

ATAL-Degrémont-China State Joint Venture

Contract No. DC/2008/03
Design, Build and Operate Pillar
Point Sewage Treatment Works:
*Thirty-seventh Monthly EM&A
Report*

December 2013

Environmental Resources Management

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Point Sewage Treatment Works:
*Thirty-seventh Monthly EM&A
Report*

December 2013

Reference 0119806

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Certified by:	 (Environmental Team Leader – Winnie Ko)
Certified by:	 (Registered Landscape Architect (R127) – Tai Kai Wai)
Date:	9 December 2013

Your Ref:
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By Hand & By Fax (2833 9162)

Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F., Western Magistracy,
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Hong Kong.

Attn: Mr. Kenley C.K. KWOK (T: 2159 3409)

09 December 2013

Dear Sir,

**Contract No. DC/2008/03
Design, Build and Operate
Pillar Point Sewage Treatment Works**

Monthly EM&A Report for November 2013

Reference is made to Environmental Team (ET)'s draft of the Monthly EM&A Report for November 2013 provided by email dated 5 and 9 December 2013. We have no further comment.

We hereby verify the said Monthly EM&A Report as having complied with the requirement as set out in the EM&A Manual in accordance with the condition 3.6 of Environmental Permit No. EP-321/2008/A.

Should you have any queries, please feel free to contact the undersigned at 3922 9393.

Yours faithfully,

For and on behalf of
AECOM Asia Co. Ltd.



Y T Tang
Independent Environmental Checker

c.c. AECOM – Mr. C Y Hung
ERM – Ms. Winnie Ko
ATAL–Degremont–China State JV – Mr. C.Y. Fong

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EXECUTIVE SUMMARY

The construction works of *DC/2008/03 of Design, Build and Operate Pillar Point Sewage Treatment Works (the Project)* commenced on 13 November 2010. This is the 37th monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 30 November 2013 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month included:

- Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Septic Waste Reception Station, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Empty Sludge Skip Storage Area and Chemical Building;
- Install E&M equipment at the Administration Building, Sludge Dewatering Building, PTW, CEPT, UV Building, Septic Waste Reception Station, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Empty Sludge Skip Storage Area, Existing Solid Handling Building, Electrical buildings No.1, No.3 and No.4;
- Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B;
- Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2;
- Conduct preparation works for Payment Flow Meter at Payment Flow Meter Chamber;
- Construct structural works at weigh bridge; and
- Construct backfilling and drainage works for the whole site.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities undertaken in this reporting period is listed below:

- | | |
|---|---------|
| • 24-hour TSP Monitoring at each monitoring station (AM1 and AM2) | 5 sets |
| • 1-hour TSP Monitoring at each monitoring station (AM1 and AM2) | 15 sets |
| • Joint Environmental Site Inspection | 4 times |
| • Landscape & Visual Monitoring | Once |

Air Quality

5 sets of 24-hour TSP and 15 sets of 1-hr TSP measurements were carried out at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes). In total, 1602.35 tonnes of inert C&D material were generated from

the Project, of which 60 tonnes were reused in this Contract and the remaining 1542.35 tonnes were disposed as public fill. 18.00 kg of metals, 60.00 kg of papers/ cardboard packing and 50.00 kg of plastics were sent to recyclers for recycling during the reporting period.

Environmental Site Inspection

Four weekly joint environmental site inspections were carried out by the representatives of the Contractor, SOR and the Environmental Team (ET). Details of the audit findings and implementation status of the mitigation measures are presented in *Section 7.1*.

Landscape & Visual

Review on landscape and visual mitigation measures was performed on 4 November 2013. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 3.2 and 7.2*.

Environmental Exceedance/Non-conformance/Compliant/Summons and Prosecution

No exceedance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next reporting month include:

- Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Septic Waste Reception Station, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Empty Sludge Skip Storage Area and Chemical Building;
- Install E&M equipment at the Administration Building, Sludge Dewatering Building, PTW, CEPT, UV Building, Septic Waste Reception Station, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Empty Sludge Skip Storage Area, Existing Solid Handling Building, Electrical buildings No.1, No.3 and No.4 and weighbridge;
- Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B;
- Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2;
- Conduct installation of payment flow meter at Payment Flow Meter Chamber;
- Construct wall and roof at Sludge Skip Storage Building;
- Construct structural works at Empty Sludge Skip Storage Area; and
- Construct backfilling and drainage works for the whole site.

Environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs, waste management and landscaping issues.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by ATAL – Degrémont – China State Joint Venture (ADC-JV) (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the *Contract No. DC/2008/03 of Design, Build and Operate Pillar Point Sewage Treatment Works (the Project)*.

1.1 PURPOSE OF THE REPORT

This is the 37th EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 2013.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1: **Introduction**

It details the scope and structure of the report.

Section 2: **Project Information**

It summarises the background and scope of the Project, site description, project organization, construction programme, construction works undertaken and status of the Environmental Permits (EP)/licences over the construction phase of the Project.

Section 3: **Environmental Monitoring Requirements**

It summarises the environmental monitoring requirements including monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event/Action Plans, environmental mitigation measures as recommended in the approved EIA report, EP and relevant environmental requirements stated in the Contract Specification.

Section 4: **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results**

It summarises the monitoring results obtained in the reporting period.

Section 6: **Waste Management**

It summarises the quantity of public fill and construction waste generated in the reporting period

Section 7: **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 8: **Environmental Non-conformance**

It summarises any exceedance of environmental performance standard, environmental complaints and summons received within the reporting period.

Section 9: **Further Key Issues**

It summarises the impact forecast and monitoring schedule for the next reporting month.

Section 10: **Review of the EM&A Data and Predictions**

It compares the monitoring data and waste quantity against the predictions in the approved Project EIA report.

Section 11 : **Conclusions**

2.1**BACKGROUND**

The existing Pillar Point Sewage Treatment Works (PPSTW) is located to the north of the Tuen Mun River Trade Terminal and is abutting the Lung Mun Road in the north. It is a preliminary treatment works with screening and grit removal processes and the treated effluent is discharged to the sea (North Western Water Control Zone) via a twin submarine outfall. The *Review of the Tuen Mun and Tsing Yi Sewerage Master Plan (RTMTYSMP)*, commissioned in February 1999, recommended that the sewage treatment capacity be expanded and the plant be upgraded to chemically enhanced primary treatment (CEPT) with disinfection. This is to cater for the projected ultimate population and planned developments in the Tuen Mun area, and to improve the effluent quality reducing pollution loadings to the receiving waters.

The upgrading of the PPSTW comprises the following works:

- expanding the treatment capacity of the existing PPSTW to cope with the increased peak wet-weather sewage flow in Tuen Mun area;
- upgrading the sewage treatment level of the existing PPSTW to incorporate chemical treatment with disinfection at minimum removal rates of 70%, 55% and 99.9% of suspended solids (SS), biochemical oxygen demand (BOD) and *E.coli*, respectively;
- upgrading the existing septic waste reception facilities at PPSTW; and
- providing and upgrading ancillary facilities including the administration building, workshop, laboratory, odour control facilities, sludge handling and dewatering facilities, access roads and minor landscaping works within the STW for the operation and maintenance of the upgraded STW.

The potential environmental impacts of the Project have been studied in the *“Upgrading of Pillar Point Sewage Treatment Works”* (EIAO Register No: AEIAR-145/2008). The EIA was approved on 10 June 2008 under the *Environmental Impact Assessment Ordinance* (EIAO) and an Environmental Permit (EP-321/2008) for the works was granted on 17 November 2008. A variation of an Environmental Permit was granted on 23 April 2013 (EP-321/2008/A). Under the requirements of Condition 3.1 of EP-321/2008/A, an EM&A programme as set out in the EM&A Manual is required to be implemented.

The construction works commenced on 13 November 2010 and are scheduled for completion by 2014.

2.2**GENERAL SITE DESCRIPTION**

The open area adjacent to the existing PPSTW has been designated for the upgrading works. The layout of the upgrading works is illustrated in *Annex*

A.

2.3 CONSTRUCTION ACTIVITIES

A summary of the major construction activities undertaken in the reporting period is shown in *Table 2.1*. The locations of the construction activities are shown in *Annex B*. The construction programme of the Project in the reporting month and the upcoming month is presented in *Annex L*.

Table 2.1 *Summary of Construction Activities Undertaken in the Reporting Period*

Construction Activities Undertaken	
•	Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Septic Waste Reception Station, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Empty Sludge Skip Storage Area and Chemical Building;
•	Install E&M equipment at the Administration Building, Sludge Dewatering Building, PTW, CEPT, UV Building, Septic Waste Reception Station, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Empty Sludge Skip Storage Area, Existing Solid Handling Building, Electrical buildings No.1, No.3 and No.4;
•	Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B;
•	Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2;
•	Conduct preparation works for Payment Flow Meter at Payment Flow Meter Chamber;
•	Construct structural works at weigh bridge; and
•	Construct backfilling and drainage works for the whole site.

2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

The project organisation chart and contact details are shown in *Annex C*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

Table 2.2 *Summary of Environmental Licensing, Notification and Permit Status*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-321/2008/A	Throughout the Contract	Permit granted on 23 April 2013
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	Ref No. 308136	Throughout the Contract	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Water Discharge License	WT00017778-2013	22 November 2013 - 31 October 2015	Wastewater discharge licence was issued by EPD on 22 November 2013.
Construction Noise Permit	GW-RW0466-13	28 July 2013 - 27 January 2014	-
Chemical Waste Producer Registration	5213-421-A2620-01	Throughout the Contract	Licence approved on 28 October 2010

3.1 AIR QUALITY MONITORING

3.1.1 Monitoring Location

The proposed air quality monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are given in *Table 3.1* and shown in *Annex D*. The proposed locations (AM1 and AM2) have been agreed with the Drainage Services Department (DSD), Environmental Protection Department (EPD) and the Independent Environmental Checker (IEC).

Table 3.1 Construction Phase Air Monitoring Locations

Monitoring ID	Air Quality Monitoring Station
AM1	Tuen Mun EMSD Servicing Vehicle Station
AM2	River Trade Terminal Office

3.1.2 Monitoring Parameter and Frequency

The construction phase air quality monitoring has been conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. 1-hour and 24-hour TSP levels have been monitored at the frequency and duration stated in *Table 3.2*. The construction phase TSP monitoring has been conducted as per the schedule presented in *Annex E*.

Table 3.2 Construction Phase Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
24-hour average TSP	Once every 6 days
1-hour average TSP	3 times every 6 days

3.1.3 Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 3.3*.

Table 3.3 Action and Limit Levels for Air Quality

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM1	183	260
	AM2	192	260
1-hour TSP	AM1	343	500
	AM2	383	500

3.1.4 Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring was performed using High Volume Samplers (HVS) with appropriate sampling inlets located at the designated monitoring stations.

The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. Table 3.4 summarises the equipment that were deployed for the 24-hour and 1-hour TSP monitoring respectively.

Table 3.4 *TSP Monitoring Equipment*

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM1	GMW GS-2310 (S/N 7580), CM-AIR-43 (S/N 0438320)
AM2	GMW GS-2310 (S/N 1252), CM-AIR-43 (S/N 0438320)

3.1.5 *Monitoring Methodology*

The setup locations of the HVSs were listed in Table 3.1. All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM1 and AM2;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;

- the filter holder and area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was inserted into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 and 1.37 m³ min⁻¹ which were within the range specified in the EM&A Manual (ie 0.6 to 1.7 m³ min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half l so that only surfaces with collected particulate matter were in contact;
- the filter was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, eg. motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration records for the HVSs are given in *Annex F*.

Wind Data Monitoring

Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Tuen Mun of the Hong Kong Observatory (HKO) and were presented in *Annex G*.

3.1.6 *Event and Action Plan*

The Event/Action Plan (EAP) for air quality monitoring is presented in *Annex H*.

3.2 *LANDSCAPE AND VISUAL MONITORING*

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the approved EIA Report are fully achieved. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

3.3 *ENVIRONMENTAL MITIGATION MEASURES AND ENVIRONMENTAL REQUIREMENTS IN CONTRACT*

All the relevant environmental mitigation measures listed in the EIA Report and EM&A Manual as well as the specific environmental requirements stated in the Contract Specification are summarised in *Annex I*. A summary of the key environmental mitigation measures implemented as per the Contract Requirements is also presented in *Annex I*.

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the approved EIA Report, EM&A Manual and EP. The implementation status of the measures during the reporting period is summarised in *Annex I*.

5 MONITORING RESULTS

5.1 AIR QUALITY

A total of 5 sets of 24-hour and 15 sets of 1-hour TSP measurements were taken at each of the monitoring stations (AM1 and AM2) during the reporting period. The monitoring data for 24-hour and 1-hour TSP together with the wind data and graphical presentations for the past 4 months are presented in *Annex G*. The weather conditions during the monitoring period ranged from sunny to rainy. The local impacts near the monitoring stations of AM1 and AM2 were mainly associated with vehicular emissions. No exceedance of Action and Limit Level of the 1-hr and 24-hr TSP was recorded during the reporting period.

Wastes generated from this Project include inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction waste). Construction waste comprises general refuse, metals and paper/cardboard packaging materials. Metals generated from the Project are also grouped into construction waste as the materials were not disposed of with others at public fill. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (see *Annex J*). With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 6.1*.

Table 6.1 Quantities of Waste Generated from the Project

Month / Year	Quantity			
	Total Inert C&D Materials Generated ^(a)	Non-inert C&D Materials ^(b)		
		C&D Materials Recycled ^(c)	C&D Waste Disposed of at Landfill ^(d)	Chemical Waste
November 2013	1602.35 tonnes	128.00 kg	36.44 tonnes	0 L

Notes:

(a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 1602.35 tonnes of inert C&D waste were generated from the Project, of which 60.00 tonnes were reused in this Contract and the remaining 1542.35 tonnes were disposed as public fill. The detailed waste flow is presented in *Annex J*.

(b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.

(c) 18.00 kg of metals, 60.00 kg of papers/ cardboard packing and 50.00 kg of plastics were sent to recyclers for recycling during the reporting period

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at WENT Landfill by subcontractors.

7.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the SOR and the ET on 4, 14, 21 and 29 November 2013. The IEC was also present at the joint inspection on 21 November 2013.

Major observations during the reporting period are summarised as follows:

4 November 2013

- General refuse was observed accumulating beside the Outfall Pumping Station. The Contractor was reminded to store them in specific enclosed bins and frequently collect them.

14 November 2013

- A chemical container was observed beside N1 Manhole. The Contractor was reminded to store the chemical container in designated area for chemical waste.
- Tree tag was observed missing for the retained tree 259. The Contractor was reminded to provide the tree tag.

21 November 2013

- Oil leakage was observed under the chain cutting machine outside the Existing Outfall Pumping Station. The Contractor was reminded remove the oil leakage and dispose of as chemical waste. Also the Contractor was reminded to well maintain the machine such that there is no leakage of oil.
- Construction material was observed storing under retained tree R40. The Contractor was reminded to remove the construction material and fence off the protection zone for the tree.

29 November 2013

- Oil stain was observed beside the hammer breaker at Gate 3. The Contractor was reminded to clean up the oil stain and dispose of as chemical waste.
- Waste was observed accumulating at Gate 3. The Contractor was reminded to collect the waste frequently, and stored in enclosed bin.

Follow-up actions resulting from the last site inspections were taken as reported by the Contractor and their results were observed in the site inspections conducted in the reporting period.

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved. A review of the landscape and visual mitigation measures was performed on 4 November 2013. It was confirmed that most of the necessary landscape and visual mitigation measures as summarised in *Annex I* were implemented by the Contractor. The major findings are summarised as follow:

4 November 2013

- Worn hessian pads/gunny bags wrapping the tree trunk were found intact on the retained trees along weighing bridge and access road after completion of nearby construction works. The Contractor was reminded to remove all the wrapping materials to prevent the trees from insect infestation and rotten bark.
- Broken branches were observed hanging on some retained trees along the access road. The Contractor was reminded to remove the broken branches and prune the tree crowns in order to prevent the broken branches from further decaying and falling on the access road.

8 ENVIRONMENTAL NON-CONFORMANCE

8.1.1 *Summary of Monitoring Exceedance*

No exceedances of the Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

8.1.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

8.1.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative environmental complaint log is shown in *Annex K*.

8.1.4 *Summary of Environmental Summon and Successful Prosecution*

No summon was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex K*.

9.1.1 Key Issues for the Coming Month

Works to be undertaken for the coming monitoring period are summarised in Table 9.1.

Table 9.1 Construction Works to be Undertaken in the Next Reporting Period

Construction Activities Undertaken
<ul style="list-style-type: none"> • Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Septic Waste Reception Station, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Empty Sludge Skip Storage Area and Chemical Building; • Install E&M equipment at the Administration Building, Sludge Dewatering Building, PTW, CEPT, UV Building, Septic Waste Reception Station, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Empty Sludge Skip Storage Area, Existing Solid Handling Building, Electrical buildings No.1, No.3 and No.4 and Weighbridge; • Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B; • Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2; • Conduct installation of payment flow meter at Payment Flow Meter Chamber; • Construct wall and roof at Sludge Skip Storage Building; • Construct structural works at Empty Sludge Skip Storage Area; and • Construct backfilling and drainage works for the whole site.

Potential environmental impacts arising from the above construction activities will be mainly associated with dust, construction noise, site runoffs, waste management and landscaping issues.

9.1.2 Monitoring Schedule for the Next Reporting Period

The tentative schedule of TSP monitoring for the next reporting period was presented in Annex E. Environmental monitoring will be conducted at the same monitoring locations in the next reporting period. The monitoring programme has been reviewed and was considered adequate for the nature of works in progress.

9.1.3 Construction Programme for the Next Three Months

The most up-to-date construction programme for the Project is presented in Annex L.

10.1 AIR QUALITY

Since the EIA has only included a qualitative assessment of dust impact during the construction phase, a comparison was made between the monitoring results from the start of the Project and the Hong Kong Air Quality Objectives (HKAQO) (see *Table 10.1*).

Table 10.1 Comparison of the HKAQO and Air Quality Monitoring Results

Monitoring Station	Corresponding ASR in EIA	HKAQO, $\mu\text{g m}^{-3}$	Measured 24-hour TSP Monitoring Results, $\mu\text{g m}^{-3}$ (a) (b)	
		24 hour (a)	Average	Range
AM1	A1	260	72	50 - 100
AM2	A7	260	77	51 - 102

Notes:

(a) Only 24-hour TSP monitoring results were compared as there is no 1 hour TSP criterion in HKAQO.

(b) The average and range of data were calculated from the period between the commencement of the construction works and this reporting month.

The monitoring results show that the average and range of the 24-hour TSP levels recorded since the commencement of the construction works have been well below the 24-hour TSP criterion in the HKAQO. Recommended mitigation measures in *Section 3.7.1.1* of EIA have been implemented throughout the construction period and were considered effective.

10.2 WASTE MANAGEMENT

The estimated amount of waste generated from the Project and the cumulative quantities of waste generated up to this reporting month are presented in *Table 10.2*. The amount of inert C&D material sent to public fills is higher than the estimated amount in the EIA. With reference to the C&D Material Assessment (Contractor's General Submission (CSF) No.: DC200803/CSF/SAF/060026/A), the difference in quantities is mainly due to the differences in excavation depths and the excavation methods in the Contract Works and that assumed in the Reference Design. Recommended mitigation measures in *Sections 7.5.1.1* to *7.5.1.9* of the EIA will continue to be implemented during the construction stage.

Table 10.2 *Quantity of Amount of C&D Materials, General Wastes and Chemical Wastes Actually Generated and Estimated in the EIA and C&D Material Assessment*

Type of Material	Estimated Amount of Public Fill and Construction Waste in the EIA (inert & non-inert)	Estimated Amount of Public Fill and Construction Waste in C&D Material Assessment (CSF No.: DC200803/CSF/SAF/060026/A) ^(c)	Accumulated Actual Amount of Public Fill and Construction Waste Recorded ^(a) ^(b) (inert & non-inert)
Amount of C&D Materials Arising	61,489.00 m ³	77,600.00 m ³	128,709.76 m ³
Amount of C&D Materials Reused on other site	-	-	3,163.89 m ³
Amount of C&D Materials Reused on site	14,926.00 m ³	18,000.00 m ³	24,130.00 m ³
Amount of C&D Materials Sent to Fill Banks	46,563.00 m ³	59,600.00 m ³	101,415.55 m ³
General Refuse Small		-	1,947.56 tonnes
Chemical Waste Small		-	810.00 L

Notes:

(a) The actual amount of C&D Materials has been recorded since the commencement of construction works.

(b) The density of soil and rock (bulked) is 1.8 tonnes/m³.

(c) The estimated amount of C&D material generated from the Contract Works was revised in the C&D Material Assessment and submitted to the SO on 9 September 2010 (CSF No.: DC200803/CSF/SAF/060026/A) because of the new plant & facility layout.

10.3

CONCLUSION OF THE REVIEW

The EIA predictions and monitoring results since the commencement of the construction works have been reviewed. The EIA concluded that the Project would not cause adverse impacts to the environment, and monitoring results have also confirmed that so far. Mitigation measures recommended in the EP, EIA and EM&A Manual will continue to be implemented throughout the construction phase of the Project.

This EM&A Report presents the EM&A programme undertaken during the reporting period from 1 to 30 November 2013 in accordance with EM&A Manual and requirements of EP (EP-321/2008/A).

No exceedance of Action and Limit Levels of 24-hour TSP and 1-hour TSP was recorded at the monitoring stations during the reporting period.

Monthly landscape and visual monitoring was conducted in the reporting period. Most of the necessary landscape and visual mitigation measures recommended in the EIA Report were implemented by the Contractor. Follow-up actions are required by the Contractor to improve protection of the retained or to-be transplanted trees.

No non-compliance event was recorded during the reporting period.

No complaint and summons/prosecution was received during the reporting period.

The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures in the coming periods.

Annex A

Location of Project

PROPOSED FACILITIES AND BUILDINGS

SECTION 1 INLET PUMPING STATION AND PRELIMINARY TREATMENT WORKS

- ① INLET CHAMBER
- ② COARSE SCREENS AND INLET PUMPING STATION
- ③ FINE SCREEN CHANNELS
- ④ GRIT CHAMBERS
- ⑤ INLET FLOWMETER CHAMBER
- ⑥ PTW MCC ROOM

- ⑦ BLOWER ROOM
- ⑧ SCREENING SKIP HOUSE
- ⑨ ODOR DUCT SUPPORTING BRIDGE
- ⑩ SEPTIC WASTE RECEPTION STATION
- ⑪ WEIGHBRIDGE
- ⑫ ELECTRICAL BUILDING 1

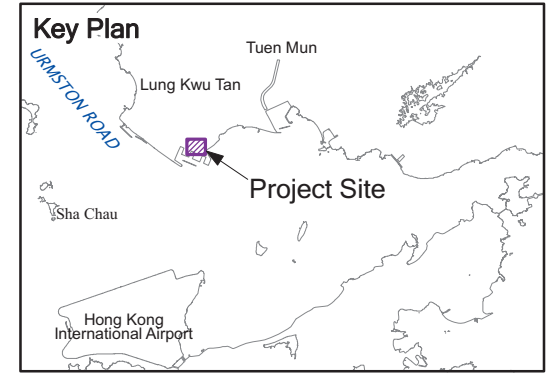
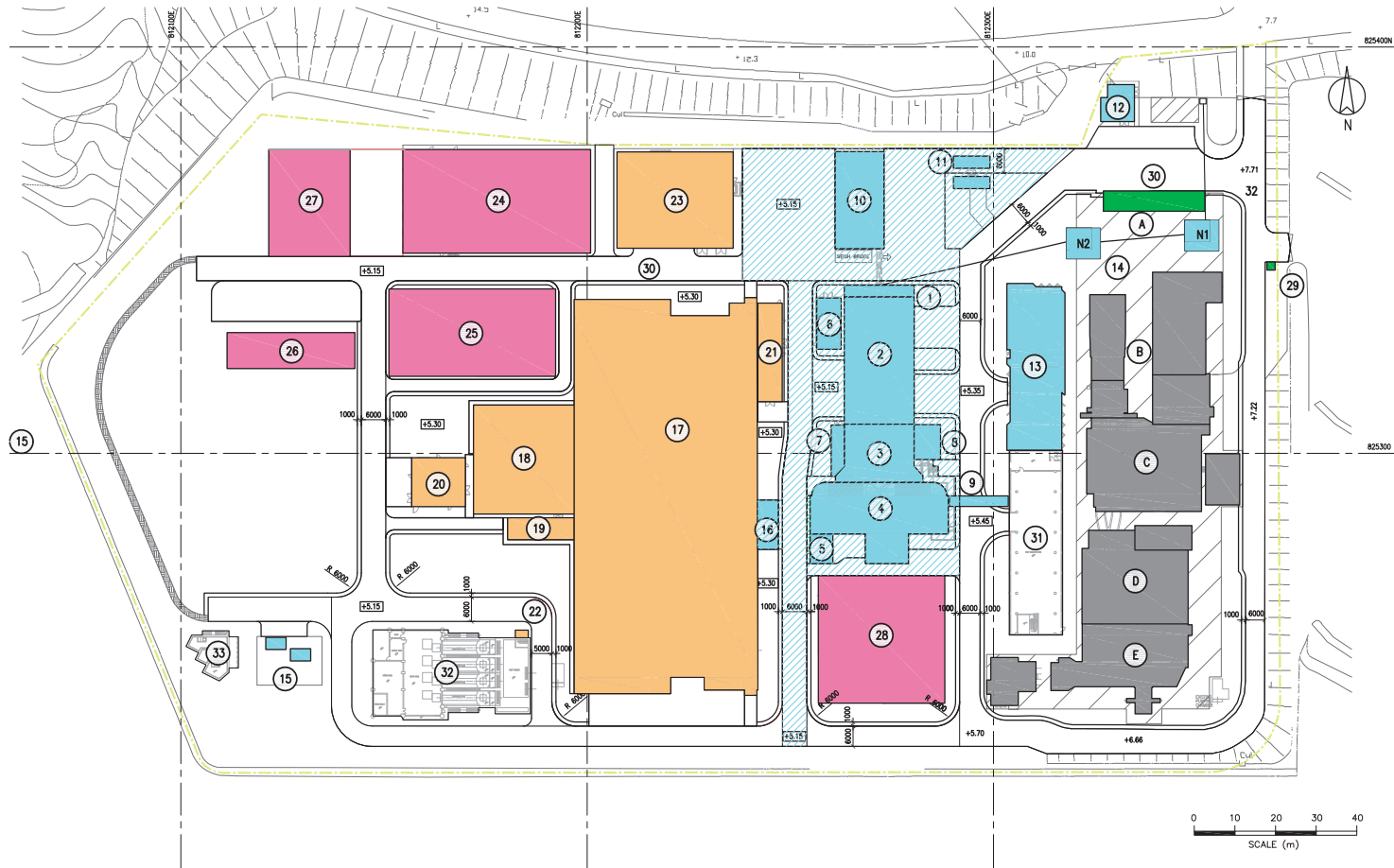
- ⑬ ADMINISTRATION BUILDING
- ⑭ INLET CHAMBERS
- ⑮ PAYMENT FLOWMETER CHAMBER
- ⑯ CEPT INLET CHAMBER

SECTION 2 CEPT TANKS UV DISINFECTION

- ⑰ CEPT TANKS
- ⑱ UV DISINFECTION CHANNELS
- ⑲ REUSE WATER PUMP ROOM
- ⑳ ELECTRICAL BUILDING 3
- ㉑ ELECTRICAL BUILDING 2
- ㉒ OUTFALL PUMPING STATION CONNECTION CHAMBER
- ㉓ CHEMICAL BUILDING

SECTION 3 SLUDGE TREATMENT & HANDLING AND ODOUR CONTROL

- ㉔ SLUDGE DEMATERING BUILDING
- ㉕ DEODORISATION UNITS (B)
- ㉖ SLUDGE SKIP STORAGE BUILDING
- ㉗ SLUDGE SKIP LOADING AREA
- ㉘ DEODORISATION UNITS (A)



SECTION 4 EXISTING BUILDINGS TO BE DEMOLISHED

- Ⓐ ADMINISTRATION BUILDING
- Ⓑ INLET SCREW PUMPING STATION AND MOTOR HOUSE
- Ⓒ COARSE SCREENS
- Ⓓ BLOWER HOUSE AND GRIT CHANNELS
- Ⓔ FINE SCREEN CHANNELS AND FLOWMETER CHAMBER

SECTION 5 EXTERNAL WORKS

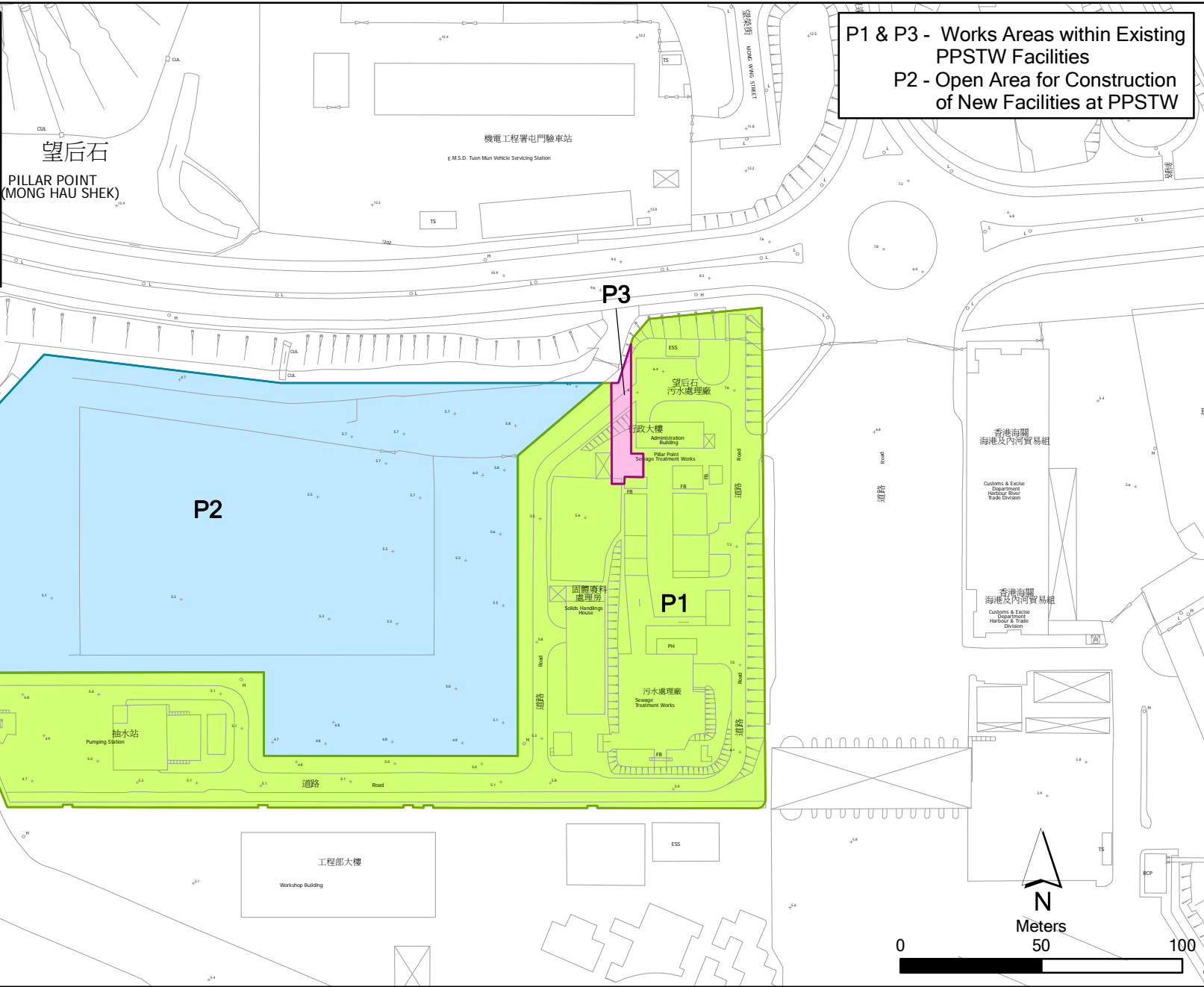
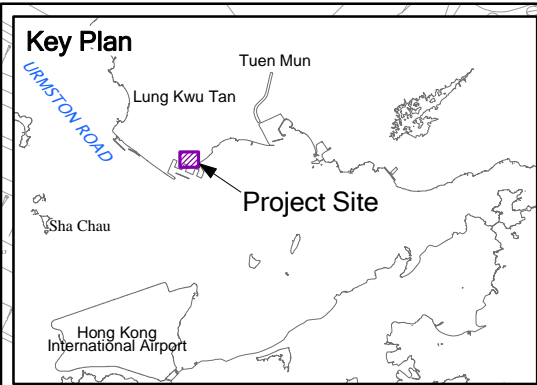
- ⑳ GATE HOUSE
- ㉑ CAR PARK

EXISTING BUILDING TO BE RETAINED

- ㉒ EXISTING SOLID HANDLING BUILDING
- ㉓ EXISTING OUTFALL PUMPING STATION
- ㉔ EXISTING TERMINAL MANHOLE

Annex B

Works Location



P1 & P3 - Works Areas within Existing PPSTW Facilities
 P2 - Open Area for Construction of New Facilities at PPSTW

Annex B

Location of Works Areas

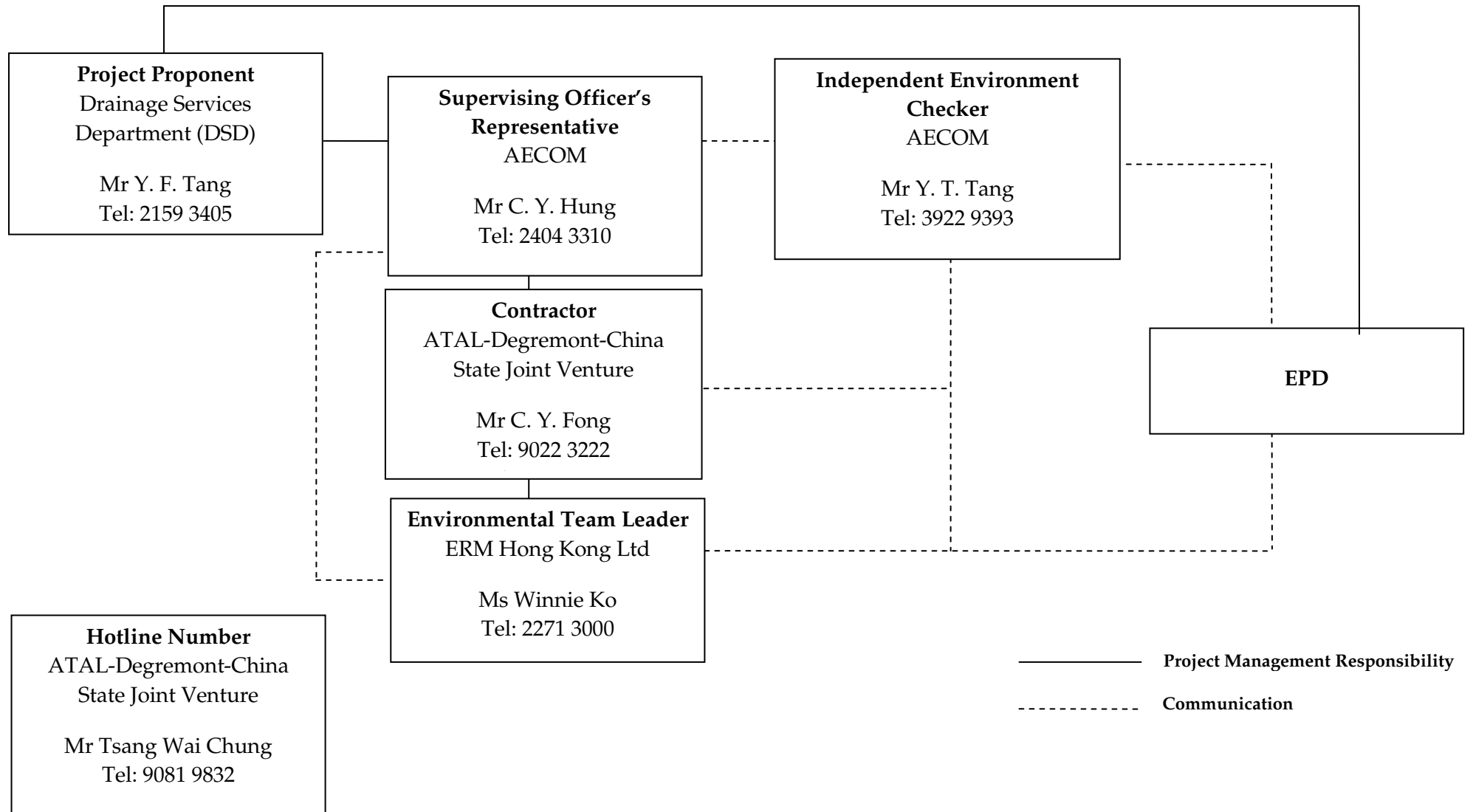
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 Date: 15/12/2010

Environmental Resources Management

Annex C

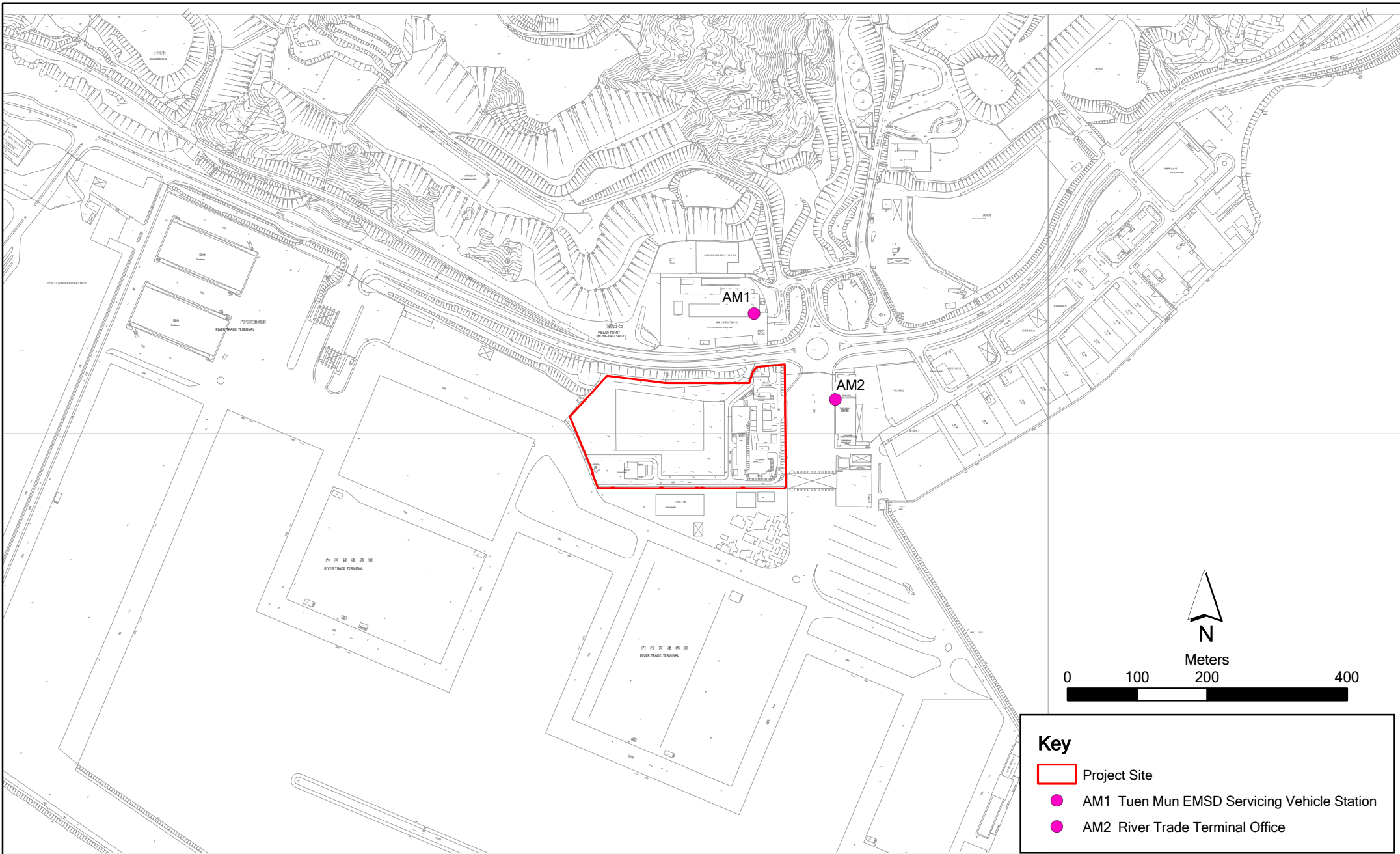
Project Organization Chart with Contact Details

Project Organization During Construction Phase (with contact details)



Annex D

Locations of Air Quality Monitoring Stations



Key

- Project Site
- AM1 Tuen Mun EMSD Servicing Vehicle Station
- AM2 River Trade Terminal Office

Annex D

Contract No. DC/2008/03 Design, Build and Operate of Pillar Point Sewage Treatment Works

File: 0119806_Site Boundary.mxd
Date: 15/12/2010

**Environmental
Resources
Management**





AM1 – Tuen Mun EMSD Servicing Vehicle Station



AM2 - River Trade Terminal Office

Annex E

Monitoring Schedule of Reporting Month and Next Month

**Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
November 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Nov	02-Nov
03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov
	3X1-hr & 1X 24-hr TSP				3X1-hr & 1X 24-hr TSP	
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
				3X1-hr & 1X 24-hr TSP		
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
			3X1-hr & 1X 24-hr TSP			
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
		3X1-hr & 1X 24-hr TSP				

**Contract No. DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
(Tuen Mun EMSD Servicing Vehicle Station - AM1 & River Trade Terminal Office - AM2)
December 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Dec	02-Dec	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec
	3X1-hr & 1X 24-hr TSP				3X1-hr & 1X 24-hr TSP	
08-Dec	09-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
				3X1-hr & 1X 24-hr TSP		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			3X1-hr & 1X 24-hr TSP			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		3X1-hr & 1X 24-hr TSP	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	3X1-hr & 1X 24-hr TSP					

Annex F

Calibration Reports for HVSs

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr and 1-hr TSP</i>		HVS	Calibrator		
AM1	Tuen Mun EMSD Vehicle Servicing Station	GMW GS-2310 (S/N 7580)	CM-AIR-43 (S/N 0438320)	02 November 2013	02 January 2014
AM2	River Trade Terminal Office	GMW GS-2310 (S/N 1252)	CM-AIR-43 (S/N 0438320)	02 November 2013	02 January 2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : EMSD
 Calibrated by : K.T.Ho
 Date : 02/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 7580

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1017
 Ta(K) : 298

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.2	3.353	1.617	64	64.13
2 13 holes	9.1	3.023	1.459	56	56.11
3 10 holes	7.2	2.689	1.299	48	48.09
4 7 holes	4.6	2.149	1.041	37	37.07
5 5 holes	2.6	1.616	0.786	23	23.05

Sampler Calibration Relationship

Slope(m):48.653 Intercept(b): -14.669 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan

Date: 06/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : River Trade
 Calibrated by : P.F.Yeung
 Date : 02/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1252

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1017
 Ta(K) : 298

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.2	3.353	1.617	64	64.13
2 13 holes	9.1	3.023	1.459	56	56.11
3 10 holes	7.2	2.689	1.299	48	48.09
4 7 holes	4.6	2.149	1.041	36	36.07
5 5 holes	2.6	1.616	0.786	22	22.04

Sampler Calibration Relationship

Slope(m):50.144 Intercept(b): -16.920 Correlation Coefficient(r):0.9996

Checked by: Magnum Fan

Date: 06/11/2013



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) = 2.09107			Qa slope (m) = 1.30939		
intercept (b) = -0.02838			intercept (b) = -0.01775		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			x axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Annex G

24-hour and 1-hour TSP Monitoring Results

Annex G - 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
04-11-2013	13:10	14:10	Cloudy	139	343	500	Construction work in progress	22.0	*	7580	8555
	14:10	15:10	Cloudy	147	343	500	Construction work in progress	22.0	*	7580	8556
	15:10	16:10	Cloudy	154	343	500	Construction work in progress	22.0	*	7580	8557
08-11-2013	13:10	14:10	Cloudy	125	343	500	Construction work in progress	28.0	*	7580	8578
	14:10	15:10	Cloudy	139	343	500	Construction work in progress	28.0	*	7580	8579
	15:10	16:10	Cloudy	135	343	500	Construction work in progress	28.0	*	7580	8580
14-11-2013	13:10	14:10	Sunny	111	343	500	Construction work in progress	24.0	*	7580	8591
	14:10	15:10	Sunny	118	343	500	Construction work in progress	24.0	*	7580	8710
	15:10	16:10	Sunny	124	343	500	Construction work in progress	24.0	*	7580	8711
20-11-2013	13:10	14:10	Fine	169	343	500	Construction work in progress	24.0	*	7580	8725
	14:10	15:10	Fine	153	343	500	Construction work in progress	24.0	*	7580	8726
	15:10	16:10	Fine	157	343	500	Construction work in progress	24.0	*	7580	8727
26-11-2013	13:10	14:10	Sunny	177	343	500	Construction work in progress	23.0	*	7580	8750
	14:10	15:10	Sunny	190	343	500	Construction work in progress	23.0	*	7580	8751
	15:10	16:10	Sunny	165	343	500	Construction work in progress	23.0	*	7580	8752
				Min.	111						
				Max.	190						
				Average	147						

* Wind Speed data is presented in the Meteorological Data table

Annex G - 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
04-11-2013	13:00	14:00	Cloudy	153	383	500	Construction work in progress	26.0	*	1252	8551
	14:00	15:00	Cloudy	156	383	500	Construction work in progress	26.0	*	1252	8552
	15:00	16:00	Cloudy	152	383	500	Construction work in progress	26.0	*	1252	8553
08-11-2013	13:00	14:00	Cloudy	147	383	500	Construction work in progress	28.0	*	1252	8574
	14:00	15:00	Cloudy	136	383	500	Construction work in progress	28.0	*	1252	8575
	15:00	16:00	Cloudy	149	383	500	Construction work in progress	28.0	*	1252	8576
14-11-2013	13:00	14:00	Sunny	110	383	500	Construction work in progress	24.0	*	1252	8590
	14:00	15:00	Sunny	136	383	500	Construction work in progress	24.0	*	1252	8707
	15:00	16:00	Sunny	132	383	500	Construction work in progress	24.0	*	1252	8708
20-11-2013	13:00	14:00	Fine	146	383	500	Construction work in progress	24.0	*	1252	8721
	14:00	15:00	Fine	153	383	500	Construction work in progress	24.0	*	1252	8722
	15:00	16:00	Fine	156	383	500	Construction work in progress	24.0	*	1252	8723
26-11-2013	13:10	14:10	Sunny	171	383	500	Construction work in progress	23.0	*	7580	8746
	14:10	15:10	Sunny	179	383	500	Construction work in progress	23.0	*	7580	8747
	15:10	16:10	Sunny	163	383	500	Construction work in progress	23.0	*	7580	8748
				Min.	110						
				Max.	179						
				Average	149						

* Wind Speed data is presented in the Meteorological Data table

Annex G - 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
04-11-2013	16:10	05-11-2013	16:10	Cloudy	2.7762	2.9291	15275.18	15299.18	24	1.20	1.20	1.20	88	183	260	Construction work in progress	7580	8558		
08-11-2013	16:10	09-11-2013	16:10	Cloudy	2.7509	2.9012	15302.18	15326.18	24	1.20	1.20	1.20	87	183	260	Construction work in progress	7580	8581		
14-11-2013	16:10	15-11-2013	16:10	Sunny	2.8112	2.9575	15329.18	15353.18	24	1.20	1.20	1.20	85	183	260	Construction work in progress	7580	8712		
20-11-2013	16:10	21-11-2013	16:10	Fine	2.7911	2.9319	13556.18	13580.18	24	1.20	1.20	1.20	81	183	260	Construction work in progress	7580	8728		
26-11-2013	16:10	27-11-2013	16:10	Sunny	2.7925	2.9466	13583.18	13607.18	24	1.20	1.20	1.20	89	183	260	Construction work in progress	7580	8753		
												Min.	81							
												Max.	89							
												Average	86							

24-hour TSP Monitoring Results

Station AM2

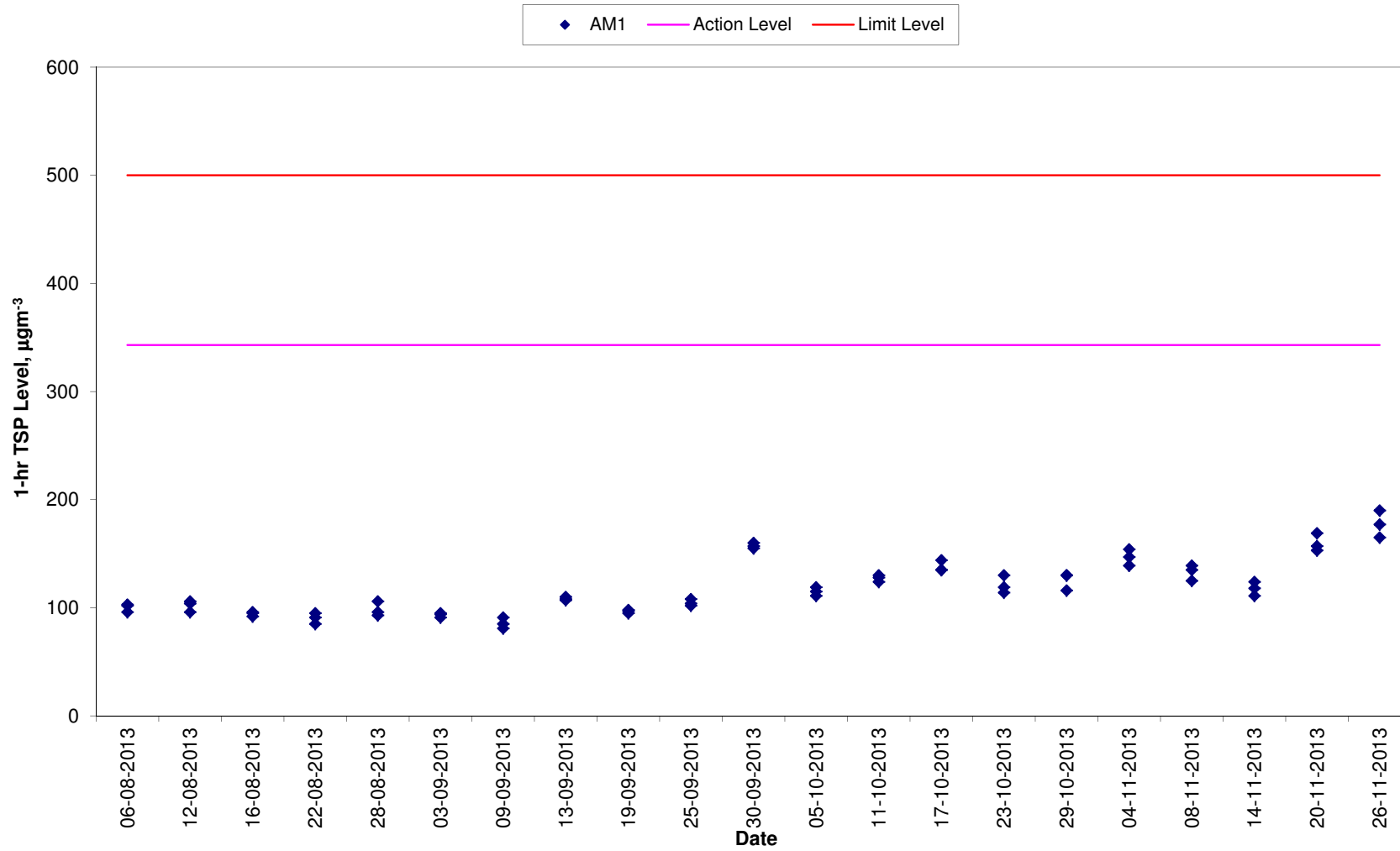
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
04-11-2013	16:00	05-11-2013	16:00	Cloudy	2.7811	2.9449	23293.20	23317.20	24	1.21	1.21	1.21	94	192	260	Construction work in progress	1252	8554		
08-11-2013	16:00	09-11-2013	16:00	Cloudy	2.7441	2.8911	23320.20	23344.20	24	1.21	1.21	1.21	84	192	260	Construction work in progress	1252	8577		
14-11-2013	16:00	15-11-2013	16:00	Sunny	2.7966	2.9411	23347.20	23371.20	24	1.21	1.21	1.21	83	192	260	Construction work in progress	1252	8709		
20-11-2013	16:00	21-11-2013	16:00	Fine	2.8080	2.9339	23374.20	23398.20	24	1.21	1.21	1.21	72	192	260	Construction work in progress	1252	8724		
26-11-2013	16:00	27-11-2013	16:00	Sunny	2.8021	2.9531	23401.20	23425.20	24	1.21	1.21	1.21	87	192	260	Construction work in progress	1252	8749		
												Min.	72							
												Max.	94							
												Average	84							

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	Tuen Mun Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
04-11-2013	Cloudy	22.0	77-99	12.2	10.0	N
05-11-2013	Cloudy	22.0	79-98	3.6	8.0	N
08-11-2013	Cloudy	24.0	60-86	Trace	6.0	N-SE
09-11-2013	Cloudy	25.0	62-86	Trace	9.0	N
14-11-2013	Sunny	21.0	68-88	Trace	10.0	N
15-11-2013	Sunny	20.0	62-83	0.0	9.0	N
20-11-2013	Fine	20.0	65-77	Trace	6.0	N
21-11-2013	Fine	19.0	55-79	0.5	6.0	N
26-11-2013	Sunny	18.0	59-80	0.0	9.0	SE-N
27-11-2013	Sunny	20.0	68-88	0.5	12.0	N

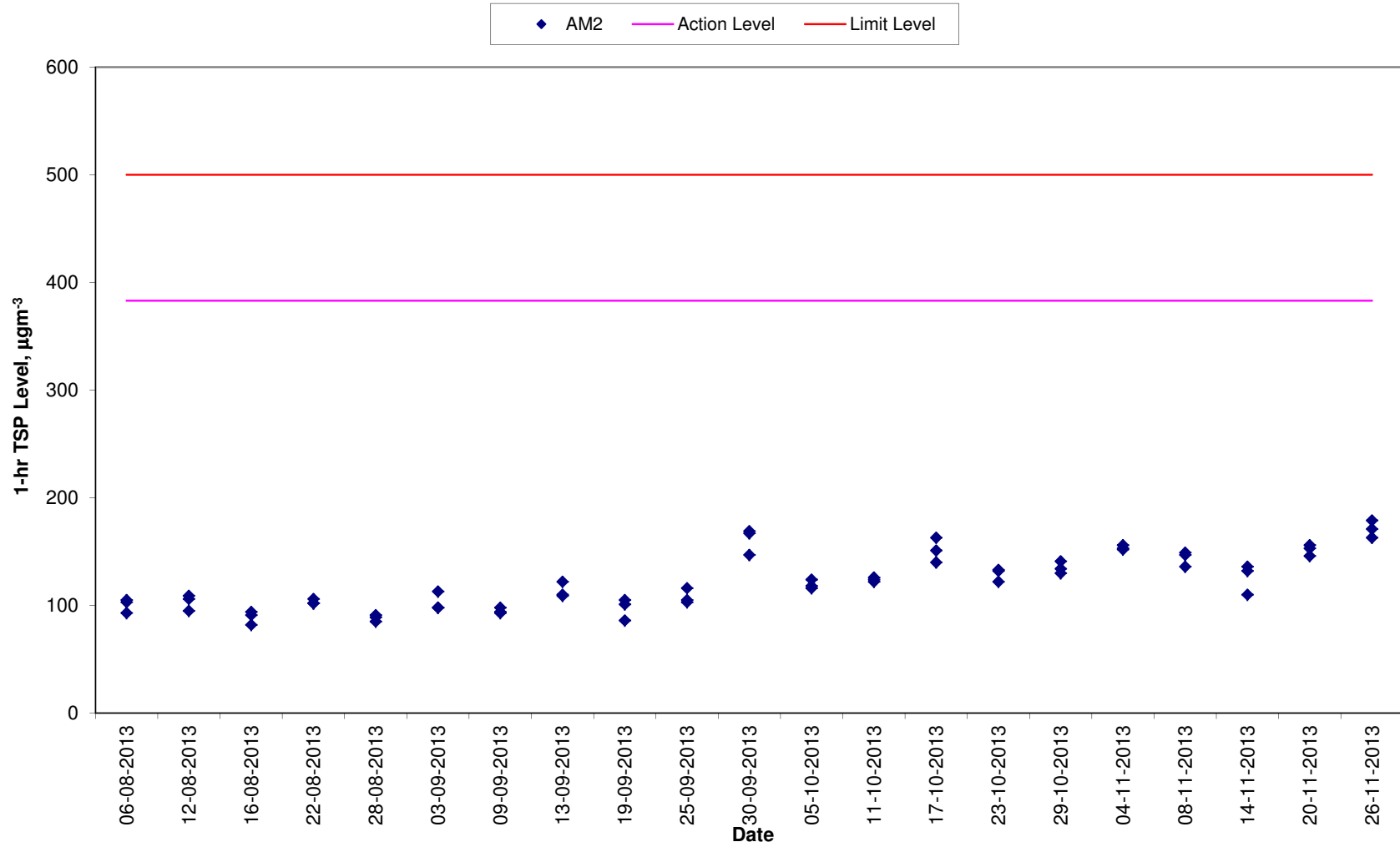
Annex G TSP Monitoring Results

1-hr TSP Levels for the Past 4 Months
AM1 (Tuen Mun EMSD Vehicle Servicing Station)



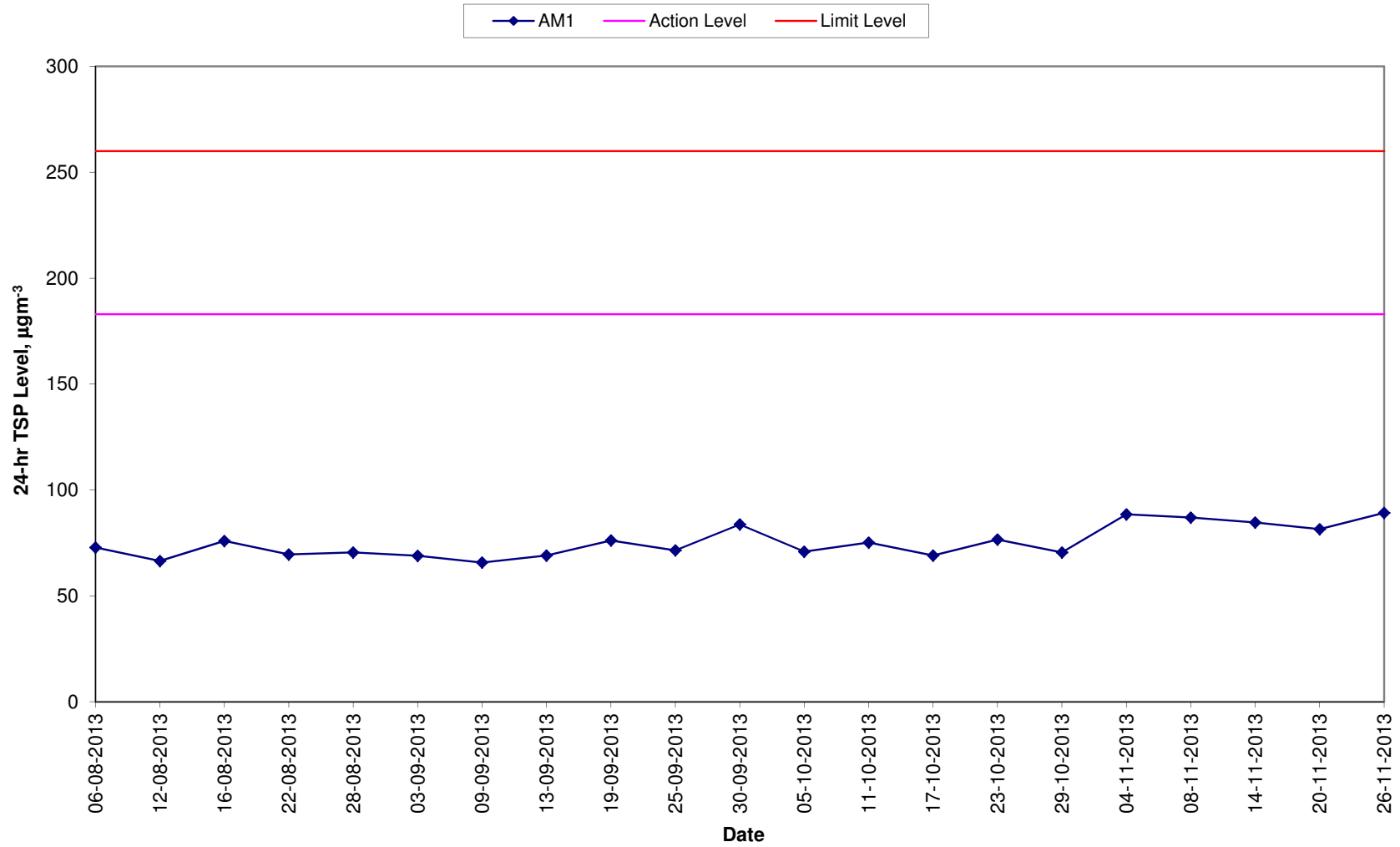
Annex G TSP Monitoring Results

1-hr TSP Levels for the Past 4 Months AM2 (River Trade Terminal Office)



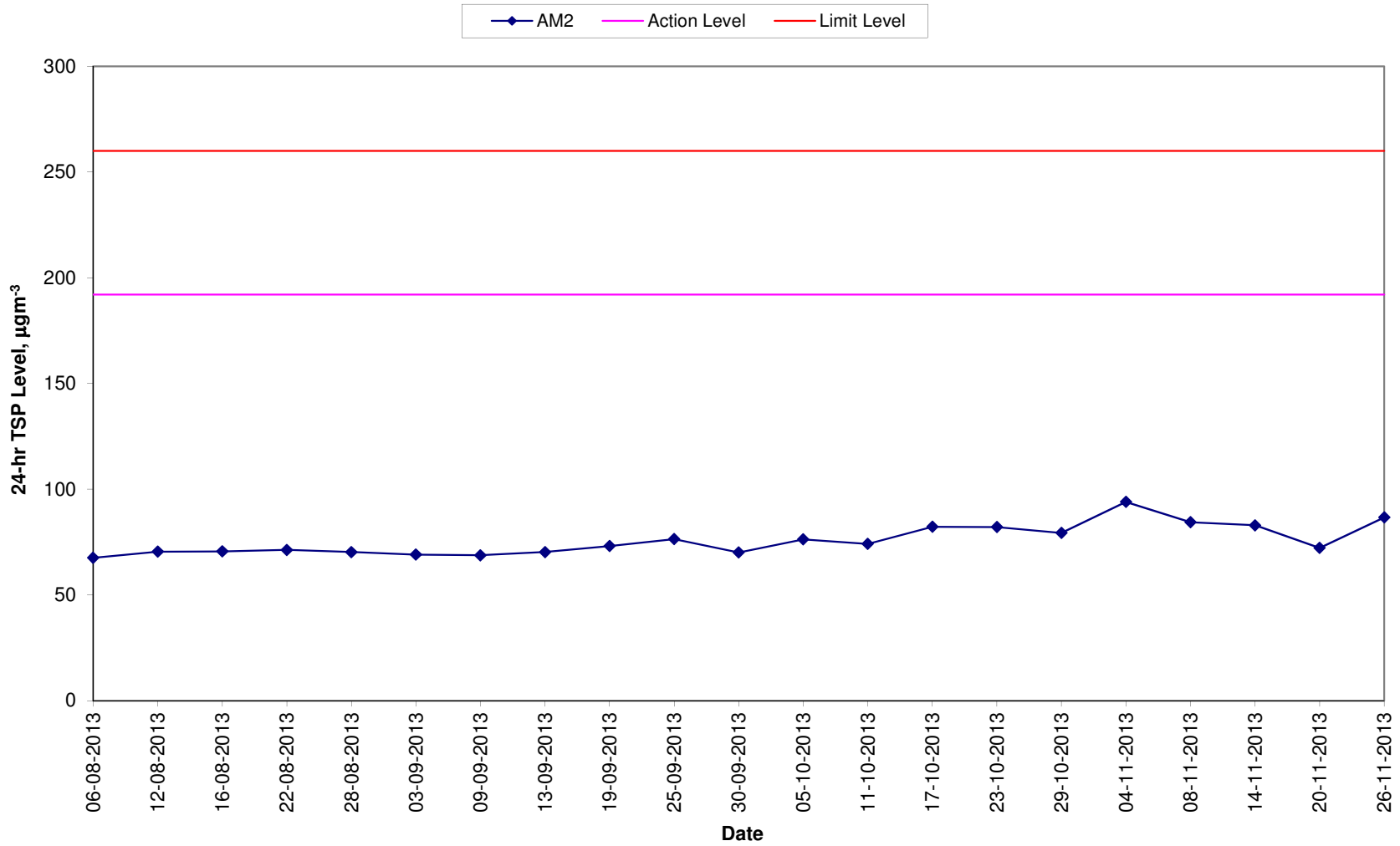
Annex G TSP Monitoring Results

24-hr TSP Levels for the Past 4 Months AM1 (River Trade Terminal Office)



Annex G TSP Monitoring Results

24-hr TSP Levels for the Past 4 Months AM2 (River Trade Terminal Office)



Annex H

Event/Action Plan for Air Quality Monitoring

Table H1 *Event Action Plan for Air Quality Monitoring*

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Supervising Officer Representative (SOR)	Contractor
<i>Action Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of complaint and propose remedial measures; Inform IEC and SOR; Repeat measurement to confirm findings; Increase monitoring frequency to daily. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor’s working method. 	<ul style="list-style-type: none"> Notify Contractor and DSD. 	<ul style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Identify source; Inform IEC and SOR; Advise the SOR on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and SOR; If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> 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; Supervise Implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor and DSD; Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Supervising Officer Representative (SOR)	Contractor
<i>Limit Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC, SOR, DSD and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, DSD and SOR informed of the results. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the SOR on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Notify IEC, SOR, DSD and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and SOR to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, DSD and SOR informed of the results; If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> Discuss amongst SOR, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly; Supervise the implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance 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; 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. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the SOR until the exceedance is abated.

Annex I

Implementation Schedule of Mitigation Measures

Annex I Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Summary of Environmental Mitigation Measures in the EIA and EM&A Manual</i>			
<i>Construction Phase</i>			
Air Quality	Dust mitigation measures stipulated in <i>the Air Pollution Control (Construction Dust) Regulation</i> shall be incorporated to control Post emission. Notice shall be given to authority prior to commencing of work.	Work sites / during construction period	Notice of works commencement was submitted to EPD on 3 August 2010.
Water Quality	The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted. It is recommended to install perimeter channels in the works areas to intercept runoff as site boundary prior to the commencement of any earthwork. To prevent storm runoff from washing across exposed soil surfaces, intercepting channels should be provided. Drainage channels are also required to convey site runoff to sand/silt traps and oil interceptors. Provision of regular cleaning and maintenance can ensure the normal operation of these facilities throughout the construction period. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Work site/During the construction period	√
Water Quality	There is a need to apply to EPD for a discharge license under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge license. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Reuse and recycling of the treated effluent can minimize water consumption and reduce the effluent discharge volume. The beneficial uses of the treated effluent may include dust suppression, wheel washing and general cleaning. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Work site/During the construction period	√ Discharge licence was awarded by EPD on 7 December 2010.
Water Quality	The construction programme should be properly planned to minimize soil excavation, if any, in rainy seasons. This prevents soil erosion from	Work site/During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimize dust emission. In areas where a large amount of exposed soil exists, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from any stream course so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. It is suggested that haul roads should be paved with concrete and the temporary access roads protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exists to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.</p>		
Water Quality	<p>Good sites practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.</p>	Work site/During the construction period	<>
Water Quality	<p>The presence of construction workers generates sewage. It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30m from any watercourse. A licensed water collector should be deployed to clean the chemical toilets on a regular basis. The construction workers can also make use of the existing toilet facilities within the PPSTW as necessary.</p>	Work site/During the construction period	√
Water Quality	<p>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Regular environmental audit on the construction phase of the project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.</p>	Work site/During the construction period	√
Waste Management	<p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation</p>	Work site/During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	should be observed and complied with for control of chemical wastes.		
Waste Management	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and stumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Work site/During the construction period	<>
Waste Management	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with the chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	Work site/During the construction period	<>
Waste Management	<p><i>Good Site Practices</i> Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical handling procedures • Provision of sufficient waste disposal points and regular collection of waste • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by 	Work site/During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>transporting wastes in enclosed containers</p> <ul style="list-style-type: none"> • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. 		
Waste Management	<p><i>Waste Reduction Measures</i></p> <p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 	Work site / During planning & design stage, and construction stage	√
Waste Management	<p><i>General Refuse</i></p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</p>	Work site / During the construction period	<
Waste Management	<p><i>Construction and Demolition Material</i></p> <p>In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated</p>	Work site / During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>material generated from site formation works for the proposed new facilities and units at the STW should be reused on-site as far as practicable. The surplus excavated material should be disposed of at the designated public fill reception facility, as agreed with the Secretary of the Public Fill Committee, for other beneficial uses.</p>		
Waste Management	<p>Mitigation measures and good site practices should be followed to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:</p> <ul style="list-style-type: none"> • Where it is unavoidable to have transient stockpiles of C&D material pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. • Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. • Skip hoist for material transport should be totally enclosed by impervious sheeting. • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. • The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. • All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. • The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading. 	Work site / During design stage & construction period	√
Waste Management	<p>When disposing C&D material at a public filling facility, it shall be noted that the material shall only consist of earth, building debris and broken rock and concrete. The material shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal</p>	Work site/ During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work with reference to the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" as attached in Appendix 7-1. An Independent Environmental Checker should be responsible for auditing the results of the system.</p>		
Waste Management	<p><i>Chemical Waste</i></p> <p>If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p>	Work site / During the construction period	√
Landscape & Visual	<p><u>Temporary Tree Nurseries</u></p> <p>Temporary tree nurseries may be set up for the transplanted tree and proposed trees at an early stage to allow small trees to grow during the construction periods. By the time when planting area becomes available, trees mature and increase in trunk & spread size. They will require minimal pruning and suffer much less damage during transplanting when comparing the travel distance from an on-site nursery to an off-site nursery.</p> <p>Besides, these trees may also be positioned as visual mitigation during</p>	Work site/ During design stage & construction period	√. A tree nursery has been set up off-site near the site office.

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	the construction period.		
Landscape & Visual	<p><u>No-intrusion Zone</u></p> <p>To maximize protection to existing trees and ground vegetation, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should close monitor and restrict the site working staff not to enter the “no-intrusion zone”, even for non-direct construction activities and storage of equipment.</p>	Work site/During design stage & construction period	√
Landscape & Visual	<p><u>Hoarding</u></p> <p>Hoarding or boundary fencing for construction shall be considered. It should be sensitively designed, subtle, camouflaged and more ‘permeable’ so that they fit into the existing environment when looking from outside.</p>	Work site/During design stage & construction period	√
Landscape & Visual	<p><u>Dust and Erosion Control for Exposed Soil</u></p> <p>Excavation works and demolition of existing building blocks and which will be highly visible form surrounding areas should be well planned and with precautions to suppress dust. Exposed soil shall be covered or ‘camouflaged’ and watered often. Areas that are expected to be left with bare soil for a long period of time after excavation shall be properly covered with suitable protective fabric. Silt and erosion shall be controlled by ground barriers around the slope cutting area..</p>	Work site/During design stage & construction period	√
Landscape & Visual	<p><u>Existing Tree Record Inventory</u></p> <p>All retained trees should be record photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</p>	Work site/During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<p><u>Construction Light</u></p> <p>All security floodlights for construction sites shall be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC users. The Contractor shall consider other security measures which shall minimize the visual impacts.</p>	Work site / During design stage & construction period	√
Landscape & Visual	<p><u>Tree Transplanting</u></p> <p>Apart from the 18 numbers of "<i>Leucaena leucocephala</i>", which are proposed to be felled in accordance with ETWB TCW No. 3/2006, all the affected trees shall be transplanted. Where practicable, trees shall be directly transplanted to permanent on-site locations. The location of the transplanted tree is shown in Figure 8.9.1.</p>	Work site / During design stage & construction period	√.
Landscape & Visual	<p><u>Tree Compensation Ratio</u></p> <p>The total number of compensatory trees planted in the project area shall not be less than 1:1 ratios by new trees. Required numbers and locations of compensatory trees shall be determined and agreed with Government during the tree felling application process under ETWCTC 3/2006. Compensatory trees shall be at least heavy standard size to create "immediate" greening effect. 81 numbers of "<i>Cassia surattensis</i>" will be provided as the additional compensatory planting for loss of greenery in the area due to removal of the affected trees. The location of the additional compensatory planting is shown in Figure 8.9.1.</p>	Work site / During design stage & construction period	N/A
Landscape & Visual	<p><u>Re-use of Existing Soil and Advance formation of Planting Area</u></p> <p>Existing topsoil shall be re-used where possible for new planting areas within the project. Advance formation of planting area and early implementation of the plating works can minimize adverse impact on trees. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</p>	Work site / During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<p><u>Establishment Period</u></p> <p>12 month establishment period for the soft landscape works will be allowed in the main contract. Most construction contracts in Hong Kong require the Contractor to carry out routine horticultural operations, including watering, pruning, weeding, pest control, replacement of dead plants etc. to ensure healthy establishment of new planting during a 12 month establishment period. This period also serves as a kind of warranty / guarantee on the quality of the plants supplied and installed by the Contractor. Monthly monitoring during the first year of establishment period is recommended.</p>	Work site/During operation period	N/A. To be implemented during operation phase of Project.
Landscape & Visual	<p><u>Re-instatement of excavated Area</u></p> <p>All excavated area and disturbed area for utilities diversion, temporary road diversion, and pipeline works will be reinstated to former conditions, subject to applicable Government Standards.</p>	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
Landscape & Visual	<p><u>Appearance and Greening for the proposed structures</u></p> <p>Compatible design, construction materials and surface finishes of the proposed structure should match with the nearby existing external appearance of PPSTW buildings for achieving visual uniformity. Finishing materials shall have due consideration to form, basic color, color/ tone variation, micro-and macro-texture, and reflectivity/ light absorbance to avoid glare. Planting, such as turf, low groundcovers and climbers, may also be planted on top of these elements to provide greening and aesthetic effect.</p>	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
<i>Summary of Key Environmental Mitigation Measures in Contract Requirements</i>			
Air Quality	Only Ultra-low-sulphur diesel (ULSD) should be used for all diesel-operated plants and equipments on site	Work sites / during construction period	√
Air Quality and Noise	Plants and equipments of good operation conditions should be used on site.	Work sites / during construction period	√
Noise	No diesel hammers should be used for piling works	Work sites / during construction period	√
Noise	Construction Noise Permits (CNP) should be applied for works conducted outside non-restricted hours.	Work sites / during construction period	√
Noise	Quiet construction equipments and the quietest practicable working	Work sites / during construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	methodologies should be adopted for works whenever feasible. Noise labels should be provided for air compressors. Hoods and cover panels of generators and air compressors should be closed during operation. Noise labels should be provided for air compressors and hand-held percussive breakers.		
Waste Management	Temporary works construction on site should minimize the use of timber to reduce the quantity of C&D waste generated during works period.	Work sites / during construction period	√
Landscape and Visual	Retained or to-be-transplanted trees on site should be properly protected from physical damages and soil compacts with temporary fencing or hessian armouring whenever feasible.	Work sites / during construction period	<>

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by ATAL-Degrémont-China State JV
- Δ Deficiency of Mitigation Measures but rectified by ATAL-Degrémont-China State JV
- N/A Not Applicable in Reporting Period

Annex J

Waste Flow Table

**Contract No. : DC/2008/03 - Design, Build and Operate Pillar Point Sewage Treatment Works
Monthly Summary Waste Flow Table**

Month	Actual Quantities of Inert C&D Materials Generated (see Note 13)					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated (see Note 13)				
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Hard Rocks & Large Broken Concrete	Disposed as Public Fill	Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
Nov 2010	2,248.00	0.00	0.00	55.00	2248.00	60.00	100.00	0.00	0.00	18.05 (see Note 4)
Dec 2010	11,314.00 (see Note 4)	0.00	0.00	225.00	11314.00	100.00	120.00	20.00	0.00	28.40 (see Note 4)
Jan 2011	58,383.00 (see Note 4)	0.00	0.00	3,000.00	58,382.90	250.00	280.00	60.00	0.00	4.59 (see Note 4)
Sub-total	71,945.00	0.00	0.00	3280.00	71944.90	410.00	500.00	80.00	0.00	51.04
Feb 2011	12,855.00	0.00	0.00	1,050.00	12,854.70	100.00	150.00	50.00	0.00	2.43 (see Note 4)
Mar 2011	22,859.00	0.00	0.00	1,500.00	22,858.70	150.00	180.00	55.00	0.00	9.02
Apr 2011	8,547.00 (see Note 7)	0.00	5,684.00(see Note 5, 7)	550.00	2,863.30	50.00	30.00	15.00	0.00	5.78
Sub-total	44,261.00	0.00	5684.00	3100.00	38576.70	300.00	360.00	120.00	0.00	17.23
May 2011	6,293.00 (see Note 7)	0.00	11.00 (see Note 5, 7)	425.00	6,282.00 (see Note 7)	45.00	25.00	10.00	360.00 (see Note 7)	8.83
Jun 2011	4,587.00 (see Note 7)	0.00	0.00 (see Note 7)	313.00	4,586.00 (see Note 7)	40.00	30.00	15.00	0.00	7.10
Jul 2011	523.00	0.00	0.00	25.00	522.90	15.00	5.00	10.00	0.00	7.20
Sub-total	11,403.00	0.00	11.00	763.00	11391.50	100.00	60.00	32.00	360.00	23.13
Aug 2011	571.00 (see Note 11)	0.00	0.00	50.00	571.00 (see Note 11)	0.00	0.00	15.00	450.00 (see Note 8)	6.12
Sept 2011	235.00	0.00	0.00	25.00	235	20.00	0.00	0.00	0.00	12.15 (see Note 9)
Oct 2011	5,705.00 (see Note 10)	0.00	0.00	650.00	5,705.00 (see Note 10)	100.00	0.00	0.00	0.00	2.98
Sub-total	6,511.00	0.00	0.00	725.00	6511.00	120.00	0.00	15.00	450.00	21.25
Nov 2011	6,294.00	0.00	0.00	775.00	6,294.00	50.00	0.00	0.00	0.00	44.84
Dec 2011	3,011.00	0.00	0.00	263.00	3,011.00	20.00	0.00	0.00	0.00	17.14
Jan 2012	349.00	64.00	0.00	25.00	284.60	20.00	150.00	0.00	0.00	49.01

Month	Actual Quantities of Inert C&D Materials (Public Fill) Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated				
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Hard Rocks & Large Broken Concrete	Disposed as Public Fill	Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
Sub-total	9,654.00	64.00	0.00	1063.00	9589.60	90.00	150.00	0.00	0.00	110.99
Feb 2012	3,371.00	30.00	0.00	2,810.00	3,341.00	150.00	0.00	0.00	0.00	48.72
Mar 2012	6,460.00	3,000.00	0.00	625.00	3,459.70	30.00	0.00	0.00	0.00	41.10
Apr 2012	3,774.00	3,000.00	0.00	250.00	774.40	40.00	0.00	0.00	0.00	40.01
Sub-total	13,605.00	6,030.00	0.00	3685.00	7575.10	220.00	0.00	0.00	0.00	129.83
May 2012	7,936.00	5,600.00	0.00	750.00	2,336.20	40.00	0.00	10.00	0.00	75.19
Jun 2012	13,091.00	7,500.00	0.00	875.00	5,590.80	40.00	35.50	8.00	0.00	66.74
Jul 2012	11,972.00	8,600.00	0.00	825.00	3,372.50	40.00	36.40	5.00	0.00	100.50
Sub-total	32,999.00	21,700.00	0.00	2450.00	11299.50	120.00	70.90	23.00	0.00	242.43
Aug 2012	11,660.00	11,000.00	0.00	950.00	659.80	30.00	10.00	6.00	0.00	78.77
Sept 2012	3,055.00	1,500.00	0.00	920.00	1,555.38	30.00	40.00	5.00	0.00	118.80
Oct 2012	2,657.00	200.00	0.00	500.00	2,457.01	30.00	59.40	8.00	0.00	124.04
Sub-total	17,372.00	12,700.00	0.00	2370.00	4672.19	90.00	109.40	19.00	0.00	321.61
Nov 2012	2,691.00	250.00	0.00	750.00	2,441.01	50.00	25.00	10.00	0.00	128.08
Dec 2012	4,319.00	400.00	0.00	200.00	3,919.13	60.00	20.00	15.00	0.00	165.28
Jan 2013	4,442.00	100.00	0.00	200.00	4,341.56	200.00	40.00	20.00	0.00	111.23
Sub-total	11,452.00	750.00	0.00	1150.00	10701.70	310.00	85.00	45.00	0.00	404.59
Feb 2013	1,286.00	85.00	0.00	50.00	1,201.23	180.00	35.00	16.00	0.00	99.44
Mar 2013	900.00	900.00	0.00	120.00	0.00	120.00	45.00	10.00	0.00	97.43
Apr 2013	680.00	680.00	0.00	300.00	0.00	22.00	50.00	15.00	0.00	80.21
Sub-total	2866.00	1665.00	0.00	470.00	1201.23	322.00	130.00	41.00	0.00	277.08
May 2013	1443.37	100.00	0.00	1020.00	1343.37	40.00	43.00	9.00	0.00	46.88 (see Note 16)
June 2013	1993.06	50.00	0.00	850.00	1943.06	100.00	60.00	5.00	0.00	53.89

July 2013	1246.64	100.00	0.00	1100.00	1146.64	100.00	60.00	10.00	0.00	71.15
Sub-total	4683.07	250.00	0.00	2970.00	4433.07	240.00	163.00	24.00	0.00	171.92
August 2013	873.73	120.00	0.00	700.00	753.73	50.00	60.00	8.00	0.00	63.95
September 2013	748.43	50.00	0.00	650.00	698.43	40.00	60.00	5.00	0.00	41.28
October 2013	1701.99	45.00	0.00	1500.00	1656.99	20.00	60.00	5.00	0.00	34.79
Sub-total	3324.15	215.00	0.00	2850.00	3109.15	110.00	180.00	18.00	0.00	140.02
November 2013	1602.35	60.00	0.00	1490.00	1542.35	18.00	60.00	50.00	0.00	36.44
Total	231677.57	43434.00	5695.00	26366.00	182547.99	2450.00	1868.30	470.00	810.00	1947.56

- Notes:
- (1) Metal and paper/cardboard packaging were collected by recycler for recycling.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material collected by recycler for recycling.
 - (3) General refuse was disposed of at WENT by subcontractors.
 - (4) The waste flow data for November and December 2010, January and February 2011 was updated in March 2011 based on SOR's comments and has been confirmed by the Contractor.
 - (5) The inert C&D materials were reused in the Contract No. EP/SP/58/08 at Tuen Mun Tsang Tsui.
 - (6) Chemical waste was collected through the licensed chemical waste collector, Dunwell Ind. (Holdings) Ltd, with the waste collection licence number 7111-757-W0015-WC.
 - (7) The waste flow data for April, May and June 2011 was updated in August 2011 based on SOR's comments and has been confirmed by the Contractor.
 - (8) The waste flow data of chemical waste for August 2011 was updated in October 2011 based on Contractor's revised waste flow summary.
 - (9) The waste flow data of general refuse for September 2011 was updated in November 2011 based on Contractor's revised waste flow summary.
 - (10) The waste flow data of C&D material for October 2011 was updated in December 2011 based on Contractor's revised waste flow summary.
 - (11) The waste flow data of C&D material for August 2011 was updated in January 2011 based on SOR's comments and has been confirmed by the Contractor.
 - (12) The waste flow data of metal and paper/cardboard packaging for June 2011 was revised in August 2012.
 - (13) The quantity of inert and non-inert C&D material generated from May 2012 to December and imported fill material was updated by the Contractor on 6 November 2012.
 - (14) The quantity of Rocks & Broken Concrete from November 2010 to November 2012 was updated by the Contractor on 12 December 2012.
 - (15) The quantity of C&D material reused in this Contract in Oct, Nov and Dec 2012 were updated by the Contractor on 5 January 2012.
 - (16) The quantity of general refuse in this Contract for May 2013 was updated by the Contractor in June 2013.

Annex K

Environmental Complaint,
Environmental Summons
and Persecution Log

Annex K Cumulative Complaint and Summons/Prosecutions Log

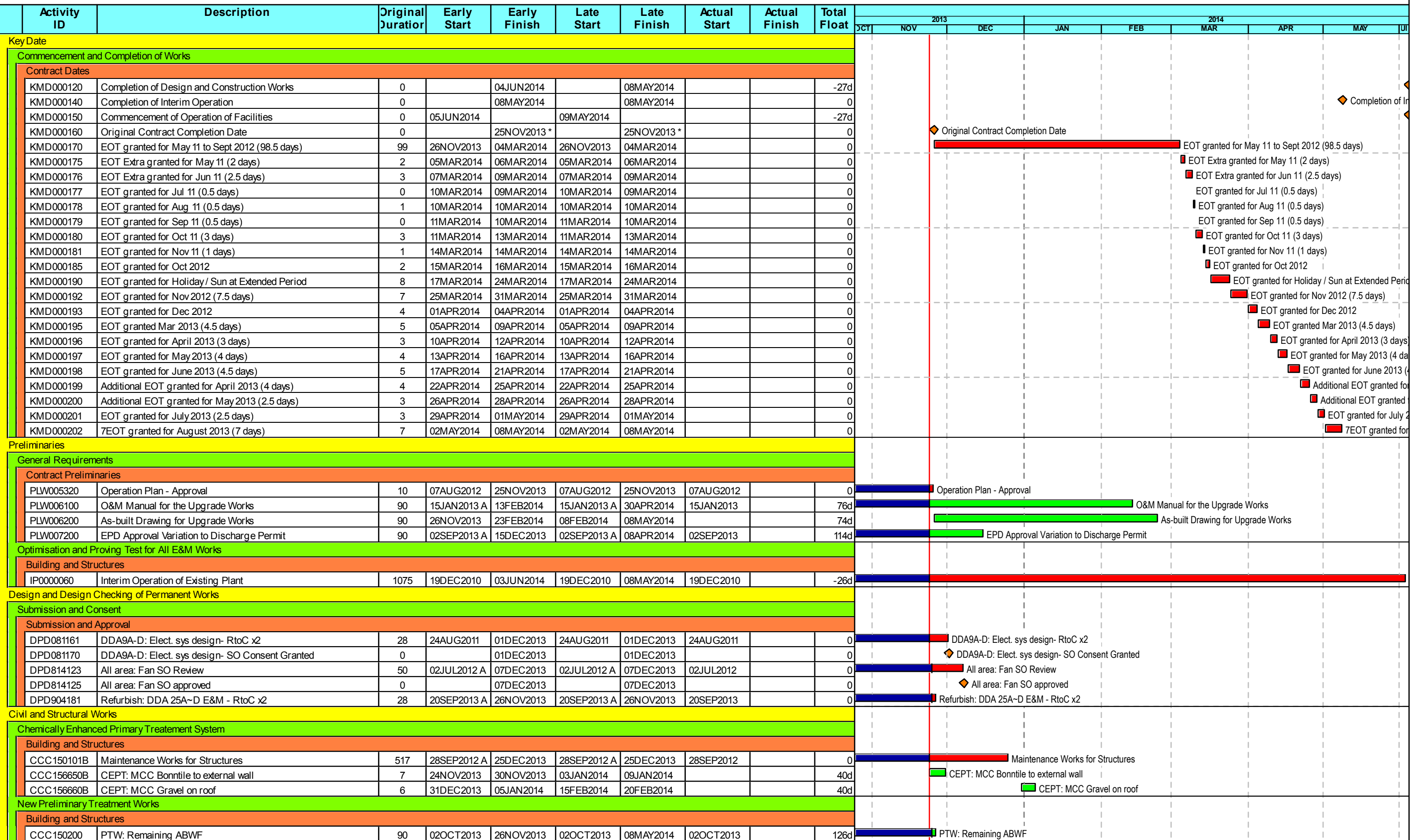
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
November 2013	0	0
Overall Total	0	0

Annex L

Construction Programme of the Project



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■ Early bar
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■ Summary bar
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Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Actual Start	Actual Finish	Total Float	Gantt Chart												
										2013	2014											
CCC160982B	PTWN: Screeding to staircase	4	01DEC2013 *	04DEC2013	25APR2014	28APR2014			139d													
CCC160984B	PTWN: Nosing Tile to staircase	2	05DEC2013	06DEC2013	29APR2014	30APR2014			139d													
CCC160986B	PTWN: Skirting to staircase	2	07DEC2013	08DEC2013	01MAY2014	02MAY2014			139d													
CCC160988B	PTWN: Railing to staircase	6	09DEC2013	14DEC2013	03MAY2014	08MAY2014			139d													
CCC162750B	PTW: Bonntile coating to external wall	14	13DEC2013	26DEC2013	25APR2014	08MAY2014			127d													
CCC162850B	PTWS: FRP cover	12	30DEC2013 *	10JAN2014	21JAN2014	07FEB2014			22d													
CCC162906B	PTWS: Washed grano to staircase	4	01DEC2013 *	04DEC2013	13APR2014	16APR2014			127d													
CCC162907B	PTWS: Non-slip nosing tile to staircase	2	05DEC2013	06DEC2013	17APR2014	18APR2014			127d													
CCC162908B	PTWS: Railing to staircase	6	07DEC2013	12DEC2013	19APR2014	24APR2014			127d													
Disinfection System																						
Building and Structures																						
CCC301045B	UV: Precast concrete cover	2	24NOV2013	25NOV2013	06FEB2014	07FEB2014			68d													
CCC301100B	UV: Gravel on roof	6	01DEC2013 *	06DEC2013	27JAN2014	07FEB2014			57d													
Sludge Treatment Facilities																						
Building and Structures																						
CCC602590B	SDB: FRP cover at polymer area	4	01DEC2013 *	04DEC2013	29JAN2014	07FEB2014			59d													
CCC603980B	Skip: Door for water meter cabinet	3	24NOV2013	26NOV2013	24NOV2013	26NOV2013			0													
Septic Waste Collection Facilities																						
Building and Structures																						
CCC170920B	Septic : Gravel on roof	2	01DEC2013 *	02DEC2013	27APR2014	28APR2014			141d													
CCC170940B	Septic: Bonntile to external wall and column	12	01DEC2013	12DEC2013	27APR2014	08MAY2014			141d													
Auxiliary Building																						
Building and Structures																						
CCC321060B	RWPS: Colour gravel on roof	6	24NOV2013	29NOV2013	24NOV2013	29NOV2013			0													
CCC321070B	RWPS: Bonntile to external wall	12	30NOV2013	11DEC2013	30NOV2013	11DEC2013			0													
CCC500840B	Chem: FRP floor at tank compound	14	01DEC2013 *	14DEC2013	19JAN2014	07FEB2014			49d													
CCC500950B	Chem: Photovoltaic glazing	14	24NOV2013	07DEC2013	24NOV2013	07DEC2013			0													
CCC500960B	Chem: Textured coating to external wall	28	02NOV2013	08DEC2013	02NOV2013	08DEC2013	02NOV2013		0													
CCC910570B	EB1: Green roofing	7	02DEC2013 *	09DEC2013	25JAN2014	07FEB2014			44d													
CCC930670B	EB3: Gravel on roof	6	24NOV2013	29NOV2013	24NOV2013	29NOV2013			0													
CCC970105	Gate House: Commencement of Construction	0	24NOV2013		20DEC2013				26d													
CCC970110	Gate House: Excavation	6	02DEC2013 *	07DEC2013	20DEC2013	28DEC2013			16d													
CCC970120	Gate House: Foundation	10	09DEC2013	19DEC2013	30DEC2013	10JAN2014			16d													
CCC970130	Gate House: Backfilling Work	5	20DEC2013	27DEC2013	11JAN2014	16JAN2014			16d													
CCC970140	Gate House: Superstructure	30	28DEC2013	07FEB2014	17JAN2014	26FEB2014			16d													
CCC970150	Gate House: Remove Temp Support	18	08FEB2014	28FEB2014	27FEB2014	19MAR2014			16d													
CCC970160	Gate House: ABWF Works	20	01MAR2014	24MAR2014	10APR2014	08MAY2014			33d													
Odour Control Facilities																						
Building and Structures																						
CCC712960B	DOUA: Bontile to external wall	12	05FEB2014 *	16FEB2014	27APR2014	08MAY2014			81d													
Landscaping Works																						
Miscellaneous Works																						
CMT995345D	Landscaping (Summary)	27	20MAR2014	24APR2014	01APR2014	08MAY2014			10d													
CMT995350	Landscape Preparation Works	4	10FEB2014	13FEB2014	01APR2014	04APR2014			43d													
CMT995360	Planting Works	7	14FEB2014	21FEB2014	07APR2014	14APR2014			43d													
CMT995370	Establishment Works	8	22FEB2014	03MAR2014	15APR2014	26APR2014			43d													
CMT995380	Landscape Softworks and Establishment Works	8	22FEB2014	03MAR2014	15APR2014	26APR2014			43d													
CMT995390	Tree Transplantation	8	04MAR2014	12MAR2014	28APR2014	08MAY2014			43d													
CMT995400	Preservation and Protection of Trees	8	04MAR2014	12MAR2014	28APR2014	08MAY2014			43d													
CMT995410	Irrigation System	8	10FEB2014	18FEB2014	28APR2014	08MAY2014			62d													
Refurbishment and Renewal Works																						
Miscellaneous Works																						
CCM000110	Refurbishment of Existing Buildings / Structures	60	17JAN2014	02APR2014	21FEB2014	08MAY2014			25d													
CCM000160	SHB: External ABWF	70	06JAN2014 *	02APR2014	10FEB2014	08MAY2014			25d													

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Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Actual Start	Actual Finish	Total Float	Gantt Chart												
										2013	2014											
CXT995425	Weighbridge at Egress	40	27FEB2014	15APR2014	27FEB2014	15APR2014			0													
CXT995430	Remaining Roadwork at Access M001 and M003	18	14MAY2014	04JUN2014	12APR2014	08MAY2014			-22d													
Statutory Works																						
Fire Services - FSD																						
Building and Structures																						
SSF200410	FS: Submit Form FS314 & FS501 (1)	1	24JAN2014	24JAN2014	14FEB2014	14FEB2014			13d													
SSF200420	FS: Inspection and re-inspection (1)	25	26FEB2014	26MAR2014	15FEB2014	15MAR2014			-9d													
SSF200430	FS: Approval Certificate (1)	25	27MAR2014	29APR2014	27MAR2014	29APR2014			0													
SSF200510	FS: Submit Form FS314 & FS501 (2)	1	29MAR2014	29MAR2014	04MAR2014	04MAR2014			-22d													
SSF200520	FS: Inspection and re-inspection (2)	25	31MAR2014	03MAY2014	05MAR2014	02APR2014			-22d													
SSF200530	FS: Approval Certificate (2)	25	05MAY2014	04JUN2014	03APR2014	08MAY2014			-22d													
Plumbing - WSD																						
Building and Structures																						
SSP200510	Watermain (PW): Submit WW046 Part 4	1	25NOV2013	25NOV2013	25NOV2013	25NOV2013			0													
SSP200520	Watermain (PW): WSD Inspection and Re-inspection	25	21OCT2013	23DEC2013	21OCT2013	30DEC2013	21OCT2013		4d													
SSP200530	Watermain(PW): WW046 Part 5	24	24DEC2013	23JAN2014	31DEC2013	28JAN2014			4d													
SSP201510	Watermain (FS1): Submit WW046 Part 4	1	02DEC2013	02DEC2013	02DEC2013	02DEC2013			0													
SSP201520	Watermain(FS1): WSD Inspection and Re-inspection	25	21OCT2013	23DEC2013	21OCT2013	27NOV2013	21OCT2013		-22d													
SSP201530	Watermain (FS1): WW046 Part 5	24	24DEC2013	23JAN2014	28NOV2013	27DEC2013			-22d													
SSP202510	Watermain (FS2): Submit WW046 Part 4	1	24JAN2014	24JAN2014	28DEC2013	28DEC2013			-22d													
SSP202520	Watermain(FS2): WSD Inspection and Re-inspection	25	25JAN2014	28FEB2014	30DEC2013	28JAN2014			-22d													
SSP202530	Watermain (FS2): WW046 Part 5	24	01MAR2014	28MAR2014	29JAN2014	03MAR2014			-22d													
SSP203510	Watermain (FW): Submit WW046 Part 4	1	24JAN2014	24JAN2014	05MAR2014	05MAR2014			29d													
SSP203520	Watermain (FW): WSD Inspection and Re-insp'	25	25JAN2014	28FEB2014	06MAR2014	03APR2014			29d													
SSP203530	Watermain (FW): WW046 Part 5	24	01MAR2014	28MAR2014	04APR2014	08MAY2014			29d													
Telecommunication																						
Building and Structures																						
SST200610	Handover Plant Room and Cable Duct to Telecom Co	6	25NOV2013	30NOV2013	08JAN2014	14JAN2014			35d													
SST200620	Telecom Co to Install Cable and Equipment	30	01DEC2013	30DEC2013	15JAN2014	13FEB2014			45d													
E&M Works																						
Procurement and Installation																						
Building and Structures																						
EMW001100A	N2 Penstock Test	7	17NOV2013	25NOV2013	17NOV2013	01NOV2013	17NOV2013		-20d													
EMW001100B	Install & WT of Additional Blank Plate	1	25NOV2013	25NOV2013	31OCT2013	31OCT2013			-21d													
EMW001110	Penstocks / Stoplog for Manholes N1 / bypass	25	15OCT2013	25NOV2013	15OCT2013	30OCT2013	15OCT2013		-22d													
EMW001120	Penstocks N1 / bypass Test	1	26NOV2013	26NOV2013	31OCT2013	31OCT2013			-22d													
EMW001200A	Penstock from UV to outfall PS Test	7	25NOV2013	02DEC2013	13NOV2013	20NOV2013			-10d													
EMW163000	Access Control System Installation	80	25NOV2013	06MAR2014	06NOV2013	15FEB2014			-16d													
EMW164000	ALPR System Installation	80	25NOV2013	06MAR2014	06NOV2013	15FEB2014			-16d													
EMW164500	WB: Civil Handover to E&M	0	10DEC2013		04DEC2013				-5d													
EMW165010	Weighbridge installation	14	10DEC2013	27DEC2013	04DEC2013	19DEC2013			-5d													
EMW165020	Electrical & Control installation	14	28DEC2013	14JAN2014	20DEC2013	08JAN2014			-5d													
EMW165030	Access system installation	21	15JAN2014	13FEB2014	09JAN2014	07FEB2014			-5d													
EMW165110	Weighbridge installation	14	10DEC2013	27DEC2013	04DEC2013	19DEC2013			-5d													
EMW165120	Electrical & Control installation	14	28DEC2013	14JAN2014	20DEC2013	08JAN2014			-5d													
EMW165130	Access system installation	21	15JAN2014	13FEB2014	09JAN2014	07FEB2014			-5d													
EMW181550A	PTW: FS CS H/O Duct from Admin Bldg	0	19DEC2013		19DEC2013				0													
EMW181550B	PTW: FS Laying Signal Cable from Admin Bldg	30	19DEC2013	25JAN2014	19DEC2013	25JAN2014			0													
EMW185240	PTW: FRP Cover - FS	20	21JUN2013 A	25NOV2013	21JUN2013 A	25NOV2013	21JUN2013		0													
EMW185250	PTW: FRP Cover - GC	20	26JUN2013 A	25NOV2013	26JUN2013 A	25NOV2013	26JUN2013		0													
EMW185340	PTW: DO Duct Support - FS	20	21JUN2013 A	25NOV2013	21JUN2013 A	25NOV2013	21JUN2013		0													
EMW185350	PTW: DO Duct Support - GC	20	10JUL2013 A	25NOV2013	10JUL2013 A	04JAN2014	10JUL2013		32d													
EMW185440	PTW: DO Duct - FS x	30	11JUL2013 A	25NOV2013	11JUL2013 A	06JAN2014	11JUL2013		33d													
EMW185450	PTW: DO Duct - GC x	30	26NOV2013	02JAN2014	06JAN2014	14FEB2014			32d													

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	Finish milestone point

Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Actual Start	Actual Finish	Total Float	2013											
										2014											
											OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN		
EMW206114	CEPT: Tank 4 FRP DO covers Installation	15	29JUL2013 A	25NOV2013	29JUL2013 A	25NOV2013	29JUL2013		0												
EMW206115	CEPT: Tank 5 FRP DO covers Installation	15	02NOV2013	25NOV2013	02NOV2013	25NOV2013	02NOV2013		0												
EMW206200	CEPT: DO Duct Install PT CEPT/SDB/DOU B	20	10MAY2013	25NOV2013	10MAY2013	02NOV2013	10MAY2013		-19d												
EMW208550A	CEPT: FS CS H/O Duct from Admin Bldg	0	12DEC2013		12DEC2013				0												
EMW208550B	CEPT: FS Laying Signal Cable from Admin Bldg	30	30NOV2013	07JAN2014	30NOV2013	07JAN2014			0												
EMW303350	UV: DO Cover Installation	30	06JUL2013 A	30NOV2013	06JUL2013 A	30NOV2013	06JUL2013		0												
EMW309120	UV: DO Duct support	20	11JUL2013 A	27NOV2013	11JUL2013 A	27NOV2013	11JUL2013		0												
EMW309150	UV: DO Duct Installation	30	03AUG2013	02DEC2013	03AUG2013	02DEC2013	03AUG2013		0												
EMW309170	UV: DO Cover Installation	15	14SEP2013 A	02DEC2013	14SEP2013 A	02DEC2013	14SEP2013		0												
EMW312000	UV: Duct install in PT bet UV / DOU B and Skip	30	05JUN2013 A	26NOV2013	05JUN2013 A	02NOV2013	05JUN2013		-20d												
EMW322300D	RWPS: E&M Installation	98	27JUN2013 A	25NOV2013	27JUN2013 A	25NOV2013	27JUN2013		0												
EMW322400	RWPS: DAF Installation	60	27JUN2013 A	05DEC2013	27JUN2013 A	05DEC2013	27JUN2013		0												
EMW322600	RWPS: BS Installation	30	08AUG2013	25NOV2013	08AUG2013	25NOV2013	08AUG2013		0												
EMW322641	RWPS: MVAC Installation H/L	30	29JUL2013 A	25NOV2013	29JUL2013 A	25NOV2013	29JUL2013		0												
EMW322645	RWPS: MVAC Installation LL	30	21SEP2013 A	25NOV2013	21SEP2013 A	08NOV2013	21SEP2013		-14d												
EMW322651	RWPS: FS Installation H/L	30	29JUL2013 A	25NOV2013	29JUL2013 A	25NOV2013	29JUL2013		0												
EMW322655	RWPS: FS Installation LL	30	29JUL2013 A	25NOV2013	29JUL2013 A	09NOV2013	29JUL2013		-13d												
EMW322655A	RWPS: FS CS H/O Duct from Admin Bldg	0	25NOV2013		25NOV2013				0												
EMW322655B	RWPS: FS Laying Signal Cable from Admin Bldg	30	25NOV2013	31DEC2013	25NOV2013	31DEC2013			0												
EMW322661	RWPS: P&D Installation H/L	30	21SEP2013 A	25NOV2013	21SEP2013 A	25NOV2013	21SEP2013		0												
EMW322665	RWPS: P&D Installation L/L	30	21SEP2013 A	25NOV2013	21SEP2013 A	08NOV2013	21SEP2013		-14d												
EMW322671	RWPS: EL Installation H/L	35	28SEP2013 A	25NOV2013	28SEP2013 A	25NOV2013	28SEP2013		0												
EMW322675	RWPS: EL Installation L/L	35	28SEP2013 A	04DEC2013	28SEP2013 A	25NOV2013	28SEP2013		-8d												
EMW322700	RWPS: Control system Installation (ref)	60	16JUL2013 A	11DEC2013	16JUL2013 A	09DEC2013	16JUL2013		-2d												
EMW322785	RWPS: MCC Control Cable Laying and Fixing	60	05AUG2013	25NOV2013	05AUG2013	25NOV2013	05AUG2013		0												
EMW322787	RWPS: MCC Control Cable Termination	30	28AUG2013	25NOV2013	28AUG2013	25NOV2013	28AUG2013		0												
EMW323520	RWPS: RWMCC EB3 Power Cable Laying	40	30AUG2013	25NOV2013	30AUG2013	25NOV2013	30AUG2013		0												
EMW323530	RWPS: ALL Cable Test and Termination	30	09SEP2013 A	25NOV2013	09SEP2013 A	25NOV2013	09SEP2013		0												
EMW323800	RWPS: Duct install in PT between RWPS/OPS	30	28AUG2013	25NOV2013	28AUG2013	08NOV2013	28AUG2013		-14d												
EMW506550A	Chemical: FS CS H/O Duct from Admin Bldg	0	25NOV2013		25NOV2013				0												
EMW506550B	Chemical: FS Laying Signal Cable from Admin Bldg	30	25NOV2013	31DEC2013	25NOV2013	31DEC2013			0												
EMW506910	Chemical: PV structure Installation	20	02OCT2013	25NOV2013	02OCT2013	25NOV2013	02OCT2013		0												
EMW506920	Chemical: PV panel Installation	30	04NOV2013	14DEC2013	04NOV2013	14DEC2013	04NOV2013		0												
EMW506930	Chemical: PV Inverter Installation	20	25SEP2013 A	25NOV2013	25SEP2013 A	25NOV2013	25SEP2013		0												
EMW506940	Chemical: PV panel cabling Installation	20	02OCT2013	26NOV2013	02OCT2013	23NOV2013	02OCT2013		-2d												
EMW608550B	Sludge: FS Laying Signal Cable from Admin Bldg	30	01OCT2013	02DEC2013	01OCT2013	02DEC2013	01OCT2013		0												
EMW608950	Sludge: DO Duct Installation G/L	25	29JUN2013 A	27NOV2013	29JUN2013 A	27NOV2013	29JUN2013		0												
EMW608960	Sludge: DO Duct Installation B/L	25	08JUL2013 A	27NOV2013	08JUL2013 A	27NOV2013	08JUL2013		0												
EMW611950	Sludge SkipHS: DO Duct Installation	15	29JUL2013 A	27NOV2013	29JUL2013 A	27NOV2013	29JUL2013		0												
EMW613000	Sludge: DO Duct install in PT CEPT/SDB/DOU B I	30	29JUL2013 A	27NOV2013	29JUL2013 A	27NOV2013	29JUL2013		0												
EMW613500	Skip Storage Bldg.: E&M Installation works	30	04NOV2013	26NOV2013	04NOV2013	19NOV2013	04NOV2013		-6d												
EMW717100	DOU A: SCADA System Installation	50	15JUL2013 A	30NOV2013	15JUL2013 A	22NOV2013	15JUL2013		-7d												
EMW718550A	DOU A: FS CS H/O Duct from Admin Bldg	0	25NOV2013		25NOV2013				0												
EMW718550B	DOU A: FS Laying Signal Cable from Admin Bldg	30	25NOV2013	31DEC2013	25NOV2013	31DEC2013			0												
EMW722100D	DOU B: E&M Installation (ref)	155	28MAY2013	17DEC2013	28MAY2013	17DEC2013	28MAY2013		0												
EMW723500	DOU B: Odour Duct connection	70	21AUG2013	25NOV2013	21AUG2013	02DEC2013	21AUG2013		6d												
EMW725100	DOU B: Control & Cable Installation (MCC to Eq)	60	27MAY2013	29NOV2013	27MAY2013	29NOV2013	27MAY2013		0												
EMW727100	DOU B: SCADA System Installation	50	09AUG2013	29NOV2013	09AUG2013	29NOV2013	09AUG2013		0												
EMW728550A	DOU B: FS CS H/O Duct from Admin Bldg	0	25NOV2013		25NOV2013				0												
EMW728550B	DOU B: FS Laying Signal Cable from Admin Bldg	30	25NOV2013	31DEC2013	25NOV2013	31DEC2013			0												
EMW730000	DOU B: DO Duct install in PT CEPT/SDB/DOU B J	30	10MAY2013	28NOV2013	10MAY2013	28NOV2013	10MAY2013		0												
EMW802268	All Area: SCADA Install PLC LCP OFPS	65	04SEP2013 A	02DEC2013	04SEP2013 A	02DEC2013	04SEP2013		0												
EMW804060	Admin Bldg Service: Lift Issue of form 5	0		23NOV2013		09DEC2013			13d												
EMW808010	Decommission Control of PTW at Extg Admin Bldg	6	08JAN2014	14JAN2014	28JAN2014	08FEB2014			17d												

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										2013	2014													
EMT204100	CEPT Tank Phase 4: Introduce Process Sewage	7	29NOV2013	05DEC2013	03NOV2013	09NOV2013			-26d															
EMT204200	CEPT: Phase 4 Auto Testing Process Commissioning	35	12DEC2013	15JAN2014	21NOV2013	25DEC2013			-21d															
EMT204300	CEPT Tank Phase 4: Verification	14	16JAN2014	29JAN2014	26DEC2013	08JAN2014			-21d															
UV Disinfection Facilities																								
Building and Structures																								
EMT300000D	UV: Testing and Commissioning (ref)	221	22JUL2013 A	17FEB2014	22JUL2013 A	17FEB2014	22JUL2013		0															
EMT301100	UV: Phase 1 - Installation Inspection	50	22JUL2013 A	24NOV2013	22JUL2013 A	24NOV2013	22JUL2013		0															
EMT302100	UV: Phase 2 - Dry Test of Individual Eq't	30	29AUG2013	24NOV2013	29AUG2013	24NOV2013	29AUG2013		0															
EMT303100	UV: Phase 3 - Wet Test of Individual Eq't	30	16SEP2013 A	29NOV2013	16SEP2013 A	29NOV2013	16SEP2013		0															
EMT303200	UV: Phase 3 - Manual Testing of Sub-system	30	08OCT2013	01DEC2013	08OCT2013	01DEC2013	08OCT2013		0															
EMT303300	UV: Phase 3 - Auto Testing of Sub-system	30	23OCT2013	03DEC2013	23OCT2013	09NOV2013	23OCT2013		-24d															
EMT304100	UV: Phase 4 - Introduce Process Sewage	0	06DEC2013		10NOV2013				-26d															
EMT304200	UV: Phase 4 Auto Testing Process Commissioning	30	06DEC2013	04JAN2014	10NOV2013	09DEC2013			-26d															
EMT304300	UV: Phase 4 - Verification	30	05JAN2014	03FEB2014	10DEC2013	08JAN2014			-26d															
Reuse Water Pumping Station																								
Building and Structures																								
EMT320000D	RWPS: Testing and Commissioning (ref)	168	10OCT2013	24JAN2014	10OCT2013	24JAN2014	10OCT2013		0															
EMT321100	RWPS: Phase 1 - Installation Inspection	20	10OCT2013	26NOV2013	10OCT2013	10NOV2013	10OCT2013		-16d															
EMT322100	RWPS: Phase 2 - Dry Test of Individual Eq't	15	24NOV2013	08DEC2013	08NOV2013	22NOV2013			-16d															
EMT323100	RWPS: Phase 3 - Wet Test of RWP Sys' (exclu DAF)	15	25NOV2013	09DEC2013	08NOV2013	22NOV2013			-17d															
EMT323200	RWPS: Phase 3 - Wet & Manual Testing of DAF	25	02DEC2013	26DEC2013	15NOV2013	09DEC2013			-17d															
EMT323210	RWPS: Phase 3 Auto Test of Reuse water pump	10	30NOV2013	09DEC2013	22NOV2013	01DEC2013			-8d															
EMT323300	RWPS: Phase 3 - Auto Testing of DAF	30	22DEC2013	20JAN2014	10DEC2013	08JAN2014			-12d															
EMT324100	RWPS: Phase 4 - Introduce Process Sewage (DAF)	1	10DEC2013	10DEC2013	02DEC2013	02DEC2013			-8d															
EMT324200	RWPS: Phase 4 Auto Test Process RWP Sys Excl DAF	7	11DEC2013	17DEC2013	03DEC2013	09DEC2013			-8d															
EMT324300	RWPS Phase 4 - Verification	30	27DEC2013	25JAN2014	10DEC2013	08JAN2014			-17d															
Chemical Building																								
Building and Structures																								
EMT500000D	Chemical: Testing and Commissioning (ref)	180	27MAY2013	01FEB2014	27MAY2013	08JAN2014	27MAY2013		-24d															
EMT503100	Chemical: Phase 3 - Wet Test of Individual Eq't	30	28AUG2013	24NOV2013	28AUG2013	24NOV2013	28AUG2013		0															
EMT503200	Chemical: Phase 3 - Manual Testing of Sub-system	30	28AUG2013	26NOV2013	28AUG2013	23NOV2013	28AUG2013		-3d															
EMT503300	Chemical: Phase 3 - Auto Testing of Sub-system	30	16SEP2013 A	26NOV2013	16SEP2013 A	02NOV2013	16SEP2013		-24d															
EMT504100	Chemical: Phase 4 - Introduce Chemical Dosing	1	29NOV2013	29NOV2013	24NOV2013	24NOV2013			-5d															
EMT504200	Chemical: Phase 4 Auto Test/Process Commissioning	20	30NOV2013	19DEC2013	25NOV2013	14DEC2013			-5d															
EMT504300	Chemical: Phase 4 - Verification	25	20DEC2013	13JAN2014	15DEC2013	08JAN2014			-5d															
Sludge Dewatering and Skip Storage																								
Building and Structures																								
EMT600000D	Sludge: Testing and Commissioning (ref)	187	28JUL2013 A	15FEB2014	28JUL2013 A	15FEB2014	28JUL2013		0															
EMT601100	Sludge: Phase 1 - Installation Inspection	30	28JUL2013 A	24NOV2013	28JUL2013 A	24NOV2013	28JUL2013		0															
EMT601110	Sludge: Phase 1 - Sludge System Insp.	30	28JUL2013 A	24NOV2013	28JUL2013 A	24NOV2013	28JUL2013		0															
EMT601120	Sludge: Phase 1 - Polymer System Insp.	30	28JUL2013 A	24NOV2013	28JUL2013 A	24NOV2013	28JUL2013		0															
EMT601130	Sludge: Phase 1 - Centrifuge Inspection	30	28JUL2013 A	24NOV2013	28JUL2013 A	24NOV2013	28JUL2013		0															
EMT601140	Sludge: Phase 1 - Convey sys. Inspection	30	28JUL2013 A	24NOV2013	28JUL2013 A	24NOV2013	28JUL2013		0															
EMT602100	Sludge: Phase 2 - Dry Test of Individual Eq't	30	26SEP2013 A	03DEC2013	26SEP2013 A	03DEC2013	26SEP2013		0															
EMT603100	Sludge: Phase 3 - Wet Test of Individual Eq't	30	08OCT2013	05DEC2013	08OCT2013	05DEC2013	08OCT2013		0															
EMT603200	Sludge: Phase 3 - Manual Testing of Sub-system	30	24OCT2013	05DEC2013	24OCT2013	05DEC2013	24OCT2013		0															
EMT603300	Sludge: Phase 3 - Auto Testing of Sub-system	30	24OCT2013	05DEC2013	24OCT2013	16NOV2013	24OCT2013		-19d															
EMT604100	Sludge: Phase 4 - Introduce Process	3	06DEC2013	08DEC2013	17NOV2013	19NOV2013			-19d															
EMT604200	Sludge: Phase 4 Auto Test/Process Commissioning	20	09DEC2013	28DEC2013	20NOV2013	09DEC2013			-19d															
EMT604300	Sludge: Phase 4 - Verification	30	29DEC2013	27JAN2014	10DEC2013	08JAN2014			-19d															
Septic Waste Collection facilities																								
Building and Structures																								
EMT150000D	Septic Station: Testing and Commissioning (ref)	190	15JUL2013 A	21FEB2014	15JUL2013 A	21FEB2014	15JUL2013		0															
EMT151100	Septic Station: Phase 1 - Installation Inspection	30	15JUL2013 A	26NOV2013	15JUL2013 A	26NOV2013	15JUL2013		0															

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										2013	2014											
											NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN				
EMT152100	Septic Station: Phase 2 - Dry Test Indiv Eq't	25	01NOV2013	03DEC2013	01NOV2013	03DEC2013	01NOV2013		0	Septic Station: Phase 2 - Dry Test Indiv Eq't												
EMT153100	Septic Station: Phase 3 - Wet Test of Indiv Eq't	25	02NOV2013	03DEC2013	02NOV2013	12NOV2013	02NOV2013		-21d	Septic Station: Phase 3 - Wet Test of Indiv Eq't												
EMT153200	Septic Station: Phase 3 - Manual Test Sub-system	20	24NOV2013	13DEC2013	03NOV2013	22NOV2013			-21d	Septic Station: Phase 3 - Manual Test Sub-system												
EMT153300	Septic Station: Phase 3 - Auto Test Sub-system	20	24NOV2013	13DEC2013	03NOV2013	22NOV2013			-21d	Septic Station: Phase 3 - Auto Test Sub-system												
EMT154100	Septic Station: Phase 4-Introduce Process Sewage	7	05DEC2013	11DEC2013	14NOV2013	20NOV2013			-21d	Septic Station: Phase 4-Introduce Process Sewage												
EMT154200	Septic: Phase 4 Auto Test Process Commissioning	30	12DEC2013	10JAN2014	10DEC2013	08JAN2014			-2d	Septic: Phase 4 Auto Test Process Commissioning												
EMT154300	Septic Station: Phase 4 - Verification	30	11JAN2014	09FEB2014	09JAN2014	07FEB2014			-2d	Septic Station: Phase 4 - Verification												
DOU A																						
Building and Structures																						
EMT710000D	DOU A: Testing and Commissioning (ref)	190	15JUL2013 A	15FEB2014	15JUL2013 A	15FEB2014	15JUL2013		0	DOU A: Testing and Commissioning (ref)												
EMT712100	DOU A: Phase 2 - Dry Test of Individual Eq't	30	28SEP2013 A	29NOV2013	28SEP2013 A	29NOV2013	28SEP2013		0	DOU A: Phase 2 - Dry Test of Individual Eq't												
EMT713100	DOU A: Phase 3 - Wet Test of Individual Eq't	30	12OCT2013	29NOV2013	12OCT2013	02DEC2013	12OCT2013		3d	DOU A: Phase 3 - Wet Test of Individual Eq't												
EMT713200	DOU A: Phase 3 -Manual Testing of Sub-system	25	08NOV2013	08DEC2013	08NOV2013	29NOV2013	08NOV2013		-9d	DOU A: Phase 3 -Manual Testing of Sub-system												
EMT713300	DOU A: Phase 3 - Auto Testing of Sub-system	25	24NOV2013	18DEC2013	15NOV2013	09DEC2013			-9d	DOU A: Phase 3 - Auto Testing of Sub-system												
EMT714100	DOU A: Phase 4 - Introduce Foul Air	7	30NOV2013	06DEC2013	03DEC2013	09DEC2013			3d	DOU A: Phase 4 - Introduce Foul Air												
EMT714200	DOU A: Phase 4 Auto Test/Process Commissioning	30	19DEC2013	17JAN2014	10DEC2013	08JAN2014			-9d	DOU A: Phase 4 Auto Test/Process Commissioning												
EMT714300	DOU A: Phase 4 - Verification	30	18JAN2014	16FEB2014	08FEB2014	09MAR2014			21d	DOU A: Phase 4 - Verification												
DOU B																						
Building and Structures																						
EMT720200D	DOU B: Testing and Commissioning (ref)	170	30SEP2013 A	20FEB2014	30SEP2013 A	20FEB2014	30SEP2013		0	DOU B: Testing and Commissioning (ref)												
EMT720220	DOU B: Phase 1 - Installation Inspection	30	30SEP2013 A	05DEC2013	30SEP2013 A	05DEC2013	30SEP2013		0	DOU B: Phase 1 - Installation Inspection												
EMT722100	DOU B: Phase 2 - Dry Test of Individual Eq't	20	24NOV2013	13DEC2013	24NOV2013	13DEC2013			0	DOU B: Phase 2 - Dry Test of Individual Eq't												
EMT723100	DOU B: Phase 3 - Wet Test of Individual Eq't	20	24NOV2013	13DEC2013	06NOV2013	25NOV2013			-18d	DOU B: Phase 3 - Wet Test of Individual Eq't												
EMT723200	DOU B: Phase 3 - Manual Testing of Sub-system	25	24NOV2013	18DEC2013	15NOV2013	09DEC2013			-9d	DOU B: Phase 3 - Manual Testing of Sub-system												
EMT723300	DOU B: Phase 3 - Auto Testing of Sub-system	25	24NOV2013	18DEC2013	15NOV2013	09DEC2013			-9d	DOU B: Phase 3 - Auto Testing of Sub-system												
EMT724100	DOU B: Phase 4 - Introduce Foul Air	7	12DEC2013	18DEC2013	24NOV2013	30NOV2013			-18d	DOU B: Phase 4 - Introduce Foul Air												
EMT724200	DOU B: Phase 4 Auto Test/Process Commissioning	30	19DEC2013	17JAN2014	10DEC2013	08JAN2014			-9d	DOU B: Phase 4 Auto Test/Process Commissioning												
EMT724300	DOU B: Phase 4 - Verification	30	18JAN2014	16FEB2014	08FEB2014	09MAR2014			21d	DOU B: Phase 4 - Verification												
Control System																						
Building and Structures																						
EMT811118	Control/SCADA: Phase 1 - Insp PLC LCP DOUB	30	23AUG2013	27NOV2013	23AUG2013	27NOV2013	23AUG2013		0	Control/SCADA: Phase 1 - Insp PLC LCP DOUB												
EMT811119	Control/SCADA: Phase 1 - Insp PLC LCP OFPS	30	29AUG2013	04DEC2013	29AUG2013	09DEC2013	29AUG2013		5d	Control/SCADA: Phase 1 - Insp PLC LCP OFPS												
EMT812121	Control/SCADA: Phase 2 - SCADA Admin	30	25SEP2013 A	29NOV2013	25SEP2013 A	29NOV2013	25SEP2013		0	Control/SCADA: Phase 2 - SCADA Admin												
EMT812126	Control/SCADA: Phase 2 - PLC LCP SDW	30	27OCT2013	27NOV2013	27OCT2013	16NOV2013	27OCT2013		-11d	Control/SCADA: Phase 2 - PLC LCP SDW												
EMT812127	Control/SCADA: Phase 2 - PLC LCP DOUA	30	08NOV2013	29NOV2013	08NOV2013	07DEC2013	08NOV2013		8d	Control/SCADA: Phase 2 - PLC LCP DOUA												
EMT812128	Control/SCADA: Phase 2 - PLC LCP DOUB	30	28NOV2013	27DEC2013	28NOV2013	27DEC2013			0	Control/SCADA: Phase 2 - PLC LCP DOUB												
EMT812129	Control/SCADA: Phase 2 - PLC LCP OFPS	30	05DEC2013	03JAN2014	10DEC2013	08JAN2014			5d	Control/SCADA: Phase 2 - PLC LCP OFPS												
EMT814210	Control/SCADA: Phase 4 Start	0	27NOV2013		10NOV2013				-17d	Control/SCADA: Phase 4 Start												
EMT814250	Control/SCADA: Phase 4 Auto Test/Process Comm.	30	27NOV2013	26DEC2013	10NOV2013	09DEC2013			-17d	Control/SCADA: Phase 4 Auto Test/Process Comm.												
EMT814290	Control/SCADA: Phase 4 Finish	0		26DEC2013		09DEC2013			-17d	Control/SCADA: Phase 4 Finish												
EMT814310	Control/SCADA: Phase 4 Start	0	27NOV2013		10NOV2013				-17d	Control/SCADA: Phase 4 Start												
EMT814350	Control/SCADA: Phase 4 - Verification	60	27NOV2013	25JAN2014	10NOV2013	08JAN2014			-17d	Control/SCADA: Phase 4 - Verification												
EMT814390	Control/SCADA: Phase 4 verif. Finish	0		25JAN2014		08JAN2014			-17d	Control/SCADA: Phase 4 verif. Finish												
Building Services																						
Building and Structures																						
EMT832000	Admin BS: Funtional Test of Installation	30	08OCT2013	24NOV2013	08OCT2013	24NOV2013	08OCT2013		0	Admin BS: Funtional Test of Installation												
EMT833000	Admin BS: Funtional Test of Individual Eq't	30	08OCT2013	27NOV2013	08OCT2013	27NOV2013	08OCT2013		0	Admin BS: Funtional Test of Individual Eq't												
EMT835000	Admin BS: Funtional Testing of Sub-system	30	15OCT2013	06DEC2013	15OCT2013	22NOV2013	15OCT2013		-14d	Admin BS: Funtional Testing of Sub-system												
EMT836000	Admin BS: Performance Testing of Sub-system	30	24NOV2013	23DEC2013	10NOV2013	09DEC2013			-14d	Admin BS: Performance Testing of Sub-system												
EMT837000	Admin BS: Government Inspection	18	24DEC2013	10JAN2014	10DEC2013	27DEC2013			-14d	Admin BS: Government Inspection												
EMT837100	Admin BS: Government Re-inspection	30	11JAN2014	09FEB2014	28DEC2013	26JAN2014			-14d	Admin BS: Government Re-inspection												
EMT838000	Admin BS: Government Issue Certificate	14	10FEB2014	23FEB2014	27JAN2014	09FEB2014			-14d	Admin BS: Government Issue Certificate												
Optimisation and Proving Test for All E&M Works																						
Building and Structures																						

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										2013	2014										
										NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN				
EMT991000	CEPT Phase 5 submit new Discharge License insp.	30	04FEB2014	05MAR2014	09APR2014	08MAY2014			64d												
EMT995000	CEPT Phase 5 Optimisation period	30	04FEB2014	05MAR2014	09JAN2014	07FEB2014			-26d												
EMT995300	CEPT Phase 5 Proving Period	90	06MAR2014	03JUN2014	08FEB2014	08MAY2014			-26d												