ATAL-Degrémont-China State Joint Venture

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

February 2014

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February 2014

Reference 0119806

For and on behalf of ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed:

Position: Partner

Certified by:
(Environmental Team Leader – Winnie Ko)

Certified by:
(Registered Landscape Architect (R127) – Tai Kai Wai)

Date: 10 February 2014

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

13 February 2014

Dear Sir,

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

Monthly EM&A Report for January 2014

Reference is made to Environmental Team (ET)'s draft of the Monthly EM&A Report for January 2014 provided by email dated 12 February 2014. We have no further comment.

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

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

Yours faithfully,

For and on behalf of
AECOM Asia Co. Ltd.

Y T Tang
Independent Environmental Checker

c.c. AECOM – Mr. C Y Hung (Fax No. 2404 3310)
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ATAL–Degremont–China State JV – Mr. C.Y. Fong (Fax No. 2811 3321)

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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 39th monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 31 January 2014 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month included:

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

Environmental Monitoring and Audit Progress

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

- 24-hour TSP Monitoring at each monitoring station (AM1 and AM2) — 6 sets
- 1-hour TSP Monitoring at each monitoring station (AM1 and AM2) — 18 sets
- Joint Environmental Site Inspection — 4 times
- Landscape & Visual Monitoring — Once

Air Quality

6 sets of 24-hour TSP and 18 sets of 1-hr TSP measurements were carried out at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes). In total, 714.34 tonnes of inert C&D material were generated from the Project, of which 20 tonnes were reused in this Contract and the remaining

694.34 tonnes were disposed as public fill. 16.00 kg of metals, 60.00 kg of papers/ cardboard packing and 97.00 kg of plastics were sent to recyclers for recycling during the reporting period.

Environmental Site Inspection

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

Landscape & Visual

Review on landscape and visual mitigation measures was performed on 29 January 2014. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 3.2* and *7.2*.

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

No exceedance was recorded during the reporting period.

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

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

Future Key Issues

Works to be undertaken in the next reporting month include:

- Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Existing Outfall Pumping Station, Weighbridge and Chemical Building;
- Install E&M equipment at the Administration Building , Sludge Dewatering Building, PTW, CEPT, UV Building, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Existing Solid Handling Building, Weighbridge, Electrical buildings No.1, No.3 and No.4;
- Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B;
- Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2;
- Conduct installation of payment flow meter and chamber reinstatement at Payment Flow Meter Chamber; and
- Demolition of Existing PTW; and
- T&C at Septic Waste Reception Station.

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

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 39th EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from **1** to **31 January 2014**.

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

The upgrading of the PPSTW comprises the following works:

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

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

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

2.2 GENERAL SITE DESCRIPTION

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

A.

2.3 CONSTRUCTION ACTIVITIES

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

Table 2.1 Summary of Construction Activities Undertaken in the Reporting Period

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

2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

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

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

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

Table 2.2 Summary of Environmental Licensing, Notification and Permit Status

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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Water Discharge License	WT00017778-2013	22 November 2013 - 31 October 2015	Wastewater discharge licence was issued by EPD on 22 November 2013.
Construction Noise Permit	GW-RW0036-14	28 January 2014 - 27 July 2014	-
Chemical Waste Producer Registration	5213-421-A2620-01	Throughout the Contract	Licence approved on 28 October 2010

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 AIR QUALITY MONITORING

3.1.1 Monitoring Location

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

Table 3.1 Construction Phase Air Monitoring Locations

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

3.1.2 Monitoring Parameter and Frequency

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

Table 3.2 Construction Phase Air Quality Monitoring Parameters and Frequency

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

3.1.3 Action and Limit Levels

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

Table 3.3 Action and Limit Levels for Air Quality

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

3.1.4 Monitoring Equipment

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

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

Table 3.4 TSP Monitoring Equipment

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
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 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 6 sets of 24-hour and 18 sets of 1-hour TSP measurements were taken at each of the monitoring stations (AM1 and AM2) during the reporting period. The monitoring data for 24-hour and 1-hour TSP together with the wind data and graphical presentations for the past 4 months are presented in *Annex G*. The weather conditions during the monitoring period ranged from sunny to rainy. The local impacts near the monitoring stations of AM1 and AM2 were mainly associated with vehicular emissions. No exceedance of Action and Limit Level of the 1-hr and 24-hr TSP was recorded during the reporting period.

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

Table 6.1 Quantities of Waste Generated from the Project

Month / Year	Quantity			
	Total Inert C&D Materials Generated [a]	Non-inert C&D Materials [b]		
		C&D Materials Recycled [c]	C&D Waste Disposed of at Landfill [d]	Chemical Waste
January 2014	714.34 tonnes	173.00 kg	27.82 tonnes	0 L

Notes:

(a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 714.34 tonnes of inert C&D waste were generated from the Project, of which 20.00 tonnes were reused in this Contract and the remaining 694.34 tonnes were disposed as public fill. The detailed waste flow is presented in *Annex J*.

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

(c) 16.00 kg of metals, 60.00 kg of papers/ cardboard packing and 97.00 kg of plastics were sent to recyclers for recycling during the reporting period.

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

7 ENVIRONMENTAL INSPECTIONS

7.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the SOR and the ET on 9, 17, 22, and 29 January 2014. The IEC was also present at the joint inspection on 29 January 2014.

Major observations during the reporting period are summarised as follows:

9 January 2014

- General waste was observed in front of the Administration Building. The Contractor was reminded to dispose of the general waste properly;
- Some tree roots were observed exposed for the retained trees near the old weighbridge. The Contractor was advised to cover the tree roots and protect them from being exposed; and
- A pool of sewage was observed near PTW. The Contractor was reminded to remove the pool of sewage to avoid potential discharge into public drains.

17 January 2014

- Paper/cardboard packaging and general waste were observed in the workshop area of Administration Building. The Contractor was reminded to maintain good housekeeping and sort the waste properly;
- Sludge was observed at CEPT building. The Contractor was reminded to remove and dispose of the sludge properly; and
- Hangers were observed on retained tree N09. The Contractor was reminded to prune the hangers.

22 January 2014

- Leakage of ferric chloride occurred and a pool of ferric chloride was observed at the Chemical Building. The Contractor was reminded to pump and remove the pool of ferric chloride and dispose of as chemical waste.

29 January 2014

- Mixture of water and chemicals was observed accumulating in the sump pit at the Chemical Building. The Contractor was reminded to remove the mixture and dispose of as chemical waste; and
- Tree tags were observed missing for retained trees T06, T07, R30, R33 and R34. The Contractor was reminded to provide tree tags to the retained trees. The Contractor was also reminded to provide proper maintenance for the retained trees.

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 29 January 2014. 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:

29 January 2014

- Tree tags were observed missing for retained trees T06, T07, R30, R33 and R34. The Contractor was reminded to provide tree tags to the retained trees. The Contractor was also reminded to provide proper maintenance for the retained trees.

8 ENVIRONMENTAL NON-CONFORMANCE

8.1.1 Summary of Monitoring Exceedance

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

8.1.2 Summary of Environmental Non-Compliance

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

8.1.3 Summary of Environmental Complaint

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

8.1.4 Summary of Environmental Summon and Successful Prosecution

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

9.1.1 Key Issues for the Coming Month

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

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

Construction Activities Undertaken
• Construct finishing works at the Administration Building, Sludge Dewatering Building, UV Building, Sludge Skip Storage Building, PTW, CEPT, Reuse Water Pump Room, Existing Solid Handling Building, Existing Outfall Pumping Station, Weighbridge and Chemical Building;
• Install E&M equipment at the Administration Building , Sludge Dewatering Building, PTW, CEPT, UV Building, Reuse Water Pump Room, Chemical Building, Sludge Skip Storage Building, Existing Solid Handling Building, Weighbridge, Electrical buildings No.1, No.3 and No.4;
• Install BS and DO duct at the Deodorisation Units Portion A and Deodorisation Units Portion B;
• Construct drainage, cable ducts, water mains and boundary walls and installation of E&M Duct laying at P2;
• Conduct installation of payment flow meter and chamber reinstatement at Payment Flow Meter Chamber; and
• Demolition of Existing PTW; and
• T&C at Septic Waste Reception Station.

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 REVIEW OF THE EM&A DATA AND EIA PREDICTIONS

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	50 - 100
AM2	A7	260	77	51 - 102

Notes:

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

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

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

10.2 WASTE MANAGEMENT

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

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

Type of Material	Estimated Amount of Public Fill and Construction Waste in the EIA (inert & non-inert)	Estimated Amount of Public Fill and Construction Waste in C&D Material Assessment (CSF No.: DC200803/CSF/SAF/060026/A) [(c)]	Accumulated Actual Amount of Public Fill and Construction Waste Recorded [(a)] [(b)] (inert & non-inert)	
Amount of C&D Materials Arising	61,489.00 m^3	77,600.00 m^3	130,967.83	m^3
Amount of C&D Materials Reused on other site	-	-	3,163.89	m^3
Amount of C&D Materials Reused on site	14,926.00 m^3	18,000.00 m^3	24,185.56	m^3
Amount of C&D Materials Sent to Fill Banks	46,563.00 m^3	59,600.00 m^3	102,510.72	m^3
General Refuse	Small	-	1,992.22	tonnes
Chemical Waste	Small	-	810.00	L

Notes:

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

(b) The density of soil and rock (bulked) is 1.8 tonnes/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 31 January 2014 in accordance with EM&A Manual and requirements of EP (EP-321/2008/A).

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

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

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

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

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

Annex A

Location of Project

PROPOSED FACILITIES AND BUILDINGS

SECTION 1 INLET PUMPING STATION AND PRELIMINARY TREATMENT WORKS

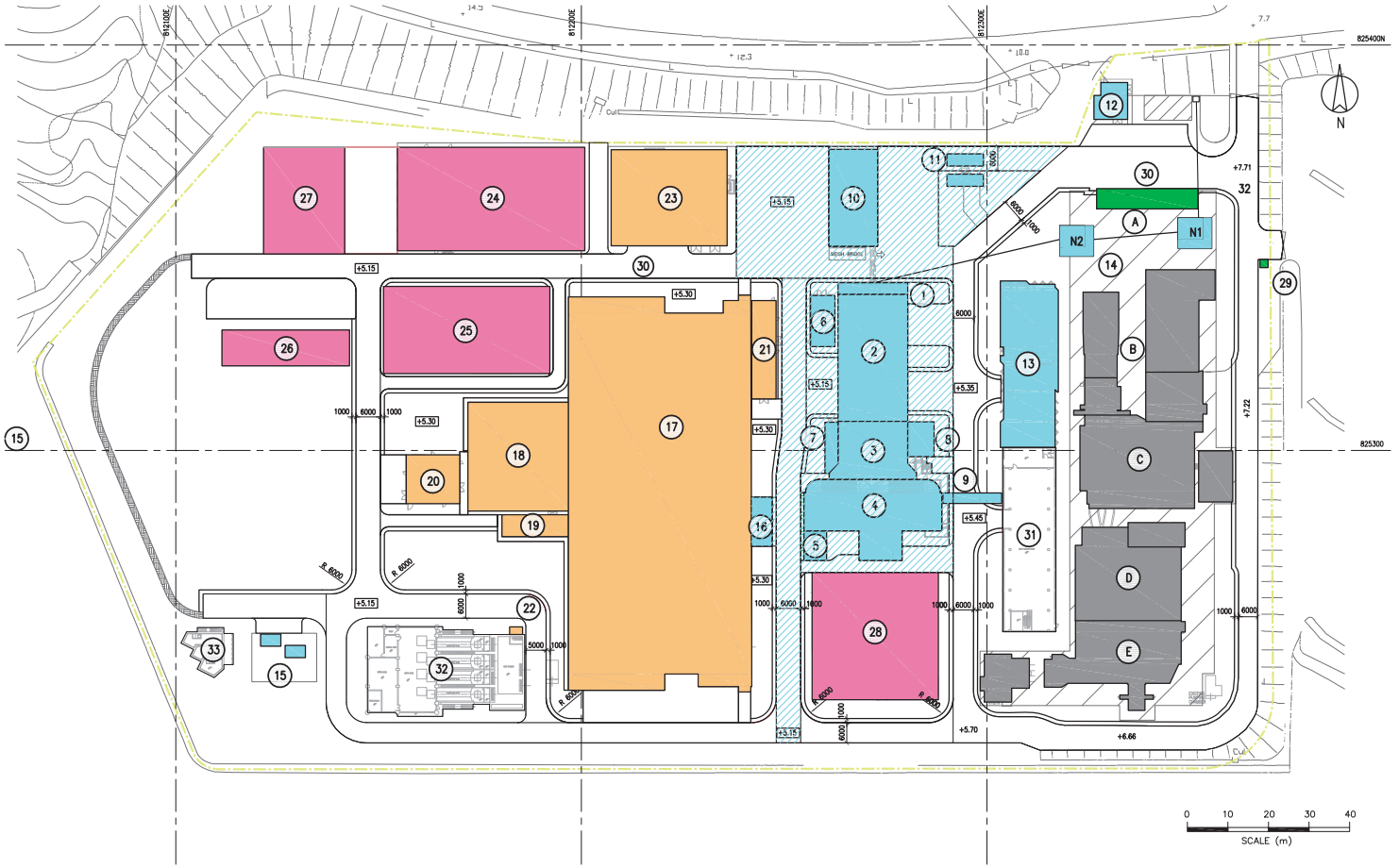
1. INLET CHAMBER
2. COARSE SCREENS AND INLET PUMPING STATION
3. FINE SCREEN CHANNELS
4. GRIT CHAMBERS
5. INLET FLOWMETER CHAMBER
6. PTW MCC ROOM
7. BLOWER ROOM
8. SCREENING SKIP HOUSE
9. ODOR DUCT SUPPORTING BRIDGE
10. SEPTIC WASTE RECEPTION STATION
11. WEIGHBRIDGE
12. ELECTRICAL BUILDING 1
13. ADMINISTRATION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

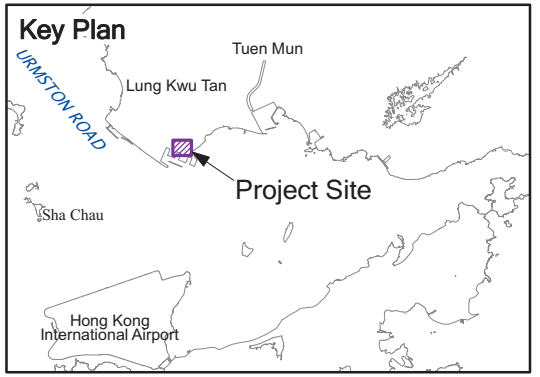
SECTION 2 CEPT TANKS UV DISINFECTION

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

SECTION 3 SLUDGE TREATMENT & HANDLING AND ODOUR CONTROL

24. SLUDGE 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

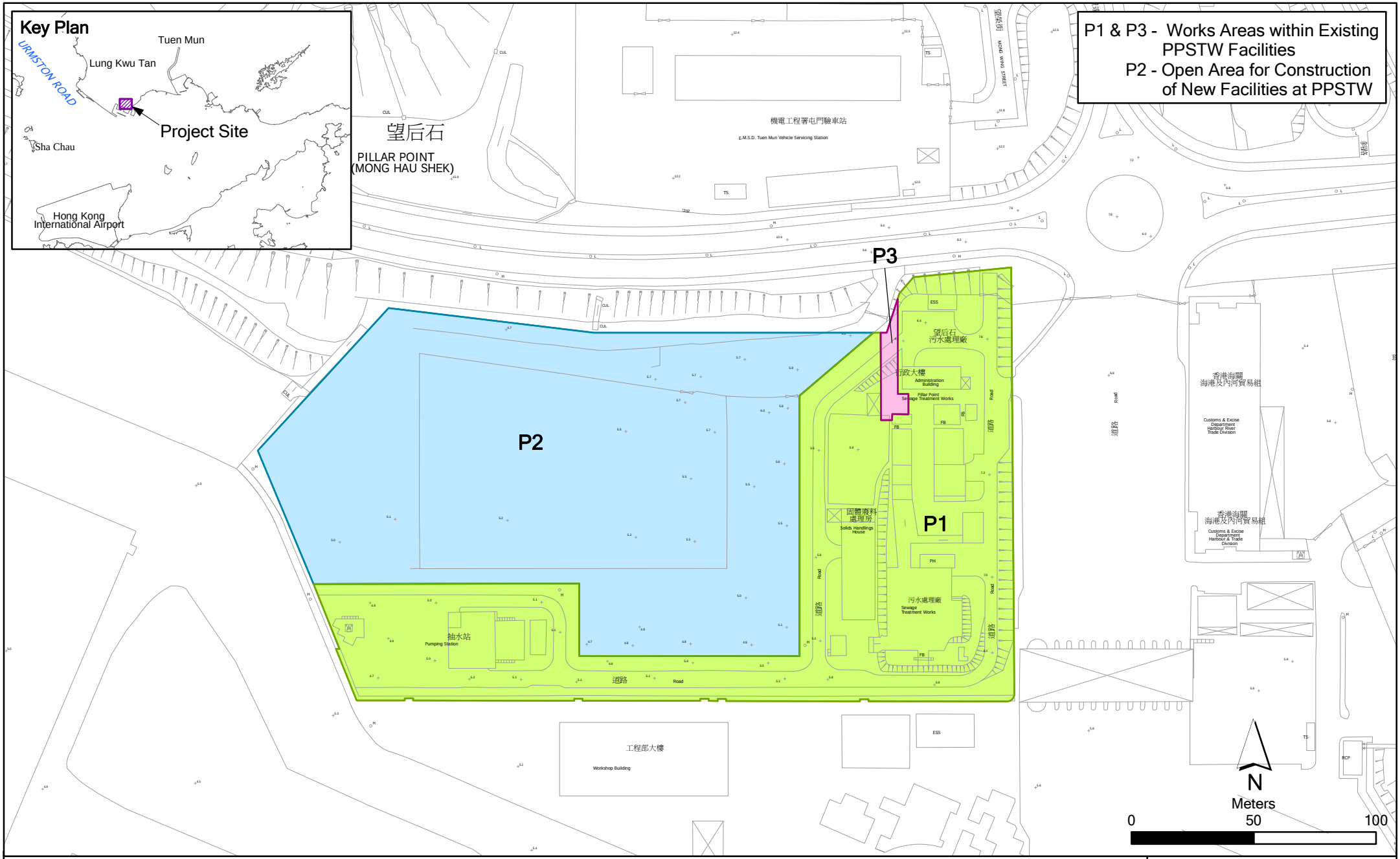
FILE: 0119806c
DATE: 20/12/2010

Environmental Resources Management

ERM

Annex B

Works Location



Annex B

Location of Works Areas

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

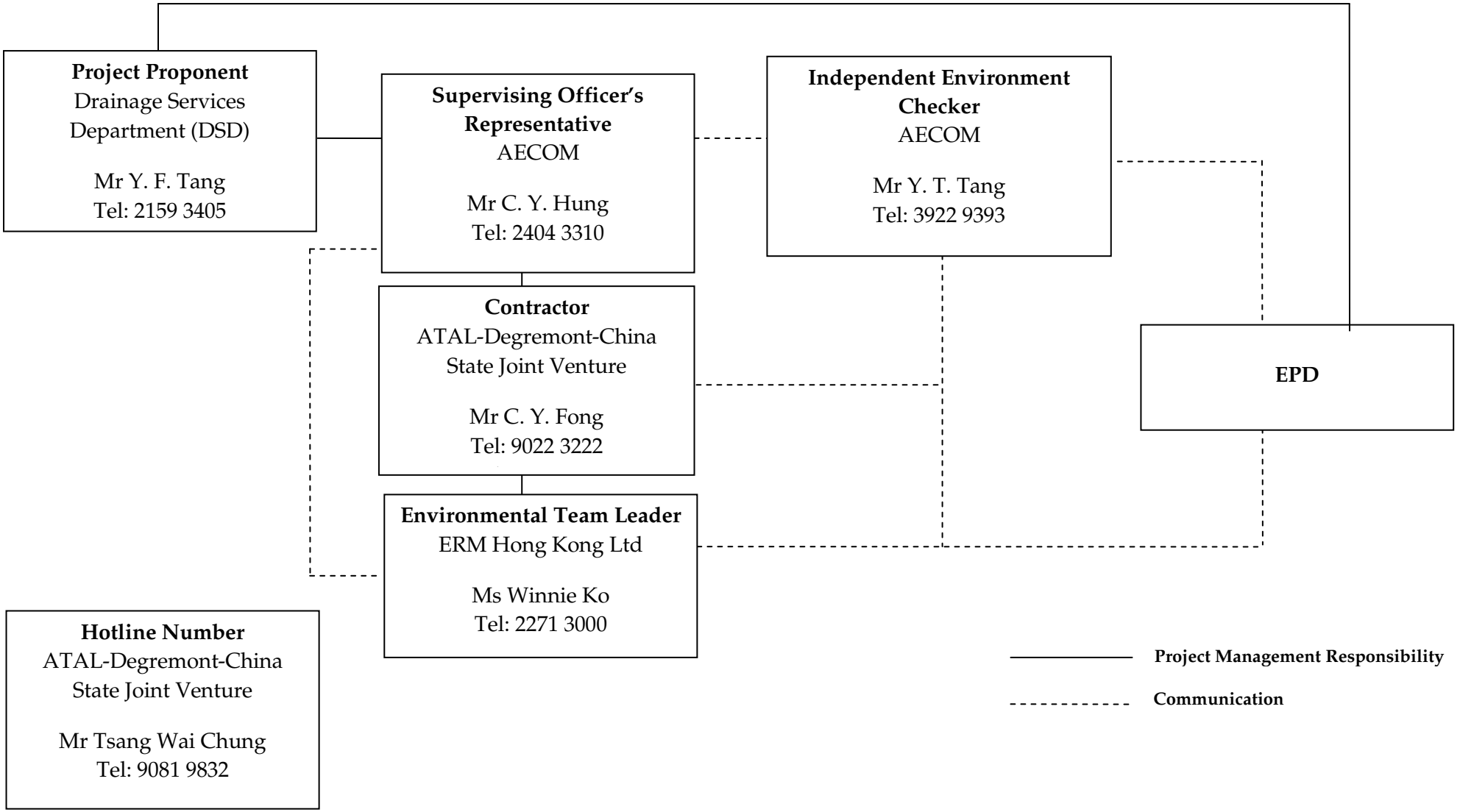
Environmental Resources Management

ERM

Annex C

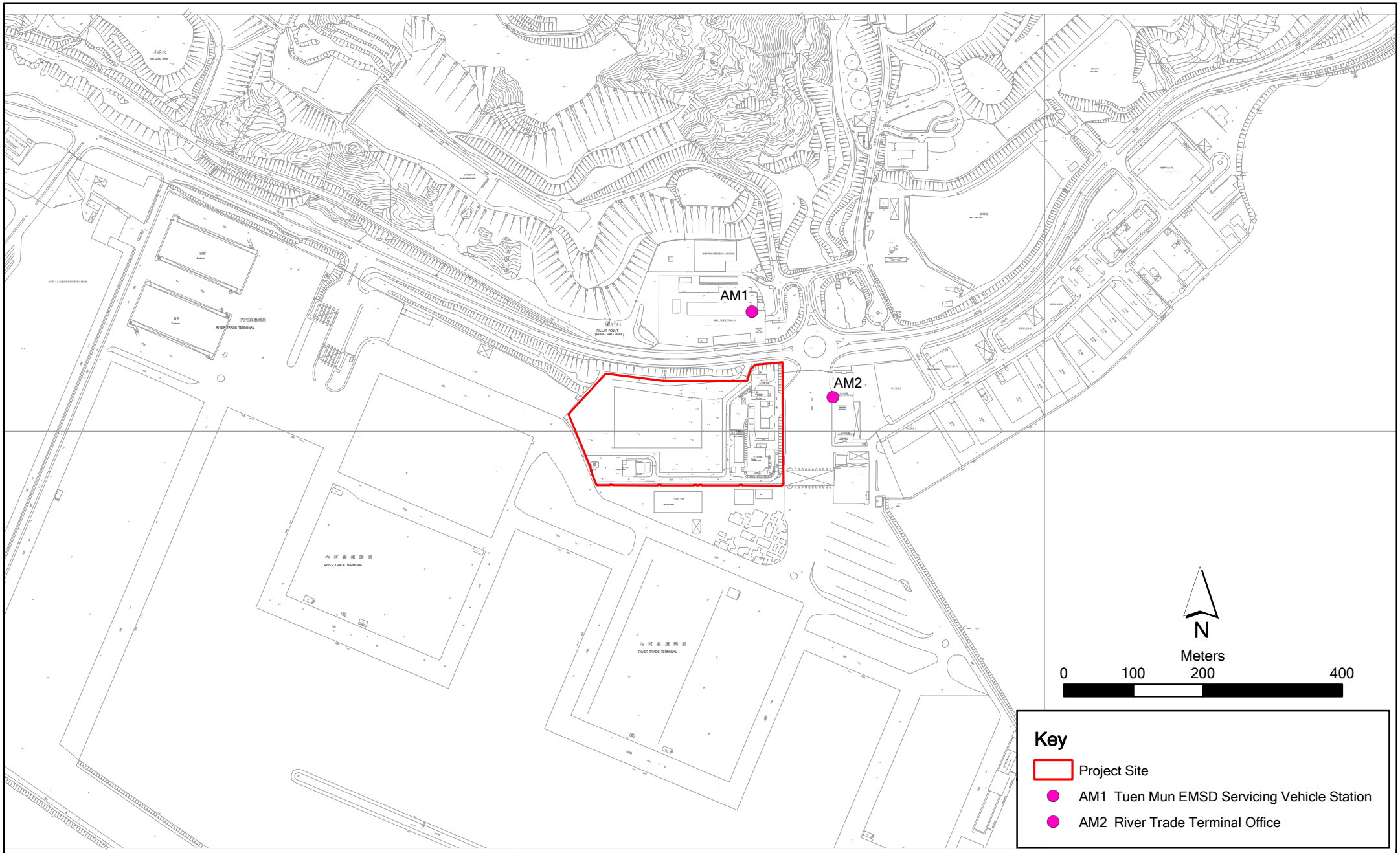
Project Organization Chart with Contact Details

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)
January 2014

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

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)
February 2014

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

Annex F

Calibration Reports for HVSs

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
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)	02 January 2014	02 March 2014
AM2	River Trade Terminal Office	GMW GS-2310 (S/N 1252)	CM-AIR-43 (S/N 0438320)	02 January 2014	02 March 2014

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	EMSD
Calibrated by	:	K.T.Ho
Date	:	02/01/2014

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	12 Mar 2013
Slope (m)	:	2.05818
Intercept (b)	:	0.01929
Correlation Coefficient(r)	:	0.99991

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	288

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.419	1.652	54	55.17
2	13 holes	9.3	3.116	1.505	48	49.04
3	10 holes	6.6	2.625	1.266	38	38.83
4	7 holes	4.5	2.167	1.044	30	30.65
5	5 holes	2.5	1.615	0.776	20	20.43

Sampler Calibration Relationship

Slope(m):39.621 Intercept(b): -10.135 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 06/01/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	River Trade
Calibrated by	:	P.F.Yeung
Date	:	02/01/2014

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	12 Mar 2013
Slope (m)	:	2.05818
Intercept (b)	:	0.01929
Correlation Coefficient(r)	:	0.99991

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	288

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.450	1.667	66	67.43
2	13 holes	9.4	3.133	1.513	58	59.26
3	10 holes	7.4	2.779	1.341	48	49.04
4	7 holes	4.7	2.215	1.067	36	36.78
5	5 holes	2.7	1.679	0.806	22	22.48

Sampler Calibration Relationship

Slope(m):51.703 Intercept(b): -19.114 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 06/01/2014

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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 12, 2013 Rootsmeter S/N 0438320 Ta (K) - 293
Operator Tisch Orifice I.D. - 2454 Pa (mm) - 748.03

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4750	3.2	2.00
2	NA	NA	1.00	1.0290	6.4	4.00
3	NA	NA	1.00	0.9170	8.0	5.00
4	NA	NA	1.00	0.8740	8.9	5.50
5	NA	NA	1.00	0.7220	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.6757	1.4150		0.9957	0.6750	0.8851
0.9925	0.9645	2.0010		0.9915	0.9635	1.2517
0.9902	1.0799	2.2372		0.9892	1.0788	1.3995
0.9891	1.1317	2.3464		0.9881	1.1305	1.4678
0.9839	1.3627	2.8299		0.9828	1.3613	1.7702
Qstd slope (m) =		2.05818		Qa slope (m) =		1.28880
intercept (b) =		0.01929		intercept (b) =		0.01207
coefficient (r) =		0.99991		coefficient (r) =		0.99991
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

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
03-01-2014	13:10	14:10	Sunny	189	343	500	Construction work in progress	20.0	*	7580	9065
	14:10	15:10	Sunny	169	343	500	Construction work in progress	20.0	*	7580	9066
	15:10	16:10	Sunny	184	343	500	Construction work in progress	20.0	*	7580	9067
09-01-2013	13:10	14:10	Cloudy	207	343	500	Construction work in progress	16.0	*	7580	9720
	14:10	15:10	Cloudy	181	343	500	Construction work in progress	16.0	*	7580	9721
	15:10	16:10	Cloudy	202	343	500	Construction work in progress	16.0	*	7580	9722
15-01-2014	13:10	14:10	Sunny	145	343	500	Construction work in progress	14.0	*	7580	9745
	14:10	15:10	Sunny	155	343	500	Construction work in progress	14.0	*	7580	9746
	15:10	16:10	Sunny	172	343	500	Construction work in progress	14.0	*	7580	9747
21-01-2014	13:10	14:10	Sunny	160	343	500	Construction work in progress	15.0	*	7580	9770
	14:10	15:10	Sunny	176	343	500	Construction work in progress	15.0	*	7580	9771
	15:10	16:10	Sunny	173	343	500	Construction work in progress	15.0	*	7580	9772
27-01-2014	13:10	14:10	Fine	111	343	500	Construction work in progress	17.0	*	7580	9795
	14:10	15:10	Fine	146	343	500	Construction work in progress	17.0	*	7580	9796
	15:10	16:10	Fine	174	343	500	Construction work in progress	17.0	*	7580	9797
30-01-2014	13:10	14:10	Sunny	155	343	500	Construction work in progress	22.0	*	7580	9520
	14:10	15:10	Sunny	148	343	500	Construction work in progress	22.0	*	7580	9521
	15:10	16:10	Sunny	159	343	500	Construction work in progress	22.0	*	7580	9522
			Min.	**111**							
			Max.	**207**							
			Average	**167**							

* 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
03-01-2014	13:00	14:00	Sunny	194	383	500	Construction work in progress	20.0	*	1252	9061
	14:00	15:00	Sunny	177	383	500	Construction work in progress	20.0	*	1252	9062
	15:00	16:00	Sunny	190	383	500	Construction work in progress	20.0	*	1252	9063
09-01-2014	13:00	14:00	Cloudy	193	383	500	Construction work in progress	16.0	*	1252	9716
	14:00	15:00	Cloudy	171	383	500	Construction work in progress	16.0	*	1252	9717
	15:00	16:00	Cloudy	179	383	500	Construction work in progress	16.0	*	1252	9718
15-01-2014	13:00	14:00	Sunny	153	383	500	Construction work in progress	14.0	*	1252	9741
	14:00	15:00	Sunny	171	383	500	Construction work in progress	14.0	*	1252	9742
	15:00	16:00	Sunny	189	383	500	Construction work in progress	14.0	*	1252	9743
21-01-2014	13:00	14:00	Sunny	159	383	500	Construction work in progress	15.0	*	1252	9766
	14:00	15:00	Sunny	173	383	500	Construction work in progress	15.0	*	1252	9767
	15:00	16:00	Sunny	172	383	500	Construction work in progress	15.0	*	1252	9768
27-01-2014	13:00	14:00	Fine	143	383	500	Construction work in progress	17.0	*	1252	9791
	14:00	15:00	Fine	169	383	500	Construction work in progress	17.0	*	1252	9792
	15:00	16:00	Fine	134	383	500	Construction work in progress	17.0	*	1252	9793
30-01-2014	13:00	14:00	Sunny	171	383	500	Construction work in progress	20.0	*	1252	9516
	14:00	15:00	Sunny	167	383	500	Construction work in progress	20.0	*	1252	9517
	15:00	16:00	Sunny	184	383	500	Construction work in progress	20.0	*	1252	9518
			Min.	**134**							
			Max.	**194**							
			Average	**172**							

* 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
03-01-2014	16:10	04-01-2014	16:10	Sunny	2.7907	3.0012	13772.18	13796.18	24	1.28	1.28	1.28	114	183	260	Construction work in progress	7580	9068
09-01-2014	16:10	10-01-2014	16:10	Cloudy	2.7810	3.0012	13799.18	13823.18	24	1.28	1.28	1.28	119	183	260	Construction work in progress	7580	9723
15-01-2014	16:10	16-01-2014	16:10	Sunny	2.7873	2.9761	13826.18	13850.18	24	1.28	1.28	1.28	102	183	260	Construction work in progress	7580	9748
21-01-2014	16:10	22-01-2014	16:10	Sunny	2.7814	2.9471	13853.18	13877.18	24	1.28	1.28	1.28	90	183	260	Construction work in progress	7580	9773
27-01-2014	16:10	28-01-2014	16:10	Fine	2.7956	2.9495	13880.18	13904.18	24	1.28	1.28	1.28	83	183	260	Construction work in progress	7580	9798
30-01-2014	16:10	31-01-2014	16:10	Sunny	2.7835	2.9244	13907.18	13931.18	24	1.28	1.28	1.28	76	183	260	Construction work in progress	7580	9523
												Min.	**76**					
												Max.	**119**					
												Average	**98**					

24-hour TSP Monitoring Results

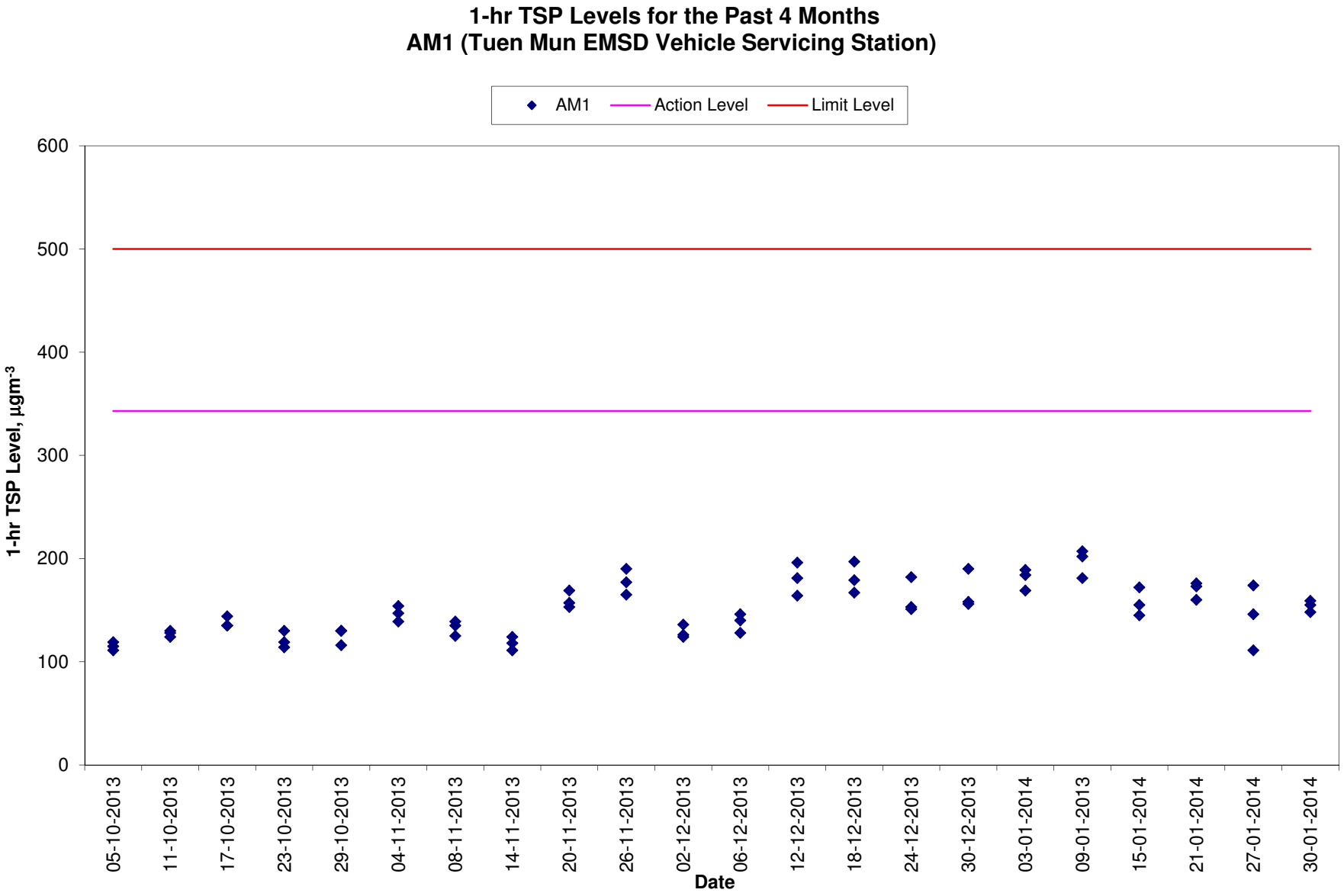
Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
03-01-2014	16:00	04-01-2014	16:00	Sunny	2.7803	2.9541	23566.20	23590.20	24	1.26	1.26	1.26	96	192	260	Construction work in progress	1252	9064
09-01-2014	16:00	10-01-2014	16:00	Cloudy	2.7785	2.9767	23593.20	23617.20	24	1.26	1.26	1.26	109	192	260	Construction work in progress	1252	9719
15-01-2014	16:00	16-01-2014	16:00	Sunny	2.7875	2.9510	23620.20	23644.20	24	1.26	1.26	1.26	90	192	260	Construction work in progress	1252	9744
21-01-2014	16:00	22-01-2014	16:00	Sunny	2.7765	2.9600	23647.20	23671.20	24	1.26	1.26	1.26	101	192	260	Construction work in progress	1252	9769
27-01-2014	16:00	28-01-2014	16:00	Fine	2.7757	2.9321	23674.20	23698.20	24	1.26	1.26	1.26	86	192	260	Construction work in progress	1252	9794
30-01-2014	16:00	31-01-2014	16:00	Sunny	2.7827	2.9468	23701.20	23725.20	24	1.26	1.26	1.26	90	192	260	Construction work in progress	1252	9519
												Min.	**86**					
												Max.	**109**					
												Average	**95**					

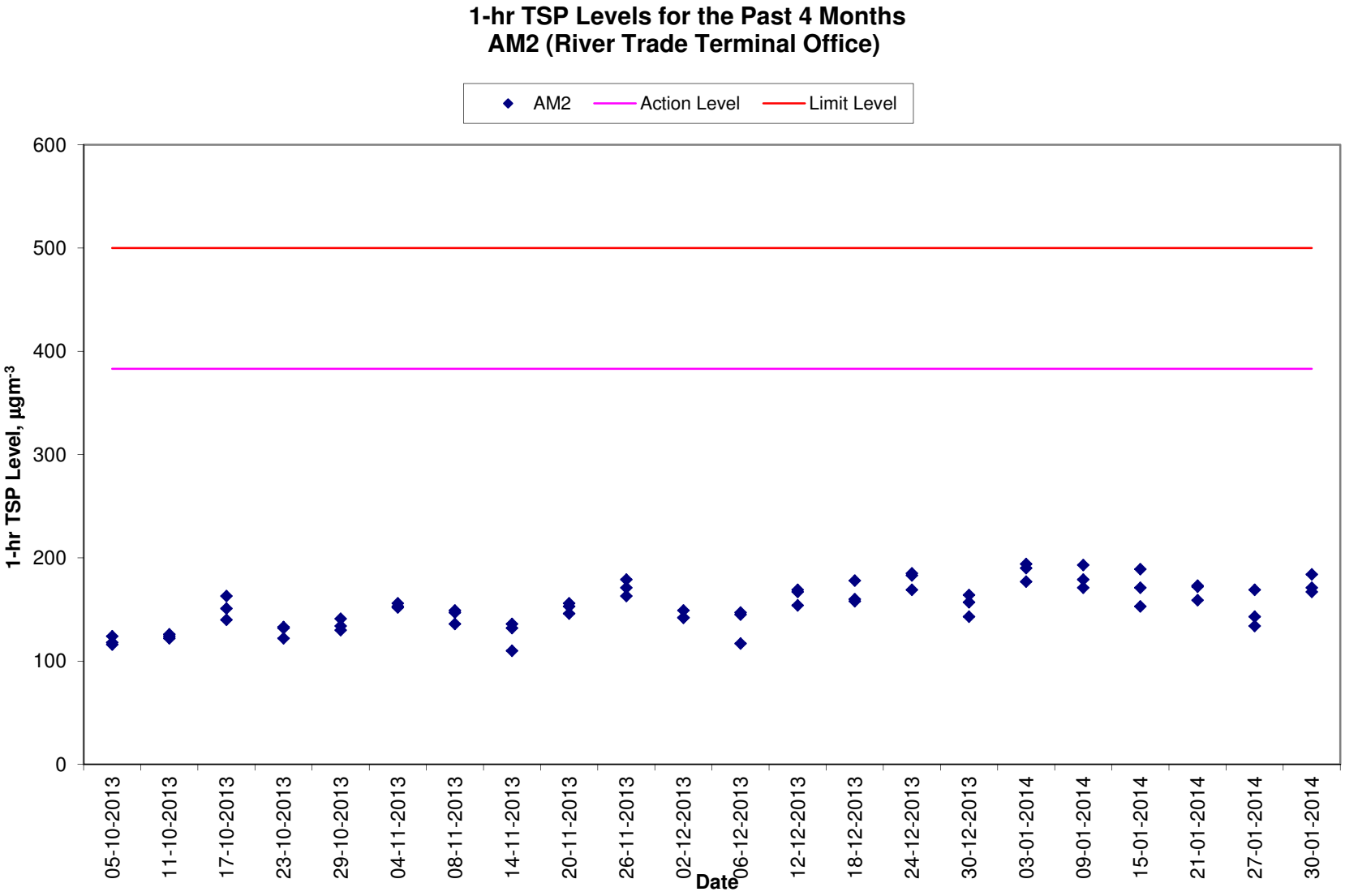
Meteorological Data Extracted from the Hong Kong Observatory

		Tuen Mun Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-01-2014	Sunny	20.0	56-77	0.0	9.0	N
04-01-2014	Sunny	19.0	40-66	0.0	11.0	SE
09-01-2014	Cloudy	15.0	64-73	0.0	6.0	N
10-01-2014	Cloudy	15.0	72-81	trace	8.0	N
15-01-2014	Sunny	14.0	47-74	0.0	10.0	N
16-01-2014	Sunny	14.0	57-84	0.0	6.0	N
21-01-2014	Sunny	15.0	27-41	0.0	12.0	N
22-01-2014	Sunny	14.0	31-64	0.0	11.0	N
27-01-2014	Fine	17.0	59-85	0.0	9.0	S-N
28-01-2014	Fine	18.0	54-86	0.0	7.0	S-N
30-01-2014	Sunny	19.0	63-90	0.0	6.0	S-N
31-01-2014	Sunny	20.0	56-90	0.0	8.0	NW-N

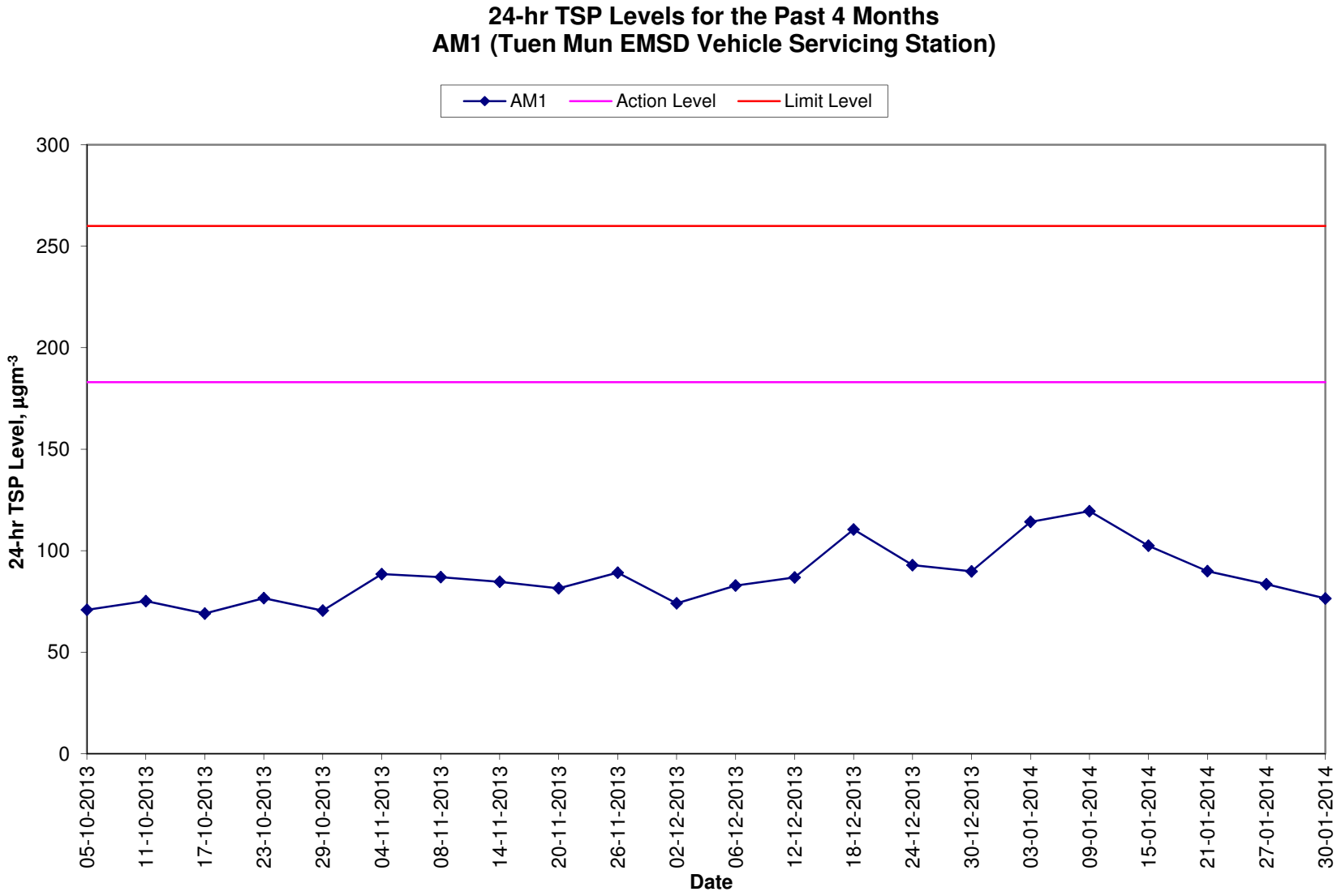
Annex G TSP Monitoring Results



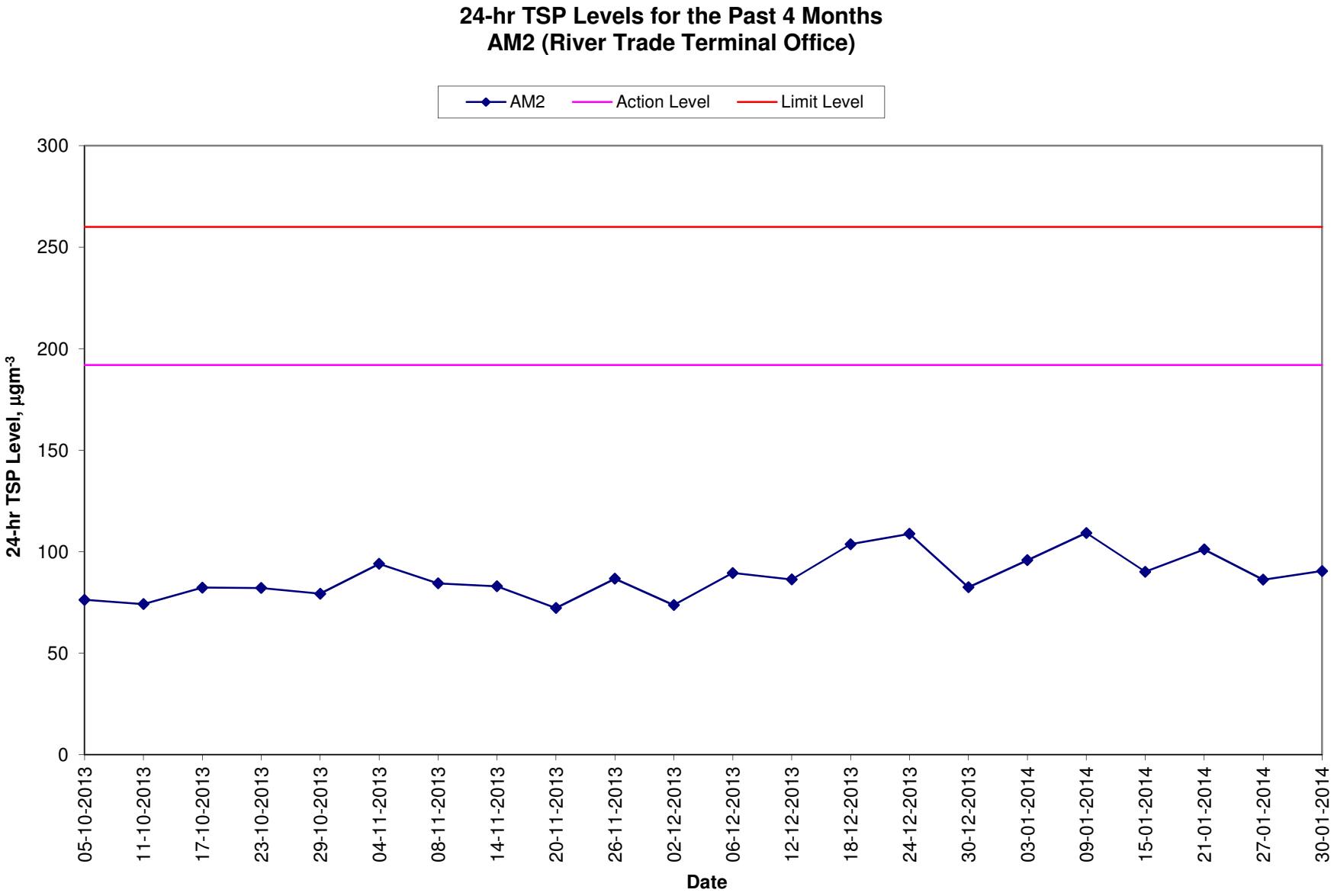
Annex G TSP Monitoring Results



Annex G TSP Monitoring Results



Annex G 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	Work site/During the construction period	√

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

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

July 2013	1246.64	100.00	0.00	1100.00	1146.64	100.00	60.00	10.00	0.00	71.15
Sub-total	4683.07	250.00	0.00	2970.00	4433.07	240.00	163.00	24.00	0.00	171.92
August 2013	873.73	120.00	0.00	700.00	753.73	50.00	60.00	8.00	0.00	63.95
September 2013	748.43	50.00	0.00	650.00	698.43	40.00	60.00	5.00	0.00	41.28
October 2013	1701.99	45.00	0.00	1500.00	1656.99	20.00	60.00	5.00	0.00	34.79
Sub-total	3324.15	215.00	0.00	2850.00	3109.15	110.00	180.00	18.00	0.00	140.02
November 2013	1602.35	60.00	0.00	1490.00	1542.35	18.00	60.00	50.00	0.00	36.44
December 2013	1357.16	80.00	0.00	1100.00	1277.16	35.00	60.00	50.00	0.00	16.84
January 2014	714.34	20.00	0.00	690.00	694.34	16.00	60.00	97.00	0.00	27.82
Total	233748.25	43534.00	5695.00	28156.00	184519.29	2501.00	1988.30	617.00	810.00	1992.22

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.
(13) The quantity of inert and non-inert C&D material generated from May 2012 to December and imported fill material was updated by the Contractor on 6 November 2012.
(14) The quantity of Rocks & Broken Concrete from November 2010 to November 2012 was updated by the Contractor on 12 December 2012.
(15) The quantity of C&D material reused in this Contract in Oct, Nov and Dec 2012 were updated by the Contractor on 5 January 2012.
(16) The quantity of general refuse in this Contract for May 2013 was updated by the Contractor in June 2013.

Annex K

Environmental Complaint, Environmental Summons and Persecution Log

Annex K Cumulative Complaint and Summons/Prosecutions Log

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

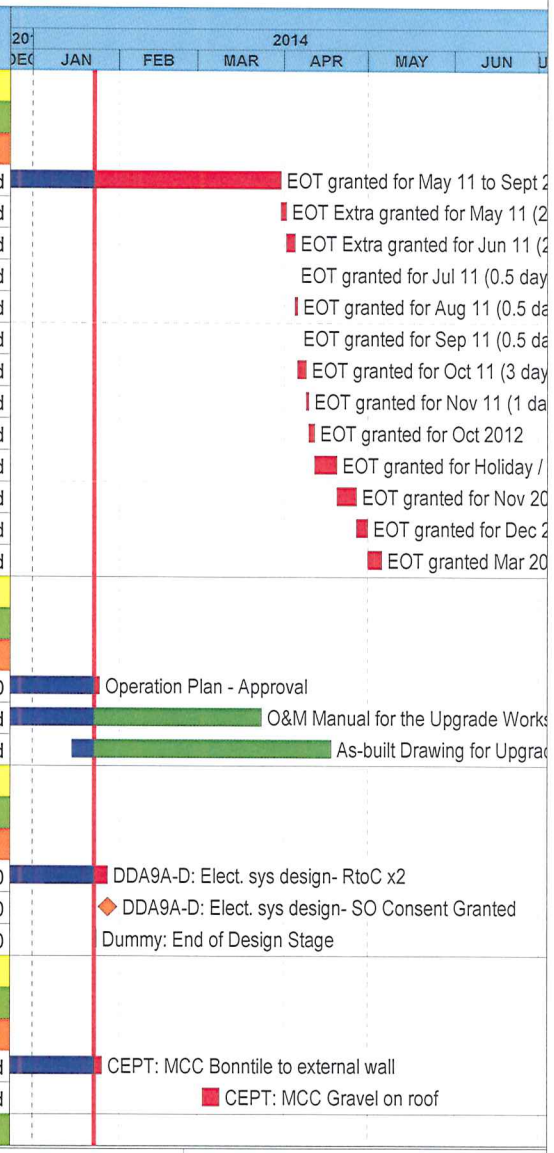
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April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

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2013	0	0
January 2014	0	0
Overall Total	0	0

Annex L

Construction Programme of the Project

Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
Key Date							
Commencement and Completion of Works							
Contract Dates							
KMD000170	EOT granted for May 11 to Sept 2012 (98.5 days)	99	25NOV2013	30MAR2014	25NOV2013	04MAR2014	-26d
KMD000175	EOT Extra granted for May 11 (2 days)	2	31MAR2014	01APR2014	05MAR2014	06MAR2014	-26d
KMD000176	EOT Extra granted for Jun 11 (2.5 days)	3	02APR2014	04APR2014	07MAR2014	09MAR2014	-26d
KMD000177	EOT granted for Jul 11 (0.5 days)	0	05APR2014	04APR2014	10MAR2014	09MAR2014	-26d
KMD000178	EOT granted for Aug 11 (0.5 days)	1	05APR2014	05APR2014	10MAR2014	10MAR2014	-26d
KMD000179	EOT granted for Sep 11 (0.5 days)	0	06APR2014	05APR2014	11MAR2014	10MAR2014	-26d
KMD000180	EOT granted for Oct 11 (3 days)	3	06APR2014	08APR2014	11MAR2014	13MAR2014	-26d
KMD000181	EOT granted for Nov 11 (1 days)	1	09APR2014	09APR2014	14MAR2014	14MAR2014	-26d
KMD000185	EOT granted for Oct 2012	2	10APR2014	11APR2014	15MAR2014	16MAR2014	-26d
KMD000190	EOT granted for Holiday / Sun at Extended Period	8	12APR2014	19APR2014	17MAR2014	24MAR2014	-26d
KMD000192	EOT granted for Nov 2012 (7.5 days)	7	20APR2014	26APR2014	25MAR2014	31MAR2014	-26d
KMD000193	EOT granted for Dec 2012	4	27APR2014	30APR2014	01APR2014	04APR2014	-26d
KMD000195	EOT granted Mar 2013 (4.5 days)	5	01MAY2014	05MAY2014	05APR2014	09APR2014	-26d
Preliminaries							
General Requirements							
Contract Preliminaries							
PLW005320	Operation Plan - Approval	10	07AUG2012	24JAN2014	07AUG2012	24JAN2014	0
PLW006100	O&M Manual for the Upgrade Works	90	15JAN2013	23MAR2014	15JAN2013	11MAY2014	49d
PLW006200	As-built Drawing for Upgrade Works	90	15JAN2014	17APR2014	15JAN2014	11MAY2014	24d
Design and Design Checking of Permanent Works							
Submission and Consent							
Submission and Approval							
DPD081161	DDA9A-D: Elect. sys design- RtoC x2	28	24AUG2011	27JAN2014	24AUG2011	27JAN2014	0
DPD081170	DDA9A-D: Elect. sys design- SO Consent Granted	0		27JAN2014		27JAN2014	0
DPD999910	Dummy: End of Design Stage	1	23JAN2014	23JAN2014	23JAN2014	23JAN2014	0
Civil and Structural Works							
Chemically Enhanced Primary Treatement System							
Building and Structures							
CCC156650B	CEPT: MCC Bonntile to external wall	7	28NOV2013	25JAN2014	28NOV2013	12JAN2014	-13d
CCC156660B	CEPT: MCC Gravel on roof	6	03MAR2014	08MAR2014	18FEB2014	23FEB2014	-13d
New Preliminary Treatment Works							



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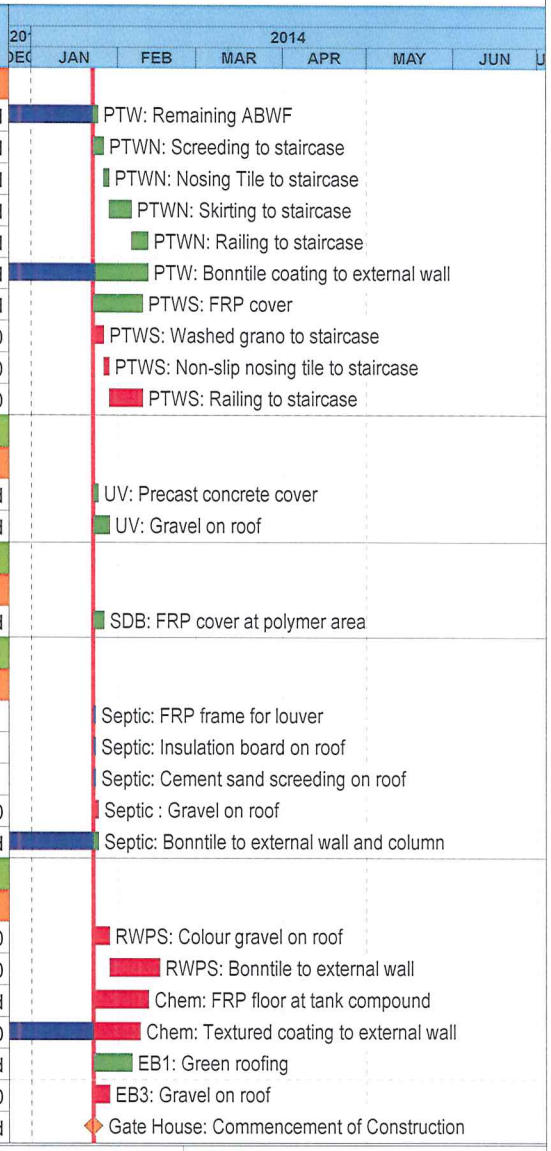
Contract No. DC/2008/03
Design, Build and Operate Pillar Point Sewage Treatment Works

ATAL - Degremont - China State Joint Venture

Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
Building and Structures							
CCC150200	PTW: Remaining ABWF	90	02OCT2013	24JAN2014	02OCT2013	10MAY2014	80d
CCC160982B	PTWN: Screeding to staircase	4	23JAN2014 *	26JAN2014	28APR2014	01MAY2014	89d
CCC160984B	PTWN: Nosing Tile to staircase	2	27JAN2014	28JAN2014	02MAY2014	03MAY2014	89d
CCC160986B	PTWN: Skirting to staircase	2	29JAN2014	05FEB2014	04MAY2014	05MAY2014	89d
CCC160988B	PTWN: Railing to staircase	6	06FEB2014	11FEB2014	06MAY2014	11MAY2014	89d
CCC162750B	PTW: Bonntile coating to external wall	14	28NOV2013	11FEB2014	28NOV2013	11MAY2014	89d
CCC162850B	PTWS: FRP cover	12	23JAN2014 *	09FEB2014	24JAN2014	10FEB2014	1d
CCC162906B	PTWS: Washed grano to staircase	4	23JAN2014 *	26JAN2014	23JAN2014	26JAN2014	0
CCC162907B	PTWS: Non-slip nosing tile to staircase	2	27JAN2014	28JAN2014	27JAN2014	28JAN2014	0
CCC162908B	PTWS: Railing to staircase	6	29JAN2014	09FEB2014	29JAN2014	09FEB2014	0
Disinfection System							
Building and Structures							
CCC301045B	UV: Precast concrete cover	2	23JAN2014	24JAN2014	09FEB2014	10FEB2014	11d
CCC301100B	UV: Gravel on roof	6	23JAN2014 *	28JAN2014	05FEB2014	10FEB2014	7d
Sludge Treatment Facilities							
Building and Structures							
CCC602590B	SDB: FRP cover at polymer area	4	23JAN2014 *	26JAN2014	07FEB2014	10FEB2014	9d
Septic Waste Collection Facilities							
Building and Structures							
CCC170740B	Septic: FRP frame for louver	1	23JAN2014	23JAN2014	23JAN2014	23JAN2014	
CCC170900B	Septic: Insulation board on roof	1	23JAN2014	23JAN2014	23JAN2014	23JAN2014	
CCC170910B	Septic: Cement sand screeding on roof	2	23JAN2014	23JAN2014	23JAN2014	23JAN2014	
CCC170920B	Septic : Gravel on roof	2	23JAN2014 *	24JAN2014	23JAN2014	24JAN2014	0
CCC170940B	Septic: Bonntile to external wall and column	12	28NOV2013	24JAN2014	28NOV2013	11MAY2014	101d
Auxiliary Building							
Building and Structures							
CCC321060B	RWPS: Colour gravel on roof	6	23JAN2014	28JAN2014	23JAN2014	28JAN2014	0
CCC321070B	RWPS: Bonntile to external wall	12	29JAN2014	15FEB2014	29JAN2014	15FEB2014	0
CCC500840B	Chem: FRP floor at tank compound	14	23JAN2014 *	11FEB2014	22JAN2014	10FEB2014	-1d
CCC500960B	Chem: Textured coating to external wall	28	02NOV2013	08FEB2014	02NOV2013	08FEB2014	0
CCC910570B	EB1: Green roofing	7	23JAN2014 *	05FEB2014	28JAN2014	10FEB2014	4d
CCC930670B	EB3: Gravel on roof	6	23JAN2014	28JAN2014	23JAN2014	28JAN2014	0
CCC970105	Gate House: Commencement of Construction	0	23JAN2014		23DEC2013		-31d



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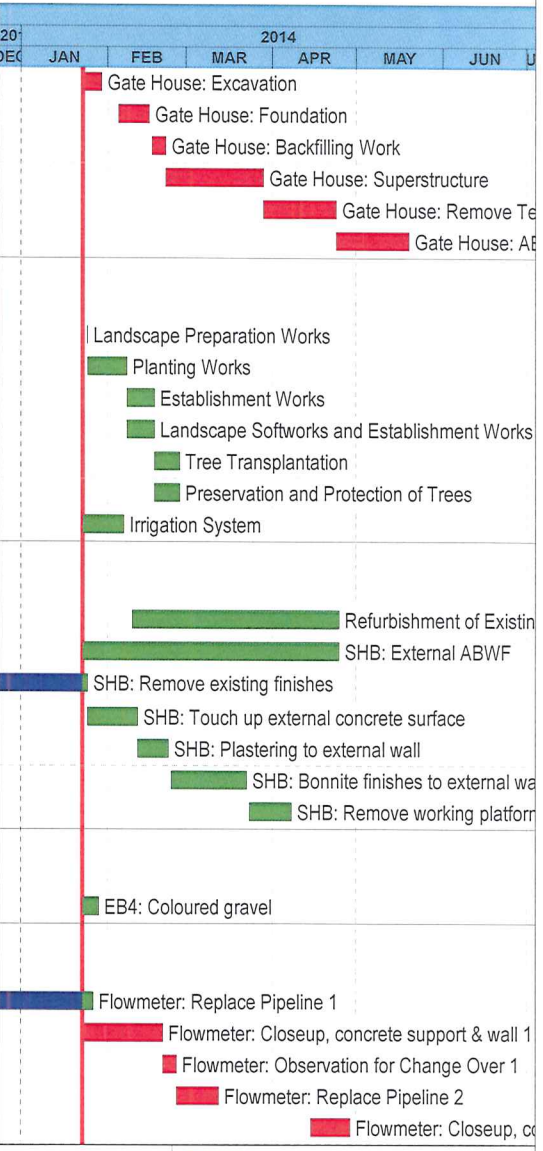
CCC970110	Gate House: Excavation	6	23JAN2014 *	29JAN2014	23DEC2013	31DEC2013	-24d
CCC970120	Gate House: Foundation	10	05FEB2014	15FEB2014	02JAN2014	13JAN2014	-24d
CCC970130	Gate House: Backfilling Work	5	17FEB2014	21FEB2014	14JAN2014	18JAN2014	-24d
CCC970140	Gate House: Superstructure	30	22FEB2014	28MAR2014	20JAN2014	28FEB2014	-24d
CCC970150	Gate House: Remove Temp Support	18	29MAR2014	23APR2014	01MAR2014	21MAR2014	-24d
CCC970160	Gate House: ABWF Works	20	24APR2014	19MAY2014	12APR2014	10MAY2014	-7d
Landscaping Wroks							
Miscellaneous Works							
CMT995350	Landscape Preparation Works	4	26JAN2014	24JAN2014	26JAN2014	08APR2014	57d
CMT995360	Planting Works	7	25JAN2014	07FEB2014	09APR2014	16APR2014	57d
CMT995370	Establishment Works	8	08FEB2014	17FEB2014	17APR2014	29APR2014	57d
CMT995380	Landscape Softworks and Establishment Works	8	08FEB2014	17FEB2014	17APR2014	29APR2014	57d
CMT995390	Tree Transplantation	8	18FEB2014	26FEB2014	30APR2014	10MAY2014	57d
CMT995400	Preservation and Protection of Trees	8	18FEB2014	26FEB2014	30APR2014	10MAY2014	57d
CMT995410	Irrigation System	8	23JAN2014	06FEB2014	30APR2014	10MAY2014	74d
Refurbishment and Renewal Works							
Miscellaneous Works							
CCM000110	Refurbishment of Existing Buildings / Structures	60	10FEB2014	24APR2014	24FEB2014	10MAY2014	12d
CCM000160	SHB: External ABWF	70	23JAN2014 *	24APR2014	12FEB2014	10MAY2014	12d
CCM001190B	SHB: Remove existing finishes	12	17DEC2013	24JAN2014	17DEC2013	27FEB2014	24d
CCM001200B	SHB: Touch up external concrete surface	10	25JAN2014	11FEB2014	28FEB2014	11MAR2014	24d
CCM001210B	SHB: Plastering to external wall	10	12FEB2014	22FEB2014	12MAR2014	22MAR2014	24d
CCM001220B	SHB: Bonnite finishes to external wall	24	24FEB2014	22MAR2014	24MAR2014	24APR2014	24d
CCM001230B	SHB: Remove working platform to external wall	12	24MAR2014	07APR2014	25APR2014	10MAY2014	24d
Miscellaneous Works							
Miscellaneous Works							
CCM104700B	EB4: Coloured gravel	6	23JAN2014	28JAN2014	12MAR2014	17MAR2014	42d
External Works							
Miscellaneous Works							
CWM101080	Flowmeter: Replace Pipeline 1	11	11DEC2013	26JAN2014	11DEC2013	17APR2014	81d
CWM101085	Flowmeter: Closeup, concrete support & wall 1	10	23JAN2014	20FEB2014	23JAN2014	07FEB2014	-9d
CWM101086	Flowmeter: Observation for Change Over 1	3	21FEB2014	25FEB2014	10FEB2014	12FEB2014	-9d
CWM101100	Flowmeter: Replace Pipeline 2	11	26FEB2014 *	12MAR2014	13FEB2014	27FEB2014	-9d
CWM101105	Flowmeter: Closeup, concrete support & wall 2	10	15APR2014	28APR2014	28MAR2014	10APR2014	-10d



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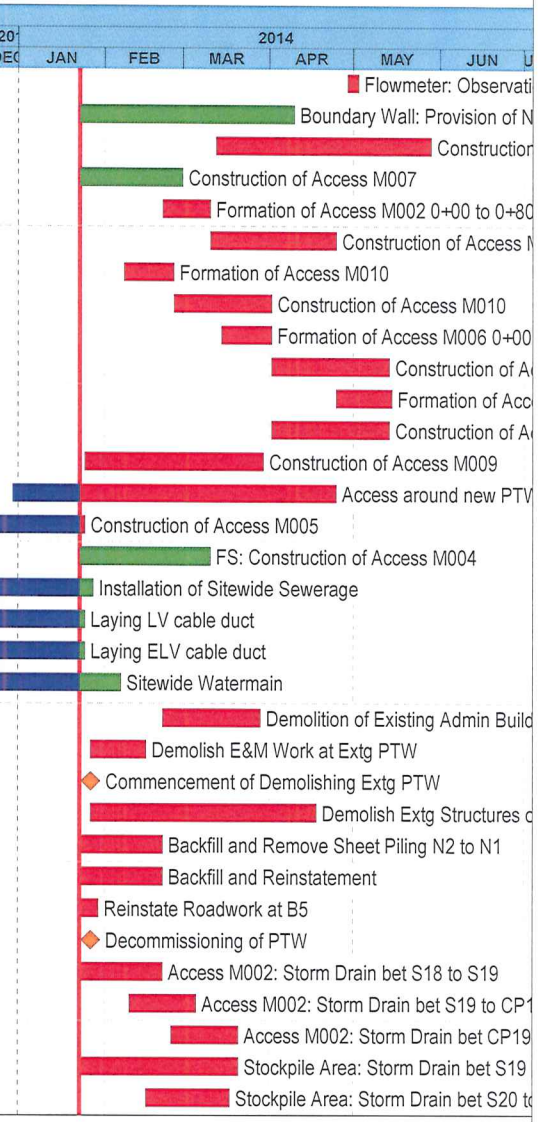
Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
CWM101106	Flowmeter: Observation for Change Over 2	3	29APR2014	02MAY2014	15APR2014	17APR2014	-10d
CWM101500	Boundary Wall: Provision of New U-channel	60	23JAN2014	09APR2014	24FEB2014	10MAY2014	22d
CWM101600	Construction of Sitewide Roadworks	60	13MAR2014	28MAY2014	24FEB2014	10MAY2014	-15d
CWM101630	Construction of Access M007	27	23JAN2014	28FEB2014	03APR2014	10MAY2014	55d
CWM101650	Formation of Access M002 0+00 to 0+80	14	22FEB2014	10MAR2014	22FEB2014	10MAR2014	0
CWM101655	Construction of Access M002 0+00 to 0+80	35	11MAR2014	24APR2014	11MAR2014	24APR2014	0
CWM101670	Formation of Access M010	15	08FEB2014	25FEB2014	11JAN2014	28JAN2014	-19d
CWM101675	Construction of Access M010	30	26FEB2014	01APR2014	29JAN2014	10MAR2014	-19d
CWM101680	Formation of Access M006 0+00 to 0+50	15	15MAR2014	01APR2014	21FEB2014	10MAR2014	-19d
CWM101683	Construction of Access M006 0+00 to 0+50	30	02APR2014	13MAY2014	11MAR2014	15APR2014	-19d
CWM101685	Formation of Access M006 0+50 to 0+110	15	25APR2014	14MAY2014	29MAR2014	16APR2014	-19d
CWM101689	Construction of Access M001	30	02APR2014	13MAY2014	18MAR2014	25APR2014	-13d
CWM101690	Construction of Access M009	50	25JAN2014	29MAR2014	25JAN2014	29MAR2014	0
CWM101695	Access around new PTW	80	30DEC2013	24APR2014	30DEC2013	03APR2014	-14d
CWM101700	Construction of Access M005	35	12OCT2013	24JAN2014	12OCT2013	24JAN2014	0
CWM101770	FS: Construction of Access M004	35	23JAN2014	10MAR2014	24JAN2014	11MAR2014	1d
CWM102000	Installation of Sitewide Sewerage	380	19APR2012	27JAN2014	19APR2012	10MAY2014	78d
CWM102160	Laying LV cable duct	100	18FEB2013	24JAN2014	18FEB2013	05MAR2014	29d
CWM102170	Laying ELV cable duct	116	18FEB2013	24JAN2014	18FEB2013	05MAR2014	29d
CWM102180	Sitewide Watermain	84	26APR2013	06FEB2014	26APR2013	22FEB2014	14d
CWM102300	Demolition of Existing Admin Building	30	22FEB2014	28MAR2014	22FEB2014	28MAR2014	0
CWM103100	Demolish E&M Work at Extg PTW	20	27JAN2014	15FEB2014	27JAN2014	15FEB2014	0
CWM103200	Commencement of Demolishing Extg PTW	0	27JAN2014		27JAN2014		0
CWM103210	Demolish Extg Structures of PTW	75	27JAN2014	17APR2014	27JAN2014	17APR2014	0
CWM200610B	Backfill and Remove Sheet Piling N2 to N1	24	23JAN2014	21FEB2014	23JAN2014	21FEB2014	0
CWM202130B	Backfill and Reinstatement	24	23JAN2014	21FEB2014	23JAN2014	21FEB2014	0
CWM202340B	Reinstate Roadwork at B5	7	23JAN2014	29JAN2014	23JAN2014	29JAN2014	0
CWM202350B	Decommissioning of PTW	0	27JAN2014 *		27JAN2014		0
CWM215060B	Access M002: Storm Drain bet S18 to S19	24	23JAN2014	21FEB2014	05JAN2014	28JAN2014	-18d
CWM215070B	Access M002: Storm Drain bet S19 to CP19	24	10FEB2014	05MAR2014	17JAN2014	15FEB2014	-18d
CWM215080B	Access M002: Storm Drain bet CP19 to CP19A	24	25FEB2014	20MAR2014	07FEB2014	02MAR2014	-18d
CWM215110B	Stockpile Area: Storm Drain bet S19 /CP20 to S20	51	23JAN2014	20MAR2014	23JAN2014	20MAR2014	0
CWM215120B	Stockpile Area: Storm Drain bet S20 to S21	30	16FEB2014	17MAR2014	16FEB2014	17MAR2014	0



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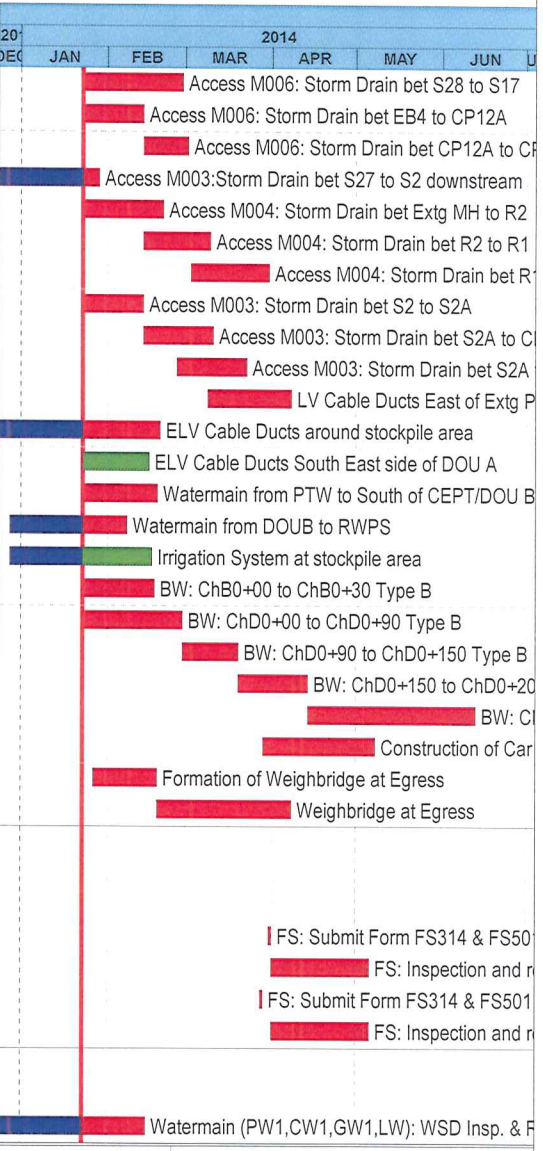
Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
CWM215440B	Access M006: Storm Drain bet S28 to S17	30	23JAN2014	27FEB2014	23JAN2014	27FEB2014	0
CWM215610B	Access M006: Storm Drain bet EB4 to CP12A	16	23JAN2014	13FEB2014	23JAN2014	13FEB2014	0
CWM215620B	Access M006: Storm Drain bet CP12A to CP12	16	14FEB2014	01MAR2014	14FEB2014	01MAR2014	0
CWM215720B	Access M003:Storm Drain bet S27 to S2 downstream	16	17DEC2013	28JAN2014	17DEC2013	28JAN2014	0
CWM216010B	Access M004: Storm Drain bet Extg MH to R2	23	23JAN2014	20FEB2014	23JAN2014	20FEB2014	0
CWM216020B	Access M004: Storm Drain bet R2 to R1	24	14FEB2014	09MAR2014	14FEB2014	09MAR2014	0
CWM216030B	Access M004: Storm Drain bet R1 to S3	28	03MAR2014	30MAR2014	03MAR2014	30MAR2014	0
CWM216110B	Access M003: Storm Drain bet S2 to S2A	16	23JAN2014	13FEB2014	09JAN2014	24JAN2014	-14d
CWM216120B	Access M003: Storm Drain bet S2A to CP2A / CP2B	25	14FEB2014 *	10MAR2014	25JAN2014	24FEB2014	-14d
CWM216130B	Access M003: Storm Drain bet S2A to CP2E / CP2D	25	26FEB2014	22MAR2014	12FEB2014	08MAR2014	-14d
CWM225205B	LV Cable Ducts East of Extg PTW after demolish	30	09MAR2014	07APR2014	09MAR2014	07APR2014	0
CWM226300B	ELV Cable Ducts around stockpile area	24	21DEC2013	19FEB2014	21DEC2013	19FEB2014	0
CWM226500B	ELV Cable Ducts South East side of DOU A	18	23JAN2014 *	15FEB2014	24JAN2014	16FEB2014	1d
CWM227700B	Watermain from PTW to South of CEPT/DOU B	21	23JAN2014 *	18FEB2014	23JAN2014	18FEB2014	0
CWM227900B	Watermain from DOUB to RWPS	18	28DEC2013	07FEB2014	28DEC2013	10JAN2014	-22d
CWM228300B	Irrigation System at stockpile area	21	28DEC2013	16FEB2014	28DEC2013	30APR2014	73d
CWM228840	BW: ChB0+00 to ChB0+30 Type B	20	23JAN2014	17FEB2014	23JAN2014	17FEB2014	0
CWM229420	BW: ChD0+00 to ChD0+90 Type B	30	23JAN2014 *	27FEB2014	15DEC2013	13JAN2014	-39d
CWM229430	BW: ChD0+90 to ChD0+150 Type B	20	28FEB2014	19MAR2014	14JAN2014	08FEB2014	-39d
CWM229440	BW: ChD0+150 to ChD0+200 Type B	25	20MAR2014	13APR2014	09FEB2014	05MAR2014	-39d
CWM229450	BW: ChD0+200 to ChD0+407.89 Type B	60	14APR2014	12JUN2014	06MAR2014	04MAY2014	-39d
CXT995340	Construction of Car Park	28	29MAR2014	07MAY2014	29MAR2014	07MAY2014	0
CXT995420	Formation of Weighbridge at Egress	15	27JAN2014	18FEB2014	27JAN2014	18FEB2014	0
CXT995425	Weighbridge at Egress	40	19FEB2014	07APR2014	19FEB2014	07APR2014	0
Statutory Works							
Fire Services - FSD							
Building and Structures							
SSF200410	FS: Submit Form FS314 & FS501 (1)	1	31MAR2014	31MAR2014	06MAR2014	06MAR2014	-21d
SSF200420	FS: Inspection and re-inspection (1)	25	01APR2014	05MAY2014	07MAR2014	04APR2014	-21d
SSF200510	FS: Submit Form FS314 & FS501 (2)	1	28MAR2014	28MAR2014	06MAR2014	06MAR2014	-19d
SSF200520	FS: Inspection and re-inspection (2)	25	01APR2014	05MAY2014	07MAR2014	04APR2014	-21d
Plumbing - WSD							
Building and Structures							
SSP200520	Watermain (PW1,CW1,GW1,LW): WSD Insp. & Re-insp.	25	21OCT2013	14FEB2014	21OCT2013	14FEB2014	0



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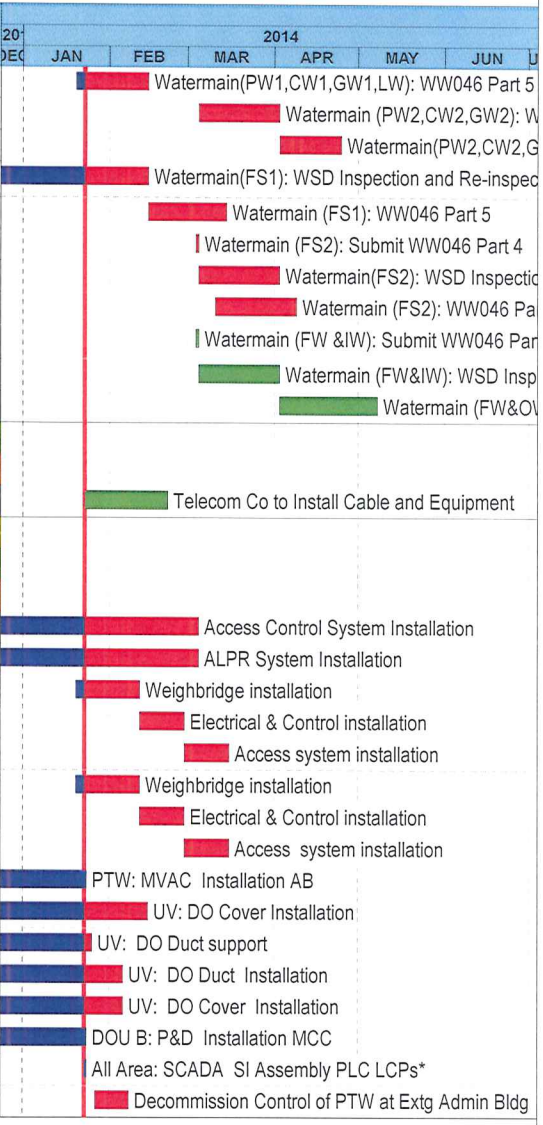
Finish milestone point

Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
SSP200530	Watermain(PW1,CW1,GW1,LW): WW046 Part 5	15	20JAN2014	14FEB2014	20JAN2014	23JAN2014	-14d
SSP200550	Watermain (PW2,CW2,GW2): WSD Insp & Re-insp.	25	05MAR2014	02APR2014	05MAR2014	02APR2014	0
SSP200560	Watermain(PW2,CW2,GW2): WW046 Part 5	15	03APR2014	24APR2014	03APR2014	24APR2014	0
SSP201520	Watermain(FS1): WSD Inspection and Re-inspection	25	21OCT2013	14FEB2014	21OCT2013	23JAN2014	-14d
SSP201530	Watermain (FS1): WW046 Part 5	24	15FEB2014	14MAR2014	24JAN2014	26FEB2014	-14d
SSP202510	Watermain (FS2): Submit WW046 Part 4	1	04MAR2014	04MAR2014	15FEB2014	15FEB2014	-14d
SSP202520	Watermain(FS2): WSD Inspection and Re-inspection	25	05MAR2014	02APR2014	17FEB2014	17MAR2014	-14d
SSP202530	Watermain (FS2): WW046 Part 5	24	11MAR2014	08APR2014	22FEB2014	21MAR2014	-14d
SSP203510	Watermain (FW &IW): Submit WW046 Part 4	1	04MAR2014	04MAR2014	07MAR2014	07MAR2014	3d
SSP203520	Watermain (FW&IW): WSD Inspection and Re-insp'	25	05MAR2014	02APR2014	08MAR2014	07APR2014	3d
SSP203530	Watermain (FW&OW): WW046 Part 5	24	03APR2014	07MAY2014	08APR2014	10MAY2014	3d
Telecommunication							
Building and Structures							
SST200620	Telecom Co to Install Cable and Equipment	30	23JAN2014	21FEB2014	04FEB2014	05MAR2014	12d
E&M Works							
Procurement and Installation							
Building and Structures							
EMW163000	Access Control System Installation	55	15NOV2013	04MAR2014	15NOV2013	10FEB2014	-19d
EMW164000	ALPR System Installation	55	15NOV2013	04MAR2014	15NOV2013	10FEB2014	-19d
EMW165010	Weighbridge installation	14	20JAN2014	11FEB2014	20JAN2014	11FEB2014	0
EMW165020	Electrical & Control installation	14	12FEB2014	27FEB2014	12FEB2014	27FEB2014	0
EMW165030	Access system installation	14	28FEB2014	15MAR2014	28FEB2014	15MAR2014	0
EMW165110	Weighbridge installation	14	20JAN2014	11FEB2014	20JAN2014	11FEB2014	0
EMW165120	Electrical & Control installation	14	12FEB2014	27FEB2014	12FEB2014	27FEB2014	0
EMW165130	Access system installation	14	28FEB2014	15MAR2014	28FEB2014	15MAR2014	0
EMW181450	PTW: MVAC Installation AB	80	09MAR2013	23JAN2014	09MAR2013	23JAN2014	
EMW303350	UV: DO Cover Installation	30	06JUL2013	14FEB2014	06JUL2013	14FEB2014	0
EMW309120	UV: DO Duct support	20	11JUL2013	25JAN2014	11JUL2013	25JAN2014	0
EMW309150	UV: DO Duct Installation	30	03AUG2013	05FEB2014	03AUG2013	05FEB2014	0
EMW309170	UV: DO Cover Installation	15	14SEP2013	05FEB2014	14SEP2013	05FEB2014	0
EMW728650	DOU B: P&D Installation MCC	15	23AUG2013	23JAN2014	23AUG2013	23JAN2014	
EMW802215	All Area: SCADA SI Assembly PLC LCPs*	60	23JAN2014	23JAN2014	23JAN2014	23JAN2014	
EMW808010	Decommission Control of PTW at Extg Admin Bldg	6	27JAN2014	07FEB2014	27JAN2014	07FEB2014	0



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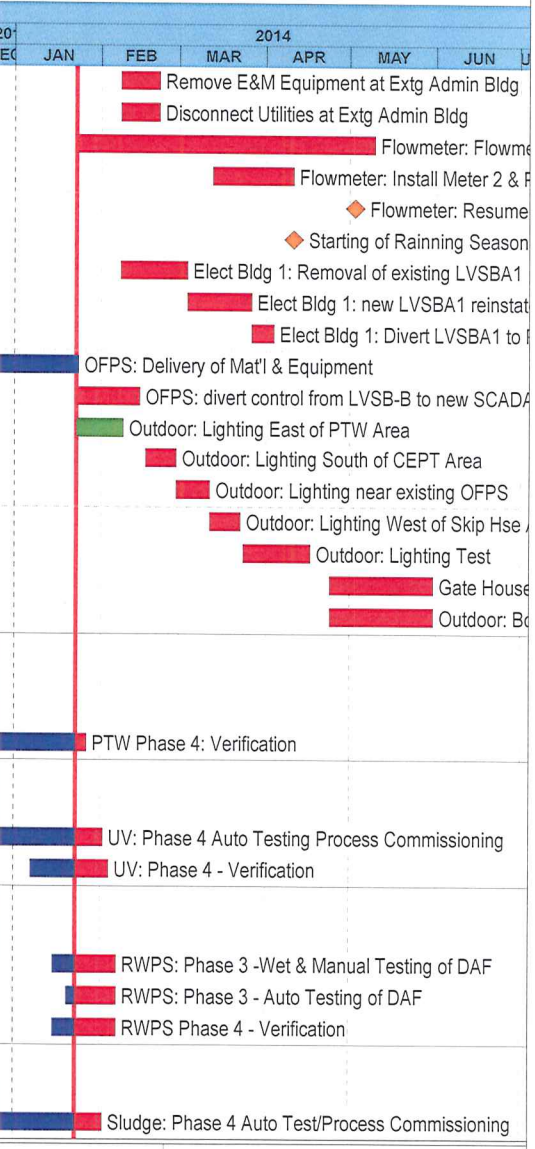
Activity ID	Description	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
EMW808020	Remove E&M Equipment at Extg Admin Bldg	12	08FEB2014	21FEB2014	08FEB2014	21FEB2014	0
EMW808030	Disconnect Utilities at Extg Admin Bldg	12	08FEB2014	21FEB2014	08FEB2014	21FEB2014	0
EMW821130	Flowmeter: Flowmeter Installation (Ref.)	81	23JAN2014	09MAY2014	13JAN2014	26APR2014	-9d
EMW821205	Flowmeter: Install Meter 2 & Pipeline in Chamber	24	13MAR2014	10APR2014	28FEB2014	27MAR2014	-11d
EMW821205B	Flowmeter: Resume OFPS to twin pipeline	0		02MAY2014		02MAY2014	0
EMW821205C	Starting of Rainning Season 2014 (End March)	0		10APR2014		31MAR2014	-10d
EMW941730	Elect Bldg 1: Removal of existing LVSBA1	20	08FEB2014	03MAR2014	08FEB2014	03MAR2014	0
EMW941740	Elect Bldg 1: new LVSBA1 reinstate and testing	20	04MAR2014	26MAR2014	04MAR2014	26MAR2014	0
EMW941750	Elect Bldg 1: Divert LVSBA1 to PTW MCC1	7	27MAR2014	03APR2014	27MAR2014	03APR2014	0
EMW944200	OFPS: Delivery of Mat'l & Equipment	30	28FEB2013	23JAN2014	28FEB2013	23JAN2014	
EMW944730	OFPS: divert control from LVSB-B to new SCADA sy	15	23JAN2014	14FEB2014	23JAN2014	14FEB2014	0
EMW951020	Outdoor: Lighting East of PTW Area	10	23JAN2014	08FEB2014	05FEB2014	15FEB2014	6d
EMW951030	Outdoor: Lighting South of CEPT Area	10	17FEB2014	27FEB2014	17FEB2014	27FEB2014	0
EMW951040	Outdoor: Lighting near existing OFPS	10	28FEB2014	11MAR2014	28FEB2014	11MAR2014	0
EMW951050	Outdoor: Lighting West of Skip Hse Area	10	12MAR2014	22MAR2014	12MAR2014	22MAR2014	0
EMW951070	Outdoor: Lighting Test	20	24MAR2014	16APR2014	24MAR2014	16APR2014	0
EMW952010	Gate House: E&M Installation	30	24APR2014	30MAY2014	22MAR2014	30APR2014	-24d
EMW953010	Outdoor: Boundary Wall CCTV Installation	30	24APR2014	30MAY2014	22MAR2014	30APR2014	-24d
Testing and Commissioning							
PTW Testing and Commissioning							
Building and Structures							
EMT104300	PTW Phase 4: Verification	25	09DEC2013	26JAN2014	09DEC2013	11JAN2014	-15d
UV Disinfection Facilities							
Building and Structures							
EMT304200	UV: Phase 4 Auto Testing Process Commissioning	28	23DEC2013	01FEB2014	23DEC2013	01FEB2014	0
EMT304300	UV: Phase 4 - Verification	15	07JAN2014	03FEB2014	07JAN2014	11JAN2014	-23d
Reuse Water Pumping Station							
Building and Structures							
EMT323200	RWPS: Phase 3 -Wet & Manual Testing of DAF	10	15JAN2014	06FEB2014	15JAN2014	06FEB2014	0
EMT323300	RWPS: Phase 3 - Auto Testing of DAF	25	20JAN2014	06FEB2014	20JAN2014	11JAN2014	-26d
EMT324300	RWPS Phase 4 - Verification	30	15JAN2014	06FEB2014	15JAN2014	11JAN2014	-26d
Sludge Dewatering and Skip Storage							
Building and Structures							
EMT604200	Sludge: Phase 4 Auto Test/Process Commissioning	20	20DEC2013	01FEB2014	20DEC2013	01FEB2014	0



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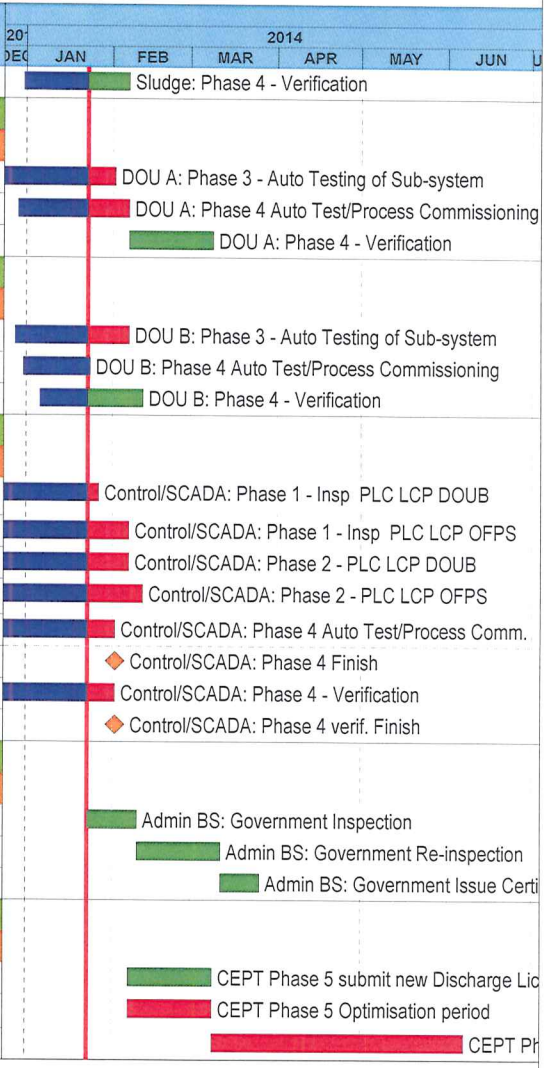
EMT604300	Sludge: Phase 4 - Verification	30	31DEC2013	06FEB2014	31DEC2013	10FEB2014	4d
DOU A							
Building and Structures							
EMT713300	DOU A: Phase 3 - Auto Testing of Sub-system	25	08NOV2013	01FEB2014	08NOV2013	01FEB2014	0
EMT714200	DOU A: Phase 4 Auto Test/Process Commissioning	30	29DEC2013	06FEB2014	29DEC2013	11JAN2014	-26d
EMT714300	DOU A: Phase 4 - Verification	30	07FEB2014	08MAR2014	11FEB2014	12MAR2014	4d
DOU B							
Building and Structures							
EMT723300	DOU B: Phase 3 - Auto Testing of Sub-system	25	28DEC2013	06FEB2014	28DEC2013	06FEB2014	0
EMT724200	DOU B: Phase 4 Auto Test/Process Commissioning	30	31DEC2013	23JAN2014	31DEC2013	23JAN2014	
EMT724300	DOU B: Phase 4 - Verification	30	06JAN2014	11FEB2014	06JAN2014	12MAR2014	29d
Control System							
Building and Structures							
EMT811118	Control/SCADA: Phase 1 - Insp PLC LCP DOUB	30	23AUG2013	26JAN2014	23AUG2013	26JAN2014	0
EMT811119	Control/SCADA: Phase 1 - Insp PLC LCP OFPS	30	29AUG2013	06FEB2014	29AUG2013	06FEB2014	0
EMT812128	Control/SCADA: Phase 2 - PLC LCP DOUB	30	24DEC2013	06FEB2014	24DEC2013	06FEB2014	0
EMT812129	Control/SCADA: Phase 2 - PLC LCP OFPS	30	01NOV2013	11FEB2014	01NOV2013	11FEB2014	0
EMT814250	Control/SCADA: Phase 4 Auto Test/Process Comm.	30	29NOV2013	01FEB2014	29NOV2013	11JAN2014	-21d
EMT814290	Control/SCADA: Phase 4 Finish	0		01FEB2014		11JAN2014	-21d
EMT814350	Control/SCADA: Phase 4 - Verification	60	29NOV2013	01FEB2014	29NOV2013	11JAN2014	-21d
EMT814390	Control/SCADA: Phase 4 verif. Finish	0		01FEB2014		11JAN2014	-21d
Building Services							
Building and Structures							
EMT837000	Admin BS: Government Inspection	18	23JAN2014	09FEB2014	11MAR2014	28MAR2014	47d
EMT837100	Admin BS: Government Re-inspection	30	10FEB2014	11MAR2014	29MAR2014	27APR2014	47d
EMT838000	Admin BS: Government Issue Certificate	14	12MAR2014	25MAR2014	28APR2014	11MAY2014	47d
Optimisation and Proving Test for All E&M Works							
Building and Structures							
EMT991000	CEPT Phase 5 submit new Discharge License insp.	30	07FEB2014	08MAR2014	12APR2014	11MAY2014	64d
EMT995000	CEPT Phase 5 Optimisation period	30	07FEB2014	08MAR2014	12JAN2014	10FEB2014	-26d
EMT995300	CEPT Phase 5 Proving Period	90	09MAR2014	06JUN2014	11FEB2014	11MAY2014	-26d



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