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 January 2015

(Version 1.0)

Certified By –	(Environmental Team Leader)
REMARKS:	

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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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CINOTECH CONSULTANTS LTD Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong Tel: (852) 2151 2083 Fax: (852) 3107 1388 Email: info@cinotech.com.hk

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EXECUTIVE SUMMARY

Introduction

- 1. This is the 43rd 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 January 2015.
- 2. The major site activities undertaken in the reporting month included:
 - E&M installation of FC No.7B to 10B
 - Tie-in work of new RAS pipework for new Aeration Tanks NO. 5, 6 & 7 to existing RAS pipework
 - T&C for E&M installation at Aeration Tank No. 5, 6 & 7
 - T&C for Screw Pump No.4 at Stage IV Inlet Works
 - Installation of hot water pipework for Stage IV sludge digestion tanks
 - BS & FS installation for various areas

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

Donomotor	No. of Ex	ceedance	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
	Summary fuble for field mornhauton in the reporting month

Event	Event Details		Action Taken	Status	Remark	
Event	Number	Nature	ACTION TAKEN	Status	Kemark	
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 under EP	1	Monthly EM&A Report (December 2014)	Submitted to EPD on 19 th January 2015 (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:
 - T&C of E&M equipment for FC No.7B to 10B
 - T&C of E&M equipment for Aeration Tank No. 5, 6 & 7
 - T&C of new Air Blower No.1 and No.2
 - T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
 - Installation of hot water pipework for Stage IV sludge digestion tanks
 - T&C of E&M equipment for new Sludge Digestion Tank No.3
 - BS & FS installation for various areas
- 8. The future environmental concerns are air quality, noise impacts and waste management from construction works.

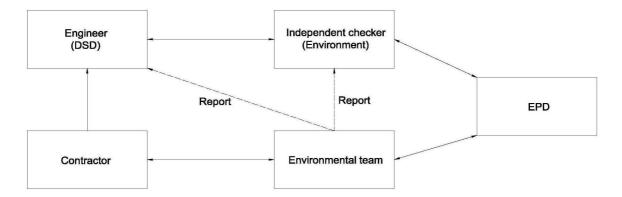
1 INTRODUCTION

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 m³/day to 130,000 m³/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 m³/d and 130,000 m³/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 m³/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 43rd monthly EM&A report summarizing the EM&A works for the Project in January2015.

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.	
DSD E&M Branch		Mr. TONG Sau Kit	Senior Engineer	2594 7304	4 2827 8532	
020	EXIM Dranch	Mr. TSE Ho	Engineer	2660 7638	2021 0332	
		Dr. Priscilla CHOY	ET Leader	2151 2089		
Cinotech	Environmental Team	Mr. Harris WONG	Project Coordinator and Audit Team Leader	2151 2098	3107 1388	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087		
Amo	Independent Environmental	Mr. Coleman NG	Independent Environmental Checker	2268 3097	2865 6493	
Arup	Checker	Mr. Edmond PUT	Assistant to Independent Environmental Checker	2528 3031	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
 - Tie-in work of new RAS pipework for new Aeration Tanks NO. 5, 6 & 7 to existing RAS pipework
 - T&C for E&M installation at Aeration Tank No. 5, 6 & 7
 - T&C for Screw Pump No.4 at Stage IV Inlet Works
 - Installation of hot water pipework for Stage IV sludge digestion tanks
 - BS & FS installation for various areas

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.

Monitoring Stations	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 μm 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 ± 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 m³/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 12 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.

- 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.

	report	ing monu				
Parameter	Minimum µg/m³	Maximum µg/m ³	Average µg/m ³	Action Level, μg/m ³	Limit Level, µg/m ³	
1-hr TSP (CAM1)	94	261	161	315	500	
24-hr TSP (CAM1)	60	128	84	171	260	
1-hr TSP (CAM2)	37	168	96	336	500	
24-hr TSP (CAM2)	38	74	58	177	260	
1-hr TSP (CAM3)	85	250	167	344	500	
24-hr TSP (CAM3)	70	147	99	192	260	

Table 2.4Summary Table of Air Quality Monitoring Results during the
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	2
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 min.) (L ₁₀ and L ₉₀ 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 4 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
NM1	59.7 67.8		64.5	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 9th, 14th, 20th and 26th January 2015 by ET. A joint site audit with the representative with ER, IEC, the Contractor and the ET was carried out on 14th January 2015. 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**.

Downik / Licongo N-	Valid Period From To		Deteile	C4a4r
Permit / License No.			= Details	Status
Environmental Permi	t (EP)			
EP-265/2007	 22/3/2007 N/A Expansion and upgrading of existing Tai Po Sewage Treatment Works from 100,000 m³/day to 130,000 m³/day: (a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers); (b) reconstruction of 4 existing final clarified; (c) provision of ultraviolet disinfection facilities; (d) additional sludge treatment facilities; and (e) ancillary works to existing 		 <u>Tai Po Sewage Treatment Works from</u> <u>100,000 m³/day to 130,000 m³/day:</u> (a) additional secondary treatment process units(1 primary clarified; 3 bioreactors and 2 final clarifiers); (b) reconstruction of 4 existing final clarified; (c) provision of ultraviolet disinfection facilities; (d) additional sludge treatment facilities; and 	Valid
Registration of Chemi	ical Waste Pro	oducer		
		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 4.1	Summary of Environmental Licensing and Permit Status
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Status of Waste Management

4.5 The Construction and Demolition (C&D) materials generated in the reporting month were 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 9th, 14th and 20th January 2015. 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	26 January 2015	Regularly clear the accumulated general refuse. (Near JEC site office)	Follow-up action will be reported during the next reporting period.

Table 4.2	Observations and Recommendations of Site Audit

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; 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:
 - T&C of E&M equipment for FC No.7B to 10B
 - T&C of E&M equipment for Aeration Tank No. 5, 6 & 7
 - T&C of new Air Blower No.1 and No.2
 - T&C of Screw Pump No.4 and 8 at Stage IV Inlet Works
 - Installation of hot water pipework for Stage IV sludge digestion tanks
 - T&C of E&M equipment for new Sludge Digestion Tank No.3
 - BS & FS installation for various areas

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.

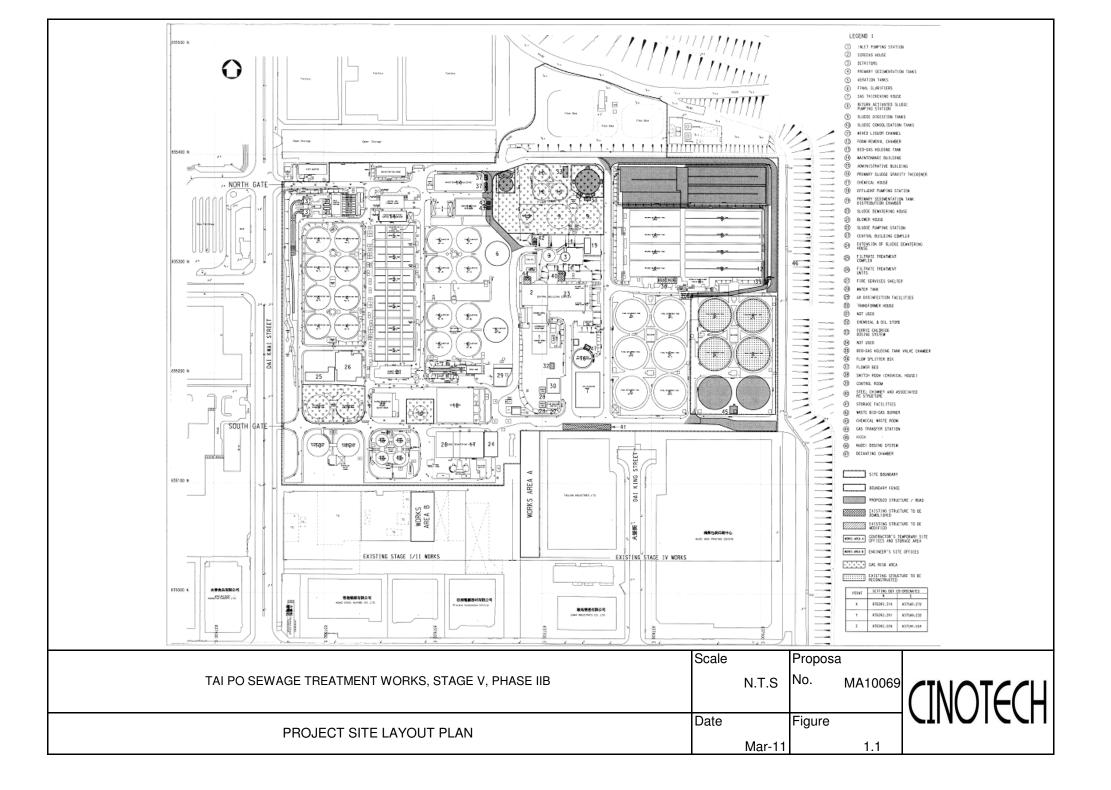
Recommendations

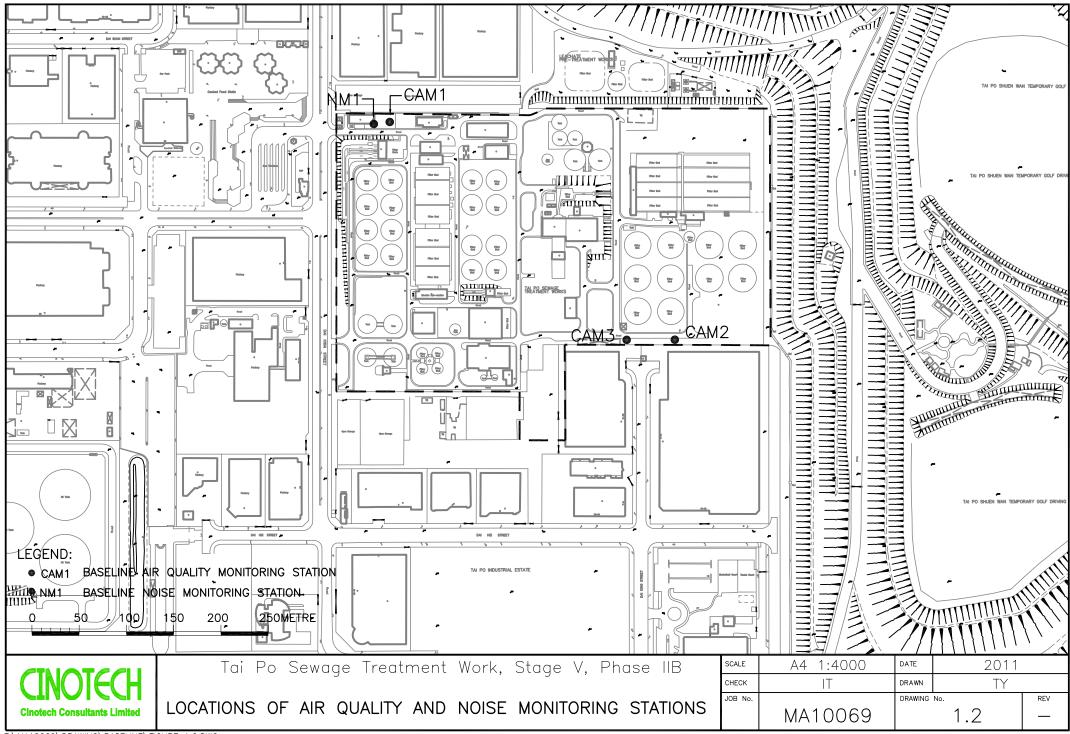
6.4 According to the environmental audit performed in the reporting month, the following recommendations were made:

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.

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 ³	Limit Level, µg/m ³
CAM1	315	
CAM2	336	500
CAM3	344	

24-Hour TSP

Location	Action Level, µg/m ³	Limit Level, µg/m ³
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

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



						File No.	MA0010/37/0060
Station	CAM1 - Govern	ment Staff Quarte	•	Operator:	WK		
Date:	8-Dec-14		Next Due Date:		7-Feb-	15	
Equipment No.:	A-01-37			Serial No.	1704		
• 1.5.+++			Ambient	Condition	÷		· · · · · · · ·
Temperatu	re Ta (K)	288.2	Pressure, Pa			769.5	
Tomperata	io, iu (ii)	200.2	11005410,11	(iiiiiii)			
		Ori	fice Transfer St	andard Inform	ation		ne di stata ne più e presidenti Manetta di
Equipme	ent No.:	A-04-04	Slope, mc	0.0582	Intercept		-0.0249
Last Calibra	ation Date:	27-Sep-14			oe = [ΔH x (Pa/76		
Next Calibr	ation Date:	26-Sep-15		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] ^{1/2} -bc} /	mc
		•					
			Calibration o	f TSP Sampler			
Calibration		Orfi	ce			HVS	
Point	∆H (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	∆W (HVS), in. of oil	[ΔW x (Pa/7	60) x (298/Ta)] ^{1/2} Y- axis
1	11.8	3.	51	60.82	7.9		2.88
2	9.7	3.	19	55.18	6.4		2.59
3	7.6	2.	82	48.89	5.0		2.29
4	5.4	2.	38	41.28	3.3		1.86
5	3.3	1.	86	32.36	2.1		1.48
Slope , mw =	-	-		Intercept, bw	-0.145	3	
Correlation c		0.99					
*If Correlation (Coefficient < 0.99	0, check and recal	ibrate.				
			Set Point (Calculation			
From the TSP F	ield Calibration (Curve, take Qstd =					
		e "Y" value accor					
			-				
		mw x Q	std + bw = $[\Delta W]$	' x (Pa/760) x (2	.98/Ta)] ^{1/2}		
Therefore S	et Point: W == (m	$1 \le 1 \le$	v (760 / Pa) v ($T_{9}/208) =$	3.77		
Therefore, 3	-(1)	IW X QSIU + UW J	x(/00/14)X(147 290)			
Remarks:							
	· ····		1	1			
Conducted by:	WK. Jang	Signature:	Ku	víni /	-	Date:	8/12/14
Checked by:		Signature:			_	Date:	B December de
-		-		V		-	

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



Station CAM2 - Hung Hing Printing Centre Operator: WK Date: 8-Dec-14 Next Due Date: 7-Feb-15 Equipment No.: A-01-40 Serial No. 10239 Ambient Condition Temperature, Ta (K) 288.1 Pressure, Pa (mmHg) 74 Orifice Transfer Standard Information Equipment No.: A-04-04 Slope, mc 0.0582 Intercept, bc Last Calibration Date: 27-Sep-14 mc x Qstd + bc = [Δ H x (Pa/760) x (29 Next Calibration Date: 26-Sep-15 Qstd = {[Δ H x (Pa/760) x (298/Ta)] ^{1/2}	
Equipment No.: A-01-40 Serial No. 10239 Ambient Condition Intercept Intercept <td></td>	
Ambient Condition Temperature, Ta (K) 288.1 Pressure, Pa (mmHg) 76 Orifice Transfer Standard Information 76 Equipment No.: A-04-04 Slope, mc 0.0582 Intercept, bc Last Calibration Date: 27-Sep-14 mc x Qstd + bc = [\DeltaH x (Pa/760) x (29)	
Temperature, Ta (K) 288.1 Pressure, Pa (mmHg) 74 Orifice Transfer Standard Information Equipment No.: A-04-04 Slope, mc 0.0582 Intercept, bc Last Calibration Date: 27-Sep-14 mc x Qstd + bc = [ΔH x (Pa/760) x (29)	
Orifice Transfer Standard Information Equipment No.: A-04-04 Slope, mc 0.0582 Intercept, bc Last Calibration Date: 27-Sep-14 mc x Qstd + bc = [ΔH x (Pa/760) x (29)]	
Equipment No.:A-04-04Slope, mc 0.0582 Intercept, bcLast Calibration Date:27-Sep-14mc x Qstd + bc = [$\Delta H x$ (Pa/760) x (29	69.4
Equipment No.:A-04-04Slope, mc 0.0582 Intercept, bcLast Calibration Date:27-Sep-14mc x Qstd + bc = [$\Delta H x$ (Pa/760) x (29	
Last Calibration Date: 27 -Sep-14mc x Qstd + bc = [Δ H x (Pa/760) x (29	-0.0249
12	
Next Calibration Date. 20-Sep-15 Quart A (147-00) A (250-14)	
•	
Calibration of TSP Sampler	
Colibration	IVS
$\begin{array}{c} \text{Canoration} \\ \text{Point} \end{array} \begin{array}{c} \Delta \text{H (orifice),} \\ \text{in. of water} \end{array} \begin{bmatrix} \Delta \text{H x (Pa/760) x (298/Ta)} \end{bmatrix}^{1/2} \\ \begin{array}{c} \text{Qstd (CFM)} \\ \textbf{X - axis} \end{array} \begin{array}{c} \Delta \text{W} \\ (\text{HVS), in. of oil} \end{array} \begin{bmatrix} \Delta \text{W x} \\ \end{array} \end{array}$	(Pa/760) x (298/Ta)] ^{1/2} Y- axis
1 11.6 3.49 60.31 8.1	2.91
2 9.8 3.20 55.47 6.5	2.61
3 7.5 2.80 48.58 5.0	2.29
4 5.1 2.31 40.13 3.3	1.86
5 3.2 1.83 31.88 2.0	1.45
By Linear Regression of Y on X Slope , mw =	·
*If Correlation Coefficient < 0.990, check and recalibrate.	
Set Point Calculation	
From the TSP Field Calibration Curve, take $Qstd = 43$ CFM	
From the Regression Equation, the "Y" value according to	
mw x Qstd + bw = $[\Delta W x (Pa/760) x (298/Ta)]^{1/2}$	
Therefore, Set Point; $W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = 3.84$	
$\frac{1}{100000, 501000, 901000, 90000} = \frac{3.84}{3.84}$	
Remarks:	
	0/10/11/
Conducted by: <u>IAK lang</u> Signature: <u>Huran</u> Date:	8/12/14
Checked by: $\begin{array}{c} & & \\$	6 December (

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA0010/35/0060

WK
Feb-15
0810
769.6
rcept, bc -0.0249
$(298/Ta)]^{1/2}$
(298/Ta)] ^{1/2} -bc} / mc
HVS
$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-
foil axis
2.80
2.51
2.24
1.86
1.45
3
0.0867
.0867
.0867
.0867
.0867
.0867
3.60
<u>р.0867</u> 3.60 Date: <u>8[(г]14</u>
3.60



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

Calibration Orifice
0993
TE-5025A
27 September 2014

Manufacturer Temperature,Ta (K) Pressure, Pa (mmHg) Equipment No.:

TISCH 299 761.8 A-04-04

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H₂O (in.)
1	1.00	1.4230	3.3	2.00
2	1.00	1.0050	6.5	4.00
3	1.00	0.8950	8.2	5.00
4	1.00	0.8570	9.0	5.50
5	- 1.00	0.7080	13.0	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9947	0.6990	1.4135
0.9905	0.9856	1.9990
0.9883	1.1042	2.2350
0.9872	1.1519	2.3441
0.9820	1.3870	2.8270

Y axis= SQRT[H₂O(Pa/760)(298/Ta)] Qstd Slope (m) = <u>2.05398</u>

Intercept (b) = $\frac{2.03398}{-0.02487}$

Coefficient (r) = 0.99996

Va	(X axis)	(Y axis)
	Qa	
0.9957	0.6997	0.8860
0.9915	0.9865	1.2530
0.9892	1.1053	1.4009
0.9882	1.1531	1.4693
0.9829	1.3883	1.7720
Y axis= SQR	T[H ₂ O(Ta/Pa)]

Qa Slope (m) = <u>1.28617</u>

Intercept (b) = -0.01559Coefficient (r) = 0.99996

0.99999

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: $Qstd=I/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}$ $Qa=I/m{[SQRT H_2O(Ta/Pa)]-b}$

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

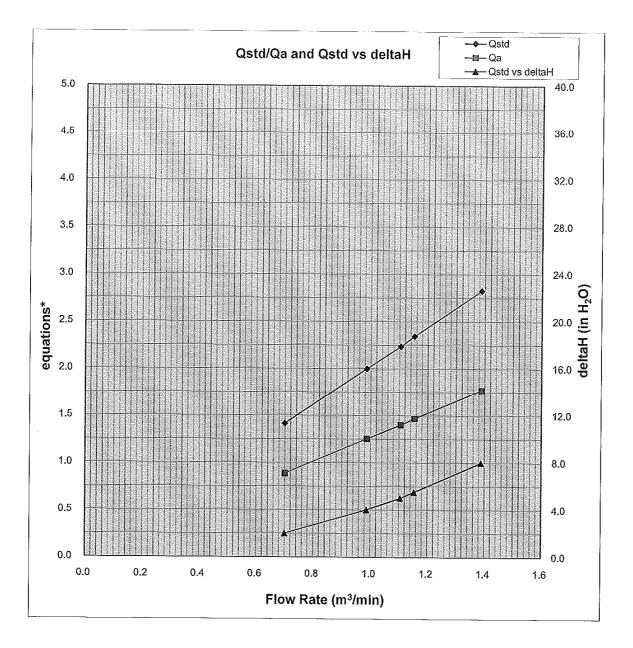
Fizik /la

PATRICK TSE Laboratory Manager

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TEST REPORT



Y-axis equations:

Qstd series: SQRT[△H(Pa/Pstd)(Tstd/Ta)]

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

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TEST REPORT

APPLICANT:Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong KongTest H
Date I
Date I

Mr. W.K Tang

Test Report No.:	CA/140426
Date of Issue:	2014-04-27
Date Received:	2014-04-26
Date Tested:	2014-04-26
Date Completed:	2014-04-27
Next Due Date:	2015-04-26
Page:	1 of 1

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	: 19 degree Celsius
Relative Humidity	: 60%
Pressure	: 101.4 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

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TEST REPORT

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

Test Report No.:	C/N/140919/3
Date of Issue:	2014-09-21
Date Received:	2014-09-19
Date Tested:	2014-09-21
Date Completed:	2014-09-21
Next Due Date:	2015-09-20
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.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperatre Relative Humidity : 23 degree Celsius : 55%

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

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TEST REPORT

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

Test Report No.:	C/N/140822/1
Date of Issue:	2014-08-25
Date Received:	2014-08-22
Date Tested:	2014-08-22
Date Completed:	2014-08-25
Next Due Date:	2015-08-24
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 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperatre Relative Humidity : 22 degree Celsius : 55%

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

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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 Test Report No.: C/N/141003/1 **Cinotech Consultants Limited APPLICANT:** Date of Issue: 2014-10-04 Room 1710, Technology Park, Date Received: 2014-10-03 18 On Lai Street, Date Tested: 2014-10-03 Shatin, NT, Hong Kong Date Completed: 2014-10-04 Next Due Date: 2015-10-03 Page: 1 of 1 **ATTN:** Mr. W.K. Tang Item for calibration: : Acoustical Calibrator Description : SVANTEK Manufacturer Model No. : SV30A Serial No. : 24803 Equipment No. : N-09-03 **Test conditions:** : 22 degree Celsius Room Temperatre **Relative Humidity** : 56% 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 ± 0.1 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

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	TESI	r REPOR	кт	
APPLICANT:	Cinotech Consultants I Room 1710, Technolog		Test Report No.: Date of Issue:	C/N/141003/3 2014-10-04
	18 On Lai Street,	<i>.</i> ,	Date Received:	2014-10-03
	Shatin, NT, Hong Kong	g	Date Tested:	2014-10-03
			Date Completed: Next Due Date:	2014-10-04 2015-10-03
ATTN:	Mr. W.K. Tang		Page:	1 of 1
Item for calibration	ation:			
	Description	: Acoustic	al Calibrator	
	Manufacturer	: SVANTI	EK	
	Model No.	: SV30A		
	Serial No.	: 24780		
	Equipment No.	: N-09-05		
Test conditions	:			
	Room Temperatre	: 22 degre	e Celsius	

Methodology:

/ELLAB)) Testing & Research .

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 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

: 56%

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

Relative Humidity

atul

PATRICK TSE Laboratory Manager

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APPENDIX C ENVIRONMENTAL MONITORING SCHEDULE

Contract No. DE/2009/09 - Construction of Tai Po Sewage Treatment Works - Stage 5 Phase 2B Impact Air Quality and Noise Monitoring Schedule for January 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Jan	2-Jan	3-Jan
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	1 hr TSP		1 hr TSP	1 hr TSP		
			Noise			
	24 hr TSP					24 hr TSP
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
	11 700			11 500	11 700	
	1 hr TSP Noise			1 hr TSP	1 hr TSP	
	NOISC				24 hr TSP	
					21111101	
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
	11 500			11 500	11 500	
	1 hr TSP Noise			1 hr TSP	1 hr TSP	
	INDISC			24 hr TSP		
				21111101		
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
		1 hr TSP	1 hr TSP	1 hr TSP		
			Noise	24 hr TSD		
				24 hr TSP		

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 February 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb
	1 hr TSP Noise	1 hr TSP 24 hr TSP	1 hr TSP			
8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb
	1 hr TSP Noise 24 hr TSP	1 hr TSP			1 hr TSP	24 hr TSP
15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb
	1 hr TSP	1 hr TSP Noise 24 hr TSP				
22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb
			1 hr TSP 24 hr TSP	1 hr TSP Noise	1 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 ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jan-15	09:00	Sunny	291.8	764.7	3.1620	3.1803	0.0183	24053.1	24054.1	1.0	1.21	1.21	1.21	72.6	252
7-Jan-15	11:00	Cloudy	290.9	767.3	3.2531	3.2615	0.0084	24078.1	24079.1	1.0	1.21	1.21	1.21	72.8	115
8-Jan-15	09:00	Cloudy	287.1	773.0	3.2198	3.2317	0.0119	24079.1	24080.1	1.0	1.23	1.23	1.23	73.5	162
12-Jan-15	09:00	Cloudy	287.0	769.4	3.2437	3.2522	0.0085	24104.1	24105.1	1.0	1.22	1.22	1.22	73.4	116
15-Jan-15	10:00	Cloudy	285.5	771.6	3.1966	3.2158	0.0192	24105.1	24106.1	1.0	1.23	1.23	1.23	73.7	261
16-Jan-15	16:00	Sunny	292.5	767.7	3.1936	3.2062	0.0126	24106.1	24107.1	1.0	1.21	1.21	1.21	72.7	173
19-Jan-15	10:00	Sunny	286.7	771.6	3.1714	3.1808	0.0094	24131.1	24132.1	1.0	1.23	1.23	1.23	73.5	128
22-Jan-15	09:00	Sunny	290.9	770.3	3.1874	3.1946	0.0072	24132.1	24133.1	1.0	1.22	1.22	1.22	73.0	99
23-Jan-15	11:20	Sunny	289.4	768.9	3.2102	3.2237	0.0135	24157.1	24158.1	1.0	1.22	1.22	1.22	73.1	185
27-Jan-15	14:00	Sunny	291.1	767.2	3.2041	3.2174	0.0133	24158.1	24159.1	1.0	1.21	1.21	1.21	72.8	183
28-Jan-15	09:00	Cloudy	289.4	767.6	3.2024	3.2149	0.0125	24159.1	24160.1	1.0	1.22	1.22	1.22	73.0	171
29-Jan-15	16:00	Sunny	292.1	766.3	3.1788	3.1856	0.0068	24184.1	24185.1	1.0	1.21	1.21	1.21	72.7	94
														Min	94
														Max	261

Station CAM2 Heng Hing Printing Centre

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jan-15	09:00	Sunny	291.8	764.7	3.1810	3.1931	0.0121	30328.3	30329.3	1.0	1.20	1.20	1.20	72.1	168
7-Jan-15	11:00	Cloudy	290.9	767.3	3.1417	3.1474	0.0057	30353.3	30354.3	1.0	1.20	1.20	1.20	72.3	79
8-Jan-15	09:00	Cloudy	287.1	773.0	3.2073	3.2152	0.0079	30354.3	30355.3	1.0	1.22	1.22	1.22	73.0	108
12-Jan-15	09:00	Cloudy	287.0	769.4	3.2332	3.2400	0.0068	30379.3	30380.3	1.0	1.21	1.21	1.21	72.8	93
15-Jan-15	10:15	Sunny	285.5	771.6	3.2036	3.2114	0.0078	30380.3	30381.3	1.0	1.22	1.22	1.22	73.1	107
16-Jan-15	16:00	Sunny	292.5	767.7	3.2641	3.2720	0.0079	30381.3	30382.3	1.0	1.20	1.20	1.20	72.1	110
19-Jan-15	10:15	Sunny	286.7	771.6	3.2018	3.2080	0.0062	30406.3	30407.3	1.0	1.22	1.22	1.22	73.0	85
22-Jan-15	09:00	Sunny	290.9	770.3	3.1722	3.1749	0.0027	30407.3	30408.3	1.0	1.21	1.21	1.21	72.4	37
23-Jan-15	11:20	Sunny	289.4	768.9	3.2360	3.2402	0.0042	30432.3	30433.3	1.0	1.21	1.21	1.21	72.5	58
27-Jan-15	14:00	Sunny	291.1	767.2	3.1667	3.1754	0.0087	30433.3	30434.3	1.0	1.20	1.20	1.20	72.3	120
28-Jan-15	09:00	Cloudy	289.4	767.6	3.1664	3.1753	0.0089	30434.3	30435.3	1.0	1.21	1.21	1.21	72.5	123
29-Jan-15	16:00	Sunny	292.1	766.3	3.1563	3.1612	0.0049	30459.3	30460.3	1.0	1.20	1.20	1.20	72.1	68
														Min	37
														Max	168

Average 96

161

Average

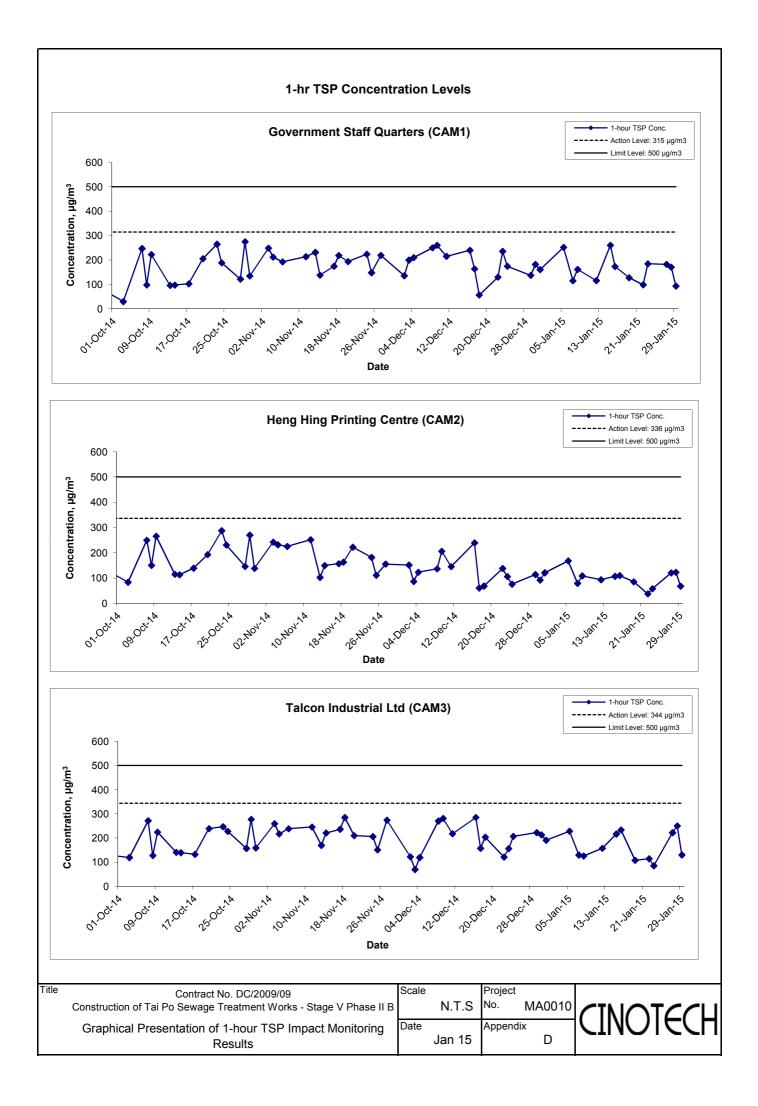
Appendix D - 1-hour TSP Monitoring Results

Station CAM3

Talcon Industrial Ltd

Date	Sampling	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Dale	Time	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jan-15	09:00	Sunny	291.8	764.7	3.1721	3.1886	0.0165	24462.9	24463.9	1.0	1.21	1.20	1.21	72.3	228
7-Jan-15	11:00	Cloudy	290.9	767.3	3.1876	3.1970	0.0094	24487.9	24488.9	1.0	1.21	1.21	1.21	72.5	130
8-Jan-15	09:00	Cloudy	287.1	773.0	3.2181	3.2273	0.0092	24488.9	24489.9	1.0	1.22	1.22	1.22	73.3	126
12-Jan-15	09:00	Cloudy	287.0	769.4	3.2301	3.2416	0.0115	24513.9	24514.9	1.0	1.22	1.22	1.22	73.1	157
15-Jan-15	10:15	Sunny	285.5	771.6	3.2081	3.2240	0.0159	24514.9	24515.9	1.0	1.22	1.22	1.22	73.4	217
16-Jan-15	16:00	Sunny	292.5	767.7	3.2402	3.2571	0.0169	24515.9	24516.9	1.0	1.21	1.21	1.21	72.4	234
19-Jan-15	10:15	Sunny	286.7	771.6	3.2015	3.2094	0.0079	24540.9	24541.9	1.0	1.22	1.22	1.22	73.2	108
22-Jan-15	09:00	Sunny	290.9	770.3	3.2103	3.2186	0.0083	24541.9	24542.9	1.0	1.21	1.21	1.21	72.7	114
23-Jan-15	11:20	Sunny	289.4	768.9	3.2158	3.2220	0.0062	24566.9	24567.9	1.0	1.21	1.21	1.21	72.8	85
27-Jan-15	14:00	Sunny	291.1	767.2	3.1901	3.2062	0.0161	24567.9	24568.9	1.0	1.21	1.21	1.21	72.5	222
28-Jan-15	09:00	Cloudy	289.4	767.6	3.2057	3.2239	0.0182	24568.9	24569.9	1.0	1.21	1.21	1.21	72.7	250
29-Jan-15	16:00	Sunny	292.1	766.3	3.1803	3.1897	0.0094	24593.9	24594.9	1.0	1.21	1.21	1.21	72.3	130
														Min	85
														Max	250

Max 250 Average 167



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 ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m³)
5-Jan-15	Cloudy	291.9	764.3	3.1776	3.3360	0.1584	24054.1	24078.1	24.0	1.21	1.21	1.21	1742.2	91
10-Jan-15	Cloudy	288.3	771.6	3.1943	3.3027	0.1084	24080.1	24104.1	24.0	1.22	1.22	1.22	1760.1	62
16-Jan-15	Sunny	291.3	766.3	3.1284	3.2668	0.1384	24107.1	24131.1	24.0	1.21	1.21	1.21	1746.2	79
22-Jan-15	Cloudy	291.1	770.1	3.1716	3.3950	0.2234	24133.1	24157.1	24.0	1.22	1.22	1.22	1750.6	128
28-Jan-15	Sunny	289.9	759.9	3.2101	3.3142	0.1041	24160.1	24184.1	24.0	1.21	1.21	1.21	1743.1	60
													Min	60
													Max	128
													Average	84

Station CAM2 Heng Hing Printing Centre

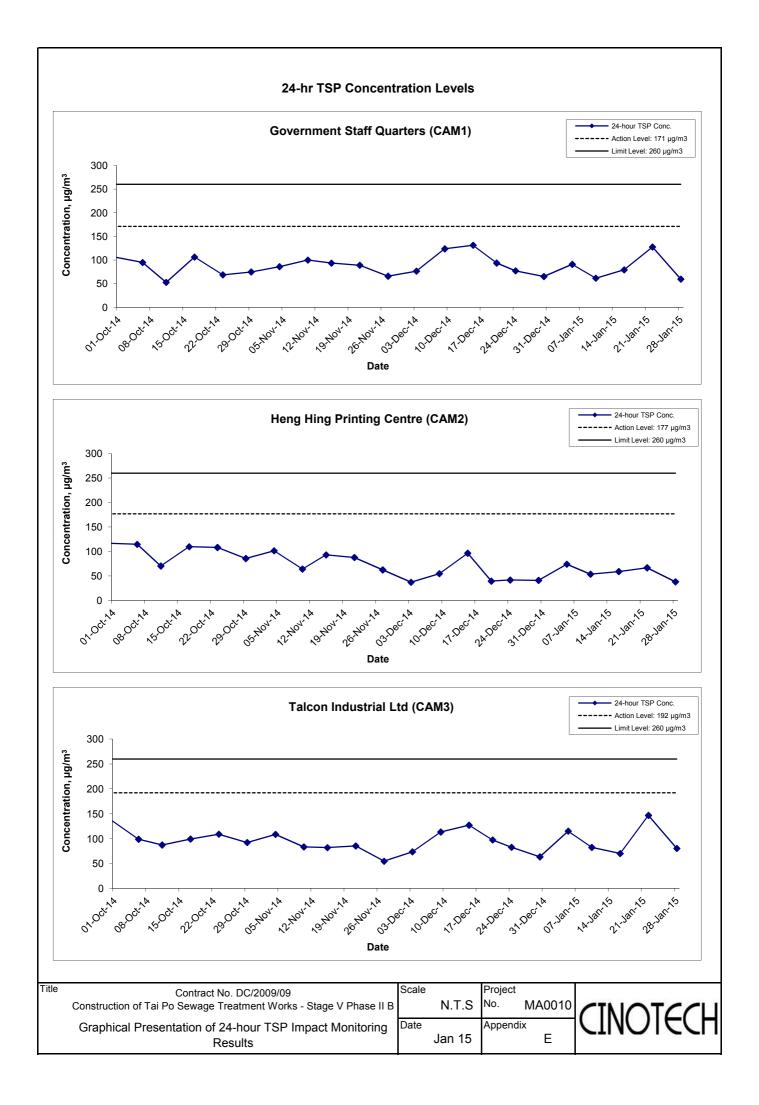
Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elaps	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jan-15	Cloudy	292.6	764.0	3.1583	3.2861	0.1278	30329.3	30353.3	24.0	1.20	1.20	1.20	1726.8	74
10-Jan-15	Cloudy	288.3	771.6	3.2377	3.3313	0.0936	30355.3	30379.3	24.0	1.21	1.21	1.21	1746.4	54
16-Jan-15	Sunny	291.3	766.3	3.1574	3.2595	0.1021	30382.3	30406.3	24.0	1.20	1.20	1.20	1732.7	59
22-Jan-15	Cloudy	291.1	770.1	3.1745	3.2903	0.1158	30408.3	30432.3	24.0	1.21	1.21	1.21	1737.1	67
28-Jan-15	Sunny	289.9	759.9	3.2089	3.2747	0.0658	30435.3	30459.3	24.0	1.20	1.20	1.20	1729.8	38
													Min	38
													Max	74
													Average	58

Station CAM3

Talcon Industrial Ltd

Start Date	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Start Date	Condition	Temp. (K)	Pressure (Pa)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jan-15	Cloudy	292.6	764.0	3.1362	3.3354	0.1992	24463.9	24487.9	24.0	1.20	1.20	1.20	1732.6	115
10-Jan-15	Cloudy	288.3	771.6	3.2402	3.3847	0.1445	24489.9	24513.9	24.0	1.22	1.22	1.22	1753.0	82
16-Jan-15	Sunny	291.3	766.3	3.1547	3.2765	0.1218	24516.9	24540.9	24.0	1.21	1.21	1.21	1738.8	70
22-Jan-15	Cloudy	291.1	770.1	3.1872	3.4430	0.2558	24542.9	24566.9	24.0	1.21	1.21	1.21	1743.3	147
28-Jan-15	Sunny	289.9	759.9	3.2115	3.3509	0.1394	24569.9	24593.9	24.0	1.21	1.21	1.21	1735.6	80
-						-			-			-	Min	70
													Max	147

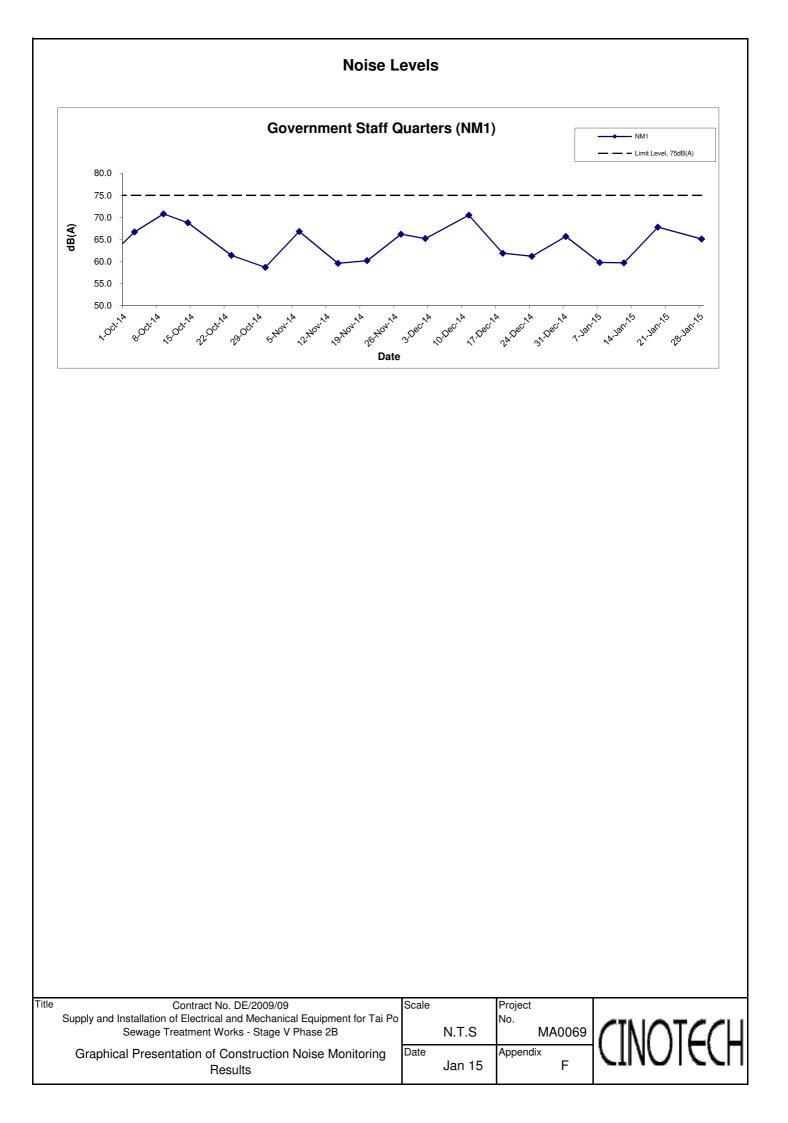
Average 99



APPENDIX F NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - Noise Monitoring Results

Location NM1	- Governme	ent Staff Quar	ters		
Data	These	\A/a ath an	dB	6 (A) (30-min)	
Date	Time	Weather	L _{eq}	L ₁₀	L ₉₀
7-Jan-15	10:35	Cloudy	59.8	62.4	57.7
12-Jan-15	9:05	Cloudy	59.7	62.5	57.8
19-Jan-15	11:15	Sunny	67.8	70.0	64.3
28-Jan-15	13:00	Cloudy	65.1	67.5	60.4
		Average	64.5	65.6	60.1
		Minimum	59.7	62.4	57.7
		Maximum	67.8	70.0	64.3



APPENDIX G SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: January 2015

- 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

Checklist Reference Number	150109	
Date	9 January 2015 (Friday)	
Time	9:30 - 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.	
	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. 	
	 <i>Part G - Permit / Licenses</i> No environmental deficiency was identified during the site inspection. 	
	 <i>Part H – Remark</i> No environmental deficiency was identified during the site inspection. 	
	Others • Follow-up on the previous audit session (Ref. No.141229), and environmental deficiency was identified during the site inspection.	10

	Name	Signatyre	Date
Recorded by	Harris Wong	A	9 January 2015
Checked by	Dr. Priscilla Choy	WE	9 January 2015

Checklist Reference Number	150114
Date	14 January 2015 (Wednesday)
Time	10:00 - 11:00

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.	
	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.	
	 <i>Part F - Waste / Chemical Management</i> No environmental deficiency was identified during the site inspection. 	
	 <i>Part G - Permit / Licenses</i> No environmental deficiency was identified during the site inspection. 	
	Part H – Remark	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.150109), n environmental deficiency was identified during the site inspection.	0

	Name	Signatyre	Date
Recorded by	Harris Wong	A	14 January 2015
Checked by	Dr. Priscilla Choy	WIL	14 January 2015

Checklist Reference Number	150120	
Date	20 January 2015 (Tuesday)	
Time	15:45 - 16:40	

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.	
	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.	
	Others	
	• Follow-up on the previous audit session (Ref. No.150114), r environmental deficiency was identified during the site inspection.	10

	Name	Signatur	Date
Recorded by	Harris Wong	LAA	20 January 2015
Checked by	Dr. Priscilla Choy	ht	20 January 2015

Checklist Reference Number	150126
Date	26 January 2015 (Monday)
Time	09:40 - 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.	
	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	
150126-R01	• Regularly clear the accumulated general refuse. (Near JEC site office)	F1i
	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.	
	Others	
	• Follow-up on the previous audit session (Ref. No.150126),	no
	environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Harris Wong	An	26 January 2015
Checked by	Dr. Priscilla Choy	WIT	26 January 2015

APPENDIX I EVENT ACTION PLANS

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

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

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

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

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
	 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: Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport Chemical waste containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents. Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	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	Recommended Mitigation Measures Good site practices during the construction activities include: □ • 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. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • 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. • In order to monitor the disposal of C&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. • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed.	Status √
	 Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. 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. Any unused chemicals or those with remaining functional capacity shall be recycled. Maximize the use of reusable steel formwork to reduce the amount of C&D material. Prior to disposal of C&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. Proper storage and site practices to minimize the potential for damage or contamination of construction materials. Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering 	√
	<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.	V
	<i>Construction & Demolition (C&D) Material</i> 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.	V

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 2015

		Annual Quan	tities of Inert Co	&D Materials Ger	nerated Monthly		An	nual Quantities o	f C&D Materials	Generated Mont	hly
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
	(in m ³)	$(in m^3)$	$(in m^3)$	(in m ³)	(in m ³)	(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	0	0	3.3
Feb											
Mar											
Apr											
May											
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	3.3

	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 ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in tonne)
0	20	0	0	20	0	100	100	50	10	500

Notes: (1)

(2) (3) (4)

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 m³. (PS Clause 1.40.7(4)(b) refers.

APPENDIX L COMPLAINT LOG

APPENDIX L – COMPLAINT LOG

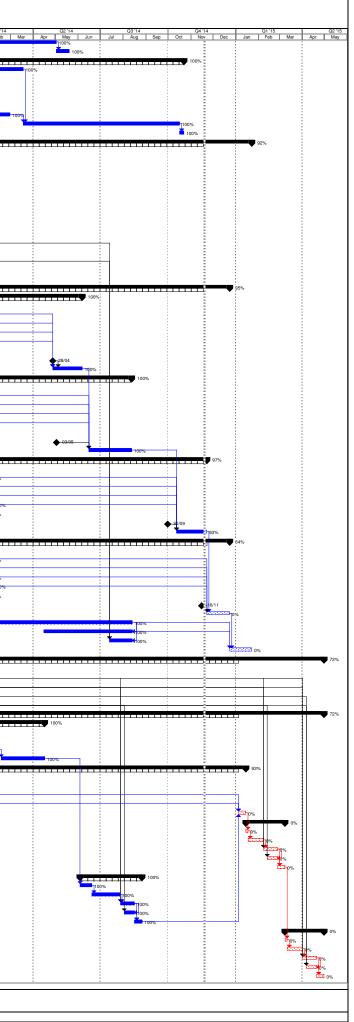
Reporting Month: January 2015

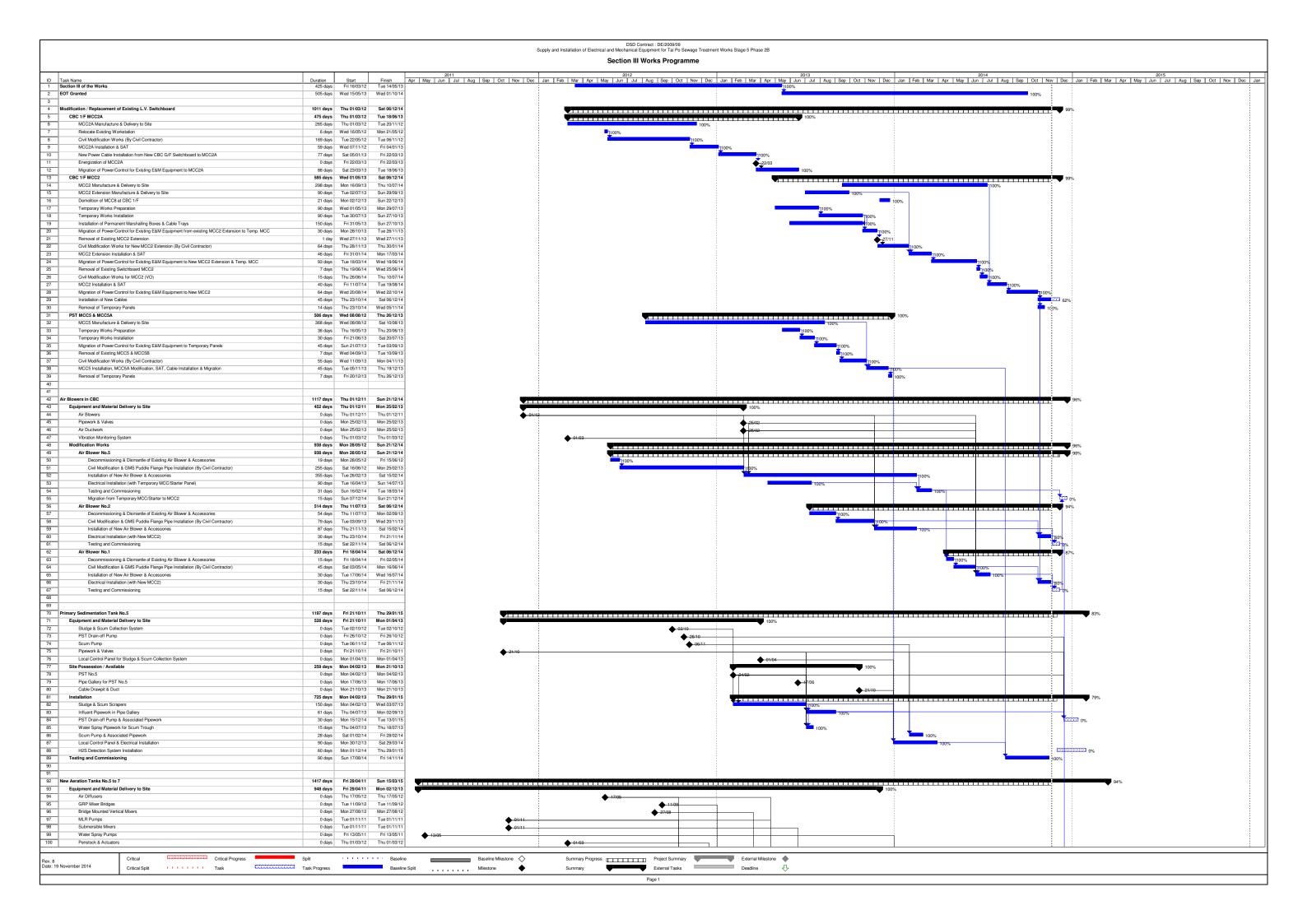
Log Ref.	Location	ation Received Details of Date Complaint		Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A	N/A

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

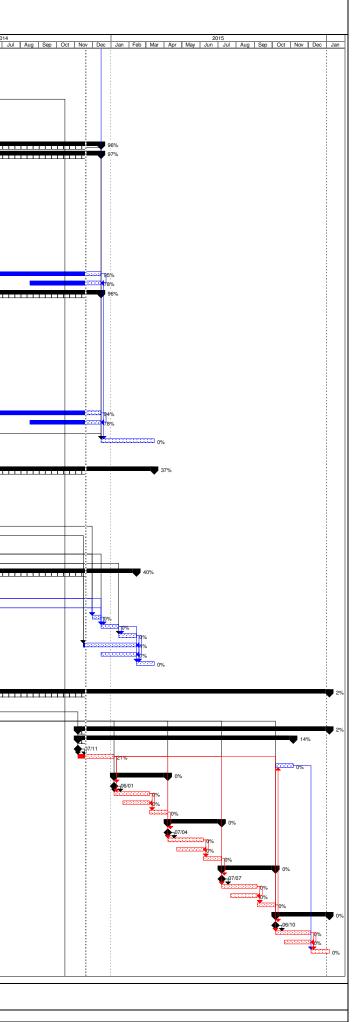
APPENDIX M CONSTRUCTION PROGRAMME

								S	ection II Works Progr	ramme				
ID	Task Name	Duration Start Finish		Q2 11 Q3 11 Apr May Jun Jul Aug	Sep	Q4 '11 Oct Nov Dec	Q1 '12 Jan Feb Mar	Q2 '12 Apr May Jun	Q3 '12 Jul Aug Sep	Q4 '12 Oct Nov Dec	Q1 '13 Jan Feb Mar	Q2 '13 Apr May Jun	Q3 '13 Jul Aug Sep	Q4 '13 Oct Nov
2	Section II of the Works EOT Granted	243 days Mon 02/09/13 Fri 02/05/14 17.5 days Sat 03/05/14 Tue 20/05/14												
3	Modification / Replacement of Existing L.V. Switchboard (RAS MCC3) MCC3 Manufacture & Delivery to Site	478 days Tue 02/07/13 Wed 22/10/14 230 days Thu 01/08/13 Tue 18/03/14					- - 						•••••••	
5	Temporary Works Preparation	62 days Tue 02/07/13 Sun 01/09/13	3										100%	
	Temporary Works Installation	61 days Mon 02/09/13 Fri 01/11/13	1										· · · · ·	100%
7 8	Migration of Power/Control for Existing E&M Equipment to Temporary Panels Removal of Existing MCC1, MCC3 & MCC4	58 days Sat 02/11/13 Sun 29/12/13 7 days Mon 30/12/13 Sun 05/01/14												
9	Civil Modification Works (By Civil Contractor)	54 days Mon 06/01/14 Fri 28/02/14											1	
10	MCC3 Installation, SAT, Cable Installation & Migration Removal of Temporary Panels	212 days Wed 19/03/14 Thu 16/10/14 6 days Fri 17/10/14 Wed 22/10/14												
2	Final Clarifier No. 7B to 10B	1402 days Wed 23/03/11 Thu 22/01/15							:			:	:	
3	Equipment and Material Delivery to Site	862 days Wed 23/03/11 Thu 01/08/13		·····									100%	
	Tripods, Bridges & Scrapers for FC7B - 10B Weir Plates	0 days Wed 20/02/13 Wed 20/02/13 0 days Wed 20/02/13 Wed 20/02/13									♦ 20/02			
6	Density Current Baffle	0 days Wed 23/03/11 Wed 23/03/11		/02										
<u> </u>	FCW & FEDB	0 days Wed 22/08/12 Wed 22/08/12							♦ 22/08					
	DI Pipes, Fittings & Accessories Water Spray Pumps & Associated Pipework	0 days Tue 03/05/11 Tue 03/05/11 0 days Fri 13/05/11 Fri 13/05/11		♦ 00/05 ♦ 13/05										
•	Instrumentation (Ultrasonic Level Sensors & Sludge Blanket Sensors)	0 days Fri 29/04/11 Fri 29/04/11		♦ 20/04										
	LCP for Scraper Bridges	0 days Thu 01/08/13 Thu 01/08/13											♦ 01/08	+ +
	Cable, Cable Trays and Accessories B.S. Equipment & Accessories	0 days Wed 22/08/12 Wed 22/08/12 0 days Fri 15/07/11 Fri 15/07/11		1 5/07					◆ 22/08					
_	Site Possession / Available	136 days Mon 02/09/13 Thu 16/01/14											÷ •	
	FC8B, 9B & 10B FC7B	0 days Mon 02/09/13 Mon 02/09/13												╘┼╢┼╴
_	FC7B Cable drawpit and duct	0 days Mon 28/10/13 Mon 28/10/13 0 days Thu 16/01/14 Thu 16/01/14											: ∭	2810
	Installation	478 days Mon 02/09/13 Tue 23/12/14	r										÷ •	
	FC8B	278 days Mon 02/09/13 Fri 06/06/14												
D 1	Site Preparation Works Tripods, Bridges & Scrapers	5 days Mon 02/09/13 Fri 06/09/13 15 days Sat 07/09/13 Sat 21/09/13											00%	100%
2	Weir Plates	10 days Mon 02/09/13 Wed 11/09/13	3											*
3	Density Current Baffles FCW & FEDB	10 days Thu 12/09/13 Sat 21/09/13 6 days Sun 22/09/13 Fri 27/09/13												100%
4 5	FCW & FEDB	6 days Sun 22/09/13 Fri 27/09/13 10 days Thu 12/09/13 Sat 21/09/13											÷ <mark> </mark>	100%
	Completion of Civil's Rectification Work (By Civil Contractor)	0 days Mon 28/04/14 Mon 28/04/14											:	
	Final screeding FC10B	40 days Mon 28/04/14 Fri 06/06/14 340 days Sat 07/09/13 Tue 12/08/14											÷ <u>II</u>	
•	Site Preparation Works	340 days Sat 07/09/13 Tue 12/08/14 5 days Sat 07/09/13 Wed 11/09/13											1100	1%
	Tripods, Bridges & Scrapers	15 days Tue 29/10/13 Tue 12/11/13	3											
2	Weir Plates Density Current Baffles	10 days Thu 24/10/13 Sat 02/11/13 10 days Sun 03/11/13 Tue 12/11/13	1											
	Ensity Current Baffles FCW & FEDB	10 days Sun 03/11/13 Tue 12/11/13 6 days Wed 13/11/13 Mon 18/11/13												
	Instrumentation	10 days Sun 03/11/13 Tue 12/11/13	3											100
	Completion of Civil's Rectification Work (By Civil Contractor) Final screeding	0 days Sat 03/05/14 Sat 03/05/14 58 days Mon 16/06/14 Tue 12/08/14												
	Final screeding FC9B	58 days Mon 16/06/14 Tue 12/08/14 437 days Thu 12/09/13 Sat 22/11/14	- i i										:	
-	Site Preparation Works	5 days Thu 12/09/13 Mon 16/09/13	3		-								1 1	00%
9	Tripods, Bridges & Scrapers Weir Plates	15 days Tue 14/01/14 Tue 28/01/14 10 days Sun 15/12/13 Tue 24/12/13												
1	Weir Plates Density Current Baffles	10 days Sun 15/12/13 Tue 24/12/13 10 days Wed 25/12/13 Fri 03/01/14												
2	FCW & FEDB	6 days Wed 29/01/14 Mon 03/02/14												
3	Instrumentation Completion of Civil's Rectification Work (By Civil Contractor)	10 days Sun 19/01/14 Tue 28/01/14 0 days Tue 30/09/14 Tue 30/09/14												
5	Completion of Civil's Rectification Work (By Civil Contractor) Final screeding	0 days Tue 30/09/14 Tue 30/09/14 41 days Mon 13/10/14 Sat 22/11/14												
6	FC7B	422 days Mon 28/10/13 Tue 23/12/14												
7 3	Site Preparation Works Tripods, Bridges & Scrapers	5 days Mon 28/10/13 Fri 01/11/13 15 days Tue 14/01/14 Tue 28/01/14	1											100%
)	Weir Plates	10 days Thu 09/01/14 Sat 18/01/14												
)	Density Current Baffles	10 days Sun 19/01/14 Tue 28/01/14												
2	FCW & FEDB Instrumentation	6 days Wed 29/01/14 Mon 03/02/14 10 days Sun 19/01/14 Tue 28/01/14			-									
3	Completion of Civil's Rectification Work (By Civil Contractor)	0 days Sun 16/11/14 Sun 16/11/14			-									
	Final screeding	31 days Sun 23/11/14 Tue 23/12/14					1 1 1							
_	Electrical Installation Modification of existing PLC system E	210 days Thu 16/01/14 Wed 13/08/14 120 days Wed 16/04/14 Wed 13/08/14			-									
_	B.S. Installation	31 days Mon 14/07/14 Wed 13/08/14			-									
	Testing and Commissioning	30 days Wed 24/12/14 Thu 22/01/15					-							
_	Stage IV RAS Pumping Station Equipment and Material Delivey to Site	1125 days Sun 01/04/12 Thu 30/04/15 143 days Sun 01/04/12 Wed 22/08/12							100%			:	·····	
-	RAS Pumps	0 days Tue 01/05/12 Tue 01/05/12	2					01/05	▼ 10070					1
_	Pipework & Valves	0 days Sun 01/04/12 Sun 01/04/12 0 days Wed 22/08/12 Wed 22/08/12					•	01/04						1
_	VSD Panel for RAS Pumps No.1 & 5 PLC System H Panel	0 days Wed 22/08/12 Wed 22/08/12 0 days Wed 22/08/12 Wed 22/08/12			-									
_	Installation	616 days Fri 23/08/13 Thu 30/04/15	5		-				_					
	RAS Pump No.5 Available of Pump Concrete Plinth (Modified by Civil Contractor)	192 days Mon 07/10/13 Wed 16/04/14					1 1 1							Y
	Available of Pump Concrete Plinth (Modified by Civil Contractor) Installation of Pump, Gate Valve, Swing Check Valve & DI Pipework	0 days Mon 07/10/13 Mon 07/10/13 74 days Tue 08/10/13 Fri 20/12/13			-									07/10
-	Electrical Works & SCADA/PLC Works	14 days Sat 07/12/13 Fri 20/12/13	3		-									
	Testing & Commissioning RAS Pump No.4	59 days Mon 17/02/14 Wed 16/04/14 510 days Fri 23/08/13 Wed 14/01/15												
	RAS Pump No.4 Decommissioning & Removal of Pump	510 days Fri 23/08/13 Wed 14/01/15 4 days Fri 23/08/13 Mon 26/08/13												;
-	Pump Concrete Plinth Modification Works (By Civil Contractor)	40 days Thu 29/08/13 Mon 07/10/13	3											100%
	Installation of Pump & DI Pipework	74 days Tue 08/10/13 Fri 20/12/13												
	Electrical Works & SCADA/PLC Works Testing & Commissioning (Suspended due to malfunction of existing valves)	14 days Sat 07/12/13 Fri 20/12/13 10 days Mon 05/01/15 Wed 14/01/15												
_	RAS Pump No.3	53 days Thu 15/01/15 Sun 08/03/15	5											
_	Decommissioning & Removal of Pump	3 days Thu 15/01/15 Sat 17/01/15												
_	Pump Concrete Plinth Modification Works (VO) Installation of Pump & DI Pipework	21 days Sun 18/01/15 Sat 07/02/15 19 days Sun 08/02/15 Thu 26/02/15												
	Electrical Works & SCADA/PLC Works	14 days Fri 13/02/15 Thu 26/02/15	5											
	Testing & Commissioning	10 days Fri 27/02/15 Sun 08/03/15												
_	RAS Pump No.2 Decommissioning & Removal of Pump (Delayed due to malfunction of existing valves)	84 days Wed 04/06/14 Tue 26/08/14 16 days Wed 04/06/14 Thu 19/06/14												
	Pump Concrete Plinth Modification Works (VO)	38 days Fri 20/06/14 Sun 27/07/14												
	Installation of Pump & DI Pipework	19 days Tue 29/07/14 Sat 16/08/14												
	Electrical Works & SCADA/PLC Works Testing & Commissioning	14 days Sun 03/08/14 Sat 16/08/14 10 days Sun 17/08/14 Tue 26/08/14												
•	RAS Pump No.1	53 days Mon 09/03/15 Thu 30/04/15			-									
0	Decommissioning & Removal of Pump (Delayed due to malfunction of existing valves)	3 days Mon 09/03/15 Wed 11/03/15	5											
1	Pump Concrete Plinth Modification Works (VO) Installation of Pump & DI Pipework	21 days Thu 12/03/15 Wed 01/04/15 19 days Thu 02/04/15 Mon 20/04/15												
2	manufactor on party a contribution				1									1
	Electrical Works & SCADA/PLC Works	14 days Tue 07/04/15 Mon 20/04/15	5 :	:						-				



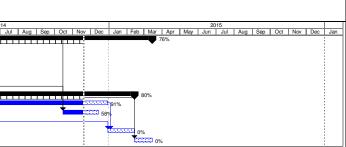


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	ID Ta						2013 n Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
	102	Pipework & Valves	0 days	Sat 15/10/11	Sat 15/10/11	★ 16/10	
	103 104						
	105						100%
	106	Interior Part of New Aeration Tank No.5			Fri 28/09/12	€ 28/09	
	107						
	108						
	110	Pipe Gallery Extension			Mon 17/06/13		17/06
	111						
	112						
	114						
	115						100%
	116 117						1100%
	118						
	119	MLR Pumps & Associated Pipework	60 days	Mon 15/10/12		100%	
	120		·				
	121						
	123						
	124						100%
	125						
	126						
	128	GMS Air Mains & FRP Staircase			Tue 17/12/13		
	129						
	130 131						★
	132						
	133						
	134 135						100%
	135						
	137	Penstock & Actuators	45 days	Mon 02/09/13	Wed 16/10/13		100%
	138 139						100
	139						100%
	141	SCADA/PLC System					
	142						
	143 144	Lesting and Commissioning	90 days	Tue 16/12/14	Sun 15/03/15		
	144						
	147 148						100%
	149					♦ 01/11	
	150	Penstock & Actuator	0 days	Thu 01/03/12	Thu 01/03/12	► 01/03	
	151						↓17/02
	152 153					◆-01/08	▲ 01/08
	154						♦ 31/12
	155		0 days	Tue 31/12/13			<mark>∳</mark> β1/12
	156 157						♦ 31/12
	157						1100%
	159	Lifting Appliance	30 days	Sat 01/03/14	Sun 30/03/14		
	160 161						
	161						10076
	163	Relocation of Foam Transfer Pumps		Tue 16/12/14	Wed 14/01/15		
	164						
	165 166						
	167						
	168						
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Terk Available for Modification (Dariand Damary (DSSST1) 0 dama Tar 6000115 Tar 6000115 AF Peoversk, Bundhy Vakes & A F Demandes 0 dama Vad 6000115 Star 6000115 Extencion Institution 94 dama Tar 6000115 Star 6000115 Arration Tark No.3 91 dama Star 6000115 Tar 6000115 Arration Tark No.3 91 dama Tar 6000115 Tar 6000115 Tark Available for Modification (Dariand Dama ty (DSS)T1) 0 dama Tar 6000115 Arration Tark No.3 91 dama Star 6000115 Tar 6000115 Tark Available for Modification (Dariand Dama ty (DSS)T1) 0 dama Tar 6000115 Tar 6000115 Tark Available for Modification (Dariand Dama ty (DSS)T1) 0 dama Tar 6000115 Tar 6000115 Tark Available for Modification (Dariand Dama ty (DSS)T1) 0 dama Tar 6000115 Tar 6000115 Arr Powersk, Bundhy Vakes, & A F Damades 60 dama Tar 6000115 Star 600015 Arr Powersk, Bundhy Vakes, & A F Damades 60 dama Tar 6000115 Star 600015 Tar 6000110 0 dama Tar 6000115 Star 600015 Star 600015 Arr Powersk, Bundhy Vakes, & A F Powerske 60 dama Tar 6000115 Star 6001015 Arr Powersk, Bundhy Vakes, & A F Powerske 60 dama Tar 6001015 <t< td=""><td>178 179</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	178 179						
Ar Popends, Burghr Valvas & Air Pozumters 60 dage Wer 070,200 50,000,15 Besterial Installation 67 dage 50,000,15 Tue 070,15 Arnation Tark No.1 60 dage Wer 070,200,15 Tue 070,15 Tarking and Commissioning 61 dage Tue 070,15 Tue 070,15 Tarking and Commissioning 60 dage Wer 070,200,15 Tue 070,115 Ar Popends, Burghr Valvas & Air Popends 60 dage Wer 00,200,15 Tue 070,115 Tarking and Commissioning 61 dage Tue 070,115 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,200,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,200,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,200,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,201,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,201,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,201,15 Tue 070,115 Tarking and Commissioning 61 dage Wer 00,201,15 Tue 070,115 Edeclial Installation 64 dage Wer	179 180						
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Arraiton Tank No.3 91 day Tue 0770/15 W 0077/15 Tank Avaidable for Modeficatori (Oriand Down by DSDGT1) 0 day Tue 0770/15 W 0077/15 Ar Pework, Buttinfy Valve & Air Pownetins 0 day W dd 08.0415 Sta 0660/15 Electricial Installation 45 day Twe 200/15 Tue 0670/15 Ar Powork, Buttinfy Valves & Air Pownetins 0 day Tue 0670/15 Tue 0670/15 Arraition Tank No.2 91 day Tue 0670/15 Tue 0670/15 Tue 0670/15 Ar Powork, Buttinfy Valves & Air Powmetars 0 day Tue 0670/15 Tue 0670/15 Tue 0670/15 Arraition Tank No.2 0 day Tue 0670/15 Tue 0670/15 Tue 0670/15 Tue 0670/15 Arraition Tank No.1 0 day Tue 0610/15 Tue 0610/15 Tue 0610/15 Tue 0610/15 Arraition Tank No.1 0 day Tue 0610/15 Tue 0610/15 Tue 0610/15 Tue 0610/15 Arraition Tank No.1 0 day Tue 0610/15 Tue 0610/15 Tue 0610/15 Tue 0610/15 Electricial Installation 0 day Wud 07/10/15 Stat 05/17/15	182		45 days	Thu 22/01/15			
Tark Available for Modification (Drained Down by DSD ST1) 0 dag Tue 07/04/15 Tue 07/04/15 Ark Prpawork, Butterfly Vakes & Air Flormedare 60 dags Tue 02/04/15 Stat 06/06/15 Beschick Installation 45 dags Tue 07/07/15 Tue 06/01/5 Ark Installation 31 dags Stat 06/01/5 Tue 07/07/15 Tue 06/01/5 Ark Installation 0 dags Stat 06/01/5 Tue 07/07/15 Tue 06/01/5 Ark Installation 0 dags Tue 07/07/15 Tue 06/01/5 Ark Installation 0 dags Tue 07/07/15 Tue 06/01/5 Beschick Installation 0 dags Tue 07/07/15 Tue 06/01/5 Beschick Installation 0 dags Tue 07/07/5 Tue 06/01/5 Beschick Installation 0 dags Tue 06/01/5 Tue 06/01/5 Beschick Installation 0 dags Tue 06/01/5 Tue 06/01/5 Ark Installation Install NL 0 dags Tue 06/01/5 Tue 06/01/5 Beschick Installation 0 dags Tue 06/01/5 Tue 06/01/5 Beschick Installation 0 dags Sun 06/01/5 Sun 06/01/5 Chtical Propensis Unitegy Sun 06/01/	183						
Ar Peeersk, Butterly Valves & Ar Powneters 90 day Wet 000/115 \$\$ 80 000015 Electical istatiation 13 day \$\$ 80 070715 \$\$ 80 600615 Testing and Commissioning 31 day \$\$ 80 070715 \$\$ 10 607075 Arration Tank No.2 91 day \$\$ 10 670715 \$\$ 10 607075 Arration Tank No.2 91 day \$\$ 10 670715 \$\$ 10 607075 Testing and Commissioning 0 day Wed 000715 \$\$ 10 607075 Electrical Instation 0 day Wed 000715 \$\$ 10 607075 Electrical Instation 0 day Wed 000715 \$\$ 10 607075 Electrical Instation 0 day Wed 000715 \$\$ 10 607075 Electrical Instation 0 day Wed 000715 \$\$ 10 607075 Electrical Instation 0 day Wed 000715 \$\$ 10 607015 Testing and Commissioning 10 day Tue 6070175 \$\$ 10 607015 Electrical Instation 0 day Wed 007115 \$\$ 80 602155 Electrical Instation 0 day Wed 071175 \$\$ 10 6670175 Electrical Instation 0 day Wed 071175 \$\$ 10 6670175 Electrical In	185						
Testing and Commissioning 31 days Sun 07/06/15 Tue 07/07/15 Acaration Tank No.2 91 days Tue 07/07/15 Tue 07/07/15 Anaration Tank No.2 91 days Tue 07/07/15 Tue 07/07/15 Ara Pipowork, Butterfly Valves, & Air Piowenders 60 days Wol 08/07/15 Sul 05/09/15 Electrical Installation 45 days Tru 23/07/15 Sul 05/09/15 Sul 05/09/15 Testing and Commissioning 31 days Sun 06/01/15 Tue 06/01/15 Tue 06/01/15 Are Pipowork, Butterfly Valves, & Air Piowenders 0 days Wol 08/07/16 Sul 05/09/15 Testing and Commissioning 31 days Sun 06/01/15 Tue 06/01/15 Tue 06/01/15 Are Pipowork, Butterfly Valves, & Air Piowenders 0 days Wol 06/01/15 Tue 06/01/15 Tue 06/01/15 Are Pipowork, Butterfly Valves, & Air Pipowenders 0 days Wol 06/01/15 Sul 05/12/15 Tue 06/01/15 Sul 05/12/15 Air Pipowork, Butterfly Valves, & Air Pipowenders 0 days Wol 06/01/15 Sul 05/12/15 Sul 05/12/15 Electrical Installation 31 days Sun 06/12/15 Sul 05/12/15 Sulmary Progres Projet Summary External Mi	186	Air Pipework, Butterfly Valves & Air Flowmeters		Wed 08/04/15	Sat 06/06/15		
Aeration Tank No.2 91 days Tue 0670715 Tue 0670715 Tue 0670715 Tue 0770715 Tue 0770715 <td>187</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	187						
Tark Available for Modification (Drained Down by DSD/ST1) 0 days Tue 0770715 Tue 0770715 Air Ppework, Butterly Vakes, & Air Flowmeters 60 day Wed 080715 Sat 05609715 Electrical Installation 31 days Sun 080915 Tue 061015 Aeration Tank No.1 91 days Tue 061015 Air Ppework, Butterly Vakes & Air Flowmeters 0 days Wed 080710 Air Ppework, Butterly Vakes & Air Flowmeters 0 days Wed 0710115 Air Ppework, Butterly Vakes & Air Flowmeters 0 days Wed 0710115 Sat 05 down ters 0 days Sat 05/12/15 Testing and Commissioning 11 days Sat 05/12/15 Air Ppework, Butterly Vakes & Air Flowmeters 0 days Wed 07/10/15 Beschire Metstone 31 days Sat 05/12/15 Testing and Commissioning 11 days Sat 05/12/15 Testing and Commissioning 11 days Sat 05/12/15 Testing and Commissioning 11 days Sat 05/12/15 Critical Progrees Splt 11 days Sat 05/12/15 Baseline Missione Summary Progrees Project Summary External Misstone Intexternal Misstone Internal Misstone Internal Misstone I	188 189						
Electrical installation 45 days Thu 2307/15 Sat 05/09/15 Testing and Commissioning 31 days Sun 06/09/15 Tue 06/10/15 Arration Tank No.1 91 days Tue 06/10/15 Tue 06/10/15 Arr Ploework, Butterfly Valves & Air Flowmeters 60 days Weid 07/10/15 Sat 05/12/15 Electrical installation 45 days True 26/10/15 Sat 05/12/15 Testing and Commissioning 60 days Weid 07/10/15 Sat 05/12/15 Testing and Commissioning 11 days Sun 06/01/21 Tue 05/01/16 Critical Installation 11 days Sun 06/12/15 Tue 05/01/16	190						
Teeling and Commissioning 31 days Sun 06/09/15 Tue 06/10/15 Arration Tank No.1 91 days Tue 06/10/15 Tue 06/10/15 Tank Available for Modification (Drained Down by DSD/ST1) 0 days Tue 06/10/15 Sat 05/12/15 Air Pipework, Butterfly Valves & Air Pioemeters 60 days Wed 07/10/15 Sat 05/12/15 Electrical Installation 45 days True 20/01/15 Sat 05/12/15 Teeling and Commissioning 31 days Sun 06/12/15 Tue 05/01/16 Critical Progress Splt 1100000000000000000000000000000000000	191		60 days	Wed 08/07/15			
Aeration Tank No.1 91 days Tue 06/10/15 Tue 06/10/15 Tank Available for Modification (Drained Down by DSD/ST1) 0 days Tue 06/10/15 Tue 06/10/15 Air Pipework, Butterfly Valves & Air Flowmeters 60 days Wed 07/10/15 Sat 05/12/15 Electrical Installation 45 days True 05/01/16 Sat 05/12/15 Testing and Commissioning 31 days Sun 06/12/15 Tue 05/01/16 Critical Critical Progress Split 11111111 Baseline Milestone ◊ Summary Progress Project Summary External Milestone ◊	192						
Tank Available for Modification (Drained Down by DSD/ST1) 0 days Tue 06/10/15 Tue 06/10/15 Air Pipework, Butterfly Valves & Air Flowmeters 60 days Wed 07/10/15 Sat 05/12/15 Electrical Installation 45 days Thu 22/10/15 Sat 05/12/15 Testing and Commissioning 10 10 10 Critical Installation 11 10 10 Critical Installation 501 11 11 Critical Installation 501 11 11 Electrical Installation 10 10 10 Electrical Installation 10 10 10 Critical Installation 10 10 10 Electrical Progress 501 10 10 Electrical Installation 10 10 10	193 194						
Air Pipework, Butterfly Valves & Air Flowmeters 60 days Wed 07/10/15 Sat 05/12/15 Electrical Installation 45 days True 22/10/15 Sat 05/12/15 Testing and Commissioning 31 days Sun 06/12/15 Tue 05/01/16 Critical Critical Progress Splt 11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	195						
Testing and Commissioning 31 days Sun 06/12/15 Tue 05/01/16 Image: Critical Progress Image: Critical Progress Split Image: Critical Progress	196	Air Pipework, Butterfly Valves & Air Flowmeters	60 days	Wed 07/10/15	Sat 05/12/15		
Critical Progress Project Summary Progress Project Summary & External Milestone ♦	197						
Critical Progress Split	198 199	resung and commissioning	31 days	Sun 06/12/15	i ue 05/01/16		
	200						
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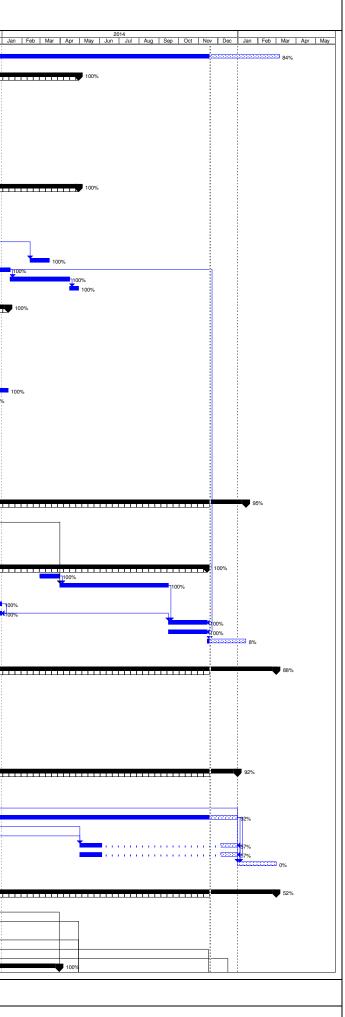


						SD Contract : DE/2009/09 nical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 2B	
					Section	III Works Programme	
ID	Task Name	Duration	Start	Finish	2011 2012	2 2013 Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	2014
201	Filtrate Pumping System (Stage I/II Modification)	1299 days	Otart				Jan Feb Mar Apr May Jun Ju
202	Equipment and Material Delivery to Site	311 days				100%	****************
203	Submersible Pump	0 days	Thu 25/08/11	Thu 25/08/11	♦ 25/08		
204	Pipework & Valves	0 days	Sun 01/07/12	Sun 01/07/12	◆	01/07	
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				♦ -02 ⁴	12
207	Installation	905 days	Thu 23/08/12	Fri 13/02/15			
208	Pump Replacement & Pipework Modification at Existing Pump Chamber	437 days	Sun 20/10/13	Tue 30/12/14			
209	Filtrate Pipework Installation at Aeration Tanks	60 days	Thu 16/10/14	Sun 14/12/14			
210	Existing L.V. Switchboard Modification	6 days	Thu 23/08/12			100%	
211	Electrical Installation	45 days	Wed 31/12/14	Fri 13/02/15			
212	Testing and Commissioning	30 days	Sat 14/02/15	Sun 15/03/15			

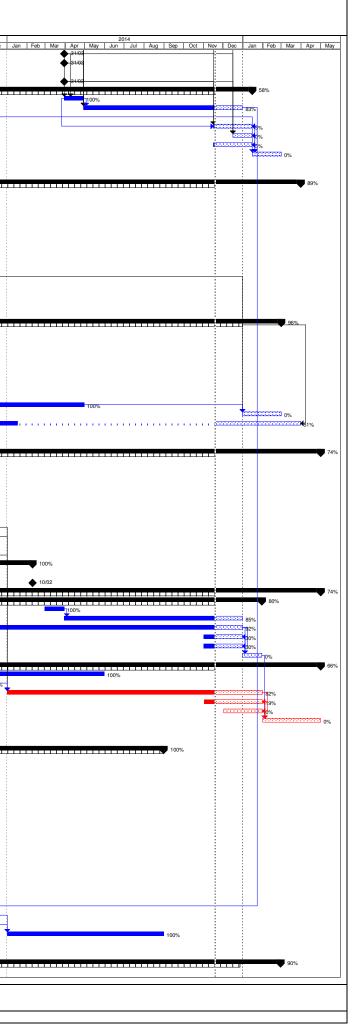
Rev. 8 Date: 19 November 2014								External Milestone
						P	age 3	



ask Name	Duration	Start	Finish	2011 2013 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 Apr May Jun
			Sun 21/04/13 Fri 06/03/15	100%
Iodification / Replacement of Existing L.V. Switchboard	1194 days	Sat 22/01/11	Tue 29/04/14	
CBC G/F MCC Drawing Submission for CLP & DSD Approval			Sun 31/03/13 Fri 04/11/11	
Switchboard Manufacture & Delivery to Site	90 days	Mon 02/01/12	Sat 31/03/12	
Temporary Works Preparation Site Setup of Temporary Backup Facilities & Removal of Existing Switchboard			Sat 31/03/12 Fri 25/05/12	
Civil Modification Works (By Civil Contractor)			Wed 26/09/12	
CLP's Tx Upgrading Works & Cable Connection to New Switchboard		Sat 12/05/12	Tue 11/12/12 Tue 08/01/13	
			Thu 28/02/13 Sun 31/03/13	
Temporary Works Preparation	61 days	Sat 26/05/12	Wed 25/07/12	2
Temporary Works Installation Migration of Power/Control for Existing E&M Equipment to Temporary Panels			Thu 28/03/13 Mon 19/08/13	
Relocation of Existing Remote I/O Panel	80 days	Sat 01/06/13	Mon 19/08/13	
Removal of Existing Switchboard Civil Modification Works (By Civil Contractor)			Mon 26/08/13 Fri 01/11/13	
Modification of Existing Switchroom Partition			Sat 15/03/14	
Migration of Power/Control of Existing E&M Equipment to New Switchboard			Mon 13/01/14 Tue 15/04/14	i i
Removal of Existing Cables & Installation of New Cables			Tue 29/04/14	
IW G/F MCC			Fri 10/01/14	
Drawing Submission for CLP & DSD Approval Switchboard Manufacture & Delivery to Site			Fri 15/07/11	
Completion of Genset Replacement	0 days	Mon 15/04/13	Mon 15/04/13	
Temporary Works Preparation Site Setup of Temporary Backup Facilities & Bemoval of Existing Switchboard			Mon 24/06/13 Mon 26/08/13	
Civil Modification Works (By Civil Contractor)	35 days	Tue 27/08/13	Mon 30/09/13	
New Switchboard Installation & SAT CLP's Tx Upgrading Works & Cable Connection to New Switchboard			Fri 25/10/13 Tue 03/12/13	
Removal of Existing Cables & Installation of New Cables	38 days	Wed 04/12/13	Fri 10/01/14	
Connect Power Supply for Existing Lighting & Small Power D/B	7 days	Wed 04/12/13	Tue 10/12/13	
		P.1 447771	M	
New 1500kVA Genset & Accessories Delivery to Site			Mon 15/04/13 Mon 26/11/12	
Site Setup of Power Backup Facilities by Tempoary Genset	50 days	Fri 18/05/12	Fri 06/07/12	100% T
Civil Modification Works (By Civil Contractor)		Sat 07/07/12 Sat 14/07/12	Sun 25/11/12	
Installation of New Genset & SAT	141 days	Mon 26/11/12	Mon 15/04/13	3 100%
			Tue 13/01/15 Wed 02/01/13	
Screw Pumps	0 days	Wed 02/01/13	Wed 02/01/13	2 A A A A A A A A A A A A A A A A A A A
Mechanical Bar Screen Screw Conveyor			Fri 19/10/12 Fri 19/10/12	
Actuator for Existing Penstocks	0 days	Mon 02/04/12	Mon 02/04/12	♦ 02/04
Installation				
Temporary Flow Diversion for Lower Wet Well Screen Rump, Installation, & Screening, Works at Lower Wet Well				
Screw Pump Installation & Screeding Works at Upper Wet Well		Wed 02/01/13	Fri 30/08/13	
Installation of Mechanical Bar Screen, Screw Conveyor & Ultrasonic Level Sensors Installation of Actuators for Existing Penstocks			Tue 31/12/13	
Electrical Installation	60 days	Tue 16/09/14	Fri 14/11/14	
SCADA/PLC System Testing and Commissioning			Fri 14/11/14 Tue 13/01/15	
	oo dajo	Garlorinit	100 10/01/10	
iltrate Treatment Plant (SBR)	1217 days	Tue 01/11/11	Sun 01/03/15	
Equipment and Material Delivery to Site	456 days	Tue 01/11/11	Wed 30/01/13	100%
Air Blower Filtrate Transfer Pump			Wed 30/01/13 Wed 01/02/12	
Filtrate Inlet Sump Pump	0 days	Tue 01/11/11	Tue 01/11/11	
Air Diffusers Pipework & Valves			Thu 17/05/12 Tue 01/11/11	
Site Possession / Available	123 days	Sat 01/09/12	Thu 03/01/13	↓ 100%
SBR Tank Civil Works Provision (By Civil Contractor)			Thu 03/01/13 Sat 01/09/12	
Existing Plant Rooms	0 days	Mon 26/11/12	Mon 26/11/12	
Installation Take Down of Existing Decanter			Wed 31/12/14 Mon 07/01/13	
Modification of Concrete Corbels & Cast-in Puddle Flanged Pipe (By Civil Contractor)	189 days	Tue 08/01/13		
Off-site Modification of Existing Decanter Installation of Modified Decanter				
Modification of Air Diffusers Installation of Air Blower, Filtrate Transfer Pump, Filtrate Inlet Sump Pump & Associated Pinework				
Existing L.V. Switchboard Modification			Wed 30/10/13	100%
Electrical Installation SCADA/PLC System		Fri 02/05/14 Fri 02/05/14	Wed 31/12/14 Wed 31/12/14	
Testing and Commissioning				
			Sun 01/03/15	
Equipment and Material Delivery to Site Knile Gate Valves & Actuators			Mon 01/04/13 Tue 03/05/11	
Deodorizing Unit, Extraction Fan & Accessories	0 days	Fri 01/02/13	Fri 01/02/13	◆ 01/02
Pipework & Valves Air Ductwork & Accessories			Mon 01/04/13 Mon 01/04/13	
Local Control Panel for DO Unit	0 days	Mon 01/04/13	Mon 01/04/13	3
CCTV System		Mon 01/04/13	Mon 01/04/13 Mon 31/03/14	
Site Possession / Available	1/1 days	Pri 11/10/13	MON 31/03/14	
	ectors V and Wates Of Granted CGC of Wates Drawing Submission for CDP A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates Preparation Sie Soard Temposary Status (2 A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates (2 A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates (2 A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates (2 A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates (2 A DBD Approval Switchboard Manufacture & DB Aberay to Sie Temposary Wates Properation Temposary Wates Properation	Belle Name Belle Samp Constant Calification LV. Subtrictored Pell Action Constant Calification LV. Subtrictored Pell Action Constant Calification LV. Subtrictored Pell Action Sin Sang of Tempony Works Properation Pell Action Pell Action Sin Sang of Tempony Backs Parlies Pell Action Pell Action Dis Made of Tempony Backs Parlies Pell Action Pell Action Dis Sang of Tempony Backs Parlies Pell Action Pell Action Constant Parlies Pell Action Pell Action Constant Parlies Pell Action Pell Action Pell Parlies Pell Action Pell Action Perl Parlies Pell Action Pell Action Tempony Works Parlies Pell Action Pell Action Markaton Actin Action Parlies Pell	sele v fait works of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Of Samuel Distributed Distri	Design of Number Design of Number <thdesign number<="" of="" th=""> <thdesign number<="" of="" t<="" td=""></thdesign></thdesign>



				Supply and Installation of Electrical and Mechanical Equipment for Tai Po Sewage Treatment Works Stage 5 Phase 28 Section V Works Programme
	Task Name	Duration	Start Finish	2011 2013 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jun Jul Jul Aug Sep Oct Nov Dec Jun Jul Jul
101 102	Decanting Chamber Concrete Plinth for DO System	0 days 0 days	Mon 31/03/14 Mon 31/03/14 Mon 31/03/14 Mon 31/03/14	
103 104	Civil Works Provision at Existing Valve Chamber (By Civil Contractor) Cable Drawpit & Ducts	0 days 0 days	Fri 11/10/13 Fri 11/10/13 Mon 31/03/14 Mon 31/03/14	
105	Installation	462 days	Fri 11/10/13 Thu 15/01/15	
106 107	Knife Gate Valves & Actuators Deodorizing Unit, Air Ductwork & Associated Accessories	30 days 246 days	Mon 31/03/14 Tue 29/04/14 Wed 30/04/14 Wed 31/12/14	
108	Pipework Installation at Existing Valve Chamber	15 days	Fri 11/10/13 Fri 25/10/13	
109 110	Electrical Installation CCTV Installation	60 days 30 days	Mon 17/11/14 Thu 15/01/15 Wed 17/12/14 Thu 15/01/15	
111	SCADA/PLC System	60 days	Mon 17/11/14 Thu 15/01/15	
112 113	Testing and Commissioning	45 days	Fri 16/01/15 Sun 01/03/15	
114				
115 116	Biogas System Equipment and Material Delivery to Site	1247 days 199 days	Tue 01/11/11 Tue 31/03/15 Tue 01/11/11 Fri 18/05/12	
117	Waste Gas Burner for Stage I/II	0 days	Tue 03/01/12 Tue 03/01/12	♦ 3301
118 119	Waste Gas Burner for Stage IV Biogas Holding Tank Materials	0 days 0 days	Fri 18/05/12 Fri 18/05/12 Mon 19/12/11 Mon 19/12/11	→ 18/05
120	Flame Arrestor and Condensation Pot	0 days	Thu 01/12/11 Thu 01/12/11	
121 122	Biogas Booster Pipework & Valves	0 days 0 days	Tue 03/01/12 Tue 03/01/12 Tue 01/11/11 Tue 01/11/11	
123	Site Possession / Available	347 days	Thu 15/03/12 Mon 25/02/13	↓ · · · · · · · · · · · · · · · · · · ·
124 125	Biogas Holding Tank Concrete Slab Biogas Holding Tank Valve Chamber	0 days 0 days	Fri 16/03/12 Fri 16/03/12 Fri 01/06/12 Fri 01/06/12	
126	Gas Transfer Station	0 days	Mon 25/02/13 Mon 25/02/13	25/02
127 128	Concrete Plinth for Waste Gas Burner in Stage I/II Concrete Plinth for Waste Gas Burner in Stage IV	0 days 0 days	Thu 15/03/12 Thu 15/03/12 Wed 01/08/12 Wed 01/08/12	
129	Concrete Plinth for Relocated DO in Stage I/II	0 days	Thu 15/03/12 Thu 15/03/12	↓ 15/03
130 131	Installation Waste Gas Burner Installation in Stage VII	1082 days 90 days	Thu 15/03/12 Sun 01/03/15 Thu 15/03/12 Tue 12/06/12	
132	Waste Gas Burner Installation in Stage IV	91 days	Wed 01/08/12 Tue 30/10/12	100%
133 134	Dismantle of Existing Waste Gas Burner in Stage I/II Dismantle of Existing Waste Gas Burner in Stage IV	15 days 15 days	Tue 22/10/13 Tue 05/11/13 Thu 31/05/12 Thu 14/06/12	
135	Biogas Holding Tank Installation	512 days	Mon 07/05/12 Mon 30/09/13	100%
136 137	Installation in New Valve Chamber for New Biogas Holding Tank Installation in Existing Valve Chamber No.1 & 2 for Existing Biogas Holding Tank	90 days 60 days	Sun 14/10/12 Fri 11/01/13 Thu 02/08/12 Sun 30/09/12	
138	Installation in Pipe Gallery	60 days	Thu 02/08/12 Sun 30/09/12	
139 140	Installation in Gas Transfer Station Methane Gas Detection System Installation	426 days 60 days	Fri 01/03/13 Wed 30/04/14 Thu 01/01/15 Sun 01/03/15	
141	Testing and Commissioning	270 days	Tue 03/09/13 Tue 31/03/15	
142 143				
144	Sludge Digestion Tank No.3 and Hot Water Circulation System	1278 days	Tue 01/11/11 Fri 01/05/15	
145 146	Equipment and Material Delivery to Site Sludge Mixers	639 days 0 days	Tue 01/11/11 Thu 01/08/13 Fri 25/01/13 Fri 25/01/13	
147	Draft Tube & Cast-in Items	0 days	Tue 09/04/13 Tue 09/04/13	◆ <u>09/04</u>
148 149	GRP Platform for Sludge Mixers Hot Water Boiler	0 days 0 days	Thu 01/08/13 Thu 01/08/13 Thu 02/05/13 Thu 02/05/13	
150	Hot Water Recirculation Pump	0 days	Mon 10/06/13 Mon 10/06/13	↓ <u>1006</u>
151 152	Heat Exchanger Pipework & Valves	0 days 0 days	Tue 04/06/13 Tue 04/06/13 Wed 01/05/13 Wed 01/05/13	
153	Flame Arrestor & Condensation Pot	0 days	Tue 01/11/11 Tue 01/11/11	◆ 01//1
154 155	Inspection Window Pressure Vacuum Relief Valve c/w Flame Arrestor	0 days 0 days	Tue 01/11/11 Tue 01/11/11 Tue 01/11/11 Tue 01/11/11	
156	Site Possession / Available	101 days	Fri 01/11/13 Mon 10/02/14	
157 158	Sludge Digestion Tank No.3 (Tank Top) Sludge Digestion Tank No.3 (Remaining Portions of Site)	0 days 0 days	Fri 01/11/13 Fri 01/11/13 Mon 10/02/14 Mon 10/02/14	
159	Site Works	656 days	Mon 15/07/13 Fri 01/05/15	
160 161	Hot Water Circulation System Temporary Works to Facilitate Civil Modification Works	565 days 30 days	Mon 15/07/13 Fri 30/01/15 Sat 01/03/14 Sun 30/03/14	
162	Civil Modification Works (VO)	276 days	Mon 31/03/14 Wed 31/12/14	
163 164	Installation of Hot Water Boiler, Recirculation Pump & Associated Pipework Electrical Installation	535 days 60 days	Mon 15/07/13 Wed 31/12/14 Sun 02/11/14 Wed 31/12/14	
165	SCADA/PLC System	60 days	Sun 02/11/14 Wed 31/12/14	
166 167	Testing and Commissioning Sludge Digestion Tank No.3	30 days 547 days	Thu 01/01/15 Fri 30/01/15 Fri 01/11/13 Fri 01/05/15	
168	Installation of Draft Tubes, Sludge Mixers, Heat Exchangers & Inspection Window	212 days	Fri 01/11/13 Sat 31/05/14	
169 170	Installation of GRP Platform Installation of Sludge, Biogas, Hot Water Recirculation, FeCl3 Dosing Pipework & Instruments	30 days 395 days	Fri 01/11/13 Sat 30/11/13 Thu 02/01/14 Sat 31/01/15	
171	Electrical Installation	90 days	Mon 03/11/14 Sat 31/01/15	
172 173	SCADA/PLC System Testing and Commissioning	60 days 90 days		
174		55 days		
175	SAS Thickening System	914 days	Thu 01/03/12 Sun 31/08/14	
177	Equipment & Material Delivery to Site	285 days	Thu 01/03/12 Sun 31/08/14 Thu 01/03/12 Tue 11/12/12	
178	Centrifuge	0 days	Mon 16/07/12 Mon 16/07/12	
179 180	SAS Feed Pump Polyelectrolyte Feed Pump	0 days 0 days	Thu 30/08/12 Thu 30/08/12 Thu 30/08/12 Thu 30/08/12	
181	Thickened Sludge Storage Tank	0 days	Tue 11/12/12 Tue 11/12/12	
182 183	Pipework & Valves Vibration Monitoring System	0 days 0 days	Fri 01/06/12 Fri 01/06/12 Thu 01/03/12 Thu 01/03/12	
184	PLC System M Panel	0 days	Fri 01/06/12 Fri 01/06/12	
185 186	Site Possession / Available Civil Works Provision (By Civil Contractor)	0 days 0 days	Fri 01/06/12 Fri 01/06/12 Fri 01/06/12 Fri 01/06/12	
187	Installation	380 days	Mon 16/07/12 Tue 30/07/13	100%
188 189	Centrifuge, Vibration Monitoring System & Associated Accessories SAS Feed Pump & Associated Pipework	30 days 30 days	Mon 16/07/12 Tue 14/08/12 Thu 30/08/12 Fri 28/09/12	
190	Polyelectrolyte Feed Pump & Associated Pipework	16 days	Sat 29/09/12 Sun 14/10/12	
191 192	Thickened Sludge Storage Tank & Associated Accessories Centrate Pipework	30 days 16 days	Tue 11/12/12 Wed 09/01/13 Thu 10/01/13 Fri 25/01/13	
193	Existing L.V. Switchboard Modification	90 days	Sat 03/11/12 Thu 31/01/13	1100%
194 195	Electrical Installation SCADA/PLC System	90 days 90 days	Fri 01/02/13 Wed 01/05/13 Thu 02/05/13 Tue 30/07/13	
196	Testing & Commissioning	242 days	Thu 02/01/14 Sun 31/08/14	
197 198				
199	Sludge Dewatering System		Thu 08/12/11 Sat 28/02/15	
200	Equipment & Material Delivery to Site	115 days	Thu 08/12/11 Sun 01/04/12	100%
Rev. 9		Split	Baseline	ne Baseline Milestone 🛇 Summary Progress
Jate: 19	November 2014 Critical Split	Task Progress	Baselin	
	· · · · · · · · · · · · · · · · · · ·			Page 2



	DSD Contract : DE/2009/09 Supply and Installation of Electrical and Mechanical Equipment for Tar Ia Po Sewage Treatment Works Stage 5 Phase 2B												
	Section V Works Programme												
				Section V Works Programme									
	T		1	2011 2012	2013	2014							
		Duration Start		2011 2012 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 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							
201			2/12 Mon 20/02/1	◆ 120/02									
202	Sludge Feed Pump	·	2/11 Thu 08/12/1	♦ 08/12									
203	Polyelectrolyte Dosing Pump		4/12 Sun 01/04/1	♦ 01/04									
204	Floctronic Sensor c/w Inline Mixer		1/12 Fri 20/01/1	◆ 20/01									
205	Pipework & Valves		4/12 Sun 01/04/12	◆ 01/04									
206	PLC System K Panel	0 days Sun 01/0	4/12 Sun 01/04/1	♦ 01/04									
207	Site Possession / Available	0 days Sun 01/0	4/12 Sun 01/04/12	• 01/04									
208	Civil Works Provision (By Civil Contractor)	0 days Sun 01/0	4/12 Sun 01/04/1	♦ 01/04									
209	Installation	275 days Mon 27/0	2/12 Tue 27/11/12	1003	6								
210	Membrane Filter Press	79 days Mon 27/0	2/12 Tue 15/05/12	1100%									
211	Sludge Feed Pump & Associated Pipework	30 days Wed 16/0	5/12 Thu 14/06/12	100%									
212	Polyelectrolyte Dosing Pump & Associated Pipework		6/12 Sat 14/07/12										
213	Filtrate Pipework	15 days Sun 15/0	7/12 Sun 29/07/1	100%									
214	Existing L.V. Switchboard Modification & Electrical Installation		6/12 Wed 29/08/1	1100%									
215	Electrical Installation	90 days Thu 30/0	8/12 Tue 27/11/1	100%									
216	SCADA/PLC System	60 days Sat 29/0	9/12 Tue 27/11/1	100%									
217	Testing and Commissioning	207 days Sun 02/1	2/12 Sat 28/02/1			41111111111111111111111111111111111111							
218	1												
219													
220	Miscellaneous	151 days Fri 01/1	1/13 Mon 31/03/14			100%							
221	Hybrid Street Light Installation, Testing & Commissioning	127 days Mon 25/1				100%							
222	Automatic Weather Station Installation, Testing & Commissioning	151 days Fri 01/1	1/13 Mon 31/03/1			100%							
	A												

Rev. 9 Date: 19 November 2014								External Milestone Deadline	
						Pi	age 3		