric ton/m3 3) Density of Spent Oil to be

0.88 metric ton/m3

Monthly Summary Waste Flow Table for 2015 (year)

	Actua	l Quantities	of Inert C&D	Materials G	enerated Mo	onthly	Actual	Quantities o	f C&D Wastes	Generated	Monthly
		Hard Rock									
	Total	and Large	Reused in	Reused in	Disposed			Paper/			Others, e.g.
Month	Quantity	Broken	the	other	as Public	Imported		cardboard		Chemical	general
	Generated	Concrete	Contract	Projects	Fill	Fill	Metals	packaging	Plastics	Waste	refuse
	(in '000m ³)	(in m³)	(in '000m ³)								
Jan	3.864	0.105	0.648	0.000	3.216	0.118	0.000	0.000	0.000	0.040	0.080
Feb	2.429	0.049	1.518	0.000	0.911	0.100	0.000	0.000	0.003	0.900	0.070
Mar	3.713	0.029	0.270	0.000	3.443	0.100	0.000	0.000	0.006	0.000	0.080
Apr	3.597	0.115	2.308	0.000	1.289	0.090	0.003	0.000	0.000	0.000	0.065
May	1.357	0.197	0.108	0.000	1.249	0.100	0.000	0.000	0.012	0.000	0.065
Jun	2.515	0.053	0.840	0.000	1.675	0.125	0.000	0.000	0.030	0.800	0.060
Sub-total	17.475	0.547	5.692	0.000	11.783	0.633	0.003	0.000	0.051	1.740	0.420
Jul	1.177	0.030	0.351	0.000	0.826	1.564	0.000	0.000	0.000	0.000	0.065
Aug	1.966	0.164	0.294	0.000	1.672	0.956	0.002	0.000	0.001	0.000	0.130
Sep											
Oct											
Nov											
Dec											
Total	20.618	0.742	6.337	0.000	14.281	3.152	0.005	0.000	0.052	1.740	0.615

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/m^3 .

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 $7,850 \text{ kg/m}^3$.

Contract No. CV/2013/03 Particular Specification Appendix 1.27 Liantang/Heung Yuen Wai Boundary Control Point Site Formation and infrastructure Works -Contract 5

Name of Department: CEDD

	А	ctual Quantities	of Inert C&D N	Iaterials Gener	rated Monthly	у	Actual Q	uantities of C	C&D Wastes	Generated	Monthly
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
JAN	0	0	0	0	0	33.3285	4.16	0.24	0	0	0.42
FEB	0	0	0	0	0	11.82	0.99	0	0	0	0.18
MAR	0	0	0	0	0	8.592	0	0	0	0	0.375
APRIL	0	0	0	0	0	12.81	0	0	0	0	0.04
MAY	0	0	0	0	0	16.609	0	0.154	0	0	0
JUN	0	0	0	0	0	13.676	0	0	0	0	0.015
Sub Total	0	0	0	0	0	96.8355	5.15	0.394	0	0	1.03
JUL	0	0	0	0	0	10.285	0	0	0	0	0.02
AUG	0	0	0	0	0	9.129	0	0	0	0	0.43
SEP											
ОСТ											
NOV											
DEC											
Total	0	0	0	0	0	116.25	5.15	0.394	0	0	1.48

Monthly Summary Waste Flow Table for 2015

Notes:

Name of Department: CEDD

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

Notes:

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

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

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

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

- Hard Rocks and Large Broken Concrete = Cannot be defined at this stage

- Imported Fill = Estimated by the Contractor = 1 loading = 8m 3

- Metal = Estimated by the Contractor

- Paper/cardboard packaging = Estimated by the Contractor

- Plastics = Estimated by the Contractor

- Chemical Waste = Estimated by the Contractor (Spent lubricating oil, assume density 0.9kg/L)

- Other, e.g. general refuse = Estimated by the Contractor



Appendix M

Implementation Schedule for Environmental Mitigation Measures


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



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



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



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



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



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

The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas.

construction.



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



EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		the erosive potential of surface water flows.					

All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.

- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers.
- Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.
- Bentonite slurries used in piling or slurry walling should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.

5.6.1.1	4.1	Good site practices for works within water gathering grounds	To minimize water	Contractor	Construction	Construction	ProPECC Note PN
		The following conditions should be complied, if there is any works to be	quality impacts to		Works Sites	Phase	1/94
		carried out within the water gathering grounds:	the water gathering		within the water		
		ganten ganten ganten ganten ganten	grounds		gathering		

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

Drainage plans should be submitted for approval by the Director of



EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure	Who to implement the	Location of the measure	When to implement the	What requirements or standards for the measure to
	non		& Main Concerns to address	measure?	mououro	measure?	achieve?
		Water Supplies.					
		 An unimpeded access through the waterworks access road should always be maintained. 					
		 Earthworks near catchwaters or streamcourses should only be carried out in dry season between October and March, 					
		 Advance notice must be given before the commencement of works on site quoting WSD's approval letter reference. 					
5.6.1.2	4.1	Good site practices of general construction activities	To minimize water	Contractor	All construction	Construction	EIA Recommendation
	be collected, handled and disposed of pro nearby stormwater drain. Stockpiles of cen	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.	/ 		works sites	phase	
		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.					
5.6.1.3	4.1	Sewage effluent from construction workforce	To minimize water	Contractor	All construction	Construction	EIA Recommendation
		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.	quality impacts		works sites with on-site sanitary facilities	phase	and Water Pollution Control Ordinance (WPCO)
5.6.1.4	4.1	Hydrogeological Impact	To minimize water	Contractor	Construction	Construction	EIA Recommendation
		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.			works sites of the drill and blast tunnel	phase	and WPCO
Water Qu	ality Impa	ct (Operation)					
		No mitigation measure is required.					



EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns	Who to implement the	Location of the measure	When to implement the measure?	What requirements or standards for the measure to
			to address	measure?			achieve?
Sewage a	and Sewera	age Treatment Impact (Construction)					
6.7	5	The sewage generated by the on-site workforce should be collected in chemical toilets and disposed of off-site by a licensed waste collector.	To minimize water quality impacts	Contractor	All construction works sites with on-site sanitary facilities	Construction phase	EIA recommendation and WPCO
Sewage a	and Sewera	age Treatment Impact (Operation)					
6.6.3	5	Sewage generated by the BCP and Chuk Yuen Village Resite will be collected and treated by the proposed on-site sewage treatment facility using Membrane Bioreactor treatment with a portion of the treated wastewater reused for irrigation and flushing within the BCP.	To minimize water quality impacts	DSD	BCP	Operation phase	EIA recommendation and WPCO
6.5.3	5	Sewage generated from the Administration Building will be discharged to the existing local sewerage system.	To minimize water quality impacts	DSD	Administration Building	Operation phase	EIA recommendation and WPCO
Waste Ma	anagement	t Implication (Construction)					
7.6.1.1	6	Good Site Practices	To minimize	Contractor	Construction	Construction	EIA recommendation
		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:	adverse environmental impact		works sites (general)	Phase	Waste Disposal Ordinance; Waste Disposal (Chemical Wastes) (General) Regulation; and ETWB TC(W) No. 19/2005,
		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					Environmental Management on Construction 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 					



EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		such odour is not anticipated to be an issue to distant sensitive receivers					
	1	 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 					
.6.1.2	-	Waste Reduction Measures		Contractor	Construction works sites (General)	Construction Phase	EIA recommendation and Waste Disposal Ordinance
		Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:					
		 Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal 					
		 Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force 					
		 Proper storage and site practices to minimise the potential for damage or contamination of construction materials 					
		Plan and stock construction materials carefully to minimise amount					



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