# Jardine Engineering Corporation Limited

Contract No. DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B

# Monthly Environmental Monitoring and Audit Report for April 2014

(Version 2.0)

Certified By —	(Environmental Team Leader)
REMARKS:	

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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# **EXECUTIVE SUMMARY**

## Introduction

- 1. This is the 34<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract no. DE/2009/09 "Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B". This report documents the findings of EM&A Works conducted in April 2014.
- 2. The major site activities undertaken in the reporting month included:
  - E&M installation of FC No.7B to 10B;
  - Testing of RAS Pump No.4 at Stage IV RAS Pumping Station;
  - E&M installation of Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - Dry test of Primary Sedimentation Tank No.5;
  - E&M installation at Pipe Gallery for new PST No.5;
  - BS & FS installation at Pipe Gallery for new PST No.5;
  - Dismantle work for existing Air Blower No.1;
  - E&M installation of filtrate treatment plant (SBR);
  - T&C of new Centrifuge No.4 for Sludge Thickening System;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Installation of Screw Pump No.4 at Stage IV Inlet Works; and
  - E&M installation for new Sludge Digestion Tank No.3.

# **Environmental Monitoring and Audit Works**

- 3. Environmental monitoring and audit works for the Project were performed regularly as stipulated in the Final EM&A Manual and the results were checked and reviewed. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- 4. Summary of the events and action taken in the reporting month is tabulated in Table I.

# Table ISummary Table for Events Recorded in the Reporting Month

Demometer	No. of Exceedance		No. of Events	Action Taken	
Parameter	Action Level	Limit Level	Due to this Project	Action Taken	
1-hr TSP	0	0	0	N/A	
24-hr TSP	0	0	0	N/A	
Noise	0	0	0	N/A	

# **Environmental Licenses and Permits**

5. Environmental related licenses/permits granted to the Project include the Environmental Permit (EP) for the Project.

# Key Information in the Reporting Month

6. Summary of key information in this reporting month is tabulated in **Table II**.

# Table II Summary Table for Key Information in the Reporting Month

Event	Ev	vent Details	Action Taken	Status	Remark
Event	Number		ACTION LAKEN	Status	кешагк
Complaint received	0		N/A	N/A	
Changes to the assumptions and key construction / operation activities recorded	0		N/A	N/A	
Status of submissions	1	Monthly EM&A Report (March 2014)	Submitted to EPD on 23 <sup>rd</sup> April 2014 (EP condition 6.6)	N/A	
under EP	1	Quarterly EM&A Report (Jan - Mar 2014)	Submitted to EPD on 28 <sup>th</sup> April 2014 (EP condition 6.6)	N/A	
Notifications of any summons & prosecutions	0		N/A	N/A	

# **Future Key Issues**

- 7. Major site activities for the coming two months will include:
  - E&M installation of FC No.7B to 10B;
  - Testing of RAS Pump No.4 at Stage IV RAS Pumping Station;
  - Dismantle work for existing RAS Pump No.1&3 at Stage IV RAS Pumping Station;
  - E&M installation of Aeration Tank No. 5, 6 & 7;
  - BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation at Pipe Gallery for new PST No.5;
  - BS & FS installation at Pipe Gallery for new PST No.5;
  - Civil Work for New Air Blower No.1;
  - T&C of new Centrifuge No.4 for Sludge Thickening System;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Installation of Screw Pump No.4 at Stage IV Inlet Works; and
  - E&M installation for new Sludge Digestion Tank No.3.
- 8. The future environmental concerns are air quality, noise impacts and waste management from construction works.

3

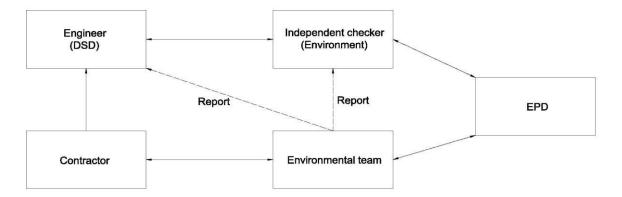
# 1 INTRODUCTION

## Background

- 1.1 Tai Po Sewage Treatment Works (TPSTW) is located within the Tai Po Industrial Estate. It currently comprises four Stages: I, II, IVA and IVB works. The TPSTW Stage V aims to upgrade the existing STW to provide additional sewage treatment capacity from the present design flow of 88,000 m<sup>3</sup>/day to 130,000 m<sup>3</sup>/day to meet the demands of both the existing and future developments, and to meet the revised discharge license requirements.
- 1.2 The TPSTW Stage V, Phase I and Phase II are Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 449) with the same EIAO Register No. AEIAR 081/2004. A study of environmental impact assessment (EIA) was undertaken to evaluate various environmental impacts associated with the works within these two Designed Projects. An EIA Report as well as an Environmental Monitoring and Audit (EM&A) Manual were approved by the Environmental Protection Department (EPD) on 28 October 2004.
- 1.3 The Stage V works will be implemented in 2 phases. The design capacities of Phase I and Phase II works are 100,000 m<sup>3</sup>/d and 130,000 m<sup>3</sup>/d respectively. An Environmental Permit (EP) No. EP-265/2007 was issued on 22 March 2007 for the TPSTW Stage V Phase II to the Drainage Services Department (DSD) as the Permit Holder. The project "Tai Po Sewage Treatment Works Stage V Phase IIB" formed part of the Phase II works, includes additional secondary treatment process units (1 primary clarifier; 3 bioreactors and 2 final clarifiers) in TPSTW for its future extended plant design capacity of 120,000 m<sup>3</sup>/day. A master construction programme of the Project is provided in Appendix M. A site layout plan is provided in Figure 1.1. The construction activities of the Project commenced on 16 May 2011.
- 1.4 Cinotech Consultants Ltd. was commissioned by the Contractor as the Environmental Team (ET) to undertake the EM&A works for the Project. Dr. Priscilla CHOY of Cinotech Consultants Ltd. was appointed as the ET Leader as per the Condition 2.1 of the EP. Ove Arup and Partners Hong Kong Limited was appointed as the IEC under Condition 2.2 of the EP. This is the 34<sup>th</sup> monthly EM&A report summarizing the EM&A works for the Project in April 2014.

# **Project Organizations**

- 1.5 Different parties with different levels of involvement in the project organization include:
  - Project Proponent / Engineer's Representative (ER) Drainage Services Department
  - Environmental Team (ET) Cinotech Consultants Ltd.
  - Independent Environmental Checker (IEC) Ove Arup and Partners Hong Kong Limited
  - Contractor Jardine Engineering Corporation Ltd.
- 1.6 The responsibilities of respective parties are detailed in Section 1.10 of the Final EM&A Manual of the Project.
- 1.7 The Project Organization during Construction Phase



1.8 The key contacts of the Project are shown in **Table 1.1**.

Party	Role	Name	Position	Phone No.	Fax No.	
DCD	E & M Dron al	Mr. TONG Sau Kit	Senior Engineer	2594 7304	0007.0500	
DSD	E&M Branch	Mr. TSE Ho	Engineer	2660 7638	2827 8532	
		Dr. Priscilla CHOY	ET Leader	2151 2089		
Cinotech	Environmental Team	Mr. Edmond PUT	Project Coordinator and Audit Team Leader	2151 2035	3107 1388	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087		
	Independent	Mr. Coleman NG	Independent Environmental Checker	2268 3097	2865 6493	
Arup	Environmental Checker	Mr. Ken LEE	Assistant to Independent Environmental Checker	2268 3573	2803 0493	
	E 9 M	Mr. Alex LAW	Project Manager	9312 8659		
JEC	E&M Contractor	Mr. Kim Hung LAU	Site Agent	6393 7548	2887 9090	
	Contractor	Mr. Brendan CHAN	Environmental Officer	6892 0956		

Table 1.1Key Project Contacts

# **Construction Programme**

- 1.9 The site activities undertaken in the reporting month were:
  - E&M installation of FC No.7B to 10B;
  - Testing of RAS Pump No.4 at Stage IV RAS Pumping Station;
  - E&M installation of Aeration Tank No. 5, 6 & 7;
  - RAS pipework installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - Dry test of Primary Sedimentation Tank No.5;
  - E&M installation at Pipe Gallery for new PST No.5;
  - BS & FS installation at Pipe Gallery for new PST No.5;
  - Dismantle work for existing Air Blower No.1;
  - E&M installation of filtrate treatment plant (SBR);
  - T&C of new Centrifuge No.4 for Sludge Thickening System;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Installation of Screw Pump No.4 at Stage IV Inlet Works; and
  - E&M installation for new Sludge Digestion Tank No.3.

## Summary of EM&A Requirements

- 1.10 The EM&A programme requires construction phase air quality and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
  - All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the project EIA study final report; and
  - Environmental requirements in contract documents.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise as well as audit works for the Project in the reporting month.

# 2 AIR QUALITY MONITORING

# **Monitoring Requirements**

- 2.1 Monitoring of 1-hour and 24-hour Total Suspended Particulates (TSP) was conducted to monitor the air quality during construction phase. Appendix A shows the established Action/Limit Levels for the environmental monitoring works.
- 2.2 In accordance with Section 2.30 of the EM&A Manual, a baseline checking of ambient TSP levels shall be carried out every six months at each monitoring station, when no dusty works activities are in operation. The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

# **Monitoring Locations**

2.3 Impact air quality monitoring was conducted at the 3 monitoring stations, as shown in **Figure 1.2**. **Table 2.1** describes the locations of the air quality monitoring stations.

Table 2.1Locations for Air Quality Monitoring

Monitoring Stations	Description	Location of Measurement
CAM1	Government Staff Quarters	Rooftop
CAM2	Hung Hing Printing Centre	On the site boundary just next to the Hung Hing Printing Centre
CAM3	Talcon Industrial Ltd.	On the site boundary just next to Talcon Industrial Ltd.

# **Monitoring Equipment**

2.4 **Table 2.2** summarizes the equipment used for the air quality monitoring.

Table 2.2Air Quality Monitoring Equipment

Equipment	Model and Make	Qty.
	Graseby GMW 2310 HVS, Model GS-2310105-1, Serial no. 10239 and 0810	2
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no. 1704	1
Calibrator	TISCH.; Model no. TE-5025A Serial no. 0993	1

# **Monitoring Parameters, Frequency and Duration**

2.5 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period.

<b>Monitoring Stations</b>	Parameter	Duration	Period	Frequency
CAM1, CAM2 and	1-hour TSP	1 hour	During daytime period	3 times / 6-day
CAM3	24-hour TSP	24 hours	24 hours	Once / 6-day

Table 2.3Impact Dust Monitoring Parameters, Frequency and Duration

# Monitoring Methodology and QA/QC Procedure

# Instrumentation

2.6 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

# **HVS Installation**

- 2.7 The following guidelines were adopted during the installation of HVS:
  - Sufficient support was provided to secure the samplers against gusty wind.
  - No two samplers were placed less than 2 meters apart.
  - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
  - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
  - No furnaces or incineration flues were nearby.
  - Airflow around the sampler was unrestricted.
  - The samplers were more than 20 meters from the drip line.
  - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

# **Filters Preparation**

- 2.8 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3  $\mu$ m diameter. A HOKLAS accredited laboratory, Wellab Ltd., was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 2.9 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
- 2.10 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

# **Operating/Analytical Procedures**

- 2.11 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
  - Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
  - The power supply was checked to ensure the sampler worked properly.
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
  - The shelter lid was closed and secured with the aluminum strip.
  - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
  - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet after sampling.
  - After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
  - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than  $\pm 3^{\circ}$ C; the relative humidity (RH) should be < 50% and not vary by more than  $\pm 5\%$ . A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

# Maintenance/Calibration

- 2.12 The following maintenance/calibration was required for the HVS:
  - The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
  - Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix B**.
  - The HVS calibration orifice will be calibrated annually.

# **Results and Observations**

2.13 In the reporting month, 1-hr TSP monitoring was carried out as schedule at each designated monitoring station on 15 occasions. 24-hr TSP monitoring was carried out as scheduled at each designated monitoring station on 5 occasions. The monitoring schedule was updated and is shown in **Appendix C**. The weather during the monitoring sessions was mainly sunny and fine.

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- 2.14 All measured 1-hr and 24-hr TSP levels were below the Action/Limit Levels. No exceedance was recorded in the reporting month.
- 2.15 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices D** and **E**, respectively.

	Toporting month					
Paramete r	Minimum µg/m <sup>3</sup>	Maximum µg/m <sup>3</sup>	Average µg/m³	Action Level, µg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>	
1-hr TSP (CAM1)	73	240	146	315	500	
24-hr TSP (CAM1)	56	93	76	171	260	
1-hr TSP (CAM2)	85	230	150	336	500	
24-hr TSP (CAM2)	57	76	69	177	260	
1-hr TSP (CAM3)	88	229	154	344	500	
24-hr TSP (CAM3)	59	108	78	192	260	

# Table 2.4Summary Table of Air Quality Monitoring Results during the<br/>reporting month

2.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Station	Major Pollution Source
CAM1 – Government Staff Quarters	Road Traffic Dust
CAM2 – Hung Hing Printing Centre	Road Traffic Dust and Excavation
CAM3 – Talcon Industrial Ltd.	Road Traffic Dust and Excavation

# **3** NOISE MONITORING

# **Monitoring Requirements**

- 3.1 Noise monitoring was conducted in accordance with the EM&A Manual. Appendix A shows the established Action and Limit Levels for the environmental monitoring works.
- 3.2 The number and location of monitoring stations and parameters shall be reviewed by ET Leader every three months according to section 8.8 of EM&A Manual.

# **Monitoring Locations**

3.3 Noise monitoring was conducted at one designated monitoring station as presented in **Table 3.1**. Figure 1.2 shows the locations of the monitoring station.

Table 3.1Location of Noise Monitoring Station

Monitoring Station	Description	Location of Measurement
NM1	Government Staff Quarters	The corridor at the first floor.

# **Monitoring Equipment**

3.4 **Table 3.2** summarizes the noise monitoring equipment model being used.

Table 3.2Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVANTEK - SVAN 955 , 957	2
Calibrator	SVANTEK – SV30A	1
Wind Speed Anemometer	Vane Anemometer, Model AZ8904 (Serial no. 974835)	1

# **Monitoring Parameters, Frequency and Duration**

3.5 **Table 3.3** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.3Noise Monitoring Parameters, Frequency and Duration

Station	Parameter	Period	Frequency
NM1	$L_{eq}(30 \text{ min.})$ (L <sub>10</sub> and L <sub>90</sub> were also recorded as supplementary information)	0700-1900 hrs. on normal weekdays	Once a week

3.6 If construction works are extended to include works during the hours of 1900 - 0700, additional weekly impact monitoring would be carried out during evening and night-time works. Applicable permits under NCO have been obtained by the Contractor. The details of the Construction Noise Permit can be referred to **Table 5.1**.

# Monitoring Methodology and QA/QC Procedures

# **Field Monitoring**

- 3.7 The monitoring procedures are as follows:
  - The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
  - The battery condition was checked to ensure good functioning of the meter.
  - Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
    - frequency weighting : A
    - time weighting : Fast
    - measurement time : 30 minutes
  - Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
  - The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
  - Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
  - At the end of the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

# Maintenance and Calibration

- 3.8 Maintenance and Calibration procedures were as follows:
  - The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
  - The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix B**.

## **Results and Observations**

- 3.9 In the reporting month, noise monitoring during non-restricted hours was conducted as scheduled at the designated location on 5 occasions. As advised by the Contractor, no construction activities will be undertaken during restricted hours as such noise monitoring during restricted hours was omitted. The noise monitoring schedule is provided in **Appendix C**.
- 3.10 The details of the monitoring results and graphical presentations are shown in **Appendix F**. The weather during the monitoring sessions was mainly sunny and fine.
- 3.11 No Action/Limit Level exceedance for construction noise monitoring was recorded in the reporting month.

 Table 3.4
 Summary Table of Noise Monitoring Results during the Reporting Month

Parameter	Minimum Leq(30min) dB(A)	Maximum Leq(30min) dB(A)	Average Leq(30min) dB (A)	Action Level	Limit Level
				** 71	
NM1	64.7	68.2	67.1	When one documented complaint is received	75dB(A)

3.12 According to our field observations, the major noise source identified at the designated air quality monitoring stations are as follows:

Station	Major Noise Source
NM1 – Government Staff Quarters	Road Traffic
	Construction of Main Site

# 4 ENVIRONMENTAL AUDIT

#### Site Audits

- 4.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 4.2 Site audits were conducted on 2<sup>th</sup>, 11<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup> and 28<sup>th</sup> April 2014 by ET. A joint site audit with the representative with ER, IEC, the Contractor and the ET was carried out on 11<sup>th</sup> April 2014. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 4.2**.

#### **Review of Environmental Monitoring Procedures**

4.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

# Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

# Noise Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

# **Status of Environmental Licensing and Permitting**

4.4 All permits/licenses obtained for the Project are summarized in **Table 4.1**.

Permit / License No.	Valid Period		- Details	Status	
r er mit / Encembe 1 (or	From	То	Downs	Status	
Environmental Permit (EP)					
EP-265/2007	22/3/2007	N/A	<ul> <li>Expansion and upgrading of existing <u>Tai Po Sewage Treatment Works from</u> <u>100,000 m³/day to 130,000 m³/day</u>:</li> <li>(a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers);</li> <li>(b) reconstruction of 4 existing final clarified;</li> <li>(c) provision of ultraviolet disinfection facilities;</li> <li>(d) additional sludge treatment facilities; and</li> <li>(e) ancillary works to existing treatment facilities.</li> </ul>	Valid	
<b>Registration of Chemi</b>	ical Waste Pr	oducer			
5517-727-T3270-01		N/A	Major chemical waste types: Spent lubricating oil, spend hydraulic oil, spend cooling oil, surplus paint, spent alkaline electrolyte, spent battery and battery parts containing heavy metals, scrap battery cell containing heavy metals, Nickel and its compounds, spent flammable liquid, spent copper etchant (Ferric chloride), Sodium hypochlorite, polymer, electric and torch bulbs and tubes, alkaline cleaner (spent alkaline solution)	Valid	

Table 4.1Summary of Environmental Licensing and Permit Status

# **Status of Waste Management**

4.5 The Construction and Demolition (C&D) materials generated in the reporting month were mainly metals and general refuse. The quantities of waste generated in this reporting month are summarized in **Appendix K**.

# **Implementation Status of Environmental Mitigation Measures**

- 4.6 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix J**.
- 4.7 During site inspections in the reporting month, no non-conformance was identified. In addition, there was no major environmental deficiency being identified on the site audit session on 2<sup>th</sup>, 11<sup>th</sup>, 17<sup>th</sup> and 28<sup>th</sup> April 2014. The observations and recommendations made during the audit sessions are summarized in **Table 4.2**.

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Waste/ Chemical Management	24 April 2014	Reminder: General reuse should be sorted for recycling. (JEC site office)	The observation was observed improved/rectified by the Contractor during the audit session on 28 April 2014.

Table 4.2Observations and Recommendations of Site A	udit
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#### **Summary of Exceedances**

4.8 No exceedance of monitoring results was recorded in the reporting month. Summary of exceedance is provided in **Appendix G**.

# **Implementation Status of Event Action Plans**

4.9 The Event Action Plans for air quality and construction noise monitoring are presented in **Appendix I**. No exceedance was recorded and thus no action was required to be implemented.

# **Summary of Complaint and Prosecution**

- 4.10 No environmental related complaint, prosecution or notification of summons was received in the reporting month.
- 4.11 There was no environmental complaint, prosecution or notification of summons received since the Project commencement. The Complaint Log is attached in **Appendix** L.

# 5 FUTURE KEY ISSUES

- 5.1 Key issues to be considered in the coming month include:
  - C&D wastes generated from installation of E&M equipment;
  - Apply good site practice during rainy season; and
  - Accumulation of C&D waste and general waste on site.

# Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix C**.

# **Construction Program for the Next Month**

- 5.3 A tentative construction programme is provided in **Appendix M**. The major construction activities in the coming month will include:
  - E&M installation of FC No.7B to 10B;
  - Testing of RAS Pump No.4 at Stage IV RAS Pumping Station;
  - Dismantle work for existing RAS Pump No.1&3 at Stage IV RAS Pumping Station;
  - E&M installation of Aeration Tank No. 5, 6 & 7;
  - BS & FS installation at Pipe Gallery for new Aeration Tanks No.5 to 7;
  - E&M installation at Pipe Gallery for new PST No.5;
  - BS & FS installation at Pipe Gallery for new PST No.5;
  - Civil Work for New Air Blower No.1;
  - T&C of new Centrifuge No.4 for Sludge Thickening System;
  - Installation of mechanical screen and shaftless conveyor at Stage IV Screening House;
  - Installation of Screw Pump No.4 at Stage IV Inlet Works; and
  - E&M installation for new Sludge Digestion Tank No.3.

# 6 CONCLUSIONS AND RECOMMENDATIONS

# Conclusions

- 6.1 Environmental monitoring and audit works were conducted in the reporting month. Site inspections were conducted on a weekly basis. The results were reviewed and checked.
- 6.2 No exceedance of monitoring results was recorded in the reporting month.
- 6.3 There was no environmental complaint, prosecution or notification of summons received.

# Recommendations

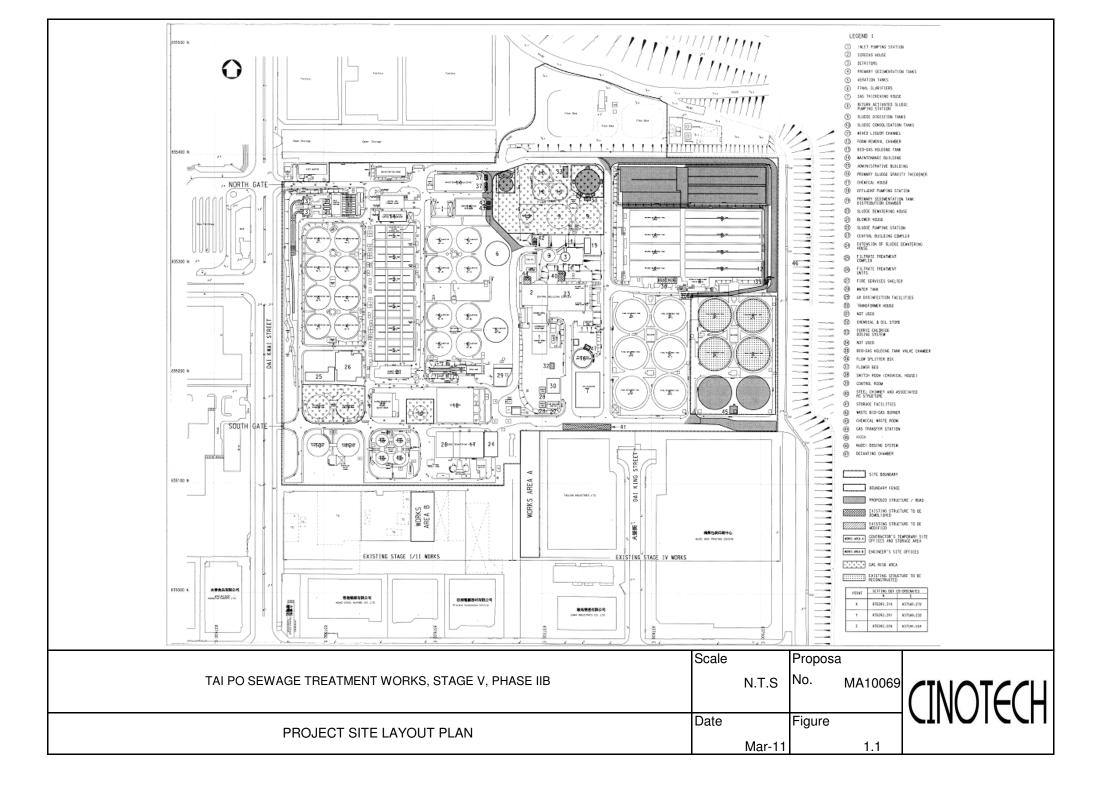
6.4 According to the environmental audit performed in the reporting month, the following recommendations were made:

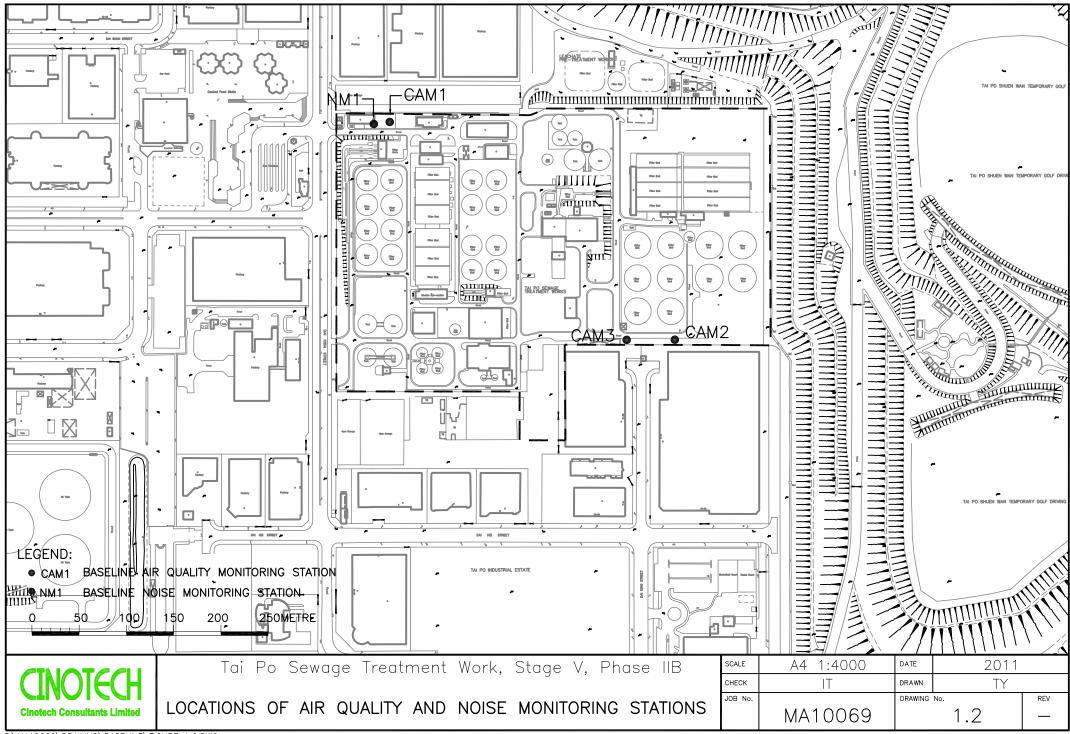
# Waste / Chemical Management

- Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.
- Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.

19

FIGURES





F:\MA10069\DRAWING\BASELINE\FIGURE 1.2.DWG

APPENDIX A ACTION AND LIMIT LEVELS

# **APPENDIX A – Action and Limit Levels**

## **1-Hour TSP**

Location Action Level, μg/m <sup>3</sup>		Limit Level, µg/m <sup>3</sup>
CAM1	315	
CAM2	336	500
CAM3	344	

## 24-Hour TSP

Location Action Level, µg/m <sup>3</sup>		Limit Level, µg/m <sup>3</sup>
CAM1	171	
CAM2	177	260
CAM3	192	

# **Construction Noise**

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays		75 dB(A)
0700-2300 hrs on holidays; and 1900- 2300 hrs on all other days	When one documented complaint is received	70* dB(A)
2300-0700 hrs of next day		55* dB(A)

Notes:

\* The Area Sensitivity Rating for Station NM1 is taken as C, due to the nearby industrial area, according to Table 1 of EPD's Technical Memorandum on Noise from Construction Work other than Percussive Piling.

APPENDIX B COPIES OF CALIBRATION CERTIFCATES



File No. MA0010/37/0055

Station	CAM1 - Government Staff Quarter	Operator:	WK
Date:	18-Feb-14	Next Due Date:	17-Apr-14
Equipment No.:	A-01-37	Serial No.	1704
Equipment No.:	A-01-37	Serial No.	1704

		Ambient Condition		
Temperature, Ta (K)	291	Pressure, Pa (mmHg)	765.1	

Orifice Transfer Standard Information						
Equipment No.:	Equipment No.: A-04-04 Slope, mc 0.0588 Intercept, bc -0.0461					
Last Calibration Date:	30-Sep-13	mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$				
Next Calibration Date:	29-Sep-14	Qstd = { $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc				

		Calibration o	f TSP Sampler			
Calibration		Orfice		HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	∆W (HVS), in. of oil	$[\Delta W \ge (Pa/760) \ge (298/Ta)]^{1/2}$ Y-axis	
1	12.1	3.53	60.85	7.9	2.85	
2	9.8	3.18	54.84	6.5	2.59	
3	7.6	2.80	48.39	5.0	2.27	
4	5.4	2.36	40.91	3.3	1.84	
5	3.2	1.82	31.67	1.9	1.40	
	Coefficient < 0.99	0.9993 ), check and recalibrate.	<u> </u>	1		
		Set Point	Calculation			
From the TSP F	ield Calibration C	urve, take Qstd = 43 CFM				
From the Regres	sion Equation, the	"Y" value according to				
		$mw x Qstd + bw = [\Delta W$	x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>		
Therefore, S	et Point; W = ( m	w x Qstd + bw $)^{2}$ x ( 760 / Pa ) x (	Ta / 298 ) =	3.77		
	territe to					

Remarks:					
Conducted by: Checked by:	WK Tang	Signature: Signature:	Киа: /	Date: Date:	18/2/14 18 February 2014

# CINOTECH

File No. MA0010/37/0056

Station	CAM1 - Govern	ment Staff Ouart	er	Operator:	WK	The Ive.	MIR6010/57/0050
Date:	17-Apr-14			-	16-Jun-		
Equipment No.:					1704		
Byaphoneron							
	i de la companya de l Companya de la companya de la company		Ambient (	Condition	in the teached. And a triag	·. · · ·	
Temperature, Ta (K) 296.2			Pressure, Pa	ı (mmHg)		762.3	
-							•
		<u> </u>	ifice Transfer Sta	andard Inform	ation	988 B 148	
Equipm	ent No.:	A-04-04	Slope, mc	0.0588	Intercept	,	-0.0461
Last Calibr	ation Date:	30-Sep-13			oc ≕ [ΔH x (Pa/76		
Next Calibr	ation Date:	29-Sep-14		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] <sup>1/2</sup> -bc}	/ mc
			11111111111 = 1 3				
			Calibration of	<b>TSP Sampler</b>			
Calibration		Or	fice	······································		HVS	
Point	$\Delta H$ (orifice),	[AH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM)	ΔW	[∆W x (Pa/7	760) x (298/Ta)] <sup>1/2</sup> Y-
	in. of water			X - axis	(HVS), in. of oil		axis
1	11.9		3.47	59.72	7.9		2.82
2	9.7		3.13	53.99	6.4		2.54
3	7.8	4	2.81	48.50	5.1		2.27
4	5.3	1	2.31	40.11	3.2		1.80
5	3.2		1.80	31.35	2.0		1.42
	ression of Y on X	- -					
Slope, mw =		-		Intercept, bw	-0.176	61	
Correlation of	_		991	-			
*If Correlation	Coefficient < 0.99	0, check and reca	alibrate.				
		te de la seconda de la composición de las				the second second second	
			Set Point C	Calculation	i i i i i i i i i i i i i i i i i i i		
1	ield Calibration C	-					
From the Regre	ssion Equation, th	e "Y" value acco	rding to				
			$Qstd + bw = [\Delta W]$	x (Da/760) x (2	08/Ta)11/2		
		III W A V	2stu + 0w - [Δw	X (1 8/700) X (2	.90/1a)j		
Therefore, S	et Point; W = ( m	w x Qstd + bw)	<sup>2</sup> x ( 760 / Pa ) x ( <sup>2</sup>	Ta / 298 ) =	3.90		
							•
<u>k</u>							
Remarks:	<u></u>						

			(		
	1.7.			<b>.</b> .	6-645-44
Conducted by:	wk, Tang	Signature:	/Wai	Date:	11414
Checked by:	the U	Signature:	$\sim$	Date:	17 April 2014
· ·	V	U	Ó		<u> </u>



File No. <u>MA0010/A40/0055</u>

Date:	tation CAM2 - Hung Hing Printing Centr							
		-	Next Due Date:					
Equipment No.:	A-01-40		_	Serial No.	10239			
			Ambient	Condition	······································			
Temperatu	ıre, Ta (K)	291.2	Pressure, Pa	a (mmHg)		764.9		
			10 m 0 0					
E:			rifice Transfer St	0.0588	1	t, bc -0.0461		
Equipm		A-04-04	Slope, mc		$\frac{1}{2} = \Delta H \times (Pa/76)$			
Last Calibr		30-Sep-13	-			/Ta)] <sup>1/2</sup> -bc} / mc		
Next Calibr	ration Date:	29-Sep-14		Qstu - {[ΔΠ	x (ra/700) x (290	/1a)j -bc}/mc		
			Calibration of	TSP Sampler				
Calibration		Or	fice	·····		HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	60) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$\frac{\left[\Delta W \ge (Pa/760) \ge (298/Ta)\right]^{1/2}}{axis}$		
1	11.5		3.44	59.31	7.5	2.78		
2	9.8		3.18	54.82	6.4	2.57		
3	7.5		2.78	48.05	5.1	2.29		
4	5.1		2.29	39.76	3.2	1.82		
5	3.2		1,82	31.66	2.0	1.44		
	ression of Y on X	(						
Slope , mw = Correlation o	0.0491 coefficient* ==	0.9	9987	Intercept, bw -	-0.114	12		
Slope , mw = Correlation o	0.0491	0.9	9987 alibrate.	_	-0.114	12		
Slope , mw = Correlation c *If Correlation ( From the TSP F	0.0491 coefficient* == Coefficient < 0.99 ∵ield Calibration C	0, check and rec	9987 alibrate. Set Point ( = 43 CFM	Intercept, bw - Calculation	-0.114	<u>12</u>		
Slope , mw = Correlation c *If Correlation ( From the TSP F	0.0491 coefficient* == Coefficient < 0.99	0, check and rec	9987 alibrate. Set Point ( = 43 CFM	_	-0.114	<u>12</u>		
Slope , mw = Correlation c *If Correlation ( From the TSP F	0.0491 coefficient* == Coefficient < 0.99 ∵ield Calibration C	0, check and rec 0, check and rec Curve, take Qstd e "Y" value acco	9987 alibrate. Set Point ( = 43 CFM	- Calculation		<u>12</u>		
Slope , mw = Correlation of *If Correlation ( From the TSP F From the Regres	0.0491	0.9 0, check and rec Curve, take Qstd e "Y" value acco mw x	9987 alibrate. Set Point ( = 43 CFM ording to	- Calculation x (Pa/760) x (2				
Slope , mw = Correlation of *If Correlation ( From the TSP F From the Regres	0.0491	0.9 0, check and rec Curve, take Qstd e "Y" value acco mw x	9987 alibrate. = 43 CFM ording to Qstd + bw = [ΔW	- Calculation x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>			
Slope , mw = Correlation of *If Correlation ( From the TSP F From the Regres	0.0491	0.9 0, check and rec Curve, take Qstd e "Y" value acco mw x	9987 alibrate. = 43 CFM ording to Qstd + bw = [ΔW	- Calculation x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>			
Slope , mw = Correlation of *If Correlation ( From the TSP F From the Regres Therefore, S	0.0491	0.9 0, check and rec Curve, take Qstd e "Y" value acco mw x	9987 alibrate. = 43 CFM ording to Qstd + bw = [ΔW	- Calculation x (Pa/760) x (2	298/Ta)] <sup>1/2</sup>			
Slope , mw = Correlation of *If Correlation ( From the TSP F From the Regres Therefore, S Remarks:	0.0491	0.9 0, check and rec Curve, take Qstd e "Y" value acco mw x	9987 alibrate. = 43 CFM ording to Qstd + bw = [ΔW	- Calculation x (Pa/760) x (2 Ta / 298 ) =	298/Ta)] <sup>1/2</sup>			

# CINOTECH

File No. MA0010/A40/0056

Station	CAM2 - Hung H	Iing Printing Cen	tre	Operator:	WK	
Date:	17-Apr-14			– Next Due Date:	16-Jun-	-14
Equipment No.:	A-01-40			Serial No.	10239	***************************************
			Ambient	Condition	<b>.</b>	
Temperature, Ta (K) 296.3			Pressure, Pa	a (mmHg)		762.1
						*****
Orif			ifice Transfer St	andard Inform	nation	
Equipm	ent No.:	A-04-04	Slope, mc	0.0588	Intercept	
Last Calibr	ation Date:	30-Sep-13			bc = [ΔH x (Pa/76	
Next Calibi	ration Date:	29-Sep-14		Qstd = ${[\Delta H]}$	x (Pa/760) x (298	/Ta)] <sup>1/2</sup> -bc} / mc
			Calibration o	f TSP Sampler	e de la composición de la composición de la composición de	
Calibration		Or	fice			HVS
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	∆W (HVS), in. of oil	$[\Delta W \ge (Pa/760) \ge (298/Ta)]^{1/2}$ Y-axis
1	11.8	3	.45	59.45	7.7	2.79
2	9.7	3	.13	53.98	6.3	2.52
3	7.6	2		47.87	5.0	2.25
4	5.3	2	2.31	40.10	3.2	1.80
5	3.4	1	.85	32.28	2.1	1.46
By Linear Reg Slope , mw =	ression of Y on X 0.0497	<u> </u>		Intercept, bw	-0.16	12
Correlation of	coefficient* =	0.9	990	_		
*If Correlation	Coefficient < 0.99	0, check and reca	llibrate.			
			Set Point (	Calculation		
From the TSP F	ield Calibration C	Curve, take Qstd =	= 43 CFM			
	ssion Equation, th					
	-				10	
		mw x (	$Q = [\Delta W]$	x (Pa/760) x (2	298/Ta)] <sup>52</sup>	
Therefore S	Therefore, Set Point; $W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = 3.87$					
		in a Quiu - on y	<i>x</i> (70071 <i>u</i> ) <i>x</i> (	14, 2,0 )		
Remarks:						
	-			\ \	-	

Conducted by: <u>WK.Jang</u> Signature: <u>Kwbn</u> Checked by: <u>(fv)</u> Signature: <u>J714114</u> Date: <u>1714114</u> Date: <u>1714114</u>



		5-1 OII	II CALIDINA	IION DAI			
						File No.	MA0010/35/0055
Station	CAM3 - Talcon	Industrial Ltd		-	WK		
Date:	18-Feb-14		. 1		17-Apr	-14	
Equipment No.:	A-01-35			Serial No.	0810		
			4 h 3 4			······································	
<b>T</b>	T (V)	200.0	Ambient		1	5(5.1	
Temperatu	Ire, 1a (K)	290.8	Pressure, Pa	t (mmHg)		765.1	
en e		Oı	ifice Transfer St	andard Inform	nation		
Equipm	ent No.:	A-04-04	Slope, mc	0.0588	Intercep	t, bc	-0.0461
Last Calibr	ation Date:	30-Sep-13		mc x Qstd + l	$bc = [\Delta H \times (Pa/76)]$	60) x (298/Ta)	] <sup>1/2</sup>
Next Calibr	ation Date:	29-Sep-14		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] <sup>1/2</sup> -be} /	me
		*					
			Calibration of	<b>TSP Sampler</b>	n de la construction de la construction de la const		
Calibration		Or	fice	1		HVS	
Point	∆H (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/76	50) x (298/Ta)] <sup>1/2</sup> Y- axis
1	11.4	3	3.43	59.11	7.5		2.78
2	8.5	2	2.96	51.15	5.7		2.42
3	7.5	2	2.78	48.09	4.9		2.25
4	5.1	2	2.29	39.79	3.1		1.79
5	3.2	1	.82	31.68	2.0		1.44
By Linear Regi	ression of Y on X						
Slope , mw =		_		Intercept, bw	-0.167	/6	
Correlation c	:oefficient* ≕	0.9	988	-			
*If Correlation (	Coefficient < 0.99	0, check and reca	librate.				
			Set Point (	'alculation			
From the TSP F	ield Calibration C	urve, take Ostd =		, inclument of	· · · · · · · · · · · · · · · · · · ·		
	sion Equation, th						
	Solon Equation, u		ung to				
		mw x (	$Q = [\Delta W]$	x (Pa/760) x (2	98/Ta)] <sup>1/2</sup>		
Therefore S	et Point <sup>.</sup> W = ( m	w x Ostd + bw $)^2$	x (760 / Pa) x (	$\Gamma_{2}(298) =$	3.83		
110101010, 5	ovi onny (* (*)	in in Quide ( on )		14,270)			
<b>_</b>							
Remarks:	<u> </u>						
	·			,			<u>.</u>

18/2/14 18 February 2014 Kwa: Conducted by: <u>Wk. 7 an 9</u> Signature: Checked by: <u>J</u> Signature: Date: Date:

# CINOTECH

File No. MA0010/35/0056

						File No.	MA0010/35/00:	00
Station	CAM3 - Talcon	Industrial Ltd		-	WK			
Date:	17-Apr-14		. 1	Next Due Date:	16-Jun	-14		
Equipment No.:	A-01-35			Serial No.	0810	,		
	· · · · · ·		Ambient	Condition				
Temperature, Ta (K) 296.5			Pressure, Pa	ı (mmHg)		762		
			-					
	· · · · · · ·	Or	ifice Transfer Sta	andard Inform	ation	·	• •.	
Equipm	ent No.:	A-04-04	Slope, mc	0.0588	Intercep	,	-0.0461	
Last Calibr	ation Date:	30-Sep-13			oe = [ΔH x (Pa/76			
Next Calibr	ration Date:	29-Sep-14		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] <sup>1/2</sup> -bc} /	me	
a dina na pilipakan in Minakira			Calibration of	<b>TSP Sampler</b>				
Calibration		Or	lice			HVS		
Point	$\Delta H$ (orifice),	[AH x (Pa/76)	0) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM)	ΔW	[ΔW x (Pa/7	60) x (298/Ta)] <sup>1/2</sup>	Y-
	in. of water		(2) x (2) (7 (2)]	X - axis	(HVS), in. of oil		axis	
1	11.6	3	.42	58.93	7.3		2.71	
2	9.4	3	.08	53.13	5.8		2.42	
3	7.6	2	77	47.85	5.0		2.24	
4	5.1	2		39.34	3.2		1.80	
5	3.3	1	.82	31.80	2.1		1.45	
By Linear Regi	ression of Y on X	- •						
Slope , mw =	0.0463	_		Intercept, bw	-0.012	3		
Correlation c	coefficient* =	0.9	986					
*If Correlation (	 Coefficient < 0.99	0, check and reca	llibrate.	-				
			Set Point C	Calculation				
From the TSP F	ield Calibration C	urve, take Qstd =	43 CFM					
From the Regres	ssion Equation, th	e "Y" value accor	ding to					
-	- ·		-					
		mw x Q	$2std + bw = [\Delta W]$	x (Pa/760) x (2	98/Ta)] <sup>1/2</sup>			
		0.11.1.2						
Therefore, S	et Point; w = ( m	w x Qstd + bw )"	x (760 / Pa) x (7	Ta / 298) =	3,88			
Dowodree								
Remarks:					······			

Conducted by: <u>MK. Tawa</u> Signature: <u>Mwm</u> Date: <u>1714114</u> Checked by: <u>(A)</u> Signature: <u>Date: 17414</u>			
		hweni /	



WELLAB LIMITED Rms 816, 1516 & 1701, Technology Park, 18 On Lai Street, Shatin, N.T, Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

## **TEST REPORT**

Description	Calibration Orifice	Manufacturer	TISCH
Serial No.	0993	Temperature,Ta (K)	300.8
Model No.	TE-5025A	Pressure, Pa (mmHg)	759.3
Date	30 September 2013	Equipment No.:	A-04-04

Plate	Diff.Vol (m <sup>3</sup> )	Diff.Time (min)	Diff.Hg (mm)	Diff.H <sub>2</sub> O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

#### DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)				
0.9853	0.6986	1.4069				
0.9808	0.9828	1.9897				
0.9786	1.0910	2.2245				
0.9775	1.1446	2.3331				
0.9720	1.3768	2.8138				
Y axis= SQR	Y axis= SQRT[H <sub>2</sub> O(Pa/760)(298/Ta)]					

Qstd Slope (m) = 2.07768Intercept (b) = -0.04613Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803
Y avis= SOR	TIH. O/Ta/Pa	<u>i</u>

Y axis= SQRT[H<sub>2</sub>O(Ta/Pa)] On Signa (m) = 1.20101

ua Siope (m)	= <u>1.30101</u>
Intercept(b)	= -0.02919
Coefficient (r)	= 0.99997

#### 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=l/m{[SQRT(H<sub>2</sub>O(Pa/760)(298/Ta))]-b} Qa=l/m{[SQRT H<sub>2</sub>O(Ta/Pa)]-b}

> PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

Patrikle

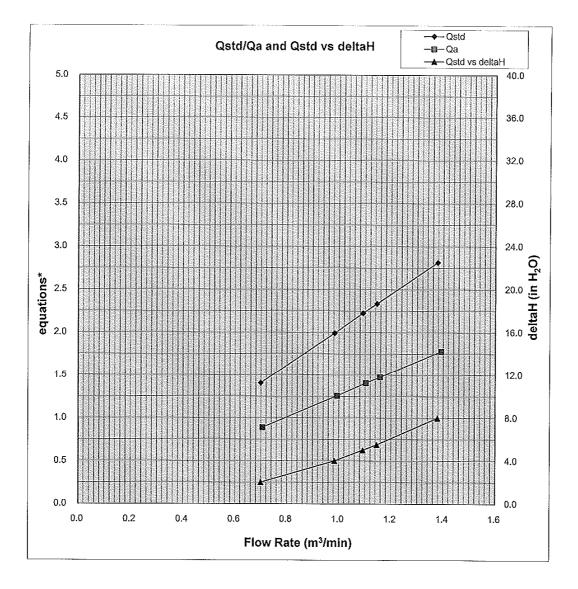
PATRICK TSE Laboratory Manager

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# **TEST REPORT**



Y-axis equations: Qstd series: SQRT[△H(Pa/Pstd)(Tstd/Ta)]

Qa series: SQRT[ $\Delta$ H(Ta/Pa)]

This report may not be reproduced except with prior written approval from WELLAB LIMITED and the results relate only to the items calibrat or tested,



### **TEST REPORT**

### APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	CA/13/130430
Date of Issue:	2013-05-01
Date Received:	2013-04-30
Date Tested:	2013-04-30
Date Completed:	2013-05-01
Next Due Date:	2014-04-30
Page:	1 of 1

ATTN:

Mr. W.K Tang

### **Certificate of Calibration**

### Item for calibration:

Description	: RS232 Integral Vane Digital Anemometer
Manufacturer	: AZ Instrument
Model No.	: AZ8904
Serial No.	: 974835
Equipment No.	: A-03-03

#### **Test conditions:**

Room Temperature: 21 dRelative Humidity: 66%Pressure: 101.

: 21 degree Celsius : 66% : 101.1 kPa

### Methodology:

The anemometer has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

#### **Results:**

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



## **TEST REPORT**

### APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Mr. W.K. Tang

Test Report No.:	C/N/130919/2
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20
Page:	1 of 1

ATTN:

### **Certificate of Calibration**

### Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

### **Test conditions:**

Room Temperatre Relative Humidity : 22 degree Celsius : 57%

### **Test Specifications:**

Performance checking at 94 and 114 dB

### Methodology:

In-house method, according to manufacturer instruction manual

### **Results:**

Reference Set Point, dB	Instrument Readings, dB		
94	94.0		
114	114.0		

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



### **TEST REPORT**

### APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	C/N/140104
Date of Issue:	2014-01-05
Date Received:	2014-01-04
Date Tested:	2014-01-04
Date Completed:	2014-01-05
Next Due Date:	2015-01-04
Page:	1 of 1

ATTN: Mr. W. K. Tang

# Certificate of Calibration

#### Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05
is:	

### **Test conditions:**

Room Temperatre Relative Humidity : 19 degree Celsius : 52%

#### **Test Specifications:**

Performance checking at 94 and 114 dB

### Methodology:

In-house method, according to manufacturer instruction manual

#### **Results:**

Reference Set Point, dB	Instrument Readings, dB		
94	94.0		
114	114.0		

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



#### **TEST REPORT Cinotech Consultants Limited** Test Report No .: C/N/131004/1 **APPLICANT:** Date of Issue: 2013-10-05 Room 1710, Technology Park, Date Received: 2013-10-04 18 On Lai Street, Date Tested: 2013-10-04 Shatin, NT, Hong Kong Date Completed: 2013-10-05 Next Due Date: 2014-10-04 Page: 1 of 1 Mr. W.K. Tang ATTN: Item for calibration: : Acoustical Calibrator Description Manufacturer : SVANTEK Model No. : SV30A :24803 Serial No. Equipment No. :N-09-03 **Test conditions:** Room Temperatre : 21 degree Celsius **Relative Humidity** : 57% Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

#### **Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	$94.0 \pm 0.1 \text{ dB}$
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager

APPENDIX C ENVIRONMENTAL MONITORING SCHEDULE

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

### Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Impact Air Quality and Noise Monitoring Schedule for April 2014

### Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Tentative Impact Air Quality and Noise Monitoring Schedule for May 2014

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX D 1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

### Appendix D - 1-hour TSP Monitoring Results

Station CAM1 Government Staff Quarters

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
1-Apr-14	10:00	Cloudy	293.2	768.3	3.7196	3.7348	0.0152	22755.1	22756.1	1.0	1.22	1.22	1.22	73.1	208
2-Apr-14	09:00	Cloudy	291.3	762.2	3.6074	3.6127	0.0053	22756.1	22757.1	1.0	1.22	1.22	1.22	73.1	73
3-Apr-14	09:00	Cloudy	292.9	762.7	3.6476	3.6540	0.0064	22757.1	22758.1	1.0	1.22	1.22	1.22	72.9	88
8-Apr-14	09:00	Cloudy	292.3	764.1	3.6096	3.6161	0.0065	22782.1	22783.1	1.0	1.22	1.22	1.22	73.1	89
9-Apr-14	09:00	Sunny	293.1	764.5	3.6157	3.6295	0.0138	22783.1	22784.1	1.0	1.22	1.22	1.22	73.0	189
11-Apr-14	14:00	Sunny	297.3	761.9	3.6977	3.7043	0.0066	22808.1	22809.1	1.0	1.21	1.21	1.21	72.4	91
14-Apr-14	09:00	Sunny	296.9	764.1	3.6881	3.7042	0.0161	22809.1	22810.1	1.0	1.21	1.21	1.21	72.5	222
15-Apr-14	09:00	Sunny	295.3	765.6	3.5976	3.6055	0.0079	22810.1	22811.1	1.0	1.21	1.21	1.21	72.8	109
17-Apr-14	15:00	Sunny	300.6	760.5	3.6916	3.6984	0.0068	22835.1	22836.1	1.0	1.21	1.21	1.21	72.5	94
23-Apr-14	09:10	Cloudy	296.1	762.5	3.7206	3.7325	0.0119	22860.1	22861.1	1.0	1.22	1.22	1.22	73.1	163
24-Apr-14	09:00	Cloudy	294.7	761.8	3.7323	3.7499	0.0176	22860.1	22861.1	1.0	1.22	1.22	1.22	73.2	240
25-Apr-14	09:00	Cloudy	294.9	762.2	3.8655	3.8746	0.0091	22861.1	22862.1	1.0	1.22	1.22	1.22	73.2	124
28-Apr-14	09:00	Sunny	297.4	763.8	3.2737	3.2882	0.0145	22862.1	22863.1	1.0	1.22	1.22	1.22	73.0	199
29-Apr-14	13:00	Sunny	297.5	762.2	3.8653	3.8741	0.0088	22887.1	22888.1	1.0	1.22	1.21	1.22	72.9	121
30-Apr-14	09:00	Cloudy	295.0	761.9	3.2477	3.2609	0.0132	22888.1	22889.1	1.0	1.22	1.22	1.22	73.2	180
														Min	73
														Max	240

Average 146

#### Station CAM2

### Heng Hing Printing Centre

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
1-Apr-14	10:00	Cloudy	293.2	768.3	3.6724	3.6847	0.0123	29030.3	29031.3	1.0	1.22	1.22	1.22	73.2	168
2-Apr-14	09:00	Cloudy	291.3	762.2	3.6995	3.7057	0.0062	29031.3	29032.3	1.0	1.22	1.22	1.22	73.1	85
3-Apr-14	09:00	Cloudy	292.9	762.7	3.6673	3.6757	0.0084	29032.3	29033.3	1.0	1.22	1.22	1.22	73.0	115
8-Apr-14	09:00	Cloudy	292.3	764.1	3.6557	3.6620	0.0063	29057.3	29058.3	1.0	1.22	1.22	1.22	73.1	86
9-Apr-14	09:00	Sunny	293.1	764.5	3.7189	3.7297	0.0108	29058.3	29059.3	1.0	1.22	1.22	1.22	73.0	148
11-Apr-14	14:00	Sunny	297.3	761.9	3.6969	3.7060	0.0091	29083.3	29084.3	1.0	1.21	1.21	1.21	72.4	126
14-Apr-14	09:00	Sunny	296.9	764.1	3.7229	3.7396	0.0167	29084.3	29085.3	1.0	1.21	1.21	1.21	72.6	230
15-Apr-14	09:00	Sunny	295.3	765.6	3.5941	3.6013	0.0072	29085.3	29086.3	1.0	1.21	1.21	1.21	72.8	99
17-Apr-14	15:00	Sunny	300.6	760.5	3.2279	3.2362	0.0083	29110.3	29111.3	1.0	1.21	1.21	1.21	72.7	114
23-Apr-14	09:30	Cloudy	296.1	762.5	3.2610	3.2759	0.0149	29135.3	29136.3	1.0	1.22	1.22	1.22	73.3	203
24-Apr-14	09:00	Cloudy	294.7	761.8	3.8607	3.8763	0.0156	29135.3	29136.3	1.0	1.22	1.22	1.22	73.4	212
25-Apr-14	09:00	Cloudy	294.9	762.2	3.8699	3.8803	0.0104	29136.3	29137.3	1.0	1.22	1.22	1.22	73.4	142
28-Apr-14	09:00	Sunny	297.2	763.8	3.2222	3.2387	0.0165	29137.3	29138.3	1.0	1.22	1.22	1.22	73.2	225
29-Apr-14	13:00	Sunny	297.5	762.2	3.2056	3.2145	0.0089	29162.3	29163.3	1.0	1.22	1.22	1.22	73.1	122
30-Apr-14	09:00	Cloudy	295.0	761.9	3.2325	3.2451	0.0126	29163.3	29164.3	1.0	1.22	1.22	1.22	73.4	172
														Min	85
														Max	000

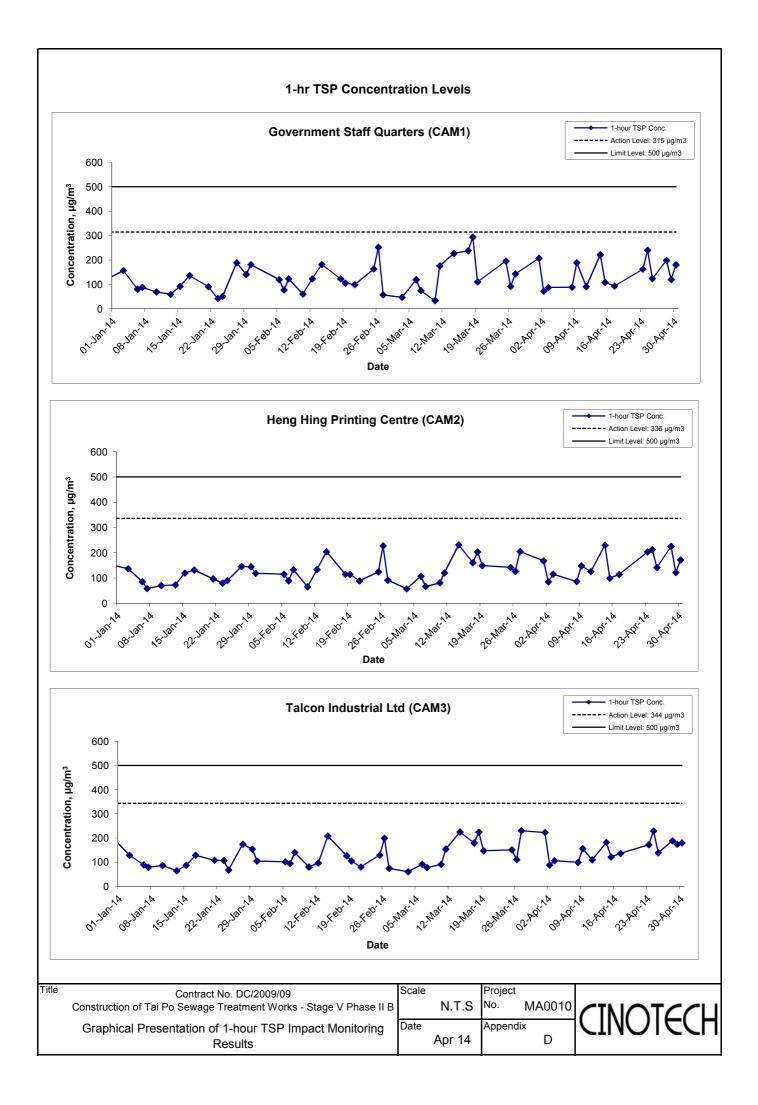
### Appendix D - 1-hour TSP Monitoring Results

#### Station CAM3

#### Talcon Industrial Ltd

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
1-Apr-14	10:00	Cloudy	293.2	768.3	3.6805	3.6967	0.0162	23164.9	23165.9	1.0	1.21	1.21	1.21	72.6	223
2-Apr-14	09:00	Cloudy	291.3	762.2	3.7060	3.7124	0.0064	23165.9	23166.9	1.0	1.21	1.21	1.21	72.6	88
3-Apr-14	09:00	Cloudy	292.9	762.7	3.6698	3.6775	0.0077	23166.9	23167.9	1.0	1.21	1.21	1.21	72.4	106
8-Apr-14	09:00	Cloudy	292.3	764.1	3.6718	3.6790	0.0072	23191.9	23192.9	1.0	1.21	1.21	1.21	72.6	99
9-Apr-14	09:00	Sunny	293.1	764.5	3.6923	3.7036	0.0113	23192.9	23193.9	1.0	1.21	1.21	1.21	72.5	156
11-Apr-14	14:00	Sunny	297.3	761.9	3.6759	3.6838	0.0079	23217.9	23218.9	1.0	1.20	1.20	1.20	71.9	110
14-Apr-14	09:00	Sunny	296.9	764.1	3.6925	3.7056	0.0131	23218.9	23219.9	1.0	1.20	1.20	1.20	72.1	182
15-Apr-14	09:00	Sunny	295.3	765.6	3.6381	3.6469	0.0088	23219.9	23220.9	1.0	1.21	1.20	1.20	72.3	122
17-Apr-14	15:00	Sunny	300.6	760.5	3.1880	3.1979	0.0099	23244.9	23245.9	1.0	1.21	1.21	1.21	72.6	136
23-Apr-14	09:30	Cloudy	296.1	762.5	3.2699	3.2825	0.0126	23269.9	23270.9	1.0	1.22	1.22	1.22	73.2	172
24-Apr-14	09:00	Cloudy	294.7	761.8	3.8471	3.8639	0.0168	23269.9	23270.9	1.0	1.22	1.22	1.22	73.4	229
25-Apr-14	09:00	Cloudy	294.9	762.2	3.8777	3.8879	0.0102	23270.9	23271.9	1.0	1.22	1.22	1.22	73.4	139
28-Apr-14	09:00	Sunny	297.4	763.8	3.2270	3.2408	0.0138	23271.9	23272.9	1.0	1.22	1.22	1.22	73.1	189
29-Apr-14	13:00	Sunny	297.5	762.2	3.2185	3.2312	0.0127	23296.9	23297.9	1.0	1.22	1.22	1.22	73.0	174
30-Apr-14	09:00	Cloudy	295.0	761.9	3.2010	3.2142	0.0132	23297.9	23298.9	1.0	1.22	1.22	1.22	73.3	180
	•		•			•			•			•		Min	88

15.5	100
Min	88
Max	229
Average	154



APPENDIX E 24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

### Appendix E - 24-hour TSP Monitoring Results

#### Station CAM1 Government Staff Quarters

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
4-Apr-14	Cloudy	294.9	765.4	3.8806	4.0187	0.1381	22758.1	22782.1	24.0	1.21	1.21	1.21	1747.7	79
10-Apr-14	Sunny	294.3	764.9	3.6293	3.7392	0.1099	22784.1	22808.1	24.0	1.21	1.21	1.21	1748.9	63
16-Apr-14	Cloudy	294.4	763.8	3.8849	4.0467	0.1618	22811.1	22835.1	24.0	1.21	1.21	1.21	1747.4	93
22-Apr-14	Cloudy	297.6	763.0	3.6816	3.8380	0.1564	22836.1	22860.1	24.0	1.22	1.22	1.22	1750.4	89
28-Apr-14	Sunny	297.8	763.3	3.1564	3.2549	0.0985	22863.1	22887.1	24.0	1.22	1.22	1.22	1750.1	56
													Min	56
													Max	93
													Average	76

#### Station CAM2 Heng Hing Printing Centre

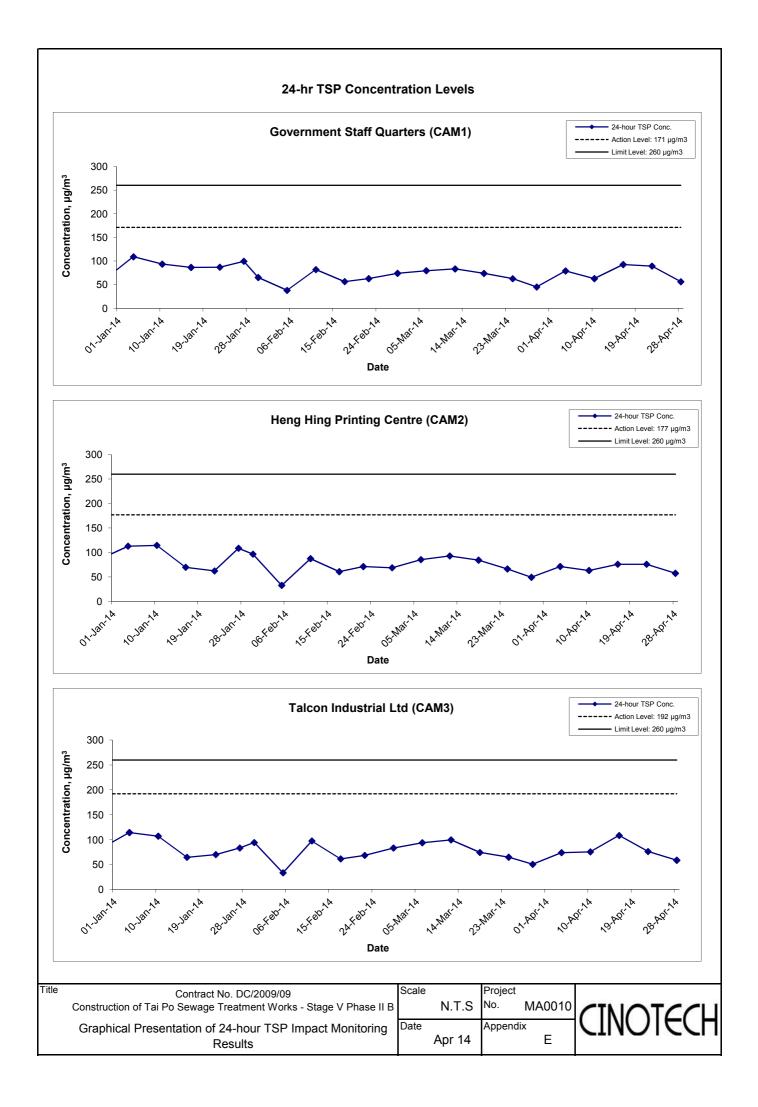
Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m³)
4-Apr-14	Cloudy	294.9	765.4	3.8839	4.0087	0.1248	29033.3	29057.3	24.0	1.21	1.21	1.21	1748.2	71
10-Apr-14	Sunny	294.3	764.9	3.7242	3.8347	0.1105	29059.3	29083.3	24.0	1.22	1.21	1.21	1749.4	63
16-Apr-14	Cloudy	294.4	763.8	3.6245	3.7572	0.1327	29086.3	29110.3	24.0	1.21	1.21	1.21	1747.9	76
22-Apr-14	Cloudy	297.6	763.0	3.2194	3.3527	0.1333	29111.3	29135.3	24.0	1.22	1.22	1.22	1755.8	76
28-Apr-14	Sunny	297.8	763.3	3.2380	3.3389	0.1009	29138.3	29162.3	24.0	1.22	1.22	1.22	1755.5	57
													Min	57
													Max	76
													Average	69

#### Station CAM3

### Talcon Industrial Ltd

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m³)
4-Apr-14	Cloudy	294.9	765.4	3.8945	4.0226	0.1281	23167.9	23191.9	24.0	1.21	1.21	1.21	1735.9	74
10-Apr-14	Sunny	294.3	764.9	3.7174	3.8483	0.1309	23193.9	23217.9	24.0	1.21	1.21	1.21	1737.0	75
16-Apr-14	Cloudy	294.4	763.8	3.8555	4.0436	0.1881	23220.9	23244.9	24.0	1.21	1.20	1.21	1735.6	108
22-Apr-14	Cloudy	297.6	763.0	3.2599	3.3935	0.1336	23245.9	23269.9	24.0	1.22	1.22	1.22	1753.6	76
28-Apr-14	Sunny	297.8	763.3	3.1743	3.2771	0.1028	23272.9	23296.9	24.0	1.22	1.22	1.22	1753.4	59
							-		-			-	Min	59
													Max	108

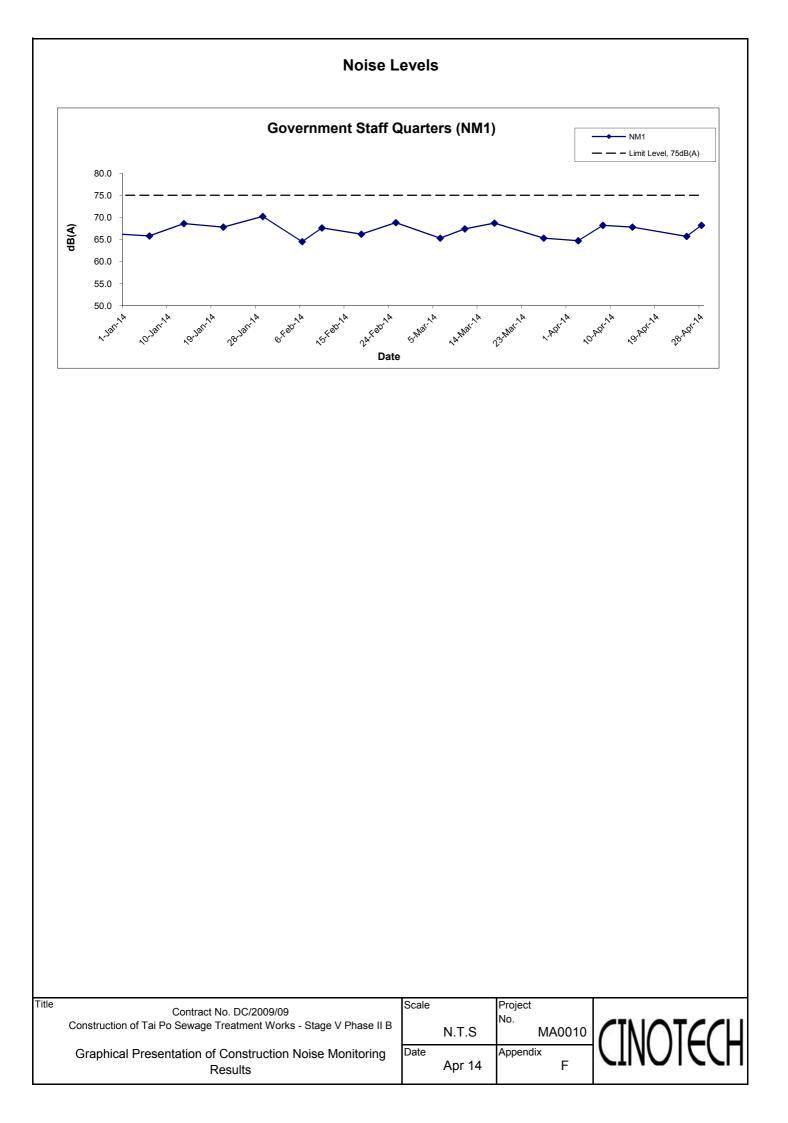
Average 78



APPENDIX F NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

## Appendix F - Noise Monitoring Results

Location NM1	- Governme	ent Staff Quart	ters		
Dete	Time	\A/e other	dE	3 (A) (30-min)	)
Date	Time	Weather	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
3-Apr-14	10:00	Cloudy	64.7	68.4	62.9
8-Apr-14	10:00	Cloudy	68.2	71.4	63.7
14-Apr-14	11:00	Sunny	67.8	69.3	63.7
25-Apr-14	11:15	Cloudy	65.7	69.3	62.4
28-Apr-14	11:00	Sunny	68.2	72.0	63.9
		Average	67.1	70.1	63.3
		Minimum	64.7	68.4	62.4
		Maximum	68.2	72.0	63.9



APPENDIX G SUMMARY OF EXCEEDANCE

### APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: April 2014

- a) Exceedance Report for 1-hr TSP (NIL)
- b) Exceedance Report for 24-hr TSP (NIL)
- c) Exceedance Report for Construction Noise (NIL)

APPENDIX H SITE AUDIT SUMMARY

#### **Inspection Information**

Checklist Reference Number	140402	
Date	2 April 2014 (Wednesday)	
Time	09:30 - 10:45	

Ref. No.	Non-Compliance	Related Item N	ío.
-	None identified	-	

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	:
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li><i>Part F - Waste / Chemical Management</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part G - Permit / Licenses</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part H – Remark	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.140325), all environmental deficiencies was observed to be improved/rectified by the Contractor.	

······································	Name	Signature	Date
Recorded by	Kevin Lam	Rivie	2 April 2014
Checked by	Dr. Priscilla Choy	INFL	2 April 2014

Inspection Information	
Checklist Reference Number	140411
Date	11 April 2014 (Friday)
Time	09:30 - 10:00

Ref. No.	Non-Compliance	<b>Related Item No.</b>
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part F - Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Remark	
	• No environmental deficiency was identified during the site inspection.	
	044	
	Others	
	• Follow-up on the previous audit session (Ref. No.140402), all	
	environmental deficiencies was observed to be improved/rectified by the	
	Contractor.	

	Name	Signature	Date
Recorded by	Kevin Lam	Every	14 April 2014
Checked by	Dr. Priscilla Choy	WA	14 April 2014

### Inspection Information

Checklist Reference Number	140417	
Date	17 April 2014 (Thursday)	
Time	09:30 - 10:00	

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	<ul> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part F Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Dec / IZ Decese - h	
	Part H – Remark	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.140411), all environmental deficiencies was observed to be improved/rectified by the	
	Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put	and the second s	22 April 2014
Checked by	Dr. Priscilla Choy	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	22 April 2014
Checked by	Di. Hisoina Choy	·	

nspection Information		
Checklist Reference Number 140424		
Date	24 April 2014 (Thursday)	
Time	09:30 - 10:30	

Ref. No.	Non-Compliance	Related Item No.
-	None identified	•

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li>Part D - Air Quality</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part E – Noise</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
140424-R01	<ul> <li><i>Part F - Waste / Chemical Management</i></li> <li>General refuse should be sorted for recycle. (JEC site office)</li> </ul>	F1iii
	<ul> <li><i>Part G - Permit / Licenses</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part H – Remark</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Others	
	• Follow-up on the previous audit session (Ref. No.140417), all environmental deficiencies was observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put	de-	24 April 2014
Checked by	Dr. Priscilla Choy	WIZ	24 April 2014

### Inspection Information

Checklist Reference Number	140428	
Date	28 April 2014 (Monday)	
Time	09:30 - 11:30	

Ref. No.	Non-Compliance	Related Item No.	
_	None identified	-	

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	<ul> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part D - Air Quality	
	<ul> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part E – Noise	
	<ul> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part F - Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	D. (C. Demute / Lienage	
	<ul> <li>Part G - Permit / Licenses</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part H – Remark	
	No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.140424), all	
	environmental deficiencies was observed to be improved/rectified by the	
	Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put	the star	29 April 2014
Checked by	Dr. Priscilla Choy	L.II	29 April 2014

APPENDIX I EVENT ACTION PLANS

### **APPENDIX I** (1) – Event Action Plan for Air Quality Monitoring (Construction Phase)

EVENT		ACTIO	N	
EVENI	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ol>	1. Notify Contractor.	<ol> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Identify source;</li> <li>Inform IC(E) and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>
1. Exceedance for one sample	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform Contractor, IEC, ER, and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals; 4. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

### **APPENDIX I (2) – Event Action Plan for Construction Noise Monitoring (Construction Phase)**

EVENT	ACTION							
EVENI	ET	IEC	ER	CONTRACTOR				
ACTION LEVEL	<ol> <li>Notify IEC and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractor;</li> <li>Discuss with the Contractor and formulate remedial measures;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol> <li>Review the analyzed results submitted by the ET;</li> <li>Review the propose d remedial measures by the Contractor and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analyzed noise problem;</li> <li>Ensure remedial measures are properly implemented.</li> </ol>	<ol> <li>Submit noise mitigation proposals to IEC;</li> <li>Implement noise mitigation proposals.</li> </ol>				
<i>LIMIT LEVEL</i>	<ol> <li>Identify source;</li> <li>Inform IEC, ER, EPD and Contractor;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>				

APPENDIX J UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

#### Type of Impact **Recommended Mitigation Measures** Status Air Quality Dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation $\sqrt{}$ shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work Noise Use of quiet PME N/A $\sqrt{}$ Good Site Practice Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; Mobile plant, if any, should be sited as far from NSRs as possible; Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities. Water Quality The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted to $\sqrt{}$ minimize the potential water quality impacts from construction site runoff and various construction activities. The recommendation to install perimeter drains to collect site runoff and to properly treat the runoff by settlement tank/treatment system shall apply to all sites including those for mainlaying works. Minimum distances of 100 m should be maintained between the discharge points of construction site runoff and the existing WSD saltwater intake at Tai Po. A discharge licence needs to be applied from EPD for discharging effluent from the construction site. N/A The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies with all the standards listed in the TM. 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. Monitoring of the discharge quality of treated effluent should be part of the Environmental Monitoring and Audit (EM&A) programme. Detailed effluent sampling programme for water quality control during construction phase should be submitted to EPD, AFCD and WSD for approval prior to commencement of the construction works. The construction programme should be properly planned to minimize soil excavation, if any, in rainy $\sqrt{}$ seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimize dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all time. The stockpiles of materials should be placed in the locations away from any stream courses 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 are protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.

#### APPENDIX J – Updated Environmental Mitigation Implementation Schedule (During Construction Phase)

Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. It is recommended to clean the construction sites on a regular basis.

 $\sqrt{}$ 

Type of Impact	Recommended Mitigation Measures	Status
	It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should not be less than 30 m from any watercourse. A licensed waste 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 TPSTW as necessary.	V
	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. Implementation of environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	V
	It is required to 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 should be observed and complied with for control of chemical wastes.	V
	Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken with the areas appropriately equipped to control these discharges.	V
	<ul> <li>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 chemical wastes. General requirements are given as follows:</li> <li>Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport</li> <li>Chemical waste containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents.</li> <li>Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>	V
	Marine water quality monitoring should be carried out under emergency condition or during maintenance of the THEES tunnel to verify the findings of the water quality modelling. It is recommended that the maintenance of the THEES tunnel, if unavoidable, should be conducted during winter season or low flow periods and to avoid the "blooming" season of algae (normally from April to June) if practicable. Details of the monitoring requirements are specified in the EM&A Manual.	N/A

Type of Impact	Recommended Mitigation Measures	Status
Type of Impact Waste Management	<ul> <li>Recommended Mitigation Measures</li> <li>Good site practices during the construction activities include: □</li> <li>Nomination of approved personnel, 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.</li> <li>Training of site personnel in proper waste management and chemical waste handling procedures.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>A Waste Management Plan shall be prepared and this WMP shall be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details.</li> <li>In order to monitor the disposal of C&amp;D materials at landfills and public filling areas, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to WBTC No. 21/2002 for details.</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed.</li> </ul>	Status
	<ul> <li>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:</li> <li>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.</li> <li>To encourage collection of aluminum cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force.</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>Maximize the use of reusable steel formwork to reduce the amount of C&amp;D material.</li> <li>Prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimize the quantity of waste to be disposed of to landfill.</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials.</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.</li> <li>Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering</li> </ul>	√
	<i>General Refuse</i> General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	√
	Construction & Demolition (C&D) Material C&D material generated from the site formation and demolition works shall be sorted on-site into inert C&D material (i.e. public fill) and C&D waste. In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material shall be reused on-site as backfilling material as far as practicable. C&D waste, such as wood, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process.	

n	Monuny Emeral	
Type of Impact	Recommended Mitigation Measures	Status
	Bentonite Slurry	N/A
	Bentonite slurries used in construction works should be reconditioned and reused wherever practicable. Residual used bentonite slurry should be disposed of from the site as soon as possible. The Contractor should explore alternative disposal outlets for the residual used bentonite slurry and disposal at landfill should be the last resort.	

Note:  $\sqrt{}$  –

 $\sqrt[4]{-}$  Compliance of mitigation measures X - Non-compliance of mitigation measures N/A - Not applicable

APPENDIX K WASTE GENERATION IN THE REPORTING MONTH Name of Department: Drainage Services Department

Contract No. :

DE/2009/09

### Monthly Summary - Waste Flow Table for 2014

		Annual Quantities of Inert C&D Materials Generated Monthly					Annual Quantities of C&D Materials Generated Monthly				
Month	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	$(\text{in } \text{m}^3)$	$(\text{in }\text{m}^3)$	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(\text{in } \text{m}^3)$	$(\text{in m}^3)$	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)
Jan	0	0	0	0	0	0	0	0.13	0.05	0	1.6
Feb	0	0	0	0	0	0	0	0.14	0.05	0	0
Mar	0	0	0	0	0	0	0	0	0	0	1.9
Apr	0	0	0	0	0	0	11.1	0.13	0.03	0	4.6
May											
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	5.38	0.27	0.1	0	3.5

	Forecast of Total Quantities of C&D Materials to be Generated from the Contractor										
Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse	
(in m <sup>3</sup> )	$(in m^3)$	$(in m^3)$	$(\text{in } \text{m}^3)$	$(in m^3)$	$(\text{in } \text{m}^3)$	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)	
0	Nil	0	0	0	0	100	100	50	10	500	

Notes: (1)

(2)(3)

The performance targets are given in PS Clause 1.40.8(14). The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site. Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material. The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m<sup>3</sup>. (PS Clause 1.40.7(4)(b) refers. (4)

APPENDIX L COMPLAINT LOG

## **APPENDIX L – COMPLAINT LOG**

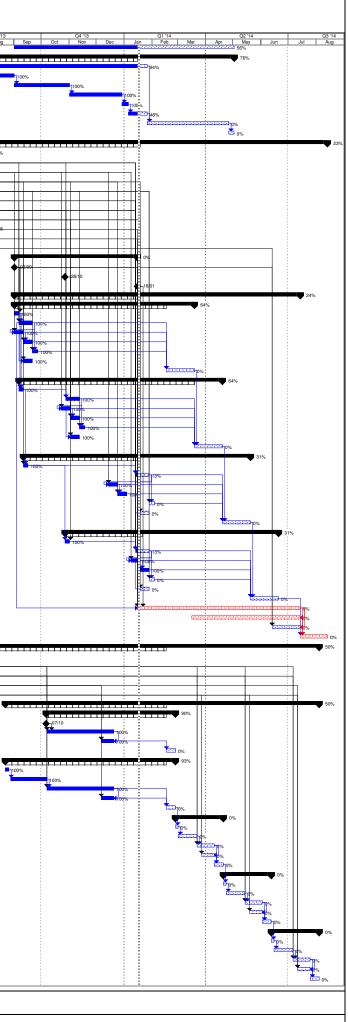
### **Reporting Month**: April 2014

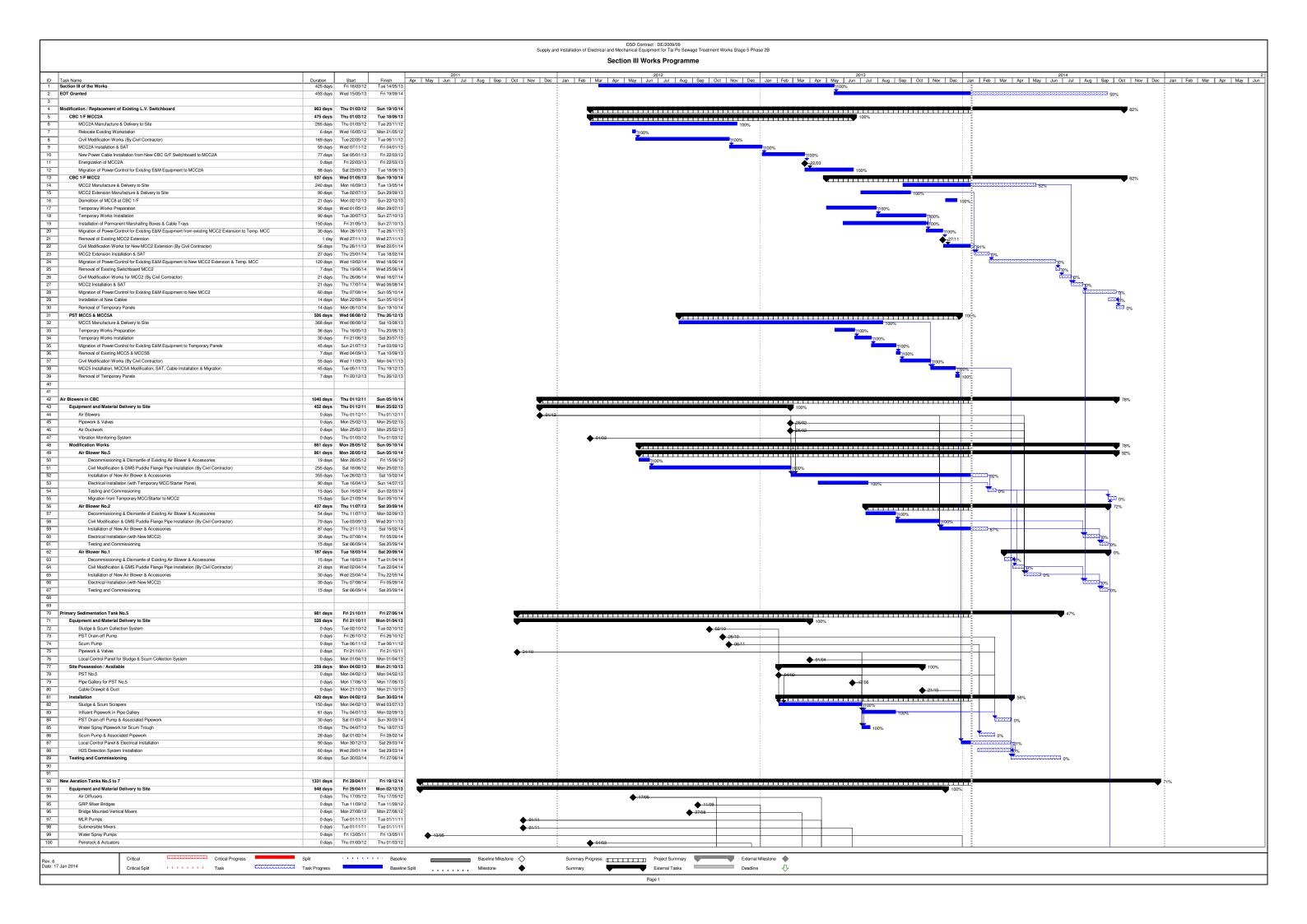
Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status	
N/A	N/A	N/A	N/A	N/A	N/A	

**Remarks**: No environmental complaint was received in the reporting month.

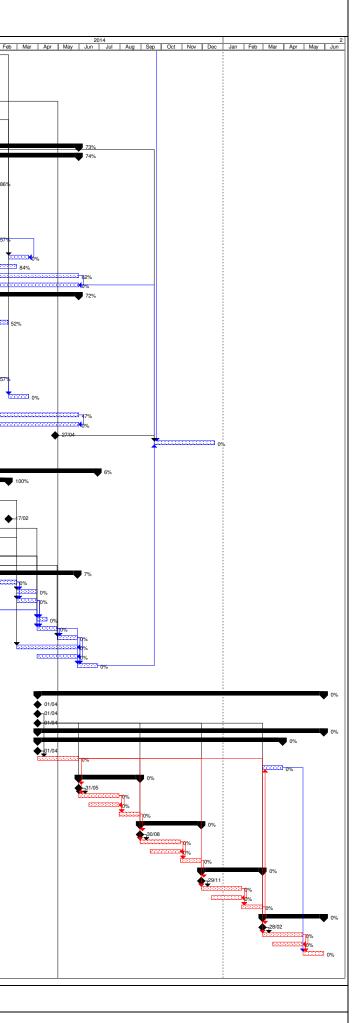
APPENDIX M CONSTRUCTION PROGRAMME

				1			0.111		DSD Contract : DE/2009/09 al and Mechanical Equipment for Tai Po Sewage Treatment Works Stage Section II Works Programme		0.00	0.00	1
ID 1	Task Name Section II of the Works	Duration Start 243 days Mon 02/09/13	Finish Fri 02/05/14	Mar	Q2 '11 Apr May Jun	Q3 '11 Jul Aug Sep	Q4 '11 Oct Nov Dec	Q1 '12 Jan Feb Mar	Q2'12 Q3'12 Apr May Jun Jul Aug S	p Oct Nov Dec	Q1 '13 Jan Feb Mar	Q2 '13 Apr May Jun	Q3 '13 Jul Aug
	Modification / Replacement of Existing L.V. Switchboard (RAS MCC3)	305 days Tue 02/07/13											
3	MCC3 Manufacture & Delivery to Site	179 days Thu 01/08/13											
4	Temporary Works Preparation Temporary Works Installation	62 days Tue 02/07/13 61 days Mon 02/09/13											
6	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	58 days Sat 02/11/13	Sun 29/12/13										
7	Removal of Existing MCC1, MCC3 & MCC4	7 days Mon 30/12/13											
8	Civil Modification Works (By Civil Contractor) MCC3 Installation, SAT, Cable Installation & Migration	21 days Mon 06/01/14 90 days Mon 27/01/14											
10	Removal of Temporary Panels	6 days Sun 27/04/14											
11	Final Clarifier No. 7B to 10B	1240 days Wed 23/03/11				; ;							
12	Equipment and Material Delivery to Site Tripods, Bridges & Scrapers for FC7B - 10B	862 days Wed 23/03/11 0 days Wed 20/02/13		-							A		100%
13	Weir Plates	0 days Wed 20/02/13 0 days Wed 20/02/13									◆ 20/02 ◆ 20/02		
15	Density Current Baffle	0 days Wed 23/03/11		•	2/02						•		
16	FCW & FEDB	0 days Wed 22/08/12							♦ 22/08				
17	DI Pipes, Fittings & Accessories Water Spray Pumps & Associated Pipework	0 days Tue 03/05/11 0 days Fri 13/05/11	Tue 03/05/11 Fri 13/05/11		♦ 03/05								
19	Instrumentation (Ultrasonic Level Sensors & Sludge Blanket Sensors)	0 days Fri 29/04/11	Fri 29/04/11		▲ 20/04								
20	LCP for Scraper Bridges	0 days Thu 01/08/13			•								<b>01/08</b>
21	Cable, Cable Trays and Accessories B.S. Equipment & Accessories	0 days Wed 22/08/12							♦ 22/08—				
22 23	Site Possession / Available	0 days Fri 15/07/11 136 days Mon 02/09/13				15/07							
24	FC8B, 9B & 10B	0 days Mon 02/09/13											
25	FC7B	0 days Mon 28/10/13											
26 27	Cable drawpit and duct Installation	0 days Thu 16/01/14 316 days Mon 02/09/13											
27	Installation FC8B	316 days Mon 02/09/13 199 days Mon 02/09/13											
29	Site Preparation Works	5 days Mon 02/09/13	Fri 06/09/13										
30	Tripods, Bridges & Sorapers	15 days Sat 07/09/13											
31 32	Weir Plates Density Current Baffles	10 days Mon 02/09/13 10 days Thu 12/09/13											
32	FCW & FEDB	6 days Sun 22/09/13											
34	Instrumentation	10 days Thu 12/09/13	Sat 21/09/13										
35	Final screeding	31 days Mon 17/02/14											
36 37	FC10B Site Preparation Works	225 days Sat 07/09/13 5 days Sat 07/09/13											
37	Site Preparation Works Tripods, Bridges & Scrapers	15 days Sat 07/09/13 15 days Tue 29/10/13											
39	Weir Plates	10 days Thu 24/10/13	Sat 02/11/13										
40	Density Current Baffles	10 days Sun 03/11/13											
41	FCW & FEDB	6 days Wed 13/11/13 10 days Sun 03/11/13											
42	Final screeding	31 days Thu 20/03/14											
44	FC9B	251 days Thu 12/09/13	Tue 20/05/14										
45	Site Preparation Works	5 days Thu 12/09/13											
46	Tripods, Bridges & Scrapers Weir Plates	15 days Tue 14/01/14 10 days Sun 15/12/13											
48	Density Current Baffles	10 days Wed 25/12/13											
49	FCW & FEDB	6 days Wed 29/01/14											
50 51	Instrumentation Final screeding	10 days Sun 19/01/14 31 days Sun 20/04/14											
51	Final screeding FC7B	31 days Sun 20/04/14 236 days Mon 28/10/13											
53	Site Preparation Works	5 days Mon 28/10/13	Fri 01/11/13										
54	Tripods, Bridges & Scrapers	15 days Tue 14/01/14											
55 56	Weir Plates Density Current Baffles	10 days Thu 09/01/14 10 days Sun 19/01/14											
56	FCW & FEDB	6 days Wed 29/01/14											
58	Instrumentation	10 days Sun 19/01/14	Tue 28/01/14										
59 60	Final screeding	31 days Wed 21/05/14											
60 61	Electrical Installation Modification of existing PLC system E	180 days Thu 16/01/14 120 days Mon 17/03/14											
62	B.S. Installation	31 days Sat 14/06/14	Mon 14/07/14										
63	Testing and Commissioning	30 days Tue 15/07/14											
64 65	Stage IV RAS Pumping Station Equipment and Material Delivey to Site	856 days Sun 01/04/12 143 days Sun 01/04/12						1			<u>,                                     </u>		
66	RAS Pumps	0 days Tue 01/05/12							↓ 100%				
67	Pipework & Valves	0 days Sun 01/04/12	Sun 01/04/12					•	01/04				
68	VSD Panel for RAS Pumps No.1 & 5	0 days Wed 22/08/12							◆ 22/08				
69 70	PLC System H Panel Installation	0 days Wed 22/08/12 347 days Fri 23/08/13											
70	RAS Pump No.5	143 days Mon 07/10/13											V
72	Available of Pump Concrete Plinth (Modified by Civil Contractor)	0 days Mon 07/10/13	Mon 07/10/13										
73	Installation of Pump, Gate Valve, Swing Check Valve & DI Pipework	74 days Tue 08/10/13											
74 75	Electrical Works & SCADA/PLC Works Testing & Commissioning	14 days Sat 07/12/13 10 days Mon 17/02/14											
76	RAS Pump No.4	188 days Fri 23/08/13											
77	Decommissioning & Removal of Pump	4 days Fri 23/08/13											1
78 79	Pump Concrete Plinth Modification Works (By Civil Contractor) Installation of Pump & DI Pipework	40 days Thu 29/08/13 74 days Tue 08/10/13											1
80	Electrical Works & SCADA/PLC Works	14 days 10e 08/10/13 14 days Sat 07/12/13											
81	Testing & Commissioning	10 days Mon 17/02/14	Wed 26/02/14										
82	RAS Pump No.3	53 days Thu 27/02/14											
83 84	Decommissioning & Removal of Pump Pump Concrete Plinth Modification Works (By Civil Contractor)	3 days Thu 27/02/14 21 days Sun 02/03/14											
85	Installation of Pump & DI Pipework	19 days Sun 23/03/14											
86	Electrical Works & SCADA/PLC Works	14 days Fri 28/03/14	Thu 10/04/14										
87	Testing & Commissioning	10 days Fri 11/04/14											
88 89	RAS Pump No.2 Decommissioning & Removal of Pump	53 days Mon 21/04/14 3 days Mon 21/04/14											
90	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days Mon 21/04/14 21 days Thu 24/04/14											
91	Installation of Pump & DI Pipework	19 days Thu 15/05/14	Mon 02/06/14										
92	Electrical Works & SCADA/PLC Works	14 days Tue 20/05/14											
93 94	Testing & Commissioning RAS Pump No.1	10 days Tue 03/06/14 53 days Fri 13/06/14											
94	Decommissioning & Removal of Pump	3 days Fri 13/06/14											
96	Pump Concrete Plinth Modification Works (By Civil Contractor)	21 days Mon 16/06/14	Sun 06/07/14										
97	Installation of Pump & DI Pipework	19 days Mon 07/07/14											
98 99	Electrical Works & SCADA/PLC Works Testing & Commissioning	14 days Sat 12/07/14 10 days Sat 26/07/14											
						1					i		
Rev.4	Jan 2014 Critical Solit Land Task					Baseline Milestone	-	Project Summary					
Date: 17	Jan 2014 Critical Split Task	Task F	rogress		Baseline Split	Milestone 🔶	Summary	External Tasks	*				
1									Page 1				



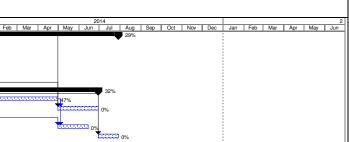


ID Task Name		Duration	Start		2011 2012 Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct	2013 Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
	nstruments (EM Flowmeters, Air Flowmeters & Online Sensors) Pipework & Valves	0 days 0 days		Fri 29/04/11 Sat 15/10/11	◆ 29/04	
3 Li	ifting Appliance	0 days	Mon 02/12/13	Mon 02/12/13	▼	
	GMS Air Mains	0 days				● 92/09
	Nossession / Available	262 days 0 days		Mon 17/06/13 Fri 28/09/12	at no.	100%
	nterior Part of New Aeration Tank No.6	0 days		Mon 15/10/12		5/10
	steel Air Main Platforms, Walkway and Cable Trenches for New Aeration Tanks No.5, 6 & 7	0 days			Ĭ	17/06
	nterior Part of New Aeration Tank No.7 Pipe Gallery Extension	0 days 0 days		Mon 22/04/13 Mon 17/06/13		◆ 22/04
111 Install		594 days				
	lew Aeration Tanks No.5 & 6	594 days		Sat 31/05/14		
113 114	GMS Air Mains & FRP Staircase Air Diffusers	60 days 120 days		Thu 31/10/13 Mon 11/02/13	**	100%
115	Air Pipework, Butterfly Valves & Air Flowmeters	91 days		Thu 30/01/14		
116	GRP Mixer Bridges	75 days		Sun 17/03/13		1100%
117	Bridge Mounted Vertical Mixers Lifting Appliance	75 days 30 days		Fri 31/05/13 Tue 31/12/13		
119	MLR Pumps & Associated Pipework	60 days		Thu 13/12/12		100%
120	Submersible Mixers	30 days	Mon 17/06/13	Tue 16/07/13		100%
121	Water Spray Pumps & Associated Pipework Penstock & Actuators	30 days 45 days				
122	Instruments	30 days		Tue 18/03/14		100%
124	RAS Pipework in Pipe Gallery Extension	257 days		Fri 28/02/14		
125	Electrical Works	349 days		Sat 31/05/14		
126 127 N	SCADA/PLC System lew Aeration Tanks No.7	120 days 405 days		Sat 31/05/14 Sat 31/05/14		
128	GMS Air Mains & FRP Staircase	30 days		Tue 17/12/13		
129	Air Diffusers	160 days		Sat 28/09/13		
130	Air Pipework, Butterfly Valves & Air Flowmeters GRP Mixer Bridges	60 days 180 days		Sat 15/02/14 Fri 18/10/13		1100%
132	Bridge Mounted Vertical Mixers	15 days		Sat 02/11/13		
133	Lifting Appliance	30 days				
134 135	MLR Pumps & Associated Pipework Submersible Mixers	60 days 30 days		Thu 20/06/13 Sat 20/07/13		100%
136	Water Spray Pumps & Associated Pipework	30 days		Thu 30/01/14		
137	Penstock & Actuators	45 days		Wed 16/10/13		100%
138	Instruments RAS Pipework in Pipe Gallery Extension	30 days 120 days		Tue 18/03/14 Mon 14/10/13		100%
140	Electrical Works	255 days		Sat 31/05/14		100%
141	SCADA/PLC System	120 days	Sat 01/02/14	Sat 31/05/14		
	3 Ready ng and Commissioning	1 day 90 days		Sun 27/04/14 Fri 19/12/14		
144	u · · · · · · · · · · · · · · · · · · ·	30 udys	22.12.130/14			
145						
	d Liquor Channels ment and Material Delivery to Site	971 days 839 days		Sat 28/06/14 Mon 17/02/14		
148 Fe	oam Removal Collector	0 days		Wed 01/05/13		<b>◆</b> 1//05
	Submersible Mixers	0 days		Tue 01/11/11	♦ 01/11	
	Penstock & Actuator ifting Appliance	0 days 0 days		Thu 01/03/12 Mon 17/02/14	♦ 01/03	
152 Pi	Pipework & Valves	0 days		Wed 01/08/12	♦ 01/08	
	ocal Control Panel	0 days		Thu 01/08/13		◆ 01/08
	Vossession / Available Alixed Liquor Channel, Foam Channel & Pillar Box	0 days	Tue 31/12/13 Tue 31/12/13	Tue 31/12/13 Tue 31/12/13		
156 B	Bunded Area & Shelter for NaOCI Dosing System	0 days	Tue 31/12/13	Tue 31/12/13		
157 Install		386 days				
	Penstock & Actuactor in Flow Splitter Box (Not Required) ifting Appliance	60 days 30 days		Fri 28/02/14 Sun 30/03/14		
160 S	Submersible Mixers	30 days	Sat 01/03/14	Sun 30/03/14		$\downarrow$
	icam Removal Collector	26 days				100%
	Vater Spray System Relocation of Foam Transfer Pumps	15 days 30 days		Mon 14/04/14 Tue 29/04/14		
164 R	Relocation of NaOCI Dosing System	30 days				
	ocal Control Panel & Electrical Installation SCADA/PLC System	90 days				
	CADA/PLC System  g and Commissioning	60 days 30 days		Thu 29/05/14 Sat 28/06/14		
168		00 04/8				
169	and a Taula No. 4 A. 4		T	0		
	eration Tanks No.1 to 4 ment and Material Delivery to Site	425 days 0 days				
172 G	SMS Air Mains	0 days		Tue 01/04/14		
	Pipework & Valves	0 days	Tue 01/04/14			
	lication Works Iew Air Mains	425 days 364 days				
175 10	Steel Bridges (By Civil Contractor) Available for Air Mains	0 days				
177	GMS Air Mains Installation	61 days	Tue 01/04/14	Sat 31/05/14		
178 179 A	Connection Existing Air Mains beside RAS Pumping Station (By Civil Contractor) Aeration Tank No.4	30 days 91 days				
179 A	Tank Available for Modification (Drained Down by DSD/ST1)	0 days				
181	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Sun 01/06/14			
182	Electrical Installation Testing and Commissioning	45 days 31 days				
	Leasting and Commissioning Leastion Tank No.3	31 days 91 days		Sat 30/08/14 Sat 29/11/14		
185	Tank Available for Modification (Drained Down by DSD/ST1)	0 days	Sat 30/08/14	Sat 30/08/14		
186	Air Pipework, Butterfly Valves & Air Flowmeters Electrical Installation	60 days		Wed 29/10/14 Wed 29/10/14		
187	Electrical Installation Testing and Commissioning	45 days 31 days				
189 A	leration Tank No.2	91 days	Sat 29/11/14	Sat 28/02/15		
190 191	Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves, & Air Flowmeters	0 days				
191 192	Air Pipework, Buttertly Valves, & Air Flowmeters Electrical Installation	60 days 45 days				
193	Testing and Commissioning	31 days	Thu 29/01/15	Sat 28/02/15		
	Veration Tank No.1	91 days		Sat 30/05/15		
	Tank Available for Modification (Drained Down by DSD/ST1) Air Pipework, Butterfly Valves & Air Flowmeters	0 days 60 days				
195		45 days				
195 196 197	Electrical Installation	45 uays	1101110/00/10			
195 196 197 198	Electrical Installation Testing and Commissioning	31 days				
195 196 197						

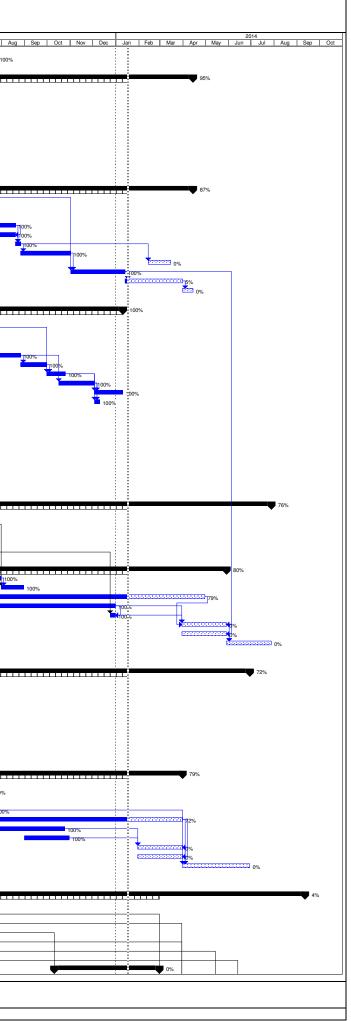


					DSD Contract : DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B
					Section III Works Programme
ID	Task Name	Duration	Start	Finish	2011 2012 2013 2013 2014 Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr M
201	Filtrate Pumping System (Stage I/II Modification)	1070 days	Thu 25/08/11	Tue 29/07/14	
202	Equipment and Material Delivery to Site	311 days		Sun 01/07/12	
203	Submersible Pump	0 days	Thu 25/08/11	Thu 25/08/11	<u>♦ 26:08</u>
204	Pipework & Valves	0 days	Sun 01/07/12	Sun 01/07/12	2
205	Site Possession / Available	0 days	Mon 02/12/13	Mon 02/12/13	◆ 02/12
206	Underground Pipework to Stage IV Aeration Tanks (By Civil Contractor)	0 days	Mon 02/12/13	Mon 02/12/13	♦ <u>02/12</u>
207	Installation	676 days	Thu 23/08/12	Sun 29/06/14	
208	Pump Replacement & Pipework Modification at Existing Pump Chamber	193 days	Sun 20/10/13	Wed 30/04/14	
209	Filtrate Pipework Installation at Aeration Tanks	60 days	Thu 01/05/14	Sun 29/06/14	
210	Existing L.V. Switchboard Modification	6 days	Thu 23/08/12	Tue 28/08/12	<b>T</b> 100%
211	Electrical Installation	45 days	Thu 01/05/14	Sat 14/06/14	
212	Testing and Commissioning	30 days	Mon 30/06/14	Tue 29/07/14	

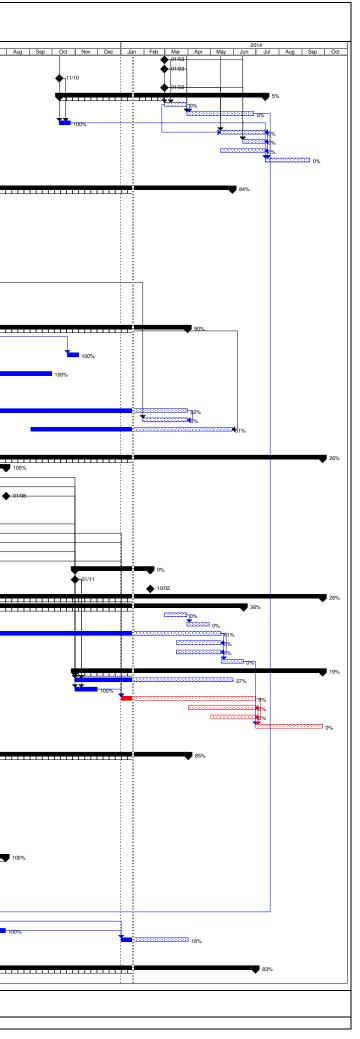
Rev. 6 Date: 17 Jan 2014									External Milestone
	United Split	 IdSN	TASK FIOGIESS	Baseline Split	 Wilestone	Summary	Pi	age 3	Dearnine



				DSD Contract : DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 28 Section V Works Programme
10	Task Name	Duration	Start Finish	2011         2012         2013           Jan         Feb         Mar         Apr         May         Jun         Jul         Aug         Sep         Oct         Nov         Dec         Jan         Jul         Jul
1	Section V of the Works	821 days	Sat 22/01/11 Sun 21/04/13	100%
2	EOT Granted	95 days	Mon 22/04/13 Thu 25/07/13	
	Modification / Replacement of Existing L.V. Switchboard	1179 days	Sat 22/01/11 Mon 14/04/14	
5	CBC G/F MCC Drawing Submission for CLP & DSD Approval	800 days 287 days	Sat 22/01/11 Sun 31/03/13 Sat 22/01/11 Fri 04/11/11	
7	Switchboard Manufacture & Delivery to Site	90 days	Mon 02/01/12 Sat 31/03/12	
8	Temporary Works Preparation Site Setup of Temporary Backup Facilities & Removal of Existing Switchboard	76 days 45 days	Mon 16/01/12 Sat 31/03/12 Wed 11/04/12 Fri 25/05/12	
10	Civil Modification Works (By Civil Contractor)	124 days	Sat 26/05/12 Wed 26/09/12	
11	New Switchboard Installation & SAT	76 days	Thu 27/09/12 Tue 11/12/12	
12 13	CLP's Tx Upgrading Works & Cable Connection to New Switchboard Removal of Existing Cables & Installation of New Cables	43 days 51 days	Sat 12/05/12 Tue 08/01/13 Wed 09/01/13 Thu 28/02/13	
14	Connect Permanent Power Supply for Existing Small Power D/B	14 days	Mon 18/03/13 Sun 31/03/13	13 100%
15 16	IW 1/F MCC1	689 days	Sat 26/05/12 Mon 14/04/14	
17	Switchboard Manufacture & Delivery to Site	107 days		
18 19	Temporary Works Preparation Temporary Works Installation	61 days 246 days	Sat 26/05/12 Wed 25/07/12 Thu 26/07/12 Thu 28/03/13	
20	Migration of Power/Control for Existing E&M Equipment to Temporary Panels	144 days		
21	Relocation of Existing Remote I/O Panel	80 days	Sat 01/06/13 Mon 19/08/13	
22 23	Removal of Existing Switchboard Civil Modification Works (By Civil Contractor)	7 days 67 days	Tue 20/08/13 Mon 26/08/13 Tue 27/08/13 Fri 01/11/13	
24	Modification of Exisiting Switchroom Partition	30 days	Fri 14/02/14 Sat 15/03/14	14
25 26	New Switchboard Installation & SAT Migration of Power/Control of Existing E&M Equipment to New Switchboard	73 days 77 days	Sat 02/11/13 Mon 13/01/14 Tue 14/01/14 Mon 31/03/14	
27	Migration of Power/Control of Existing E&M Equipment to New Switchboard Removal of Existing Cables & Installation of New Cables	14 days	Tue 01/04/14 Mon 31/03/14 Tue 01/04/14 Mon 14/04/14	
28 29	IW G/F MCC	1005	Pat 20/01/11	
29 30	IW G/F MCC Drawing Submission for CLP & DSD Approval	1085 days 175 days	Sat 22/01/11 Fri 10/01/14 Sat 22/01/11 Fri 15/07/11	
31	Switchboard Manufacture & Delivery to Site	223 days	Sat 21/04/12 Thu 29/11/12	12 100%
32 33	Completion of Genset Replacement Temporary Works Preparation	0 days 31 days	Mon 15/04/13 Mon 15/04/13 Sat 25/05/13 Mon 24/06/13	
34	Site Setup of Temporary Backup Facilities & Removal of Existing Switchboard	63 days	Tue 25/06/13 Mon 26/08/13	
35	Civil Modification Works (By Civil Contractor)	35 days	Tue 27/08/13 Mon 30/09/13	
36 37	New Switchboard Installation & SAT CLP's Tx Upgrading Works & Cable Connection to New Switchboard	25 days 48 days	Tue 01/10/13         Fri 25/10/13           Thu 17/10/13         Tue 03/12/13	
38	Removal of Existing Cables & Installation of New Cables	38 days	Wed 04/12/13 Fri 10/01/14	14
39 40	Connect Power Supply for Existing Lighting & Small Power D/B	7 days	Wed 04/12/13 Tue 10/12/13	13
41				
42 43	Replacement of Emergency Genset for IW G/F MCC New 1500kVA Genset & Accessories Delivery to Site	333 days 0 days	Fri 18/05/12 Mon 15/04/13 Mon 26/11/12 Mon 26/11/12	
44	Site Setup of Power Backup Facilities by Tempoary Genset	50 days	Fri 18/05/12 Fri 06/07/12	12 100%
45 46	Removal of Existing 750kVA Genset Civil Modification Works (By Civil Contractor)	7 days 135 days	Sat 07/07/12 Fri 13/07/12 Sat 14/07/12 Sun 25/11/12	
47	Installation of New Genset & SAT	135 days 141 days	Mon 26/11/12 Mon 15/04/13	
48 49				
50	Inlet Works	1187 days	Fri 29/04/11 Mon 28/07/14	
51	Equipment and Material Deliver to Site	614 days	Fri 29/04/11 Wed 02/01/13	13 100%
52 53	Screw Pumps Mechanical Bar Screen	0 days 0 days	Wed 02/01/13 Wed 02/01/13 Fri 19/10/12 Fri 19/10/12	
54	Screw Conveyor	0 days	Fri 19/10/12 Fri 19/10/12	12
55 56	Actuator for Existing Penstocks Ultrasonic Level Sensors	0 days 0 days	Mon 02/04/12 Mon 02/04/12 Fri 29/04/11 Fri 29/04/11	
57	Installation	588 days	Fri 19/10/12 Thu 29/05/14	14
58 59	Temporary Flow Diversion for Lower Wet Well Screw Pump Installation & Screeding Works at Lower Wet Well	30 days 30 days		13
60	Screw Pump Installation & Screeding Works at Upper Wet Well	484 days	Wed 02/01/13 Wed 30/04/14	
61 62	Installation of Mechanical Bar Screen, Screw Conveyor & Ultrasonic Level Sensors Installation of Actuators for Existing Penstocks	439 days 7 days	Fri 19/10/12 Tue 31/12/13 Wed 25/12/13 Tue 31/12/13	
63	Electrical Installation	60 days	Mon 31/03/14 Thu 29/05/14	14
64	SCADA/PLC System	60 days	Mon 31/03/14 Thu 29/05/14	
65 66	Testing and Commissioning	60 days	Fri 30/05/14 Mon 28/07/14	
67	Eilleste Trestmant Diant (ODD)		Tue 01/11/11	
68 69	Filtrate Treatment Plant (SBR) Equipment and Material Delivery to Site	972 days 456 days	Tue 01/11/11         Sun 29/06/14           Tue 01/11/11         Wed 30/01/13	
70	Air Blower	0 days	Wed 30/01/13 Wed 30/01/13	13 ▼_3001
71 72	Filtrate Transfer Pump Filtrate Inlet Sump Pump	0 days 0 days	Wed 01/02/12 Wed 01/02/12 Tue 01/11/11 Tue 01/11/11	
73	Air Diffusers	0 days 0 days	Thu 17/05/12 Thu 17/05/12	12
74 75	Pipework & Valves Site Possession / Available	0 days	Tue 01/11/11 Tue 01/11/11 Sat 01/09/12 Thu 03/01/13	
75	Site Possession / Available SBR Tank	123 days 0 days		
77	Civil Works Provision (By Civil Contractor)	0 days	Sat 01/09/12 Sat 01/09/12	12 • 01/09
78 79	Existing Plant Rooms Installation	0 days 453 days	Mon 26/11/12 Mon 26/11/12 Thu 03/01/13 Mon 31/03/14	
80	Take Down of Existing Decanter	5 days	Thu 03/01/13 Mon 07/01/13	13
81 82	Modification of Concrete Corbels & Cast-in Puddle Flanged Pipe (By Civil Contractor) Off-site Modification of Existing Decanter	189 days 28 days	Tue 08/01/13 Mon 15/07/13 Tue 08/01/13 Mon 04/02/13	
83	Installation of Modified Decanter	5 days	Tue 16/07/13 Sat 20/07/13	13
84 85	Modification of Air Diffusers Installation of Air Blower, Filtrate Transfer Pump, Filtrate Inlet Sump Pump & Associated Pipework	259 days	Tue 16/07/13 Mon 31/03/14 Wed 30/01/13 Thu 24/10/13	
85 86	Installation of Air Blower, Filtrate Transfer Pump, Filtrate Inlet Sump Pump & Associated Pipework Existing L.V. Switchboard Modification	268 days 60 days	Wed 30/01/13         Thu 24/10/13           Sun 01/09/13         Wed 30/10/13	
87	Electrical Installation	60 days	Fri 31/01/14 Mon 31/03/14	
88 89	SCADA/PLC System Testing and Commissioning	60 days 90 days	Fri 31/01/14 Mon 31/03/14 Tue 01/04/14 Sun 29/06/14	
90				
91 92	Primary Sludge Gravity Thickener	1228 days	Tue 03/05/11 Thu 11/09/14	14
93	Equipment and Material Delivery to Site	699 days	Tue 03/05/11 Mon 01/04/13	13
94 95	Knife Gate Valves & Actuators Deodorizing Unit, Extraction Fan & Accessories	0 days 0 days	Tue 03/05/11 Tue 03/05/11 Fri 01/02/13 Fri 01/02/13	
96	Pipework & Valves	0 days	Mon 01/04/13 Mon 01/04/13	13
97 98	Air Ductwork & Accessories Local Control Panel for DO Unit	0 days 0 days	Mon 01/04/13 Mon 01/04/13 Mon 01/04/13 Mon 01/04/13	
99	CCTV System	0 days	Mon 01/04/13 Mon 01/04/13	13
100	Site Possession / Available	141 days	Fri 11/10/13 Sat 01/03/14	14
·				
Rev. 7		Split	Baselin	eline Baseline Milestone 🛇 Summary Progress
Rev. 7 Date: 17	Jan 2014 Critical Split			eline Baseline Milestone Summary Progress External Tasks Deadline C
Rev. 7 Date: 17				



103         Civil Works           104         Cable Draw           105         Installation           106         Knile Gate           107         Dedokring           108         Pipework In           109         Electrical In           110         CCTV Installation           111         SCADARPLI           1111         Testing and           1112         Testing and           1114         Equipment and           1115         Biogas System           1116         Equipment and           1170         Waste Gas           118         Waste Gas           119         Biogas Hold           121         Biogas Hold           122         Pipework &           123         Site Possession           124         Biogas Hold           125         Biogas Hold           126         Gas Transfi           127         Concrete PI           130         Installation	Plinth for DO System  s Provision at Existing Valve Chamber (By Civil Contractor) work & Ducts  valves & Actuators g Valves & Associated Accessories Installation at Existing Valve Chamber Installation at Existing Valve Chamber C System  d Material Delivery to Site s Burner for Stage VII s Burner for Stage IV diding Tank Materials estor and Condensation Pot oster  X Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber	Duration           0 days           30 days           90 days           90 days           60 days           60 days           60 days           60 days           60 days           60 days           0 days	Start Sat 01/03/14 Sat 01/03/14 Fri 11/10/13 Sat 01/03/14 Mon 31/03/14 Mon 31/03/14 Mon 31/03/14 Mon 31/03/14 Fri 11/10/13 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Thu 01/12/11 Thu 01/12/11 Thu 01/12/11 Thu 03/01/12 Tue 01/11/11 Thu 15/03/12	Finish         Ja           Sat 01/03/14         Sat 01/03/14           Fri 11/10/13         Sat 01/03/14           Sat 01/03/14         Sat 00/07/14           Sat 01/03/14         Sat 03/07/14           Sat 01/03/14         Sat 13/07/14           Fri 13/05/12         Thu 11/09/14           Fri 18/05/12         Fri 18/05/12           Mon 19/12/11         Thu 01/12/11           Tue 03/01/12         Tue 03/01/12	Z011     Z012       Feb     Mar     Apr     May     Jun     Jul     Aug     Sep     Oct     Nov     Dec     Jan     Feb     Mar     Apr     May     Jun     Jul     Aug     Sep     Oct     Nov     Dec     Jan     Feb     Mar       Apr     May     Jun     Jul     Aug     Sep     Oct     Nov     Dec     Jan     Feb     Mar	
Off         Decenting C           02         Concrete PI           03         CkiW Works           04         Cable Draw           05         Installation           06         Knife Gate Draw           07         Deodorizing           08         Pipework In           09         Electrical In           10         CCTV Insta           111         SCADA/PLI           12 <b>Testing and Co</b> 13         Installation           16 <b>Equipment and</b> 17         Waste Gas           18         Waste Gas           19         Biogas Hold           20         Pipework &           21         Biogas Hold           22         Pipework &           23         Site Possession           24         Biogas Hold           25         Biogas Hold           26         Gas Transf           27         Concrete PI           28         Concrete PI           29         Concrete PI           29         Concrete PI           29         Concrete PI           20         Installation	Plinth for DO System  s Provision at Existing Valve Chamber (By Civil Contractor) work & Ducts  valves Actuators  g Unit, Air Ductwork & Associated Accessories Installation Installation It C System  ommissioning  d Material Delivery to Site s Burner for Stage IVI s Burner for Stage IVI s Gurner Stage IVI s Gurner Stage IVI s Gurner Stage IVI s Valves or Available diding Tank Correte Slab diding Tank Valve Chamber Sife Stage IVI Plint for Waste Gas Burner in Stage IVI Plint for Wast	0 days 0 days 0 days 0 days 276 days 30 days 90 days 60 days 60 days 60 days 60 days 942 days 942 days 942 days 0	Sat 01/03/14 Sat 01/03/14 Sat 01/03/14 Fri 11/10/13 Sat 01/03/14 Fri 11/10/13 Sat 01/03/14 Mon 31/03/14 Fri 11/10/13 Thu 15/05/14 Mon 14/07/14 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Tue 01/11/11 Thu 03/01/12 Fri 18/05/12 Fri 18/05/12	Sat 01/03/14 Fri 11/0/03 Sat 01/03/14 Fri 11/0/03 Sat 01/03/14 Sat 01/03/14 Sat 03/03/14 Sat 03/03/14 Sat 03/03/14 Sat 03/07/14 Sat 03/07/14 Sat 03/07/14 Fri 25/00/14 Fri 18/05/12 Fri 18/05/12 Mon 19/12/11 Tue 03/01/12/11 Tue 03/01/12/14 Tue 03/01/12/12/12/11 Tue 03/01/12/14 Tue 03/01/12/14		
33         Oivil Works           34         Cable Draw           35         Installation           36         Knife Gate 1           37         Decodoizing           38         Pipawork In           39         Pipawork In           39         Cart Installation           39         Pipawork In           30         CCTV Installation           31         State Cast           32         Testing and Co           33         Equipment and Co           34         Equipment and Co           35         Biogas System           16         Equipment and Co           38         Waste Gas           39         Biogas Hold           20         Flarme Arres           21         Biogas Hold           22         Pipework &           23         Site Possessitor           26         Gas Transf           27         Concrete PI           28         Concrete PI           29         Concrete PI           29         Concrete PI           29         Concrete PI           20         Installation <tr td=""></tr>	s Provision at Existing Valve Chamber (By Civil Contractor) wptit 5 Ducts  valves & Actuators  valves & Valve Chamber  valves & Valves & Associated Accessories  valves  valve	0 days 0 days 276 days 30 days 90 days 60 days 60 days 60 days 60 days 942 days 942 days 942 days 0 days	Fri 11/10/13 Sat 01/03/14 Fri 11/10/14 Sat 01/03/14 Mon 31/03/14 Mon 31/03/14 Fri 11/10/13 Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Thu 15/05/14 Mon 14/07/14 Thu 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Thu 01/12/11 Thu 03/01/12 Use 01/11/11 Thu 03/01/2	Fri 11/10/13 Sat 01/03/14 Sun 1307/14 Sun 30/03/14 Sun 30/03/14 Sun 30/03/14 Sun 130/7/14 Sun 130/7/14 Thu 11/09/14 Fri 30/05/14 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Mon 19/12/11 Thu 01/2/11 Thu 01/2/11	◆ 02:01 ◆ 19:12 ◆ 01:12	
04         Cable Draw Installation           05         Installation           06         Knife Gate           07         Deodorizing           08         Pipework In           10         CCTV Insta           11         SCADAPLI           12         Testing and Co           13         Installation           14         Biogas System           18         Equipment and           17         Waste Gas           19         Biogas Hold           20         Filame Arres           21         Biogas Hold           22         Pipework &           23         Site Possession           24         Biogas Hold           25         Biogas Hold           26         Gase Transf.           27         Concrete PI           28         Concrete PI           29         Concrete PI           20         Installation	wpit & Ducts  Valves & Actuators  Valves & Associated Accessories  Installation  LG System  Ommissioning   d Material Delivery to Site  s Burner for Stage I/I  s Burner for Stage I/I  s Burner for Stage I/I  s Valves  d Materials  d M	0 days 276 days 30 days 90 days 60 days 60 days 60 days 60 days 199 days 942 days 199 days 0 days	Sat 01/03/14 Fri 11/10/73 Sat 01/03/14 Mon 31/03/14 Fri 11/10/73 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Tue 03/01/12	Sat 01/03/14 Sun 13/07/14 Sun 13/07/14 Sun 30/03/14 Sat 28/06/14 Fri 25/10/13 Sun 13/07/14 Sun 13/07/14 Un 11/09/14 Fri 30/05/14 Thu 11/09/14 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
Bit         Knife Gate           07         Decdot/200           08         P/pework In           09         Electrical In           10         CCTV Insta           11         SCADAPL           12         Testing and Co           13         Biogas System           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Biogas Hoid           20         Flame Arres           21         Biogas Hoid           22         Pipework &           23         Site Possession           26         Gasa Transf           27         Concrete Pi           28         Concrete Pi           29         Installation           30         Unstallation	ng Linit, Air Ductwork & Associated Accessories Installation talation talation tG System commissioning d Material Delivery to Site d Material Delivery to Site s Burner for Stage I/II s Burner for Stage I/II standardis estor and Condensation PX coder a Valves or / Avalable dding Tank Materials estor and Concrete Slab dding Tank Valve Chamber for Stage I/II Finth for Waste Gas Burner in Stage I/II Finth for Waste Gas Burner in Stage I/I Finth F	30 days 90 days 15 days 60 days 60 days 60 days 942 days 942 days 0 days	Sat 01/03/14 Mon 31/03/14 Fri 11/10/13 Thu 15/05/14 Sat 14/06/14 Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Tue 03/01/12	Sun 30/03/14 Sat 280/6/14 Fri 25/10/13 Sun 13/07/14 Sun 13/07/14 Sun 13/07/14 Thu 11/09/14 Fri 30/05/14 Fri 30/05/14 Fri 18/05/12 Fri 18/05/12 Mon 19/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
07         Deadorizing           08         Pipework In           08         CCTV Insta           10         CCTV Insta           11         SCADAPLI           12 <b>Testing and Co</b> 13         Insta           14         Biogas System           18         Maste Gas           19         Biogas Hold           20         Pipework &           21         Biogas Hold           22         Pipework &           23         Site Possession           25         Biogas Hold           26         Gas Transfe           27         Concrete Pi           28         Concrete Pi           29         Concrete Pi           20         Installation           31         Waste Gas	ng Linit, Air Ductwork & Associated Accessories Installation talation talation tG System commissioning d Material Delivery to Site d Material Delivery to Site s Burner for Stage I/II s Burner for Stage I/II standardis estor and Condensation PX coder a Valves or / Avalable dding Tank Materials estor and Concrete Slab dding Tank Valve Chamber for Stage I/II Finth for Waste Gas Burner in Stage I/II Finth for Waste Gas Burner in Stage I/I Finth F	90 days 15 days 60 days 60 days 60 days 942 days 942 days 199 days 0 days	Mon 31/03/14 Fri 11/10/13 Thu 15/05/14 Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Tue 03/01/12	Sat 28/06/14 Fri 25/10/13 Sun 13/07/14 Sun 13/07/14 Sun 13/07/14 Thu 11/09/14 Thu 11/09/14 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Thu 01/12/11 Tuu 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
08         Pipework in           09         Electrical In           09         Electrical In           01         CCTV In           11         SCADA/PLI           12         Testing and Co           13         -           14         -           15         Blogas System           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Blogas Hold           22         Pipework a           23         Site Possession           24         Blogas Hold           25         Blogas Hold           26         Gas Transf           27         Concrete Pl           28         Concrete Pl           29         Concrete Pl           29         Concrete Pl           29         Concrete Pl           200         Installation           31         Waste Gas	Installation at Existing Valve Chamber Installation Italiation LC System Ommissioning  d Material Delivery to Site Attention A	15 days 60 days 30 days 60 days 60 days 942 days 942 days 0 day	Fri 11/10/13 Thu 15/05/14 Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 01/11/11 Tue 01/11/11 Tue 01/11/11 Thu 03/01/12 Tue 01/11/11 Thu 03/01/12	Fri 25/10/13           Sun 13077/14           Sun 13077/14           Sun 13077/14           Thu 11/09/14           Fri 3005/74           Fri 1805/12           Fri 1805/12           Fri 1805/12           Fri 1805/12           Thu 01/12/11           Tue 0301/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
09         Electrical in           10         CCTV Insta           11         SCADAPL           12         Testing and Co           13         Install           14         Install           15         Blogas System           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Biogas Hold           22         Pipework &           23         Site Possession           24         Biogas Hold           25         Biogas Hold           26         Gasa Transf           27         Concrete Pl           28         Concrete Pl           29         Concrete Pl           20         Installation	Installation LC System mmissioning differentiation LC System differentiation LC System differentiation differe	60 days 30 days 60 days 60 days 942 days 942 days 0 days	Thu 15/05/14 Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Mon 14/07/14 Mon 19/11/11 Tue 03/01/12 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Thu 01/12/11 Thu 01/12/11 Thu 03/01/12 Tue 01/11/11 Thu 15/03/12	Sun 13/07/14 Sun 13/07/14 Sun 13/07/14 Thu 11/09/14 Fri 30/05/14 Fri 30/05/14 Fri 18/05/12 Tue 03/01/12 Fri 18/05/12 Tue 03/01/12 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
10         CCTV Insta           11         SCADAPLI           12 <b>Testing and Co</b> 13         Install           14 <b>Biogas System</b> 16 <b>Equipment and</b> 17         Waste Gas           19         Biogas Hold           20         Flame Arres           21         Biogas Hold           22         Pipework &           23         Site Possession           26         Gas Transf           27         Biogas Hold           28         Gas Transf           29         Biogas Hold           20         Site Possession           21         Biogas Hold           25         Biogas Hold           26         Gas Transf           27         Concrete PI           28         Concrete PI           29         Concrete PI           20         Installation           31         Waste Gas	talation LC System commissioning d Material Delivery to Site d Material Delivery to Site s Burner for Stage I/I s Burner for Stage I/I s Burner for Stage I/I startist setor and Condensation Pot coder s Valves on / Available dding Tank Valve Chamber sfer Station Plinth for Waste Gas Burner in Stage I/I Plint for Waste Gas Bur	30 days 60 days 60 days 942 days 199 days 0 days	Sat 14/06/14 Thu 15/05/14 Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Thu 03/01/12 Tue 01/11/11 Thu 15/03/12	Sun 13/07/14 Sun 13/07/14 Thu 11/09/14 Fri 130/05/14 Fri 18/05/12 Fri 18/05/12 Fri 18/05/12 Tue 03/01/12 Thu 01/12/11 Thu 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
12         Testing and Co           13	ommissioning  d Material Delivery to Site s Burner for Stage VII S Burner for Stage VI S Burner for Stage VI S Burner for Stage IV S Valves S Valves S Valves Or / Available S Valves S	60 days 942 days 199 days 0 days 0 days 0 days 0 days 0 days 347 days 0 days 0 days 0 days 0 days 0 days 0 days	Mon 14/07/14 Tue 01/11/11 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Thu 15/03/12	Thu 11/09/14 Fri 30/05/14 Fri 18/05/12 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
13       14       15     Biogas System       16     Equipment and       17     Waste Gas       18     Waste Gas       19     Biogas Hold       20     Flame Arres       21     Biogas Bood       22     Pipework &       23     Site Possession       24     Biogas Hold       25     Biogas Hold       26     Gas Transf.       27     Concrete PI       28     Concrete PI       29     Concrete PI       29     Concrete PI       20     Installation       31     Waste Gas	d Material Delivery to Site  B Burner for Stage I/II  B Burner for Stage I/II  B Burner for Stage I/I	942 days 199 days 0 days 0 days 0 days 0 days 0 days 0 days 347 days 0 days 0 days 0 days 0 days	Tue 01/11/11           Tue 01/11/11           Tue 03/01/12           Fri 18/05/12           Mon 19/12/11           Thu 01/12/11           Thu 03/01/12           Tue 03/01/12           Tue 03/01/12           Tue 03/01/12           Tue 03/01/12           Tue 01/11/11           Thu 01/12/11	Fri 30/05/14 Fri 18/05/12 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
Hat         Blogas System           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Biogas Hold           22         Flame Arres           23         Site Possession           24         Biogas Hold           25         Biogas Hold           26         Gas Transf.           27         Concrete Pl           28         Concrete Pl           29         Concrete Pl           29         Concrete Pl           20         Installation	s Burner for Stage VII s Burner for Stage IV s Burner for Stage IV skiling Tank Materials setor and Condensation Pot ooster s Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber fer Station Plinth for Waste Gas Burner in Stage IV Plinth for Waste Gas Burner in Stage IV	199 days           0 days	Tue 01/11/11           Tue 03/01/12           Fri 18/05/12           Mon 19/12/11           Thu 01/12/11           Tue 03/01/12           Tue 01/11/11           Thu 01/12/11	Fri 18/05/12 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
Biogas System           15         Biogas System           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Biogas Hold           20         Plane Arree           21         Biogas Hold           22         Pipework &           23         Site Possession           24         Biogas Hold           25         Biogas Hold           26         Gas Transf           27         Concrete PI           28         Concrete PI           29         Concrete PI           20         Installation           31         Waste Gas	s Burner for Stage VII s Burner for Stage IV s Burner for Stage IV skiling Tank Materials setor and Condensation Pot ooster s Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber fer Station Plinth for Waste Gas Burner in Stage IV Plinth for Waste Gas Burner in Stage IV	199 days           0 days	Tue 01/11/11           Tue 03/01/12           Fri 18/05/12           Mon 19/12/11           Thu 01/12/11           Tue 03/01/12           Tue 01/11/11           Thu 01/12/11	Fri 18/05/12 Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
Equipment and           16         Equipment and           17         Waste Gas           18         Waste Gas           19         Blogas Hold           20         Flame Arres           21         Blogas Hold           22         Pipework &           33         Site Possession           24         Blogas Hold           25         Blogas Hold           26         Gas Transf           27         Concrete PI           28         Concrete PI           29         Concrete PI           29         Concrete PI           30         Installation	s Burner for Stage VII s Burner for Stage IV s Burner for Stage IV skiling Tank Materials setor and Condensation Pot ooster s Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber fer Station Plinth for Waste Gas Burner in Stage IV Plinth for Waste Gas Burner in Stage IV	199 days           0 days	Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 <b>Thu 15/03/12</b>	Tue 03/01/12 Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 02:01 ◆ 19:12 ◆ 01:12	
18         Waste Gas           19         Blogas Hold           20         Flame Arres           21         Blogas Boo           22         Pipework &           23         Site Possession           24         Blogas Hold           25         Blogas Hold           26         Gas Transf           27         Concrete Pl           28         Concrete Pl           29         Concrete Pl           30         Installation           31         Waste Gas	s Burner for Stage IV diding Tank Materials estor and Condensation Pot oster  & Valves on / Available diding Tank Concrete Stab diding Tank Valve Chamber fer Station Plinth for Waste Gas Burner in Stage I/I Plinth proves Gas Burner in Stage IV	0 days 0 days 0 days 0 days 0 days <b>347 days</b> 0 days 0 days 0 days	Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Thu 15/03/12	Fri 18/05/12 Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	◆ 19/2 ◆ 01/12	
119         Bilogas Hold           120         Filame Arres           121         Bilogas Boot           122         Pipework &           123         Site Possession           124         Bilogas Hold           125         Bilogas Hold           126         Bilogas Hold           127         Concrete PI           128         Concrete PI           129         Concrete PI           130         Installation	kding Tank Materials estor and Condensation Pot osfer & Valves on / Available dding Tank Concrete Slab dding Tank Valve Chamber Sfer Station Plinth for Waste Gas Burner in Stage I/I Plinth for Waste Gas Burner in Stage I/I	0 days 0 days 0 days 347 days 0 days 0 days 0 days 0 days	Mon 19/12/11 Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Thu 15/03/12	Mon 19/12/11 Thu 01/12/11 Tue 03/01/12	♦ <del>1912</del> ♦ 01/12	
120         Flame Arres           121         Blogas Boo           122         Pipework &           123         Site Possession           124         Blogas Hold           125         Blogas Hold           126         Blogas Hold           127         Concrete PI           128         Concrete PI           129         Concrete PI           129         Concrete PI           129         Concrete PI           130         Installation           131         Waste Gas	estor and Condensation Pot oster & Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber sfer Station Piinth for Waste Gas Burner in Stage I/I Piinth for Waste Gas Burner in Stage I/V	0 days 0 days 0 days 347 days 0 days 0 days 0 days 0 days	Thu 01/12/11 Tue 03/01/12 Tue 01/11/11 Thu 15/03/12	Thu 01/12/11 Tue 03/01/12		
121         Biogas Boo           122         Pipework &           123         Site Possession           124         Biogas Hold           125         Biogas Hold           126         Gas Transf.           127         Concrete PI           128         Concrete PI           129         Concrete PI           130         Installation	ioster & Yalves on / Available diding Tank Concrete Slab diding Tank Valve Chamber Sife Station Plinth for Waste Gas Burner in Stage I/I Plinth for Waste Gas Burner in Stage IV	0 days 0 days 347 days 0 days 0 days 0 days	Tue 03/01/12 Tue 01/11/11 Thu 15/03/12	Tue 03/01/12		
Pipework &           122         Pipework &           123         Site Possession           124         Biogas Hold           125         Biogas Hold           126         Gas Transf.           127         Concrete PI           128         Concrete PI           129         Concrete PI           130         Installation           131         Waste Gas	& Valves on / Available diding Tank Concrete Slab diding Tank Valve Chamber Sife Station Plinth for Waste Gas Burner in Stage I/I Plinth for Waste Gas Burner in Stage I/V	0 days 347 days 0 days 0 days 0 days	Tue 01/11/11 Thu 15/03/12		▲ 03/01	
Site Possession           123         Site Possession           124         Biogas Hold           125         Biogas Hold           126         Gas Transf.           127         Concrete PI           128         Concrete PI           129         Concrete PI           130         Installation           131         Waste Gas	on / Available Idding Tank Concrete Slab Idding Tank Vahe Chamber sfer Station Flinht for Waste Gas Burner in Stage I/I Plinth for Waste Gas Burner in Stage IV	347 days 0 days 0 days 0 days				
Biogas Hold           126         Gas Transfe           127         Concrete PI           128         Concrete PI           129         Concrete PI           130         Installation           131         Waste Gas	kding Tank Valve Chamber Sife Station Plinth for Waste Gas Burner in Stage I/I Plinth for Waste Gas Burner in Stage IV	0 days 0 days	Fri 16/03/12	Mon 25/02/13	• • • • • • • • • • • • • • • • • • • •	6
126     Gas Transfr       127     Concrete PI       128     Concrete PI       129     Concrete PI       130     Installation       131     Waste Gas	sfer Station Plinth for Waste Gas Burner in Stage I/II Plinth for Waste Gas Burner in Stage IV	0 days		Fri 16/03/12	1802	
127         Concrete Pl           128         Concrete Pl           129         Concrete Pl           130         Installation           131         Waste Gas	Plinth for Waste Gas Burner in Stage I/II Plinth for Waste Gas Burner in Stage IV		Fri 01/06/12	Fri 01/06/12		
Concrete Pl           129         Concrete Pl           130         Installation           131         Waste Gas	Plinth for Waste Gas Burner in Stage IV	aveb 0	Mon 25/02/13	Mon 25/02/13	●2502	2
Concrete Pl           130         Installation           131         Waste Gas			Thu 15/03/12	Thu 15/03/12	◆1 <sup>5/03</sup>	
130 Installation 131 Waste Gas		0 days 0 days	Wed 01/08/12 Thu 15/03/12	Wed 01/08/12 Thu 15/03/12		
131 Waste Gas		747 days	Thu 15/03/12 Thu 15/03/12	Mon 31/03/14		
	is Burner Installation in Stage I/II	90 days	Thu 15/03/12	Tue 12/06/12		
	is Burner Installation in Stage IV	91 days	Wed 01/08/12	Tue 30/10/12		
133 Dismantle o	of Existing Waste Gas Burner in Stage I/II	15 days	Tue 22/10/13	Tue 05/11/13		
	of Existing Waste Gas Burner in Stage IV	15 days	Thu 31/05/12	Thu 14/06/12	100%	
	Iding Tank Installation	512 days	Mon 07/05/12	Mon 30/09/13		
	n in New Valve Chamber for New Biogas Holding Tank	90 days		Fri 11/01/13	100%	
	n in Existing Valve Chamber No.1 & 2 for Existing Biogas Holding Tank	60 days 60 days	Thu 02/08/12 Thu 02/08/12	Sun 30/09/12 Sun 30/09/12	100%	
	n in Cas Transfer Station	60 days 396 days	Fri 01/03/13	Mon 31/03/14	100%	
	Sas Detection System Installation	60 days	Fri 31/01/14	Mon 31/03/14 Mon 31/03/14		
141 Testing and Co		270 days	Tue 03/09/13	Fri 30/05/14		
142						
143						
	Fank No.3 and Hot Water Circulation System	1063 days	Tue 01/11/11	Sun 28/09/14		
	d Material Delivery to Site	639 days	Tue 01/11/11	Thu 01/08/13		
146 Sludge Mixe 147 Draft Tube	xers e & Cast-in Items	0 days	Fri 25/01/13 Tue 09/04/13	Fri 25/01/13 Tue 09/04/13	◆ 2501	09/04
	a & Cast-in Items iorm for Sludge Mixers	0 days 0 days	Tue 09/04/13 Thu 01/08/13	Tue 09/04/13 Thu 01/08/13		♥-09/04
149 Hot Water E		0 days	Thu 01/08/13 Thu 02/05/13	Thu 02/05/13		▲ 02/05
	Recirculation Pump	0 days	Mon 10/06/13	Mon 10/06/13		- L.U.
151 Heat Excha		0 days	Tue 04/06/13	Tue 04/06/13		▲
152 Pipework &		0 days	Wed 01/05/13	Wed 01/05/13		♦ 01/05
	estor & Condensation Pot	0 days	Tue 01/11/11	Tue 01/11/11	<b>♦</b> 0.011	
154 Inspection V 155 Pressure Va	Window Vacuum Relief Valve c/w Flame Arrestor	0 days	Tue 01/11/11 Tue 01/11/11	Tue 01/11/11 Tue 01/11/11		
155 Pressure Va 156 Site Possession		0 days 101 days	Fri 01/11/13	Mon 10/02/14	<b>▼</b> 001	
	gestion Tank No.3 (Tank Top)	0 days	Fri 01/11/13	Fri 01/11/13		
	gestion Tank No.3 (Remaining Portions of Site)	0 days	Mon 10/02/14			
159 Site Works		441 days	Mon 15/07/13	Sun 28/09/14		
	r Circulation System		Mon 15/07/13	Sat 14/06/14		
	porary Works to Facilitate Civil Modification Works	30 days	Sat 01/03/14	Sun 30/03/14		
	Modification Works (By Civil Contractor)	30 days	Mon 31/03/14	Tue 29/04/14		
	Ilation of Hot Water Boiler, Recirculation Pump & Associated Pipework	305 days	Mon 15/07/13 Mon 17/02/14	Thu 15/05/14 Thu 15/05/14		
	rical Installation (with Temporary MCC) DA/PLC System	60 days 60 days	Mon 17/03/14 Mon 17/03/14	Thu 15/05/14 Thu 15/05/14		
	ng and Commissioning	30 days	Fri 16/05/14	Sat 14/06/14		
	igestion Tank No.3	332 days	Fri 01/11/13	Sun 28/09/14		
168 Installa	llation of Draft Tubes, Sludge Mixers, Heat Exchangers & Inspection Window	212 days	Fri 01/11/13	Sat 31/05/14		
	llation of GRP Platform	30 days	Fri 01/11/13	Sat 30/11/13		
	llation of Sludge, Biogas, Hot Water Recirculation, FeCI3 Dosing Pipework & Instruments	180 days	Thu 02/01/14	Mon 30/06/14		
	rical Installation	90 days	Wed 02/04/14	Mon 30/06/14		
	DA/PLC System	60 days	Fri 02/05/14	Mon 30/06/14		
173 Testing 174	ng and Commissioning	90 days	Tue 01/07/14	Sun 28/09/14		
174						
175 SAS Thickening Sys	ystem	762 days	Thu 01/03/12	Tue 01/04/14		
	Material Delivery to Site	285 days	Thu 01/03/12	Tue 11/12/12		
178 Centrifuge		0 days	Mon 16/07/12	Mon 16/07/12	↓16/07	
179 SAS Feed F	I Pump	0 days	Thu 30/08/12	Thu 30/08/12	▲_3008	
	olyte Feed Pump	0 days	Thu 30/08/12	Thu 30/08/12		
	J Sludge Storage Tank	0 days	Tue 11/12/12	Tue 11/12/12	◆11/12	
182 Pipework &		0 days	Fri 01/06/12	Fri 01/06/12		
183 Vibration Mo 184 PLC System	Monitoring System	0 days 0 days	Thu 01/03/12 Fri 01/06/12	Thu 01/03/12 Fri 01/06/12	◆ 01/03 01/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0600/0	
185 Site Possession		0 days	Fri 01/06/12	Fri 01/06/12		
	is Provision (By Civil Contractor)	0 days	Fri 01/06/12	Fri 01/06/12		
187 Installation		380 days	Mon 16/07/12	Tue 30/07/13		*****
	e, Vibration Monitoring System & Associated Accessories	30 days	Mon 16/07/12	Tue 14/08/12		
	Pump & Associated Pipework	30 days	Thu 30/08/12	Fri 28/09/12	1100%	
	olyte Feed Pump & Associated Pipework	16 days	Sat 29/09/12	Sun 14/10/12		— <u> </u>
	I Sludge Storage Tank & Associated Accessories	30 days	Tue 11/12/12	Wed 09/01/13	100%	
192 Centrate Pip 193 Existing L.V	Pipework V. Switchboard Modification	16 days 90 days	Thu 10/01/13 Sat 03/11/12	Fri 25/01/13 Thu 31/01/13		
193 Existing L.V 194 Electrical In		90 days 90 days	Sat 03/11/12 Fri 01/02/13	Wed 01/05/13		tinner.
195 SCADA/PLO		90 days 90 days	Thu 02/05/13	Tue 30/07/13		100%
196 Testing & Com		90 days	Thu 02/01/14	Tue 01/04/14		
197						
198						
199 Sludge Dewatering S			Thu 08/12/11			
200 Equipment & M	Material Delivery to Site	115 days	Thu 08/12/11	Sun 01/04/12	↓ 10%	
Rev. 7 Date: 17 Jan 2014	Critical Critical Progress	Split		Baseline Baseline Spli	Baseline Milestone Summary Progress External Tasks Deadline	



						ntrad: 15E/2009/09 upiment for Tai Po Sewage Treatment Works Stage 5 Phase 28
						Norks Programme
ID .	rask Name	Duration	Start	Finish	2011	2012 - 2013 Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec   Jan   Feb   Mar   Apr   May   Jun   Jul
201	Membrane Filter Press	0 days			Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan	teo mar Apr may jun jui Aug sep Oct Nov bec jan reo mar Apr may jun jui Aug sep Oct Nov bec jan reo mar Apr may jun jui
202	Sludge Feed Pump	0 days		Thu 08/12/11	▲ 08/12	
203	Polyelectrolyte Dosing Pump	0 days				▲ 01/04
204	Floctronic Sensor c/w Inline Mixer	0 days		Fri 20/01/12		2001
205	Pipework & Valves	0 days	Sun 01/04/12	Sun 01/04/12	•	
206	PLC System K Panel	0 days		Sun 01/04/12		
207	Site Possession / Available	0 days	Sun 01/04/12	Sun 01/04/12		01/04
208	Civil Works Provision (By Civil Contractor)	0 days	Sun 01/04/12	Sun 01/04/12		
209	Installation	275 days	Mon 27/02/12	Tue 27/11/12		100%
210	Membrane Filter Press	79 days	Mon 27/02/12	Tue 15/05/12		100%
211	Sludge Feed Pump & Associated Pipework	30 days	Wed 16/05/12	Thu 14/06/12		100%
212	Polyelectrolyte Dosing Pump & Associated Pipework	30 days	Fri 15/06/12	Sat 14/07/12		100%
213	Filtrate Pipework	15 days	Sun 15/07/12	Sun 29/07/12		100%
214	Existing L.V. Switchboard Modification & Electrical Installation	90 days	Fri 01/06/12	Wed 29/08/12		100%
215	Electrical Installation	90 days	Thu 30/08/12	Tue 27/11/12		<b>1</b> 00%
216	SCADA/PLC System	60 days	Sat 29/09/12	Tue 27/11/12		<b>*</b> 00%
217	Testing and Commissioning	576 days	Sun 02/12/12	Mon 30/06/14		The second s
218						
219						
220	Miscellaneous	151 days	Fri 01/11/13	Mon 31/03/14		
221	Hybrid Street Light Installation, Testing & Commissioning	127 days	Mon 25/11/13	Mon 31/03/14		
222	Automatic Weather Station Installation, Testing & Commissioning	151 days	Fri 01/11/13	Mon 31/03/14		

Rev. 7 Date: 17 Jan 2014       Critical Split       Critical Progress       Split       Critical Progress       Baseline Milestone       Summary Progress       Project Summary       External Milestone	
Rev. 7 Critical Progress Spit Baseline Baseline Milestone Summary Progress Progress External Milestone Baseline Milestone	
Per 7 Critical Critical Progress Split	

