ATAL-Degrémont-China State Joint Venture

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

October 2012

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October 2012

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 (R078) - Christina Ip)

Date: 12 October 2012

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Drainage Services Department
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Harbour Area Treatment Scheme Division
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Attn: Mr. Kenley C.K. KWOK (T: 2159 3409)

11 October 2012

Dear Sir,

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

Monthly EM&A Report for September 2012

Reference is made to Environmental Team (ET)'s draft of the Monthly EM&A Report for September 2012 provided by email dated 9 and 11 October 2012. 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.

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. Tim Lee (Fax No. 2317 7609)
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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 23rd monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 30 September 2012 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month include:

- Constructing the root slab, wall, columns and beams at the Administration Building;
- Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;
- Constructing the wall and floor slab at the PTW area of P2;
- Conducting water test, constructing the wall and floor slab at the CEPT area of P2
- Finishing work at the Electrical Building No.1;
- Constructing the manhole and trench walls at the UV building;
- Constructing the floor slab, conducting water test and backfilling at the Septic Waste Reception Station;
- Constructing the wall and roof at the Reuse Water Pump Room;
- Backfilling and constructing raft slab at the DOUA and the Chemical Building;
- Constructing the floor slab and trench at the Electrical building No.3 and No.4; and
- 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). A total 2,055 tonnes of inert C&D material were generated, in which 1555 tonnes were disposed of at the Tuen Mun Area 38 Fill Bank and 500 tonnes of inert C&D materials were reused on site. 300 tonnes of rocks & broken concrete were generated in August. 30 kg of metals, 40 kg of papers/ cardboard packing and 3kg 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 14 September 2012. 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:

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

- Constructing the fins wall and finishing works at the Administration Building;
- Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;
- Constructing the wall and floor slab at the PTW area of P2;
- Conducting water test, constructing the wall and floor slab at the CEPT area of P2
- Finishing work at the Electrical Building No.1;
- Constructing the manhole and trench walls at the UV building;

- Constructing the floor slab, conducting water test and backfilling at the Septic Waste Reception Station;
- Constructing the wall and roof at the Reuse Water Pump Room;
- Backfilling and constructing raft slab at the DOUA and the Chemical Building;
- Constructing the wall and roof slab at the Electrical building No.3 and No.4; and
- Backfilling and drainage works for the whole site.

1 INRODUCTION

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 23rd EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from **1** to **30 September 2012**.

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 PROJECT INFORMATION

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 Roadin 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 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. Under the requirements of Condition 3.1 of EP-322/2008, 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
• Constructing the root slab, wall, columns and beams at the Administration Building;
• Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;
• Constructing walls and floor slabs in the PTW area of P2;
• Conducting water tests, constructing a wall and floor slabs at the CEPT area of P2
• Finishing work at the Electrical Building No.1;
• Constructing a manhole and trench walls at the UV building;
• Constructing floor slabs, conducting water test and backfilling at the Septic Waste Reception Station;
• Constructing a wall and roof at the Reuse Water Pump Room;
• Backfilling and constructing raft slabs at the DOUA and the Chemical Building;
• Constructing floor slabs and trenches at the Electrical building No.3 and No.4; and
• 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	Throughout the Contract	Permit granted on 17 November 2008.
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	WT00008027-2010	Till 31 December 2015	Wastewater discharge licence was issued by EPD on 7 December 2010.
Construction Noise Permit	GW-RW0535-12	28 July 2012 – 27 January 2013	
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 TSP	Once every 6 days
1-hour 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)
24-hr and 1-hr TSP	
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 ± 3°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 $m^3 min^{-1}$ which were within the range specified in the EM&A Manual (ie 0.6 to 1.7 $m^3 min^{-1}$);
- 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 then 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*.

4 *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 cloudy. 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*. The public fill and construction waste generated from the Project have been disposed of at the Tuen Mun Area 38 Fill Bank and WENT Landfill, respectively. 300 tonnes of rocks & broken concrete were generated in September. 30 kg of metals, 40 kg of papers/ cardboard packing and 3 kg of plastics were sent to recyclers for recycling during the reporting period.

Table 6.1 Quantities of Waste Generated from the Project

Month / Year	Quantity		
	C&D Materials Disposed of at Fill Banks (inert) [a]	**C&D Materials Disposed of at Landfill (Non-inert) (Construction waste) [b] [c]**	**Chemical Waste**
September 2012	1555 tonnes	118.8 tonnes	0 L

Notes:

(a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated soil. A total 2,055 tonnes of inert C&D waste were generated, in which 1,555 tonnes were disposed of at the Tuen Mun Area 38 Fill Bank and 500 tonnes of inert C&D materials reused on site. 300 tonnes of rocks & broken concrete were generated in September. 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 are grouped into construction wastes as the materials were not disposed of with others at the public fill. 118.8 tonnes of general refuse is recorded in the reporting month. Construction wastes other than metals and paper/cardboard packaging were disposed of at WENT Landfill. 30 kg of metals, 40 kg of papers/ cardboard packing and 3 kg of plastics were sent to recyclers for recycling during the reporting period.

(c) General refuse was disposed of at WENT Landfill by subcontractors.

7 ENVIRONMENTAL INSPECTIONS

7.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the SOR and the ET on 7, 14, 21 and 28 September 2012. The IEC was also present at the joint inspection on 14 September 2012.

Major observations during the reporting period are summarised as follows:

7 September 2012

- A metal pipe was observed stored next to tree R33. The Contractor was reminded to remove the piles away from the tree protection zone and no material storage should be allowed within the zone.

14 September 2012

- A pool of stagnant water was observed in a pit near EB-3. The Contractor was reminded to pump out the water to avoid mosquito breeding.

21 September 2012

- A chemical drum without drip tray was observed near gate 1 at P2. The Contractor was reminded to put the chemical drum on the drip tray and cover them when unused.

28 September 2012

- The chemical enhanced treatment facility near Gate 1 at P2 was temporarily switched off and muddy water was observed overflowing from the tank. The facility was switched back on immediately. The Contractor was reminded to remove the muddy water on the ground to prevent direct discharge to public drains.

- Metal pipes were observed being piled up adjacent to Tree R15, R16 and R17. The Contractor was advised to remove the metal pipes away from the tree cordon zone.

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.

7.2 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 EIA Report are fully achieved. A review of the landscape and visual mitigation measures was performed on 14 September 2012. The IEC was present at the joint inspection on 14 September 2012. 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:

14 September 2012

- Tree T134 and T142 were observed badly damaged. The Contractor has been reminded to exercise caution to avoid further damage to the trees and arrange the arborist to inspect the conditions of the trees and prune the damaged branch properly.

- Three nos. of tree N75 - Macaranga tanarius (血桐), N83 – Psiduim guajava (番石榴) and 434 – Melia azedarach (楝) were found in poor health condition. The Contractor was reminded to arrange the arborist to inspect the conditions of the trees.

- Construction materials were found to be placed within the protective root zone of tree R30, T02, T03 and T152. The Contractor was reminded to clear all the construction materials. Tree label of R30 was missing. The Contractor was reminded to re-tag the tree label.

- Broken branch of T146 was observed. The Contractor was reminded to properly prune the broken branch.

The Contractor was reminded to implement the follow-up actions. The status of the follow-up actions will be reviewed in the first weekly site inspections in the next reporting period.

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

Work to be taken
• Constructing the fins wall and finishing works at the Administration Building;
• Constructing the structure, water tank and backfilling at the Sludge Dewatering Building;
• Constructing the wall and floor slab at the PTW area of P2;
• Conducting water test, constructing the wall and floor slab at the CEPT area of P2
• Finishing work at the Electrical Building No.1;
• Constructing the manhole and trench walls at the UV building;
• Constructing the floor slab, conducting water test and backfilling at the Septic Waste Reception Station;
• Constructing the wall and roof at the Reuse Water Pump Room;
• Backfilling and constructing raft slab at the DOUA and the Chemical Building;
• Constructing the wall and roof slab at the Electrical building No.3 and No.4; and
• 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, μg m^{-3}	Measured 24-hour TSP Monitoring Results, μg m^{-3} [(a) (b)]	
		24 hour [(a)]	Average	Range
AM1	A1	260	72	53 - 100
AM2	A7	260	79	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)] [(d)] (inert & non-inert)	
Amount of C&D Materials Arising	61,489 m^3	77,600 m^3	97,773.9	m^3
Amount of C&D Materials Reused on other site	-	-	3,163.9	m^3
Amount of C&D Materials Reused on site	14,926 m^3	18,000 m^3	6,218.9	m^3
Amount of C&D Materials Sent to Fill Banks	46,563m^3	59,600 m^3	88,391.1	m^3
General Refuse	Small	-	793.5	tonnes
Chemical Waste	Small	-	810.0	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/m^3.

(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.

11 CONCLUSIONS

This EM&A Report presents the EM&A programme undertaken during the reporting period from 1 to 30 September 2012 in accordance with EM&A Manual and requirements of EP (EP-321/2008).

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

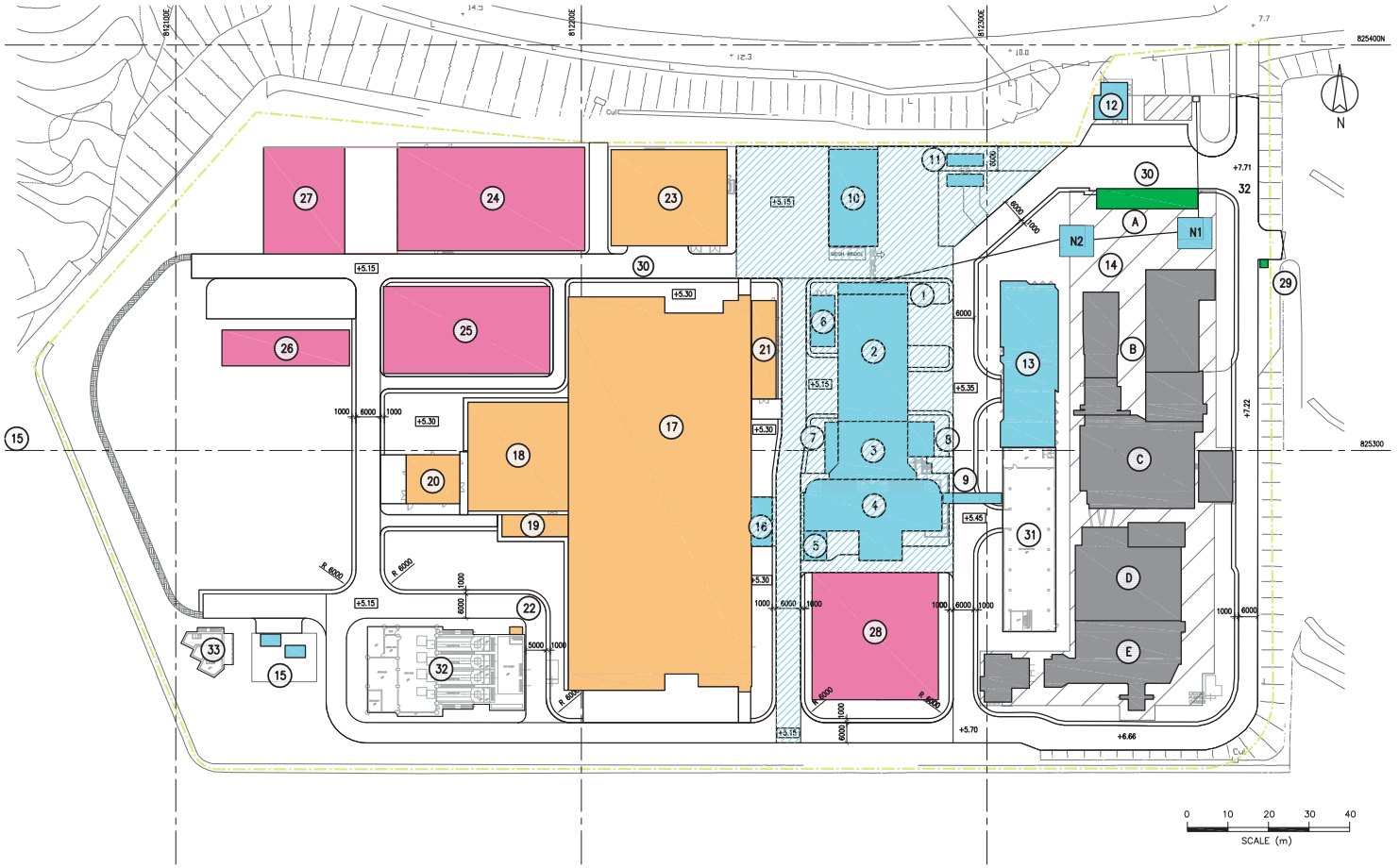
1. INLET CHAMBER
2. COARSE SCREENS AND INLET PUMPING STATION
3. FINE SCREEN CHANNELS
4. GRIT CHAMBERS
5. INLET FLOWMETER CHAMBER
6. PTW MCC ROOM
7. BLOWER ROOM
8. SCREENING SKIP HOUSE
9. ODOR DUCT SUPPORTING BRIDGE
10. SEPTIC WASTE RECEPTION STATION
11. WEIGHBRIDGE
12. ELECTRICAL BUILDING 1
13. ADMINISTRATION BUILDING
14. INLET CHAMBERS
15. PAYMENT FLOWMETER CHAMBER
16. CEPT INLET CHAMBER

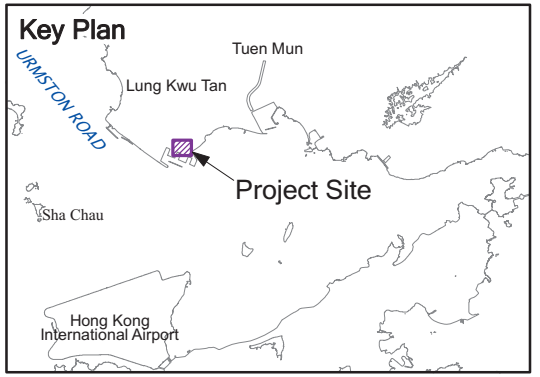
SECTION 2 CEPT TANKS UV DISINFECTION

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 DEWATERING 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

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

SECTION 5 EXTERNAL WORKS

- 29 GATE HOUSE
- 30 CAR PARK

EXISTING BUILDING TO BE RETAINED

- 31 EXISTING SOLID HANDING BUILDING
- 32 EXISTING OUTFALL PUMPING STATION
- 33 EXISTING TERMINAL MANHOLE

Annex A

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

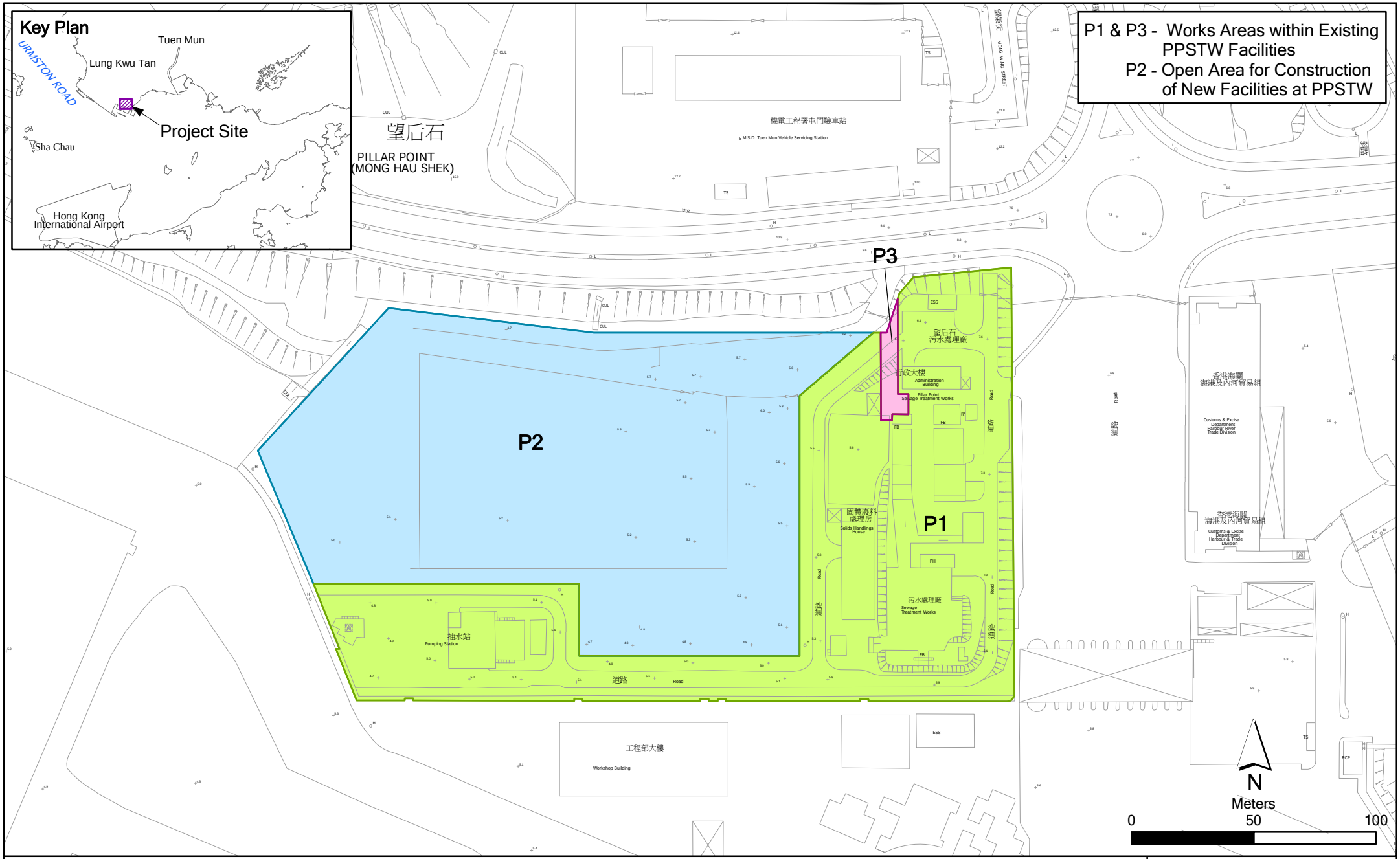
FILE: 0119806c
DATE: 20/12/2010

Environmental Resources Management

ERM

Annex B

Works Location



Annex B

Location of Works Areas

File: 0119806_location of works.mxd
Date: 15/12/2010

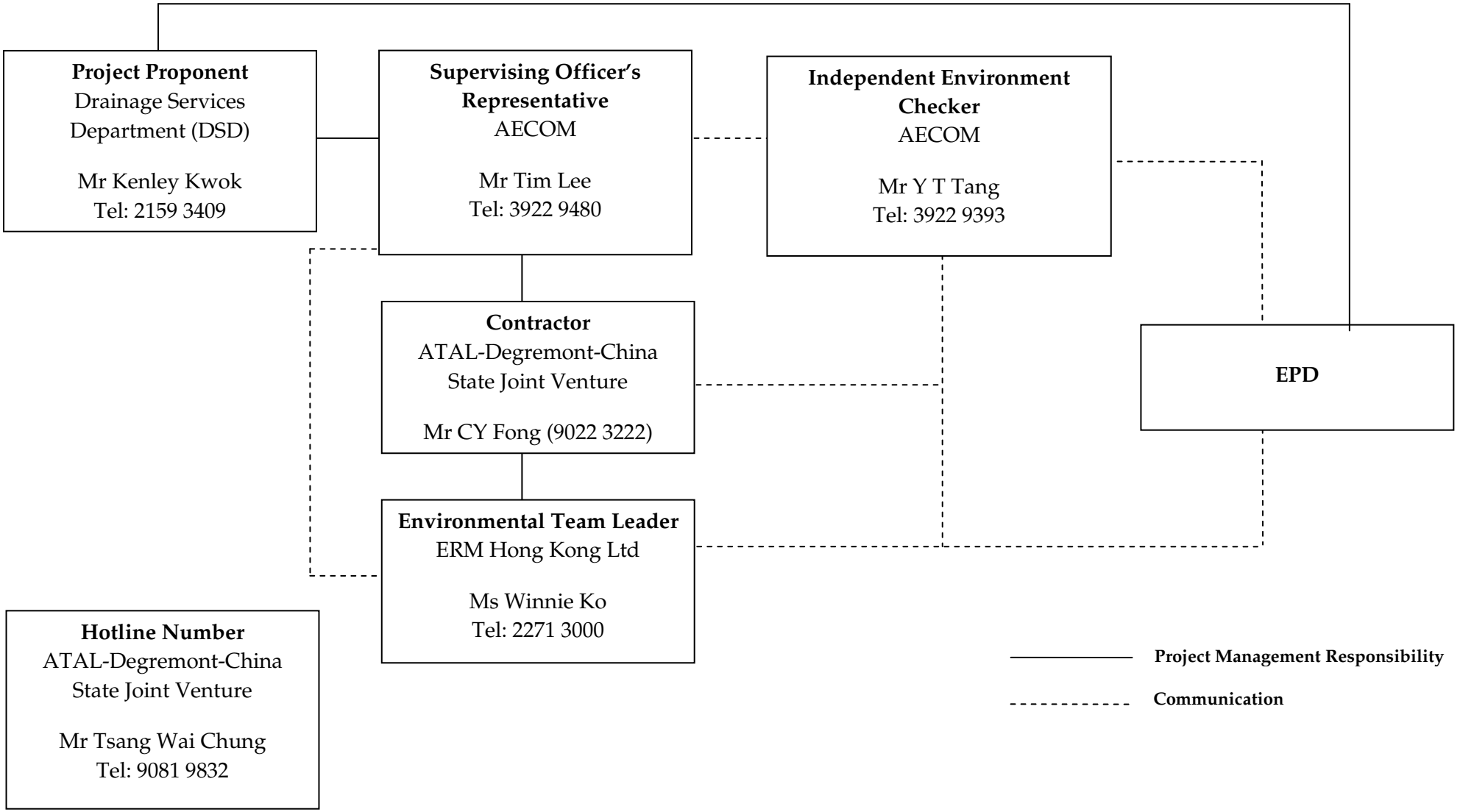
Environmental Resources Management

ERM

Annex C

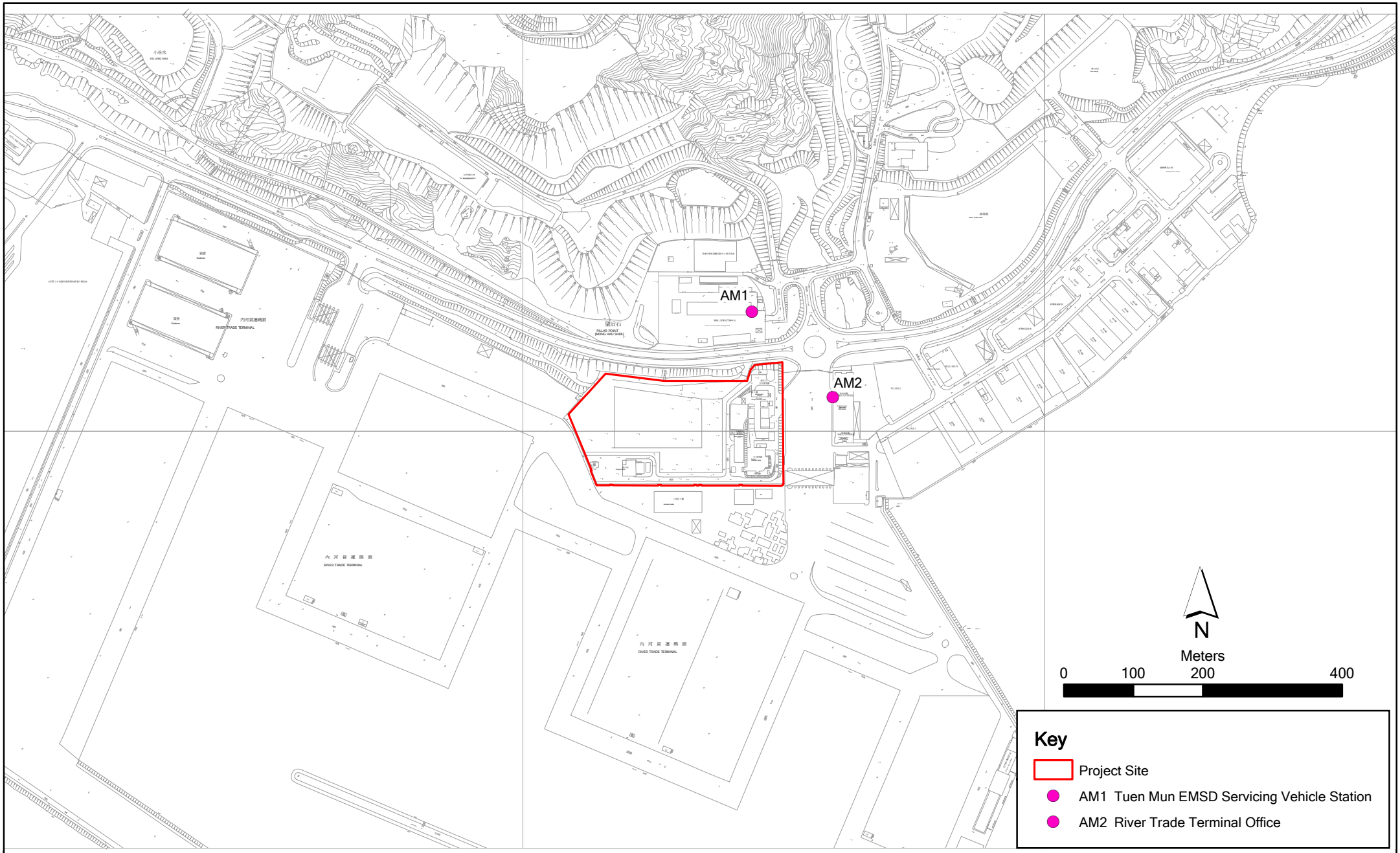
Project Organization Chart with Contact Details

Project Organization During Construction Phase (with contact details)



Annex D

Locations of Air Quality Monitoring Stations



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

ERM

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)

September 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Sep
2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	8-Sep
	3X1-hr & 1X 24-hr TSP					3X1-hr & 1X 24-hr TSP
9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep
					3X1-hr & 1X 24-hr TSP	
16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep
				3X1-hr & 1X 24-hr TSP		
23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	29-Sep
			3X1-hr & 1X 24-hr TSP			
30-Sep						

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)
October 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
			3X1-hr & 1X 24-hr TSP			
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
		3X1-hr & 1X 24-hr TSP				
14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct
	3X1-hr & 1X 24-hr TSP					3X1-hr & 1X 24-hr TSP
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
					3X1-hr & 1X 24-hr TSP	
28-Oct	29-Oct	30-Oct	31-Oct			

Annex F

Calibration Reports for HVSs

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr and 1-hr TSP		**HVS**	**Calibrator**		
AM1	Tuen Mun EMSD Vehicle Servicing Station	GMW GS-2310 (S/N 7580)	CM-AIR-43 (S/N 0438320)	04 September 2012	04 November 2012
AM2	River Trade Terminal Office	GMW GS-2310 (S/N 1252)	CM-AIR-43 (S/N 0438320)	04 September 2012	04 November 2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	EMSD
Calibrated by	:	P.F.Yeung
Date	:	04/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1012
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.323	1.668	54	53.6
2	13 holes	9.4	3.044	1.529	48	47.7
3	10 holes	7.2	2.664	1.338	41	40.7
4	7 holes	4.4	2.083	1.046	30	29.8
5	5 holes	2.6	1.601	0.805	20	19.6

Sampler Calibration Relationship

Slope(m):38.620 Intercept(b): -11.003 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 10/09/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	River Trade
Calibrated by	:	P.F.Yeung
Date	:	04/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99999

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1012
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.323	1.668	64	63.5
2	13 holes	9.2	3.012	1.512	56	55.6
3	10 holes	7.4	2.701	1.356	49	48.7
4	7 holes	4.6	2.129	1.070	36	35.7
5	5 holes	2.6	1.601	0.805	23	22.8

Sampler Calibration Relationship

Slope(m):46.653 Intercept(b): -14.551 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 10/09/2012

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 ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
3/9/2012	13:10	14:10	Fine	121	343	500	Construction work in progress	26.9	*	7580	5118
	14:10	15:10	Fine	115	343	500	Construction work in progress	26.9	*	7580	5119
	15:10	16:10	Fine	110	343	500	Construction work in progress	26.9	*	7580	5120
08/09/2012	13:10	14:10	Fine	85	343	500	Construction work in progress	29.2	*	7580	5135
	14:10	15:10	Fine	86	343	500	Construction work in progress	29.2	*	7580	5136
	15:10	16:10	Fine	86	343	500	Construction work in progress	29.2	*	7580	5137
14/09/2012	13:10	14:10	Sunny	79	343	500	Construction work in progress	27.7	*	7580	5152
	14:10	15:10	Sunny	80	343	500	Construction work in progress	27.7	*	7580	5153
	15:10	16:10	Sunny	83	343	500	Construction work in progress	27.7	*	7580	5154
20/09/2012	13:10	14:10	Cloudy	67	343	500	Construction work in progress	25.0	*	7580	5315
	14:10	15:10	Cloudy	77	343	500	Construction work in progress	25.0	*	7580	5316
	15:10	16:10	Cloudy	82	343	500	Construction work in progress	25.0	*	7580	5317
26/09/2012	13:10	14:10	Cloudy	107	343	500	Construction work in progress	27.5	*	7580	5410
	14:10	15:10	Cloudy	99	343	500	Construction work in progress	27.5	*	7580	5411
	15:10	16:10	Cloudy	111	343	500	Construction work in progress	27.5	*	7580	5412
			Min.	**67**							
			Max.	**111**							
			Average	**87**							

* 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 ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
03/09/2012	13:00	14:00	Fine	111	383	500	Construction work in progress	26.9	*	1252	5114
	14:00	15:00	Fine	106	383	500	Construction work in progress	26.9	*	1252	5115
	15:00	16:00	Fine	96	383	500	Construction work in progress	26.9	*	1252	5116
08/09/2012	13:00	14:00	Fine	117	383	500	Construction work in progress	29.2	*	1252	5131
	14:00	15:00	Fine	102	383	500	Construction work in progress	29.2	*	1252	5132
	15:00	16:00	Fine	96	383	500	Construction work in progress	29.2	*	1252	5133
14/09/2012	13:00	14:00	Sunny	95	343	500	Construction work in progress	27.7	*	1252	5148
	14:00	15:00	Sunny	83	343	500	Construction work in progress	27.7	*	1252	5149
	15:00	16:00	Sunny	95	343	500	Construction work in progress	27.7	*	1252	5150
20/09/2012	13:00	14:00	Cloudy	77	383	500	Construction work in progress	25.0	*	1252	5211
	14:00	15:00	Cloudy	102	383	500	Construction work in progress	25.0	*	1252	5312
	15:00	16:00	Cloudy	103	383	500	Construction work in progress	25.0	*	1252	5313
26/09/2012	13:00	14:00	Cloudy	95	383	500	Construction work in progress	27.5	*	1252	5406
	14:00	15:00	Cloudy	116	383	500	Construction work in progress	27.5	*	1252	5407
	15:00	16:00	Cloudy	109	383	500	Construction work in progress	27.5	*	1252	5408
			Min.	**77**							
			Max.	**117**							
			Average	**99**							

* 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. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
3/9/2012	16:10	4-Sep-12	16:10	Fine	2.7308	2.8600	13277.18	13301.18	1440.00	1.23	1.23	1.23	73	183	260	Construction work in progress	7580	5121
08/09/2012	16:10	9-Sep-12	16:10	Fine	2.7545	2.8797	13304.08	13328.18	1440.00	1.37	1.37	1.37	63	183	260	Construction work in progress	7580	5138
14/09/2012	16:10	15-Sep-12	16:10	Sunny	2.7542	2.8811	13331.18	13355.18	1440.00	1.37	1.37	1.37	64	183	260	Construction work in progress	7580	5155
20/09/2012	16:10	21-Sep-12	16:10	Cloudy	2.7588	2.8792	13358.18	13382.18	1440.00	1.37	1.37	1.37	61	183	260	Construction work in progress	7580	5318
26/09/2012	16:10	27-Sep-12	16:10	Cloudy	2.7681	2.8909	13385.18	13409.18	1440.00	1.37	1.37	1.37	62	183	260	Construction work in progress	7580	5413
												Min.	61					
												Max.	64					
												Average	63					

24-hour TSP Monitoring Results

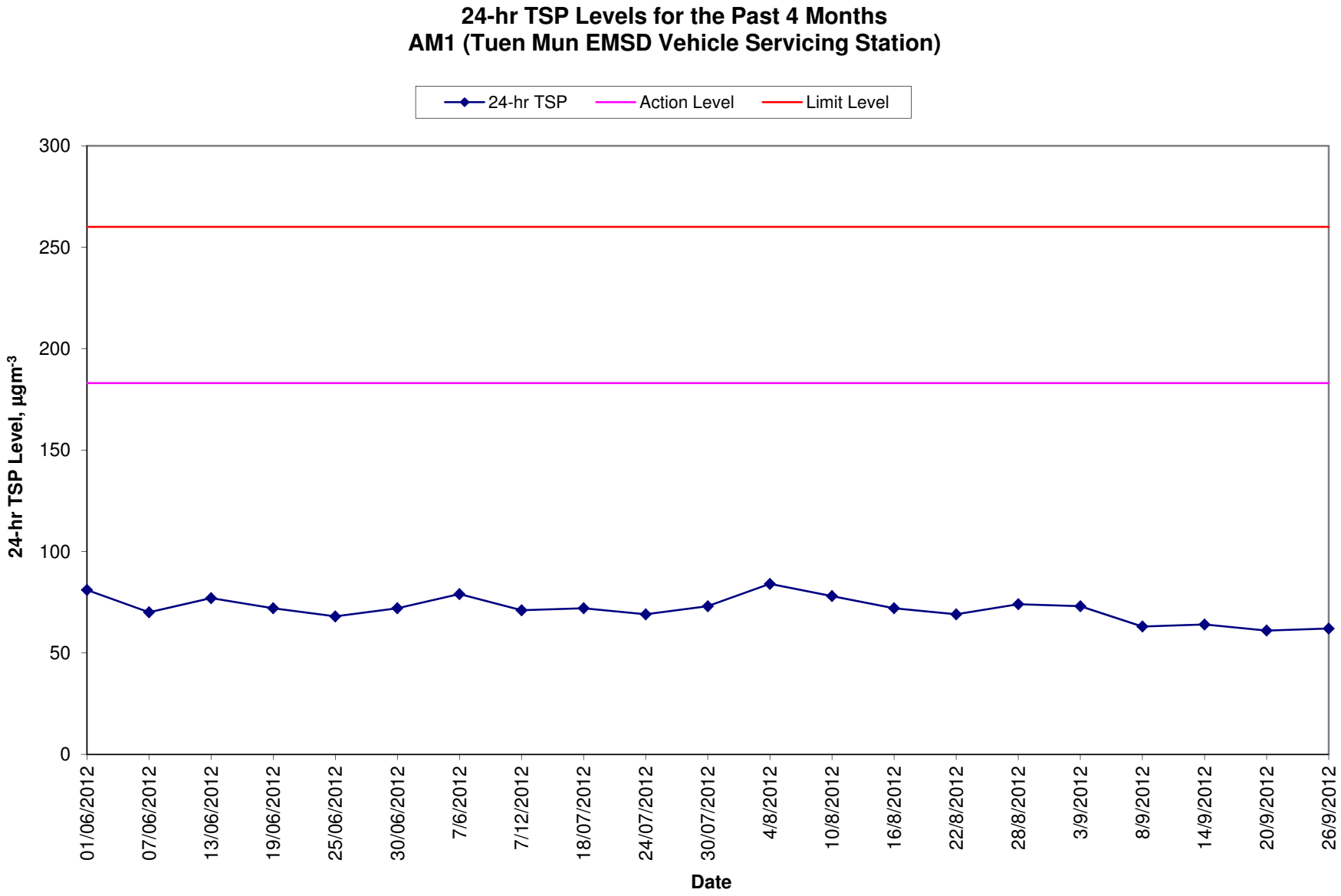
Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
3/9/2012	16:00	4-Sep-12	16:00	Fine	2.7099	2.8297	21294.2	21318.2	1440	1.2	1.2	1.20	69	192	260	Construction work in progress	1252	5117
08/09/2012	16:00	9-Sep-12	16:00	Fine	2.7421	2.8669	21321.20	21345.20	1440.00	1.21	1.21	1.21	72	192	260	Construction work in progress	1252	5134
14/09/2012	16:00	15-Sep-12	16:00	Sunny	2.7691	2.8844	21348.20	21372.20	1440.00	1.21	1.21	1.21	66	192	260	Construction work in progress	1252	5151
20/09/2012	16:00	21-Sep-12	16:00	Cloudy	2.7338	2.8558	21375.20	21399.20	1440.00	1.21	1.21	1.21	70	192	260	Construction work in progress	1252	5314
26/09/2012	16:00	27-Sep-12	16:00	Cloudy	2.7725	2.9049	21402.20	21426.20	1440.00	1.21	1.21	1.21	76	192	260	Construction work in progress	1252	5409
												Min.	66					
												Max.	76					
												Average	71					

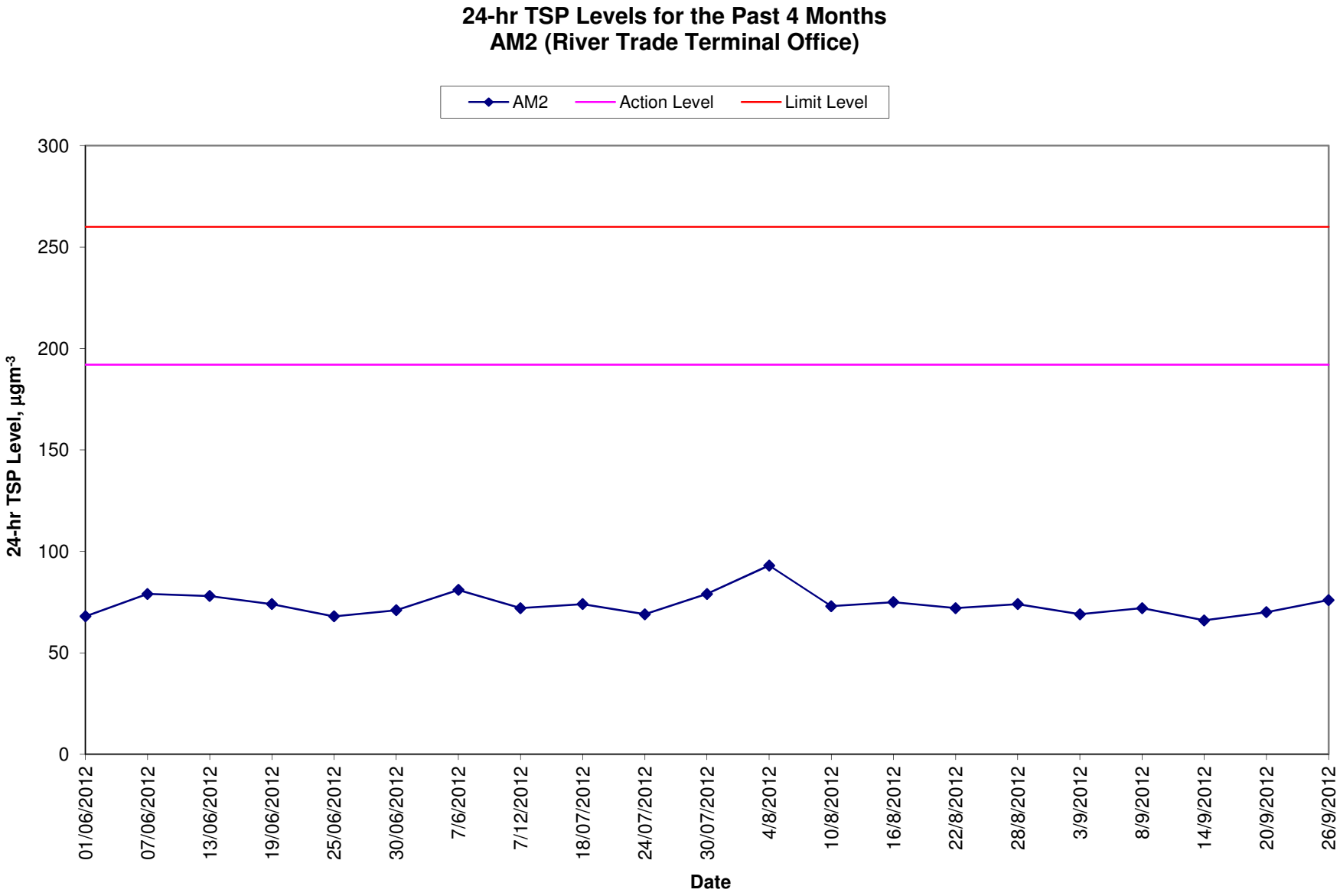
Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	Tuen Mun Station				
		Average Air Temperature (° C)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
3/9/2012	Fine	26.85	62-81	0	6.0	NE
4/9/2012	Fine	26.65	65-84	0	12.0	SE
8/9/2012	Fine	29.2	70-93	8.0	Not available	Not available
9/9/2012	Fine	30.2	64-88	Trace	12.0	SW
14/9/2012	Sunny	27.7	57-70	0.0	15.0	N
15/9/2012	Sunny	26.6	59-73	Trace	9.0	N
20/9/2012	Cloudy	25.0	74-91	1.8	8.0	SE
21/9/2012	Cloudy	27.9	71-93	1.2	4.0	N
26/9/2012	Cloudy	27.5	71-92	0.4	5.0	N
27/9/2012	Cloudy	28.5	49-78	Trace	9.0	N

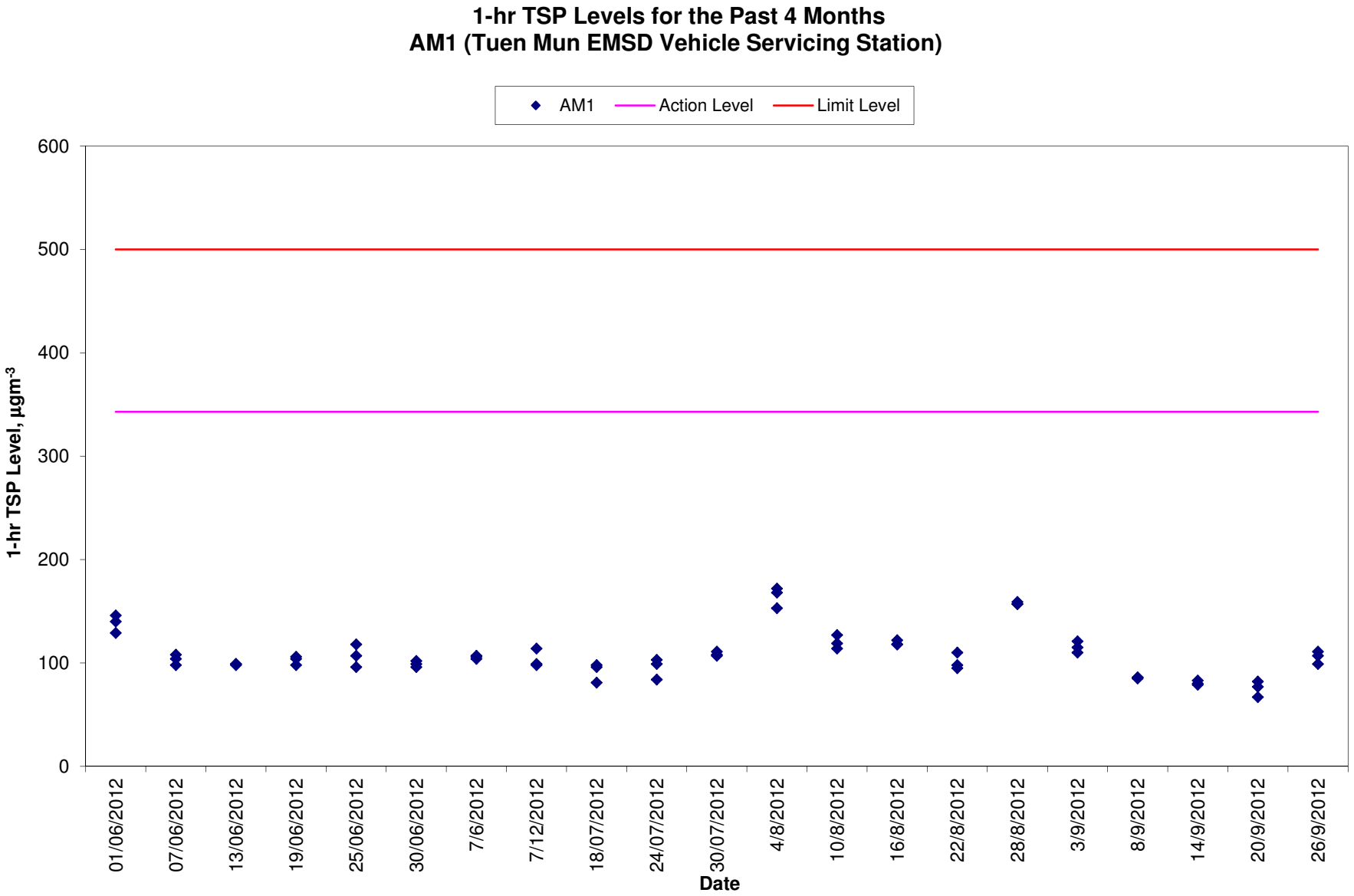
Annex F TSP Monitoring Results



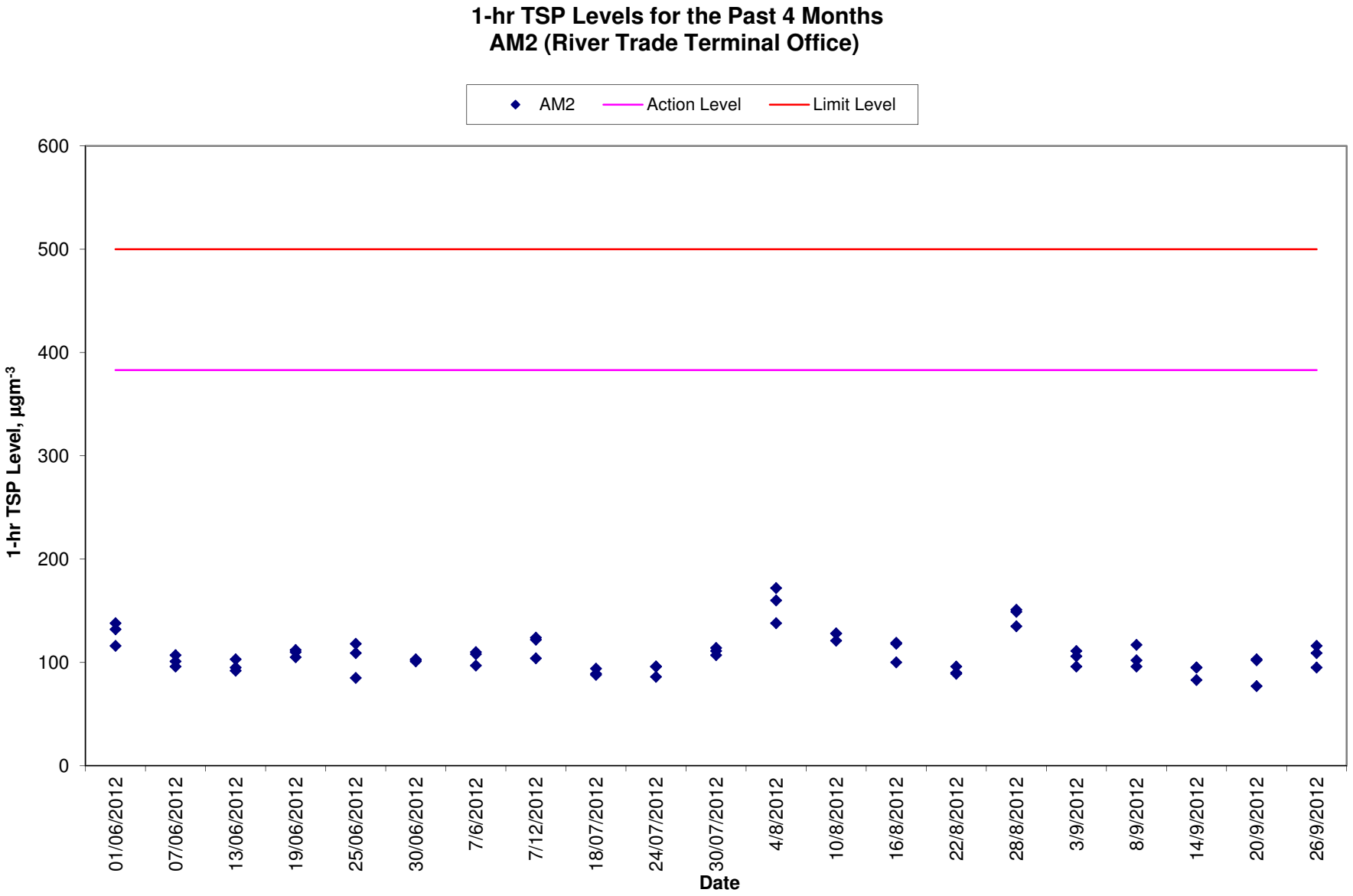
Annex F TSP Monitoring Results



Annex F TSP Monitoring Results



Annex F TSP Monitoring Results



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
Action Level				
Exceedance for one sample	• 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.	• Check monitoring data submitted by ET; • Check Contractor's working method.	• Notify Contractor and DSD.	• Rectify any unacceptable practice; • Amend working methods if appropriate.
Exceedance for two or more consecutive samples	• 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.	• 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.	• Confirm receipt of notification of exceedance in writing; • Notify Contractor and DSD; • Ensure remedial measures properly implemented.	• 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
Limit Level				
Exceedance for one sample	• 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.	• 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.	• Confirm receipt of notification of exceedance in writing; • Notify Contractor; • Ensure remedial measures properly implemented.	• 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	• 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.	• 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.	• 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.	• 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
Summary of Environmental Mitigation Measures in the EIA and EM&A Manual			
Construction Phase			
Air Quality	Dust mitigation measures stipulated in *the Air Pollution Control (Construction Dust) Regulation* 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
	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 crashed 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.		
Water Quality	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.	Work site/During the construction period	√
Water Quality	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.	Work site/During the construction period	√
Water Quality	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.	Work site/During the construction period	<>
Waste Management	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	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	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: • 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	*Good Site Practices* Recommendations for good site practices during the construction activities include: • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical handling procedures • Provision of sufficient waste disposal points and regular collection of waste • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	Work site/During the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	• 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	*Waste Reduction Measures* Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Work site/During planning & design stage, and construction stage	√
Waste Management	*General Refuse* 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.	Work site / During the construction period	√
Waste Management	*Construction and Demolition Material* In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated	Work site / During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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.		
Waste Management	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: • 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	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	Work site/During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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.		
Waste Management	*Chemical Waste* 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.	Work site / During the construction period	√
Landscape & Visual	<u>Temporary Tree Nurseries</u> 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. Besides, these trees may also be positioned as visual mitigation during	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	No-intrusion Zone 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.	Work site/During design stage & construction period	<>
Landscape & Visual	Hoarding 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.	Work site/During design stage & construction period	√
Landscape & Visual	Dust and Erosion Control for Exposed Soil 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..	Work site/During design stage & construction period	√
Landscape & Visual	Existing Tree Record Inventory 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.	Work site/During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	Construction Light 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.	Work site / During design stage & construction period	√
Landscape & Visual	Tree Transplanting Apart from the 18 numbers of "*Leucaena leucocephala*", 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**.	Work site / During design stage & construction period	Δ. Tree transplantation in progress.
Landscape & Visual	Tree Compensation Ratio 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 "*Cassia surattensis*" 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**.	Work site / During design stage & construction period	N/A
Landscape & Visual	Re-use of Existing Soil and Advance formation of Planting Area 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.	Work site / During design stage & construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	Establishment Period 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.	Work site/During operation period	N/A. To be implemented during operation phase of Project.
Landscape & Visual	Re-instatement of excavated Area All excavated area and disturbed area for utilities diversion, temporary road diversion, and pipeline woks will be reinstated to former conditions, subject to applicable Government Standards.	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
Landscape & Visual	Appearance and Greening for the proposed structures 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.	Work site / During design stage & operation period	N/A. To be implemented during operation phase of Project.
Summary of Key Environmental Mitigation Measures in Contract Requirements			
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 (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	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)
				Rocks & Broken Concrete	Total					
	tonne	tonne	tonne	tonne		kilogram	kilogram	kilogram	Litre	tonne
Nov 2010	2,248	0	0	0	2,248	60	100	0	0	18.05 (see Note 4)
Dec 2010	11,314 (see Note 4)	0	0	0	11,314	100	120	20	0	28.4 (see Note 4)
Jan 2011	58,383 (see Note 4)	0	0	0	58,383	250	280	60	0	4.59 (see Note 4)
Sub-total	**71,945**	**0**	**0**	**71,945**		**410**	**500**	**80**	**0**	**51.04**
Feb 2011	12,855	0	0	0	12,855	100	150	50	0	2.43 (see Note 4)
Mar 2011	22,859	0	0	0	22,859	150	180	55	0	9.02
Apr 2011	8,547 (see Note 7)	0	5,684(see Note 5, 7)	0	2,863 (see Note 7)	50	30	15	0	5.78
Sub-total	**44,261**	**0**	**5,684**	**38,577**		**300**	**360**	**120**	**0**	**17.23**
May 2011	6,293 (see Note 7)	0	11 (see Note 5, 7)	0	6,282 (see Note 7)	45	25	10	360 (see Note 7)	8.83
Jun 2011	4,587 (see Note 7)	0	0 (see Note 7)	0	4,587 (see Note 7)	40	30	15	0	7.10
Jul 2011	523	0	0	0	523	15	5	10	0	7.20
Sub-total	**11,403**	**0**	**11**	**11,392**		**100**	**60**	**35**	**360**	**23.13**
Aug 2011	571 (see Note 11)	0	0	0	571 (see Note 11)	0	0	15	450 (see Note 8)	6.12
Sept 2011	235	0	0	0	235	20	0	0	0	12.15 (see Note 9)
Oct 2011	5,705 (see Note 10)	0	0	0	5,705 (see Note 10)	100	0	0	0	2.98
Sub-total	**6,511**	**0**	**0**	**6,511**		**120**	**0**	**15**	**450**	**21.25**
Nov 2011	6,294	0	0	0	6,294	50	0	0	0	44.84
Dec 2011	3,011	0	0	0	3,011	20	0	0	0	17.14
Jan 2012	349	64	0	0	285	20	150	0	0	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	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)
				Rocks & Broken Concrete	Total					
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
Sub-total	**9,654**	**64**	**0**	**9,590**		**90**	**150**	**0**	**0**	**110.99**
Feb 2012	3,371	30	0	0	3,341	150	0	0	0	48.72
Mar 2012	6,460	3,000	0	0	3,460	30	0	0	0	41.1
April 2012	3,774	3,000	0	0	774	40	0	0	0	40.01
Sub-total	**13,605**	**6,030**	**0**	**7,575**		**220**	**0**	**0**	**0**	**129.83**
May 2012	4,336	2,000	0	100	2,336	40	0	0	0	75.19
June 2012	6,591	1,000	0	50	5,591	40	20	20	0	66.74
July 2012	3,972	600	0	50	3,372	40 (see Note 12)	20 (see Note 12)	20	0	100.5
Sub-total	**14,899**	**3,600**	**0**	**11,299**		**120**	**40**	**40**	**0**	**242**
Aug 2012	1,660	1,000	0	100	660	30	10	0	0	78.77
Sept 2012	2,055	500	0	300	1555	30	40	3	0	118.8
Total	**175,993**	**11,194**	**5,695**	**159,104**		**1,420**	**1,160**	**253**	**810**	**793**

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 2011based 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 though 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.

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
Overall Total	0	0

Annex L

Construction Programme of the Project

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

ATAL - Degremont - China State Joint Venture

Activity ID	Description	Orig. Duration	Early Start	Early Finish
Preliminaries				
General Requirements				
Contract Preliminaries				
PLW005260	Notice of Commissioning Test (14 day advance)	0	27NOV2012	
PLW005320	Operation Plan - Approval	90	28SEP2012	26DEC2012
PLW007100	Submit Variation to Discharge Permit	90	01MAR2011 A	27OCT2012
PLW007200	EPD Approval Varition to Discharge Permit	90	28OCT2012	25JAN2013
Design and Design Checking of Permanent Works				
Submission and Consent				
Submission and Approval				
DPD040361	DDA4: Plant Layout Drawing- RtoC x2	28	02AUG2012 A	04OCT2012
DPD081161	DDA9A-D: Elect. sys design- RtoC x2	28	24AUG2011 A	11OCT2012
DPD503551	Chemical: DDA 22D E&MCR Dwg - SO rtoC x 2	28	04NOV2011 A	07OCT2012
DPD803551	Admin Bldg: DDA 23B E&MCR Dwg - RtoC x2	28	23SEP2011 A	30SEP2012
DPD903851	EB3/MCCs: DDA 20A Elect Dwg - RtoC x2	28	24DEC2011 A	11OCT2012
DPD904160	Refurbish: DDA 25A~D E&M - Submission	60	17JAN2011 A	28SEP2012
DPD904170	Refurbish: DDA 25A~D E&M - DC Checking	30	01OCT2012	09NOV2012
DPD904180	Refurbish: DDA 25A~D E&M - SO Review	28	12NOV2012	19DEC2012
DPD904181	Refurbish: DDA 25A~D E&M - RtoC x2	28	20DEC2012 *	30JAN2013
DPD916316	Mis: DDA 28B1 MH & Pipe Works RtoC x2	28	25APR2012 A	07OCT2012
DPD916416	Mis: DDA 28B3 Watermain RtoC x2	28	30MAY2012 A	09OCT2012
DPD916428	Mis: DDA 28C3 Pipe Bridge RtoC x2	28	26JUL2012 A	12OCT2012
DPD916521	Mis: DDA 28B Mis Civil Works - RtoC x2	28	21JUN2012 A	17OCT2012
DPD923051	Mis: DDA 28E - N1N2 MH - RtoC x2	28	25APR2012 A	07OCT2012
DPD923610	Mis: DDA 28H Cable Duct & DP - Submission	60	08APR2011 A	07OCT2012
DPD923650	Mis: DDA 28H Cable Duct & DP - SO Review	28	28SEP2012	25OCT2012
DPD923651	Mis: DDA 28H Cable Duct & DP - Rtoc x2	28	26OCT2012	22NOV2012
DPD926840	Mis: E&M Equipment Checking and Approval	60	30MAR2012 A	27OCT2012
Statutory Submission				
Submission and Approval				
SS0100400	EPD - Sewage Discharge License Approval	90	06JUN2011 A	16NOV2012
SS0100410	EPD - Approval for Sewage Discharge	0		16NOV2012
SS0110810	EPD - Register of Changes under Environ. Permit	100	13SEP2010 A	23OCT2012
SS0121000	VCAB Submission and Approval	300	13SEP2010 A	16OCT2012
SS0122200	ArchSD Submission and Approval (Stage 2)	120	15FEB2012 A	03DEC2012
Civil and Structural Works				
Chemically Enhanced Primary Treatement System				
Building and Structures				
CCC200165	CEPT Tank: Remove Scaffold Support	35	28JUN2012 A	07OCT2012
CCC200170	CEPT Tank: ABWF Work	75	05JUN2012 A	20OCT2012
CCC200175	CEPT Tank: Remaining ABWF Work	90	21OCT2012	18JAN2013
CCC200180	CEPT Tank: Backfilling	135	18JAN2012 A	22NOV2012
CCC200416	CEPT: Water Test to Inlet Channel	15	24SEP2012 A	07OCT2012
CCC200417	CEPT: Water Test to Outlet Channel	15	06OCT2012	20OCT2012
CCC200470	CEPT: Roof Slab East Part	91	04MAY2012 A	05OCT2012
CCC200475	CEPT: Remove Support at East Slab	77	28JUN2012 A	13OCT2012
CCC200500	CEPT: Mass Concrete Bay 4 Zone 3	19	10SEP2012 A	29SEP2012
CCC200510	CEPT: Mass Concrete Bay 4 Zone 4	16	30SEP2012	15OCT2012
CCC200650	CEPT: Remaining Backfill	30	01OCT2012	30OCT2012
CCC920110	CEPT MCC Rm: Formation and Blinding	2	02OCT2012	03OCT2012
CCC920120	CEPT MCC Rm: Fdn-Cable Trench &On-Grade Slab	12	04OCT2012	17OCT2012
CCC920130	CEPT MCC Rm: Walls - G/F to R/F	15	18OCT2012	03NOV2012
CCC920140	CEPT MCC Rm: Roof Slab	12	05NOV2012	17NOV2012
CCC920150	CEPT MCC Rm: Remove Temp Support	12	18NOV2012	29NOV2012
CCC920160	CEPT MCC Rm: ABWF Work	15	30NOV2012	14DEC2012
CCC920190A	CEPT: Eastern Corridor Hand over (bay12345)	0		09OCT2012
CCC920220A	CEPT: Densadeg Tank 3 Hand over	0		09OCT2012
CCC920230A	CEPT: Densadeg Tank 4 Hand over	0		15OCT2012
CCC920270A	CEPT: Hand over Basement Pump Hall (Bay3)	0		15OCT2012
CCC920280A	CEPT: Hand over Basement Pump Hall (Bay4a)	0		15OCT2012
CCC920290A	CEPT: Hand over Basement Pump Hall (Bay4b)	0		15OCT2012
CCC920300A	CEPT: MCC Room Hand over	0		15DEC2012
New Preliminary Treatment Works				
Building and Structures				
CCC112250A	PTWS: Backfill to Raft Foundation	18	15MAR2012 A	28SEP2012
CCC112325	PTWS: Outlet Chamber and Grit Chamber	117	19MAR2012 A	05NOV2012
CCC112326	PTWS: Water Test to Grit Chamber	12	02NOV2012	13NOV2012
CCC112327	PTWS: Hand over Grit Chamber for E&M Works	0		20NOV2012
CCC112329	PTWS: ABWF to Grit Chamber	7	14NOV2012	20NOV2012
CCC114110A	PTWS: Fine Screen Chamber	96	06APR2012 A	12OCT2012
CCC114111A	PTWS: Water Test to Fine Screen Chamber	12	09OCT2012	20OCT2012
CCC114112A	PTWS: Remove Support to Fine Screen Chamber	4	21OCT2012	24OCT2012
CCC114114A	PTWS: ABWF to Fine Screen Chamber	6	25OCT2012	30OCT2012
CCC114210A	PTWS: Hand over Fine Screen for E&M Works	0		30OCT2012
CCC114330A	PTWS: Skip House and Blower Room	36	31OCT2012	05DEC2012
CCC114450A	PTWS: Remove Temp Work Support	5	06DEC2012	10DEC2012
CCC114460A	PTWS: Waterproofing & Screeding on Roof	12	30DEC2012	10JAN2013
CCC114470A	PTWS: Painting in Skip House & Blower Rm	5	11DEC2012	15DEC2012
CCC114480A	PTWS: Door / Louver	14	16DEC2012	29DEC2012
CCC114490A	PTW: Air Blower Room Hand over	0		15DEC2012
CCC114500A	PTW: Skip House Hand over	0		15DEC2012
CCC140300	PTWS: Flowmeter Chamber & Pipe works	75	28AUG2012 A	23OCT2012
CCC150050	PTW: Wall and Roof to MCC Room	18	29SEP2012	16OCT2012

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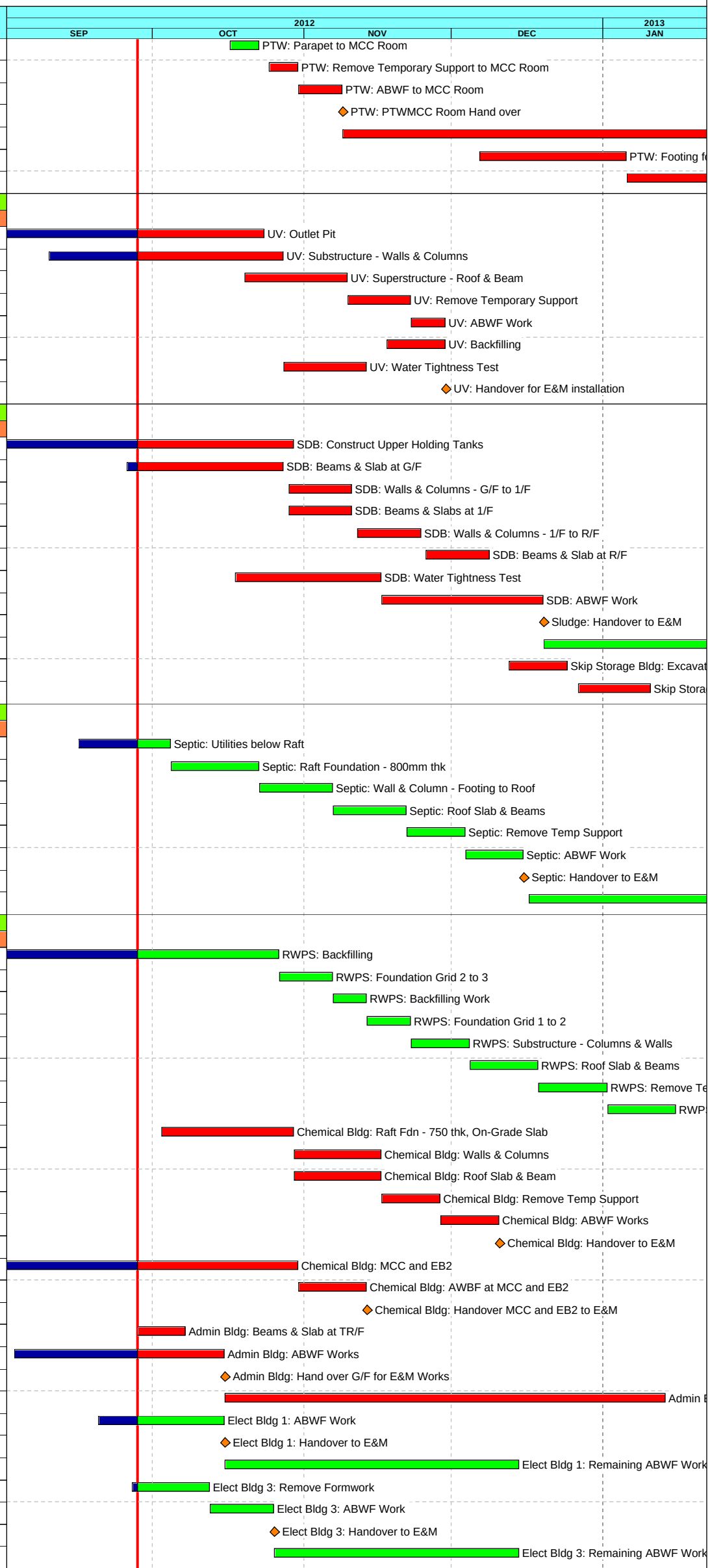
Activity ID	Description	Orig. Duration	Early Start	Early Finish
CCC150070	PTW: Parapet to MCC Room	6	17OCT2012	22OCT2012
CCC150080	PTW: Remove Temporary Support to MCC Room	6	25OCT2012	30OCT2012
CCC150090	PTW: ABWF to MCC Room	9	31OCT2012	08NOV2012
CCC150100A	PTW: PTWMCC Room Hand over	0		08NOV2012
CCC150200	PTW: Remaining ABWF	90	09NOV2012	06FEB2013
CCC160580	PTW: Footing for Pipe Bridge	30	07DEC2012	05JAN2013
CCC160585	PTW: Steel Structure for Pipe Bridge	60	06JAN2013	11MAR2013
Disinfection System				
Building and Structures				
CCC300131	UV: Outlet Pit	20	09APR2012 A	23OCT2012
CCC300150	UV: Substructure - Walls & Columns	24	10SEP2012 A	27OCT2012
CCC300160	UV: Superstructure - Roof & Beam	18	20OCT2012	09NOV2012
CCC300165	UV: Remove Temporary Support	11	10NOV2012	22NOV2012
CCC300170	UV: ABWF Work	7	23NOV2012	29NOV2012
CCC300180	UV: Backfilling	12	18NOV2012	29NOV2012
CCC300190	UV: Water Tightness Test	17	28OCT2012	13NOV2012
CCC300200	UV: Handover for E&M installation	0		29NOV2012
Sludge Treatment Facilities				
Building and Structures				
CCC600330	SDB: Construct Upper Holding Tanks	70	02MAY2012 A	29OCT2012
CCC600410	SDB: Beams & Slab at G/F	26	26SEP2012 A	27OCT2012
CCC600430	SDB: Walls & Columns - G/F to 1/F	12	29OCT2012	10NOV2012
CCC600440	SDB: Beams & Slabs at 1/F	12	29OCT2012	10NOV2012
CCC600450	SDB: Walls & Columns - 1/F to R/F	12	12NOV2012	24NOV2012
CCC600460	SDB: Beams & Slab at R/F	12	26NOV2012	08DEC2012
CCC600470	SDB: Water Tightness Test	30	18OCT2012	16NOV2012
CCC600480	SDB: ABWF Work	28	17NOV2012	19DEC2012
CCC600490	Sludge: Handover to E&M	0		19DEC2012
CCC600500	SDB: Remaining ABWF Work	60	20DEC2012	08MAR2013
CCC601410	Skip Storage Bldg: Excavation	10	13DEC2012	24DEC2012
CCC601420	Skip Storage Bldg: Raft Foundation - 700mm thk	12	27DEC2012	10JAN2013
Septic Waste Collection Facilities				
Building and Structures				
CCC150148	Septic: Utilities below Raft	13	16SEP2012 A	04OCT2012
CCC150150	Septic: Raft Foundation - 800mm thk	15	05OCT2012	22OCT2012
CCC150160	Septic: Wall & Column - Footing to Roof	15	23OCT2012	06NOV2012
CCC150170	Septic: Roof Slab & Beams	15	07NOV2012	21NOV2012
CCC150175	Septic: Remove Temp Support	12	22NOV2012	03DEC2012
CCC150180	Septic: ABWF Work	12	04DEC2012	15DEC2012
CCC150185	Septic: Handover to E&M	0		15DEC2012
CCC150220	Septic: Remaining ABWF Works	40	17DEC2012	04FEB2013
Auxiliary Building				
Building and Structures				
CCC320120	RWPS: Backfilling	12	17JUN2012 A	26OCT2012
CCC320130	RWPS: Foundation Grid 2 to 3	9	27OCT2012	06NOV2012
CCC320140	RWPS: Backfilling Work	6	07NOV2012	13NOV2012
CCC320145	RWPS: Foundation Grid 1 to 2	8	14NOV2012	22NOV2012
CCC320150	RWPS: Substructure - Columns & Walls	10	23NOV2012	04DEC2012
CCC320160	RWPS: Roof Slab & Beams	12	05DEC2012	18DEC2012
CCC320170	RWPS: Remove Temp Support	14	19DEC2012	01JAN2013
CCC320180	RWPS: ABWF Works	14	02JAN2013	15JAN2013
CCC500120	Chemical Bldg: Raft Fdn - 750 thk, On-Grade Slab	23	03OCT2012	29OCT2012
CCC500130	Chemical Bldg: Walls & Columns	18	30OCT2012	16NOV2012
CCC500140	Chemical Bldg: Roof Slab & Beam	18	30OCT2012	16NOV2012
CCC500150	Chemical Bldg: Remove Temp Support	12	17NOV2012	28NOV2012
CCC500160	Chemical Bldg: ABWF Works	12	29NOV2012	10DEC2012
CCC500170	Chemical Bldg: Handover to E&M	0		10DEC2012
CCC500180	Chemical Bldg: MCC and EB2	60	28AUG2012 A	30OCT2012
CCC500190	Chemical Bldg: AWBF at MCC and EB2	12	31OCT2012	13NOV2012
CCC500200	Chemical Bldg: Handover MCC and EB2 to E&M	0		13NOV2012
CCC800270	Admin Bldg: Beams & Slab at TR/F	10	28SEP2012	07OCT2012
CCC800280	Admin Bldg: ABWF Works	41	03SEP2012 A	15OCT2012
CCC800290	Admin Bldg: Hand over G/F for E&M Works	0		15OCT2012
CCC800310	Admin Bldg: Remaining ABWF Works	90	16OCT2012	13JAN2013
CCC910160	Elect Bldg 1: ABWF Work	18	20SEP2012 A	15OCT2012
CCC910170	Elect Bldg 1: Handover to E&M	0		15OCT2012
CCC910180	Elect Bldg 1: Remaining ABWF Work	60	16OCT2012	14DEC2012
CCC930150	Elect Bldg 3: Remove Formwork	15	27SEP2012 A	12OCT2012
CCC930160	Elect Bldg 3: ABWF Work	13	13OCT2012	25OCT2012
CCC930170	Elect Bldg 3: Handover to E&M	0		25OCT2012
CCC930180	Elect Bldg 3: Remaining ABWF Work	50	26OCT2012	14DEC2012
Odour Control Facilities				
Building and Structures				
CCC710150	DOU A: Conc Plinth / Walls / Roof Slab & Beam	33	19SEP2012 A	31OCT2012
CCC710160	DOU A: ABWF Work	15	01NOV2012	15NOV2012
CCC710170	DOUA: Handover control room to E&M	0		15NOV2012
CCC720110	DOU B: Excavation of Rock	25	04OCT2012	01NOV2012
CCC720120	DOU B: 3000(W) x 3000(D) PipeTrench	15	02NOV2012	19NOV2012
CCC720130	DOU B: Backfilling Work	6	20NOV2012	26NOV2012
CCC720140	DOU B: On-Grade Slab	13	27NOV2012	11DEC2012
CCC720150	DOU B: Conc Plinth / Walls / Roof Slab & Beam	20	12DEC2012	07JAN2013
Refurbishment and Renewal Works				
Miscellaneous Works				



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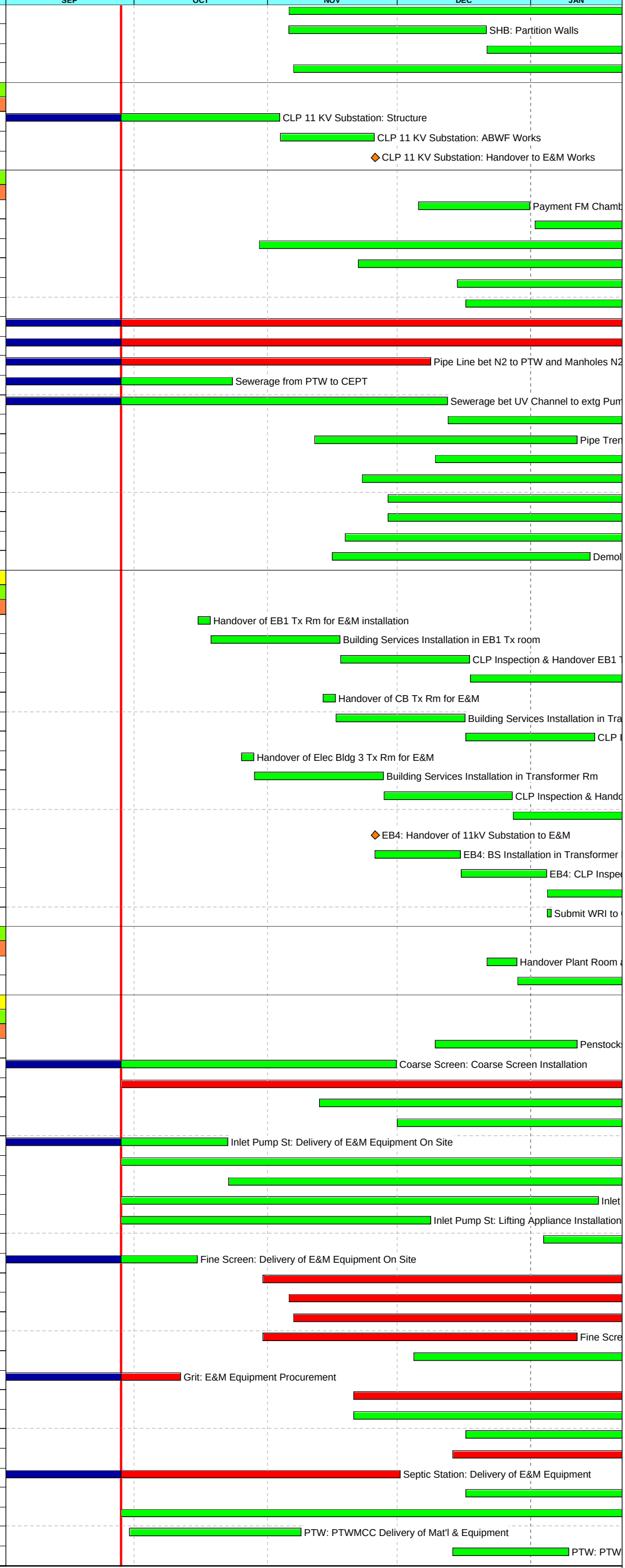
Activity ID	Description	Orig. Duration	Early Start	Early Finish
CCM000110	Refurbishment of Existing Buildings / Structures	250	06NOV2012	11SEP2013
CCM000120	SHB: Partition Walls	40	06NOV2012	21DEC2012
CCM000130	SHB: Demolish Extg Window & Refill Blockwork	24	22DEC2012	22JAN2013
CCM000500	Replacement of Existing E&M Equipment	320	07NOV2012	06DEC2013
Miscellaneous Works				
Miscellaneous Works				
CCM101070	CLP 11 KV Substation: Structure	80	28MAY2012 A	03NOV2012
CCM101080	CLP 11 KV Substation: ABWF Works	22	04NOV2012	25NOV2012
CCM101090	CLP 11 KV Substation: Handover to E&M Works	0		25NOV2012
External Works				
Miscellaneous Works				
CWM101010	Payment FM Chamber: Temp Earth Lateral Support	20	06DEC2012	31DEC2012
CWM101020	Payment FM Chamber: Excavation	21	02JAN2013	25JAN2013
CWM101210	Boundary Wall: Removal of Extg U-channel	90	30OCT2012	20FEB2013
CWM101220	Boundary Wall: Excavation	90	22NOV2012	15MAR2013
CWM101300	Boundary Wall: Footing	90	15DEC2012	09APR2013
CWM101790	Construction of Weighbridge	90	17DEC2012	10APR2013
CWM101800	Installation of Sitewide Drainage	380	02JUN2012 A	22NOV2013
CWM102000	Installation of Sitewide Sewerage	380	19APR2012 A	30OCT2013
CWM102020	Pipe Line bet N2 to PTW and Manholes N2 & N3	150	29MAR2012 A	08DEC2012
CWM102030	Sewerage from PTW to CEPT	62	28AUG2012 A	23OCT2012
CWM102060	Sewerage bet UV Channel to extg Pump Station	120	01JUN2012 A	12DEC2012
CWM102070	Connection to extg Pump Station	60	13DEC2012	01MAR2013
CWM102102	Pipe Trench between Septic to PTW	50	12NOV2012	11JAN2013
CWM102104	Laying cable duct Chem. Bldg.1 for CLP and LV	60	10DEC2012	26FEB2013
CWM102120	Laying cable duct Elect. Bldg.1 for CLP and LV	60	23NOV2012	04FEB2013
CWM102130	Laying cable duct tp CHEM bldg for CLP and LV	57	29NOV2012	06FEB2013
CWM102140	Laying cable duct Elect. Bldg.3 for CLP and LV	60	29NOV2012	15FEB2013
CWM102150	Laying cable duct Elect. Bldg.3 to 11kV CLP Sub	66	19NOV2012	06FEB2013
CWM102300	Demolition of Existing Admin Building	48	16NOV2012	14JAN2013
Statutory Works				
Electrical Supply and Energization - CLP				
Building and Structures				
SSE200120	Handover of EB1 Tx Rm for E&M installation	3	16OCT2012	18OCT2012
SSE200130	Building Services Installation in EB1 Tx room	30	19OCT2012	17NOV2012
SSE200140	CLP Inspection & Handover EB1 Tx Room	30	18NOV2012	17DEC2012
SSE200150	CLP to Install Transformer	60	18DEC2012	15FEB2013
SSE200210	Handover of CB Tx Rm for E&M	3	14NOV2012	16NOV2012
SSE200220	Building Services Installation in Transformer Rm	30	17NOV2012	16DEC2012
SSE200230	CLP Inspection and Handover - Chem Tx Room	30	17DEC2012	15JAN2013
SSE200310	Handover of Elec Bldg 3 Tx Rm for E&M	3	26OCT2012	28OCT2012
SSE200320	Building Services Installation in Transformer Rm	30	29OCT2012	27NOV2012
SSE200330	CLP Inspection & Handover - EB3 Tx room	30	28NOV2012	27DEC2012
SSE200340	CLP to Install Transformer	60	28DEC2012	25FEB2013
SSE200410	EB4: Handover of 11kV Substation to E&M	0	26NOV2012	
SSE200420	EB4: BS Installation in Transformer Rm	20	26NOV2012	15DEC2012
SSE200430	EB4: CLP Inspection & Handover 11kV Substation	20	16DEC2012	04JAN2013
SSE200440	EB4: CLP to Install 11kV Switchgear	60	05JAN2013	05MAR2013
SSE200470	Submit WRI to CLP and CLP Inspection	1	05JAN2013	05JAN2013
Telecommunication				
Building and Structures				
SST200610	Handover Plant Room and Cable Duct to Telecom Co	7	22DEC2012	28DEC2012
SST200620	Telecom Co to Install Cable and Equipment	60	29DEC2012	26FEB2013
E&M Works				
Procurement and Installation				
Building and Structures				
EMW001100	Penstocks for Manholes N2	26	10DEC2012	11JAN2013
EMW110130	Coarse Screen: Coarse Screen Installation	100	27AUG2012 A	30NOV2012
EMW110140	Coarse Screen: Penstock installation*	157	28SEP2012	11APR2013
EMW110150	Coarse Screen: Conveyor System installation*	106	13NOV2012	25MAR2013
EMW110160	Coarse Screen: Lifting Appliance installation	50	01DEC2012	31JAN2013
EMW120220	Inlet Pump St: Delivery of E&M Equipment On Site	42	21JUL2012 A	22OCT2012
EMW120230	Inlet Pump St: Pump Installation	100	28SEP2012	28JAN2013
EMW120300	Inlet Pump St: Penstock Installation	100	23OCT2012	25FEB2013
EMW120400	Inlet Pump St: Pipe and Valve Installation	90	28SEP2012	16JAN2013
EMW120500	Inlet Pump St: Lifting Appliance Installation	60	28SEP2012	08DEC2012
EMW120700	Inlet Pump St: Power Supply System Installation*	85	04JAN2013	23APR2013
EMW130320	Fine Screen: Delivery of E&M Equipment On Site	40	28JUL2012 A	15OCT2012
EMW130330	Fine Screen: Fine Screen Installation	105	31OCT2012	11MAR2013
EMW130340	Fine Screen: Penstock Installation*	100	06NOV2012	11MAR2013
EMW130350	Fine Screen: Conveyor Installation	85	07NOV2012	22FEB2013
EMW130360	Fine Screen: Lifting Appliance Installation	60	31OCT2012	11JAN2013
EMW130370	Fine Screen: Power Supply System Installation	75	05DEC2012	11MAR2013
EMW140410	Grit: E&M Equipment Procurement	180	21NOV2011 A	11OCT2012
EMW140430	Grit: Grit System Installation	100	21NOV2012	26MAR2013
EMW140440	Grit: Penstock Installation	100	21NOV2012	26MAR2013
EMW140460	Grit: Air Blower System Installation	80	17DEC2012	28MAR2013
EMW140470	Grit: Power Supply System Installation	130	14DEC2012	30MAY2013
EMW152100	Septic Station: Delivery of E&M Equipment	180	17AUG2012 A	01DEC2012
EMW153100	Septic Station: E&M Equipment Installation	60	17DEC2012	16MAR2013
EMW161000	Access & WB System Equipment Procurement	120	28SEP2012	26FEB2013
EMW191200	PTW: PTWMCC Delivery of Mat'l & Equipment	40	30SEP2012	08NOV2012
EMW191400	PTW: PTWMCC Install LV & Local Control Panel	20	14DEC2012	09JAN2013



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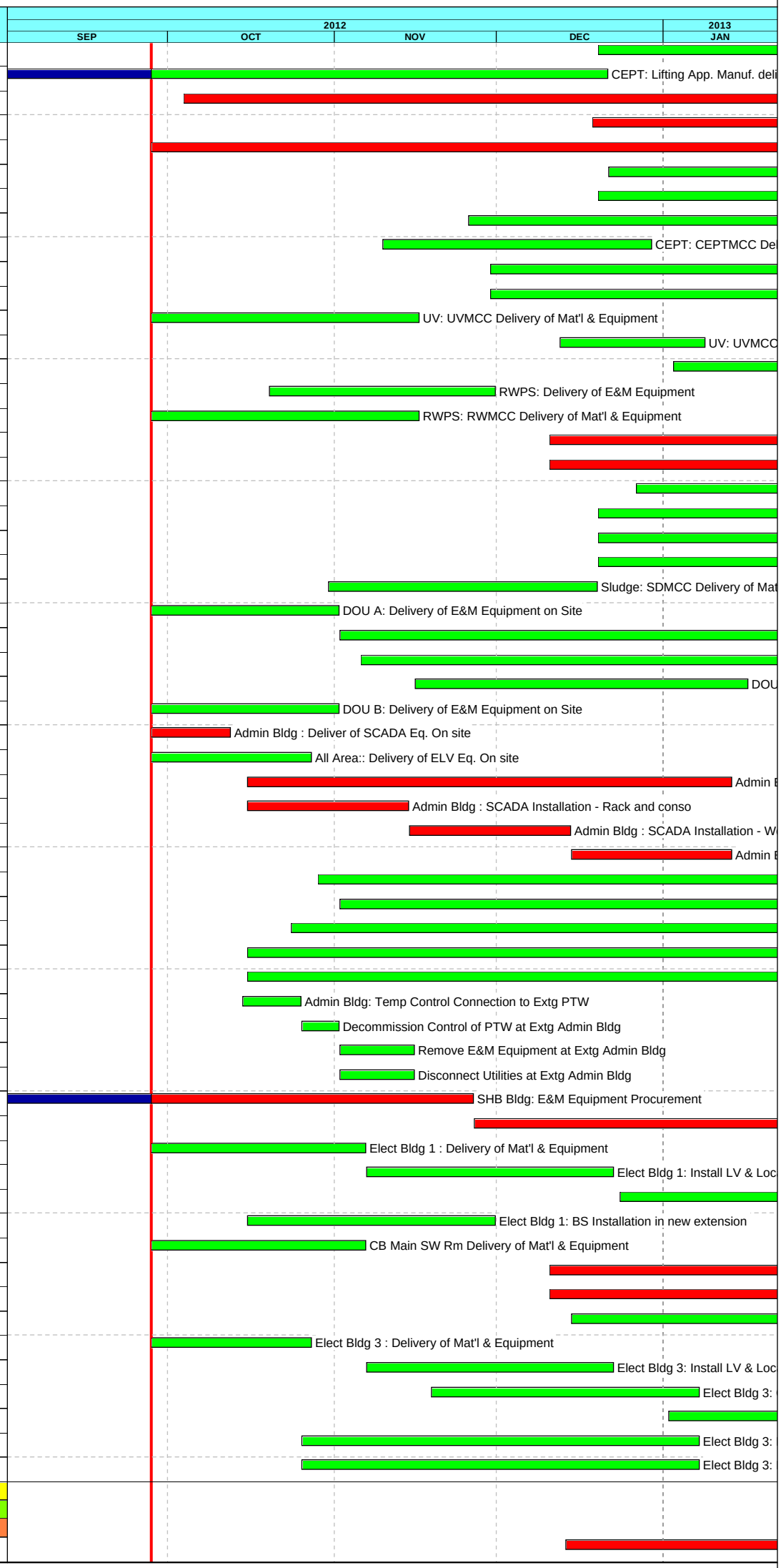
EMW191510	PTW: PTWMCC Cable Containment Installation	30	20DEC2012	26JAN2013
EMW200151	CEPT: Lifting App. Manuf. deliver to site	60	21FEB2012 A	21DEC2012
EMW201000	CEPT: Penstock & Stop Log Installation	120	04OCT2012	01MAR2013
EMW201500	CEPT: Chemical Dosing pipeworks Installation	100	19DEC2012	27APR2013
EMW201600	CEPT: Reactor System Installation	120	28SEP2012	26FEB2013
EMW202100	CEPT: Lifting Appliance Installation	45	22DEC2012	21FEB2013
EMW204100	CEPT: Power Supply System Installation	80	20DEC2012	09MAR2013
EMW208100	CEPT: BS System Installation	70	26NOV2012	23FEB2013
EMW211200	CEPT: CEPTMCC Delivery of Mat'l & Equipment	50	10NOV2012	29DEC2012
EMW304100	UV: Power Supply System Installation	75	30NOV2012	06MAR2013
EMW308100	UV: BS system Installation	60	30NOV2012	16FEB2013
EMW311200	UV: UVMCC Delivery of Mat'l & Equipment	50	28SEP2012	16NOV2012
EMW311400	UV: UVMCC Install LV & Local Control Panel	20	13DEC2012	08JAN2013
EMW311510	UV: UVMCC Cable Containment Installation	30	03JAN2013	06FEB2013
EMW322300	RWPS: Delivery of E&M Equipment	42	20OCT2012	30NOV2012
EMW323200	RWPS: RWMCC Delivery of Mat'l & Equipment	50	28SEP2012	16NOV2012
EMW503100	Chemical: Polymer System Installation	100	11DEC2012	19APR2013
EMW503500	Chemical: Ferric Chloride System Installation	100	11DEC2012	19APR2013
EMW506100	Chemical: BS System Installation	50	27DEC2012	01MAR2013
EMW603100	Sludge: Centrifuge Installation	80	20DEC2012	01APR2013
EMW603500	Sludge: Polymer System Installation	80	20DEC2012	01APR2013
EMW608100	Sludge: BS system Installation	60	20DEC2012	08MAR2013
EMW609200	Sludge: SDMCC Delivery of Mat'l & Equipment	50	31OCT2012	19DEC2012
EMW712100	DOU A: Delivery of E&M Equipment on Site	35	28SEP2012	01NOV2012
EMW713100	DOU A: Scrubbers Installation (ref.)	80	02NOV2012	06FEB2013
EMW713500	DOU A: Odour Duct connection	120	06NOV2012	03APR2013
EMW718100	DOU A: BS System Installation	50	16NOV2012	16JAN2013
EMW722100	DOU B: Delivery of E&M Equipment on Site	35	28SEP2012	01NOV2012
EMW802200	Admin Bldg : Deliver of SCADA Eq. On site	15	28SEP2012	12OCT2012
EMW802250	All Area:: Delivery of ELV Eq. On site	30	28SEP2012	27OCT2012
EMW802300	Admin Bldg : SCADA Equipment Installation	90	16OCT2012	13JAN2013
EMW802302	Admin Bldg : SCADA Installation - Rack and conso	30	16OCT2012	14NOV2012
EMW802304	Admin Bldg : SCADA Installation - Workstation	30	15NOV2012	14DEC2012
EMW802306	Admin Bldg : SCADA Installation - Wiring & Connc	30	15DEC2012	13JAN2013
EMW802350	Admin Bldg : ELV Equipment Installation	90	29OCT2012	19FEB2013
EMW803400	Admin Bldg Service: MVAC Installation (Ref.)	161	02NOV2012	11APR2013
EMW803500	Admin Bldg Service: FS Installation (ref.)	160	24OCT2012	01APR2013
EMW803600	Admin Bldg Service: P&D Installation (ref.)	161	16OCT2012	25MAR2013
EMW803700	Admin Bldg Service: Elect Installation (ref.)	200	16OCT2012	03MAY2013
EMW808000	Admin Bldg: Temp Control Connection to Extg PTW	10	15OCT2012	25OCT2012
EMW808010	Decommission Control of PTW at Extg Admin Bldg	6	26OCT2012	01NOV2012
EMW808020	Remove E&M Equipment at Extg Admin Bldg	12	02NOV2012	15NOV2012
EMW808030	Disconnect Utilities at Extg Admin Bldg	12	02NOV2012	15NOV2012
EMW811100	SHB Bldg: E&M Equipment Procurement	60	28JUL2012 A	26NOV2012
EMW811200	SHB Bldg: Delivery of E&M Eq. On site	60	27NOV2012	25JAN2013
EMW941200	Elect Bldg 1 : Delivery of Mat'l & Equipment	40	28SEP2012	06NOV2012
EMW941340	Elect Bldg 1: Install LV & Local Control Panel	40	07NOV2012	22DEC2012
EMW941510	Elect Bldg 1: Cable Containment Installation	40	24DEC2012	16FEB2013
EMW941650	Elect Bldg 1: BS Installation in new extension	40	16OCT2012	30NOV2012
EMW942200	CB Main SW Rm Delivery of Mat'l & Equipment	40	28SEP2012	06NOV2012
EMW942400	CB Main SW Rm Install LV & Local Control Panel	50	11DEC2012	15FEB2013
EMW942510	CB Main SW Rm Cable Containment Installation	60	11DEC2012	27FEB2013
EMW942600	CB Main SW Rm BS sys installation	50	15DEC2012	20FEB2013
EMW943200	Elect Bldg 3 : Delivery of Mat'l & Equipment	30	28SEP2012	27OCT2012
EMW943400	Elect Bldg 3: Install LV & Local Control Panel	40	07NOV2012	22DEC2012
EMW943510	Elect Bldg 3: Cable Containment Installation	40	19NOV2012	07JAN2013
EMW943520	Elect Bldg 3: Cable Laying	40	02JAN2013	22FEB2013
EMW943600	Elect Bldg 3: BS System Installation	60	26OCT2012	07JAN2013
EMW943610	Elect Bldg 3: BS System Installation	60	26OCT2012	07JAN2013
Testing and Commissioning				
Control System				
Building and Structures				
EMT811100	Control/SCADA: Phase 1 - Installation Insp.	90	14DEC2012	13MAR2013



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