

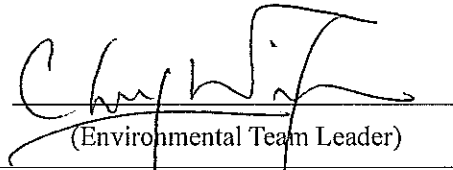
Dragages-Nishimatsu Joint Venture

Contract No. DC/2007/10
Design and Construction of Hong Kong
West Drainage Tunnel

Monthly EM&A Report
(version 1.0)

December 2008

Approved By



(Environmental Team Leader)

REMARKS:

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

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ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
CEDD	Civil Engineering & Development Department
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
TSP	Total Suspended Particulates
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan

EXECUTIVE SUMMARY

Introduction

1. This is the 9th Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the “Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel” (the Project). This report documents the findings of EM&A Works conducted in December 2008.
2. The site activities undertaken in the reporting month included:
 - Further establishment of project organization and staffing;
 - Initial tunnel excavation, construction of intake cofferdam & River Channel and installation of temporary facilities at Eastern Portal;
 - Arch tunnel excavation, shallow & deep excavation works, base slab construction and installation of temporary facilities at Western Portal;
 - Utilities trial pits and additional site investigation works at 6 nos. Intakes;
 - Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary works at both portals;
 - AIP & DDA submissions for temporary and permanent works for 32 nos. Intakes;
 - AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
 - Environmental impact monitoring; and
 - TBM fabrication; delivery, inland transportation and assembly planning.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the updated EM&A Manual and the monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

4. Summary of the non-compliance of the reporting month is tabulated in Table I.

Table I Summary Table for Non-compliance Recorded in the Reporting Month

Parameter	No. of Exceedance		No. of Exceedance Due to the Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
Eastern Portal					
1-hr TSP	0	0	0	0	N/A
24-hr TSP	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Western Portal					
1-hr TSP	0	0	0	0	N/A
24-hr TSP	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Water	0	0	0	0	N/A

Eastern Portal

1-hour TSP Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

6. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

7. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Western Portal

1-hour TSP Monitoring

8. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

9. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

10. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

11. All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

12. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, An Environmental Permit No. EP-272/2007 was issued on 26 April 2007 and Environmental Permit No. EP-272/2007/A was issue on 26 October 2007. Later, the further Environmental Permit (FEP-01/272/2007/A) was issued on 28 January 2008 to Dragages-Nishimatsu Joint Venture as the Permit Holder.
13. Registration of Chemical Waste Producer (License: 5213-148-D2393-02 for Eastern Portal and No. 5213-172-D2393-01 for Western Portal), Water Discharge License (License No.: EP860/W10/XY0175 for Area of Mount Butler Office, EP860/W10/XY0177 for Eastern Portal, EP820/W9/XT086 for Western Portal and EP680/W10/XY0183 for Intake W0) and Construction Noise Permit (License No.: GW-RS0929-08 for Eastern Portal and GW-RS0894-08 for Western Portal).

Key Information in the Reporting Month

14. Summary of key information in the reporting month is tabulated in Table II.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	1	Construction works conducted on Sunday at Western Portal	Letter with complaint investigation findings have submitted	Verified by IEC	---
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 (November 08)	Submitted to EPD on 15 December 2008 (EP condition 3.3)	Verified by IEC	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---
Future Key Issues:					
Major site activities for the coming month include: <ul style="list-style-type: none"> • Tunnel excavation by blasting method, intake cofferdam and temporary cofferdam for River Channel at Eastern Portal; • Tunnel excavation by mechanical method, shallow and deep excavation and base slab construction at Western Portal; • Preliminary works, preparation works and temporary cofferdam at Intake W0; • Utilities trial pits and additional site investigation works at available intakes; • Casting of tunnel segments in China; • Test and disassembly in factory of West TBM; and • Assembly in factory of East TBM. 					

1. INTRODUCTION

Background

- 1.1 Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel is a Designated Project (hereafter referred to as “the Project”) under the Environmental Impact Assessment Ordinance (Cap. 449). A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, ecological, construction waste, landscape and visual, land use, cultural impacts, and identify possible mitigation measures associated with the works. An EIA Report was approved by the Environmental Protection Department (EPD) on 7 April 2006.
- 1.2 The project comprises the construction of a drainage tunnel deep into the ground in Mid-levels of the Northern Hong Kong Island from Tai Hang to Pokfulam to intercept and convey the stormwater from the upper catchment directly to the sea near Cyberport. The Drainage tunnel alignment starts from the Eastern Portal near Haw Par Mansion in Tai Hang and ends at the Western Portal located to the north of Cyberport running underneath the Pok Fu Lam, Tai Tam, Aberdeen and Lung Fu Shan Country Parks. The underground main drainage tunnel is 6.25m-7.25m in diameter and about 11km long. Two portals and a series of connecting adits and drop shafts are also been constructed. The general layout of the Project is shown in **Figure 1.1**.
- 1.3 An Environmental Permit (EP) No. EP-272/2007 was issued on 26 April 2007 for Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel to Drainage Services Department as the Permit Holder. Later, the further Environmental Permit (FEP-01/272/2007/A) was issued on 28 January 2008 to Dragages-Nishimatsu Joint Venture as the Permit Holder.
- 1.4 Cinotech Consultants Limited was commissioned by the Dragages-Nishimatsu Joint Venture (the Contractor) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The Updated EM&A Manual was prepared by Cinotech to fulfill the requirements of the EP. The construction commencement of this Contract at Eastern Portal was on 17th April 2008 and 2nd May 2008 at Western Portal (land-based). The marine construction works was commenced on 30 May 2008. This is the 9th monthly EM&A report summarizing the EM&A works for the Project in December 2008 at Eastern and Western Portals.

Project Organizations

- 1.5 Different parties with different levels of involvement in the project organization include:
- Project Proponent – Drainage Services Department (DSD).
 - The Supervising Officer or Supervising Officer's Representative (SO or SOR) – Ove Arup & Partners (ARUP).
 - Environmental Team (ET) – Cinotech Consultants Limited (CCL).
 - Independent Environmental Checker (IEC) – Allied Environmental Consultants Limited (AEC).
 - Contractor - Dragages-Nishimatsu Joint Venture (DNJV).

- 1.6 The responsibilities of respective parties are detailed in Sections 1.14 to 1.28 of the updated EM&A Manual of the Project.
- 1.7 The key contacts of the Project are shown in Table 1.1 and the organization chart of ET is shown in **Figure 2.1**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
DNJV	Permit Holder	Mr. ALTIER Daniel	Project Manager	2671 7333	2671 9300
		Mr. UETAKE H.	Deputy Project Manager		
ARUP	Supervising Officer	Mr. Ted Tang	CRE	6117 6639	2436 1012
		Mr. Jackson Wong	SRE	6117 6636	
		Mr. Alan Ng	RE	9668 8350	
		Mr. Bernard Cheng	RE	98614939	
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Mr. Alex Ngai	Project Coordinator	2151 2076	
		Ms. Ivy Tam	Audit Team Leader	2151 2095	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
AEC	Independent Environmental Checker	Ms. Claudine Lee	Independent Environmental Checker	2815 7028	2815 5399
DNJV	Contractor	Mr. Ben Ho	Environmental Officer	2671 7333	2671 9300

Construction Programme

- 1.8 The site activities undertaken in the reporting month included:
- Further establishment of project organization and staffing;
 - Initial tunnel excavation, construction of intake cofferdam & River Channel and installation of temporary facilities at Eastern Portal;
 - Arch tunnel excavation, shallow & deep excavation works, base slab construction and installation of temporary facilities at Western Portal;
 - Utilities trial pits and additional site investigation works at 6 nos. Intakes;
 - Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary works at both portals;

- AIP & DDA submissions for temporary and permanent works for 32 nos. Intakes;
- AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
- Environmental impact monitoring; and
- TBM fabrication; delivery, inland transportation and assembly planning.

Table 1.2 Construction programme showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
Further establishment of project organization and staffing	Nil	Nil
Initial tunnel excavation, construction of intake cofferdam & River Channel and installation of temporary facilities at Eastern Portal	Noise, dust impact, water quality and waste generation	Provided water spraying during excavation works On-site waste sorting and implementation of trip ticket system Appropriate desilting/sedimentation devices provided on site for treatment before discharge
Installation of temporary facilities, shallow & deep excavation works, base slab construction and arch tunnel excavation at Western Portal	Noise, dust impact and waste generation	Provided water spraying during excavation works On-site waste sorting and implementation of trip ticket system
Utilities trial pits and additional site investigation works at 6 nos. Intakes	Nil	Nil
Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary works at both portals	Nil	Nil
AIP & DDA submissions for temporary and permanent works for 32 nos. Intakes	Nil	Nil
AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays	Nil	Nil
Environmental impact monitoring	Nil	Nil
TBM fabrication; delivery, inland transportation and assembly planning	Noise Impact and ground water	Double-shielded Tunnel Boring Machine to minimize seepage of groundwater

Summary of EM&A Requirements

- 1.9 The EM&A programme requires construction phase monitoring construction noise, air quality and water quality and environmental site audit. The EM&A requirements for each parameter 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.
- 1.10 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.
- 1.11 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality, water quality and noise levels and audit works for the Project in December 2008.

2. AIR QUALITY

Monitoring Requirements

2.1 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality at Eastern and Western Portals. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 Three designated monitoring stations, AQ1, AQ2 and AQ3 were selected for impact dust monitoring. Table 2.1 describes the air quality monitoring locations, which are also depicted in **Figure 3.1a-b**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations
AQ1	True Light Middle School of Hong Kong
AQ2	Outside Aegean Terrace
AQ3	Outside The Site Office at Western Portal

Monitoring Equipment

2.3 Table 2.2 summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix B**.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	G25A; S/N: 1536	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD3	1
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	2

Monitoring Parameters, Frequency and Duration

2.4 Table 2.3 summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

Measuring Procedures

2.5 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG with once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

Maintenance/Calibration

2.6 The following maintenance/calibration was required for the direct dust meters:

- Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

2.8 Operating/analytical procedures for the operation of HVS were as follows:

- A horizontal platform was provided with appropriate support 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 sampler was more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- 2.9 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.10 For TSP sampling, fiberglass filters (G810) were used [Note: these filters have a collection efficiency of > 99% for particles of 0.3 mm diameter].
- 2.11 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 designated air monitoring station.
- 2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 2.13 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. The applied pressure should be sufficient to avoid air leakage at the edges.
- 2.14 The shelter lid was closed and secured with the aluminum strip.
- 2.15 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).
- 2.16 After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.
- 2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

- 2.18 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.
 - High volume samplers were calibrated at bi-monthly intervals using GMW-25 Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

Eastern Portal (AQ1)

- 2.19 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2.20 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Western Portal (AQ2)

- 2.21 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Western Portal (AQ3)

- 2.22 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 2.23 Wind data was obtained from the Meteorological Observations for King's Park Automatic Weather Station for Eastern Portal and Wong Chuk Hang Automatic Weather Station for Western Portal. These wind data for the reporting period is summarized in **Appendix J**.
- 2.24 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.
- 2.25 In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website <http://www.cinotech.com.hk/projects/WestDrainageTunnel/>.
- 2.26 According to our field observations, the identified dust sources at the monitoring stations were mainly from the excavation works, loading/unloading activities and the road traffic for Eastern and Western Portals.

Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month

Parameter	Date	Concentration (µg/m ³)	Action Level, µg/m ³	Limit Level, µg/m ³
Eastern Portal				
1-hr TSP (AQ1)	2-Dec-08	85.5	345	500
	3-Dec-08	182.3		
	5-Dec-08	314.8		
	8-Dec-08	211.3		
	9-Dec-08	209.0		
	11-Dec-08	239.3		
	15-Dec-08	239.7		
	18-Dec-08	267.5		
	19-Dec-08	151.5		
	22-Dec-08	159.2		
	23-Dec-08	70.1		
	24-Dec-08	154.0		
	30-Dec-08	159.9		
	31-Dec-08	112.3		
24-hr TSP (AQ1)	1-Dec-08	146.5	201	260
	6-Dec-08	133.6		
	12-Dec-08	18.7		
	18-Dec-08	175.5		
	23-Dec-08	125.1		
	29-Dec-08	116.5		
Western Portal				
1-hr TSP (AQ2)	2-Dec-08	46.7	321	500
	3-Dec-08	46.7		
	5-Dec-08	54.0		
	8-Dec-08	51.1		
	9-Dec-08	59.3		
	11-Dec-08	53.0		
	15-Dec-08	39.7		
	18-Dec-08	55.6		
	19-Dec-08	49.0		
	22-Dec-08	45.5		
	24-Dec-08	44.9		
	30-Dec-08	32.2		
	31-Dec-08	52.3		
24-hr TSP (AQ3)	1-Dec-08	114.8	156	260
	6-Dec-08	39.9		
	12-Dec-08	83.3		
	18-Dec-08	83.6		
	23-Dec-08	143.2		
	29-Dec-08	122.4		

3. NOISE

Monitoring Requirements

3.1 Three noise monitoring stations, namely NC1, NC2 and NC3 were selected for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Noise monitoring was conducted at three designated monitoring stations as listed in Table 3.1. **Figure 3.1a-b** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations
NC1/NC1a	True Light Middle School of Hong Kong/Outside True Light Middle School of Hong Kong
NC2	The Legend
NC3	Outside Aegean Terrace

Monitoring Equipment

3.3 Table 3.2 summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	B&K Model 2238 and SVAN 955	2
Calibrator	B&K 4231 and SV30A	2

Monitoring Parameters, Frequency and Duration

3.4 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
NC1 NC2 NC3	L ₁₀ (30 min.) dB(A) L ₉₀ (30 min.) dB(A) L _{eq} (30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
NC1a NC2 NC3	L _{eq} (5 min.) dB(A)	1900 - 2300 hrs on all other days		
NC3		0700 - 2300 hrs holidays & 2300 – 0700 hrs of next day		

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct 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
 - time measurement : 30 minutes / 5 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L₉₀ and L₁₀ were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- 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.

Maintenance and Calibration

- 3.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- 3.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

- 3.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 3.8 Noise monitoring (0700-1900 on normal weekdays) at the three designated locations was conducted as scheduled in the reporting month.
- 3.9 As the construction works at Western Portal were carried out at 1900-2300 hours on all other days and 0700-2300 hours on general holiday (including Sundays) since 19 October 2008 and at 1900-2300 hours on all other days since 27 October 2008 for Eastern Portal, noise monitoring at NC2 and NC3 were also conducted for the restricted hours as scheduled in the reporting month.
- 3.10 Noise monitoring at NC3 was conducted in the period of 2300-0700 as scheduled in the reporting month since the construction works at Western Portal were carried out at 2300-0700 hours on general holiday (including Sundays) and on all other days from 19 December 2008.
- 3.11 As noise monitoring for evening time inside the True Light Middle School of Hong Kong (NC1) throughout the construction period will cause disturbance to them. Thus, the noise monitoring for evening time will be conducted at outside the school (NC1a) at the nearest of the staff accommodation. As no baseline noise monitoring has been conducted at NC1a and the major noise source was the traffic noise along Tai Hang Road. The noise monitoring results will be adjusted with the reference baseline noise level at NC1 (1900-2300 on all other days and 0700-2300 on holidays) and will be used as reference only.

Eastern Portal (NC1 & NC2) - 0700-1900 hrs on normal weekdays

- 3.12 No Action/Limit Level exceedance was recorded.

Eastern Portal (NC1a & NC2) - 1900-2300 hrs on all other days

- 3.13 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) - 0700-1900 hrs on normal weekdays

- 3.14 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) - 1900-2300 hrs on all other days and 0700-2300 hrs on holidays

- 3.15 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) – 2300-0700 hrs of next day

- 3.16 No Action/Limit Level exceedance was recorded.

- 3.17 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = Measured CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented at Table 3.4.
- 3.18 Noise monitoring results and graphical presentations are shown in **Appendix G**. In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website <http://www.cinotech.com.hk/projects/WestDrainageTunnel/>.
- 3.19 The major noise source identified at the designated noise monitoring stations was the traffic noise along the Tai Hang Road, rock breaking, loading/unloading activities and excavation works for Eastern Portal and pile piling, loading/unloading activities for Western Portal.

Table 3.4 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
NC1 – True Light Middle School of Hong Kong	70.2 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC1a – Outside True Light Middle School of Hong Kong (the nearest of staff accommodation)	65.8 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) (reference)	65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days)
NC2 – The Legend	64.8 (at 0700 – 1900 hrs on normal weekdays) 59.5 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days)	75 (at 0700 – 1900 hrs on normal weekdays) 65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days)
NC3 – Outside Aegean Terrace	57.7 (at 0700 – 1900 hrs on normal weekdays) 53.8 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 52.0 (at 2300 – 0700 hrs of next day)	75 (at 0700 – 1900 hrs on normal weekdays) 65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 50 (at 2300 – 0700 hrs of next day)

(*) reduce to 65 dB(A) during school examination periods.

Table 3.5 Summary Table of Noise Monitoring Results during the Reporting Month

Parameter	Date	Construction Noise Level : Leq(30min) dB (A)	Action Level	Limit Level,
Eastern Portal				
NC1	3-Dec-08	67.3, Measured \leq Baseline	When one documented complaint is received	70*dB(A)
	9-Dec-08	68.4, Measured \leq Baseline		
	18-Dec-08	69.3, Measured \leq Baseline		
	23-Dec-08	67.2, Measured \leq Baseline		
NC2	3-Dec-08	62.5		75dB(A)
	9-Dec-08	61.0		
	18-Dec-08	64.2		
	23-Dec-08	65.4		
Western Portal				
NC3	3-Dec-08	57.7	When one documented complaint is received	75dB(A)
	9-Dec-08	57.7		
	18-Dec-08	57.1		
	23-Dec-08	58.4		
(Restricted Hours - 07:00 - 23:00 hrs holidays & 19:00 - 23:00 hrs on all other days)				
Parameter	Date	Construction Noise Level : Leq(5min) dB (A)	Action Level	Limit Level,
Eastern Portal				
NC1a (Reference)	3-Dec-08	62.3	When one documented complaint is received	65dB(A)
	9-Dec-08	62.0		
	18-Dec-08	63.7		
	23-Dec-08	62.0		
NC2	3-Dec-08	64.1	When one documented complaint is received	65dB(A)
	9-Dec-08	63.6		
	18-Dec-08	64.4		
	23-Dec-08	62.6		
Western Portal				
NC3	3-Dec-08	52.0	When one documented complaint is received	65dB(A)
	7-Dec-08	52.9, Measured \leq Baseline		
	9-Dec-08	52.7		
	14-Dec-08	52.5, Measured \leq Baseline		
	18-Dec-08	50.0		
	21-Dec-08	52.5, Measured \leq Baseline		
	23-Dec-08	51.7, Measured \leq Baseline		
	28-Dec-08	59.1, Measured \leq Baseline		
	28-Dec-08	48.4, Measured \leq Baseline		
(Restricted Hours – 23:00 – 07:00 hrs of next day)				
Western Portal				
NC3	23-Dec-08	48.8	When one documented complaint is received	50dB(A)
	28-Dec-08	49.7		

(*) reduce to 65 dB(A) during school examination periods.

4. WATER QUALITY

Monitoring Requirements

4.1 Dissolved oxygen (DO concentration in mg/L and DO saturation in percentage), Turbidity (Tby in NTU), Suspended Solid (SS in mg/L), pH, salinity and both water and ambient temperature monitoring were conducted to monitor the water quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

4.2 Locations of designated Water Quality Monitoring Stations are shown in **Figure 4.1a-b** and described in Table 4.1. Samples shall be taken at all designated Monitoring and Control Stations.

Table 4.1 Locations for Water Quality Monitoring

Monitoring Stations	Coordinates	
	Northing	Easting
<i>Control Stations</i>		
CE (Ebb)	814956	830026
CF (Flood)	812420	831778
<i>Impact Stations</i>		
I1	813654	831088
I2	813582	831105
Intake A	813044	831603
Intake B	814583	830606

Monitoring Equipment

4.3 Table 4.2 summarizes the equipment used in the water quality monitoring program. All the monitoring equipment complied with the specifications stipulated in the Updated EM&A Manual. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 4.2 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820	2
Monitoring Position Equipment	“Magellan” Handheld GPS Model GPS-320	1

Monitoring Parameters, Frequency and Duration

4.4 Table 4.3 summarizes the monitoring parameters, monitoring period and frequencies of water quality monitoring.

Table 4.3 Frequency and Parameters of Water Quality Monitoring

Station	Parameters	Frequency	No. of depth sampled	Depth	No. of samples events
CE	<ul style="list-style-type: none"> • Temperature (°C) • pH (pH unit) • turbidity (NTU) • water depth (m) • salinity (mg/L) • dissolved oxygen (DO) (mg/L and % of saturation) • suspended solids (SS) (mg/L) 	3 times per week during the course of the marine works	3	<ul style="list-style-type: none"> • 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If the water depth is less than 6m, omit mid-depth sampling. 	2 per monitoring day (1 for mid-ebb and 1 for mid-flood)
CF			2		
I1			3		
I2			3		
Intake A			3		
Intake B			3		

Monitoring Methodology, Calibration Details and QA/QC Procedures

Instrumentation

4.5 A multi-parameter meter (Model YSI 6820 C-M) was used to measure DO, DO saturation, turbidity, salinity and temperature.

Operating/Analytical Procedures

4.6 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity and temperature were taken. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

4.7 For SS measurement, duplicate water samples for SS were taken and analysed at each

monitoring station at each sample depth. The sample bottles were then packed in cool-boxes (without being frozen), and delivered to a HOKLAS accredited laboratory for analysis of suspended solids concentrations within 24 hours.

Maintenance and Calibration

- 4.8 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of YSI 6820-C-M. The probe was then calibrated with a solution of known NTU.
- 4.9 QA/QC procedures as attached in **Appendix C** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

- 4.10 All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. The monitoring data and graphical presentations of the monitoring results are shown in **Appendix H**.
- 4.11 In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website <http://www.cinotech.com.hk/projects/WestDrainageTunnel/>.
- 4.12 During the water quality monitoring, the areas of inspection included the general environmental conditions in the vicinity of the site, pollution control and mitigation measures within the site; and also review on the environmental conditions outside the site area that are likely to be affected, directly or indirectly, by site activities. The findings have been recorded in our Field Record Sheets.
- 4.13 No Action/Limit Level exceedance was recorded.
- 4.14 The summary of exceedance record in reporting month is shown in **Appendix I**.

Underground water level

- 4.15 Ground water levels were measured once per month during the construction phase in order to ensure the water levels at those intakes near to the natural stream courses and thus on the surrounding habitats will not be significantly affected.
- 4.16 Locations of designated ground water level (borehole with piezometer) monitoring station UC1 at Eastern Portal has been changed to ADH48 which was verified by IEC on 5th June 2008. Ground water level monitoring location is shown in **Figure 4.2** and the Monitoring data are shown in Table 4.4

Table 4.4 Ground Water Level Monitoring Data at Location ADH48

Date	Water Level (from ground)/m
15 December 2008	9.55
31 December 2008	9.78

5. ENVIRONMENTAL AUDIT

Site Audits

- 5.1 Site audits were carried out on a 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 K**.
- 5.2 Site audits were conducted on 3rd, 10th, 17th, 24th and 29th December 2008. IEC site inspections were conducted on 29th December 2008. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

- 5.3 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.

Water Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the weather condition on the monitoring day.

Status of Environmental Licensing and Permitting

- 5.4 All permits/licenses obtained for the Project are summarized in Table 5.1.

Status of Waste Management

- 5.5 The waste management of the Project has to follow the requirements and procedures stated in the Waste Management Plan which was prepared by the Contractor.

- 5.6 During this reporting period, a total 5 nos. of dump trucks of waste were delivered to SENT landfill and 1967 nos. of C&D waste was delivered to Public Fill Reception Facilities. Both the trip ticket system and chit accounting system for disposal of waste were operating smoothly to date. No overloading case was recorded during this reporting period. No disposal of inert C&D material to public sorting facilities and no dump truck without cover were reported from CEDD. In respect of the dump truck cover, DNJV keeps on take record photos and inspection to ensure that all dump trucks have fully covered the skip before leaving the site.
- 5.7 The amount of wastes generated by the activities of the Project during the reporting month is shown in **Appendix P**.

Table 5.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
FEP-01/272/2007/A	28/1/08	N/A	Construction of a 6.25m-7.25m in diameter and about 11 km long underground main drainage tunnel, 2 portals and a series of connecting adits and drop shafts.	Valid
Effluent Discharge License				
EP860/W10/XY0175	23/06/08	30/06/13	Industrial discharge (Area of Mount Butler Office)	Valid
EP860/W10/XY0177	23/06/08	30/06/13	Industrial discharge (Eastern Portal Site)	Valid
EP820/W9/XT086	22/07/08	31/07/13	Industrial discharge (Western Portal Site)	Valid
EP680/W10/XY0183	19/11/08	30/11/13	Industrial discharge (Intake W0, Stubbs Road, Wan Chai, HK)	Valid
Registration of Chemical Waste Producer				
5213-148-D2393-02	---	N/A	Chemical waste types: Spent oil	Valid
5213-172-D2393-01	---	N/A	Chemical waste types: Spent oil	Valid
Construction Noise Permit (CNP)				
GW-RS0929-08	29/12/08	28/06/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid
GW-RS0894-08	19/12/08	18/03/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. Dc/2007/10).	Valid

Implementation Status of Environmental Mitigation Measures

- 5.8 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 5.2.

Table 5.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	10/12/2008	Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	The item was not rectified during the follow-up audit session.
	17/12/2008	Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	The item was not rectified during the follow-up audit session.
	24/12/2008	Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	The item was not rectified during the follow-up audit session.
	24/12/2008	<i>Marine Works</i> Foam and container were observed within the silt curtain at Western Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	Sediment was observed carrying to the public road at Western Portal. The workers have cleared the road immediately. However, The Contractor was reminded to provide appropriate training to the workers that all vehicle and plant should be cleared of earth, mud and debris before leaving the site.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Standing water with discarded water bottles was observed in the tank at Eastern Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Milky water discharge was observed from wastewater treatment unit at Eastern Portal. The Contractor was reminded to remove deposited silt/grit at the silt removal facilities regularly to ensure that these facilities can function properly at all time.	*Follow-up action was needed for the item.
	29/12/2008	Leakage of water to the existing stream at the access road at Eastern Portal was observed. The Contractor was reminded to provide sand bag bund to prevent any wastewater discharging to the stream.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Muddy water and sediment was observed accumulate at the paved area at Eastern Portal. The Contractor was reminded to provide sand bag bund to surround the open channels to direct the silty runoff for treatment before discharging out.	*Follow-up action was needed for the item.
	29/12/2008	Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	Rectification/improvement was observed during the follow-up audit session.
<i>Air Quality</i>	24/12/2008	Sediment was observed carrying to the public road at Western Portal. The workers have cleared the road immediately. However, The Contractor was reminded to provide appropriate training to the workers that all vehicle and plant should be cleared of earth, mud and debris before leaving the site.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Opened cement bags were observed at Western Portal. The Contractor was reminded to cover it with tarpaulin to control dust emission.	Rectification/improvement was observed during the follow-up audit session.

Parameters	Date	Observations and Recommendations	Follow-up
Waste / Chemical Management	03/12/2008	Chemical waste drums were observed standing on the bare ground at Western Portal. The Contractor was reminded to dispose them properly.	The item was not rectified during the follow-up audit session.
	03/12/2008	Construction materials were observed accumulate at the drainage channel to nullah at Western Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	03/12/2008	Sediment was observed accumulate at the U-Channel at Intake MA17. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	03/12/2008	Oil stains were observed at underneath of drilling rig at Eastern Portal. The Contractor was reminded to clear them and properly maintain the plants to prevent further oil leakage.	Rectification/improvement was observed during the follow-up audit session.
	03/12/2008	Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	*Follow-up action was needed for the item.
	03/12/2008	The valve of drip tray at Intake MA17 was observed not cover properly. The Contractor was reminded to seal it.	The item was not rectified during the follow-up audit session.
	10/12/2008	Oily part of equipment was observed standing on the bare ground at Western Portal. The Contractor was reminded to remove them and clear the oil stains as soon as possible.	The item was not rectified during the follow-up audit session.
	10/12/2008	Chemical waste drums were observed standing on the bare ground at Western Portal. The Contractor was reminded to dispose them properly.	The item was not rectified during the follow-up audit session.
	10/12/2008	Oil containers with chemical oil were observed standing on the bare ground at Western Portal. The Contractor was reminded to provide drip tray/store it properly.	Rectification/improvement was observed during the follow-up audit session.
	10/12/2008	The valve of drip tray at Intake MA17 was observed not cover properly. The Contractor was reminded to seal it.	Rectification/improvement was observed during the follow-up audit session.
	10/12/2008	Oil leakage was observed from the generator at Intake MA17. The Contractor was reminded to clear them and well-maintain the equipment to prevent further oil leakage.	Rectification/improvement was observed during the follow-up audit session.
	10/12/2008	Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	*Follow-up action was needed for the item.
	10/12/2008	Part of equipment with remaining oil was observed at the excess road at Eastern Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	17/12/2008	Oily part of equipment was observed standing on the bare ground at Western Portal. The Contractor was reminded to remove them and clear the oil stains as soon as possible.	Rectification/improvement was observed during the follow-up audit session.
	17/12/2008	Chemical waste drums were observed with drip tray at Western Portal. The Contractor	Rectification/improvement was observed during the

Parameters	Date	Observations and Recommendations	Follow-up
		was reminded to store them at designated chemical storage area and dispose them properly.	follow-up audit session.
	17/12/2008	Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	Foam and container were observed within the silt curtain at Western Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	C&D waste was observed at the existing stream at Eastern Portal. The Contractor was reminded to clear them as soon as possible.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	Oil stains were observed at the unpaved area at near the existing stream at Eastern Portal. The Contractor was reminded to clear them properly and well-maintained the plant to prevent further oil leakage.	*Follow-up action was needed for the item.
	29/12/2008	Standing water with discarded water bottles was observed in the tank at Eastern Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Oil spillage was observed from the plant at near of the existing stream at Eastern Portal. The Contractor was reminded to clear the oil stains and well-maintained the plant equipment to prevent further oil leakage.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Chemical containers were observed accumulate at the site area of Western Portal. The Contractor was reminded to store it in chemical waste storage area and dispose them properly.	Rectification/improvement was observed during the follow-up audit session.
	29/12/2008	Oil drum was observed standing on the bare ground at Western Portal. The Contractor was reminded to provide drip tray or store it properly.	The item was not rectified during the follow-up audit session.
Ecology	03/12/2008	Sediment accumulates at the access road at Eastern Portal. The Contractor was reminded to clear them.	*Follow-up action was needed for the item.
	10/12/2008	Sediment accumulates at the access road at Eastern Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	C&D waste was observed at the existing stream at Eastern Portal. The Contractor was reminded to clear them as soon as possible.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	Cement bags (abandon) were observed accumulate at near the existing stream at Eastern Portal. The Contractor was reminded to dispose them properly.	Rectification/improvement was observed during the follow-up audit session.
	24/12/2008	Oil stains were observed at the unpaved area at near the existing stream at Eastern Portal. The Contractor was reminded to clear them properly and well-maintained the plant to prevent further oil leakage.	*Follow-up action was needed for the item.
Reminders	03/12/2008	The Contractor was reminded of the followings: - Construction works at near the existing stream at Eastern Portal should be carried	*Follow-up action was needed for the item.

Parameters	Date	Observations and Recommendations	Follow-up
		out carefully to prevent any disturbance / damage to the stream.	
	03/12/2008	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	*Follow-up action was needed for the item.
	10/12/2008	The Contractor was reminded of the followings: - Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	*Follow-up action was needed for the item.
	10/12/2008	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	*Follow-up action was needed for the item.
	17/12/2008	The Contractor was reminded of the followings: - Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	*Follow-up action was needed for the item.
	17/12/2008	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	*Follow-up action was needed for the item.
	24/12/2008	The Contractor was reminded of the followings: - Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	*Follow-up action was needed for the item.
	24/12/2008	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	*Follow-up action was needed for the item.
	29/12/2008	The Contractor was reminded of the followings: - Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	*Follow-up action was needed for the item.
	29/12/2008	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	*Follow-up action was needed for the item.

Note: (*) The Environmental deficiencies have been rectified by the Contractor. However, the item was reoccurred during the follow-up site audit due to construction activities/rainstorm. The Contractor was reminded to rectify the deficiencies more frequently.

- 5.9 The monthly IEC audit was carried out on 29th December 2008, the observations were recorded and they are presented as follows:
- 5.10 Follow-up and rectification works in response to IEC observations on 27 November 2008 were satisfied.

29th December 2008

Eastern Portal

- Silt and leaves were accumulated near the surface channel. Protection of surface channel was considered inadequate.
- Oil and chemical containers were not properly stored.
- Water from treatment system was slightly silty. It is recommended to check the treatment system.

Western Portal

- Stagnant water was observed near the slope. Prompt maintenance of water tap is necessary. Potential water ponding areas should also be reviewed.
- Oil drum was not provided with drip tray at the piling area.
- Empty paint containers were found outside the portal area. Proper disposal of paint container is necessary.
- Sedimentation tank was full of water. However the water quality was yet to confirm if the discharge standards are fulfilled.

Non-compliance Recorded during Site Inspections

- 5.11 No non-compliance was recorded in the reporting month.

Summary of Mitigation Measures Implemented

- 5.12 The Contractor has implemented the mitigation measures as recommended in the EIA and the updated EM&A Manual in the reporting period except those mitigation measures not applicable at this stage. Status of the implementation of mitigation measures is presented in Table 1.2 and **Appendix L**.
- 5.13 According to the updated EM&A Manual and EP condition, mitigation measures such as noise enclosure and use of quiet PME are required to be implemented.
- 5.14 The actual implementation status of major mitigation measures required under the EP is as follows:
- Installation of silt curtain during the course of marine works.
 - Design of noise enclosure at Eastern Portal.
 - Submitted the Alternative Plant Inventory (EP condition 2.8(c)).
- 5.15 An updated summary of the EMIS is provided in **Appendix L**.

Implementation Status of Event Action Plans

5.16 The Event Action Plans for air quality and noise are presented in **Appendix M**.

*Eastern Portal*1-hr TSP Monitoring

5.17 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP Monitoring

5.18 No Action/Limit Level exceedance was recorded in the reporting month.

Construction Noise

5.19 No Action/Limit Level exceedance was recorded in the reporting month.

*Western Portal*1-hr TSP Monitoring

5.20 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP Monitoring

5.21 No Action/Limit Level exceedance was recorded in the reporting month.

Construction Noise

5.22 No Action/Limit Level exceedance was recorded for construction noise.

Water Quality

5.23 No Action/Limit Level exceedance was recorded for water quality.

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

5.24 One environmental complaint was received in the reporting month. For the details, please refer to the following table: -

Complaint No.	Date	Complaint Details
COM-2008-12-020	28 December 2008	The complaint was lodged by Ms Cheung on 28 December 2008 regarding the excavator was found working within Western Portal works area on Sunday.

5.25 No warning, summon and notification of successful prosecution was received in the reporting month.

5.26 There were a total of 10 environmental complaints, no warning, summons and successful prosecution received since the commencement of the Project. The Complaint Log is attached in **Appendix N**.

6. FUTURE KEY ISSUES

Key Issues for the Coming Month

6.1 Key environmental issues at both Eastern and Western Portals in the coming month include:

Both Eastern and Western Portal

- Noise from operation of the equipment, especially for rock-breaking activities and machinery on-site;
- Dust generation from stockpiles of dusty materials, excavation works and rock breaking activities;
- Runoff from exposed slope;
- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks;
- Review and implementation of temporary drainage system for the surface runoff;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Watering for rock breaking activity, soil nailing and on haul road;
- Accumulation of general and construction waste on site.

Only at Western Portal

- Contamination of marine water.

6.2 The tentative program of major site activities and the impact prediction and control measures for the coming two month, i.e. January 2009 to February 2009 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
<ul style="list-style-type: none"> - Main tunnel excavation, intake shaft, river channel and access road construction at Eastern Portal. - Shallow & deep base slab construction and arch tunnel excavation at Western Portal. - Preparation work & cofferdam construction at Intake W0. 	Air impact (dust)	<ul style="list-style-type: none"> a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	<ul style="list-style-type: none"> d) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; e) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; f) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and g) Provision of measures to prevent discharge into the stream.
	Noise Impact	<ul style="list-style-type: none"> h) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; i) Controlling the number of plants use on site; j) Regular maintenance of machines; and k) Use of acoustic barriers if necessary.

Monitoring Schedule for the Next Month

6.3 The tentative environmental monitoring schedules for the next month are shown in **Appendix D**.

Construction Program for the Next Month

6.4 The tentative construction program for the Project is provided in **Appendix O**.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 7.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

- 7.2 All 1-hr TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hr TSP Monitoring

- 7.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 7.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

- 7.5 All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Complaint and Prosecution

- 7.6 One environmental complaints and no environmental prosecution were received in the reporting month.

Recommendations

- 7.7 According to the environmental audit performed in the reporting period, the following recommendations were made:

Air Quality Impact

- To prohibit any open burning on site.
- To regularly maintain the machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To provide hoarding

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from

sensitive receivers.

- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.

Water Impact

- To prevent any surface runoff discharge into any stream course.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.

Waste/Chemical Management

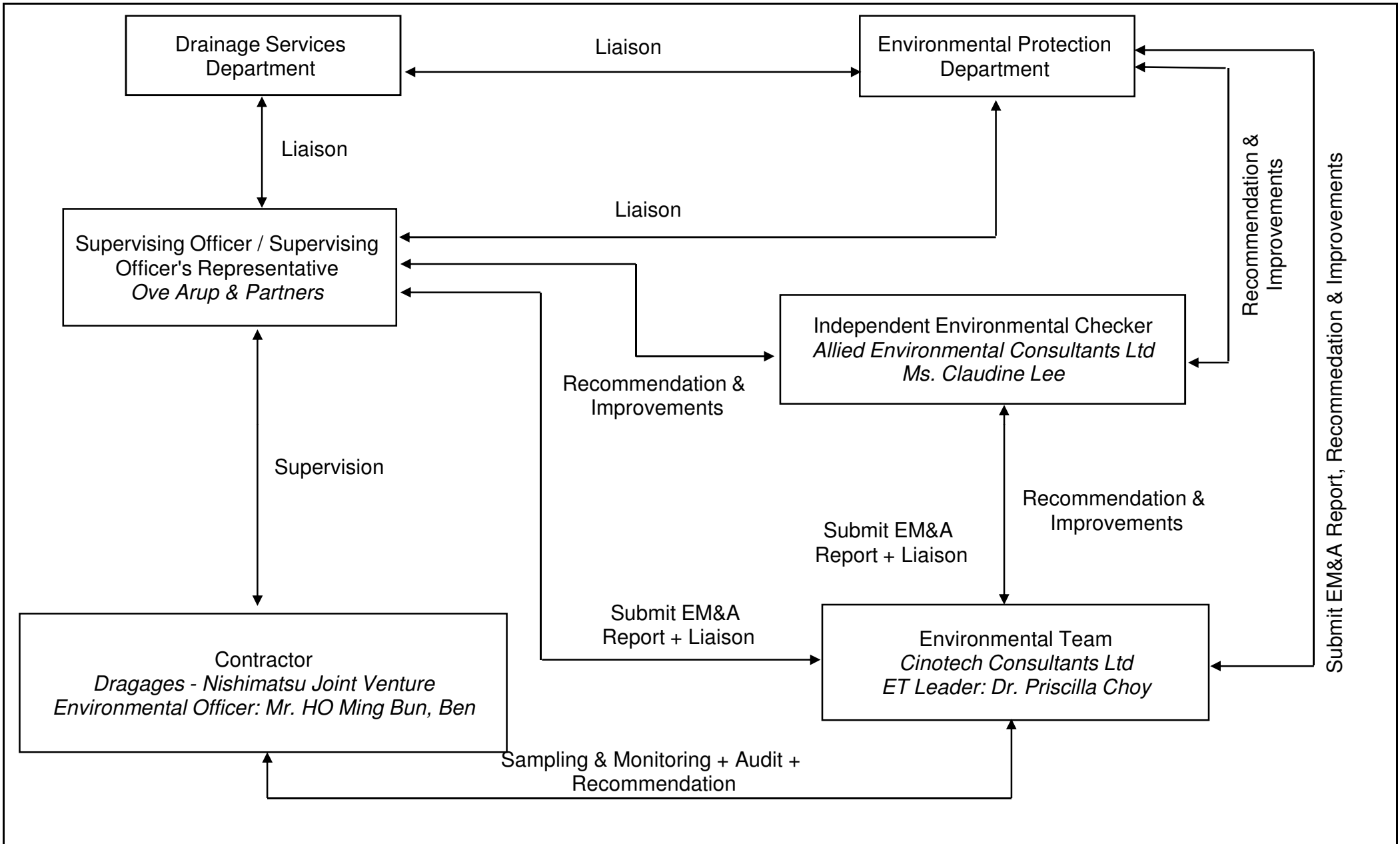
- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

FIGURES



Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No. MA8001
	Site Layout Plan		Date	Figure
			Apr-08	1.1





Title	Contract No. DC/2007/10	Scale	N.T.S	Project No.	MA8001	CINOTECH
	Design and Construction of Hong Kong West Drainage Tunnel	Date	Apr-08	Figure	2.1	
Organization Chart						



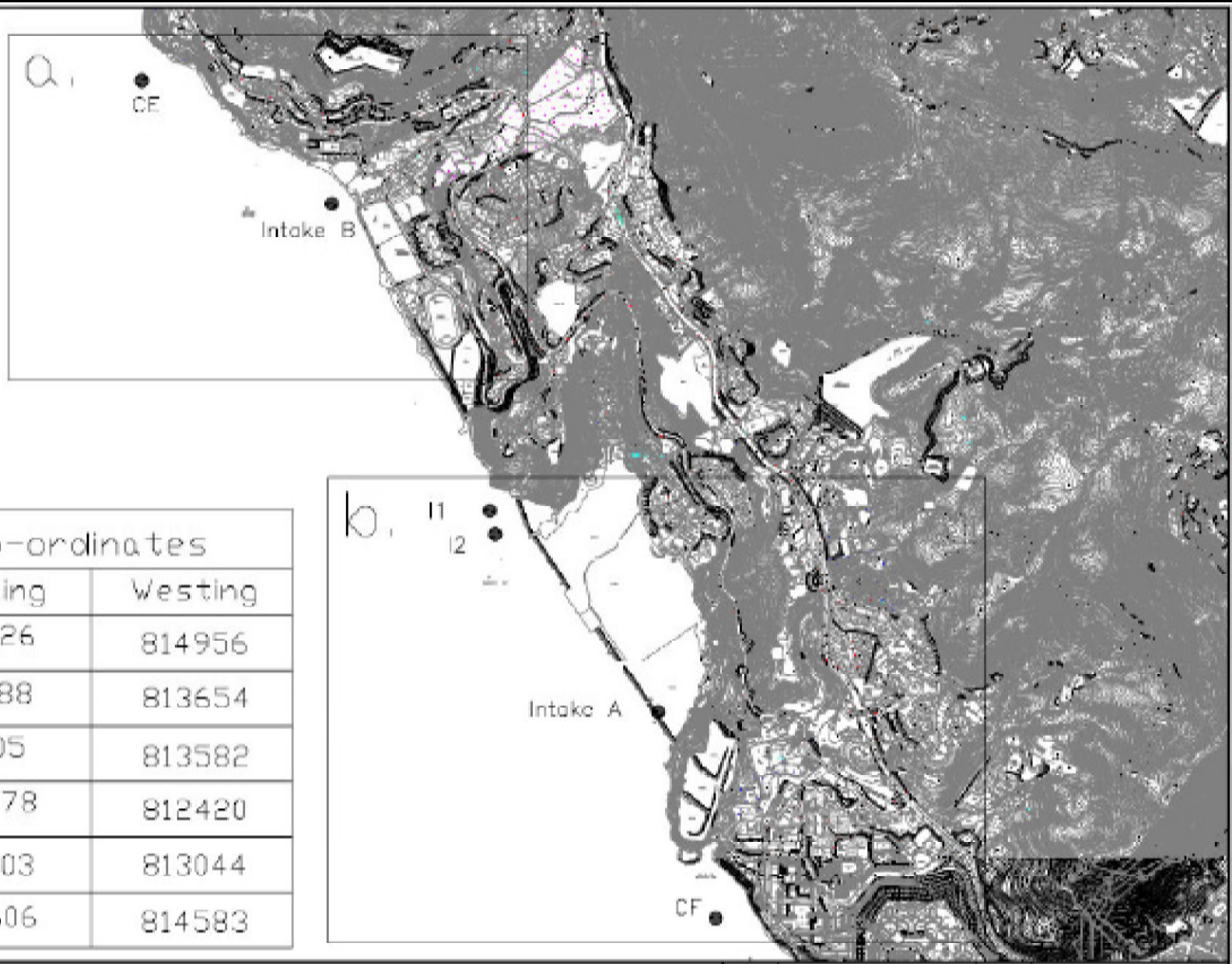
Title	Contract No. DC/2007/10		Scale	Project	
	Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal)		N.T.S	No.	MA8001
	Locations of Air Quality and Noise Monitoring Station		Date	Figure	
			Nov-08	3.1a	

CINOTECH



Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel (Western Portal)		N.T.S	No. MA8001
	Locations of Air Quality and Noise Monitoring Station		Date	Figure
			Jun-08	3.1b



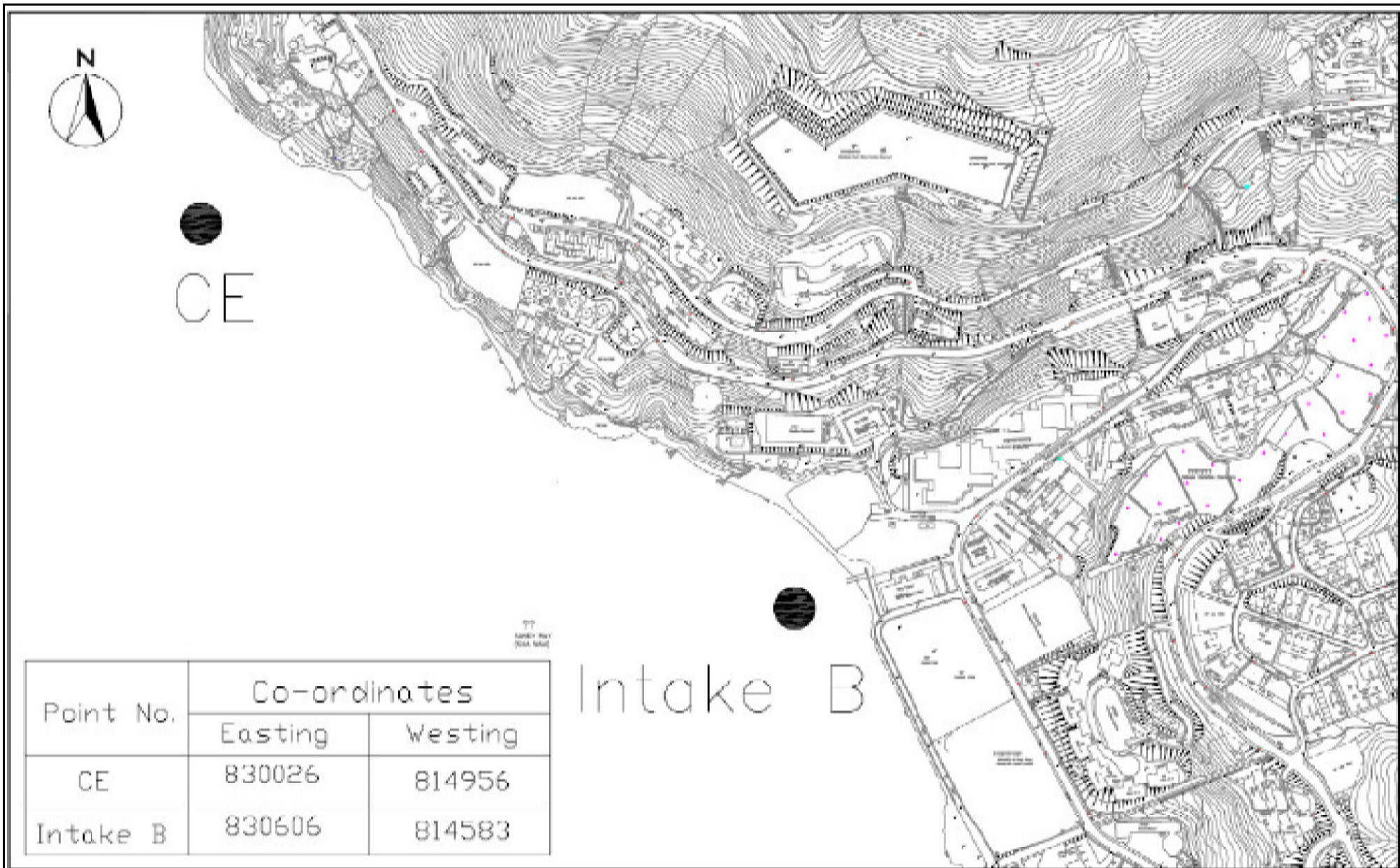


Point No.	Co-ordinates	
	Easting	Westing
CE	830026	814956
I1	831088	813654
I2	831105	813582
CF	831778	812420
Intake A	831603	813044
Intake B	830606	814583

Title Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 Locations of Water Quality Monitoring Stations

Scale	N.T.S	Project No.	MA8001
Date	Jun-08	Figure	4.1

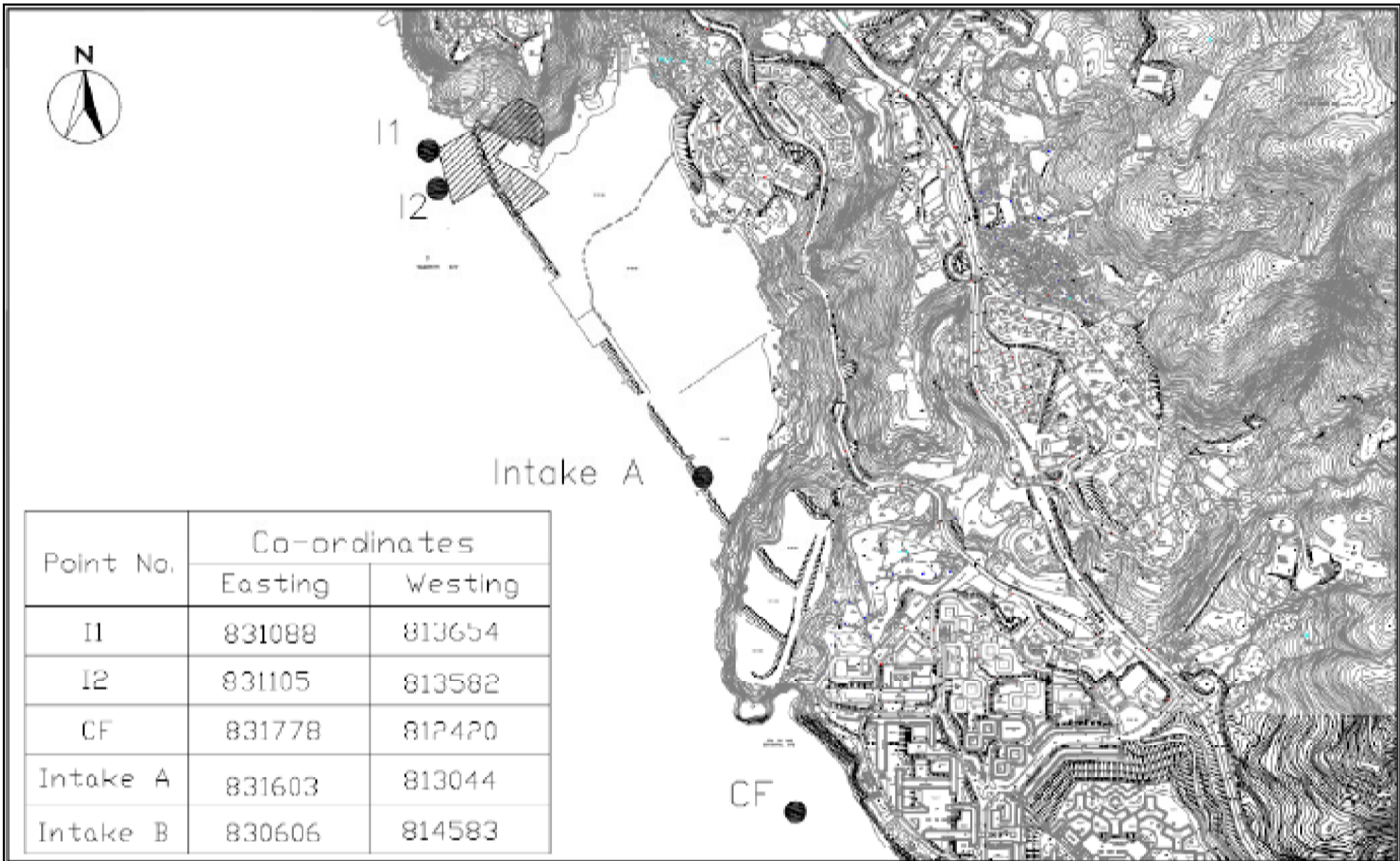




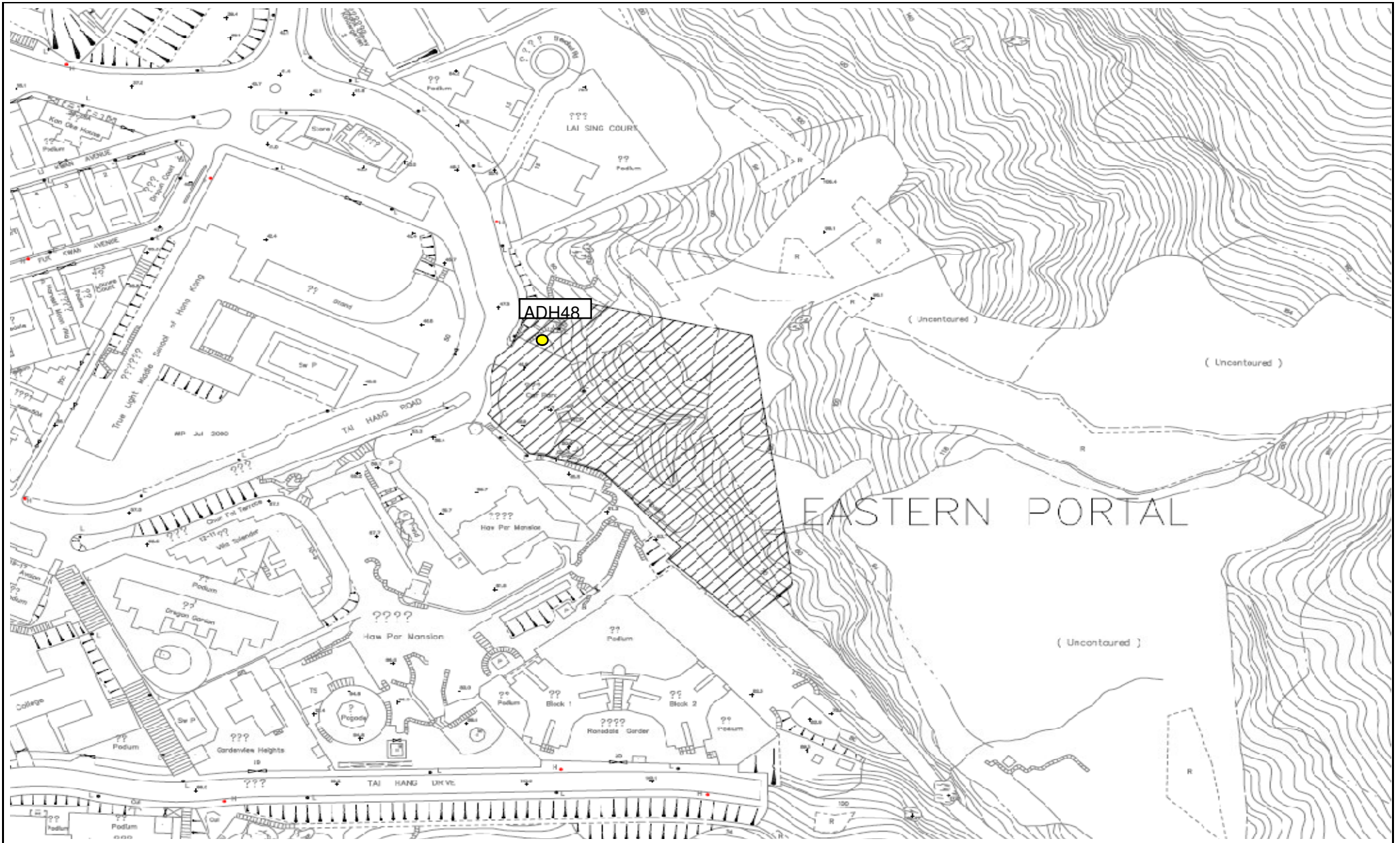
Title Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 Locations of Water Quality Monitoring Stations

Scale	N.T.S	Project No.	MA8001
Date	Jun-08	Figure	4.1a





Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Locations of Water Quality Monitoring Stations	Scale N.T.S	Project No. MA8001	
	Date Jun-08	Figure 4.1b	



Title	Contract No. DC/2007/10		Scale	Project	CINOTECH
	Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal)		N.T.S	No. MA8001	
	Location of ground water level Monitoring Station		Date	Figure	
			Jun-08	4.2	

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AQ1	345	500
AQ2	321	

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AQ1	201	260
AQ3	156	

Table A-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70** dB(A)
2300-0700 hrs of next day		45/50/55** dB(A)

(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

(**) to be selected based on Area Sensitivity Rating.

Table A-4 Action and Limit Levels for Water Quality

Parameter		Action	Limit
DO, mg/L	Surface and Middle	6.3	6.2
	Bottom	6.0	5.8
SS, mg/L		15.7 or 120% of upstream control station's SS at the same tide of the same day	16.4 or 130% of SS readings at the upstream control station at the same tide of same day and specific sensitive receiver water quality requirements
Turbidity, NTU		10.2 or 120% of upstream control station's turbidity at the same tide of the same day	11.1 or 130% of turbidity at the upstream control station at the same tide of same day

**APPENDIX B
COPIES OF CALIBRATION
CERTIFICATES**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/44/0005

Station AQ1 - True Light Middle School of Hong Kong Operator: WK
 Date: 14-Oct-08 Next Due Date: 13-Dec-08
 Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	298.9	Pressure, Pa (mmHg)	765.4

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	10-Mar-08	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Mar-09	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	12.3	3.51	60.43	8.5	2.92
2	10.7	3.28	56.32	7.1	2.67
3	7.6	2.76	47.36	4.7	2.17
4	5.3	2.31	39.43	3.2	1.79
5	3.0	1.74	29.50	1.8	1.34

By Linear Regression of Y on X

Slope, mw = 0.0509 Intercept, bw = -0.1924

Correlation coefficient* = 0.9984

*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

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.97

Remarks: _____

Conducted by: WK Tang Signature: [Signature]
 Checked by: [Signature] Signature: _____

Date: 14/10/08
 Date: 14 Oct 2008

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/44/0006

Station AQ1 - True Light Middle School of Hong Kong Operator: WK
 Date: 11-Dec-08 Next Due Date: 10-Feb-09
 Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	292.3	Pressure, Pa (mmHg)	767

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	10-Mar-08	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Mar-09	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.1	3.53	60.68	8.6	2.97
2	10.7	3.32	57.02	7.2	2.72
3	7.4	2.76	47.30	5.0	2.27
4	5.1	2.29	39.15	3.3	1.84
5	3.2	1.81	30.87	1.9	1.40

By Linear Regression of Y on X

Slope, mw = 0.0518 Intercept, bw = -0.1952
 Correlation coefficient* = 0.9993

*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

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.02

Remarks: _____

Conducted by: Wk Tang Signature: _____
 Checked by: Wk Signature: _____

Date: 11/12/08
 Date: 11 Dec 2008

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/18/0005

Station AQ3 - Outside Site Office (Western Portal) Operator: WK
 Date: 11-Dec-08 Next Due Date: 10-Feb-09
 Equipment No.: A-01-18 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	292.3	Pressure, Pa (mmHg)	767

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	10-Mar-08	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Mar-09	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.8	3.48	59.91	8.3	2.92
2	9.6	3.14	53.97	6.7	2.63
3	7.4	2.76	47.30	4.9	2.25
4	5.1	2.29	39.15	3.4	1.87
5	3.0	1.76	29.87	1.9	1.40

By Linear Regression of Y on X

Slope, mw = 0.0507 Intercept, bw = -0.1218
 Correlation coefficient* = 0.9996

*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

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 4.12

Remarks: _____

Conducted by: W.K. Tang Signature: [Signature] Date: 11/12/08
 Checked by: WK Signature: [Signature] Date: 11 Dec 2008



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 10, 2008 Roots-meter S/N 9833640 Ta (K) - 295
 Operator Tisch Orifice I.D. - 0999 Pa (mm) - 746.76

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3890	3.2	2.00
2	NA	NA	1.00	0.9850	6.3	4.00
3	NA	NA	1.00	0.8810	7.8	5.00
4	NA	NA	1.00	0.8410	8.6	5.50
5	NA	NA	1.00	0.6950	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9917	0.7139	1.4113	0.9957	0.7168	0.8874
0.9876	1.0026	1.9959	0.9916	1.0067	1.2549
0.9854	1.1185	2.2315	0.9894	1.1231	1.4030
0.9844	1.1706	2.3405	0.9884	1.1753	1.4715
0.9792	1.4090	2.8227	0.9832	1.4147	1.7747
Qstd slope (m) = 2.03154			Qa slope (m) = 1.27212		
intercept (b) = -0.03970			intercept (b) = -0.02496		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		

y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

$V_{std} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/760](298/\text{Ta})$
 $Q_{std} = V_{std}/\text{Time}$

$V_a = \text{Diff Vol}[(\text{Pa} - \text{Diff Hg})/\text{Pa}]$
 $Q_a = V_a/\text{Time}$

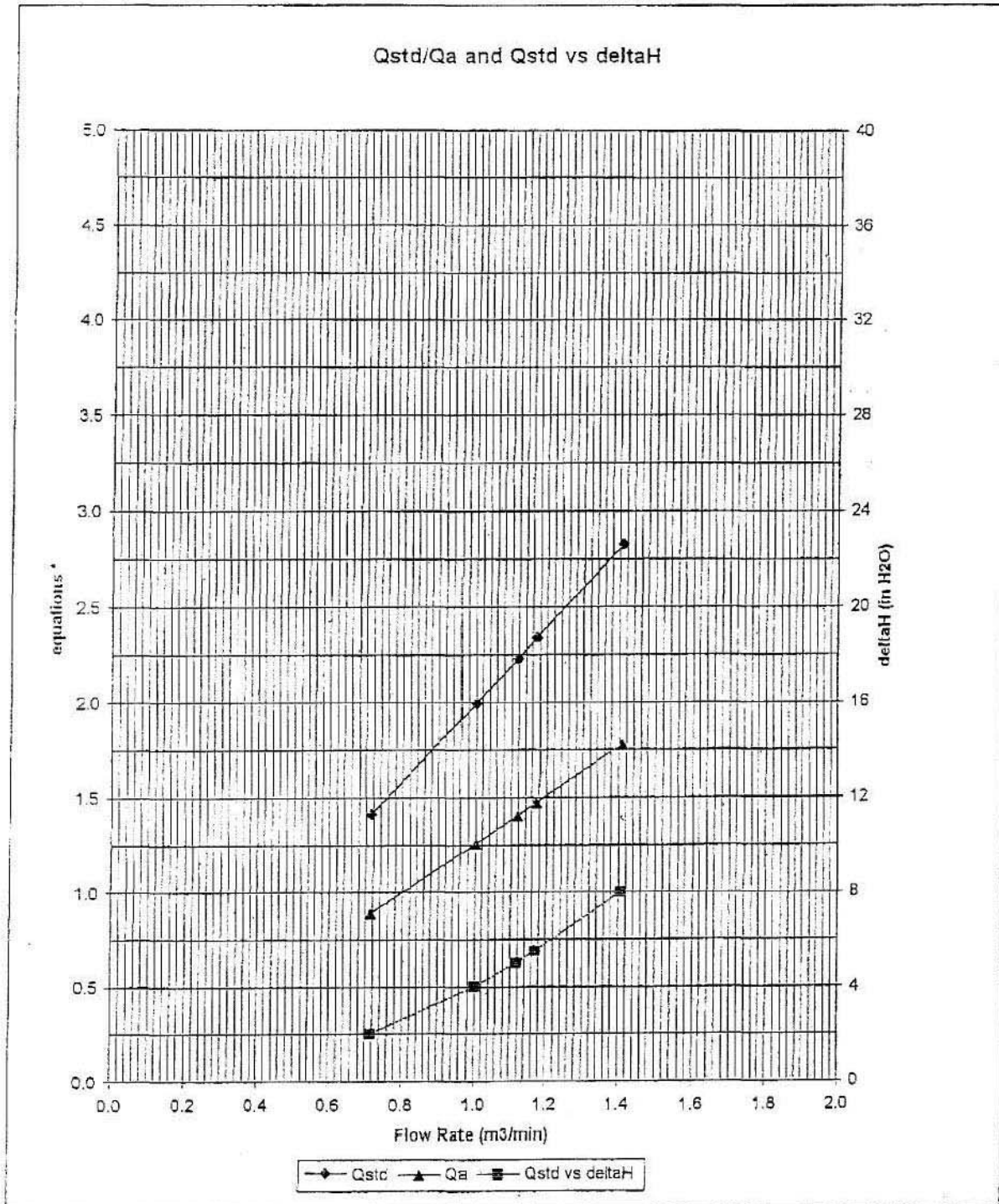
For subsequent flow rate calculations:

$Q_{std} = 1/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b\}$
 $Q_a = 1/m\{[\text{SQRT} \text{H}_2\text{O}(\text{Ta}/\text{Pa})] - b\}$



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 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:
$$\sqrt{\Delta H \left(\frac{P_a}{P_{std}} \right) \left(\frac{T_{std}}{T_a} \right)}$$

Qa series:
$$\sqrt{(\Delta H (T_a / P_a))}$$

TEST REPORT

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

Test Report No.:	C/07/80502
Date of Issue:	2008-05-03
Date Received:	2008-05-02
Date Tested:	2008-05-02
Date Completed:	2008-05-03
Next Due Date:	2009-05-02

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description : RS232 Integral Vane Digital Anemometer
Manufacturer : AZ Instrument
Model No. : 451104
Serial No. : 9020746
Equipment No. : A-03-01

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 65%
Pressure : 101.3 kPa

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/081023/1B
Date of Issue:	2008-10-23
Date Received:	2008-10-22
Date Tested:	2008-10-23
Date Completed:	2008-10-23
Next Due Date:	2008-12-22

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 281835
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 666 CPM
Equipment No.	: A-02-02

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 62%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0038
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/081220/1B
Date of Issue:	2008-12-20
Date Received:	2008-12-19
Date Tested:	2008-12-20
Date Completed:	2008-12-20
Next Due Date:	2009-02-19

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Laser Dust Monitor
 Manufacturer : Sibata
 Model No. : LD-3
 Serial No. : 281835
 Sensitivity (K) 1 CPM : 0.001 mg/m³
 Sen. Adjustment Scale Setting : 666 CPM
 Equipment No. : A-02-02

Test Conditions:

Room Temperature : 21 degree Celsius
 Relative Humidity : 62%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0032
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/80903-1
Date of Issue:	2008-09-03
Date Received:	2008-09-02
Date Tested:	2008-09-02
Date Completed:	2008-09-03
Next Due Date:	2009-09-02

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2359311
Microphone No.	: 2346382
Equipment No.	: N-01-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 61%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/80903-2
Date of Issue:	2008-09-03
Date Received:	2008-09-02
Date Tested:	2008-09-02
Date Completed:	2008-09-03
Next Due Date:	2009-09-02

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2359303
Equipment No.	: N-01-04

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 61%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/06/80305
Date of Issue:	2008-03-05
Date Received:	2008-03-03
Date Tested:	2008-03-03
Date Completed:	2008-03-05
Next Due Date:	2009-03-04

ATTN: Mr. Henry Leung

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2343007
Project No.	: C13
Equipment No.	: N-02-02

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 65%
Pressure	: 1020.1hPa

Methodology:

The sound 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	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.2 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/80903-3
Date of Issue:	2008-09-03
Date Received:	2008-09-02
Date Tested:	2008-09-02
Date Completed:	2008-09-03
Next Due Date:	2009-09-02

ATTN: Mr. Henry Leung

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 61%

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

TEST REPORT

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

Test Report No.:	C/W/81105-1
Date of Issue:	2008-11-06
Date Received:	2008-11-05
Date Tested:	2008-11-05
Date Completed:	2008-11-06
Next Due Date:	2009-02-05

ATTN: Mr. Henry Leung

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0126AA
Equipment No.	: W.03.01
Project No.	: C013

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 63%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 05A1209

1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution

Dissolved Oxygen Sensor, Model: 6562, S/N: 04A0145

1. Performance check against Winkler titration

Turbidity Sensor, Model: 6136, S/N: 05A1610AJ

1. Calibration check with Formazin standard solution

pH Meter, Model: 6561, S/N: 01J

1. Calibration check with standard pH buffer

Depth Meter

1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

Test Report No.:	C/W/81105-1
Date of Issue:	2008-11-06
Date Received:	2008-11-05
Date Tested:	2008-11-05
Date Completed:	2008-11-06
Next Due Date:	2009-02-05

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1421	1420	2	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_l , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

TEST REPORT

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

Test Report No.:	C/W/81105-2
Date of Issue:	2008-11-06
Date Received:	2008-11-05
Date Tested:	2008-11-05
Date Completed:	2008-11-06
Next Due Date:	2009-02-05

ATTN: Mr. Henry Leung

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : 6820-C-M
Serial No. : 02D0293AA
Equipment No. : W.03.02
Project No. : C013

Test conditions:

Room Temperature : 23 degree Celsius
Relative Humidity : 63%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 02C0886
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, S/N: 0261137
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 05F2030AQ
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, S/N: 02A
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

Test Report No.:	C/W/81105-2
Date of Issue:	2008-11-06
Date Received:	2008-11-05
Date Tested:	2008-11-05
Date Completed:	2008-11-06
Next Due Date:	2009-02-05

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.1	30.0	0.1	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.0	9.0	0.0	± 0.2
Half-saturated	5.8	5.8	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_l , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.01	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

*****END OF REPORT*****

**APPENDIX C
QUALITY CONTROL REPORTS FOR SS
LABORATORY ANALYSIS**

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07707
Date of Issue:	2008/12/02
Date Received:	2008/12/01
Date Tested:	2008/12/01
Date Completed:	2008/12/02

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/01
Number of Sample: 58
Custody No.: MA8001/81201

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
IntakeA se	9	10	13	97

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07719
Date of Issue:	2008/12/04
Date Received:	2008/12/03
Date Tested:	2008/12/03
Date Completed:	2008/12/04

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/03
Number of Sample: 28
Custody No.: MA8001/81203

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
I2sf	10	12	19	90

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07735
Date of Issue:	2008/12/08
Date Received:	2008/12/05
Date Tested:	2008/12/05
Date Completed:	2008/12/08

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/05
Number of Sample: 58
Custody No.: MA8001/81205

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	16	17	7	96

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07742
Date of Issue:	2008/12/09
Date Received:	2008/12/08
Date Tested:	2008/12/08
Date Completed:	2008/12/09

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/08
Number of Sample: 58
Custody No.: MA8001/81208

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	4	4	4	103

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07748
Date of Issue:	2008/12/11
Date Received:	2008/12/10
Date Tested:	2008/12/10
Date Completed:	2008/12/11

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/10
Number of Sample: 58
Custody No.: MA8001/81210

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	9	11	15	89

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07763
Date of Issue:	2008/12/15
Date Received:	2008/12/12
Date Tested:	2008/12/12
Date Completed:	2008/12/15

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/12
Number of Sample: 58
Custody No.: MA8001/81212

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	13	14	7	90

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07770
Date of Issue:	2008/12/16
Date Received:	2008/12/15
Date Tested:	2008/12/15
Date Completed:	2008/12/16

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/15
Number of Sample: 58
Custody No.: MA8001/81215

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	8	7	17	90

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07779
Date of Issue:	2008/12/18
Date Received:	2008/12/17
Date Tested:	2008/12/17
Date Completed:	2008/12/18

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/17
Number of Sample: 58
Custody No.: MA8001/81217

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	3	3	6	96

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07795
Date of Issue:	2008/12/22
Date Received:	2008/12/19
Date Tested:	2008/12/19
Date Completed:	2008/12/22

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/19
Number of Sample: 58
Custody No.: MA8001/81219

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	11	11	5	92

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07800
Date of Issue:	2008/12/23
Date Received:	2008/12/22
Date Tested:	2008/12/22
Date Completed:	2008/12/23

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/22
Number of Sample: 58
Custody No.: MA8001/81222

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	3	4	13	98

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07820
Date of Issue:	2008/12/29
Date Received:	2008/12/24
Date Tested:	2008/12/24
Date Completed:	2008/12/29

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/24
Number of Sample: 58
Custody No.: MA8001/81224

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	5	5	3	90

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07825
Date of Issue:	2008/12/30
Date Received:	2008/12/27
Date Tested:	2008/12/27
Date Completed:	2008/12/30

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/27
Number of Sample: 58
Custody No.: MA8001/81227

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	8	9	4	94

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07826
Date of Issue:	2008/12/30
Date Received:	2008/12/29
Date Tested:	2008/12/29
Date Completed:	2008/12/30

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/29
Number of Sample: 58
Custody No.: MA8001/81229

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	11	10	10	95

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	07837
Date of Issue:	2009/01/02
Date Received:	2008/12/31
Date Tested:	2008/12/31
Date Completed:	2009/01/02

ATTN: Mr. Henry Leung

Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2008/12/31
Number of Sample: 58
Custody No.: MA8001/81231

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	14	15	7	96

*****END OF REPORT*****

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



PATRICK TSE
Laboratory Manager

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Air and Noise Monitoring Schedule for December 2008 (Eastern Portal)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
	24 hrs TSP	1 hr TSP	1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00)		1 hr TSP	24 hrs TSP
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
	1 hr TSP	1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00)		1 hr TSP	24 hrs TSP	
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
	1 hr TSP			1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00) 24 hrs TSP	1 hr TSP	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
	1 hr TSP	1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00) 24 hrs TSP	1 hr TSP			
28-Dec	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
	24 hrs TSP	1 hr TSP	1 hr TSP			

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

Air Quality Monitoring Station

AQ1 - True Light Middle School of HK

Noise Monitoring Station

NC1 - True Light Middle School of HK

*NC2 - The Legend

*NC1a - Outside True Light Middle School of HK

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Air and Noise Monitoring Schedule for December 2008 (Western Portal)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
	24 hrs TSP	1 hr TSP	1 hr TSP Noise Day Time (07:00-19:00) & Evening Time (19:00-23:00)		1 hr TSP	24 hrs TSP
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
Noise Day Time (07:00-19:00)	1 hr TSP	1 hr TSP Noise Day Time (07:00-19:00) & Evening Time (19:00-23:00)		1 hr TSP	24 hrs TSP	
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
Noise Day Time (07:00-19:00)	1 hr TSP			1 hr TSP Noise Day Time (07:00-19:00) & Evening Time (19:00-23:00) 24 hrs TSP	1 hr TSP	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
Noise Day Time (07:00-19:00)	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00) 24 hrs TSP	1 hr TSP			
28-Dec	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00) 24 hrs TSP		1 hr TSP	1 hr TSP			

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

Air Quality Monitoring Station

AQ2 - Outside Aegean Terrace (1 hour TSP)
AQ3 - Outside Site Office at Western Portal (24 hours TSP)

Noise Monitoring Station

NC3 - Outside Aegean Terrace

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Water Quality Monitoring Schedule for December 2008**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
	Mid-Flood 09:30 Mid-Ebb 14:15		Mid-Flood 15:11 Mid-Ebb N/A		Mid-Flood 12:40 Mid-Ebb 18:10	
7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec
	Mid-Ebb 08:00 Mid-Flood 14:15		Mid-Ebb 09:45 Mid-Flood 15:15		Mid-Ebb 11:36 Mid-Flood 16:29	
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
	Mid-Flood 09:09 Mid-Ebb 14:14		Mid-Flood 10:49 Mid-Ebb 16:05		Mid-Flood 12:23 Mid-Ebb 18:00	
21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec
	Mid-Ebb 08:15 Mid-Flood 14:12		Mid-Ebb 10:21 Mid-Flood 15:07			Mid-Flood 08:00 Mid-Ebb 12:30
28-Dec	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
	Mid-Flood 08:32 Mid-Ebb 13:26		Mid-Flood 09:34 Mid-Ebb 14:43		Mid-Flood 10:35 Mid-Ebb 16:13	

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
NA indicated favourable tide occurs during non-working hours

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for January 2009 (Eastern Portal)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
					1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00) 24 hrs TSP	
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	1 hr TSP			1 hr TSP 24 hrs TSP	1 hr TSP <u>Noise</u> Day Time (07:00-19:00) & *Evening Time (19:00-23:00)	
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
<u>Noise</u> Daytime (07:00-19:00)		1 hr TSP	24 hrs TSP	1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)	
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
		1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)		
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
				1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00) 24 hrs TSP	

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

Air Quality Monitoring Station

AQ1 - True Light Middle School of HK

Noise Monitoring Station

NC1 - True Light Middle School of HK
NC2 - The Legend

*NC1a - Outside True Light Middle School of HK

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for January 2009 (Western Portal)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
					1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00) 24 hrs TSP	
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
<u>Noise</u> Daytime (07:00-19:00)	1 hr TSP			1 hr TSP 24 hrs TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
<u>Noise</u> Daytime (07:00-19:00)		1 hr TSP	24 hrs TSP	1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
<u>Noise</u> Daytime (07:00-19:00)		1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)		
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
<u>Noise</u> Daytime (07:00-19:00)				1 hr TSP	1 hr TSP <u>Noise</u> Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00) 24 hrs TSP	

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

Air Quality Monitoring Station

AQ2 - Outside Aegean Terrace (1 hour TSP)
AQ3 - Outside Site Office at Western Portal (24 hours TSP)

Noise Monitoring Station

NC3 - Outside Aegean Terrace

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Water Quality Monitoring Schedule for January 2009**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan
					Mid-Flood Mid-Ebb	10:35 16:13
4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan
	Mid-Flood Mid-Ebb		Mid-Ebb Mid-Flood		Mid-Ebb Mid-Flood	10:41 15:23
	12:25 17:00		08:06 13:40			
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
	Mid-Flood Mid-Ebb		Mid-Flood Mid-Ebb		Mid-Flood Mid-Ebb	
	08:04 13:18		09:19 14:47		10:19 16:08	
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
	Mid-Flood Mid-Ebb		Mid-Flood Mid-Ebb		Mid-Flood Mid-Ebb	
	12:06 17:00		09:47 N/A		11:00 N/A	
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
				Mid-Flood Mid-Ebb		Mid-Flood Mid-Ebb
				08:35 14:18		09:23 15:22

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
NA indicated favourable tide occurs during non-working hours

**APPENDIX E
1-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION**

Appendix E - 1-hour TSP Monitoring Results

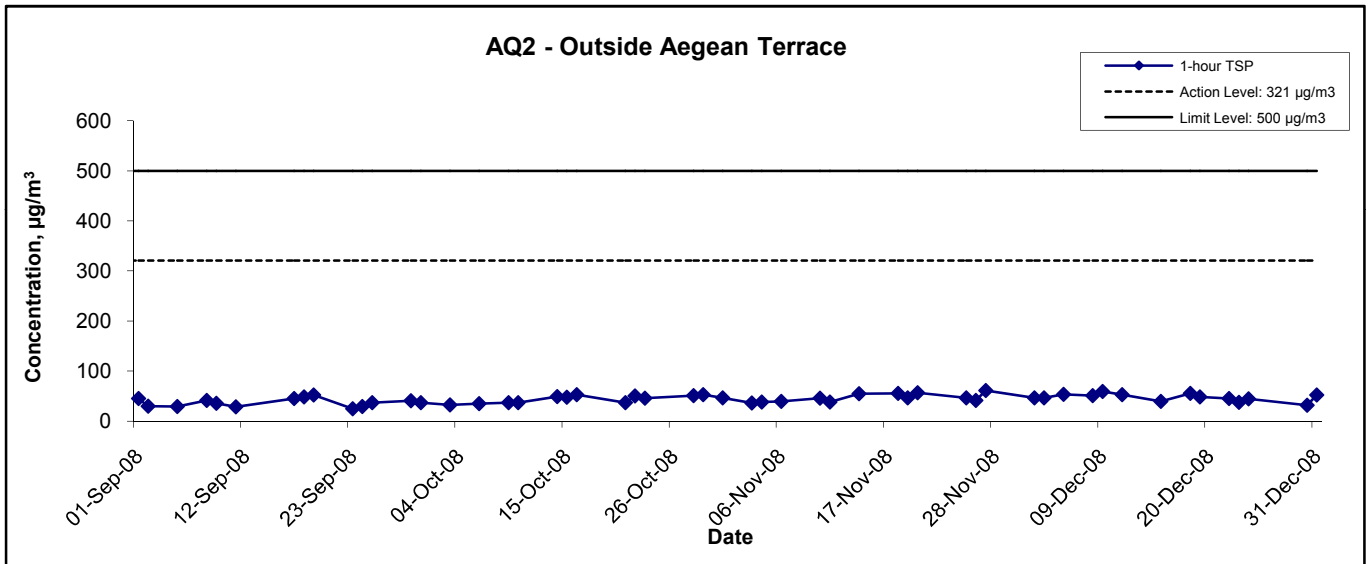
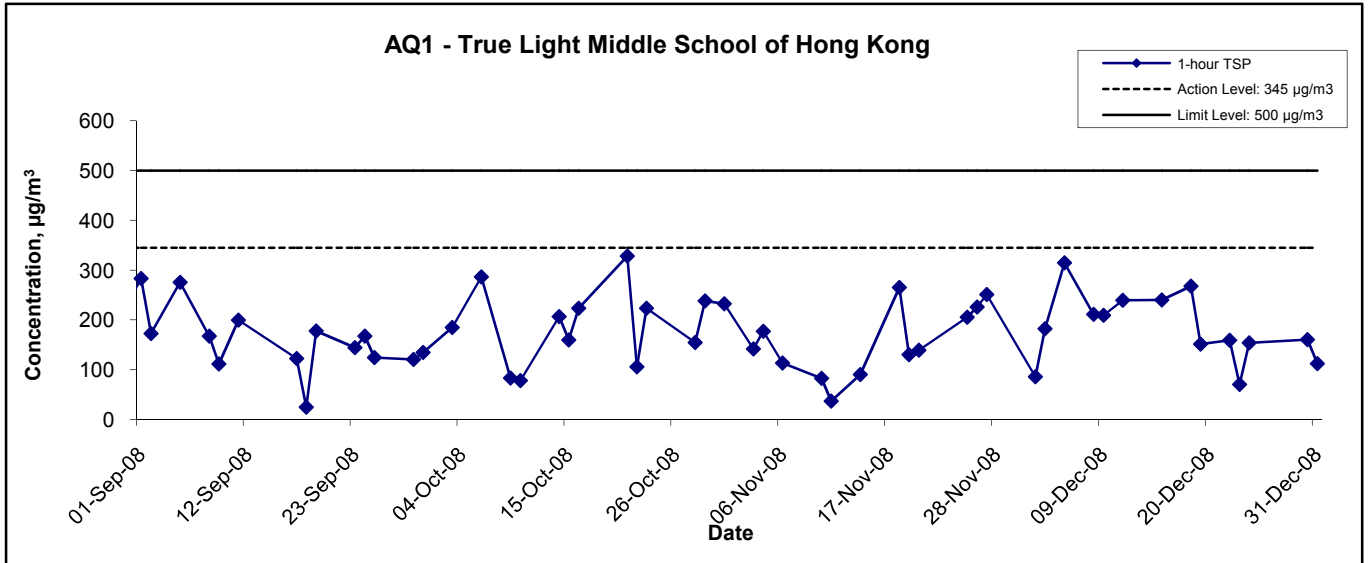
Station AQ1 (True Light Middle School of Hong Kong)

Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
2-Dec-08	14:30	Sunny	295.4	765.8	2.8434	2.8497	0.0063	2309.3	2310.3	1.0	1.23	1.23	1.23	73.7	85.5
3-Dec-08	09:00	Sunny	292.1	766.0	2.8289	2.8424	0.0135	2310.3	2311.3	1.0	1.23	1.23	1.23	74.1	182.3
5-Dec-08	09:00	Sunny	289.6	772.5	2.7641	2.7876	0.0235	2311.3	2312.3	1.0	1.24	1.24	1.24	74.7	314.8
8-Dec-08	14:30	Sunny	294.6	767.1	2.8822	2.8978	0.0156	2336.3	2337.3	1.0	1.23	1.23	1.23	73.8	211.3
9-Dec-08	09:00	Sunny	288.1	768.2	2.8574	2.8730	0.0156	2337.3	2338.3	1.0	1.24	1.24	1.24	74.6	209.0
11-Dec-08	09:00	Sunny	290.0	767.5	2.8541	2.8719	0.0178	2338.3	2339.3	1.0	1.24	1.24	1.24	74.4	239.3
15-Dec-08	15:30	Sunny	291.3	767.1	2.8370	2.8545	0.0175	2363.3	2364.3	1.0	1.22	1.22	1.22	73.0	239.7
18-Dec-08	09:00	Sunny	290.0	769.4	2.8392	2.8588	0.0196	2364.3	2365.3	1.0	1.22	1.22	1.22	73.3	267.5
19-Dec-08	17:00	Sunny	294.1	765.3	2.8748	2.8858	0.0110	2389.3	2390.3	1.0	1.21	1.21	1.21	72.6	151.5
22-Dec-08	09:00	Sunny	288.9	771.5	2.8941	2.9058	0.0117	2390.3	2391.3	1.0	1.23	1.22	1.22	73.5	159.2
23-Dec-08	09:00	Sunny	283.1	772.7	2.8566	2.8618	0.0052	2391.3	2392.3	1.0	1.24	1.24	1.24	74.2	70.1
24-Dec-08	16:00	Sunny	293.3	766.1	2.7975	2.8087	0.0112	2416.3	2417.3	1.0	1.21	1.21	1.21	72.7	154.0
30-Dec-08	16:00	Cloudy	290.0	766.7	2.8337	2.8454	0.0117	2441.3	2442.3	1.0	1.22	1.22	1.22	73.1	159.9
31-Dec-08	09:00	Cloudy	285.1	771.2	2.8300	2.8383	0.0083	2442.3	2443.3	1.0	1.23	1.23	1.23	73.9	112.3
														Min	70.1
														Max	314.8
														Average	182.6

Appendix E - 1-hour TSP Monitoring Results

Station AQ2 (Outside Aegean Terrace)			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Dec-08	16:00	Sunny	46.7
3-Dec-08	14:15	Sunny	46.7
5-Dec-08	16:10	Sunny	54.0
8-Dec-08	16:00	Sunny	51.1
9-Dec-08	15:00	Sunny	59.3
11-Dec-08	16:00	Sunny	53.0
15-Dec-08	16:50	Sunny	39.7
18-Dec-08	15:00	Sunny	55.6
19-Dec-08	15:00	Sunny	49.0
22-Dec-08	15:00	Sunny	45.5
23-Dec-08	13:30	Sunny	37.8
24-Dec-08	15:00	Sunny	44.9
30-Dec-08	9:40	Cloudy	32.2
31-Dec-08	13:00	Cloudy	52.3
		Average	47.7
		Maximum	59.3
		Minimum	32.2

1-hr TSP Concentration Levels



**APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION**

Appendix F - 24-hour TSP Monitoring Results

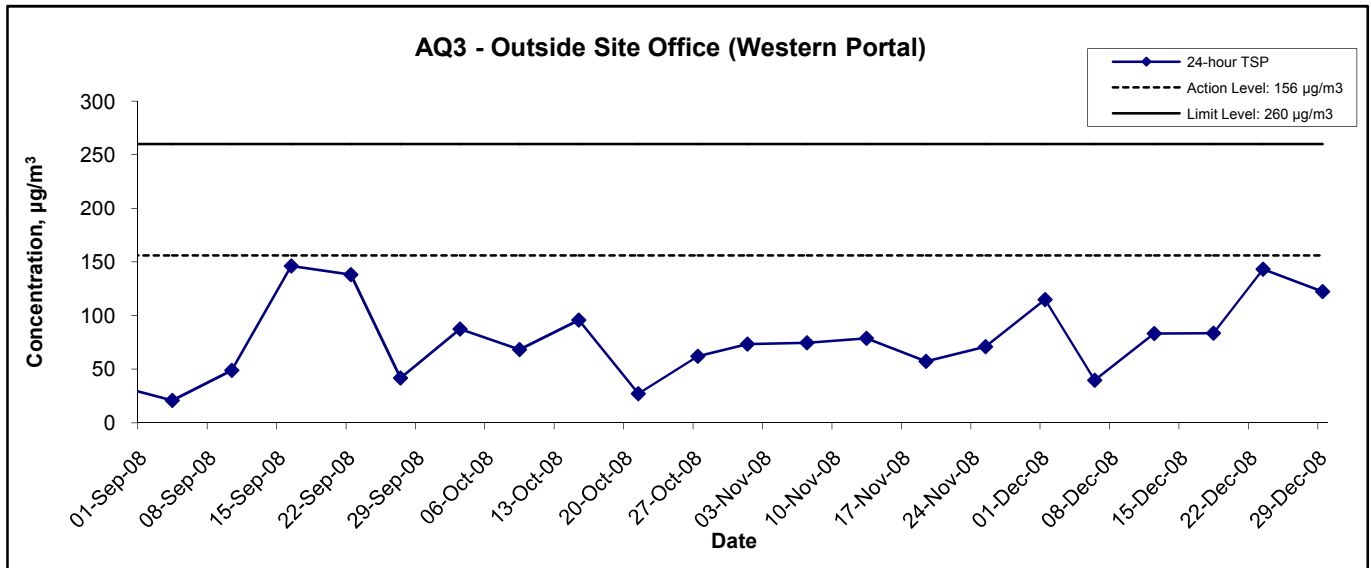
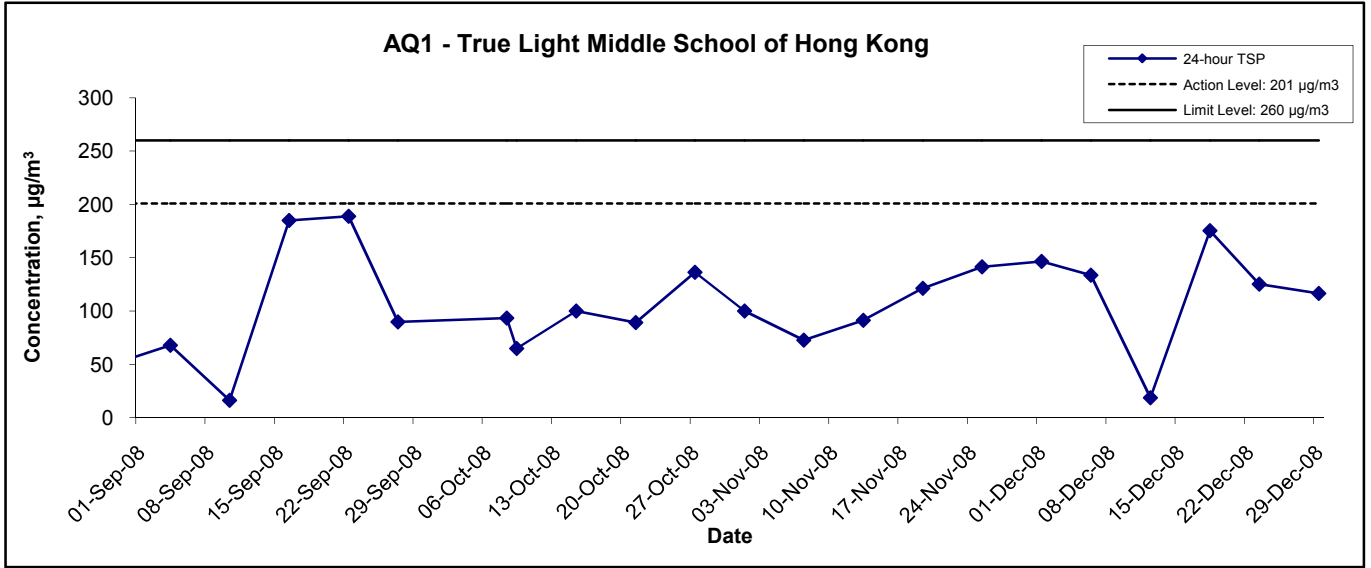
Station AQ1 - True Light Middle School of Hong Kong

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Dec-08	Sunny	290.6	771.5	2.8334	3.0953	0.2619	2285.3	2309.3	24.0	1.24	1.24	1.24	1787.7	146.5
6-Dec-08	Sunny	287.9	773.7	2.8143	3.0545	0.2402	2312.3	2336.3	24.0	1.25	1.25	1.25	1797.8	133.6
12-Dec-08	Sunny	292.9	766.0	2.8792	2.9119	0.0327	2339.3	2363.3	24.0	1.21	1.21	1.21	1746.8	18.7
18-Dec-08	Sunny	295.3	766.4	2.9057	3.2112	0.3055	2365.3	2389.3	24.0	1.21	1.21	1.21	1740.8	175.5
23-Dec-08	Sunny	289.8	768.6	2.8502	3.0702	0.2200	2392.3	2416.3	24.0	1.22	1.22	1.22	1758.1	125.1
29-Dec-08	Cloudy	292.7	766.7	2.8439	3.0475	0.2036	2417.3	2441.3	24.0	1.21	1.21	1.21	1748.2	116.5
													Min	18.7
													Max	175.5
													Average	119.3

Station AQ3 - Outside Site Office (Western Portal)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Dec-08	Sunny	290.6	771.5	2.8233	3.0288	0.2055	6443.2	6467.2	24.0	1.24	1.24	1.24	1790.2	114.8
6-Dec-08	Sunny	287.9	773.7	2.8072	2.8790	0.0718	6467.2	6491.2	24.0	1.25	1.25	1.25	1800.1	39.9
12-Dec-08	Sunny	292.9	766.0	2.8759	3.0213	0.1454	6491.2	6515.2	24.0	1.21	1.21	1.21	1746.0	83.3
18-Dec-08	Sunny	290.0	769.4	2.8528	2.9998	0.1470	6515.2	6539.2	24.0	1.22	1.22	1.22	1757.9	83.6
23-Dec-08	Sunny	283.1	772.7	2.8201	3.0752	0.2551	6539.2	6563.2	24.0	1.24	1.24	1.24	1781.8	143.2
29-Dec-08	Cloudy	292.7	766.7	2.8302	3.0440	0.2138	6563.2	6587.2	24.0	1.21	1.21	1.21	1747.3	122.4
													Min	39.9
													Max	143.2
													Average	97.9

24-hr TSP Concentration Levels



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA8001	
	Date Dec 08	Appendix F	

**APPENDIX G
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATION**

Appendix G - Noise Monitoring Results

Location NC1 - True Light Middle School of Hong Kong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-08	16:00	Sunny	67.3	69.5	65.0	70.2	67.3, Measured ≤ Baseline
9-Dec-08	16:25	Sunny	68.4	70.0	66.0		68.4, Measured ≤ Baseline
18-Dec-08	16:15	Sunny	69.3	71.0	66.5		69.3, Measured ≤ Baseline
23-Dec-08	15:00	Sunny	67.2	69.0	65.5		67.2, Measured ≤ Baseline

Location NC2 - The Legend							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-08	16:40	Sunny	66.8	67.5	63.5	64.8	62.5
9-Dec-08	17:15	Sunny	66.3	67.5	64.0		61.0
18-Dec-08	17:00	Sunny	67.5	69.0	64.0		64.2
23-Dec-08	15:45	Sunny	68.1	69.5	66.0		65.4

Location NC3 - Outside Aegean Terrace							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-08	14:15	Sunny	60.7	62.0	55.5	57.7	57.7
9-Dec-08	15:00	Sunny	60.7	61.5	57.0		57.7
18-Dec-08	15:00	Sunny	60.4	61.5	56.5		57.1
23-Dec-08	13:30	Sunny	61.1	62.5	59.0		58.4

Appendix G - Noise Monitoring Results

(Restricted Hours - 19:00 to 23:00 on normal weekdays)

Location NC1a - Outside True Light Middle School of Hong Kong											
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}	(Reference) Baseline Level	(Reference) Construction Noise Level, L _{eq}			
			L _{eq}	L ₁₀	L ₉₀		L _{eq}				
3-Dec-08	19:25	Cloudy	67.8	69.0	64.5	67.4	65.8	62.3			
	19:30		67.2	68.5	64.5						
	19:35		67.3	68.5	64.0						
9-Dec-08	19:35	Cloudy	67.4	69.0	65.0	67.3		65.8	62.0		
	19:40		67.2	68.5	65.0						
	19:45		67.2	68.5	65.5						
18-Dec-08	19:00	Cloudy	68.0	69.0	66.0	67.9			65.8	63.7	
	19:05		67.8	69.0	65.5						
	19:10		67.8	68.5	66.0						
23-Dec-08	19:00	Cloudy	67.3	68.5	65.5	67.3				65.8	62.0
	19:05		67.4	68.5	65.0						
	19:10		67.1	68.5	65.0						

(Restricted Hours - 19:00 to 23:00 on normal weekdays)

Location NC2 - The Legend											
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀		L _{eq}	L _{eq}			
3-Dec-08	19:00	Cloudy	64.8	66.0	62.5	65.3	59.1	64.1			
	19:05		66.0	67.5	63.5						
	19:10		65.1	66.5	63.0						
9-Dec-08	19:00	Cloudy	64.7	65.5	63.0	64.9		59.1	63.6		
	19:05		64.8	65.5	63.5						
	19:10		65.3	66.5	63.5						
18-Dec-08	19:25	Cloudy	65.2	67.0	63.5	65.5			59.1	64.4	
	19:30		65.1	67.0	63.5						
	19:35		66.2	67.5	64.5						
23-Dec-08	19:25	Cloudy	64.1	65.5	61.0	64.2				59.1	62.6
	19:30		64.1	65.0	60.5						
	19:35		64.3	65.5	61.5						

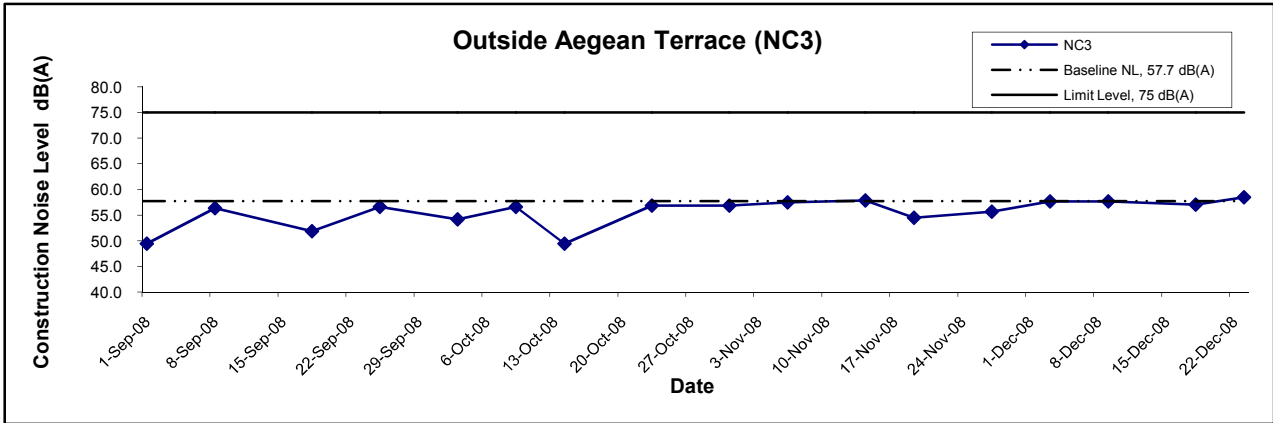
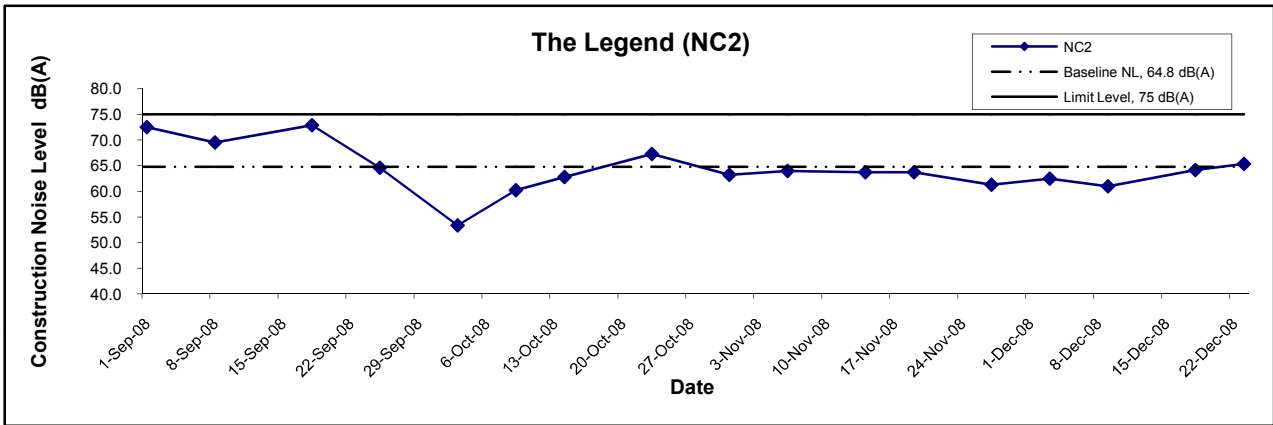
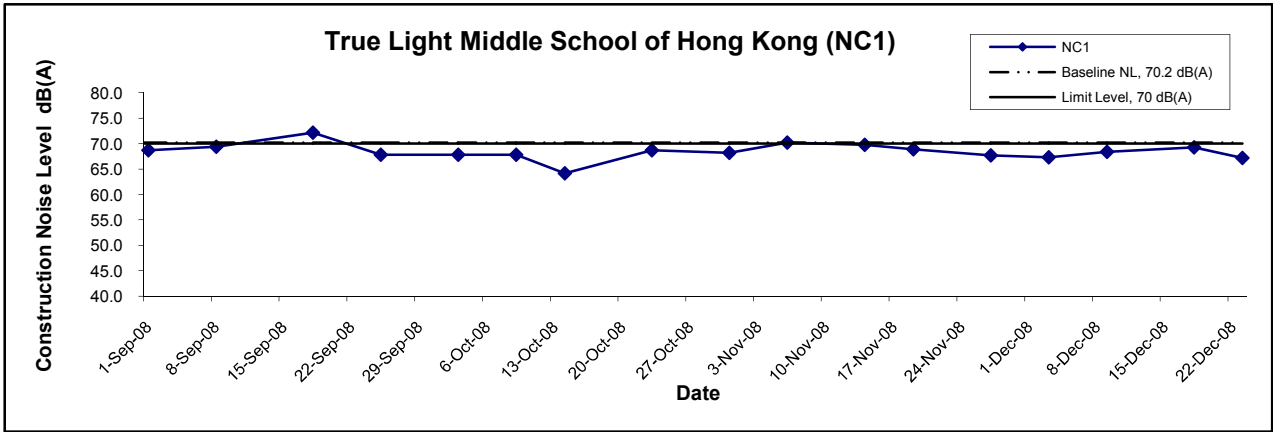
(Restricted Hours - 07:00 to 23:00 holidays & 19:00 to 23:00 on all other days)

Location NC3 - Outside Aegean Terrace													
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}	Baseline Level	Construction Noise Level					
			L _{eq}	L ₁₀	L ₉₀		L _{eq}	L _{eq}					
3-Dec-08	20:05	Cloudy	56.1	57.0	52.5	56.0	53.8	52.0					
	20:10		56.1	57.0	53.0								
	20:15		55.9	56.5	53.0								
7-Dec-08	13:25	Sunny	52.6	55.0	50.5	52.9		53.8	52.9, Measured ≤ Baseline				
	13:30		52.8	55.0	50.5								
	13:35		53.2	56.0	51.5								
9-Dec-08	20:05	Cloudy	56.2	57.5	53.5	56.3			53.8	52.7			
	20:10		56.4	57.5	53.5								
	20:15		56.2	57.5	54.0								
14-Dec-08	13:05	Cloudy	52.2	54.0	51.0	52.5				53.8	52.5, Measured ≤ Baseline		
	13:10		52.6	54.0	51.0								
	13:15		52.7	54.0	51.0								
18-Dec-08	20:05	Cloudy	55.3	56.0	54.0	55.3					53.8	50.0	
	20:10		55.2	56.0	54.0								
	20:15		55.3	56.0	54.0								
21-Dec-08	13:30	Cloudy	53.9	56.0	50.0	52.5						53.8	52.5, Measured ≤ Baseline
	13:35		51.7	54.0	50.0								
	13:40		51.4	54.0	49.5								
23-Dec-08	20:05	Cloudy	56.1	57.0	53.5	55.9	53.8						51.7
	20:10		55.9	57.0	53.5								
	20:15		55.8	57.0	54.0								
28-Dec-08	17:00	Sunny	60.2	62.0	53.0	60.2		53.8					59.1
	17:05		59.9	62.0	53.0								
	17:10		60.5	62.0	53.5								
28-Dec-08	19:50	Fine	54.8	56.5	48.5	54.9			53.8				48.4
	19:55		55.2	56.5	49.0								
	20:00		54.6	56.0	48.5								

(Restricted Hours - 23:00 to 07:00 on all days)

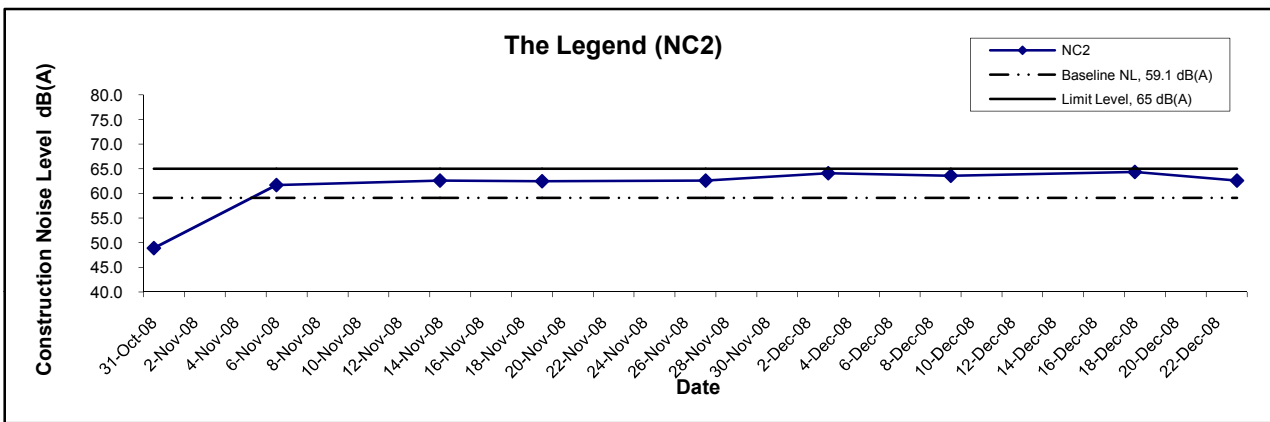
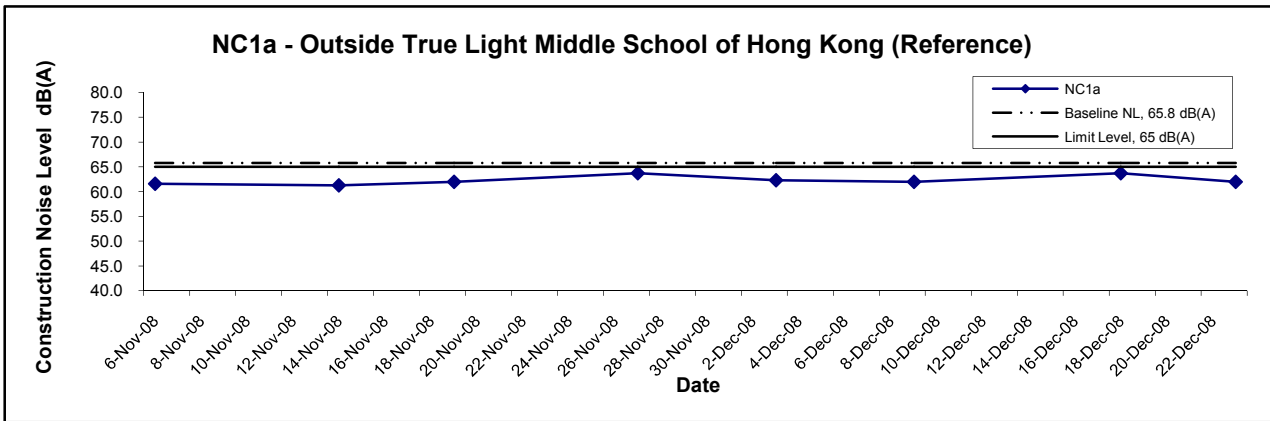
Location NC3 - Outside Aegean Terrace									
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}	Baseline Level	Construction Noise Level	
			L _{eq}	L ₁₀	L ₉₀		L _{eq}	L _{eq}	
23-Dec-08	23:00	Cloudy	53.8	56.0	51.0	53.7	52.0	48.8	
	23:05		53.4	55.5	50.5				
	23:10		53.9	56.0	51.0				
28-Dec-08	23:00	Fine	54.2	55.5	51.5	54.0		52.0	49.7
	23:05		53.9	55.0	51.0				
	23:10		54.4	55.5	57.5				

Noise Levels

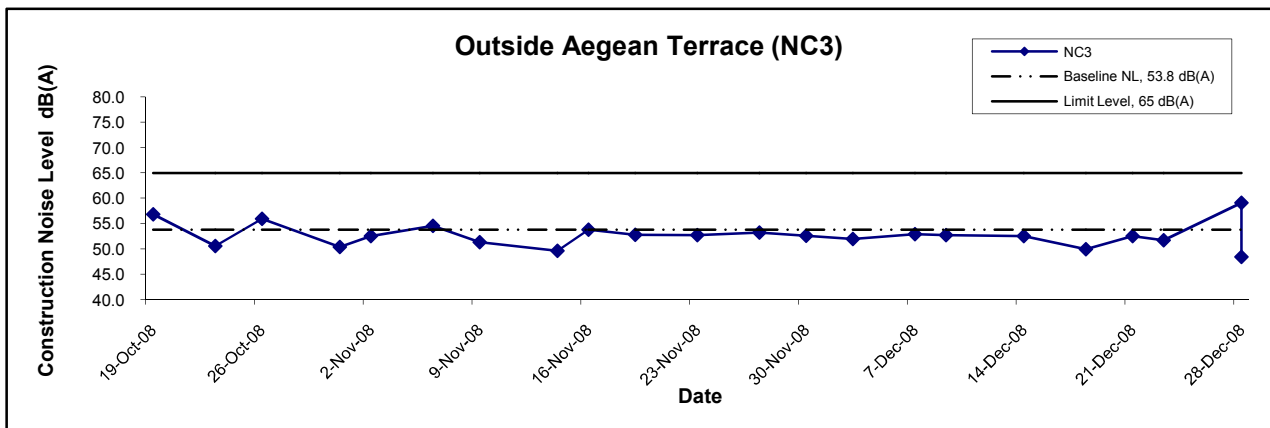


Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale	N.T.S	Project No.	MA8001	CINOTECH
	Date	Dec 08	Appendix	G	

Noise Levels (Restricted Hours - 19:00 to 23:00 on normal weekdays)

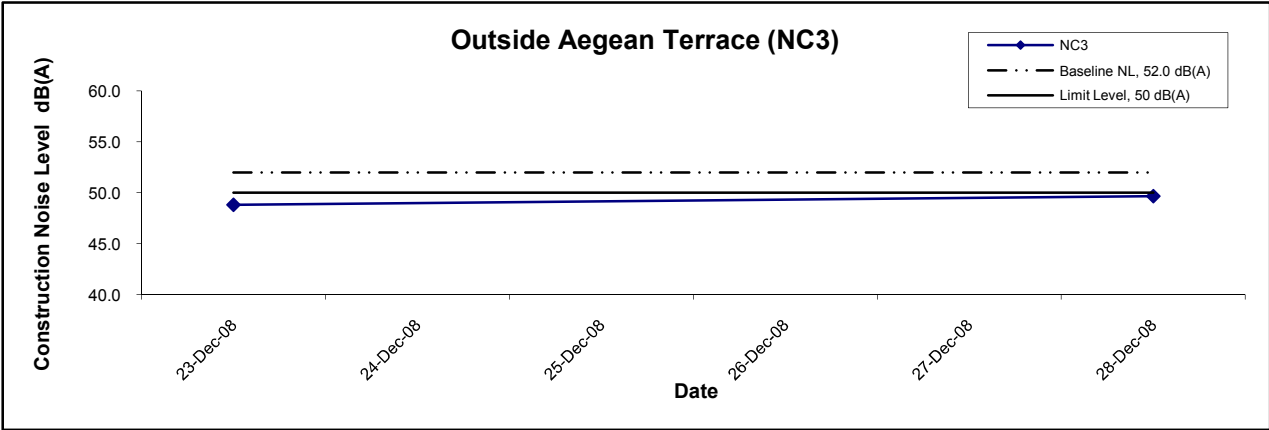


Noise Levels (Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale	N.T.S	Project No.	MA8001	CINOTECH
	Date	Dec 08	Appendix	G	

**Noise Levels
(Restricted Hours - 23:00 to 07:00 on all days)**



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date Dec 08	Appendix G	

**APPENDIX H
WATER QUALITY MONITORING
RESULTS AND GRAPHICAL
PRESENTATION**

Water Quality Monitoring Results at CE - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)			
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	
1-Dec-08	Sunny	Calm	13:56	Surface	1	22.5 22.5	22.5	7.6 7.1	7.4	34.1 34.1	34.1	100.0 99.5	99.8	7.1 7.1	7.1	7.1	7.1	1.5 1.5	1.5	2.0	7.0 7.0	7.0	7.8
				Middle	5.5	22.4 22.4	22.4	8.1 8.2	8.2	34.1 34.1	34.1	98.5 98.1	98.3	7.0 7.0	7.0	7.0	1.9 1.8	1.9	7.0 9.0		9.0		
				Bottom	10	22.3 22.3	22.3	7.1 7.8	7.5	34.1 34.1	34.1	97.5 97.2	97.4	7.0 6.9	7.0	7.0	2.6 2.6	2.6	7.0 8.0		7.5		
5-Dec-08	Fine	Moderate	18:20	Surface	1	23.0 23.0	23.0	8.2 7.8	8.0	30.9 30.9	30.9	97.4 95.7	96.6	6.2 6.2	6.2	6.2	2.7 2.8	2.8	3.1	16.0 14.0	15.0	12.5	
				Middle	5.5	22.5 22.5	22.5	8.0 8.2	8.1	31.0 31.0	31.0	89.0 87.0	88.0	6.3 6.3	6.3	6.3	3.1 3.2	3.2		12.0 10.0	11.0		
				Bottom	10	22.4 22.3	22.4	7.7 8.0	7.9	31.3 31.1	31.2	83.7 83.4	83.6	6.5 6.6	6.6	6.6	3.3 3.3	3.3		12.0 11.0	11.5		
8-Dec-08	Sunny	Calm	10:04	Surface	1	23.8 23.8	23.8	7.6 7.6	7.6	30.6 30.7	30.7	93.0 90.6	91.8	6.5 6.4	6.5	6.5	3.7 3.8	3.8	4.1	5.0 5.0	5.0	5.8	
				Middle	5.5	23.5 23.5	23.5	8.1 8.1	8.1	30.8 31.0	30.9	88.5 86.0	87.3	6.4 6.2	6.3	6.3	4.0 4.0	4.0		6.0 6.0	6.0		
				Bottom	10	23.3 23.3	23.3	7.4 7.8	7.6	31.1 30.6	30.9	84.8 88.4	86.6	6.3 6.5	6.4	6.4	4.4 4.5	4.5		7.0 6.0	6.5		
10-Dec-08	Sunny	Calm	11:02	Surface	1	23.0 23.0	23.0	7.4 7.4	7.4	30.9 31.0	31.0	98.4 96.3	97.4	6.8 6.7	6.8	6.8	3.1 3.2	3.2	3.4	8.0 8.0	8.0	7.7	
				Middle	6	22.7 22.7	22.7	7.5 7.4	7.5	31.1 31.2	31.2	93.1 91.2	92.2	6.7 6.7	6.7	6.7	3.4 3.4	3.4		8.0 8.0	8.0		
				Bottom	11	22.5 22.5	22.5	7.5 7.7	7.6	31.3 31.0	31.2	89.6 91.3	90.5	6.7 6.9	6.8	6.8	3.6 3.7	3.7		7.0 7.0	7.0		
12-Dec-08	Sunny	Calm	12:57	Surface	1	23.2 23.2	23.2	8.1 8.0	8.1	30.6 30.5	30.6	99.2 97.6	98.4	6.3 6.3	6.3	6.3	3.4 3.5	3.5	4.2	11.0 11.0	11.0	12.2	
				Middle	5.5	22.6 22.5	22.6	8.4 8.4	8.4	30.7 30.8	30.8	89.4 86.9	88.2	6.4 6.4	6.4	6.4	4.2 4.3	4.3		8.0 9.0	8.5		
				Bottom	10	22.4 22.4	22.4	8.0 8.4	8.2	31.0 30.9	31.0	83.0 82.5	82.8	6.7 6.7	6.7	6.7	4.8 4.9	4.9		17.0 17.0	17.0		
15-Dec-08	Sunny	Moderate	14:26	Surface	1	23.1 23.1	23.1	7.9 7.5	7.7	30.7 30.7	30.7	98.3 96.6	97.5	6.6 6.5	6.6	6.6	3.0 3.1	3.1	3.5	8.0 8.0	8.0	7.3	
				Middle	5.5	22.5 22.5	22.5	8.3 8.2	8.3	30.9 30.9	30.9	89.2 86.9	88.1	6.6 6.7	6.7	6.7	3.4 3.5	3.5		6.0 6.0	6.0		
				Bottom	10	22.4 22.4	22.4	7.6 8.0	7.8	31.1 31.0	31.1	83.3 82.9	83.1	6.9 6.9	6.9	6.9	3.8 3.9	3.9		8.0 8.0	8.0		
17-Dec-08	Sunny	Calm	15:32	Surface	1	22.9 22.9	22.9	7.7 7.5	7.6	30.2 30.2	30.2	103.4 101.9	102.7	6.8 6.7	6.8	6.8	3.2 3.4	3.3	4.1	<2.5 <2.5	<2.5	3.2	
				Middle	5.5	22.1 22.0	22.1	8.2 8.1	8.2	30.6 30.6	30.6	91.2 87.9	89.6	6.1 5.9	6.0	6.0	3.9 4.3	4.1		3.0 3.0	3.0		
				Bottom	10	21.8 21.9	21.9	7.6 8.1	7.9	30.7 30.7	30.7	87.7 87.0	87.4	6.1 6.0	6.1	6.1	4.9 4.7	4.8		4.0 4.0	4.0		
19-Dec-08	Cloudy	Calm	17:57	Surface	1	22.7 22.7	22.7	7.5 7.6	7.6	32.0 32.0	32.0	91.3 92.3	91.8	6.3 6.4	6.4	6.4	4.3 4.3	4.3	5.3	10.0 9.0	9.5	8.8	
				Middle	5.5	22.7 22.7	22.7	8.4 8.3	8.4	31.7 31.8	31.8	94.3 95.8	95.1	6.7 6.8	6.8	6.8	5.8 5.8	5.8		8.0 8.0	8.0		
				Bottom	10	22.7 22.7	22.7	7.7 8.3	8.0	32.1 31.9	32.0	88.6 88.8	88.7	6.0 6.0	6.0	6.0	5.8 5.8	5.8		9.0 9.0	9.0		
22-Dec-08	Sunny	Calm	09:27	Surface	1	21.8 21.9	21.9	7.5 7.7	7.6	31.3 31.2	31.3	109.9 103.8	106.9	7.4 6.9	7.2	7.2	3.1 3.3	3.2	3.8	5.0 5.0	5.0	5.5	
				Middle	6	21.7 21.7	21.7	8.1 7.5	7.8	31.5 31.5	31.5	90.3 89.6	90.0	6.1 6.0	6.1	6.1	3.8 3.9	3.9		6.0 6.0	6.0		
				Bottom	11	21.6 21.6	21.6	8.0 8.1	8.1	31.6 31.6	31.6	90.2 89.9	90.1	6.2 6.1	6.2	6.2	4.2 4.3	4.3		6.0 6.0	6.0		
24-Dec-08	Sunny	Calm	10:01	Surface	1	22.3 22.3	22.3	7.7 7.6	7.7	29.5 29.5	29.5	90.5 89.2	89.9	6.9 6.8	6.9	6.9	1.8 1.7	1.8	2.4	<2.5 3.0	2.8	3.6	
				Middle	6	21.8 21.8	21.8	7.8 7.7	7.8	30.5 30.4	30.5	78.4 77.5	78.0	6.0 6.0	6.0	6.0	2.5 2.6	2.6		3.0 3.0	3.0		
				Bottom	11	21.4 21.4	21.4	7.7 8.0	7.9	31.1 31.1	31.1	75.1 75.7	75.4	6.0 6.1	6.1	6.1	2.8 2.9	2.9		5.0 5.0	5.0		
27-Dec-08	Sunny	Calm	13:07	Surface	1	22.2 22.2	22.2	7.2 7.7	7.5	29.5 29.5	29.5	96.5 96.0	96.3	7.0 7.0	7.0	7.0	2.3 2.3	2.3	2.6	12.0 12.0	12.0	13.2	
				Middle	5.5	22.2 22.2	22.2	8.1 7.4	7.8	29.7 29.7	29.7	87.0 85.2	86.1	6.3 6.2	6.3	6.3	2.6 2.5	2.6		15.0 15.0	15.0		
				Bottom	10	22.1 22.1	22.1	8.0 8.1	8.1	29.9 29.9	29.9	82.4 82.0	82.2	6.2 6.1	6.2	6.2	2.9 3.1	3.0		12.0 13.0	12.5		

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at CE - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
29-Dec-08	Cloudy	Moderate	14:36	Surface	1	19.6 19.6	19.6	8.2 8.0	8.1	34.2 34.3	34.3	98.8 97.5	98.2	7.4 7.3	7.4	7.6	3.4 3.0	3.2	3.7	8.0 8.0	8.0	8.8
				Middle	5.5	19.6 19.6	19.6	7.8 7.1	7.5	34.3 34.3	34.3	102.3 105.8	104.1	7.7 7.9	7.8		3.6 3.7	3.7		9.0 9.0	9.0	
				Bottom	10	19.6 19.6	19.6	7.4 7.0	7.2	34.3 34.3	34.3	105.6 102.6	104.1	7.9 7.7	7.8		4.1 4.4	4.3		10.0 9.0	9.5	
31-Dec-08	Cloudy	Calm	15:48	Surface	1	22.7 22.7	22.7	8.0 7.7	7.9	29.7 30.0	29.9	88.2 87.2	87.7	6.5 6.5	6.5	6.4	4.3 4.3	4.3	5.3	11.0 11.0	11.0	15.0
				Middle	5.5	22.7 22.7	22.7	8.3 8.3	8.3	30.0 30.4	30.2	84.7 81.8	83.3	6.2 6.1	6.2		5.8 5.8	5.8		17.0 17.0	17.0	
				Bottom	10	22.7 22.7	22.7	7.7 8.2	8.0	30.4 29.4	29.9	80.0 87.3	83.7	5.9 6.4	6.2		5.8 5.8	5.8		17.0 17.0	17.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at CF - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)					
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*			
1-Dec-08	Sunny	Calm	09:11	Surface	1	22.2 22.3	22.3	7.5 7.8	7.7	34.1 34.1	34.1	98.7 98.6	98.7	7.1 7.0	7.1	7.1	2.6 2.5	2.6	2.8	14.0 14.0	14.0	12.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	-
				Bottom	3	22.2 22.2	22.2	8.2 7.9	8.1	34.1 34.1	34.1	98.5 98.4	98.5	7.0 7.0	7.0		7.0	3.0 3.0		3.0	10.0 10.0		10.0		
3-Dec-08	Sunny	Calm	15:05	Surface	1	22.8 22.8	22.8	7.6 7.4	7.5	30.0 29.9	30.0	90.2 89.2	89.7	6.5 6.5	6.5	6.5	1.9 1.8	1.9	2.4	9.0 9.0	9.0	9.5			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.6 22.6	22.6	8.1 7.9	8.0	30.6 30.6	30.6	84.4 83.9	84.2	6.1 6.0	6.1		6.1	2.8 2.8		2.8	10.0 10.0		10.0		
5-Dec-08	Sunny	Moderate	13:01	Surface	1	22.8 22.8	22.8	7.8 8.1	8.0	30.7 30.8	30.8	98.3 97.5	97.9	6.6 6.6	6.6	6.6	1.8 1.9	1.9	2.3	14.0 14.0	14.0	14.3			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.8 22.8	22.8	8.2 8.2	8.2	31.0 31.0	31.0	96.3 96.1	96.2	6.4 6.4	6.4		6.4	2.5 2.6		2.6	15.0 14.0		14.5		
8-Dec-08	Sunny	Calm	13:38	Surface	1	23.9 23.9	23.9	7.7 8.0	7.9	30.2 30.3	30.3	95.7 96.5	96.1	6.8 6.8	6.8	6.8	2.6 2.6	2.6	3.1	6.0 6.0	6.0	7.7			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	23.5 23.5	23.5	8.2 8.0	8.1	30.7 30.8	30.8	89.1 89.3	89.2	6.3 6.3	6.3		6.3	3.5 3.4		3.5	5.0 5.0		5.0		
10-Dec-08	Sunny	Calm	14:36	Surface	1	23.3 23.3	23.3	7.4 7.6	7.5	29.8 29.9	29.9	96.5 94.5	95.5	6.9 7.0	7.0	7.0	2.2 2.1	2.2	2.8	8.0 8.0	8.0	8.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.9 22.9	22.9	7.8 7.7	7.8	30.6 30.6	30.6	93.2 92.8	93.0	6.7 6.7	6.7		6.7	3.3 3.4		3.4	8.0 8.0		8.0		
12-Dec-08	Sunny	Calm	16:23	Surface	1	23.1 23.1	23.1	8.1 8.5	8.3	30.5 30.5	30.5	96.8 96.2	96.5	6.6 6.6	6.6	6.6	2.8 2.6	2.7	3.1	9.0 9.0	9.0	13.5			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	23.1 23.1	23.1	8.7 8.5	8.6	30.6 30.6	30.6	95.3 95.1	95.2	6.4 6.3	6.4		6.4	3.3 3.5		3.4	18.0 18.0		18.0		
15-Dec-08	Sunny	Moderate	10:09	Surface	1	22.9 22.9	22.9	7.9 8.2	8.1	30.6 30.7	30.7	97.5 96.8	97.2	6.9 6.9	6.9	6.9	2.3 2.2	2.3	2.5	5.0 5.0	5.0	7.3			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.9 22.9	22.9	8.2 8.1	8.2	30.8 30.8	30.8	95.8 95.6	95.7	6.7 6.7	6.7		6.7	2.5 2.6		2.6	9.0 10.0		9.5		
17-Dec-08	Sunny	Calm	10:43	Surface	1	22.8 22.9	22.9	7.8 8.1	8.0	30.4 30.4	30.4	96.2 95.9	96.1	6.4 6.3	6.4	6.4	2.8 2.6	2.7	3.0	3.0 3.0	3.0	3.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.8 22.8	22.8	8.4 8.1	8.3	30.4 30.4	30.4	95.2 95.0	95.1	6.3 6.3	6.3		6.3	3.2 3.3		3.3	3.0 3.0		3.0		
19-Dec-08	Sunny	Calm	12:31	Surface	1	22.6 22.7	22.7	7.9 8.2	8.1	31.1 31.2	31.2	100.3 99.0	99.7	6.8 6.7	6.8	6.8	3.0 2.8	2.9	3.1	8.0 8.0	8.0	7.8			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.7 22.7	22.7	8.5 8.7	8.6	31.6 31.6	31.6	97.3 97.2	97.3	6.5 6.5	6.5		6.5	3.2 3.1		3.2	8.0 7.0		7.5		
22-Dec-08	Sunny	Calm	14:17	Surface	1	22.2 22.2	22.2	7.6 8.1	7.9	30.7 30.8	30.8	98.2 97.4	97.8	6.6 6.5	6.6	6.6	2.9 2.7	2.8	3.1	6.0 7.0	6.5	6.3			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.2 22.2	22.2	8.5 8.2	8.4	31.0 31.0	31.0	96.2 96.1	96.2	6.4 6.4	6.4		6.4	3.3 3.4		3.4	6.0 6.0		6.0		
24-Dec-08	Sunny	Calm	15:28	Surface	1	22.5 22.5	22.5	7.5 7.8	7.7	29.6 29.2	29.4	84.4 84.3	84.4	6.5 6.4	6.5	6.5	2.5 2.4	2.5	2.4	3.0 3.0	3.0	4.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.0 22.0	22.0	7.9 7.8	7.9	30.2 30.2	30.2	77.6 78.0	77.8	6.1 6.1	6.1		6.1	2.2 2.1		2.2	5.0 5.0		5.0		

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at CF - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)					
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*			
27-Dec-08	Sunny	Calm	08:13	Surface	1	21.8 21.8	21.8	7.7 8.2	8.0	28.8 28.8	28.8	107.6 106.4	107.0	7.8 7.7	7.8	7.8	1.4 1.5	1.5	2.2	12.0 12.0	12.0	11.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	-
				Bottom	3	21.6 21.7	21.7	8.5 8.2	8.4	29.1 29.1	29.1	110.0 109.5	109.8	8.0 7.9	8.0		8.0	2.8 2.8		2.8	2.8		10.0 10.0	10.0	
29-Dec-08	Cloudy	Moderate	08:33	Surface	1	19.6 19.6	19.6	7.3 7.7	7.5	33.6 33.6	33.6	115.1 116.7	115.9	8.7 8.8	8.8	8.8	2.2 2.2	2.2	2.7	12.0 11.0	11.5	10.8			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	19.5 19.5	19.5	8.1 7.8	8.0	33.9 33.9	33.9	108.9 114.4	111.7	8.2 8.6	8.4		8.4	3.2 3.1		3.2	3.2		10.0 10.0	10.0	
31-Dec-08	Cloudy	Calm	08:28	Surface	1	22.6 22.7	22.7	7.9 8.2	8.1	29.5 29.5	29.5	91.4 91.2	91.3	6.5 6.5	6.5	6.5	3.0 2.8	2.9	3.6	12.0 12.0	12.0	14.0			
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-	
				Bottom	3	22.7 22.7	22.7	8.4 8.2	8.3	30.5 30.4	30.5	87.3 86.4	86.9	6.0 6.1	6.1		6.1	4.2 4.1		4.2	4.2		16.0 16.0	16.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)				
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*		
1-Dec-08	Sunny	Calm	14:11	Surface	1	22.5 22.5	22.5	7.3 7.8	7.6	34.1 34.1	34.1	97.1 97.1	97.1	6.9 6.9	6.9	6.9	6.9	3.2 2.9	3.1	2.4	10.0 10.0	10.0	9.3	
				Middle	4.5	22.4 22.4	22.4	7.3 7.4	7.4	34.1 34.1	34.1	96.4 96.2	96.3	6.9 6.9	6.9	6.9	2.0 1.9	2.0	2.0 2.0		2.0	6.0 6.0		6.0
				Bottom	8	22.4 22.4	22.4	7.7 7.7	7.7	34.1 34.1	34.1	95.6 95.5	95.6	6.8 6.8	6.8	6.8	2.0 2.0	2.0	2.0		2.0	11.0 11.0		11.0
5-Dec-08	Fine	Moderate	17:53	Surface	1	22.9 22.9	22.9	7.9 8.1	8.0	30.9 30.9	30.9	96.4 93.3	94.9	6.2 6.3	6.3	6.4	2.2 2.2	2.2	2.5	12.0 12.0	12.0	12.3		
				Middle	4.5	22.8 22.8	22.8	7.7 7.7	7.7	31.0 30.9	31.0	90.6 90.1	90.4	6.4 6.4	6.4	6.4	2.6 2.6	2.6		14.0 14.0	14.0			
				Bottom	8	22.6 22.6	22.6	8.2 8.0	8.1	30.9 31.1	31.0	87.5 86.7	87.1	6.4 6.3	6.4	6.4	2.8 2.8	2.8		11.0 11.0	11.0			
8-Dec-08	Sunny	Calm	09:36	Surface	1	23.7 23.7	23.7	7.9 7.8	7.9	29.8 29.8	29.8	102.0 101.7	101.9	7.3 7.4	7.4	7.1	3.1 3.0	3.1	3.6	7.0 7.0	7.0	5.2		
				Middle	4.5	23.6 23.5	23.6	7.7 7.7	7.7	30.1 30.1	30.1	93.7 92.6	93.2	6.8 6.7	6.8	6.8	3.5 3.6	3.6		3.0 4.0	3.5			
				Bottom	8	23.1 23.1	23.1	7.8 7.8	7.8	30.7 30.7	30.7	83.5 82.8	83.2	6.1 6.0	6.1	6.1	4.0 4.1	4.1		5.0 5.0	5.0			
10-Dec-08	Sunny	Calm	10:42	Surface	1	22.9 22.9	22.9	7.5 7.4	7.5	30.6 30.6	30.6	102.6 101.4	102.0	7.2 7.3	7.3	7.2	2.7 2.6	2.7	3.0	6.0 6.0	6.0	6.7		
				Middle	4.5	22.8 22.8	22.8	7.6 7.4	7.5	30.7 30.7	30.7	96.3 95.6	96.0	7.0 6.9	7.0	7.0	2.9 3.0	3.0		8.0 8.0	8.0			
				Bottom	8	22.5 22.5	22.5	7.6 7.5	7.6	30.9 31.1	31.0	90.3 89.8	90.1	6.6 6.6	6.6	6.6	3.3 3.4	3.4		6.0 6.0	6.0			
12-Dec-08	Sunny	Calm	12:28	Surface	1	23.1 23.1	23.1	8.1 8.3	8.2	30.5 30.5	30.5	97.9 94.3	96.1	6.3 6.4	6.4	6.5	2.6 2.7	2.7	3.0	9.0 9.0	9.0	10.3		
				Middle	4.5	22.9 22.9	22.9	8.2 8.1	8.2	30.6 30.6	30.6	91.3 90.7	91.0	6.6 6.6	6.6	6.6	3.0 2.9	3.0		11.0 11.0	11.0			
				Bottom	8	22.7 22.6	22.7	8.2 8.3	8.3	30.6 30.8	30.7	87.3 86.3	86.8	6.5 6.4	6.5	6.5	3.2 3.4	3.3		11.0 11.0	11.0			
15-Dec-08	Sunny	Moderate	13:54	Surface	1	23.0 23.0	23.0	7.9 8.0	8.0	30.7 30.7	30.7	97.1 93.8	95.5	6.5 6.6	6.6	6.7	2.4 2.4	2.4	2.8	5.0 6.0	5.5	6.2		
				Middle	4.5	22.9 22.8	22.9	7.8 7.9	7.9	30.8 30.8	30.8	90.9 90.4	90.7	6.8 6.8	6.8	6.8	2.8 2.8	2.8		6.0 6.0	6.0			
				Bottom	8	22.6 22.6	22.6	8.0 8.0	8.0	30.7 30.9	30.8	87.3 86.5	86.9	6.7 6.6	6.7	6.7	3.0 3.1	3.1		7.0 7.0	7.0			
17-Dec-08	Sunny	Calm	15:44	Surface	1	22.8 22.8	22.8	7.8 8.0	7.9	30.2 30.2	30.2	101.7 97.2	99.5	6.7 6.5	6.6	6.4	2.5 2.6	2.6	3.0	4.0 4.0	4.0	3.7		
				Middle	4.5	22.5 22.5	22.5	7.7 7.8	7.8	30.3 30.3	30.3	93.6 92.8	93.2	6.2 6.2	6.2	6.2	2.9 2.7	2.8		3.0 3.0	3.0			
				Bottom	8	22.2 22.2	22.2	8.0 8.0	8.0	30.4 30.5	30.5	90.1 91.6	90.9	6.1 6.2	6.2	6.2	3.2 3.8	3.5		4.0 4.0	4.0			
19-Dec-08	Cloudy	Calm	17:31	Surface	1	22.7 22.7	22.7	8.0 8.1	8.1	32.0 32.0	32.0	94.4 95.3	94.9	6.5 6.7	6.6	6.5	3.2 3.2	3.2	3.5	7.0 7.0	7.0	8.0		
				Middle	4.5	22.7 22.7	22.7	8.0 7.9	8.0	32.1 32.0	32.1	91.2 91.8	91.5	6.3 6.3	6.3	6.3	3.6 3.5	3.6		9.0 9.0	9.0			
				Bottom	8	22.7 22.7	22.7	8.2 8.2	8.2	31.6 32.2	31.9	89.8 90.1	90.0	6.1 6.1	6.1	6.1	3.6 3.5	3.6		8.0 8.0	8.0			
22-Dec-08	Sunny	Calm	08:57	Surface	1	22.1 22.2	22.2	8.2 7.9	8.1	31.2 31.2	31.2	101.4 98.3	99.9	6.8 6.5	6.7	6.4	2.7 2.5	2.6	2.9	7.0 7.0	7.0	6.0		
				Middle	4.5	22.0 22.0	22.0	8.3 7.8	8.1	31.3 31.3	31.3	90.9 90.9	90.9	6.1 6.1	6.1	6.1	2.8 2.9	2.9		6.0 6.0	6.0			
				Bottom	8	21.9 21.9	21.9	8.4 7.7	8.1	31.4 31.4	31.4	90.6 90.4	90.5	6.2 6.2	6.2	6.2	3.1 3.2	3.2		5.0 5.0	5.0			
24-Dec-08	Sunny	Calm	09:42	Surface	1	22.3 22.3	22.3	7.8 7.8	7.8	29.2 29.2	29.2	98.6 96.9	97.8	7.4 7.3	7.4	7.0	2.6 2.5	2.6	2.6	3.0 3.0	3.0	4.0		
				Middle	4.5	22.1 22.1	22.1	7.9 7.6	7.8	29.9 29.9	29.9	88.3 84.7	86.5	6.7 6.5	6.6	6.6	2.4 2.6	2.5		6.0 6.0	6.0			
				Bottom	8	21.8 21.8	21.8	8.0 7.8	7.9	30.4 30.4	30.4	79.0 77.8	78.4	6.1 6.0	6.1	6.1	2.8 2.8	2.8		3.0 3.0	3.0			
27-Dec-08	Sunny	Calm	12:42	Surface	1	21.8 21.8	21.8	8.2 7.9	8.1	29.5 29.5	29.5	87.6 87.4	87.5	6.6 6.6	6.6	6.4	1.9 1.8	1.9	2.5	14.0 14.0	14.0	13.2		
				Middle	4.5	21.9 21.9	21.9	8.3 7.8	8.1	29.9 29.9	29.9	82.2 81.2	81.7	6.2 6.2	6.2	6.2	2.3 2.4	2.4		16.0 16.0	16.0			
				Bottom	8	22.1 22.1	22.1	8.4 7.8	8.1	30.2 30.2	30.2	81.4 81.4	81.4	6.2 6.2	6.2	6.2	3.1 3.2	3.2		9.0 10.0	9.5			

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough: White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
29-Dec-08	Cloudy	Moderate	14:08	Surface	1	19.6 19.6	19.6	7.7 6.8	7.3	34.2 34.2	34.2	91.3 90.8	91.1	6.8 6.8	6.8	7.0	2.9 2.9	2.9	3.7	8.0 8.0	8.0	6.7
				Middle	4.5	19.6 19.6	19.6	8.1 8.1	8.1	34.2 34.2	34.2	96.4 95.0	95.7	7.2 7.1	7.2		3.6 3.9	3.8		7.0 7.0	7.0	
				Bottom	8	19.6 19.6	19.6	7.0 7.9	7.5	34.2 34.2	34.2	86.3 95.3	90.8	6.5 7.1	6.8		4.5 4.3	4.4		5.0 5.0	5.0	
31-Dec-08	Cloudy	Calm	15:19	Surface	1	22.7 22.7	22.7	7.9 8.2	8.1	28.2 28.1	28.2	91.7 93.1	92.4	6.6 6.7	6.7	6.6	3.2 3.2	3.2	3.5	14.0 14.0	14.0	13.2
				Middle	4.5	22.7 22.7	22.7	7.9 8.0	8.0	28.6 28.6	28.6	89.1 87.1	88.1	6.5 6.3	6.4		3.6 3.5	3.6		12.0 13.0	12.5	
				Bottom	8	22.7 22.7	22.7	8.1 8.2	8.2	29.6 29.6	29.6	79.9 78.8	79.4	6.1 6.1	6.1		3.6 3.5	3.6		13.0 13.0	13.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	09:38	Surface	1	22.5 22.5	22.5	7.3 7.5	7.4	34.2 34.2	34.2	102.3 101.8	102.1	7.3 7.2	7.3	1.6 1.6	1.6	1.8	8.0 8.0	8.0	12.0	
				Middle	5	22.4 22.4	22.4	7.9 7.4	7.7	34.1 34.2	34.2	100.4 100.0	100.2	7.2 7.1	7.2	1.7 1.9	1.8		10.0 10.0	10.0		
				Bottom	9	22.3 22.3	22.3	7.5 8.1	7.8	34.2 34.2	34.2	98.9 98.8	98.9	7.1 7.0	7.1	2.0 2.0	2.0		18.0 18.0	18.0		
3-Dec-08	Sunny	Calm	15:18	Surface	1	22.4 22.4	22.4	7.5 8.1	7.8	31.3 31.3	31.3	84.9 85.1	85.0	6.1 6.1	6.1	2.5 2.5	2.5	2.7	7.0 8.0	7.5	7.5	
				Middle	5	22.8 22.8	22.8	7.9 7.8	7.9	30.6 30.6	30.6	93.9 91.7	92.8	6.8 6.6	6.7	2.6 2.7	2.7		8.0 8.0	8.0		
				Bottom	9	22.8 22.8	22.8	7.9 7.7	7.8	30.7 30.7	30.7	87.1 85.7	86.4	6.2 6.2	6.2	2.9 2.9	2.9		7.0 7.0	7.0		
5-Dec-08	Sunny	Moderate	13:40	Surface	1	22.6 22.6	22.6	7.8 7.6	7.7	29.9 31.3	30.6	93.5 96.4	95.0	6.8 6.5	6.7	2.0 2.2	2.1	2.5	15.0 15.0	15.0	13.3	
				Middle	4.5	22.6 22.6	22.6	7.8 7.9	7.9	31.3 31.2	31.3	90.2 89.9	90.1	6.2 6.3	6.3	2.5 2.6	2.6		13.0 13.0	13.0		
				Bottom	8	22.5 22.4	22.5	8.0 8.3	8.2	31.3 31.3	31.3	86.4 89.3	87.9	6.1 6.4	6.3	2.8 3.0	2.9		12.0 12.0	12.0		
8-Dec-08	Sunny	Calm	14:16	Surface	1	23.9 23.9	23.9	7.7 7.6	7.7	30.7 30.8	30.8	94.7 96.8	95.8	7.0 7.0	7.0	3.0 3.1	3.1	3.6	6.0 6.0	6.0	6.7	
				Middle	4.5	23.8 23.8	23.8	7.8 7.7	7.8	31.0 31.1	31.1	100.3 99.2	99.8	7.2 7.2	7.2	3.5 3.6	3.6		4.0 4.0	4.0		
				Bottom	8	23.8 23.8	23.8	7.8 8.1	8.0	31.5 31.5	31.5	93.1 93.3	93.2	6.5 6.8	6.7	3.9 4.0	4.0		4.0 4.0	4.0		
10-Dec-08	Sunny	Calm	15:14	Surface	1	23.1 23.2	23.2	7.2 7.3	7.3	31.2 31.3	31.3	96.0 97.4	96.7	7.1 7.2	7.2	2.9 3.0	3.0	3.2	13.0 13.0	13.0	9.5	
				Middle	4.5	23.0 23.1	23.1	7.6 7.5	7.6	31.5 31.5	31.5	100.0 99.6	99.8	7.4 7.4	7.4	3.1 3.2	3.2		8.0 8.0	8.0		
				Bottom	8	22.9 22.9	22.9	7.5 7.8	7.7	31.8 31.7	31.8	96.5 96.6	96.6	7.1 7.2	7.2	3.5 3.5	3.5		7.0 8.0	7.5		
12-Dec-08	Sunny	Calm	16:52	Surface	1	23.0 23.0	23.0	7.8 8.1	8.0	29.9 30.6	30.3	90.5 92.1	91.3	7.0 6.2	6.6	2.8 2.7	2.8	3.1	14.0 14.0	14.0	13.3	
				Middle	4.5	22.8 22.8	22.8	8.6 8.1	8.4	30.7 30.6	30.7	88.9 88.5	88.7	6.2 6.4	6.3	3.0 3.2	3.1		14.0 14.0	14.0		
				Bottom	8	22.6 22.6	22.6	8.1 8.5	8.3	30.7 30.7	30.7	94.5 85.9	90.2	6.5 6.6	6.6	3.3 3.7	3.5		12.0 12.0	12.0		
15-Dec-08	Sunny	Moderate	10:43	Surface	1	22.8 22.8	22.8	7.6 7.7	7.7	29.9 31.0	30.5	92.0 94.2	93.1	7.2 6.6	6.9	2.4 2.4	2.4	2.8	7.0 7.0	7.0	8.3	
				Middle	4.5	22.7 22.7	22.7	8.0 7.8	7.9	31.0 30.9	31.0	89.5 89.2	89.4	6.5 6.6	6.6	2.8 2.9	2.9		7.0 7.0	7.0		
				Bottom	8	22.6 22.5	22.6	7.9 8.2	8.1	31.0 31.0	31.0	88.4 90.3	89.4	6.5 6.8	6.7	3.1 3.3	3.2		11.0 11.0	11.0		
17-Dec-08	Sunny	Calm	10:56	Surface	1	22.7 22.7	22.7	7.6 7.8	7.7	30.2 30.2	30.2	98.6 99.1	98.9	6.9 6.9	6.9	3.1 2.8	3.0	3.3	3.0 3.0	3.0	3.0	
				Middle	4.5	22.6 22.5	22.6	8.1 7.7	7.9	30.3 30.3	30.3	92.5 92.0	92.3	6.3 6.3	6.3	3.0 3.2	3.1		3.0 3.0	3.0		
				Bottom	8	22.4 22.3	22.4	7.8 8.4	8.1	30.4 30.4	30.4	91.6 91.7	91.7	6.3 6.3	6.3	3.5 3.9	3.7		3.0 3.0	3.0		
19-Dec-08	Sunny	Calm	13:09	Surface	1	22.5 22.3	22.4	7.7 7.9	7.8	29.5 32.3	30.9	97.9 103.0	100.5	6.7 6.9	6.8	2.9 2.9	2.9	3.2	9.0 9.0	9.0	9.0	
				Middle	4.5	22.7 22.7	22.7	8.3 7.9	8.1	32.3 32.0	32.2	91.7 91.7	91.7	6.1 6.1	6.1	3.2 3.3	3.3		10.0 10.0	10.0		
				Bottom	8	22.7 22.7	22.7	7.9 8.4	8.2	32.1 32.2	32.2	91.8 91.8	91.8	6.1 6.1	6.1	3.4 3.4	3.4		8.0 8.0	8.0		
22-Dec-08	Sunny	Calm	14:51	Surface	1	22.4 22.5	22.5	7.7 7.8	7.8	31.3 31.3	31.3	100.9 101.3	101.1	6.7 6.7	6.7	3.0 3.0	3.0	3.2	6.0 6.0	6.0	5.5	
				Middle	5	22.3 22.3	22.3	8.0 7.8	7.9	31.4 31.4	31.4	97.2 96.3	96.8	6.5 6.4	6.5	3.1 3.1	3.1		6.0 6.0	6.0		
				Bottom	9	22.2 22.2	22.2	8.2 8.2	8.2	31.4 31.4	31.4	94.9 93.8	94.4	6.3 6.2	6.3	3.4 3.6	3.5		4.0 5.0	4.5		
24-Dec-08	Sunny	Calm	16:07	Surface	1	22.5 22.4	22.5	7.3 7.4	7.4	28.5 28.5	28.5	102.5 98.7	100.6	7.7 7.4	7.6	1.9 1.9	1.9	2.2	3.0 3.0	3.0	3.7	
				Middle	4.5	21.8 21.7	21.8	7.8 7.6	7.7	29.9 30.0	30.0	82.9 81.1	82.0	6.4 6.2	6.3	2.2 2.3	2.3		5.0 5.0	5.0		
				Bottom	8	21.5 21.5	21.5	7.6 7.9	7.8	30.5 30.5	30.5	78.5 78.1	78.3	6.1 6.1	6.1	2.4 2.4	2.4		3.0 3.0	3.0		

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
27-Dec-08	Sunny	Calm	08:50	Surface	1	21.7 21.7	21.7	7.6 7.8	7.7	29.8 29.8	29.8	111.7 106.6	109.2	8.0 7.7	7.9	7.5	1.9 1.9	1.9	2.5	8.0 9.0	8.5	10.2
				Middle	4.5	21.6 21.5	21.6	7.9 7.8	7.9	29.9 29.9	29.9	96.9 96.4	96.7	7.1 7.0	7.1		2.4 2.5	2.5		15.0 15.0	15.0	
				Bottom	8	21.5 21.5	21.5	8.2 8.3	8.3	30.0 30.0	30.0	95.0 95.0	95.0	6.9 6.9	6.9		2.9 3.1	3.0		7.0 7.0	7.0	
29-Dec-08	Cloudy	Moderate	09:10	Surface	1	19.6 19.6	19.6	7.2 7.4	7.3	34.2 34.2	34.2	92.1 91.8	92.0	6.9 6.9	6.9	6.9	2.1 2.2	2.2	2.7	9.0 9.0	9.0	8.0
				Middle	4.5	19.6 19.6	19.6	7.4 7.4	7.4	34.2 34.2	34.2	86.5 93.0	89.8	6.5 7.0	6.8		2.4 2.7	2.6		8.0 8.0	8.0	
				Bottom	8	19.6 19.6	19.6	7.8 7.8	7.8	34.3 34.3	34.3	94.9 95.4	95.2	7.1 7.1	7.1		3.1 3.2	3.2		7.0 7.0	7.0	
31-Dec-08	Cloudy	Calm	09:04	Surface	1	22.5 22.3	22.4	7.8 8.0	7.9	31.8 31.9	31.9	87.4 88.0	87.7	6.3 6.4	6.4	6.5	2.9 2.9	2.9	3.2	12.0 12.0	12.0	13.5
				Middle	4.5	22.7 22.7	22.7	8.3 7.9	8.1	31.8 31.8	31.8	89.7 90.0	89.9	6.6 6.6	6.6		3.2 3.3	3.3		10.0 10.0	10.0	
				Bottom	8	22.7 22.7	22.7	8.0 8.3	8.2	32.1 31.9	32.0	89.9 88.7	89.3	6.6 6.5	6.6		3.4 3.4	3.4		18.0 19.0	18.5	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	14:21	Surface	1	22.5 22.5	22.5	7.8 7.5	7.7	34.1 34.1	34.1	97.4 97.5	97.5	6.9 6.9	6.9	6.9	1.6 1.4	1.5	1.4	7.0 7.0	7.0	8.5
				Middle	4.5	22.4 22.4	22.4	7.9 7.4	7.7	34.1 34.1	34.1	97.3 97.0	97.2	6.9 6.9	6.9	6.9	1.3 1.3	1.3		10.0 10.0	10.0	
				Bottom	8	22.4 22.4	22.4	8.0 7.5	7.8	34.1 34.1	34.1	95.8 95.7	95.8	6.8 6.8	6.8	6.8	1.5 1.4	1.5		8.0 9.0	8.5	
5-Dec-08	Fine	Moderate	17:45	Surface	1	22.9 22.9	22.9	8.0 7.9	8.0	31.0 31.0	31.0	100.8 97.9	99.4	6.5 6.5	6.5	6.5	2.0 2.0	2.0	2.3	12.0 12.0	12.0	13.3
				Middle	4.5	22.7 22.7	22.7	8.3 7.7	8.0	31.1 31.1	31.1	90.3 90.3	90.3	6.5 6.3	6.4	6.4	2.2 2.3	2.3		12.0 12.0	12.0	
				Bottom	8	22.5 22.5	22.5	8.0 8.0	8.0	31.2 31.3	31.3	88.6 88.4	88.5	6.4 6.3	6.4	6.4	2.6 2.7	2.7		16.0 16.0	16.0	
8-Dec-08	Sunny	Calm	09:28	Surface	1	23.8 23.8	23.8	7.9 7.7	7.8	29.6 29.6	29.6	105.4 104.4	104.9	8.2 8.2	8.2	8.2	2.6 2.7	2.7	3.1	6.0 6.0	6.0	6.8
				Middle	4.5	23.5 23.5	23.5	8.0 7.7	7.9	30.0 30.0	30.0	100.8 100.1	100.5	7.3 7.2	7.3	7.3	3.0 3.0	3.0		5.0 5.0	5.0	
				Bottom	8	23.4 23.4	23.4	7.9 7.8	7.9	30.5 30.5	30.5	88.0 87.5	87.8	6.4 6.3	6.4	6.4	3.4 3.5	3.5		10.0 9.0	9.5	
10-Dec-08	Sunny	Calm	10:36	Surface	1	22.9 22.9	22.9	7.4 7.5	7.5	30.5 30.5	30.5	108.7 106.6	107.7	7.9 7.9	7.9	7.9	2.2 2.3	2.3	2.8	10.0 9.0	9.5	8.8
				Middle	4.5	22.8 22.8	22.8	7.4 7.4	7.4	30.8 30.8	30.8	101.1 100.8	101.0	7.3 7.2	7.3	7.3	2.7 2.8	2.8		8.0 8.0	8.0	
				Bottom	8	22.7 22.7	22.7	7.5 7.5	7.5	31.0 31.1	31.1	94.3 94.0	94.2	6.9 6.8	6.9	6.9	3.1 3.2	3.2		9.0 9.0	9.0	
12-Dec-08	Sunny	Calm	12:20	Surface	1	23.1 23.1	23.1	8.5 8.2	8.4	30.6 30.6	30.6	99.8 97.0	98.4	6.4 6.5	6.5	6.5	2.7 2.7	2.7	2.8	9.0 9.0	9.0	10.7
				Middle	4.5	22.8 22.8	22.8	8.4 8.0	8.2	30.7 30.7	30.7	89.3 89.3	89.3	6.6 6.3	6.5	6.5	2.6 2.7	2.7		11.0 11.0	11.0	
				Bottom	8	22.6 22.6	22.6	8.4 8.1	8.3	30.9 30.9	30.9	87.1 86.8	87.0	6.4 6.3	6.4	6.4	3.0 3.1	3.1		12.0 12.0	12.0	
15-Dec-08	Sunny	Moderate	13:45	Surface	1	23.0 23.0	23.0	8.0 7.8	7.9	30.8 30.8	30.8	100.3 97.4	98.9	6.7 6.8	6.8	6.8	2.3 2.3	2.3	2.6	7.0 7.0	7.0	8.3
				Middle	4.5	22.8 22.8	22.8	8.1 7.9	8.0	30.9 30.9	30.9	89.8 89.8	89.8	6.9 6.6	6.8	6.8	2.4 2.5	2.5		11.0 11.0	11.0	
				Bottom	8	22.6 22.6	22.6	8.1 7.9	8.0	31.1 31.1	31.1	87.8 87.6	87.7	6.7 6.6	6.7	6.7	2.8 2.9	2.9		7.0 7.0	7.0	
17-Dec-08	Sunny	Calm	15:54	Surface	1	22.9 22.8	22.9	8.0 7.9	8.0	30.2 30.2	30.2	99.1 96.5	97.8	6.6 6.4	6.5	6.5	2.8 2.3	2.6	2.8	<2.5 3.0	2.8	3.6
				Middle	4.5	22.4 22.4	22.4	7.8 7.8	7.8	30.4 30.4	30.4	92.5 92.5	92.5	6.4 6.4	6.4	6.4	2.5 2.7	2.6		4.0 4.0	4.0	
				Bottom	8	22.1 22.1	22.1	8.1 7.8	8.0	30.6 30.6	30.6	90.4 90.1	90.3	6.2 6.2	6.2	6.2	3.0 3.2	3.1		4.0 4.0	4.0	
19-Dec-08	Cloudy	Calm	17:22	Surface	1	22.5 22.6	22.6	8.3 8.1	8.2	32.3 32.2	32.3	103.8 100.2	102.0	7.0 6.7	6.9	6.9	2.6 2.8	2.7	3.0	6.0 6.0	6.0	7.8
				Middle	4.5	22.7 22.7	22.7	8.3 7.9	8.1	32.2 32.2	32.2	93.3 93.3	93.3	6.2 6.2	6.2	6.2	3.1 3.1	3.1		7.0 7.0	7.0	
				Bottom	8	22.7 22.7	22.7	8.5 8.0	8.3	32.3 32.3	32.3	93.8 93.8	93.8	6.3 6.3	6.3	6.3	3.3 3.3	3.3		11.0 10.0	10.5	
22-Dec-08	Sunny	Calm	08:49	Surface	1	22.2 22.2	22.2	7.6 8.1	7.9	31.1 31.1	31.1	95.0 95.3	95.2	6.3 6.4	6.4	6.4	2.8 2.9	2.9	3.2	5.0 5.0	5.0	5.3
				Middle	4.5	22.1 22.1	22.1	7.6 7.8	7.7	31.2 31.1	31.2	92.9 92.5	92.7	6.3 6.3	6.3	6.3	3.2 3.1	3.2		5.0 5.0	5.0	
				Bottom	8	21.9 21.9	21.9	8.0 8.1	8.1	31.0 31.3	31.2	91.4 91.0	91.2	6.1 6.0	6.1	6.1	3.4 3.6	3.5		6.0 6.0	6.0	
24-Dec-08	Sunny	Calm	09:36	Surface	1	22.2 22.2	22.2	7.9 7.7	7.8	28.9 28.9	28.9	93.3 92.2	92.8	7.1 7.0	7.1	7.1	2.5 2.4	2.5	2.7	3.0 3.0	3.0	3.0
				Middle	4.5	21.8 21.8	21.8	7.7 7.8	7.8	29.7 29.8	29.8	85.3 84.4	84.9	6.5 6.5	6.5	6.5	2.6 2.6	2.6		3.0 3.0	3.0	
				Bottom	8	21.6 21.6	21.6	7.9 7.9	7.9	30.2 30.2	30.2	79.2 79.2	79.2	6.1 6.1	6.1	6.1	2.9 3.1	3.0		3.0 3.0	3.0	
27-Dec-08	Sunny	Calm	12:33	Surface	1	22.2 22.2	22.2	7.6 8.2	7.9	29.9 29.9	29.9	99.1 97.9	98.5	7.2 7.1	7.2	7.2	1.2 1.3	1.3	1.7	11.0 11.0	11.0	10.7
				Middle	4.5	21.9 21.9	21.9	7.5 7.7	7.6	30.1 30.1	30.1	95.3 94.2	94.8	6.9 6.8	6.9	6.9	1.6 1.6	1.6		11.0 11.0	11.0	
				Bottom	8	21.2 21.2	21.2	8.1 8.1	8.1	30.7 30.7	30.7	86.0 84.6	85.3	6.3 6.2	6.3	6.3	2.1 2.2	2.2		10.0 10.0	10.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)			
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	
29-Dec-08	Cloudy	Moderate	13:57	Surface	1	19.7 19.7	19.7	7.3 7.9	7.6	34.2 34.2	34.2	93.8 93.5	93.7	7.0 7.0	7.0	7.0	7.0	2.1 2.2	2.2	2.6	7.0 7.0	7.0	9.0
				Middle	4.5	19.6 19.6	19.6	7.2 7.4	7.3	34.2 34.2	34.2	91.9 90.2	91.1	6.9 6.8	6.9	6.9	2.4 2.3	2.4	7.0 7.0		7.0		
				Bottom	8	19.6 19.6	19.6	7.6 7.6	7.6	34.2 34.2	34.2	82.2 81.9	82.1	6.3 6.2	6.3	6.3	2.9 3.4	3.2	13.0 13.0		13.0		
31-Dec-08	Cloudy	Calm	15:08	Surface	1	22.5 22.6	22.6	8.2 8.1	8.2	27.6 27.6	27.6	88.5 89.9	89.2	7.7 7.8	7.8	7.0	2.6 2.8	2.7	3.0	14.0 14.0	14.0	12.7	
				Middle	4.5	22.7 22.7	22.7	8.3 7.9	8.1	28.3 28.3	28.3	89.8 88.4	89.1	6.2 6.1	6.2	6.2	3.1 3.1	3.1		10.0 10.0	10.0		
				Bottom	8	22.7 22.7	22.7	8.3 8.0	8.2	29.2 29.2	29.2	84.8 83.9	84.4	6.5 6.4	6.5	6.5	3.3 3.3	3.3		14.0 14.0	14.0		

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	09:30	Surface	1	22.5 22.5	22.5	7.4 7.5	7.5	34.1 34.1	34.1	104.5 103.9	104.2	7.4 7.4	7.4	7.3	1.4 1.2	1.3	1.4	6.0 6.0	6.0	8.2
				Middle	4.5	22.4 22.4	22.4	7.3 7.5	7.4	34.1 34.1	34.1	101.5 100.9	101.2	7.2 7.2	7.2		1.4 1.4	1.4		12.0 6.0	6.5	
				Bottom	8	22.3 22.3	22.3	7.3 7.4	7.4	34.2 34.2	34.2	99.8 99.5	99.7	7.1 7.1	7.1		1.5 1.6	1.6		12.0 12.0	12.0	
3-Dec-08	Sunny	Calm	15:30	Surface	1	22.6 22.6	22.6	7.9 7.9	7.9	30.7 30.8	30.8	86.1 84.9	85.5	6.2 6.2	6.2	6.5	2.4 2.4	2.4	2.7	10.0 10.0	10.0	11.2
				Middle	4.5	22.8 22.8	22.8	7.9 7.9	7.9	30.0 30.1	30.1	91.6 90.3	91.0	6.7 6.6	6.7		2.6 2.7	2.7		14.0 14.0	14.0	
				Bottom	8	22.6 22.6	22.6	7.9 7.8	7.9	30.8 30.8	30.8	85.5 84.5	85.0	6.3 6.2	6.3		2.8 2.9	2.9		9.0 10.0	9.5	
5-Dec-08	Sunny	Moderate	13:32	Surface	1	22.8 22.8	22.8	7.5 7.6	7.6	31.3 31.2	31.3	98.6 96.4	97.5	6.7 6.6	6.7	6.6	2.3 2.5	2.4	2.6	12.0 12.0	12.0	14.2
				Middle	4.5	22.6 22.6	22.6	7.4 7.6	7.5	31.3 31.3	31.3	92.1 90.5	91.3	6.5 6.5	6.5		2.6 2.6	2.6		14.0 14.0	14.0	
				Bottom	8	22.5 22.5	22.5	7.5 7.6	7.6	31.4 31.4	31.4	89.7 89.5	89.6	6.4 6.5	6.5		2.7 2.8	2.8		17.0 16.0	16.5	
8-Dec-08	Sunny	Calm	14:08	Surface	1	23.8 23.8	23.8	7.6 7.7	7.7	30.3 30.8	30.6	100.8 97.4	99.1	6.7 7.0	6.9	7.2	3.1 3.2	3.2	3.3	6.0 6.0	6.0	8.8
				Middle	4.5	23.6 23.6	23.6	7.4 7.6	7.5	30.8 30.8	30.8	92.6 91.9	92.3	7.4 7.4	7.4		3.2 3.2	3.2		5.0 5.0	5.0	
				Bottom	8	23.8 23.9	23.9	7.6 7.5	7.6	30.8 30.8	30.8	90.2 89.9	90.1	7.2 7.3	7.3		3.5 3.6	3.6		6.0 6.0	6.0	
10-Dec-08	Sunny	Calm	15:05	Surface	1	23.2 23.2	23.2	7.4 7.3	7.4	30.8 31.1	31.0	100.0 97.9	99.0	7.0 7.3	7.2	7.3	2.9 2.9	2.9	3.1	10.0 10.0	10.0	8.7
				Middle	4.5	23.1 23.1	23.1	7.3 7.3	7.3	31.0 31.1	31.1	95.5 94.8	95.2	7.4 7.4	7.4		3.0 3.0	3.0		7.0 7.0	7.0	
				Bottom	8	23.1 23.0	23.1	7.4 7.4	7.4	31.1 31.2	31.2	94.1 93.4	93.8	7.3 7.3	7.3		3.3 3.5	3.4		9.0 9.0	9.0	
12-Dec-08	Sunny	Calm	16:43	Surface	1	23.2 23.2	23.2	7.9 7.9	7.9	30.6 30.6	30.6	95.0 93.9	94.5	6.6 6.6	6.6	6.6	2.6 2.6	2.6	2.9	18.0 17.0	17.5	14.5
				Middle	4.5	22.8 22.8	22.8	7.8 8.0	7.9	30.7 30.7	30.7	90.4 87.9	89.2	6.6 6.6	6.6		2.8 2.7	2.8		16.0 16.0	16.0	
				Bottom	8	22.7 22.7	22.7	7.9 7.9	7.9	30.9 30.9	30.9	86.5 86.2	86.4	6.6 6.7	6.7		3.3 3.3	3.3		10.0 10.0	10.0	
15-Dec-08	Sunny	Moderate	10:35	Surface	1	23.0 23.0	23.0	7.8 7.8	7.8	30.9 30.9	30.9	96.8 95.1	96.0	6.9 6.9	6.9	6.9	2.4 2.5	2.5	2.7	8.0 8.0	8.0	8.5
				Middle	4.5	22.7 22.7	22.7	7.7 7.9	7.8	31.0 31.0	31.0	91.2 89.2	90.2	6.8 6.8	6.8		2.7 2.6	2.7		11.0 11.0	11.0	
				Bottom	8	22.6 22.6	22.6	7.8 7.8	7.8	31.2 31.1	31.2	88.1 87.8	88.0	6.8 6.9	6.9		3.0 3.0	3.0		6.0 7.0	6.5	
17-Dec-08	Sunny	Calm	11:10	Surface	1	23.0 22.9	23.0	7.7 7.7	7.7	30.2 30.2	30.2	97.5 97.5	97.5	6.6 6.6	6.6	6.5	2.7 2.4	2.6	2.9	3.0 3.0	3.0	2.9
				Middle	4.5	22.4 22.4	22.4	8.0 7.6	7.8	30.4 30.4	30.4	94.7 91.3	93.0	6.5 6.3	6.4		2.9 2.7	2.8		<2.5 3.0	2.8	
				Bottom	8	22.2 22.2	22.2	7.6 7.6	7.6	30.6 30.5	30.6	89.4 89.0	89.2	6.1 6.1	6.1		3.4 3.4	3.4		3.0 3.0	3.0	
19-Dec-08	Sunny	Calm	13:01	Surface	1	22.6 22.7	22.7	7.8 7.7	7.8	32.2 32.1	32.2	104.1 100.0	102.1	7.0 6.7	6.9	6.6	3.4 3.3	3.4	3.2	7.0 7.0	7.0	8.0
				Middle	4.5	22.7 22.7	22.7	7.6 7.5	7.6	32.2 32.2	32.2	94.4 94.4	94.4	6.3 6.3	6.3		2.9 2.9	2.9		9.0 9.0	9.0	
				Bottom	8	22.7 22.7	22.7	7.7 7.7	7.7	32.2 32.2	32.2	94.5 94.5	94.5	6.3 6.3	6.3		3.2 3.3	3.3		8.0 8.0	8.0	
22-Dec-08	Sunny	Calm	14:42	Surface	1	22.2 22.3	22.3	7.6 7.7	7.7	31.2 31.2	31.2	98.3 96.2	97.3	6.5 6.4	6.5	6.4	3.0 2.8	2.9	3.0	5.0 5.0	5.0	5.7
				Middle	4.5	22.0 22.0	22.0	7.5 7.6	7.6	31.3 31.3	31.3	92.4 91.3	91.9	6.2 6.1	6.2		2.9 2.8	2.9		7.0 7.0	7.0	
				Bottom	8	21.9 21.9	21.9	7.5 7.6	7.6	31.4 31.4	31.4	92.4 92.2	92.3	6.3 6.3	6.3		3.3 3.3	3.3		5.0 5.0	5.0	
24-Dec-08	Sunny	Calm	15:49	Surface	1	22.6 22.6	22.6	7.4 7.4	7.4	28.6 28.7	28.7	91.6 90.0	90.8	6.9 6.8	6.9	6.5	2.4 2.3	2.4	2.2	5.0 5.0	5.0	4.5
				Middle	4.5	22.1 22.1	22.1	7.2 7.4	7.3	30.0 30.0	30.0	80.6 78.1	79.4	6.2 6.0	6.1		1.9 1.9	1.9		4.0 3.0	3.5	
				Bottom	8	21.8 21.7	21.8	7.3 7.4	7.4	30.5 30.8	30.7	76.5 76.4	76.5	6.2 6.2	6.2		2.2 2.3	2.3		5.0 5.0	5.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
27-Dec-08	Sunny	Calm	08:42	Surface	1	21.9 21.9	21.9	7.6 7.7	7.7	29.6 29.6	29.6	102.3 102.3	102.3	7.4 7.4	7.4	7.2	1.7 1.8	1.8	2.0	13.0 13.0	13.0	10.5
				Middle	4.5	21.8 21.7	21.8	7.4 7.8	7.6	29.7 29.8	29.8	94.2 92.7	93.5	6.9 6.8	6.9		1.9 1.9	1.9		10.0 11.0	10.5	
				Bottom	8	21.7 21.7	21.7	7.4 7.5	7.5	29.9 29.9	29.9	90.8 90.3	90.6	6.6 6.6	6.6		2.3 2.4	2.4		8.0 8.0	8.0	
29-Dec-08	Cloudy	Moderate	09:00	Surface	1	19.7 19.7	19.7	6.8 7.3	7.1	34.2 34.2	34.2	90.7 90.5	90.6	6.8 6.8	6.8	6.8	2.8 2.9	2.9	3.1	8.0 8.0	8.0	7.3
				Middle	4.5	19.6 19.6	19.6	7.9 7.1	7.5	34.2 34.2	34.2	89.7 90.8	90.3	6.7 6.8	6.8		2.9 3.0	3.0		5.0 5.0	5.0	
				Bottom	8	19.6 19.6	19.6	7.7 7.9	7.8	34.3 34.3	34.3	93.0 94.1	93.6	7.0 7.1	7.1		3.3 3.4	3.4		9.0 9.0	9.0	
31-Dec-08	Cloudy	Calm	08:46	Surface	1	22.6 22.7	22.7	7.9 7.9	7.9	31.3 31.4	31.4	89.3 88.4	88.9	6.4 6.5	6.5	6.5	3.4 3.3	3.4	3.2	13.0 13.0	13.0	14.8
				Middle	4.5	22.7 22.7	22.7	7.7 8.0	7.9	31.3 31.4	31.4	88.4 87.8	88.1	6.4 6.3	6.4		2.9 2.9	2.9		11.0 11.0	11.0	
				Bottom	8	22.7 22.7	22.7	7.8 7.8	7.8	31.5 31.6	31.6	88.1 87.0	87.6	6.3 6.3	6.3		3.2 3.3	3.3		20.0 21.0	20.5	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	14:29	Surface	1	22.6 22.6	22.6	8.1 7.3	7.7	34.0 34.0	34.0	97.5 97.6	97.6	6.9 6.9	6.9	6.9	1.3 1.2	1.3	1.9	9.0 9.0	9.0	9.0
				Middle	5	22.3 22.3	22.3	7.8 8.1	8.0	34.1 34.1	34.1	95.2 94.7	95.0	6.8 6.8	6.8	2.0 2.1	2.1	10.0 10.0		10.0		
				Bottom	9	22.3 22.3	22.3	7.5 7.5	7.5	34.1 34.1	34.1	93.3 93.1	93.2	6.7 6.7	6.7	2.3 2.4	2.4	8.0 8.0		8.0		
5-Dec-08	Fine	Moderate	17:30	Surface	1	23.0 23.0	23.0	7.4 7.7	7.6	31.2 31.1	31.2	111.5 107.4	109.5	6.7 6.6	6.7	6.6	2.1 2.1	2.1	2.4	16.0 16.0	16.0	14.2
				Middle	5	22.7 22.7	22.7	8.0 7.6	7.8	31.1 31.1	31.1	101.5 100.8	101.2	6.3 6.4	6.4	6.6	2.2 2.3	2.3		18.0 18.0	18.0	
				Bottom	9	22.6 22.6	22.6	7.9 8.3	8.1	31.1 31.1	31.1	100.0 99.1	99.6	6.4 6.4	6.4	6.4	2.8 2.9	2.9		8.0 9.0	8.5	
8-Dec-08	Sunny	Calm	09:13	Surface	1	23.4 23.5	23.5	7.9 7.7	7.8	29.6 29.5	29.6	109.0 106.9	108.0	8.0 7.9	8.0	7.7	2.3 2.5	2.4	2.8	4.0 4.0	4.0	4.3
				Middle	5	23.3 23.3	23.3	7.8 8.0	7.9	29.9 29.9	29.9	104.8 103.0	103.9	7.3 7.2	7.3	7.7	2.7 2.8	2.8		4.0 4.0	4.0	
				Bottom	9	23.1 23.1	23.1	7.7 7.7	7.8	30.3 30.3	30.3	94.0 93.5	93.8	6.6 6.6	6.6	6.6	3.2 3.2	3.2		5.0 5.0	5.0	
10-Dec-08	Sunny	Calm	10:22	Surface	1	23.2 23.2	23.2	7.3 7.2	7.3	30.7 30.5	30.6	114.1 110.8	112.5	7.9 7.8	7.9	7.6	2.2 2.3	2.3	2.5	9.0 9.0	9.0	7.3
				Middle	5	22.8 22.8	22.8	7.7 7.7	7.7	30.7 30.7	30.7	106.9 105.7	106.3	7.3 7.3	7.3	7.6	2.5 2.5	2.5		6.0 6.0	6.0	
				Bottom	9	22.6 22.5	22.6	7.3 7.7	7.5	31.0 31.0	31.0	100.9 100.4	100.7	7.0 7.0	7.0	7.0	2.8 2.8	2.8		7.0 7.0	7.0	
12-Dec-08	Sunny	Calm	12:07	Surface	1	23.2 23.3	23.3	8.3 8.0	8.2	30.8 30.8	30.8	112.5 108.8	110.7	6.6 6.6	6.6	6.5	2.5 2.5	2.5	2.9	13.0 13.0	13.0	13.7
				Middle	5	23.2 23.2	23.2	8.5 8.5	8.5	30.8 30.8	30.8	102.6 101.9	102.3	6.3 6.5	6.4	6.5	2.6 2.7	2.7		13.0 13.0	13.0	
				Bottom	9	23.2 23.2	23.2	7.9 8.0	8.0	30.8 30.8	30.8	101.0 99.9	100.5	6.5 6.4	6.5	6.5	3.3 3.4	3.4		15.0 15.0	15.0	
15-Dec-08	Sunny	Moderate	13:31	Surface	1	23.1 23.1	23.1	8.3 7.8	8.1	31.0 30.9	31.0	112.0 108.1	110.1	6.9 6.9	6.9	6.8	2.3 2.3	2.3	2.6	8.0 8.0	8.0	7.7
				Middle	5	22.9 22.9	22.9	8.1 8.2	8.2	30.9 31.0	31.0	102.0 101.3	101.7	6.6 6.8	6.7	6.7	2.4 2.5	2.5		5.0 6.0	5.5	
				Bottom	9	22.9 22.9	22.9	7.8 7.8	7.8	31.0 31.0	31.0	100.5 99.5	100.0	6.7 6.7	6.7	6.7	3.1 3.1	3.1		10.0 9.0	9.5	
17-Dec-08	Sunny	Calm	16:09	Surface	1	23.2 23.2	23.2	8.0 7.6	7.8	30.4 30.4	30.4	115.4 112.2	113.8	7.6 7.4	7.5	7.3	2.5 2.7	2.6	2.9	3.0 3.0	3.0	3.2
				Middle	5	22.9 22.9	22.9	8.1 8.1	8.2	30.4 30.5	30.5	105.6 104.9	105.3	7.0 6.9	7.0	7.3	2.5 2.6	2.6		3.0 4.0	3.5	
				Bottom	9	22.9 22.9	22.9	7.8 7.9	7.9	30.4 30.4	30.4	103.8 102.3	103.1	6.9 6.8	6.9	6.9	3.5 3.7	3.6		3.0 3.0	3.0	
19-Dec-08	Cloudy	Calm	17:10	Surface	1	22.3 22.5	22.4	8.4 7.7	8.1	32.6 32.3	32.5	105.7 100.3	103.0	7.1 6.7	6.9	6.7	2.6 2.5	2.6	2.9	11.0 11.0	11.0	9.0
				Middle	5	22.7 22.7	22.7	8.6 8.5	8.6	32.2 32.2	32.2	95.2 94.7	95.0	6.4 6.3	6.4	6.7	3.0 2.9	3.0		10.0 10.0	10.0	
				Bottom	9	22.7 22.7	22.7	7.8 8.0	7.9	32.3 32.2	32.3	94.4 94.4	94.4	6.3 6.3	6.3	6.3	3.0 2.9	3.0		6.0 6.0	6.0	
22-Dec-08	Sunny	Calm	08:36	Surface	1	22.3 22.3	22.3	7.7 7.5	7.6	31.1 31.1	31.1	96.8 95.1	96.0	6.5 6.4	6.5	6.4	3.7 3.8	3.8	4.1	3.0 3.0	3.0	4.5
				Middle	5.5	21.8 21.8	21.8	8.4 8.4	8.4	31.1 31.2	31.2	91.5 91.1	91.3	6.2 6.2	6.2	6.2	4.0 4.1	4.1		4.0 4.0	4.0	
				Bottom	10	21.7 21.7	21.7	7.3 8.2	7.8	31.4 31.3	31.4	88.1 87.9	88.0	6.0 6.0	6.0	6.0	4.4 4.3	4.4		6.0 7.0	6.5	
24-Dec-08	Sunny	Calm	09:23	Surface	1	22.2 22.2	22.2	7.7 7.6	7.7	28.7 28.7	28.7	92.7 92.1	92.4	7.0 7.0	7.0	6.9	1.6 1.7	1.7	1.8	5.0 5.0	5.0	3.4
				Middle	5.5	21.3 21.3	21.3	8.0 8.0	8.0	30.8 30.9	30.9	88.6 88.0	88.3	6.8 6.7	6.8	6.9	1.7 1.8	1.8		<2.5 <2.5	<2.5	
				Bottom	10	22.0 22.0	22.0	7.6 8.0	7.8	30.2 30.6	30.4	88.1 84.1	86.1	6.7 6.5	6.6	6.6	1.9 2.1	2.0		<2.5 3.0	2.8	
27-Dec-08	Sunny	Calm	12:19	Surface	1	21.9 21.8	21.9	8.0 7.2	7.6	29.1 29.3	29.2	106.5 103.4	105.0	7.7 7.5	7.6	6.7	0.8 0.9	0.9	1.4	8.0 8.0	8.0	8.3
				Middle	5	21.2 21.2	21.2	8.5 8.6	8.6	30.4 30.4	30.4	78.7 78.8	78.8	5.8 5.8	5.8	6.7	1.2 1.3	1.3		6.0 6.0	6.0	
				Bottom	9	21.2 21.2	21.2	7.3 8.2	7.8	30.3 30.4	30.4	82.0 82.4	82.2	6.2 6.2	6.2	6.2	1.8 1.9	1.9		11.0 11.0	11.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
29-Dec-08	Cloudy	Moderate	13:45	Surface	1	19.7 19.7	19.7	8.1 7.2	7.7	34.1 34.1	34.1	95.1 94.8	95.0	7.1 7.1	7.1	7.8	2.1 2.3	2.2	2.5	11.0 11.0	11.0	9.5
				Middle	5	19.6 19.6	19.6	7.7 8.2	8.0	34.2 34.2	34.2	110.8 114.6	112.7	8.3 8.6	8.5		2.1 2.3	2.2		7.0 8.0	7.5	
				Bottom	9	19.6 19.6	19.6	7.2 7.4	7.3	34.2 34.2	34.2	77.0 95.4	86.2	5.8 7.2	6.5		3.1 3.2	3.2		10.0 10.0	10.0	
31-Dec-08	Cloudy	Calm	14:50	Surface	1	22.3 22.5	22.4	8.3 7.8	8.1	27.3 27.3	27.3	89.4 90.1	89.8	7.2 7.2	7.2	6.7	2.6 2.5	2.6	2.9	14.0 14.0	14.0	14.0
				Middle	5	22.7 22.7	22.7	8.2 8.3	8.3	28.2 28.1	28.2	91.4 88.4	89.9	6.3 6.1	6.2		3.0 2.9	3.0		14.0 14.0	14.0	
				Bottom	9	22.7 22.7	22.7	7.9 7.9	7.9	29.0 29.0	29.0	82.9 82.4	82.7	6.1 6.1	6.1		3.0 2.9	3.0		14.0 14.0	14.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	09:22	Surface	1	22.5 22.5	22.5	7.3 7.4	7.4	34.1 34.1	34.1	100.6 100.6	100.6	7.2 7.2	7.2	7.1	1.2 1.3	1.3	2.1	12.0 12.0	12.0	13.3
				Middle	5	22.2 22.2	22.2	7.7 7.6	7.7	34.1 34.1	34.1	96.7 96.6	96.7	6.9 6.9	6.9		2.2 2.3	2.3		18.0 18.0	18.0	
				Bottom	9	22.2 22.2	22.2	7.8 7.9	7.9	34.1 34.1	34.1	96.0 96.0	96.0	6.9 6.9	6.9		2.6 2.8	2.7		10.0 10.0	10.0	
3-Dec-08	Sunny	Calm	15:39	Surface	1	22.5 22.5	22.5	7.9 8.0	8.0	30.6 31.2	30.9	86.2 82.5	84.4	6.4 6.0	6.2	6.6	2.0 2.2	2.1	2.3	7.0 7.0	7.0	7.3
				Middle	5	22.4 22.3	22.4	7.9 7.7	7.8	30.0 30.0	30.0	96.4 94.5	95.5	7.0 6.9	7.0		2.1 2.1	2.1		9.0 9.0	9.0	
				Bottom	9	22.4 22.4	22.4	7.9 8.3	8.1	30.8 30.8	30.8	86.4 85.5	86.0	6.0 6.3	6.2		2.5 2.6	2.6		6.0 6.0	6.0	
5-Dec-08	Sunny	Moderate	13:15	Surface	1	23.0 23.0	23.0	7.5 7.7	7.6	31.4 31.4	31.4	100.3 100.8	100.6	6.3 6.6	6.5	6.5	2.2 2.3	2.3	2.6	9.0 9.0	9.0	10.0
				Middle	5	22.9 22.9	22.9	8.0 8.0	8.0	31.4 31.4	31.4	96.8 95.9	96.4	6.5 6.4	6.5		2.5 2.6	2.6		9.0 9.0	9.0	
				Bottom	9	22.8 22.8	22.8	7.9 8.0	8.0	31.4 31.4	31.4	94.5 93.5	94.0	6.2 6.2	6.2		2.9 3.0	3.0		12.0 12.0	12.0	
8-Dec-08	Sunny	Calm	15:52	Surface	1	24.1 24.1	24.1	7.6 7.7	7.7	30.7 30.8	30.8	98.8 96.9	97.9	6.9 6.8	6.9	6.8	2.8 2.9	2.9	3.2	5.0 5.0	5.0	7.3
				Middle	5	23.9 23.9	23.9	7.9 7.7	7.8	30.9 31.0	31.0	94.2 96.3	95.3	6.6 6.8	6.7		3.2 3.3	3.3		5.0 5.0	5.0	
				Bottom	9	23.5 23.5	23.5	7.9 8.0	8.0	31.3 31.3	31.3	91.6 90.6	91.1	6.5 6.4	6.5		3.5 3.5	3.5		5.0 6.0	5.5	
10-Dec-08	Sunny	Calm	14:52	Surface	1	23.4 23.4	23.4	7.3 7.4	7.4	31.1 31.1	31.1	98.1 97.3	97.7	7.2 7.2	7.2	7.2	2.3 2.4	2.4	2.7	10.0 10.0	10.0	9.0
				Middle	5.5	23.2 23.2	23.2	7.7 7.4	7.6	31.2 31.2	31.2	96.3 97.3	96.8	7.1 7.1	7.1		2.6 2.7	2.7		6.0 6.0	6.0	
				Bottom	10	22.9 22.9	22.9	7.5 7.8	7.7	31.6 31.7	31.7	94.4 92.9	93.7	6.9 6.9	6.9		2.8 2.9	2.9		11.0 11.0	11.0	
12-Dec-08	Sunny	Calm	16:31	Surface	1	23.5 23.5	23.5	8.2 8.1	8.2	30.7 30.7	30.7	104.3 104.3	104.3	6.3 6.8	6.6	6.7	2.7 2.8	2.8	3.1	7.0 8.0	7.5	11.0
				Middle	5	23.2 23.3	23.3	8.2 8.2	8.2	30.8 30.8	30.8	99.9 98.5	99.2	6.7 6.6	6.7		2.9 3.0	3.0		10.0 10.0	10.0	
				Bottom	9	23.1 23.1	23.1	8.5 8.7	8.6	30.8 30.8	30.8	96.8 95.4	96.1	6.3 6.4	6.4		3.3 3.6	3.5		16.0 15.0	15.5	
15-Dec-08	Sunny	Moderate	10:21	Surface	1	23.2 23.3	23.3	7.8 8.0	7.9	31.0 31.0	31.0	102.3 102.5	102.4	6.6 7.0	6.8	6.9	2.4 2.5	2.5	2.8	6.0 6.0	6.0	8.0
				Middle	5	23.1 23.1	23.1	7.9 7.9	7.9	31.1 31.1	31.1	98.3 97.2	97.8	6.9 6.8	6.9		2.7 2.8	2.8		11.0 11.0	11.0	
				Bottom	9	23.0 22.9	23.0	8.0 8.1	8.1	31.1 31.1	31.1	95.6 94.4	95.0	6.5 6.6	6.6		3.1 3.3	3.2		7.0 7.0	7.0	
17-Dec-08	Sunny	Calm	11:18	Surface	1	23.3 23.3	23.3	7.7 7.8	7.8	30.4 30.4	30.4	108.6 108.1	108.4	7.1 7.1	7.1	7.0	2.6 2.7	2.7	3.0	3.0 3.0	3.0	3.2
				Middle	5	23.0 23.0	23.0	7.9 7.9	7.9	30.5 30.5	30.5	103.4 101.6	102.5	6.8 6.7	6.8		2.8 2.9	2.9		3.0 4.0	3.5	
				Bottom	9	22.8 22.8	22.8	8.0 8.2	8.1	30.4 30.4	30.4	99.6 97.9	98.8	6.6 6.5	6.6		3.3 3.7	3.5		3.0 3.0	3.0	
19-Dec-08	Sunny	Calm	12:45	Surface	1	22.6 22.6	22.6	7.9 7.8	7.9	32.2 32.2	32.2	93.2 94.5	93.9	6.2 6.3	6.3	6.4	3.4 3.4	3.4	3.4	7.0 7.0	7.0	6.5
				Middle	5	22.7 22.7	22.7	8.1 8.0	8.1	32.3 32.3	32.3	95.1 95.1	95.1	6.5 6.5	6.5		3.4 3.4	3.4		4.0 5.0	4.5	
				Bottom	9	22.7 22.7	22.7	8.3 8.4	8.4	32.3 32.3	32.3	90.2 89.8	90.0	6.0 6.0	6.0		3.5 3.5	3.5		8.0 8.0	8.0	
22-Dec-08	Sunny	Calm	14:31	Surface	1	22.0 22.0	22.0	7.6 7.7	7.7	29.9 31.2	30.6	96.6 96.0	96.3	6.5 6.4	6.5	6.4	3.0 2.8	2.9	3.2	6.0 7.0	6.5	6.5
				Middle	4.5	22.1 22.1	22.1	8.2 7.6	7.9	31.3 31.2	31.3	90.1 89.8	90.0	6.4 6.0	6.2		3.1 3.2	3.2		6.0 6.0	6.0	
				Bottom	8	22.0 22.0	22.0	7.7 8.3	8.0	31.2 31.3	31.3	90.2 90.2	90.2	6.2 6.2	6.2		3.4 3.6	3.5		7.0 7.0	7.0	
24-Dec-08	Sunny	Calm	15:42	Surface	1	22.4 22.4	22.4	7.4 7.4	7.4	29.6 29.6	29.6	94.5 90.6	92.6	7.1 6.9	7.0	6.7	2.4 2.4	2.4	2.4	3.0 3.0	3.0	3.3
				Middle	5	22.3 22.3	22.3	7.7 7.7	7.7	29.6 29.6	29.6	82.6 80.8	81.7	6.3 6.2	6.3		2.4 2.4	2.4		4.0 4.0	4.0	
				Bottom	9	22.1 22.0	22.1	7.7 8.0	7.9	30.1 30.2	30.2	78.8 78.6	78.7	6.2 6.2	6.2		2.5 2.5	2.5		3.0 3.0	3.0	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
27-Dec-08	Sunny	Calm	08:26	Surface	1	21.6 21.6	21.6	7.5 7.7	7.6	29.7 29.7	29.7	93.8 91.4	92.6	6.8 6.7	6.8	6.5	1.2 1.1	1.2	1.7	6.0 7.0	6.5	8.5
					Middle	5	21.5 21.5	21.5	8.2 7.6	7.9	29.9 29.9	29.9	83.5 83.0	83.3	6.2 6.1		6.2	1.8 1.8		1.8	12.0 12.0	
				Bottom	9	21.5 21.5	21.5	7.6 8.5	8.1	29.9 29.9	29.9	81.5 81.5	81.5	6.0 6.0	6.0	6.0	6.0	2.0 2.1	2.1	7.0 7.0	7.0	
29-Dec-08	Cloudy	Moderate	08:47	Surface	1	19.7 19.7	19.7	7.8 7.4	7.6	34.1 34.1	34.1	93.3 93.5	93.4	7.0 7.0	7.0	7.0	2.2 2.1	2.2	2.4	7.0 8.0	7.5	8.8
					Middle	5	19.6 19.6	19.6	8.0 7.3	7.7	34.1 34.2	34.2	91.3 91.5	91.4	6.8 6.9		6.9	2.0 2.3		2.2	11.0 11.0	
				Bottom	9	19.6 19.6	19.6	8.0 7.5	7.8	34.2 34.2	34.2	81.5 82.3	81.9	6.1 6.2	6.2	6.2	6.2	2.7 2.7	2.7	8.0 8.0	8.0	
31-Dec-08	Cloudy	Calm	08:36	Surface	1	22.6 22.6	22.6	8.0 8.0	8.0	31.5 31.5	31.5	87.5 87.7	87.6	6.6 6.6	6.6	6.6	3.4 3.4	3.4	3.4	10.0 11.0	10.5	11.5
					Middle	5.5	22.7 22.7	22.7	8.1 8.0	8.1	31.5 31.5	31.5	88.5 88.4	88.5	6.5 6.4		6.5	3.4 3.4		3.4	14.0 14.0	
				Bottom	10	22.7 22.7	22.7	8.3 8.3	8.3	32.0 32.1	32.1	87.2 85.3	86.3	6.4 6.3	6.4	6.4	6.4	3.5 3.5	3.5	10.0 10.0	10.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at intake B - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	14:03	Surface	1	22.4 22.4	22.4	7.1 7.5	7.3	34.1 34.1	34.1	97.1 97.0	97.1	6.9 6.9	6.9	6.9	1.7 1.9	1.8	2.0	8.0 8.0	8.0	8.5
				Middle	6	22.3 22.3	22.3	7.7 7.2	7.5	34.1 34.1	34.1	95.9 95.5	95.7	6.8 6.8	6.8	6.8	2.0 2.0	2.0		11.0 10.0	10.5	
				Bottom	11	22.3 22.3	22.3	7.7 7.9	7.8	34.1 34.1	34.1	94.7 94.7	94.7	6.8 6.8	6.8	6.8	2.3 2.3	2.3		7.0 7.0	7.0	
5-Dec-08	Fine	Moderate	18:07	Surface	1	22.6 22.6	22.6	7.8 7.5	7.7	31.1 31.0	31.1	109.4 103.3	106.4	6.6 6.5	6.6	6.5	2.4 2.5	2.5	2.9	10.0 10.0	10.0	12.3
				Middle	6	22.3 22.3	22.3	8.5 8.4	8.5	31.3 31.3	31.3	89.8 89.0	89.4	6.3 6.5	6.4	6.4	2.8 2.9	2.9		13.0 13.0	13.0	
				Bottom	11	22.2 22.2	22.2	7.5 8.0	7.8	31.4 31.5	31.5	86.4 86.0	86.2	6.3 6.2	6.3	6.3	3.4 3.3	3.4		14.0 14.0	14.0	
8-Dec-08	Sunny	Calm	09:51	Surface	1	23.5 23.6	23.6	7.5 7.6	7.6	30.2 30.3	30.3	108.3 104.8	106.6	7.4 7.3	7.4	7.1	3.4 3.5	3.5	3.8	5.0 5.0	5.0	4.8
				Middle	6	23.3 23.3	23.3	7.7 7.6	7.7	30.6 30.8	30.7	93.8 90.9	92.4	6.7 6.6	6.7	6.7	3.7 3.8	3.8		4.0 4.0	4.0	
				Bottom	11	23.2 23.1	23.2	7.7 7.9	7.8	31.2 30.8	31.0	87.7 91.4	89.6	6.4 6.6	6.5	6.5	4.2 4.2	4.2		5.0 6.0	5.5	
10-Dec-08	Sunny	Calm	10:56	Surface	1	22.7 22.8	22.8	7.6 7.3	7.5	30.8 30.9	30.9	114.3 109.5	111.9	7.7 7.5	7.6	7.3	2.9 3.0	3.0	3.3	10.0 10.0	10.0	7.8
				Middle	6	22.5 22.5	22.5	7.6 7.8	7.7	31.1 31.2	31.2	97.2 95.5	96.4	7.0 7.0	7.0	7.0	3.1 3.2	3.2		5.0 6.0	5.5	
				Bottom	11	22.4 22.6	22.5	7.4 7.5	7.5	31.5 31.3	31.4	92.9 94.6	93.8	6.8 6.9	6.9	6.9	3.6 3.6	3.6		8.0 8.0	8.0	
12-Dec-08	Sunny	Calm	12:45	Surface	1	22.7 22.8	22.8	7.9 8.0	8.0	30.7 30.6	30.7	108.5 102.4	105.5	6.4 6.3	6.4	6.5	3.0 3.3	3.2	3.9	11.0 11.0	11.0	10.5
				Middle	6	22.3 22.3	22.3	8.3 8.0	8.2	31.0 30.9	31.0	88.9 88.0	88.5	6.4 6.5	6.5	6.5	3.7 4.0	3.9		13.0 13.0	13.0	
				Bottom	11	22.2 22.2	22.2	8.2 8.6	8.4	31.1 31.2	31.2	85.1 84.6	84.9	6.4 6.3	6.4	6.4	4.7 4.7	4.7		7.0 8.0	7.5	
15-Dec-08	Sunny	Moderate	14:12	Surface	1	22.7 22.7	22.7	7.7 7.9	7.8	30.9 30.8	30.9	108.9 102.8	105.9	6.8 6.7	6.8	6.8	2.7 2.9	2.8	3.3	7.0 7.0	7.0	7.0
				Middle	6	22.3 22.3	22.3	7.9 7.7	7.8	31.1 31.1	31.1	89.3 88.5	88.9	6.6 6.8	6.7	6.7	3.2 3.4	3.3		7.0 7.0	7.0	
				Bottom	11	22.2 22.2	22.2	7.9 8.1	8.0	31.3 31.3	31.3	85.7 85.3	85.5	6.7 6.6	6.7	6.7	3.8 3.9	3.9		7.0 7.0	7.0	
17-Dec-08	Sunny	Calm	16:27	Surface	1	22.4 22.5	22.5	7.6 7.7	7.7	30.3 30.3	30.3	107.9 101.9	104.9	7.2 6.8	7.0	6.5	3.0 3.4	3.2	4.0	<2.5 <2.5	<2.5	<2.5
				Middle	6	21.7 21.7	21.7	8.0 7.8	7.9	30.7 30.6	30.7	88.4 87.2	87.8	6.0 5.9	6.0	6.0	3.7 4.3	4.0		<2.5 <2.5	<2.5	
				Bottom	11	21.6 21.5	21.6	7.9 8.0	8.0	30.9 30.9	30.9	88.6 88.2	88.4	6.1 6.0	6.1	6.1	4.7 5.0	4.9		<2.5 <2.5	<2.5	
19-Dec-08	Cloudy	Calm	17:45	Surface	1	22.3 22.4	22.4	7.9 8.0	8.0	32.2 32.1	32.2	112.0 105.8	108.9	7.5 7.1	7.3	6.8	3.7 3.8	3.8	4.1	7.0 7.0	7.0	9.0
				Middle	6	22.7 22.7	22.7	8.2 7.9	8.1	32.3 32.3	32.3	92.2 92.0	92.1	6.2 6.1	6.2	6.2	3.9 4.0	4.0		10.0 10.0	10.0	
				Bottom	11	22.7 22.7	22.7	8.1 8.3	8.2	32.3 32.3	32.3	90.7 90.6	90.7	6.1 6.1	6.1	6.1	4.4 4.4	4.4		10.0 10.0	10.0	
22-Dec-08	Sunny	Calm	09:11	Surface	1	22.2 22.3	22.3	8.4 7.5	8.0	31.5 31.3	31.4	110.5 106.2	108.4	7.4 7.1	7.3	7.0	2.5 2.6	2.6	2.9	5.0 5.0	5.0	5.7
				Middle	5	22.3 22.3	22.3	8.3 8.4	8.4	31.3 31.3	31.3	100.4 99.8	100.1	6.7 6.6	6.7	6.7	2.7 2.7	2.7		6.0 6.0	6.0	
				Bottom	9	22.2 22.2	22.2	7.7 7.7	7.7	31.3 31.3	31.3	99.1 98.3	98.7	6.6 6.5	6.6	6.6	3.2 3.3	3.3		6.0 6.0	6.0	
24-Dec-08	Sunny	Calm	09:53	Surface	1	22.1 22.1	22.1	7.9 7.6	7.8	30.2 30.1	30.2	92.2 89.3	90.8	7.0 6.8	6.9	6.6	1.7 1.6	1.7	1.7	<2.5 <2.5	<2.5	3.3
				Middle	5	21.9 22.0	22.0	8.0 8.1	8.1	30.3 30.3	30.3	81.6 81.6	81.6	6.3 6.3	6.3	6.3	1.5 1.7	1.6		4.0 4.0	4.0	
				Bottom	9	21.5 21.5	21.5	7.6 8.0	7.8	31.0 31.0	31.0	77.6 78.0	77.8	6.1 6.1	6.1	6.1	1.8 1.8	1.8		3.0 4.0	3.5	
27-Dec-08	Sunny	Calm	12:55	Surface	1	21.8 21.8	21.8	8.5 7.6	8.1	29.4 29.4	29.4	93.1 92.8	93.0	6.8 6.8	6.8	6.5	2.1 2.0	2.1	2.5	9.0 10.0	9.5	9.8
				Middle	6	21.7 21.8	21.8	8.2 8.5	8.4	29.8 29.8	29.8	84.8 83.9	84.4	6.2 6.2	6.2	6.2	2.4 2.4	2.4		12.0 12.0	12.0	
				Bottom	11	22.1 22.1	22.1	7.7 7.7	7.7	30.2 30.2	30.2	82.4 82.2	82.3	6.0 6.0	6.0	6.0	2.9 2.8	2.9		8.0 8.0	8.0	

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at intake B - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
29-Dec-08	Cloudy	Moderate	14:22	Surface	1	19.6 19.6	19.6	7.2 7.2	7.2	34.3 34.3	34.3	100.4 100.2	100.3	7.5 7.5	7.5	7.5	2.3 2.1	2.2	2.5	10.0 10.0	10.0	8.8
				Middle	6	19.6 19.6	19.6	7.0 7.3	7.2	34.3 34.3	34.3	100.7 100.3	100.5	7.5 7.5	7.5		2.3 2.5	2.4		8.0 8.0	8.0	
				Bottom	11	19.6 19.6	19.6	7.2 7.3	7.3	34.3 34.3	34.3	105.0 105.1	105.1	7.9 7.9	7.9		2.9 3.1	3.0		8.0 9.0	8.5	
31-Dec-08	Cloudy	Calm	15:32	Surface	1	22.3 22.4	22.4	7.8 7.9	7.9	29.0 29.1	29.1	96.0 95.5	95.8	6.8 6.8	6.8	6.5	3.7 3.8	3.8	4.1	13.0 14.0	13.5	15.2
				Middle	6	22.7 22.7	22.7	8.2 7.8	8.0	29.4 29.7	29.6	86.6 81.4	84.0	6.2 5.9	6.1		3.9 4.0	4.0		18.0 18.0	18.0	
				Bottom	11	22.7 22.7	22.7	8.1 8.3	8.2	30.5 29.7	30.1	84.0 84.6	84.3	6.1 6.1	6.1		4.4 4.4	4.4		14.0 14.0	14.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake B - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Dec-08	Sunny	Calm	09:50	Surface	1	22.4 22.4	22.4	8.2 8.1	8.2	34.2 34.2	34.2	101.3 100.8	101.1	7.2 7.2	7.2	7.2	1.5 1.5	1.5	1.8	9.0 9.0	9.0	8.8
				Middle	6	22.3 22.3	22.3	7.7 7.5	7.6	34.2 34.2	34.2	99.7 99.0	99.4	7.1 7.1	7.1		1.6 1.6	1.6		11.0 11.0	11.0	
				Bottom	11	22.2 22.2	22.2	7.5 7.5	7.5	34.2 34.2	34.2	98.4 98.2	98.3	7.0 7.0	7.0		2.2 2.3	2.3		6.0 7.0	6.5	
3-Dec-08	Sunny	Calm	15:58	Surface	1	22.3 22.3	22.3	7.9 7.8	7.9	31.0 31.0	31.0	85.8 85.8	85.8	6.3 6.3	6.3	6.5	2.0 2.0	2.0	2.3	9.0 8.0	8.5	8.2
				Middle	6	22.8 22.8	22.8	7.8 7.7	7.8	30.3 30.4	30.4	91.3 90.3	90.8	6.8 6.6	6.7		2.4 2.4	2.4		9.0 9.0	9.0	
				Bottom	11	22.5 22.5	22.5	7.9 7.8	7.9	30.8 30.5	30.7	86.6 86.2	86.4	6.4 6.4	6.4		2.5 2.6	2.6		7.0 7.0	7.0	
5-Dec-08	Sunny	Moderate	13:56	Surface	1	22.3 22.3	22.3	8.1 8.0	8.1	31.4 31.4	31.4	95.3 95.2	95.3	6.7 6.6	6.7	6.5	2.0 2.1	2.1	2.6	14.0 13.0	13.5	9.5
				Middle	6	22.3 22.3	22.3	7.8 7.9	7.9	31.4 31.4	31.4	86.1 85.5	85.8	6.2 6.2	6.2		2.6 2.8	2.7		7.0 7.0	7.0	
				Bottom	11	22.3 22.3	22.3	8.0 7.8	7.9	31.4 31.0	31.2	84.4 84.2	84.3	6.2 6.2	6.2		2.8 2.9	2.9		8.0 8.0	8.0	
8-Dec-08	Sunny	Calm	14:32	Surface	1	24.1 24.0	24.1	8.1 7.9	8.0	31.2 31.3	31.3	98.6 98.5	98.6	7.2 7.2	7.2	7.2	2.9 2.9	2.9	3.4	5.0 5.0	5.0	7.8
				Middle	6	23.9 23.9	23.9	7.9 7.8	7.9	31.4 31.6	31.5	97.1 96.6	96.9	7.1 7.1	7.1		3.4 3.5	3.5		5.0 6.0	5.5	
				Bottom	11	23.6 23.6	23.6	7.8 7.8	7.8	30.9 30.4	30.7	90.5 90.3	90.4	6.5 6.5	6.5		3.7 3.8	3.8		6.0 6.0	6.0	
10-Dec-08	Sunny	Calm	15:30	Surface	1	23.2 23.2	23.2	7.8 7.7	7.8	31.6 31.6	31.6	98.4 99.0	98.7	7.4 7.4	7.4	7.4	2.4 2.4	2.4	2.7	10.0 10.0	10.0	8.8
				Middle	6	23.1 23.1	23.1	7.6 7.5	7.6	31.8 32.1	32.0	99.1 96.5	97.8	7.5 7.1	7.3		2.6 2.7	2.7		7.0 8.0	7.5	
				Bottom	11	22.8 22.8	22.8	7.5 7.6	7.6	32.0 31.5	31.8	94.2 94.2	94.2	6.9 6.9	6.9		2.9 3.0	3.0		9.0 9.0	9.0	
12-Dec-08	Sunny	Calm	17:09	Surface	1	22.5 22.5	22.5	8.7 8.5	8.6	30.8 30.8	30.8	90.4 90.2	90.3	6.6 6.3	6.5	6.5	2.8 3.0	2.9	3.6	11.0 11.0	11.0	14.8
				Middle	6	22.3 22.4	22.4	8.3 8.2	8.3	30.8 30.8	30.8	84.5 83.6	84.1	6.5 6.5	6.5		3.7 3.8	3.8		16.0 15.0	15.5	
				Bottom	11	22.3 22.3	22.3	8.2 8.1	8.2	30.9 30.9	30.9	82.2 81.9	82.1	6.4 6.4	6.4		4.1 4.2	4.2		18.0 18.0	18.0	
15-Dec-08	Sunny	Moderate	10:58	Surface	1	22.4 22.4	22.4	8.3 8.2	8.3	31.1 31.1	31.1	92.8 92.7	92.8	6.9 6.7	6.8	6.8	2.0 2.0	2.0	2.9	8.0 7.0	7.5	6.8
				Middle	6	22.3 22.3	22.3	8.0 7.8	7.9	31.1 31.1	31.1	85.3 84.5	84.9	6.7 6.6	6.7		3.1 3.1	3.1		7.0 7.0	7.0	
				Bottom	11	22.3 22.3	22.3	7.8 7.8	7.8	31.1 30.9	31.0	83.3 83.0	83.2	6.6 6.6	6.6		3.4 3.5	3.5		6.0 6.0	6.0	
17-Dec-08	Sunny	Calm	11:32	Surface	1	22.1 22.1	22.1	8.5 8.3	8.4	30.4 30.4	30.4	93.8 93.5	93.7	6.5 6.5	6.5	6.5	2.8 2.9	2.9	3.5	<2.5 <2.5	<2.5	2.8
				Middle	6	21.8 21.9	21.9	8.0 7.7	7.9	30.5 30.5	30.5	90.9 89.7	90.3	6.4 6.3	6.4		3.0 3.1	3.1		3.0 3.0	3.0	
				Bottom	11	21.8 21.8	21.8	7.8 7.7	7.8	30.7 30.7	30.7	88.0 87.5	87.8	6.2 6.1	6.2		4.4 4.7	4.6		3.0 3.0	3.0	
19-Dec-08	Sunny	Calm	13:26	Surface	1	22.3 22.4	22.4	8.6 8.3	8.5	32.3 32.3	32.3	103.0 103.0	103.0	6.9 6.9	6.9	6.4	2.7 2.8	2.8	3.2	8.0 8.0	8.0	8.2
				Middle	6	22.7 22.7	22.7	8.2 8.2	8.2	32.2 32.1	32.2	88.1 88.1	88.1	5.9 5.9	5.9		3.3 3.4	3.4		11.0 11.0	11.0	
				Bottom	11	22.7 22.7	22.7	8.0 7.8	7.9	32.0 30.9	31.5	90.7 89.9	90.3	6.2 6.0	6.1		3.3 3.3	3.3		5.0 6.0	5.5	
22-Dec-08	Sunny	Calm	15:06	Surface	1	21.7 21.7	21.7	8.6 8.3	8.5	31.4 31.4	31.4	94.9 94.7	94.8	6.4 6.4	6.4	6.4	3.3 3.0	3.2	3.6	6.0 7.0	6.5	6.3
				Middle	6	21.7 21.7	21.7	8.1 7.7	7.9	31.3 31.3	31.3	91.0 91.4	91.2	6.3 6.3	6.3		3.6 3.7	3.7		6.0 6.0	6.0	
				Bottom	11	21.7 21.7	21.7	7.7 7.6	7.7	31.3 30.8	31.1	92.3 92.2	92.3	6.3 6.3	6.3		3.8 4.0	3.9		6.0 7.0	6.5	
24-Dec-08	Sunny	Calm	16:25	Surface	1	22.5 22.5	22.5	7.8 7.8	7.8	28.9 28.9	28.9	94.9 94.4	94.7	7.2 7.1	7.2	7.0	1.7 1.8	1.8	2.2	3.0 3.0	3.0	3.2
				Middle	6	22.2 22.1	22.2	7.6 7.7	7.7	29.6 29.7	29.7	87.3 86.3	86.8	6.7 6.6	6.7		2.3 2.4	2.4		4.0 3.0	3.5	
				Bottom	11	21.9 21.9	21.9	7.7 7.7	7.7	30.0 30.0	30.0	80.8 80.5	80.7	6.2 6.2	6.2		2.3 2.3	2.3		3.0 3.0	3.0	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

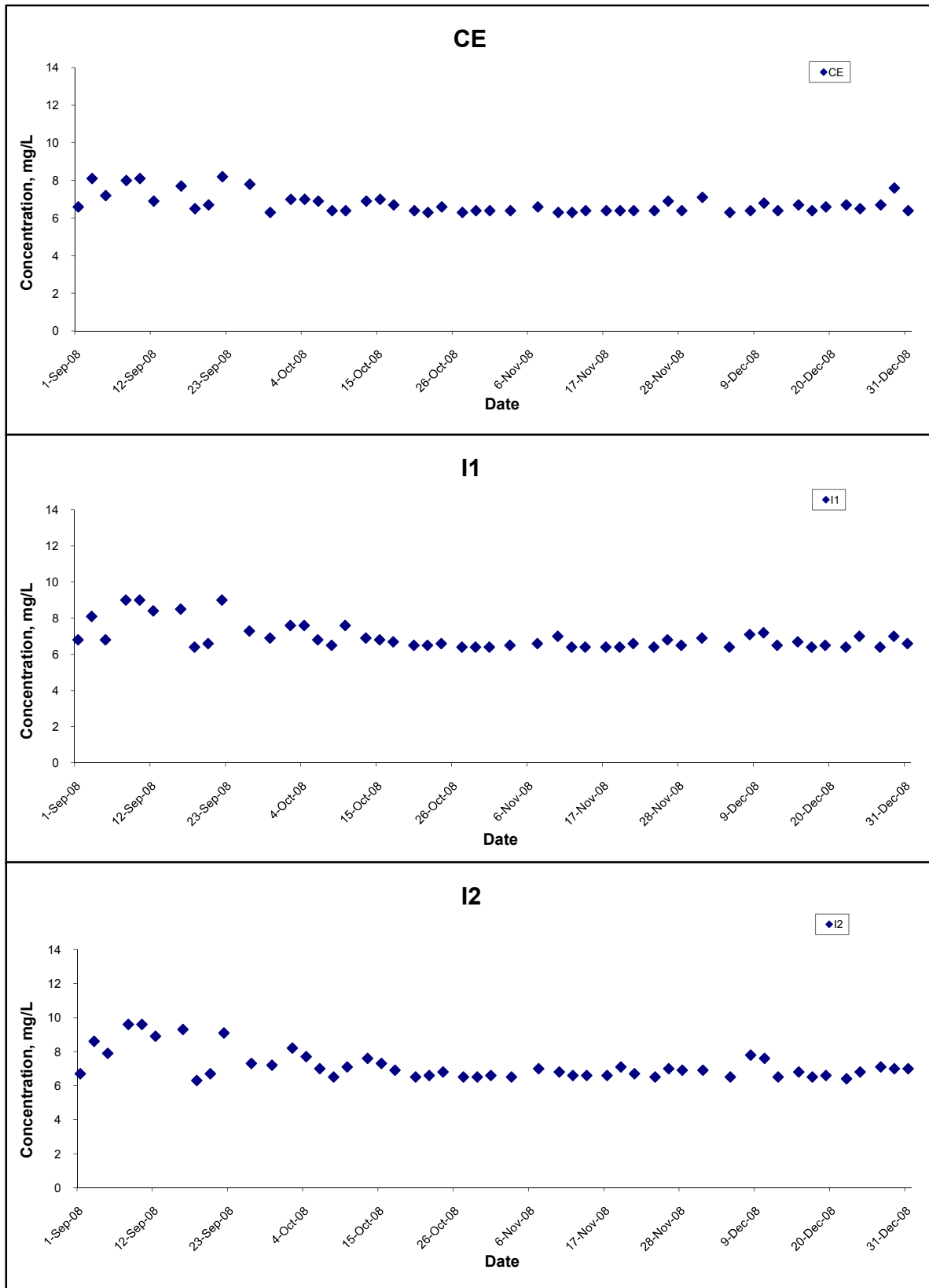
Water Quality Monitoring Results at Intake B - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
27-Dec-08	Sunny	Calm	09:05	Surface	1	21.7 21.7	21.7	8.6 8.5	8.6	29.8 29.8	29.8	95.4 95.4	95.4	6.9 7.0	7.0	7.0	1.7 1.7	1.7	2.2	11.0 11.0	11.0	13.0
				Middle	6	21.5 21.5	21.5	8.1 7.6	7.9	29.9 29.9	29.9	94.3 94.5	94.4	6.9 6.9	6.9		2.2 2.3	2.3		15.0 15.0	15.0	
				Bottom	11	21.5 21.5	21.5	7.7 7.5	7.6	30.0 30.1	30.1	95.9 96.5	96.2	7.0 7.0	7.0		2.7 2.7	2.7		13.0 13.0	13.0	
29-Dec-08	Cloudy	Moderate	09:23	Surface	1	19.7 19.7	19.7	7.1 7.3	7.2	34.3 34.3	34.3	98.3 98.8	98.6	7.4 7.4	7.4	7.4	2.6 2.4	2.5	2.9	11.0 11.0	11.0	10.5
				Middle	6	19.6 19.6	19.6	7.7 7.2	7.5	34.3 34.3	34.3	97.5 99.3	98.4	7.3 7.4	7.4		2.6 2.8	2.7		8.0 9.0	8.5	
				Bottom	11	19.6 19.6	19.6	7.2 8.1	7.7	34.3 34.3	34.3	104.8 104.7	104.8	7.9 7.8	7.9		3.2 3.5	3.4		12.0 12.0	12.0	
31-Dec-08	Cloudy	Calm	09:23	Surface	1	22.3 22.4	22.4	8.5 8.3	8.4	32.0 32.0	32.0	88.2 89.5	88.9	6.6 6.7	6.7	6.7	2.7 2.8	2.8	3.2	12.0 12.0	12.0	15.3
				Middle	5	22.7 22.7	22.7	8.2 8.0	8.1	32.1 32.6	32.4	91.2 86.5	88.9	7.0 6.2	6.6		3.3 3.4	3.4		16.0 16.0	16.0	
				Bottom	9	22.7 22.7	22.7	8.0 7.9	8.0	33.1 32.6	32.9	88.0 88.2	88.1	6.3 6.4	6.4		3.3 3.3	3.3		18.0 18.0	18.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

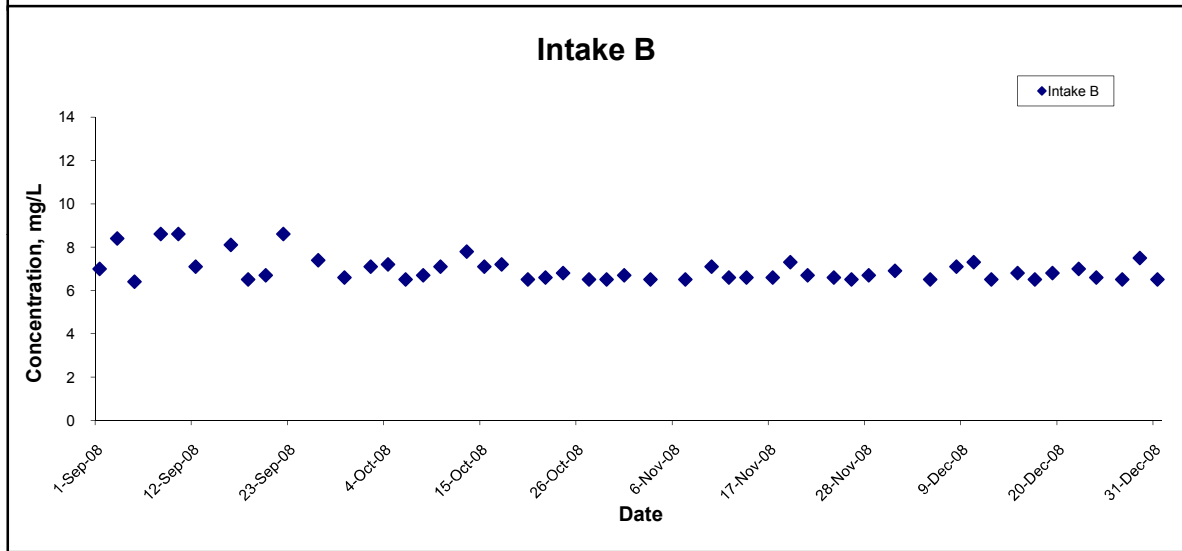
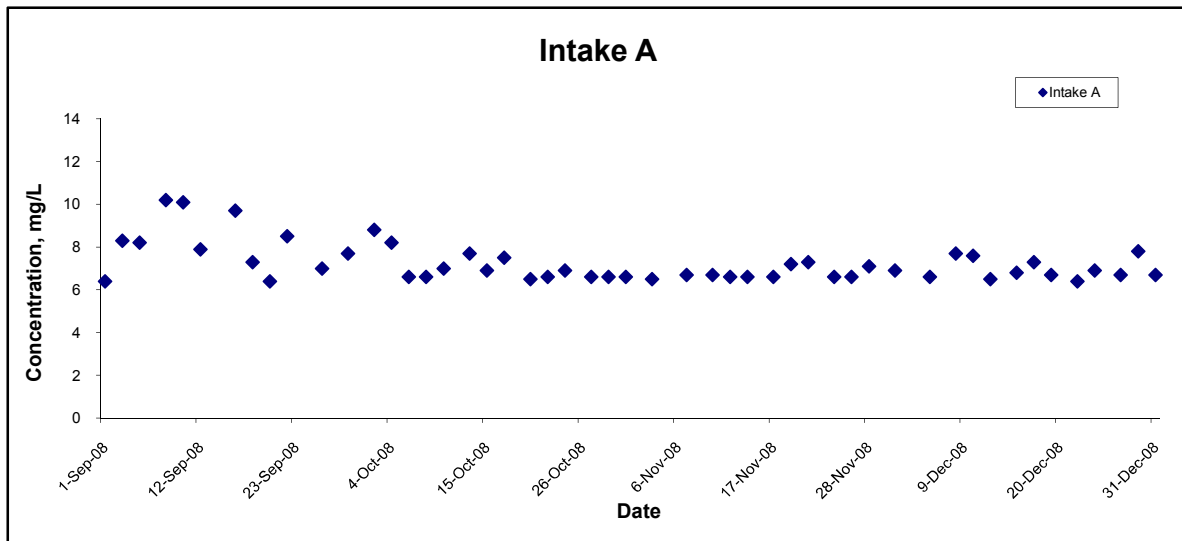
Remarks: * DA: Depth-Averaged
 ** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



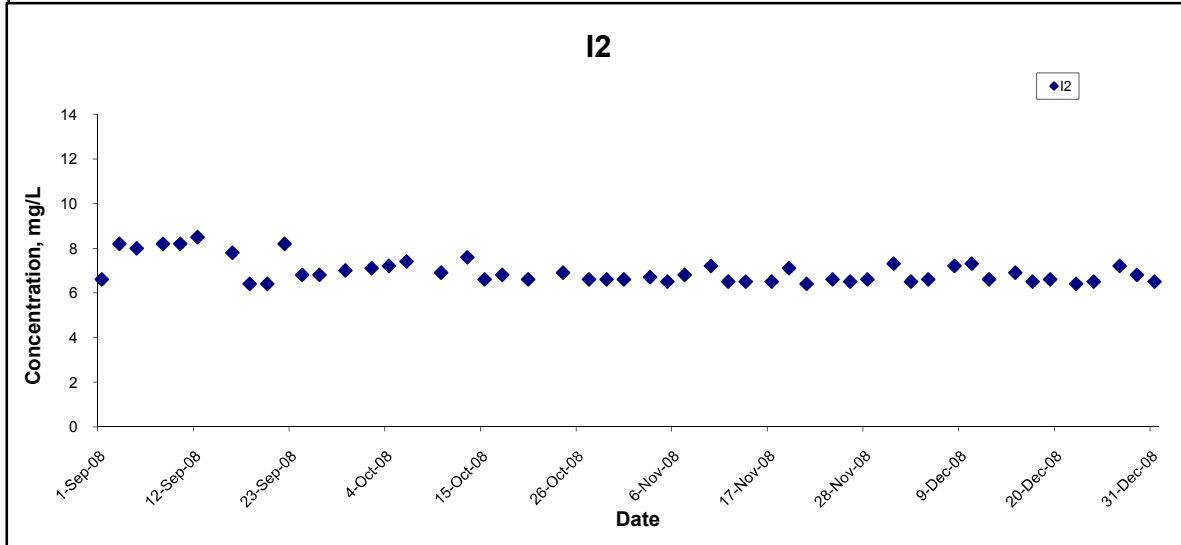
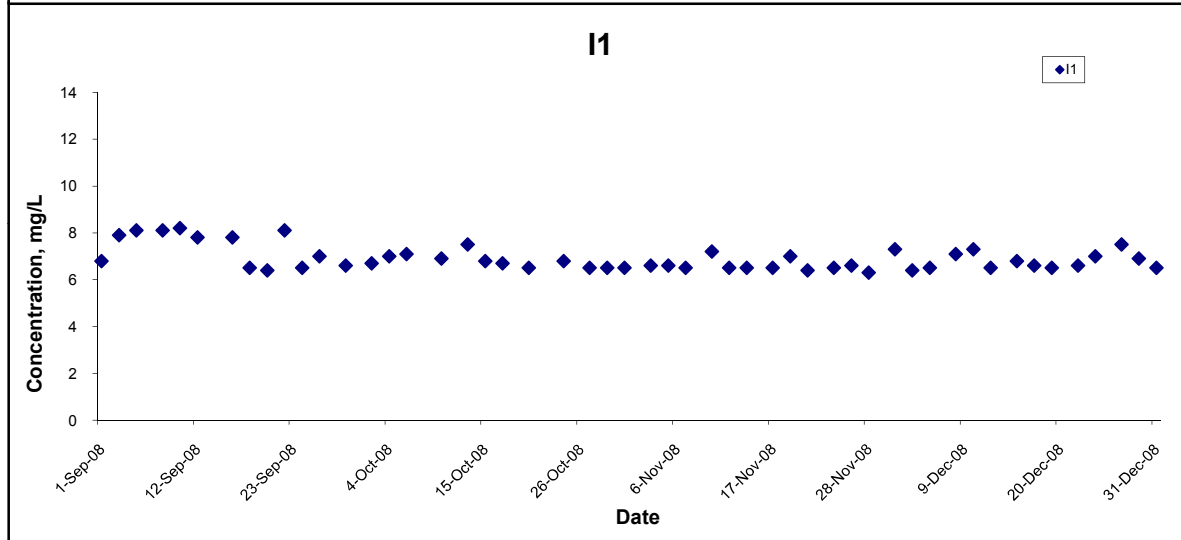
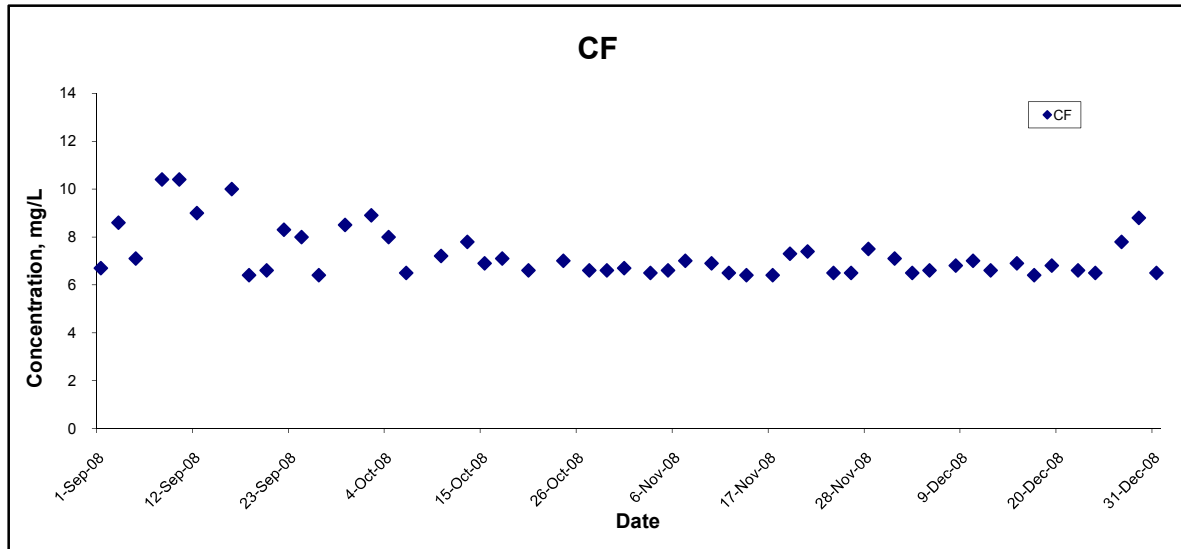
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No. MA8001	CINOTECH
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Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



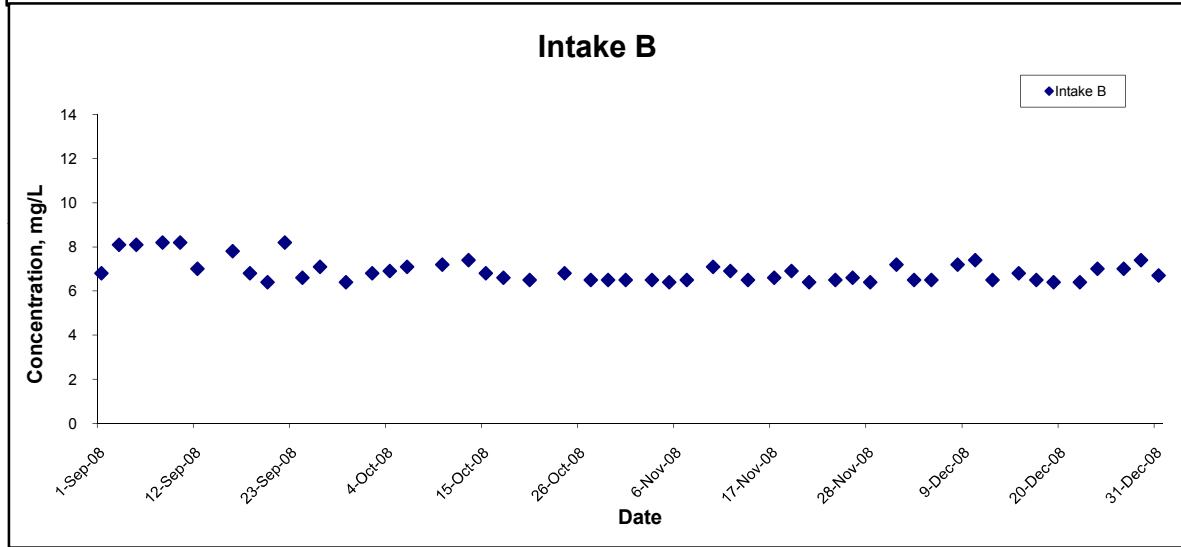
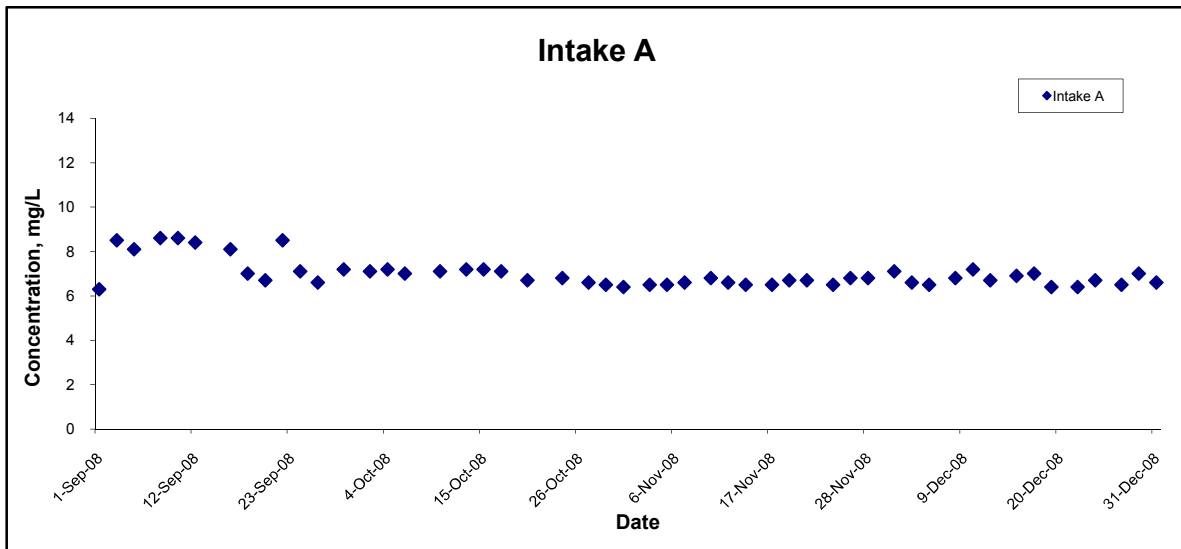
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date Dec 08	Appendix H	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



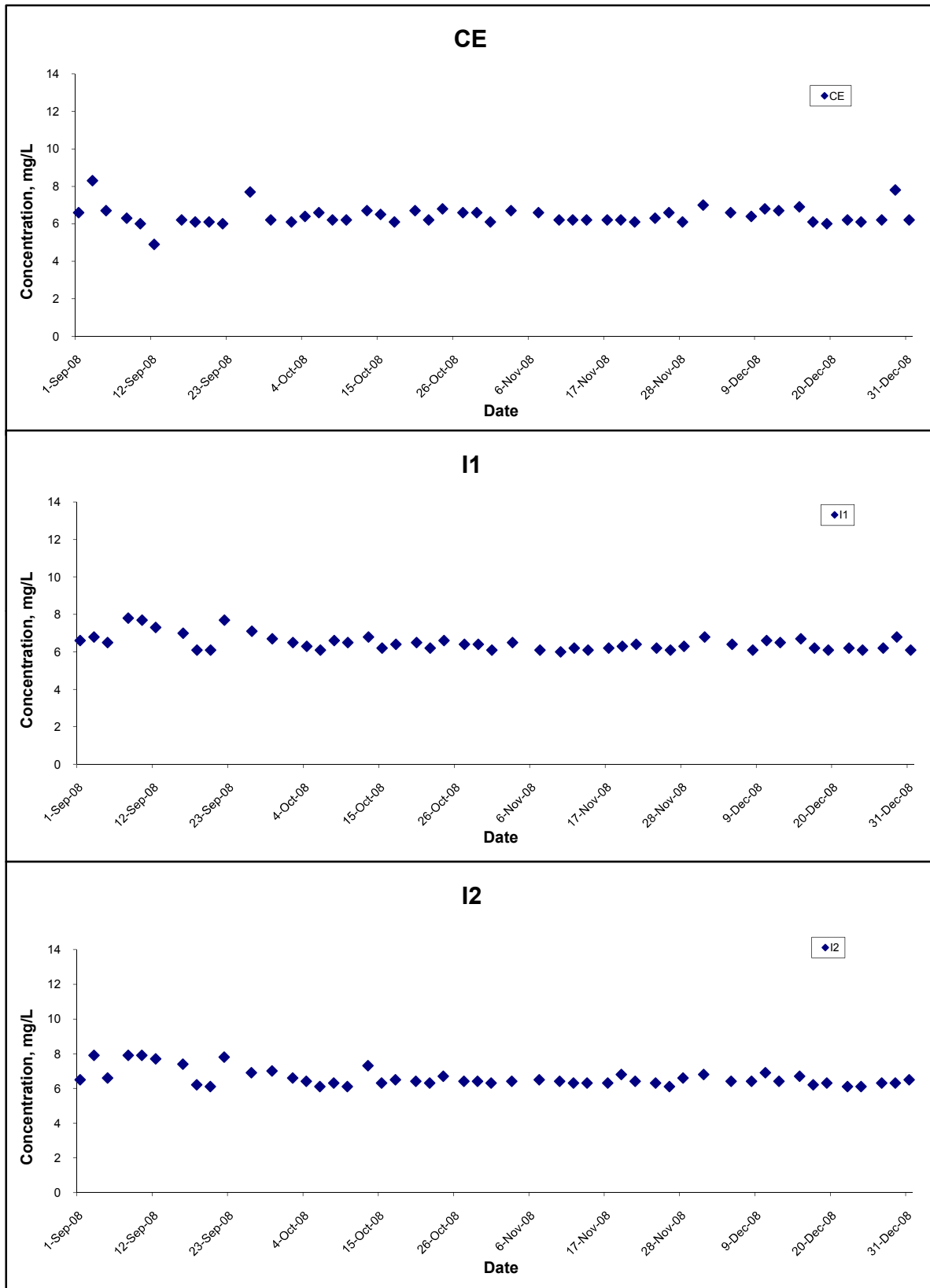
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	
	Date Dec 08	Appendix H	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



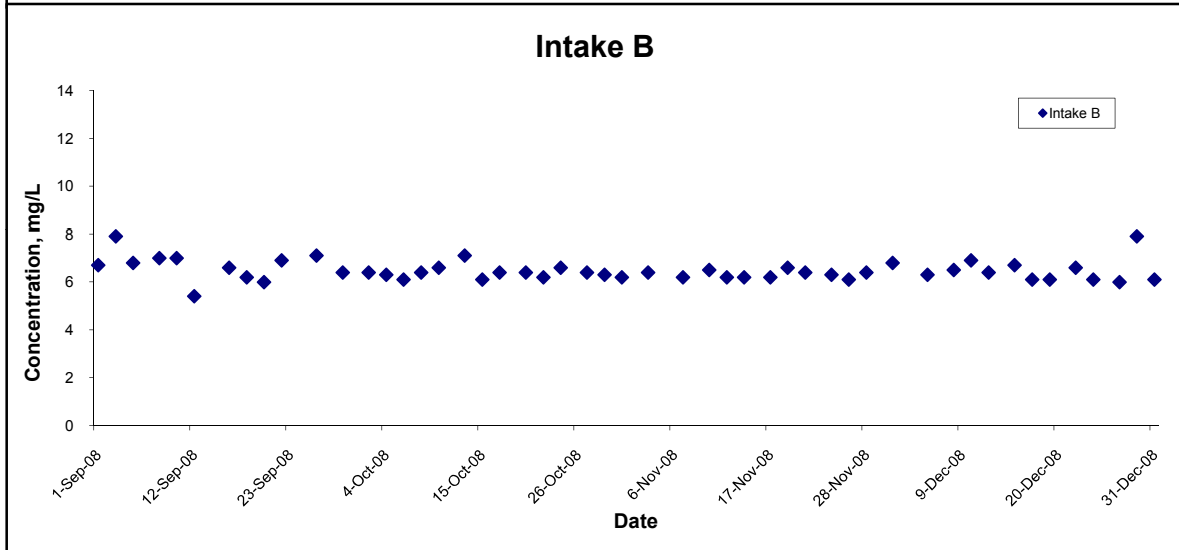
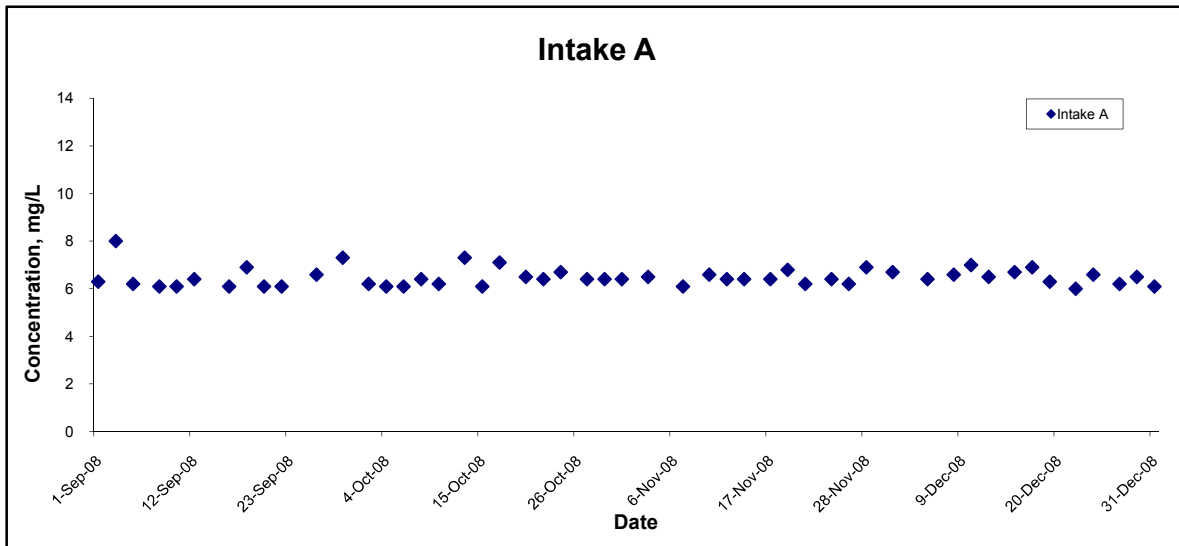
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 Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 Graphical Presentation of Water Quality
 Monitoring Results

Scale
 N.T.S
 Date
 Dec 08

Project
 No. MA8001
 Appendix
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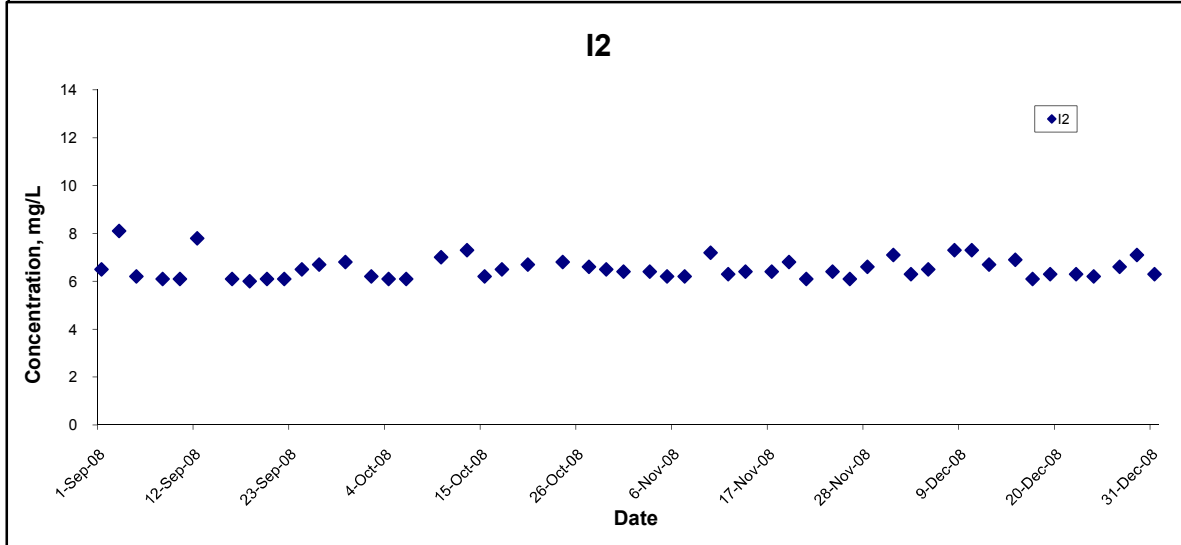
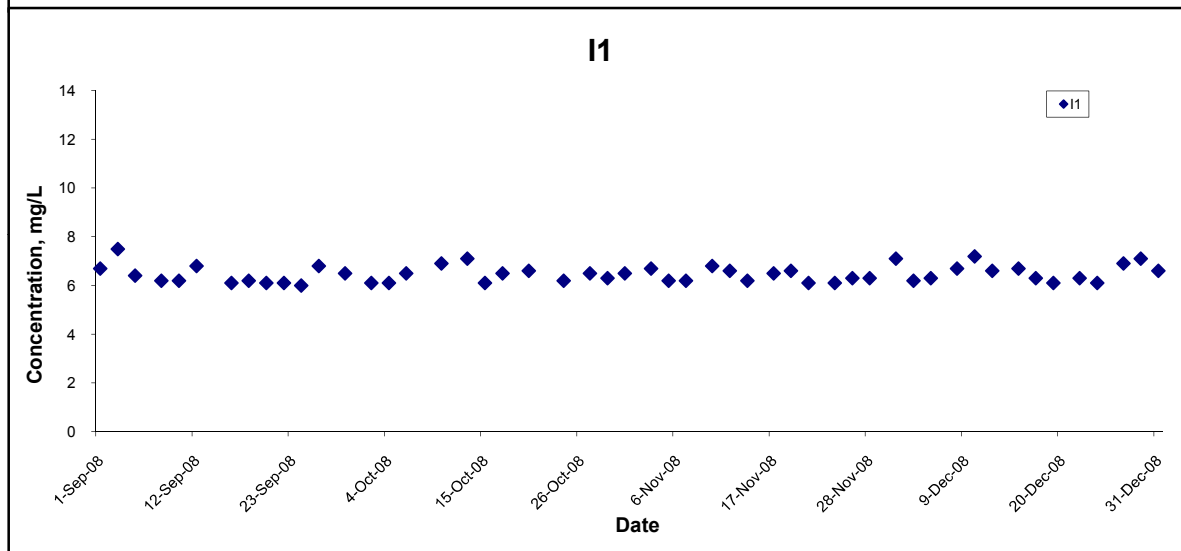
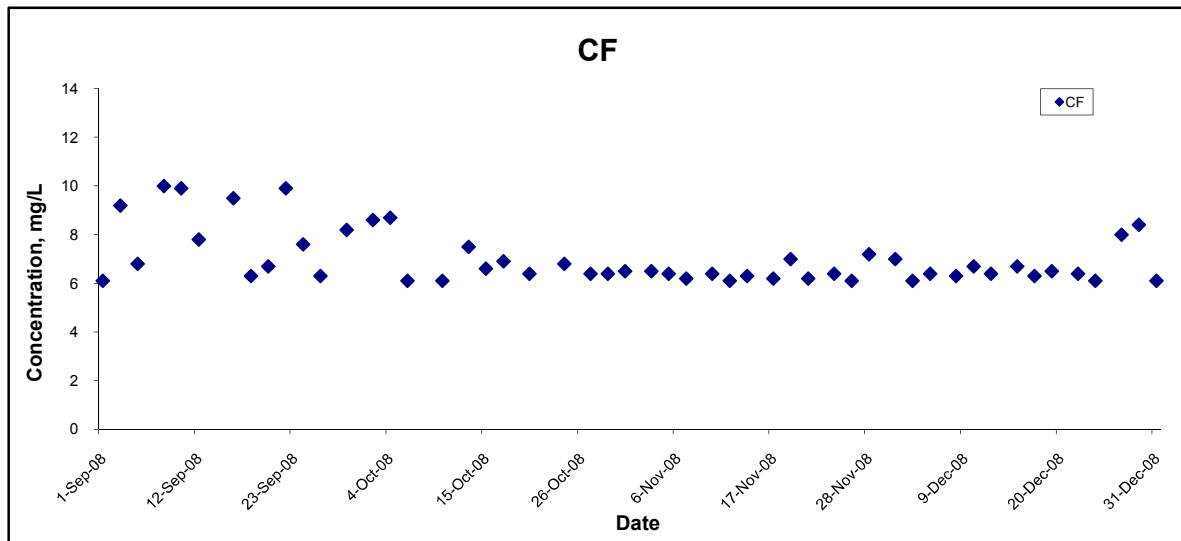


Dissolved Oxygen (Bottom) at Mid-Ebb Tide



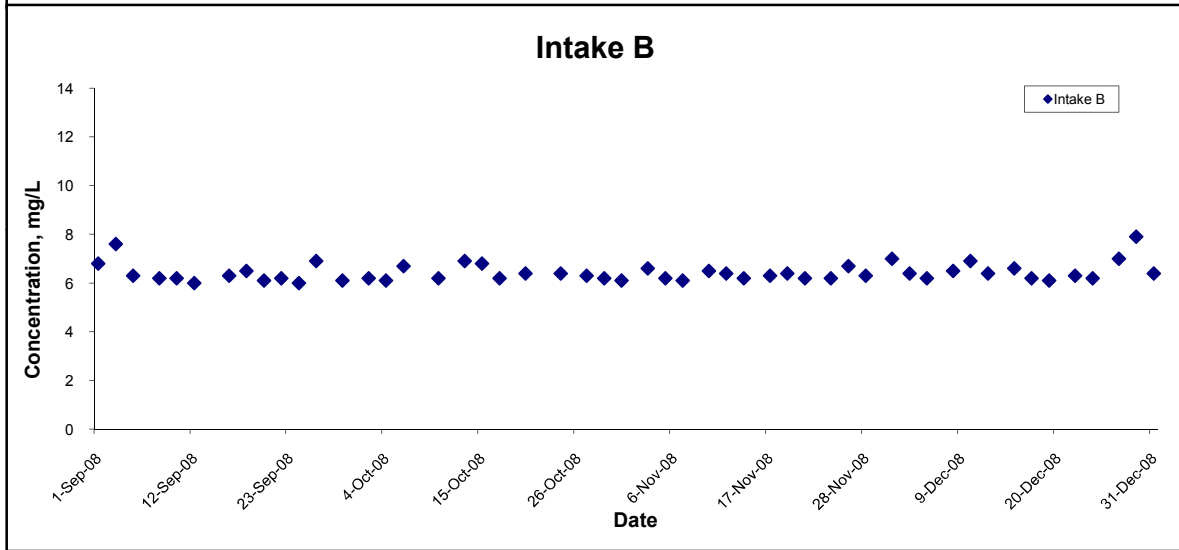
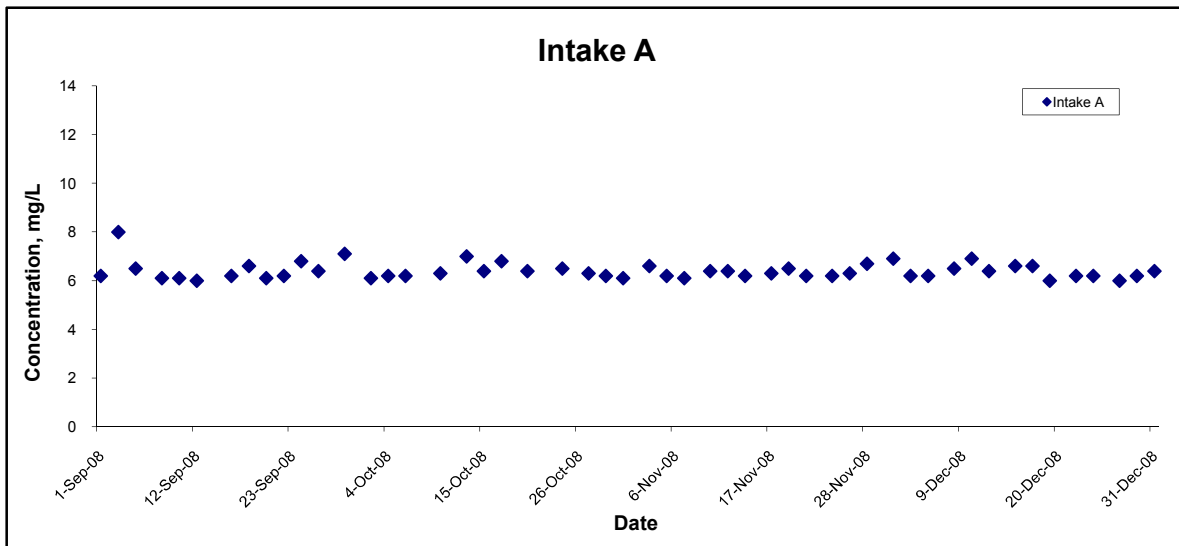
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



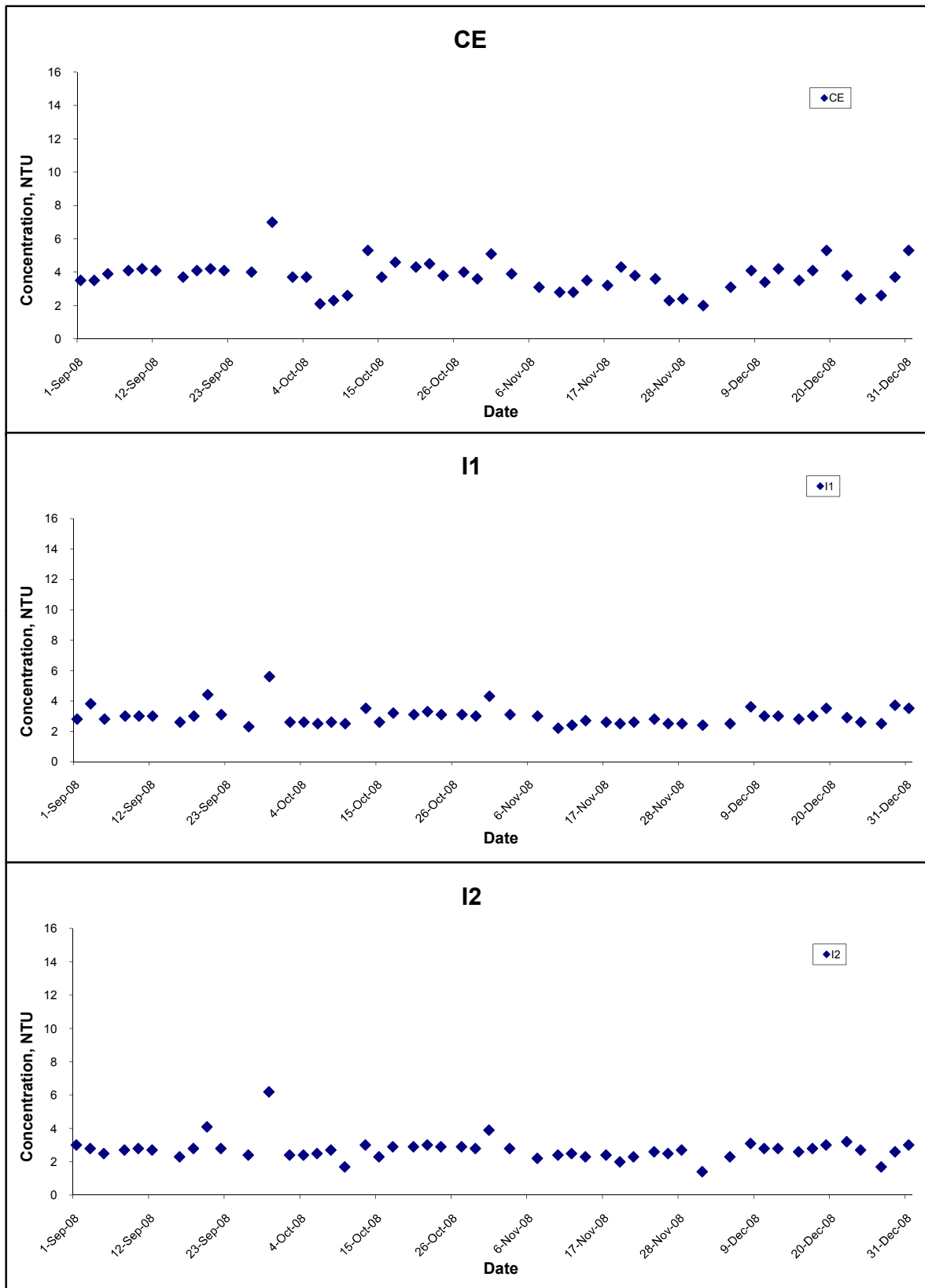
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date Dec 08	Appendix H	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



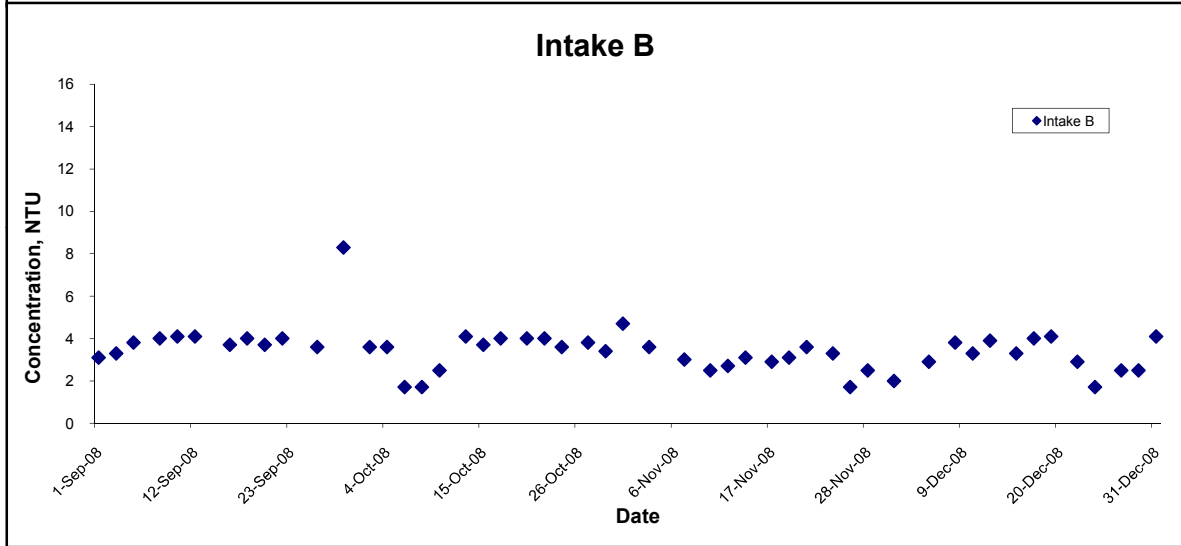
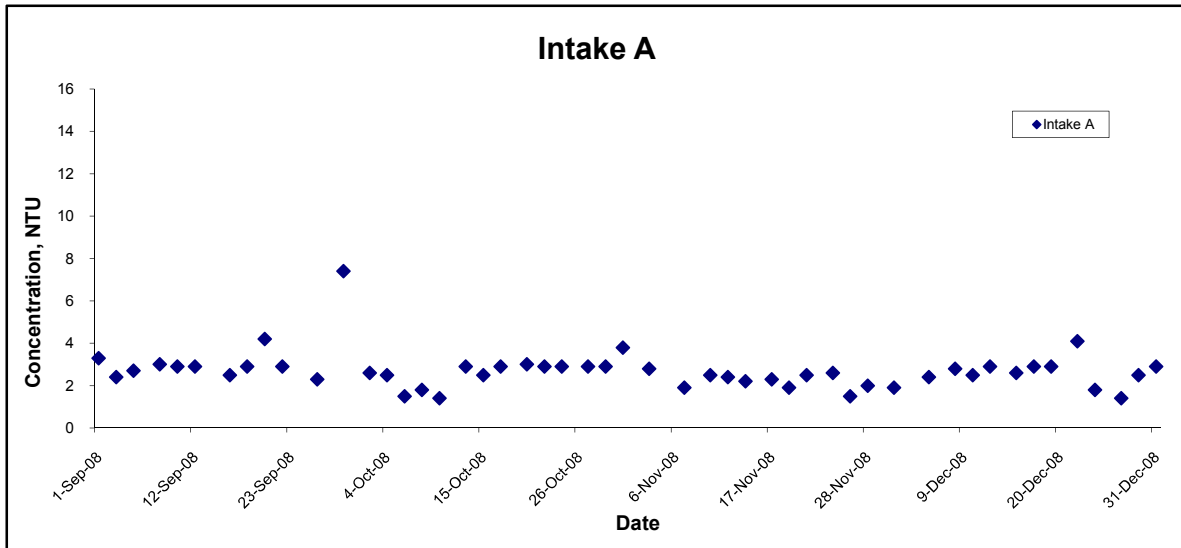
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
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Turbidity (Depth-averaged) at Mid-Ebb Tide



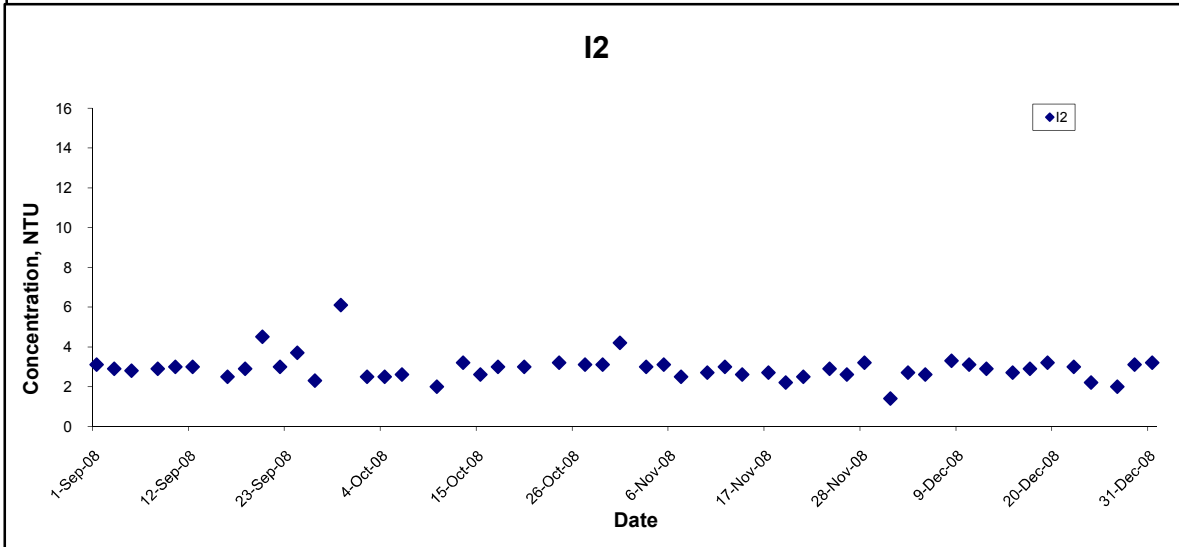
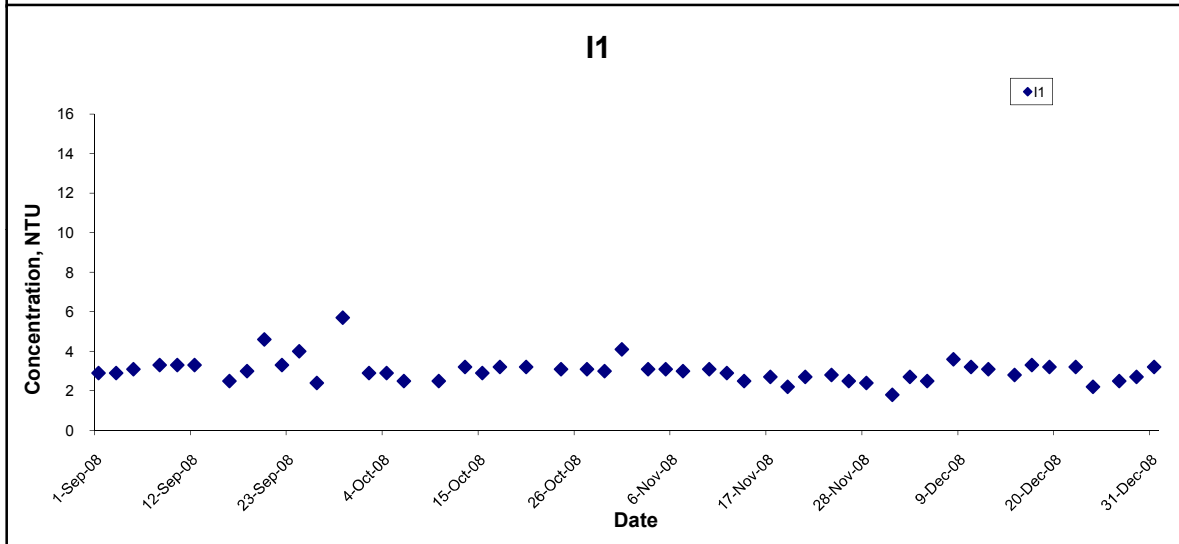
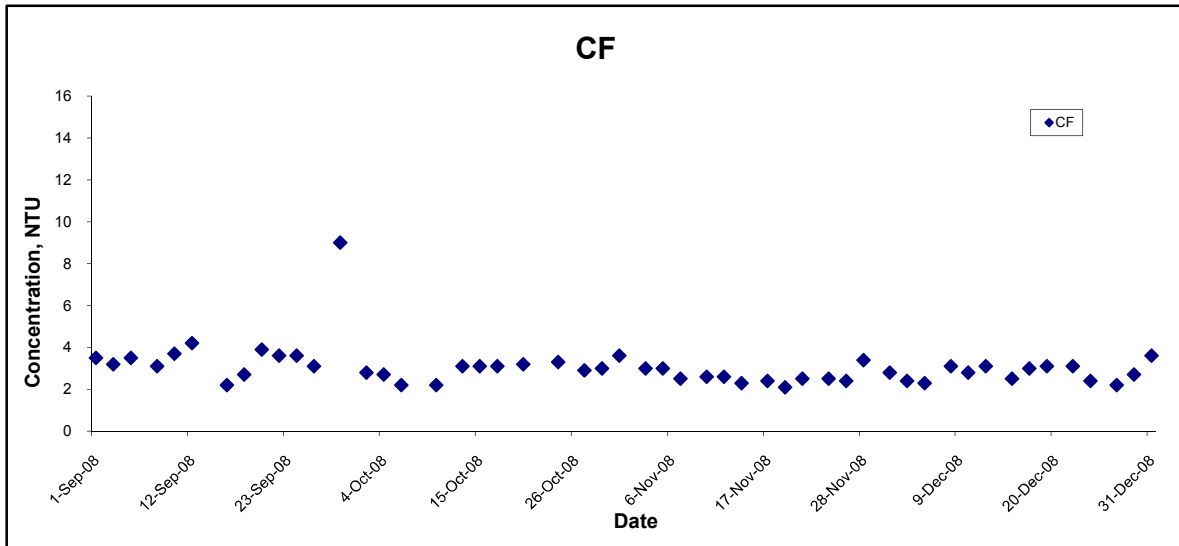
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
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Turbidity (Depth-averaged) at Mid-Ebb Tide



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
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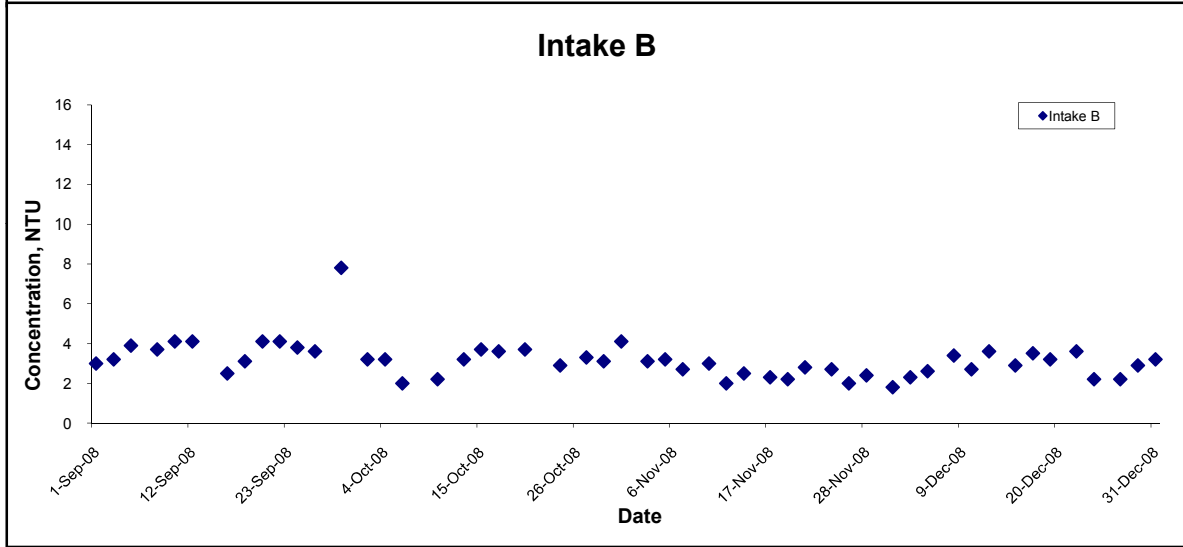
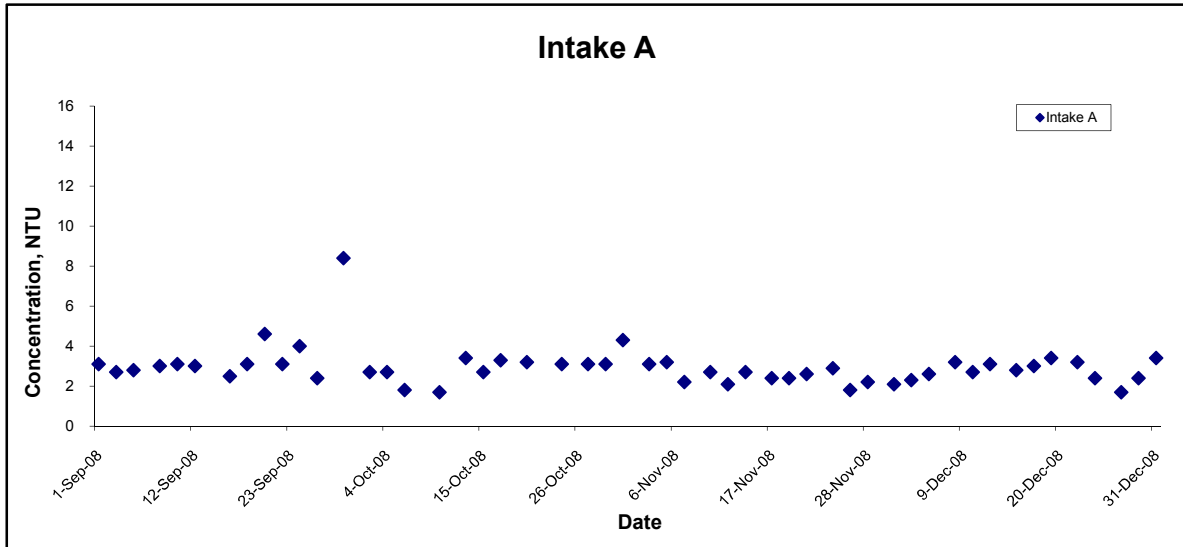
Turbidity (Depth-averaged) at Mid-Flood Tide



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No.	MA8001
	Date	Dec 08	Appendix	H

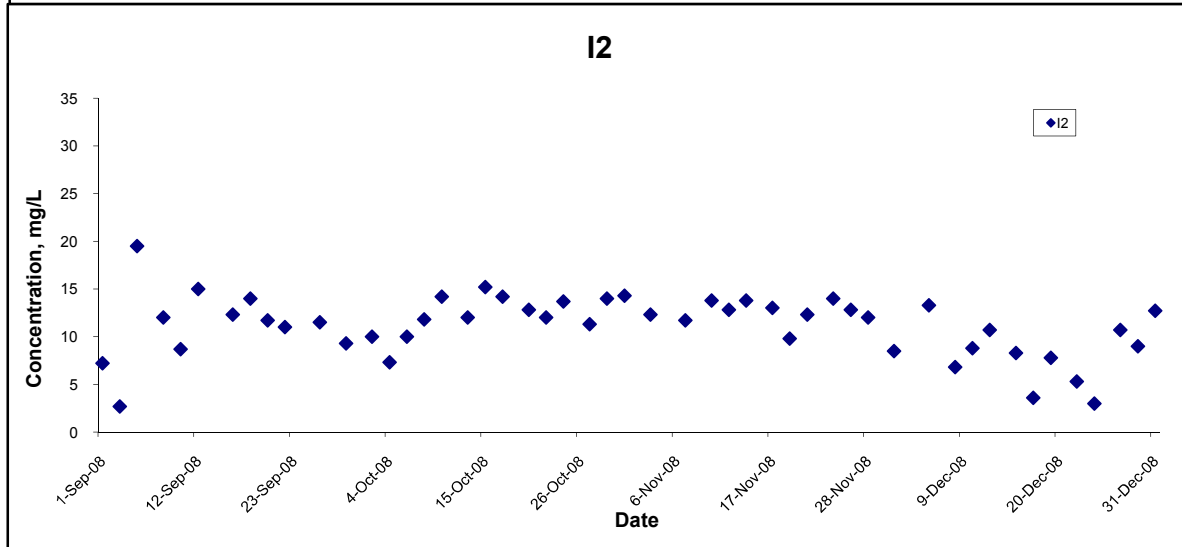
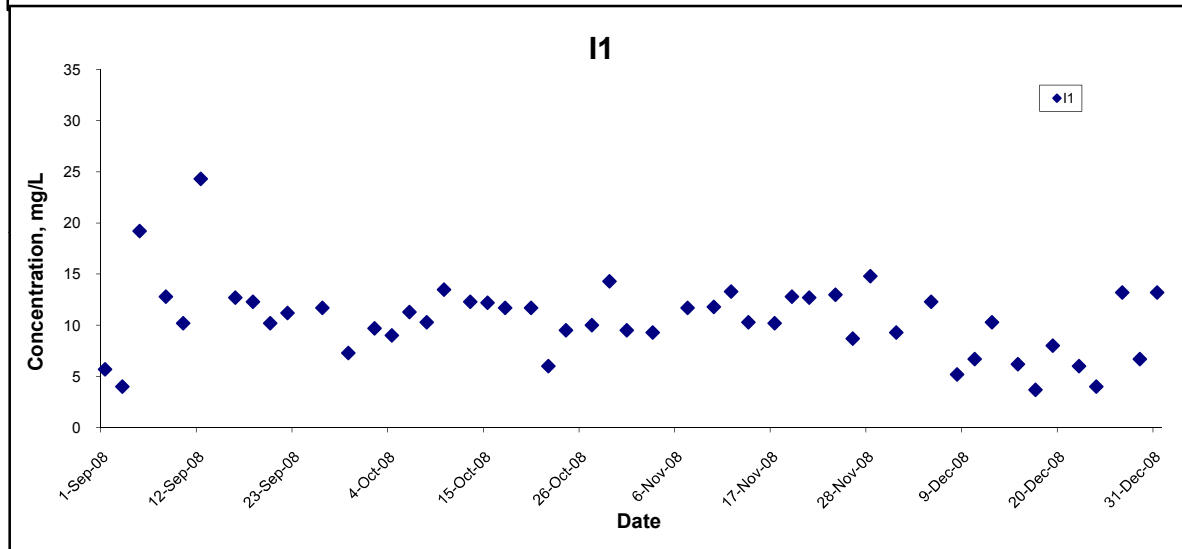
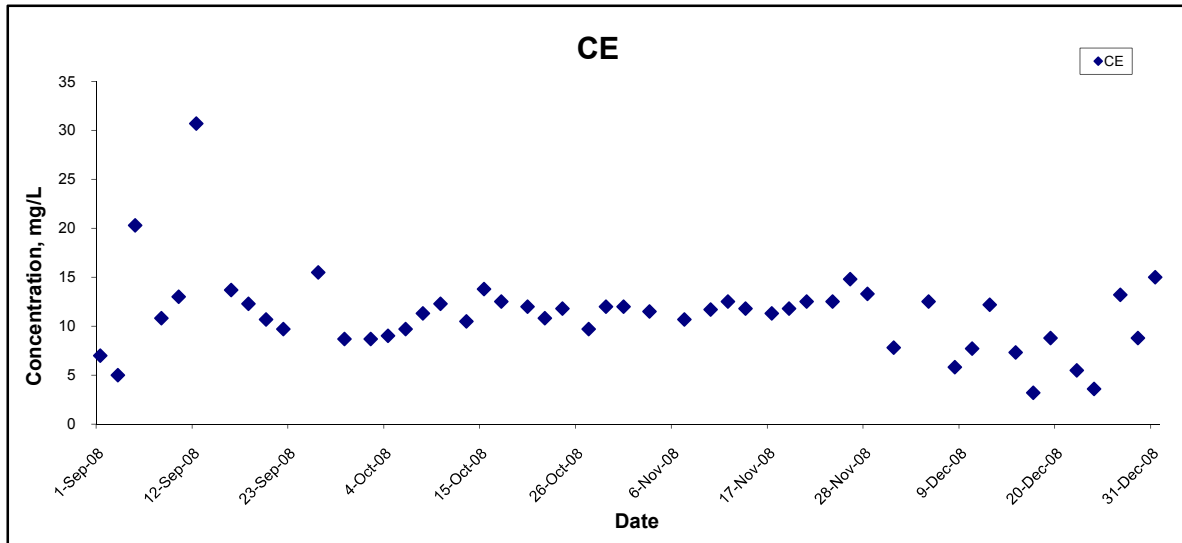
CINOTECH

Turbidity (Depth-averaged) at Mid-Flood Tide



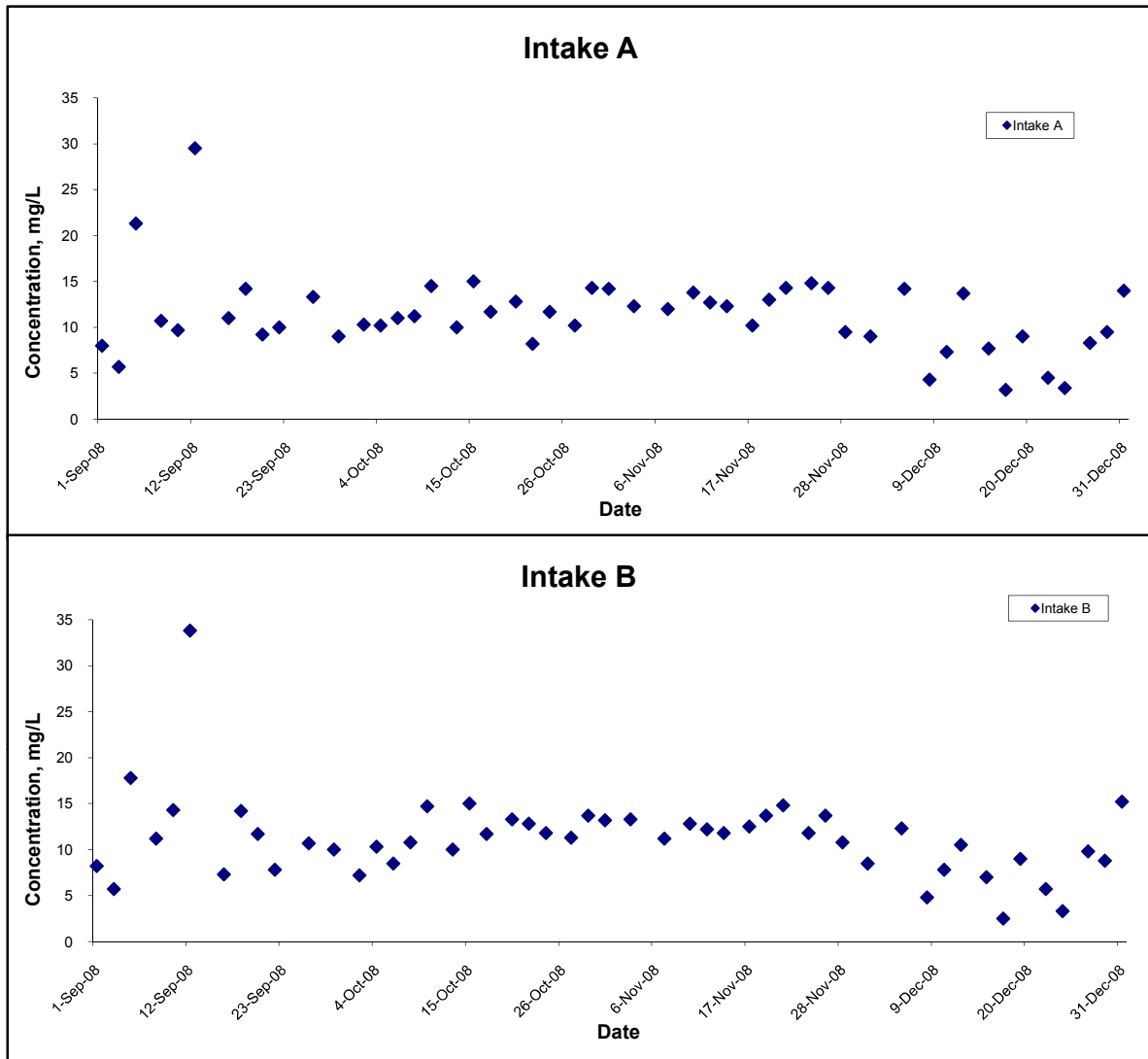
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



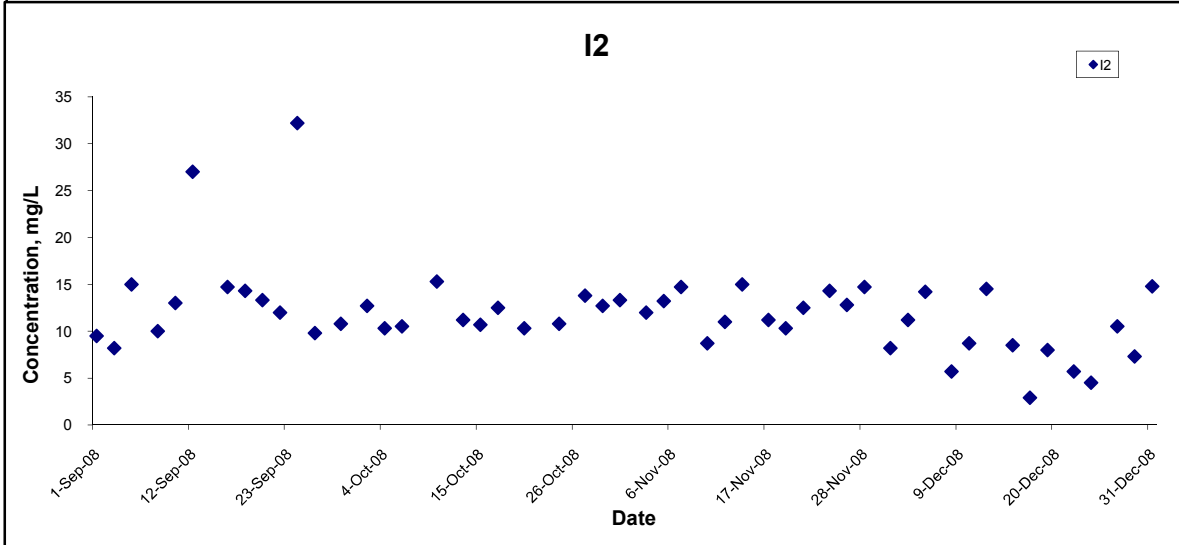
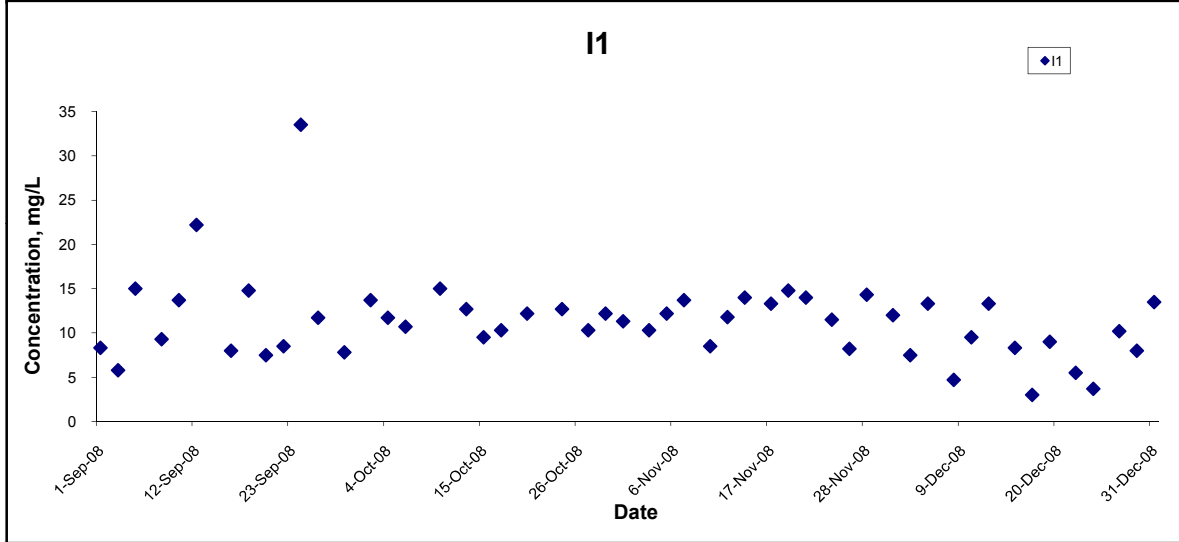
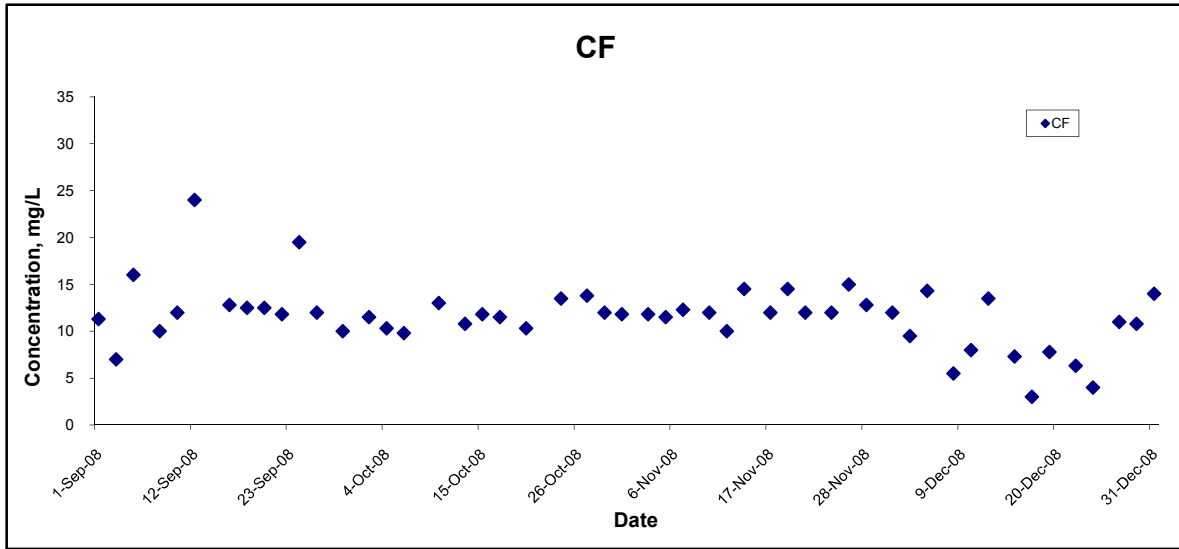
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



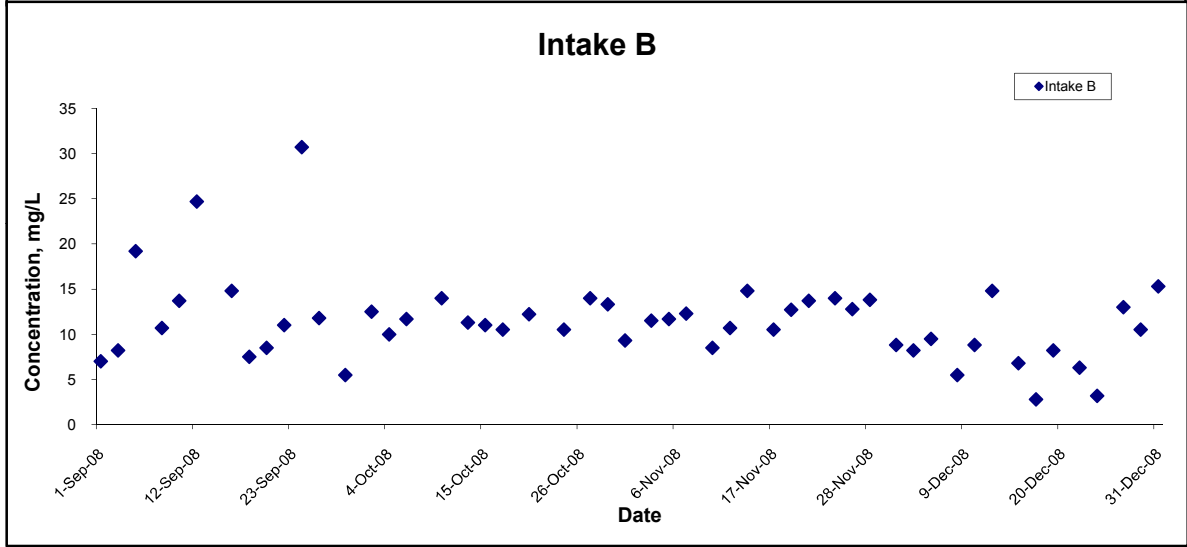
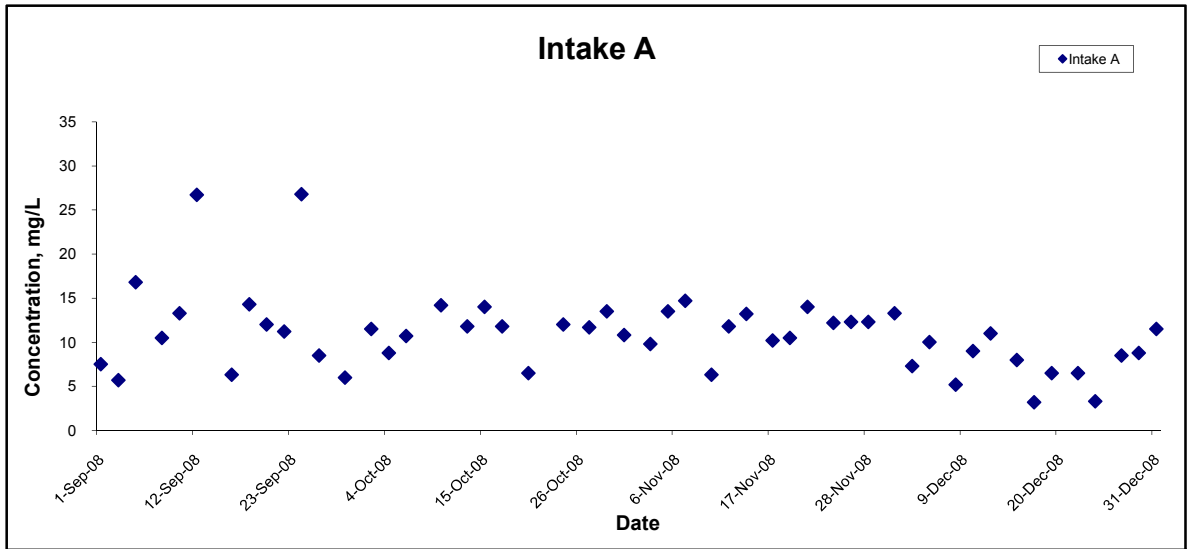
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



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Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No. MA8001	CINOTECH
	Date	Dec 08	Appendix H	

**APPENDIX I
SUMMARY OF EXCEEDANCE**

Contract No. DC/2007/10 – Design and Construction of Hong Kong West Drainage Tunnel

Exceedance Report

Eastern Portal

**(A) Exceedance Report for Air Quality (1 hour TSP)
(NIL in the reporting month)**

**(B) Exceedance Report for Air Quality (24 hours TSP)
(NIL in the reporting month)**

**(C) Exceedance Report for Construction Noise
(NIL in the reporting month)**

Western Portal

**(D) Exceedance Report for Air Quality (1 hour TSP)
(NIL in the reporting month)**

**(E) Exceedance Report for Air Quality (24 hours TSP)
(NIL in the reporting month)**

**(F) Exceedance Report for Construction Noise
(NIL in the reporting month)**

**(G) Exceedance Report for Water Quality
(NIL in the reporting month)**

APPENDIX J
WIND DATA

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
1-Dec-2008	00:00	1.3	W
1-Dec-2008	01:00	1.2	W
1-Dec-2008	02:00	1.0	W
1-Dec-2008	03:00	1.2	W
1-Dec-2008	04:00	1.2	W
1-Dec-2008	05:00	1.2	W
1-Dec-2008	06:00	1.0	W
1-Dec-2008	07:00	0.9	W
1-Dec-2008	08:00	0.9	WSW
1-Dec-2008	09:00	1.0	WSW
1-Dec-2008	10:00	1.0	WSW
1-Dec-2008	11:00	1.2	WSW
1-Dec-2008	12:00	1.3	WSW
1-Dec-2008	13:00	1.3	WSW
1-Dec-2008	14:00	1.3	WSW
1-Dec-2008	15:00	1.4	SW
1-Dec-2008	16:00	1.4	SSW
1-Dec-2008	17:00	1.2	SSE
1-Dec-2008	18:00	1.1	SW
1-Dec-2008	19:00	1.1	W
1-Dec-2008	20:00	1.1	SW
1-Dec-2008	21:00	1.2	SSE
1-Dec-2008	22:00	1.3	SSE
1-Dec-2008	23:00	1.4	E
2-Dec-2008	00:00	1.5	E
2-Dec-2008	01:00	1.4	NE
2-Dec-2008	02:00	1.5	NNE
2-Dec-2008	03:00	1.0	NE
2-Dec-2008	04:00	1.4	NNE
2-Dec-2008	05:00	1.1	NNE
2-Dec-2008	06:00	1.0	NE
2-Dec-2008	07:00	1.0	NE
2-Dec-2008	08:00	0.9	NE
2-Dec-2008	09:00	0.9	NE
2-Dec-2008	10:00	1.1	ENE
2-Dec-2008	11:00	1.3	NE
2-Dec-2008	12:00	1.3	ENE
2-Dec-2008	13:00	1.1	ENE
2-Dec-2008	14:00	1.2	E
2-Dec-2008	15:00	1.6	E
2-Dec-2008	16:00	1.3	SW
2-Dec-2008	17:00	1.2	E
2-Dec-2008	18:00	1.1	ENE
2-Dec-2008	19:00	0.8	WSW
2-Dec-2008	20:00	0.8	WNW
2-Dec-2008	21:00	1.2	W
2-Dec-2008	22:00	1.3	SW
2-Dec-2008	23:00	1.1	SW
3-Dec-2008	00:00	1.2	W
3-Dec-2008	01:00	1.4	SSW
3-Dec-2008	02:00	1.3	S
3-Dec-2008	03:00	1.1	S
3-Dec-2008	04:00	1.4	SE
3-Dec-2008	05:00	1.1	SE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
3-Dec-2008	06:00	0.6	ESE
3-Dec-2008	07:00	0.5	ESE
3-Dec-2008	08:00	0.5	ESE
3-Dec-2008	09:00	0.9	SE
3-Dec-2008	10:00	1.0	SSE
3-Dec-2008	11:00	0.9	SSE
3-Dec-2008	12:00	1.1	WNW
3-Dec-2008	13:00	1.2	W
3-Dec-2008	14:00	1.1	WNW
3-Dec-2008	15:00	1.1	WNW
3-Dec-2008	16:00	1.1	N
3-Dec-2008	17:00	1.0	NNE
3-Dec-2008	18:00	0.7	NE
3-Dec-2008	19:00	0.5	ESE
3-Dec-2008	20:00	0.4	E
3-Dec-2008	21:00	0.7	E
3-Dec-2008	22:00	0.7	ENE
3-Dec-2008	23:00	0.9	NNE
4-Dec-2008	00:00	1.0	N
4-Dec-2008	01:00	1.1	NE
4-Dec-2008	02:00	1.1	ENE
4-Dec-2008	03:00	1.1	NNE
4-Dec-2008	04:00	0.6	NE
4-Dec-2008	05:00	0.7	E
4-Dec-2008	06:00	0.6	E
4-Dec-2008	07:00	0.5	E
4-Dec-2008	08:00	0.6	ENE
4-Dec-2008	09:00	0.7	E
4-Dec-2008	10:00	0.9	SE
4-Dec-2008	11:00	1.4	SE
4-Dec-2008	12:00	1.7	SE
4-Dec-2008	13:00	1.7	SE
4-Dec-2008	14:00	1.8	ENE
4-Dec-2008	15:00	1.7	ENE
4-Dec-2008	16:00	1.5	ENE
4-Dec-2008	17:00	1.2	N
4-Dec-2008	18:00	0.8	N
4-Dec-2008	19:00	0.4	N
4-Dec-2008	20:00	1.1	NE
4-Dec-2008	21:00	0.4	NE
4-Dec-2008	22:00	0.6	ENE
4-Dec-2008	23:00	0.4	ENE
5-Dec-2008	00:00	0.6	ENE
5-Dec-2008	01:00	0.7	ENE
5-Dec-2008	02:00	0.8	NE
5-Dec-2008	03:00	0.6	ENE
5-Dec-2008	04:00	0.6	NE
5-Dec-2008	05:00	0.4	ENE
5-Dec-2008	06:00	0.4	ENE
5-Dec-2008	07:00	0.5	ENE
5-Dec-2008	08:00	0.5	ENE
5-Dec-2008	09:00	0.8	NE
5-Dec-2008	10:00	0.9	NE
5-Dec-2008	11:00	1.2	NE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
5-Dec-2008	12:00	1.5	NE
5-Dec-2008	13:00	1.6	NE
5-Dec-2008	14:00	1.6	NE
5-Dec-2008	15:00	1.6	ENE
5-Dec-2008	16:00	1.3	NE
5-Dec-2008	17:00	1.1	NE
5-Dec-2008	18:00	0.8	NE
5-Dec-2008	19:00	0.6	ENE
5-Dec-2008	20:00	0.7	ENE
5-Dec-2008	21:00	0.6	ENE
5-Dec-2008	22:00	0.5	ENE
5-Dec-2008	23:00	0.4	ENE
6-Dec-2008	00:00	0.5	E
6-Dec-2008	01:00	0.5	E
6-Dec-2008	02:00	0.4	E
6-Dec-2008	03:00	0.5	E
6-Dec-2008	04:00	0.6	ESE
6-Dec-2008	05:00	0.4	ESE
6-Dec-2008	06:00	0.5	ESE
6-Dec-2008	07:00	0.7	ESE
6-Dec-2008	08:00	0.8	ESE
6-Dec-2008	09:00	0.8	WSW
6-Dec-2008	10:00	1.2	WSW
6-Dec-2008	11:00	1.7	SW
6-Dec-2008	12:00	1.7	SW
6-Dec-2008	13:00	1.6	SW
6-Dec-2008	14:00	1.4	SSW
6-Dec-2008	15:00	1.6	ESE
6-Dec-2008	16:00	1.1	SW
6-Dec-2008	17:00	0.9	SSW
6-Dec-2008	18:00	0.7	ENE
6-Dec-2008	19:00	1.1	ENE
6-Dec-2008	20:00	1.0	SE
6-Dec-2008	21:00	0.8	ESE
6-Dec-2008	22:00	0.8	NE
6-Dec-2008	23:00	0.7	E
7-Dec-2008	00:00	0.8	E
7-Dec-2008	01:00	0.6	ENE
7-Dec-2008	02:00	0.5	NNE
7-Dec-2008	03:00	0.5	NNE
7-Dec-2008	04:00	0.5	ENE
7-Dec-2008	05:00	0.4	NE
7-Dec-2008	06:00	0.4	ENE
7-Dec-2008	07:00	0.5	NE
7-Dec-2008	08:00	0.5	ENE
7-Dec-2008	09:00	0.9	ENE
7-Dec-2008	10:00	1.1	NE
7-Dec-2008	11:00	1.3	ESE
7-Dec-2008	12:00	1.9	ENE
7-Dec-2008	13:00	1.7	SW
7-Dec-2008	14:00	1.7	SSW
7-Dec-2008	15:00	1.0	ESE
7-Dec-2008	16:00	0.6	ESE
7-Dec-2008	17:00	0.6	ESE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
7-Dec-2008	18:00	1.1	NE
7-Dec-2008	19:00	0.9	NNE
7-Dec-2008	20:00	0.6	NNE
7-Dec-2008	21:00	0.4	NNE
7-Dec-2008	22:00	0.5	E
7-Dec-2008	23:00	0.9	E
8-Dec-2008	00:00	0.6	NW
8-Dec-2008	01:00	0.6	E
8-Dec-2008	02:00	0.6	WSW
8-Dec-2008	03:00	0.9	W
8-Dec-2008	04:00	0.9	SW
8-Dec-2008	05:00	1.3	SW
8-Dec-2008	06:00	1.2	SE
8-Dec-2008	07:00	1.2	W
8-Dec-2008	08:00	1.4	N
8-Dec-2008	09:00	1.5	N
8-Dec-2008	10:00	1.6	NE
8-Dec-2008	11:00	1.8	NNE
8-Dec-2008	12:00	1.8	ENE
8-Dec-2008	13:00	1.5	ENE
8-Dec-2008	14:00	1.5	S
8-Dec-2008	15:00	1.3	N
8-Dec-2008	16:00	1.3	N
8-Dec-2008	17:00	1.3	N
8-Dec-2008	18:00	1.1	WNW
8-Dec-2008	19:00	0.8	NNE
8-Dec-2008	20:00	0.8	N
8-Dec-2008	21:00	0.6	N
8-Dec-2008	22:00	0.8	N
8-Dec-2008	23:00	0.9	NE
9-Dec-2008	00:00	0.9	NE
9-Dec-2008	01:00	0.7	NE
9-Dec-2008	02:00	0.8	N
9-Dec-2008	03:00	1.0	N
9-Dec-2008	04:00	1.1	N
9-Dec-2008	05:00	1.0	N
9-Dec-2008	06:00	1.0	N
9-Dec-2008	07:00	1.0	N
9-Dec-2008	08:00	1.2	N
9-Dec-2008	09:00	1.3	N
9-Dec-2008	10:00	1.6	NNE
9-Dec-2008	11:00	1.5	SSE
9-Dec-2008	12:00	1.2	SSE
9-Dec-2008	13:00	1.5	SSE
9-Dec-2008	14:00	1.3	SSE
9-Dec-2008	15:00	1.1	SE
9-Dec-2008	16:00	1.2	ESE
9-Dec-2008	17:00	1.1	SE
9-Dec-2008	18:00	0.8	SE
9-Dec-2008	19:00	0.8	SE
9-Dec-2008	20:00	0.4	SW
9-Dec-2008	21:00	0.8	ESE
9-Dec-2008	22:00	0.6	ESE
9-Dec-2008	23:00	0.4	SW

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
10-Dec-2008	00:00	0.5	SW
10-Dec-2008	01:00	1.0	SW
10-Dec-2008	02:00	0.6	SW
10-Dec-2008	03:00	0.6	SW
10-Dec-2008	04:00	0.6	WNW
10-Dec-2008	05:00	0.6	WSW
10-Dec-2008	06:00	0.4	SW
10-Dec-2008	07:00	0.5	ESE
10-Dec-2008	08:00	0.5	ESE
10-Dec-2008	09:00	0.9	SW
10-Dec-2008	10:00	1.0	SW
10-Dec-2008	11:00	1.1	SW
10-Dec-2008	12:00	1.4	SW
10-Dec-2008	13:00	1.4	WNW
10-Dec-2008	14:00	1.4	WNW
10-Dec-2008	15:00	1.5	WSW
10-Dec-2008	16:00	1.4	SW
10-Dec-2008	17:00	1.3	SW
10-Dec-2008	18:00	0.8	S
10-Dec-2008	19:00	0.6	SE
10-Dec-2008	20:00	0.6	SSE
10-Dec-2008	21:00	0.6	SSE
10-Dec-2008	22:00	0.3	S
10-Dec-2008	23:00	0.8	ENE
11-Dec-2008	00:00	0.7	ENE
11-Dec-2008	01:00	0.7	ENE
11-Dec-2008	02:00	0.7	WSW
11-Dec-2008	03:00	0.5	E
11-Dec-2008	04:00	0.5	E
11-Dec-2008	05:00	0.4	E
11-Dec-2008	06:00	0.5	E
11-Dec-2008	07:00	0.5	E
11-Dec-2008	08:00	0.7	E
11-Dec-2008	09:00	0.9	E
11-Dec-2008	10:00	1.3	E
11-Dec-2008	11:00	1.1	SSW
11-Dec-2008	12:00	1.3	SW
11-Dec-2008	13:00	1.4	SSW
11-Dec-2008	14:00	1.4	S
11-Dec-2008	15:00	1.3	E
11-Dec-2008	16:00	1.2	E
11-Dec-2008	17:00	1.2	E
11-Dec-2008	18:00	1.0	E
11-Dec-2008	19:00	1.1	N
11-Dec-2008	20:00	0.7	W
11-Dec-2008	21:00	0.5	W
11-Dec-2008	22:00	0.4	W
11-Dec-2008	23:00	0.6	W
12-Dec-2008	00:00	0.9	W
12-Dec-2008	01:00	0.8	E
12-Dec-2008	02:00	0.7	NE
12-Dec-2008	03:00	1.0	E
12-Dec-2008	04:00	1.1	ESE
12-Dec-2008	05:00	1.1	SSW

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
12-Dec-2008	06:00	0.8	SSW
12-Dec-2008	07:00	1.5	SSW
12-Dec-2008	08:00	1.7	SW
12-Dec-2008	09:00	1.9	ENE
12-Dec-2008	10:00	2.4	NE
12-Dec-2008	11:00	2.5	NE
12-Dec-2008	12:00	2.7	NE
12-Dec-2008	13:00	3.0	W
12-Dec-2008	14:00	2.3	N
12-Dec-2008	15:00	2.1	NE
12-Dec-2008	16:00	1.8	N
12-Dec-2008	17:00	1.5	N
12-Dec-2008	18:00	1.1	ENE
12-Dec-2008	19:00	1.2	ENE
12-Dec-2008	20:00	0.5	ENE
12-Dec-2008	21:00	0.6	ENE
12-Dec-2008	22:00	0.5	E
12-Dec-2008	23:00	0.6	ENE
13-Dec-2008	00:00	0.9	SE
13-Dec-2008	01:00	1.1	ESE
13-Dec-2008	02:00	0.6	ESE
13-Dec-2008	03:00	0.5	ESE
13-Dec-2008	04:00	0.9	NE
13-Dec-2008	05:00	0.9	NE
13-Dec-2008	06:00	0.8	NE
13-Dec-2008	07:00	0.9	NE
13-Dec-2008	08:00	1.0	NE
13-Dec-2008	09:00	1.4	NE
13-Dec-2008	10:00	1.5	NE
13-Dec-2008	11:00	1.5	NE
13-Dec-2008	12:00	1.8	NNE
13-Dec-2008	13:00	1.9	ENE
13-Dec-2008	14:00	1.7	ENE
13-Dec-2008	15:00	1.6	N
13-Dec-2008	16:00	1.4	N
13-Dec-2008	17:00	1.3	E
13-Dec-2008	18:00	1.3	E
13-Dec-2008	19:00	0.9	ESE
13-Dec-2008	20:00	0.9	E
13-Dec-2008	21:00	0.9	N
13-Dec-2008	22:00	0.7	N
13-Dec-2008	23:00	1.1	N
14-Dec-2008	00:00	1.0	N
14-Dec-2008	01:00	1.0	E
14-Dec-2008	02:00	1.1	NNE
14-Dec-2008	03:00	1.1	NW
14-Dec-2008	04:00	1.1	NW
14-Dec-2008	05:00	1.0	E
14-Dec-2008	06:00	1.1	NNE
14-Dec-2008	07:00	1.1	NE
14-Dec-2008	08:00	1.2	ENE
14-Dec-2008	09:00	1.6	ENE
14-Dec-2008	10:00	1.5	N
14-Dec-2008	11:00	1.6	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
14-Dec-2008	12:00	1.5	E
14-Dec-2008	13:00	1.6	W
14-Dec-2008	14:00	0.8	NE
14-Dec-2008	15:00	0.8	NE
14-Dec-2008	16:00	0.7	ENE
14-Dec-2008	17:00	0.8	N
14-Dec-2008	18:00	0.7	ENE
14-Dec-2008	19:00	1.0	ENE
14-Dec-2008	20:00	0.7	NE
14-Dec-2008	21:00	0.7	ENE
14-Dec-2008	22:00	0.5	E
14-Dec-2008	23:00	0.6	E
15-Dec-2008	00:00	0.9	NE
15-Dec-2008	01:00	1.0	NE
15-Dec-2008	02:00	0.9	NE
15-Dec-2008	03:00	1.2	NE
15-Dec-2008	04:00	1.2	ESE
15-Dec-2008	05:00	0.7	ESE
15-Dec-2008	06:00	1.0	ESE
15-Dec-2008	07:00	1.1	SE
15-Dec-2008	08:00	0.7	NE
15-Dec-2008	09:00	0.9	SSE
15-Dec-2008	10:00	1.4	NNE
15-Dec-2008	11:00	1.5	NNE
15-Dec-2008	12:00	1.8	NNE
15-Dec-2008	13:00	2.0	N
15-Dec-2008	14:00	2.0	N
15-Dec-2008	15:00	1.8	N
15-Dec-2008	16:00	1.8	N
15-Dec-2008	17:00	1.0	NE
15-Dec-2008	18:00	0.9	NE
15-Dec-2008	19:00	0.7	NE
15-Dec-2008	20:00	0.6	NE
15-Dec-2008	21:00	0.6	NNE
15-Dec-2008	22:00	0.6	ENE
15-Dec-2008	23:00	0.7	ENE
16-Dec-2008	00:00	0.8	NE
16-Dec-2008	01:00	0.7	N
16-Dec-2008	02:00	0.8	ENE
16-Dec-2008	03:00	0.5	NE
16-Dec-2008	04:00	0.4	N
16-Dec-2008	05:00	0.4	NE
16-Dec-2008	06:00	0.2	N
16-Dec-2008	07:00	0.2	N
16-Dec-2008	08:00	0.3	ENE
16-Dec-2008	09:00	0.4	ENE
16-Dec-2008	10:00	0.6	ENE
16-Dec-2008	11:00	0.7	ENE
16-Dec-2008	12:00	1.2	NNE
16-Dec-2008	13:00	1.2	N
16-Dec-2008	14:00	0.9	NE
16-Dec-2008	15:00	0.9	ENE
16-Dec-2008	16:00	1.0	N
16-Dec-2008	17:00	0.9	N

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
16-Dec-2008	18:00	1.0	N
16-Dec-2008	19:00	1.0	N
16-Dec-2008	20:00	0.6	N
16-Dec-2008	21:00	0.4	NNE
16-Dec-2008	22:00	0.7	ENE
16-Dec-2008	23:00	0.7	ENE
17-Dec-2008	00:00	0.4	NE
17-Dec-2008	01:00	0.6	NE
17-Dec-2008	02:00	0.5	NE
17-Dec-2008	03:00	0.3	NNE
17-Dec-2008	04:00	0.3	NNE
17-Dec-2008	05:00	0.2	NNE
17-Dec-2008	06:00	0.3	NE
17-Dec-2008	07:00	0.6	NE
17-Dec-2008	08:00	0.9	ENE
17-Dec-2008	09:00	0.8	ENE
17-Dec-2008	10:00	1.3	NE
17-Dec-2008	11:00	2.2	ENE
17-Dec-2008	12:00	1.9	ENE
17-Dec-2008	13:00	2.1	ENE
17-Dec-2008	14:00	2.0	NW
17-Dec-2008	15:00	2.0	W
17-Dec-2008	16:00	1.8	W
17-Dec-2008	17:00	1.5	W
17-Dec-2008	18:00	1.0	SSE
17-Dec-2008	19:00	0.7	WNW
17-Dec-2008	20:00	0.8	WNW
17-Dec-2008	21:00	0.7	NW
17-Dec-2008	22:00	0.7	NNE
17-Dec-2008	23:00	0.8	NNE
18-Dec-2008	00:00	0.8	NNE
18-Dec-2008	01:00	0.7	NNE
18-Dec-2008	02:00	0.8	NE
18-Dec-2008	03:00	0.7	NE
18-Dec-2008	04:00	0.7	E
18-Dec-2008	05:00	0.7	E
18-Dec-2008	06:00	0.7	ENE
18-Dec-2008	07:00	0.6	E
18-Dec-2008	08:00	0.5	E
18-Dec-2008	09:00	1.0	ENE
18-Dec-2008	10:00	1.6	SE
18-Dec-2008	11:00	1.6	ESE
18-Dec-2008	12:00	1.5	ESE
18-Dec-2008	13:00	1.6	ESE
18-Dec-2008	14:00	1.7	W
18-Dec-2008	15:00	1.6	SSW
18-Dec-2008	16:00	1.4	SSW
18-Dec-2008	17:00	1.2	S
18-Dec-2008	18:00	1.4	SW
18-Dec-2008	19:00	0.8	NE
18-Dec-2008	20:00	0.7	NNE
18-Dec-2008	21:00	0.8	NE
18-Dec-2008	22:00	1.0	NNE
18-Dec-2008	23:00	1.1	NNE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
19-Dec-2008	00:00	1.1	ENE
19-Dec-2008	01:00	1.1	ENE
19-Dec-2008	02:00	1.1	NE
19-Dec-2008	03:00	0.8	NE
19-Dec-2008	04:00	0.8	NE
19-Dec-2008	05:00	0.9	NE
19-Dec-2008	06:00	0.8	NNE
19-Dec-2008	07:00	0.8	NE
19-Dec-2008	08:00	0.9	NNE
19-Dec-2008	09:00	1.2	NE
19-Dec-2008	10:00	1.2	NE
19-Dec-2008	11:00	1.5	NNE
19-Dec-2008	12:00	1.9	ENE
19-Dec-2008	13:00	1.9	ENE
19-Dec-2008	14:00	2.1	NE
19-Dec-2008	15:00	1.9	NE
19-Dec-2008	16:00	1.9	S
19-Dec-2008	17:00	1.5	E
19-Dec-2008	18:00	1.8	E
19-Dec-2008	19:00	1.0	SE
19-Dec-2008	20:00	0.8	SSE
19-Dec-2008	21:00	0.7	SE
19-Dec-2008	22:00	0.7	ENE
19-Dec-2008	23:00	0.9	NE
20-Dec-2008	00:00	0.9	ENE
20-Dec-2008	01:00	1.1	ENE
20-Dec-2008	02:00	1.2	NE
20-Dec-2008	03:00	1.1	NE
20-Dec-2008	04:00	1.2	NE
20-Dec-2008	05:00	0.8	ENE
20-Dec-2008	06:00	0.9	WNW
20-Dec-2008	07:00	0.9	WNW
20-Dec-2008	08:00	1.0	WNW
20-Dec-2008	09:00	1.1	WNW
20-Dec-2008	10:00	2.0	WNW
20-Dec-2008	11:00	2.4	W
20-Dec-2008	12:00	2.0	WSW
20-Dec-2008	13:00	2.6	WNW
20-Dec-2008	14:00	2.1	WNW
20-Dec-2008	15:00	2.0	E
20-Dec-2008	16:00	1.9	E
20-Dec-2008	17:00	1.0	ESE
20-Dec-2008	18:00	0.6	ESE
20-Dec-2008	19:00	0.5	SE
20-Dec-2008	20:00	0.5	SE
20-Dec-2008	21:00	0.6	SE
20-Dec-2008	22:00	0.4	ENE
20-Dec-2008	23:00	0.9	NE
21-Dec-2008	00:00	0.9	E
21-Dec-2008	01:00	1.1	ENE
21-Dec-2008	02:00	0.8	N
21-Dec-2008	03:00	1.0	WNW
21-Dec-2008	04:00	1.0	E
21-Dec-2008	05:00	0.9	SSE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
21-Dec-2008	06:00	0.8	S
21-Dec-2008	07:00	0.7	SSW
21-Dec-2008	08:00	0.7	N
21-Dec-2008	09:00	0.7	WNW
21-Dec-2008	10:00	0.8	SSE
21-Dec-2008	11:00	0.8	SSE
21-Dec-2008	12:00	1.1	SSE
21-Dec-2008	13:00	1.4	ESE
21-Dec-2008	14:00	1.1	ESE
21-Dec-2008	15:00	1.2	SE
21-Dec-2008	16:00	1.2	SSE
21-Dec-2008	17:00	1.1	SSE
21-Dec-2008	18:00	0.9	ESE
21-Dec-2008	19:00	0.7	ENE
21-Dec-2008	20:00	0.7	SE
21-Dec-2008	21:00	1.0	SE
21-Dec-2008	22:00	0.8	ENE
21-Dec-2008	23:00	0.9	ENE
22-Dec-2008	00:00	0.7	NNE
22-Dec-2008	01:00	0.6	NNE
22-Dec-2008	02:00	0.7	NNE
22-Dec-2008	03:00	0.6	NNE
22-Dec-2008	04:00	1.0	ESE
22-Dec-2008	05:00	0.7	NNE
22-Dec-2008	06:00	0.8	ENE
22-Dec-2008	07:00	0.8	NNE
22-Dec-2008	08:00	1.3	ENE
22-Dec-2008	09:00	1.1	ENE
22-Dec-2008	10:00	1.3	NNE
22-Dec-2008	11:00	1.4	NNE
22-Dec-2008	12:00	0.8	N
22-Dec-2008	13:00	1.2	N
22-Dec-2008	14:00	1.2	N
22-Dec-2008	15:00	1.6	N
22-Dec-2008	16:00	1.9	N
22-Dec-2008	17:00	1.4	NNE
22-Dec-2008	18:00	1.0	N
22-Dec-2008	19:00	1.1	NNE
22-Dec-2008	20:00	0.7	NNE
22-Dec-2008	21:00	0.6	NNE
22-Dec-2008	22:00	0.9	NNE
22-Dec-2008	23:00	0.7	NNE
23-Dec-2008	00:00	0.5	NNE
23-Dec-2008	01:00	0.5	NNE
23-Dec-2008	02:00	0.4	NNE
23-Dec-2008	03:00	0.4	NNE
23-Dec-2008	04:00	0.4	NE
23-Dec-2008	05:00	0.5	NE
23-Dec-2008	06:00	0.5	NNE
23-Dec-2008	07:00	0.5	NE
23-Dec-2008	08:00	0.7	NE
23-Dec-2008	09:00	0.9	NNE
23-Dec-2008	10:00	1.3	NNE
23-Dec-2008	11:00	1.4	NE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
23-Dec-2008	12:00	1.8	NE
23-Dec-2008	13:00	1.8	NNE
23-Dec-2008	14:00	1.9	NE
23-Dec-2008	15:00	1.4	NE
23-Dec-2008	16:00	1.4	NE
23-Dec-2008	17:00	1.8	NE
23-Dec-2008	18:00	2.0	ENE
23-Dec-2008	19:00	2.1	ENE
23-Dec-2008	20:00	2.4	NE
23-Dec-2008	21:00	2.4	NE
23-Dec-2008	22:00	2.5	NE
23-Dec-2008	23:00	2.7	NE
24-Dec-2008	00:00	2.9	NNE
24-Dec-2008	01:00	2.0	NNE
24-Dec-2008	02:00	2.0	NE
24-Dec-2008	03:00	1.6	NE
24-Dec-2008	04:00	1.5	NNE
24-Dec-2008	05:00	2.4	ENE
24-Dec-2008	06:00	2.3	NE
24-Dec-2008	07:00	2.2	ENE
24-Dec-2008	08:00	2.5	NE
24-Dec-2008	09:00	2.7	ENE
24-Dec-2008	10:00	2.8	N
24-Dec-2008	11:00	3.1	NNE
24-Dec-2008	12:00	3.3	NNE
24-Dec-2008	13:00	3.5	NNE
24-Dec-2008	14:00	4.1	N
24-Dec-2008	15:00	3.7	NW
24-Dec-2008	16:00	3.4	NW
24-Dec-2008	17:00	3.7	WSW
24-Dec-2008	18:00	2.8	WNW
24-Dec-2008	19:00	3.1	WNW
24-Dec-2008	20:00	2.5	NNE
24-Dec-2008	21:00	2.2	NNE
24-Dec-2008	22:00	2.7	NNE
24-Dec-2008	23:00	2.4	NNE
25-Dec-2008	00:00	2.4	NE
25-Dec-2008	01:00	2.2	NNE
25-Dec-2008	02:00	2.3	NE
25-Dec-2008	03:00	2.1	NNE
25-Dec-2008	04:00	1.9	ESE
25-Dec-2008	05:00	2.4	NNE
25-Dec-2008	06:00	2.2	NE
25-Dec-2008	07:00	2.3	NE
25-Dec-2008	08:00	2.3	NE
25-Dec-2008	09:00	2.4	NE
25-Dec-2008	10:00	2.5	SE
25-Dec-2008	11:00	2.2	ESE
25-Dec-2008	12:00	2.2	ESE
25-Dec-2008	13:00	1.9	ESE
25-Dec-2008	14:00	1.5	SSE
25-Dec-2008	15:00	1.4	SSE
25-Dec-2008	16:00	1.5	S
25-Dec-2008	17:00	1.5	E

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
25-Dec-2008	18:00	1.3	E
25-Dec-2008	19:00	1.5	E
25-Dec-2008	20:00	1.1	NNE
25-Dec-2008	21:00	1.3	NNE
25-Dec-2008	22:00	1.5	ENE
25-Dec-2008	23:00	1.1	ENE
26-Dec-2008	00:00	1.0	ENE
26-Dec-2008	01:00	0.9	ESE
26-Dec-2008	02:00	0.8	SSE
26-Dec-2008	03:00	1.3	SE
26-Dec-2008	04:00	1.2	SE
26-Dec-2008	05:00	1.2	ESE
26-Dec-2008	06:00	1.1	SE
26-Dec-2008	07:00	0.8	SE
26-Dec-2008	08:00	0.8	SSE
26-Dec-2008	09:00	0.8	ESE
26-Dec-2008	10:00	1.3	E
26-Dec-2008	11:00	1.5	SSE
26-Dec-2008	12:00	1.6	SE
26-Dec-2008	13:00	2.1	ESE
26-Dec-2008	14:00	1.9	SE
26-Dec-2008	15:00	1.5	SSE
26-Dec-2008	16:00	1.6	SSE
26-Dec-2008	17:00	1.5	ESE
26-Dec-2008	18:00	1.2	ENE
26-Dec-2008	19:00	0.8	ENE
26-Dec-2008	20:00	0.7	ENE
26-Dec-2008	21:00	0.5	NE
26-Dec-2008	22:00	0.5	NNE
26-Dec-2008	23:00	0.5	N
27-Dec-2008	00:00	0.6	NNE
27-Dec-2008	01:00	0.6	ESE
27-Dec-2008	02:00	0.6	ESE
27-Dec-2008	03:00	0.7	ESE
27-Dec-2008	04:00	0.8	ESE
27-Dec-2008	05:00	0.5	ESE
27-Dec-2008	06:00	0.6	ESE
27-Dec-2008	07:00	0.4	ESE
27-Dec-2008	08:00	0.5	S
27-Dec-2008	09:00	0.9	SE
27-Dec-2008	10:00	1.0	ESE
27-Dec-2008	11:00	1.4	ESE
27-Dec-2008	12:00	1.5	SE
27-Dec-2008	13:00	1.7	SE
27-Dec-2008	14:00	1.6	SE
27-Dec-2008	15:00	1.5	SE
27-Dec-2008	16:00	1.4	SE
27-Dec-2008	17:00	1.2	SE
27-Dec-2008	18:00	1.3	SE
27-Dec-2008	19:00	0.9	SSE
27-Dec-2008	20:00	0.8	SSE
27-Dec-2008	21:00	0.6	ESE
27-Dec-2008	22:00	0.6	SSE
27-Dec-2008	23:00	0.7	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
28-Dec-2008	00:00	0.5	ENE
28-Dec-2008	01:00	0.5	ENE
28-Dec-2008	02:00	0.5	ENE
28-Dec-2008	03:00	0.6	ENE
28-Dec-2008	04:00	0.6	ENE
28-Dec-2008	05:00	0.5	ENE
28-Dec-2008	06:00	0.5	ENE
28-Dec-2008	07:00	0.7	ENE
28-Dec-2008	08:00	0.6	NE
28-Dec-2008	09:00	0.6	NE
28-Dec-2008	10:00	0.8	NE
28-Dec-2008	11:00	1.1	NE
28-Dec-2008	12:00	0.9	NNW
28-Dec-2008	13:00	1.1	W
28-Dec-2008	14:00	0.8	W
28-Dec-2008	15:00	0.7	NNW
28-Dec-2008	16:00	0.8	NNW
28-Dec-2008	17:00	0.9	NE
28-Dec-2008	18:00	0.6	NE
28-Dec-2008	19:00	0.4	ENE
28-Dec-2008	20:00	0.3	NNW
28-Dec-2008	21:00	0.6	N
28-Dec-2008	22:00	0.8	NNE
28-Dec-2008	23:00	0.6	ENE
29-Dec-2008	00:00	1.2	ESE
29-Dec-2008	01:00	1.1	NE
29-Dec-2008	02:00	1.0	NE
29-Dec-2008	03:00	1.1	NNE
29-Dec-2008	04:00	0.9	N
29-Dec-2008	05:00	1.0	N
29-Dec-2008	06:00	1.1	NNE
29-Dec-2008	07:00	1.0	NNE
29-Dec-2008	08:00	0.9	N
29-Dec-2008	09:00	1.1	N
29-Dec-2008	10:00	1.4	N
29-Dec-2008	11:00	1.5	NE
29-Dec-2008	12:00	1.4	NE
29-Dec-2008	13:00	1.4	N
29-Dec-2008	14:00	1.5	NNW
29-Dec-2008	15:00	1.5	N
29-Dec-2008	16:00	1.3	NE
29-Dec-2008	17:00	1.4	NE
29-Dec-2008	18:00	1.2	NE
29-Dec-2008	19:00	1.1	NE
29-Dec-2008	20:00	0.9	N
29-Dec-2008	21:00	0.8	NNW
29-Dec-2008	22:00	1.3	NE
29-Dec-2008	23:00	0.9	NE
30-Dec-2008	00:00	1.0	NE
30-Dec-2008	01:00	0.9	WSW
30-Dec-2008	02:00	1.0	WSW
30-Dec-2008	03:00	1.1	N
30-Dec-2008	04:00	1.2	NNW
30-Dec-2008	05:00	1.3	N

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
30-Dec-2008	06:00	1.2	N
30-Dec-2008	07:00	1.3	N
30-Dec-2008	08:00	1.1	N
30-Dec-2008	09:00	1.7	N
30-Dec-2008	10:00	1.0	NE
30-Dec-2008	11:00	1.1	NNE
30-Dec-2008	12:00	1.0	NE
30-Dec-2008	13:00	1.0	NE
30-Dec-2008	14:00	1.1	NE
30-Dec-2008	15:00	1.2	NE
30-Dec-2008	16:00	1.2	NNE
30-Dec-2008	17:00	1.4	NE
30-Dec-2008	18:00	1.4	NE
30-Dec-2008	19:00	1.4	NE
30-Dec-2008	20:00	1.2	N
30-Dec-2008	21:00	1.0	N
30-Dec-2008	22:00	1.1	N
30-Dec-2008	23:00	1.2	N
31-Dec-2008	00:00	1.5	N
31-Dec-2008	01:00	1.7	N
31-Dec-2008	02:00	1.8	N
31-Dec-2008	03:00	1.0	NNE
31-Dec-2008	04:00	1.4	N
31-Dec-2008	05:00	1.2	N
31-Dec-2008	06:00	1.3	NE
31-Dec-2008	07:00	1.2	NE
31-Dec-2008	08:00	1.5	NNW
31-Dec-2008	09:00	1.5	WNW
31-Dec-2008	10:00	1.6	N
31-Dec-2008	11:00	1.9	NW
31-Dec-2008	12:00	1.9	N
31-Dec-2008	13:00	2.0	N
31-Dec-2008	14:00	2.1	WNW
31-Dec-2008	15:00	1.8	NW
31-Dec-2008	16:00	1.5	NE
31-Dec-2008	17:00	1.2	N
31-Dec-2008	18:00	0.8	N
31-Dec-2008	19:00	1.3	N
31-Dec-2008	20:00	1.4	NNW
31-Dec-2008	21:00	1.6	NNW
31-Dec-2008	22:00	1.7	NW
31-Dec-2008	23:00	1.4	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
1-Dec-2008	00:00	0.6	ESE
1-Dec-2008	01:00	0.6	ESE
1-Dec-2008	02:00	0.1	ESE
1-Dec-2008	03:00	0.1	ESE
1-Dec-2008	04:00	0.4	ESE
1-Dec-2008	05:00	0.6	SW
1-Dec-2008	06:00	0.7	W
1-Dec-2008	07:00	1.3	W
1-Dec-2008	08:00	1.2	WNW
1-Dec-2008	09:00	1.6	WNW
1-Dec-2008	10:00	2.1	WNW
1-Dec-2008	11:00	2.2	WSW
1-Dec-2008	12:00	2.4	SSW
1-Dec-2008	13:00	1.9	S
1-Dec-2008	14:00	1.5	SSE
1-Dec-2008	15:00	1.8	SSE
1-Dec-2008	16:00	1.6	ENE
1-Dec-2008	17:00	1.5	W
1-Dec-2008	18:00	0.9	SW
1-Dec-2008	19:00	0.3	S
1-Dec-2008	20:00	0.1	ENE
1-Dec-2008	21:00	0.1	ENE
1-Dec-2008	22:00	0.1	ENE
1-Dec-2008	23:00	0.1	ENE
2-Dec-2008	00:00	0.1	ENE
2-Dec-2008	01:00	0.1	ENE
2-Dec-2008	02:00	0.1	ENE
2-Dec-2008	03:00	0.4	ENE
2-Dec-2008	04:00	0.4	NE
2-Dec-2008	05:00	0.6	ENE
2-Dec-2008	06:00	1.0	NE
2-Dec-2008	07:00	0.9	NE
2-Dec-2008	08:00	0.7	NE
2-Dec-2008	09:00	1.0	NE
2-Dec-2008	10:00	2.4	NE
2-Dec-2008	11:00	2.2	ENE
2-Dec-2008	12:00	2.5	ENE
2-Dec-2008	13:00	1.6	ENE
2-Dec-2008	14:00	1.8	NE
2-Dec-2008	15:00	1.9	NE
2-Dec-2008	16:00	2.0	NE
2-Dec-2008	17:00	2.1	ENE
2-Dec-2008	18:00	1.4	NNE
2-Dec-2008	19:00	1.0	NNE
2-Dec-2008	20:00	1.1	NNE
2-Dec-2008	21:00	1.3	N
2-Dec-2008	22:00	1.3	N
2-Dec-2008	23:00	1.0	SE
3-Dec-2008	00:00	0.8	SE
3-Dec-2008	01:00	0.4	SE
3-Dec-2008	02:00	0.6	SE
3-Dec-2008	03:00	0.7	SE
3-Dec-2008	04:00	0.7	NNE
3-Dec-2008	05:00	0.4	E

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
3-Dec-2008	06:00	0.4	E
3-Dec-2008	07:00	0.3	N
3-Dec-2008	08:00	0.4	WSW
3-Dec-2008	09:00	0.4	ENE
3-Dec-2008	10:00	1.0	ENE
3-Dec-2008	11:00	1.2	ENE
3-Dec-2008	12:00	1.6	ENE
3-Dec-2008	13:00	2	ENE
3-Dec-2008	14:00	2	ENE
3-Dec-2008	15:00	2	ENE
3-Dec-2008	16:00	2	ENE
3-Dec-2008	17:00	1.8	ENE
3-Dec-2008	18:00	1.9	NE
3-Dec-2008	19:00	1.3	E
3-Dec-2008	20:00	0.7	ENE
3-Dec-2008	21:00	0.6	ENE
3-Dec-2008	22:00	0.6	ENE
3-Dec-2008	23:00	0.7	ESE
4-Dec-2008	00:00	0.4	ENE
4-Dec-2008	01:00	1	NE
4-Dec-2008	02:00	1	NE
4-Dec-2008	03:00	1	ENE
4-Dec-2008	04:00	0.7	ENE
4-Dec-2008	05:00	1.0	SW
4-Dec-2008	06:00	0.9	SW
4-Dec-2008	07:00	0.7	SW
4-Dec-2008	08:00	1.3	SW
4-Dec-2008	09:00	1.8	SSW
4-Dec-2008	10:00	3.0	ESE
4-Dec-2008	11:00	2.5	SSW
4-Dec-2008	12:00	2.2	SW
4-Dec-2008	13:00	2.4	ENE
4-Dec-2008	14:00	2.4	S
4-Dec-2008	15:00	2.2	S
4-Dec-2008	16:00	1.6	N
4-Dec-2008	17:00	1.8	NE
4-Dec-2008	18:00	1.3	NE
4-Dec-2008	19:00	0.7	N
4-Dec-2008	20:00	0.4	NE
4-Dec-2008	21:00	1.2	ENE
4-Dec-2008	22:00	1.6	ENE
4-Dec-2008	23:00	2.1	NE
5-Dec-2008	00:00	2.4	NE
5-Dec-2008	01:00	2.7	ENE
5-Dec-2008	02:00	2.8	ENE
5-Dec-2008	03:00	3.1	NE
5-Dec-2008	04:00	1.9	NE
5-Dec-2008	05:00	2.4	NE
5-Dec-2008	06:00	2.2	NE
5-Dec-2008	07:00	1.9	NE
5-Dec-2008	08:00	1.8	NE
5-Dec-2008	09:00	2.4	ENE
5-Dec-2008	10:00	2.5	NE
5-Dec-2008	11:00	2.7	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
5-Dec-2008	12:00	2.8	ENE
5-Dec-2008	13:00	2.7	ENE
5-Dec-2008	14:00	2.5	NE
5-Dec-2008	15:00	2.1	NE
5-Dec-2008	16:00	2.1	ENE
5-Dec-2008	17:00	1.9	NE
5-Dec-2008	18:00	1.6	NE
5-Dec-2008	19:00	1.6	NE
5-Dec-2008	20:00	2.1	NE
5-Dec-2008	21:00	2.2	NE
5-Dec-2008	22:00	2.1	NE
5-Dec-2008	23:00	1.6	ENE
6-Dec-2008	00:00	1.3	NE
6-Dec-2008	01:00	1.2	NE
6-Dec-2008	02:00	0.9	NE
6-Dec-2008	03:00	0.7	NE
6-Dec-2008	04:00	0.7	ENE
6-Dec-2008	05:00	0.7	ENE
6-Dec-2008	06:00	0.6	ENE
6-Dec-2008	07:00	0.6	ENE
6-Dec-2008	08:00	0.9	ENE
6-Dec-2008	09:00	1.2	ENE
6-Dec-2008	10:00	1.3	ENE
6-Dec-2008	11:00	1.0	NE
6-Dec-2008	12:00	1.0	NE
6-Dec-2008	13:00	1.6	NNE
6-Dec-2008	14:00	1.8	N
6-Dec-2008	15:00	1.8	N
6-Dec-2008	16:00	1.3	W
6-Dec-2008	17:00	1.2	N
6-Dec-2008	18:00	0.7	N
6-Dec-2008	19:00	0.3	ENE
6-Dec-2008	20:00	0.3	ENE
6-Dec-2008	21:00	0.1	ENE
6-Dec-2008	22:00	0.1	ENE
6-Dec-2008	23:00	0.3	NE
7-Dec-2008	00:00	0.5	ENE
7-Dec-2008	01:00	0.8	NE
7-Dec-2008	02:00	1.1	SW
7-Dec-2008	03:00	1.6	SW
7-Dec-2008	04:00	0.6	SW
7-Dec-2008	05:00	1.0	SW
7-Dec-2008	06:00	0.7	SW
7-Dec-2008	07:00	1.0	SW
7-Dec-2008	08:00	1.3	SSE
7-Dec-2008	09:00	1.5	SSE
7-Dec-2008	10:00	1.8	SSE
7-Dec-2008	11:00	1.6	SW
7-Dec-2008	12:00	1.9	SW
7-Dec-2008	13:00	2.2	SW
7-Dec-2008	14:00	1.5	WSW
7-Dec-2008	15:00	1.5	SW
7-Dec-2008	16:00	1.3	ENE
7-Dec-2008	17:00	0.9	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
7-Dec-2008	18:00	0.6	NE
7-Dec-2008	19:00	1.2	WSW
7-Dec-2008	20:00	1.2	WSW
7-Dec-2008	21:00	1.6	WSW
7-Dec-2008	22:00	1.6	SSW
7-Dec-2008	23:00	1.9	S
8-Dec-2008	00:00	1.9	SW
8-Dec-2008	01:00	2.1	WSW
8-Dec-2008	02:00	2.2	W
8-Dec-2008	03:00	1.7	SW
8-Dec-2008	04:00	1.5	SW
8-Dec-2008	05:00	0.6	ENE
8-Dec-2008	06:00	0.8	ENE
8-Dec-2008	07:00	0.1	ENE
8-Dec-2008	08:00	0.1	ENE
8-Dec-2008	09:00	0.3	SW
8-Dec-2008	10:00	0.9	SW
8-Dec-2008	11:00	1.9	SW
8-Dec-2008	12:00	1.9	SW
8-Dec-2008	13:00	1.5	SW
8-Dec-2008	14:00	1.3	ENE
8-Dec-2008	15:00	1.5	ENE
8-Dec-2008	16:00	1.3	ENE
8-Dec-2008	17:00	1.2	ENE
8-Dec-2008	18:00	0.6	ENE
8-Dec-2008	19:00	0.1	ESE
8-Dec-2008	20:00	0.0	---
8-Dec-2008	21:00	0.1	SSE
8-Dec-2008	22:00	0.0	---
8-Dec-2008	23:00	0.0	---
9-Dec-2008	00:00	0.0	---
9-Dec-2008	01:00	0.0	---
9-Dec-2008	02:00	0.0	---
9-Dec-2008	03:00	0.0	---
9-Dec-2008	04:00	0.5	NE
9-Dec-2008	05:00	0.5	NE
9-Dec-2008	06:00	0.6	NE
9-Dec-2008	07:00	0.4	NE
9-Dec-2008	08:00	0.2	ENE
9-Dec-2008	09:00	0.1	ENE
9-Dec-2008	10:00	0.9	ENE
9-Dec-2008	11:00	0.9	SSW
9-Dec-2008	12:00	1.2	W
9-Dec-2008	13:00	1.8	WNW
9-Dec-2008	14:00	1.2	W
9-Dec-2008	15:00	0.9	SSW
9-Dec-2008	16:00	0.6	WSW
9-Dec-2008	17:00	0.6	S
9-Dec-2008	18:00	0.4	E
9-Dec-2008	19:00	0.1	SSW
9-Dec-2008	20:00	0.1	WNW
9-Dec-2008	21:00	0.3	SW
9-Dec-2008	22:00	0.1	WNW
9-Dec-2008	23:00	0.3	WSW

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
10-Dec-2008	00:00	0.6	WSW
10-Dec-2008	01:00	1.5	W
10-Dec-2008	02:00	1.9	WSW
10-Dec-2008	03:00	2.1	W
10-Dec-2008	04:00	2.9	W
10-Dec-2008	05:00	2.9	SW
10-Dec-2008	06:00	3.4	WNW
10-Dec-2008	07:00	2.1	N
10-Dec-2008	08:00	1.7	NNE
10-Dec-2008	09:00	0.4	N
10-Dec-2008	10:00	0.7	NNE
10-Dec-2008	11:00	1.0	NNE
10-Dec-2008	12:00	1.5	WNW
10-Dec-2008	13:00	1.2	WNW
10-Dec-2008	14:00	1.6	WSW
10-Dec-2008	15:00	1.5	SW
10-Dec-2008	16:00	1.3	SW
10-Dec-2008	17:00	0.7	S
10-Dec-2008	18:00	0.3	S
10-Dec-2008	19:00	1.8	SSW
10-Dec-2008	20:00	1.5	WNW
10-Dec-2008	21:00	2.0	WNW
10-Dec-2008	22:00	2.5	SW
10-Dec-2008	23:00	0.1	WSW
11-Dec-2008	00:00	0.7	WSW
11-Dec-2008	01:00	0.9	WNW
11-Dec-2008	02:00	0.9	WNW
11-Dec-2008	03:00	0.3	WNW
11-Dec-2008	04:00	0.3	W
11-Dec-2008	05:00	0.5	WNW
11-Dec-2008	06:00	0.1	WNW
11-Dec-2008	07:00	0.1	WNW
11-Dec-2008	08:00	0.1	WNW
11-Dec-2008	09:00	0.3	W
11-Dec-2008	10:00	0.4	WNW
11-Dec-2008	11:00	0.9	WNW
11-Dec-2008	12:00	2.1	WSW
11-Dec-2008	13:00	1.8	W
11-Dec-2008	14:00	1.3	WSW
11-Dec-2008	15:00	1.6	SW
11-Dec-2008	16:00	1.2	SW
11-Dec-2008	17:00	0.4	SSW
11-Dec-2008	18:00	0.1	WNW
11-Dec-2008	19:00	0.3	WNW
11-Dec-2008	20:00	0.1	WNW
11-Dec-2008	21:00	0.6	WNW
11-Dec-2008	22:00	0.1	NW
11-Dec-2008	23:00	0.6	W
12-Dec-2008	00:00	0.3	WNW
12-Dec-2008	01:00	0.1	WNW
12-Dec-2008	02:00	0.8	NNE
12-Dec-2008	03:00	0.4	SW
12-Dec-2008	04:00	0.7	W
12-Dec-2008	05:00	0.7	W

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
12-Dec-2008	06:00	1.2	WNW
12-Dec-2008	07:00	1.3	WNW
12-Dec-2008	08:00	1.9	SSW
12-Dec-2008	09:00	2.1	SSW
12-Dec-2008	10:00	3.1	SSW
12-Dec-2008	11:00	3.6	SW
12-Dec-2008	12:00	3.6	WNW
12-Dec-2008	13:00	3.4	WNW
12-Dec-2008	14:00	3.1	WNW
12-Dec-2008	15:00	3.0	WNW
12-Dec-2008	16:00	2.7	W
12-Dec-2008	17:00	2.1	W
12-Dec-2008	18:00	1.9	ENE
12-Dec-2008	19:00	1.6	ENE
12-Dec-2008	20:00	1.5	ENE
12-Dec-2008	21:00	2.2	S
12-Dec-2008	22:00	2.5	WSW
12-Dec-2008	23:00	2.4	WSW
13-Dec-2008	00:00	2.1	WSW
13-Dec-2008	01:00	1.6	WSW
13-Dec-2008	02:00	1.6	WSW
13-Dec-2008	03:00	1.9	WSW
13-Dec-2008	04:00	1.9	WSW
13-Dec-2008	05:00	1.3	WSW
13-Dec-2008	06:00	1.2	WSW
13-Dec-2008	07:00	1.2	WSW
13-Dec-2008	08:00	1.3	W
13-Dec-2008	09:00	2.2	W
13-Dec-2008	10:00	2.7	W
13-Dec-2008	11:00	2.5	W
13-Dec-2008	12:00	2.4	W
13-Dec-2008	13:00	2.1	SSE
13-Dec-2008	14:00	1.9	WSW
13-Dec-2008	15:00	1.9	WSW
13-Dec-2008	16:00	2.2	SW
13-Dec-2008	17:00	1.9	SW
13-Dec-2008	18:00	1.8	SSW
13-Dec-2008	19:00	1.0	W
13-Dec-2008	20:00	1.0	SSW
13-Dec-2008	21:00	0.4	SSW
13-Dec-2008	22:00	0.6	SW
13-Dec-2008	23:00	1.3	SW
14-Dec-2008	00:00	1.3	SSW
14-Dec-2008	01:00	1.3	SW
14-Dec-2008	02:00	1.2	W
14-Dec-2008	03:00	1.3	W
14-Dec-2008	04:00	1.2	WNW
14-Dec-2008	05:00	1.2	WNW
14-Dec-2008	06:00	1.2	W
14-Dec-2008	07:00	1.3	W
14-Dec-2008	08:00	1.3	W
14-Dec-2008	09:00	1.3	W
14-Dec-2008	10:00	1.6	W
14-Dec-2008	11:00	1.8	N

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
14-Dec-2008	12:00	2.2	N
14-Dec-2008	13:00	1.9	N
14-Dec-2008	14:00	2.1	N
14-Dec-2008	15:00	2.1	N
14-Dec-2008	16:00	1.8	NNE
14-Dec-2008	17:00	1.8	NNE
14-Dec-2008	18:00	1.9	NNE
14-Dec-2008	19:00	0.4	NNE
14-Dec-2008	20:00	0.4	W
14-Dec-2008	21:00	0.3	W
14-Dec-2008	22:00	0.4	WNW
14-Dec-2008	23:00	0.4	W
15-Dec-2008	00:00	0.6	WNW
15-Dec-2008	01:00	0.7	WNW
15-Dec-2008	02:00	0.7	W
15-Dec-2008	03:00	1.0	WNW
15-Dec-2008	04:00	0.9	WNW
15-Dec-2008	05:00	0.4	WSW
15-Dec-2008	06:00	0.3	SW
15-Dec-2008	07:00	0.1	SW
15-Dec-2008	08:00	1.0	NNE
15-Dec-2008	09:00	1.6	NNE
15-Dec-2008	10:00	1.9	NE
15-Dec-2008	11:00	2.2	NE
15-Dec-2008	12:00	2.5	NE
15-Dec-2008	13:00	3.0	S
15-Dec-2008	14:00	1.9	S
15-Dec-2008	15:00	1.3	S
15-Dec-2008	16:00	1.3	NNE
15-Dec-2008	17:00	1.2	NNE
15-Dec-2008	18:00	0.7	NNE
15-Dec-2008	19:00	0.1	NNE
15-Dec-2008	20:00	0.3	SSE
15-Dec-2008	21:00	0.1	SW
15-Dec-2008	22:00	0.3	SSE
15-Dec-2008	23:00	0.4	S
16-Dec-2008	00:00	0.0	---
16-Dec-2008	01:00	0.6	SSW
16-Dec-2008	02:00	0.1	SW
16-Dec-2008	03:00	0.1	SSW
16-Dec-2008	04:00	0.5	WSW
16-Dec-2008	05:00	0.0	---
16-Dec-2008	06:00	0.1	S
16-Dec-2008	07:00	0.1	SSW
16-Dec-2008	08:00	0.3	SSW
16-Dec-2008	09:00	0.3	SSW
16-Dec-2008	10:00	0.6	W
16-Dec-2008	11:00	0.7	WNW
16-Dec-2008	12:00	1.3	WSW
16-Dec-2008	13:00	1.0	SW
16-Dec-2008	14:00	1.0	WSW
16-Dec-2008	15:00	1.5	SW
16-Dec-2008	16:00	0.9	SW
16-Dec-2008	17:00	0.6	SW

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
16-Dec-2008	18:00	0.3	W
16-Dec-2008	19:00	0.1	WSW
16-Dec-2008	20:00	0.1	WSW
16-Dec-2008	21:00	1.6	SW
16-Dec-2008	22:00	1.5	SW
16-Dec-2008	23:00	2.3	SW
17-Dec-2008	00:00	2.0	SW
17-Dec-2008	01:00	1.8	WSW
17-Dec-2008	02:00	1.5	W
17-Dec-2008	03:00	0.6	W
17-Dec-2008	04:00	0.7	SW
17-Dec-2008	05:00	0.7	WSW
17-Dec-2008	06:00	0.8	W
17-Dec-2008	07:00	0.1	SSW
17-Dec-2008	08:00	0.1	SSW
17-Dec-2008	09:00	0.4	W
17-Dec-2008	10:00	0.4	W
17-Dec-2008	11:00	1.3	SSW
17-Dec-2008	12:00	1.8	W
17-Dec-2008	13:00	1.9	WNW
17-Dec-2008	14:00	1.3	W
17-Dec-2008	15:00	1.8	W
17-Dec-2008	16:00	1.9	W
17-Dec-2008	17:00	1.3	W
17-Dec-2008	18:00	0.7	W
17-Dec-2008	19:00	0.7	SW
17-Dec-2008	20:00	0.1	SW
17-Dec-2008	21:00	0.1	WNW
17-Dec-2008	22:00	1.1	W
17-Dec-2008	23:00	1.5	W
18-Dec-2008	00:00	1.0	WSW
18-Dec-2008	01:00	1.8	ESE
18-Dec-2008	02:00	1.3	ESE
18-Dec-2008	03:00	1.3	SE
18-Dec-2008	04:00	0.2	SE
18-Dec-2008	05:00	0.8	S
18-Dec-2008	06:00	0.4	NNE
18-Dec-2008	07:00	0.2	E
18-Dec-2008	08:00	0.6	ENE
18-Dec-2008	09:00	0.4	ENE
18-Dec-2008	10:00	1.1	N
18-Dec-2008	11:00	1.8	N
18-Dec-2008	12:00	1.3	N
18-Dec-2008	13:00	1.1	NNE
18-Dec-2008	14:00	1.6	NNE
18-Dec-2008	15:00	1.1	SSE
18-Dec-2008	16:00	0.9	NNE
18-Dec-2008	17:00	1.1	NNE
18-Dec-2008	18:00	1.3	NNE
18-Dec-2008	19:00	2.5	NNE
18-Dec-2008	20:00	1.8	NNE
18-Dec-2008	21:00	1.8	NNE
18-Dec-2008	22:00	1.8	NNE
18-Dec-2008	23:00	2.3	NNE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
19-Dec-2008	00:00	2.7	NNE
19-Dec-2008	01:00	1.4	NNE
19-Dec-2008	02:00	1.6	NNE
19-Dec-2008	03:00	1.1	NE
19-Dec-2008	04:00	0.5	E
19-Dec-2008	05:00	1.1	ENE
19-Dec-2008	06:00	1.1	ENE
19-Dec-2008	07:00	1.4	NE
19-Dec-2008	08:00	1.8	E
19-Dec-2008	09:00	2.0	E
19-Dec-2008	10:00	2.3	ENE
19-Dec-2008	11:00	2.5	ENE
19-Dec-2008	12:00	2.9	ENE
19-Dec-2008	13:00	3.8	NE
19-Dec-2008	14:00	3.8	NE
19-Dec-2008	15:00	3.4	NNE
19-Dec-2008	16:00	3.1	NNE
19-Dec-2008	17:00	3.8	NNE
19-Dec-2008	18:00	2.5	W
19-Dec-2008	19:00	2.5	W
19-Dec-2008	20:00	1.8	W
19-Dec-2008	21:00	1.1	W
19-Dec-2008	22:00	1.4	W
19-Dec-2008	23:00	1.8	W
20-Dec-2008	00:00	0.9	W
20-Dec-2008	01:00	0.9	W
20-Dec-2008	02:00	1.6	W
20-Dec-2008	03:00	1.3	WSW
20-Dec-2008	04:00	1.1	WSW
20-Dec-2008	05:00	1.4	WSW
20-Dec-2008	06:00	1.4	SSW
20-Dec-2008	07:00	1.4	SSW
20-Dec-2008	08:00	1.1	SSW
20-Dec-2008	09:00	1.6	SSE
20-Dec-2008	10:00	1.8	SSW
20-Dec-2008	11:00	1.1	SSW
20-Dec-2008	12:00	1.3	WSW
20-Dec-2008	13:00	1.6	SSW
20-Dec-2008	14:00	1.3	SE
20-Dec-2008	15:00	0.7	SE
20-Dec-2008	16:00	1.4	SE
20-Dec-2008	17:00	1.1	ESE
20-Dec-2008	18:00	0.7	ESE
20-Dec-2008	19:00	0.7	ESE
20-Dec-2008	20:00	0.5	NNE
20-Dec-2008	21:00	1.3	ESE
20-Dec-2008	22:00	0.7	E
20-Dec-2008	23:00	0.7	E
21-Dec-2008	00:00	0.5	E
21-Dec-2008	01:00	0.5	E
21-Dec-2008	02:00	0.5	E
21-Dec-2008	03:00	0.2	E
21-Dec-2008	04:00	0.5	N
21-Dec-2008	05:00	0.2	ENE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
21-Dec-2008	06:00	0.2	ENE
21-Dec-2008	07:00	0.2	ENE
21-Dec-2008	08:00	0.2	ENE
21-Dec-2008	09:00	0.4	ENE
21-Dec-2008	10:00	0.5	ENE
21-Dec-2008	11:00	0.9	SSE
21-Dec-2008	12:00	0.9	S
21-Dec-2008	13:00	1.4	SE
21-Dec-2008	14:00	1.1	SW
21-Dec-2008	15:00	0.9	SW
21-Dec-2008	16:00	1.1	SW
21-Dec-2008	17:00	0.9	WNW
21-Dec-2008	18:00	0.9	SW
21-Dec-2008	19:00	0.4	SW
21-Dec-2008	20:00	0.2	SW
21-Dec-2008	21:00	0.2	SSE
21-Dec-2008	22:00	0.3	SSE
21-Dec-2008	23:00	0.5	NE
22-Dec-2008	00:00	0.6	ENE
22-Dec-2008	01:00	0.7	N
22-Dec-2008	02:00	1.2	NW
22-Dec-2008	03:00	1.3	WSW
22-Dec-2008	04:00	1.3	ENE
22-Dec-2008	05:00	1.7	E
22-Dec-2008	06:00	1.9	NE
22-Dec-2008	07:00	2.2	WNW
22-Dec-2008	08:00	2.6	WNW
22-Dec-2008	09:00	2.1	W
22-Dec-2008	10:00	2.4	NE
22-Dec-2008	11:00	0.2	N
22-Dec-2008	12:00	0.5	NNE
22-Dec-2008	13:00	1.1	NE
22-Dec-2008	14:00	0.9	ESE
22-Dec-2008	15:00	0.9	ESE
22-Dec-2008	16:00	1.1	SSW
22-Dec-2008	17:00	0.9	W
22-Dec-2008	18:00	0.7	W
22-Dec-2008	19:00	0.5	W
22-Dec-2008	20:00	0.5	W
22-Dec-2008	21:00	0.5	N
22-Dec-2008	22:00	0.2	NNE
22-Dec-2008	23:00	0.2	NE
23-Dec-2008	00:00	1.2	NNE
23-Dec-2008	01:00	1.1	NE
23-Dec-2008	02:00	0.2	ENE
23-Dec-2008	03:00	1.6	ENE
23-Dec-2008	04:00	1.6	NE
23-Dec-2008	05:00	1.9	NNE
23-Dec-2008	06:00	0.5	E
23-Dec-2008	07:00	0.5	ESE
23-Dec-2008	08:00	0.3	ESE
23-Dec-2008	09:00	0.8	ESE
23-Dec-2008	10:00	1.1	W
23-Dec-2008	11:00	0.4	W

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
23-Dec-2008	12:00	0.2	W
23-Dec-2008	13:00	0.2	W
23-Dec-2008	14:00	0.2	WSW
23-Dec-2008	15:00	0.2	WSW
23-Dec-2008	16:00	0.2	W
23-Dec-2008	17:00	0.2	SSW
23-Dec-2008	18:00	0.7	SSW
23-Dec-2008	19:00	0.4	SSW
23-Dec-2008	20:00	0.9	W
23-Dec-2008	21:00	0.2	W
23-Dec-2008	22:00	0.5	WSW
23-Dec-2008	23:00	0.5	W
24-Dec-2008	00:00	0.7	SW
24-Dec-2008	01:00	0.7	SW
24-Dec-2008	02:00	0.7	NE
24-Dec-2008	03:00	0.9	NE
24-Dec-2008	04:00	0.7	NE
24-Dec-2008	05:00	0.7	NE
24-Dec-2008	06:00	0.7	NE
24-Dec-2008	07:00	0.5	NE
24-Dec-2008	08:00	0.2	ENE
24-Dec-2008	09:00	0.5	E
24-Dec-2008	10:00	1.1	SW
24-Dec-2008	11:00	1.5	SW
24-Dec-2008	12:00	1.0	SW
24-Dec-2008	13:00	1.8	SW
24-Dec-2008	14:00	0.2	SW
24-Dec-2008	15:00	0.5	SSW
24-Dec-2008	16:00	0.5	SSW
24-Dec-2008	17:00	0.5	SW
24-Dec-2008	18:00	0.2	SW
24-Dec-2008	19:00	1.4	SW
24-Dec-2008	20:00	0.2	W
24-Dec-2008	21:00	0.2	WSW
24-Dec-2008	22:00	0.7	WNW
24-Dec-2008	23:00	0.5	W
25-Dec-2008	00:00	0.5	WNW
25-Dec-2008	01:00	0.5	SE
25-Dec-2008	02:00	0.7	ESE
25-Dec-2008	03:00	0.7	SE
25-Dec-2008	04:00	0.7	SE
25-Dec-2008	05:00	0.5	ESE
25-Dec-2008	06:00	0.5	ESE
25-Dec-2008	07:00	0.5	SE
25-Dec-2008	08:00	0.2	ESE
25-Dec-2008	09:00	0.4	ESE
25-Dec-2008	10:00	0.7	ESE
25-Dec-2008	11:00	0.9	W
25-Dec-2008	12:00	0.9	SSW
25-Dec-2008	13:00	1.1	ESE
25-Dec-2008	14:00	1.1	ESE
25-Dec-2008	15:00	1.1	E
25-Dec-2008	16:00	0.9	E
25-Dec-2008	17:00	0.7	E

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
25-Dec-2008	18:00	0.5	ENE
25-Dec-2008	19:00	0.4	NE
25-Dec-2008	20:00	0.4	NE
25-Dec-2008	21:00	0.5	ENE
25-Dec-2008	22:00	0.2	NE
25-Dec-2008	23:00	0.5	NNE
26-Dec-2008	00:00	0.5	ENE
26-Dec-2008	01:00	0.5	ENE
26-Dec-2008	02:00	0.5	ENE
26-Dec-2008	03:00	0.7	E
26-Dec-2008	04:00	0.7	SE
26-Dec-2008	05:00	0.5	SE
26-Dec-2008	06:00	0.2	ESE
26-Dec-2008	07:00	0.7	SE
26-Dec-2008	08:00	0.2	SE
26-Dec-2008	09:00	0.2	SSE
26-Dec-2008	10:00	0.2	ESE
26-Dec-2008	11:00	0.9	E
26-Dec-2008	12:00	1.1	SSE
26-Dec-2008	13:00	1.1	SSE
26-Dec-2008	14:00	1.4	E
26-Dec-2008	15:00	1.1	SE
26-Dec-2008	16:00	0.7	SSE
26-Dec-2008	17:00	0.7	SSE
26-Dec-2008	18:00	0.2	ENE
26-Dec-2008	19:00	0.2	ENE
26-Dec-2008	20:00	0.7	ENE
26-Dec-2008	21:00	0.5	NE
26-Dec-2008	22:00	0.5	ESE
26-Dec-2008	23:00	0.7	ENE
27-Dec-2008	00:00	0.9	WSW
27-Dec-2008	01:00	0.7	SSW
27-Dec-2008	02:00	0.7	W
27-Dec-2008	03:00	0.2	WNW
27-Dec-2008	04:00	0.5	SSW
27-Dec-2008	05:00	0.2	S
27-Dec-2008	06:00	0.8	S
27-Dec-2008	07:00	0.8	S
27-Dec-2008	08:00	0.2	NW
27-Dec-2008	09:00	0.2	NW
27-Dec-2008	10:00	0.3	NW
27-Dec-2008	11:00	0.3	SSW
27-Dec-2008	12:00	0.7	S
27-Dec-2008	13:00	0.2	WSW
27-Dec-2008	14:00	0.7	WNW
27-Dec-2008	15:00	0.2	N
27-Dec-2008	16:00	1.1	SSW
27-Dec-2008	17:00	1.8	S
27-Dec-2008	18:00	1.5	SSW
27-Dec-2008	19:00	1.6	S
27-Dec-2008	20:00	0.2	S
27-Dec-2008	21:00	0.5	WSW
27-Dec-2008	22:00	1.1	WNW
27-Dec-2008	23:00	1.1	WNW

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
28-Dec-2008	00:00	0.7	NW
28-Dec-2008	01:00	0.7	WNW
28-Dec-2008	02:00	0.5	NNE
28-Dec-2008	03:00	0.5	N
28-Dec-2008	04:00	0.7	NNE
28-Dec-2008	05:00	0.2	NNE
28-Dec-2008	06:00	1.8	NNE
28-Dec-2008	07:00	1.0	N
28-Dec-2008	08:00	0.2	NW
28-Dec-2008	09:00	0.7	NW
28-Dec-2008	10:00	1.1	WSW
28-Dec-2008	11:00	0.7	WNW
28-Dec-2008	12:00	2.1	WNW
28-Dec-2008	13:00	0.2	NNE
28-Dec-2008	14:00	1.1	NNE
28-Dec-2008	15:00	1.3	SSW
28-Dec-2008	16:00	1.2	SSW
28-Dec-2008	17:00	0.2	SSW
28-Dec-2008	18:00	0.2	WNW
28-Dec-2008	19:00	0.2	WNW
28-Dec-2008	20:00	0.2	WNW
28-Dec-2008	21:00	0.7	WNW
28-Dec-2008	22:00	0.7	WNW
28-Dec-2008	23:00	0.9	W
29-Dec-2008	00:00	0.7	W
29-Dec-2008	01:00	0.7	WSW
29-Dec-2008	02:00	0.7	W
29-Dec-2008	03:00	0.9	WNW
29-Dec-2008	04:00	0.4	WNW
29-Dec-2008	05:00	0.2	N
29-Dec-2008	06:00	0.2	WNW
29-Dec-2008	07:00	0.2	N
29-Dec-2008	08:00	0.5	ENE
29-Dec-2008	09:00	0.2	NNE
29-Dec-2008	10:00	0.2	N
29-Dec-2008	11:00	0.5	WNW
29-Dec-2008	12:00	0.7	WNW
29-Dec-2008	13:00	0.7	WNW
29-Dec-2008	14:00	0.9	WNW
29-Dec-2008	15:00	0.9	WNW
29-Dec-2008	16:00	0.9	WNW
29-Dec-2008	17:00	0.9	W
29-Dec-2008	18:00	0.7	W
29-Dec-2008	19:00	0.2	W
29-Dec-2008	20:00	1.4	W
29-Dec-2008	21:00	0.2	W
29-Dec-2008	22:00	0.5	SSE
29-Dec-2008	23:00	0.2	SSW
30-Dec-2008	00:00	0.7	SSW
30-Dec-2008	01:00	0.7	SSW
30-Dec-2008	02:00	0.2	WSW
30-Dec-2008	03:00	0.9	WSW
30-Dec-2008	04:00	0.8	ENE
30-Dec-2008	05:00	0.2	WSW

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
30-Dec-2008	06:00	0.5	SW
30-Dec-2008	07:00	0.7	SW
30-Dec-2008	08:00	0.5	SW
30-Dec-2008	09:00	0.2	NE
30-Dec-2008	10:00	0.1	W
30-Dec-2008	11:00	0.4	S
30-Dec-2008	12:00	0.5	SSW
30-Dec-2008	13:00	0.5	WSW
30-Dec-2008	14:00	0.5	SW
30-Dec-2008	15:00	0.7	SW
30-Dec-2008	16:00	0.5	SW
30-Dec-2008	17:00	0.2	SW
30-Dec-2008	18:00	0.4	NE
30-Dec-2008	19:00	0.2	WSW
30-Dec-2008	20:00	0.4	SW
30-Dec-2008	21:00	0.4	SW
30-Dec-2008	22:00	0.1	SW
30-Dec-2008	23:00	0.2	SW
31-Dec-2008	00:00	2.5	N
31-Dec-2008	01:00	2.2	N
31-Dec-2008	02:00	1.6	E
31-Dec-2008	03:00	1.6	N
31-Dec-2008	04:00	1.3	N
31-Dec-2008	05:00	0.9	N
31-Dec-2008	06:00	0.9	N
31-Dec-2008	07:00	0.5	NNE
31-Dec-2008	08:00	0.2	NNE
31-Dec-2008	09:00	0.9	ENE
31-Dec-2008	10:00	1.1	N
31-Dec-2008	11:00	1.3	NNE
31-Dec-2008	12:00	0.7	N
31-Dec-2008	13:00	1.3	E
31-Dec-2008	14:00	0.4	NNE
31-Dec-2008	15:00	0.4	NE
31-Dec-2008	16:00	0.9	NE
31-Dec-2008	17:00	1.1	NE
31-Dec-2008	18:00	1.1	NE
31-Dec-2008	19:00	0.9	NE
31-Dec-2008	20:00	0.9	NE
31-Dec-2008	21:00	0.5	NE
31-Dec-2008	22:00	0.4	NE
31-Dec-2008	23:00	0.7	NE



**APPENDIX K
SITE AUDIT SUMMARY**

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	81203
Date	3 December 2008 (Wednesday)
Time	15:00 – 17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
81203-001	• Chemical waste drums were observed standing on the bare ground at Western Portal. The Contractor was reminded to dispose them properly.	F2ii.
81203-002	• Construction materials were observed accumulate at the drainage channel to nullah at Western Portal. The Contractor was reminded to clear them.	F9
81203-003	• Sediment was observed accumulate at the U-Channel at Intake MA17. The Contractor was reminded to clear them.	F9
81203-004	• Oil stains were observed at underneath of drilling rig at Eastern Portal. The Contractor was reminded to clear them and properly maintain the plants to prevent further oil leakage.	F8
81203-005	• Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	F8
81203-007	• The valve of drip tray at Intake MA17 was observed not cover properly. The Contractor was reminded to seal it.	F3i.
	E. Ecology	
81203-006	• Sediment accumulates at the access road at Eastern Portal. The Contractor was reminded to clear them.	G1
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
81203-R08	• Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	G1
81203-R09	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:81127), follow-up action is needed for the items (81127-002, 004, 005 and R10, R11)	

	Name	Signature	Date
Recorded by	Ivy Tam		3 December 2008
Checked by	Dr. Priscilla Choy		3 December 2008

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	81210
Date	10 December 2008 (Wednesday)
Time	15:30 – 18:00


Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
81210-002	• Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	B15
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
81210-001	• Oily part of equipment was observed standing on the bare ground at Western Portal. The Contractor was reminded to remove them and clear the oil stains as soon as possible.	F8
81210-003	• Chemical waste drums were observed standing on the bare ground at Western Portal. The Contractor was reminded to dispose them properly.	F2ii.
81210-004	• Oil containers with chemical oil were observed standing on the bare ground at Western Portal. The Contractor was reminded to provide drip tray/store it properly.	F3i.
81210-005	• The valve of drip tray at Intake MA17 was observed not cover properly. The Contractor was reminded to seal it.	F3i.
81210-006	• Oil leakage was observed from the generator at Intake MA17. The Contractor was reminded to clear them and well-maintain the equipment to prevent further oil leakage.	F8
81210-007	• Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	F8
81210-009	• Part of equipment with remaining oil was observed at the excess road at Eastern Portal. The Contractor was reminded to clear them.	F9
	E. Ecology	
81210-008	• Sediment accumulates at the access road at Eastern Portal. The Contractor was reminded to clear them.	G1
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
81210-R10	• Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	G1
81210-R11	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:81203), follow-up action is needed for the items (81203-001, 005-007 and R08, R09)	

Recorded by	Name Ivy Tam	Signature <i>Ivy</i>	Date 10 December 2008
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Contract No. DC/2007/10

Design and Construction of Hong Kong West Drainage Tunnel

Weekly Site Inspection Record Summary

Checked by	Dr. Priscilla Choy		10 December 2008
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

*Contract No. DC/2007/10
Design and Construction of Hong Kong West Drainage Tunnel*

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	81217
Date	17 December 2008 (Wednesday)
Time	15:00 – 18:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
81217-001	• Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	B15
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
81217-002	• Oily part of equipment was observed standing on the bare ground at Western Portal. The Contractor was reminded to remove them and clear the oil stains as soon as possible.	F8
81217-003	• Chemical waste drums were observed with drip tray at Western Portal. The Contractor was reminded to store them at designated chemical storage area and dispose them properly.	F2ii.
81217-004	• Oil stains were observed at the paved area at Eastern Portal. The Contractor was reminded to clear them.	F8
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
81217-R05	• Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	G1
81217-R06	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:81210), follow-up action is needed for the items (81210-001-003, 007 and R10, R11)	

	Name	Signature	Date
Recorded by	Ivy Tam		17 December 2008
Checked by	Dr. Priscilla Choy		17 December 2008

Weekly Site Inspection Record Summary



Inspection Information

Checklist Reference Number	81224
Date	24 December 2008 (Wednesday)
Time	9:00 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
81224-O01	<ul style="list-style-type: none"> Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out. 	B15
81224-O02	<p><i>Marine Works</i></p> <ul style="list-style-type: none"> Foam and container were observed within the silt curtain at Western Portal. The Contractor was reminded to clear them. 	B22
81224-O03	<ul style="list-style-type: none"> Sediment was observed carrying to the public road at Western Portal. The workers have cleared the road immediately. However, The Contractor was reminded to provide appropriate training to the workers that all vehicle and plant should be cleared of earth, mud and debris before leaving the site. 	B16ii.
	B. Air Quality	
81224-O03	<ul style="list-style-type: none"> Sediment was observed carrying to the public road at Western Portal. The workers have cleared the road immediately. However, The Contractor was reminded to provide appropriate training to the workers that all vehicle and plant should be cleared of earth, mud and debris before leaving the site. 	D2 & 8
	C. Noise	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	D. Waste / Chemical Management	
81224-O02	<ul style="list-style-type: none"> Foam and container were observed within the silt curtain at Western Portal. The Contractor was reminded to clear them. 	F5ii.
81224-O04	<ul style="list-style-type: none"> C&D waste was observed at the existing stream at Eastern Portal. The Contractor was reminded to clear them as soon as possible. 	F5ii.
81224-O06	<ul style="list-style-type: none"> Oil stains were observed at the unpaved area at near the existing stream at Eastern Portal. The Contractor was reminded to clear them properly and well-maintained the plant to prevent further oil leakage. 	F8
	E. Ecology	
81224-O04	<ul style="list-style-type: none"> C&D waste was observed at the existing stream at Eastern Portal. The Contractor was reminded to clear them as soon as possible. 	G1
81224-O05	<ul style="list-style-type: none"> Cement bags (abandon) were observed accumulate at near the existing stream at Eastern Portal. The Contractor was reminded to dispose them properly. 	G1
81224-O06	<ul style="list-style-type: none"> Oil stains were observed at the unpaved area at near the existing stream at Eastern Portal. The Contractor was reminded to clear them properly and well-maintained the plant to prevent further oil leakage. 	G1
	F. Marine Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	G. Reminders	
81224-R07	<ul style="list-style-type: none"> Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream. 	G1
81224-R08	<ul style="list-style-type: none"> Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites. 	B15

Weekly Site Inspection Record Summary

	<i>H. Others</i>	
	<ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.:81217), follow-up action is needed for the items (81217-001and R05, R06)	

	Name	Signature	Date
Recorded by	Ivy Tam		24 December 2008
Checked by	Dr. Priscilla Choy		24 December 2008

Contract No. DC/2007/10
Design and Construction of Hong Kong West Drainage Tunnel

Weekly Site Inspection Record Summary



Inspection Information

Checklist Reference Number	81229
Date	29 December 2008 (Monday)
Time	14:00 – 17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
81229-001	• Standing water with discarded water bottles was observed in the tank at Eastern Portal. The Contractor was reminded to clear them.	B15
81229-003	• Milky water discharge was observed from wastewater treatment unit at Eastern Portal. The Contractor was reminded to remove deposited silt/grit at the silt removal facilities regularly to ensure that these facilities can function properly at all time.	B9
81229-004	• Leakage of water to the existing stream at the access road at Eastern Portal was observed. The Contractor was reminded to provide sand bag bund to prevent any wastewater discharging to the stream.	B5
81229-005	• Muddy water and sediment was observed accumulate at the paved area at Eastern Portal. The Contractor was reminded to provide sand bag bund to surround the open channels to direct the silty runoff for treatment before discharging out.	B5
81229-006	• Standing water was observed near the tunnel at Western Portal. The Contractor was reminded to dry it out.	B15
	B. Air Quality	
81229-009	• Opened cement bags were observed at Western Portal. The Contractor was reminded to cover it with tarpaulin to control dust emission.	D6
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
81229-001	• Standing water with discarded water bottles was observed in the tank at Eastern Portal. The Contractor was reminded to clear them.	F1iii.
81229-002	• Oil spillage was observed from the plant at near of the existing stream at Eastern Portal. The Contractor was reminded to clear the oil stains and well-maintained the plant equipment to prevent further oil leakage.	F8
81229-007	• Chemical containers were observed accumulate at the site area of Western Portal. The Contractor was reminded to store it in chemical waste storage area and dispose them properly.	F2ii.
81229-008	• Oil drum was observed standing on the bare ground at Western Portal. The Contractor was reminded to provide drip tray or store it properly.	F3i.
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	•	
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
81229-R10	• Construction works at near the existing stream at Eastern Portal should be carried out carefully to prevent any disturbance / damage to the stream.	G1
81229-R11	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals and Intake sites.	B15

Weekly Site Inspection Record Summary

	<i>H. Others</i>	
	<ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.:81224), follow-up action is needed for the items (81224-O0, O06 and R07, R08)	

	Name	Signature	Date
Recorded by	Ivy Tam		29 December 2008
Checked by	Dr. Priscilla Choy		29 December 2008

**APPENDIX L
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

Appendix L - Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
Construction Dust	<i>Dust Mitigation Measures</i>	
	<ul style="list-style-type: none"> The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. Effective dust suppression measures should be installed to minimize air quality impacts, at the boundary of the site and at any sensitive receivers. 	^
	<ul style="list-style-type: none"> No blasting shall be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted (unless prior permission of the Commissioner of Mines is obtained). 	^
	<ul style="list-style-type: none"> Effective water sprays shall be used during the delivery and handling of all raw sand, aggregate and other similar materials, when dust is likely to be created, to dampen all stored materials during dry and windy weather. Watering of exposed surfaces shall be conducted as often as possible depending on the circumstances. 	^
	<ul style="list-style-type: none"> A watering programme of once every 2 hours in normal weather conditions, and hourly in dry/windy conditions. 	^
	<ul style="list-style-type: none"> Any stockpile of dusty material cannot be immediately transported out of the Site shall be either: a) covered entirely by impervious sheeting; b) placed in an area sheltered on the top and the three sides; or c) sprayed with water or a dust suppression chemical so as to maintain the entire surface wet. 	*
	<ul style="list-style-type: none"> Should a conveyor system be used, the Contractor shall implement the following precautionary measures. Conveyor belts shall be fitted within windboards. Conveyor transfer points and hopper discharge areas shall be enclosed to minimize dust emission. All conveyors under control of the Contractor, and carrying materials which have the potential to create dust, shall be totally enclosed and fitted with belt cleaners. 	N/A
	<ul style="list-style-type: none"> Any dusty materials being discharged to vehicle from a conveying system at fixed transfer point, three-sided roofed enclosed with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented via a suitable fabric filter system. 	N/A
	<ul style="list-style-type: none"> The heights from excavated spoils are dropped should be minimise to reduce the fugitive dust arising from unloading/loading. 	^
	<ul style="list-style-type: none"> The Contractor shall confine haulage and delivery vehicles to designated roadways inside the site. If in the opinion of the Engineer, any motorising vehicle is causing dust nuisance, the Engineer may require that the vehicle be restricted to a maximum speed of 15km per hour while within the site area. 	^
<ul style="list-style-type: none"> Areas within the site where there is a regular movement of vehicles shall have an approved hard surface, be kept clear of loose surface materials and / or be regularly watered. 	^	
<ul style="list-style-type: none"> Wheel cleaning facilities shall be installed for both portals and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel cleaning facilities shall be usable prior to any earthwork excavation activity on site. The Contractor shall provide a hard-surfaced road between any cleaning facility and the public road. 	*	
<ul style="list-style-type: none"> Chemical wetting agents shall only be used on completed cuts and fills to reduce wind erosion. 	N/A	

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
 N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
 * Recommendation was made during site audit but improved/rectified by the contractor;
 # Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	<ul style="list-style-type: none"> • No vehicle exhausts shall be directed towards the ground or downwards to minimize dust nuisance. • Ventilation system, equipped with proprietary filters, should be provided to ensure the safe working environment inside the tunnel. Particular attention should be paid to the location and direction of the ventilation exhausts. The exhausts should not be allowed to face any sensitive receivers directly. Consideration should also be given to the location of windows, doors and direction of prevailing winds in relation to the nearby sensitive receivers. • In the event of any spoil or debris from construction works being deposited on adjacent land, or stream, or any silt being washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Engineers. <p>In addition, based on the <i>Air Pollution Control (Construction Dust) Regulation</i>, any works involved regulatory and notifiable works, such as stockpiling, loading and unloading of dusty materials, shall take precautions to suppress dust nuisance.</p> <ul style="list-style-type: none"> • The working area of any excavation or earthmoving operation shall spray with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet; • Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies; and • Any stockpile of dusty materials (greater than 20m³) shall be either covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides; and sprayed with water or a dust suppression chemical so as to maintain the entire surface wet. • Other suitable dust control measures as stipulated in <i>Air Pollution Control (Construction Dust) Regulation</i>, where appropriate, should be adopted. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>^</p>

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
<p>Construction Noise</p>	<p><u>Air borne noise</u></p> <p>In general, potential construction noise impact can be minimized or avoided by imposing a combination of the following mitigation measures:</p> <ul style="list-style-type: none"> • Noisy equipment and activities should be sited by the Contractor as far from close-proximity sensitive receivers as practical. Prolonged operation of noisy equipment close to dwellings should be avoided. • The Contractor should minimise construction noise exposure to the schools (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the works contract and to avoid noisy activities during these periods. • Noisy plant or processes should be replaced by quieter alternatives. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressor, can be readily obtained. • Noisy activities should be scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise. For example, noisy activities can be scheduled for midday, or at times coinciding with periods of high background noise (such as during peak traffic hours). • Idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more often than is necessary. • The power units of non-electric stationary plant and earth-moving plant should be quietened by vibration isolation and partial or full acoustic enclosures for individual noise-generating components. • Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided, thus reducing the cumulative impacts between operations. The numbers of operating items of powered mechanical equipment should be minimised. Noise can be reduced by increasing the distance between the operating equipment and the NSRs or by reducing the number of items of equipment and/or construction activity in the area at any one time. • The use of quiet plant working methods can further reduce noise level. Quiet plant is defined as Powered Mechanical Equipment (PME) whose actual sound power level is less than the value specified in the TMs for the same piece of equipment. To allow the Contractor some flexibility to select equipment to suit his needs, it is considered too restrictive to specify which specific items of silenced equipment to be used for the construction operations. It should be noted that various types of silenced equipment can be found in Hong Kong and are readily available on the market. BS 5228 also provides examples of quiet construction plant and their SWL. • Construction plant should be properly maintained (well-greased, damage and worn parts promptly replaced) and operated. Construction equipment often has silencing measures built in or added on, e.g. bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilised. Rubber or damping materials should be introduced between metal panels to avoid rattle and reverberation of noise. • Equipment known to emit sound strongly in one direction should be oriented so that the noise is directed away from nearby NSRs. • Materials stockpile and other structures (such as site offices) should be effectively utilised to shield construction noise. Noise 	<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
 N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
 * Recommendation was made during site audit but improved/rectified by the contractor;
 # Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	<p>can also be reduced by construction of temporary noise barriers which screen the lower floors from viewing the sites. Temporary noise barriers should be installed at active parts of construction areas where construction equipment is being operated in close proximity to NSRs.</p> <ul style="list-style-type: none"> • It is noted that under the WBTC No. 19/2001, all construction sites are required to use metallic site hoarding can be slightly modified (with the addition of steel backings) into temporary noise barriers. These barriers should be gap free and have a surface mass density of at least 7kg/m². • All hand-held percussive breakers and air compressors should comply the Noise Control (Hand-held Percussive Breakers) Regulations respectively under the NCO (Ordinance No. 75/88, NCO Amendment 1992 No.6). <p>The Contractor shall devise, arrange methods of working and carry out the works in such manner as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these measures are implemented properly.</p> <p><u>Level 2 Use of Barriers</u></p> <p>Level 2 mitigation measures include providing movable barriers for sites which have sufficient space for installation, full enclosures during the drilling activities at Eastern Portal and at muck pit areas for Eastern portals and cantilever-typed high rise noise barrier for intake W5 (P) and W8.</p> <p>Before construction of the full enclosure at muck pit area, the use of full enclosure noise barrier (Stage A) for the drilling activities at the Eastern Portal area is required. A full enclosure for the muck pit area will then be constructed at this later stage (Stage B). The full enclosure shall be gap free apart from necessary entrance/exits, which shall face towards the entrance of eastern portal to minimize the amount of noise generated from affecting the nearest RNSRs especially school (True Light Middle School of Hong Kong).</p> <p>5m high cantilever-typed hoarding barrier to be built at W5 (P) and W8. These enclosures/barriers should have no gaps and have a superficial surface density of at least 10kg/m². Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period. To schedule the noise barrier erection and dismantling to the non sensitive periods of school to avoid adverse impact to W8/3.</p> <p>Movable barriers of 3 to 5m height with a small cantilevered upper portion and skid footing to be located within about 5 m or more for mobile equipment such that the line of sight is blocked. To provide purposes-built noise barriers or screens constructed of appropriate materials (minimum superficial density of 10kg/m²) located close to the operating PME.</p> <p>Pre-drilling following by chemical splitting instead of using large excavator mounted breaker should be used as mitigation measure for rock breaking and rock drilling.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	<p>No construction activity is recommended during the examination period.</p> <p><u>Ground borne noise</u></p> <p>The noise level should be measured on the ground floor inside the nearest building during the TBM construction work in the daytime. If the daytime monitored ground borne noise exceeds the relevant evening/night ground borne noise criteria, evening/night construction work would not be carried out for the concerned tunnel section. Evening/night time construction work is subject to CNP application under the control of NCO.</p> <p>Public relationship strategy with 24-hour hotline system.</p>	<p>^</p> <p>N/A</p>

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
Water Quality	<p><u>Precautionary measures for construction work near natural streams</u></p> <p>The government provides guidelines (ETWB TCW NO. 5/2005 and DSD TC 2/2004) are providing guidelines to minimize impacts when there is construction work carried out at near natural streams course. Relevant mitigation measures for the intakes are summarised as follows:</p> <ul style="list-style-type: none"> • Temporary site access to the work sites should be carefully planned and located to minimize disturbance caused to the substrates of streams/rivers and riparian vegetation by construction plant. • Locations well away from the rivers/streams for temporary storage of materials (e.g equipment, filling materials, chemicals and fuel) and temporary stockpile of construction debris and spoil should be identified before commencement of works. • Proposed works site areas inside, or in the proximity of, natural rivers and streams should be temporarily isolated to prevent adverse impacts on the stream water qualities. • Stockpiling of construction materials, if necessary, should be completely properly covered and located away from any natural stream/river. • Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby rivers/streams by rain and local runoff. 	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>
	<p><u>Construction of temporary berthing point at the Western Portal</u></p> <p>A refuse collection vessel shall be provided to collect refuse or materials lost into the sea.</p>	<p>^</p>
	<p>The respective areas of the marine works will be completely enclosed by the silt curtain. The curtain shall be extended from water surface down to the seabed where it is anchored using sinker blocks. The Contractor shall inspect the silt curtain on regular basis to ensure its integrity and it is serviceable for all times.</p>	<p>^</p>

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Types of Impacts	Mitigation Measures	Status
	<p>Transfer of armour rock onto the seabed from barge at the temporary pier location should be conducted by careful grabbing and unloading to the seabed (to minimize sediment migration).</p>	^
	<p>The conveyor belt should be completely covered and muddy effluent from the temporary barge should be contained, treated and disposed. Where there is transfer of excavated wastes, the Contractor should provide appropriate measures to ensure that the waste is free from floatables, putrescibles, organic wastes and toxic materials and when required a refuse collection vessel be provided to collect float refuse.</p>	N/A
	<p><u>Construction of stilling basin at Western Portal outfall</u></p>	
	<p>All construction for the basin should be carried out inside the temporary cofferdam which is a temporary watertight enclosure built in the water and pumped dry to expose the bottom so that construction of stilling basin can be undertaken.</p>	^
	<p>During the dewatering process, appropriate desilting/sedimentation devices should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge.</p>	N/A
	<p>The cofferdam will remain on site until after the construction of stilling basin has been completed. The coffer dam shall be regularly inspected and maintained to ensure no spillage of waste or wastewater into the sea. Conveyance of dredged materials from the coffer dam shall be carried out cautiously to avoid spillage into the sea.</p>	N/A
	<p>The filled material for the stilling basin should be contained inside the temporary cofferdam. The top level of the cofferdam shall be constructed higher than the final backfilled level.</p>	^
	<p>The Contractor shall be responsible for the design, installation and maintenance of the silt curtains to minimize the impacts on the water quality and the protection of water quality. The design and specification of the silt curtains shall be submitted by the Contractor to the Engineer for approval.</p>	^
	<p>Silt curtains shall be formed from tough, abrasion resistant, permeable membranes, suitable for the purpose, supported on floating booms in such a way as to ensure that the sediment plume shall be restricted to within the limit of the works area. The silt curtain shall be formed and installed in such a way that tidal rise and fall are accommodated, with the silt curtains always extending from the surface to the bottom of the water column and held with anchor blocks. The removal and reinstallation of such curtains during typhoon conditions shall be as agreed with the Director of Marine Department. The contractor shall regularly inspect the silt curtains and check that they are moored and marked to avoid danger to marine traffic. Any damage to the silt curtain shall be repaired by the Contractor promptly and the works shall be stopped until the repair is fixed to the satisfaction of the Engineer.</p>	^

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Types of Impacts	Mitigation Measures	Status
	<p>Transfer of rock fill material (armor rock) from the barge onto the site location should be conducted by grabbing and placement on the seabed to minimize sediment migration. No free dropping of the material will be allowed.</p>	^
	<p>Prior to the construction of armor rock based panel, a silt curtain shall also be installed prior to carry out any marine works as a preventive mitigation measure.</p>	^
	<p><u>Construction of TBM tunnel at both portals and intakes</u></p>	
	<p>Recycled water will be used at the cutter face for cooling purposes. Used water will be collected and discharged to a settling tank for settlement. Excess water from the settling tank will be transferred to the water treatment plant on site where the addition of flocculants will assist in settlement of solids. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge.</p>	N/A
	<p>During the drilling process, all flushing water will be recycled for use. Discharge of the treated water to nearby drainage system shall be allowed provided that it has been treated to a level meeting with statutory requirements.</p>	^
	<p>Water flow at streams should be maintained by a temporary diversion system during the construction phase of intakes and manhole drop shafts.</p>	N/A
	<p><u>General Construction Activities and Workforce</u></p>	
	<p>A. Surface runoff</p>	
	<p>Effluent produced from construction activities are subjected to WPCO control. Effluent produced from sites should be diverted away from stream courses. Construction works near stream course should be scheduled in the dry season as far as practical to avoid excessive site runoff discharge.</p>	^
	<p>Under the <i>Water Pollution Control Ordinance</i> (WPCO), turbid water from construction sites must be treated to minimize the solids content before being discharged into storm drains. The suspended solids load can be reduced by directing the runoff into temporary sand traps or other silt-removal facilities, and other good and appropriate site management practices. Advice on the handling and disposal of construction site discharge is provided in the ProPECC Paper (PN 1/94) on Construction Site Drainage.</p>	^
	<p>A drainage system layout should be prepared by the Contractor for each of the works areas (portals and intakes), detailing the facilities and measures to manage pollution arising from surface runoff from those works areas. The drainage layout and an associated drainage management plan to reduce surface runoff sediments and pollutants entering watercourses, should be submitted to the Engineer for approval and to EPD for agreement.</p>	^

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Types of Impacts	Mitigation Measures	Status
	<p>The system should be capable of handling stormwater from the site and directing it to sediment removal facilities before discharge. If oil and grease is used on the site or brought to the site, the stormwater should pass through oil interceptors before discharge. The interceptors should have a bypass to prevent washout in heavy storms.</p> <p>A temporary channel system or earth bunds or sand barriers should be provided in works areas on site to direct stormwater to silt-removal facilities. Stockpiled materials, if susceptible to erosion of rain or wind, should be covered with tarpaulins (or/similar fabric) or hydroseedings as far as practicable especially during the wet season.</p> <p>Silt removal facilities should be checked and the deposited silt and grit should be removed regularly to ensure these facilities are in good working condition and to prevent blockages.</p> <p>Vehicle washing areas should be drained into a settlement basin to settle out the suspended solid before discharge to storm water drains. The water should be recycled on site whenever possible. It is suggested that the wash water from the wheel wash basin is either reused for road watering or pumped to the on-site settling tanks for treatment. Water used for dust depression purposes should be minimized and an alternative soil holding agent should be considered.</p> <p>B. Spillage, Oil and Solvents Any contractor generating waste oil or other chemicals as a result of his activities should register as a chemical waste producer and provide a safe storage area for chemicals on site. Oil interceptors need to be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity.</p> <p>Any spillage should be cleaned up immediately and the resulting contaminated absorbent material should be properly managed according to Waste Disposal Regulations. Spills should be contained to avoid spreading and contaminating the water resources.</p> <p>Oil and fuels should be used and stored properly in designated area. All fuel tanks and storage areas should be provided with locks and be sited on within sealed areas within surrounded by bunds of with a capacity equal to 110% of the storage capacity of the largest tank.</p> <p>Good housekeeping practices are required to minimize careless spillage and keep the work space in a tidy and clean condition. Appropriate training, including safety codes and relevant manuals, should be given to the personnel who regularly handle the chemicals on site.</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>*</p> <p>*</p>

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	<p>C. On-Site Effluent Generation</p> <p>Sewage arising from the additional population of workers on site should be collected in a suitable storage facility (chemical mobile toilets). Most of the work site locations are close to the public sewerage system, and therefore the use of septic tanks isare, therefore, not encouraged. Portable toilets should be used coupled with tickering away services provided by a licensed collector. They should be positioned at appropriate locations across the site to ensure no direct discharge of foul water off-site.</p> <p>D. Protection of Existing Flora and Fauna</p> <p>The Contractor should provide details of the plant and operation plans at each site for approval by the Engineer before commencing construction. The plans should include how the existing flora and fauna will be protected. Locations required for groundwater levels monitoring are Eastern Portal, PFLR1(P), THR2(P), TP5, TP789 and W12.</p> <p>The construction and demolition of the temporary pier may create short term impacts on the local marine water quality. The situation will be restored once the work is finished by proper phasing of the works programme and implementation of the adequate mitigation measures (e.g. silt curtain) the impacts will be minimized.</p> <p><u>Maintaining Baseflow in Downstream Watercourses</u></p> <p>The final design will be developed during the detailed design stage. The exact base flow rates to be maintained at each of the intakes will be subject to detailed site investigation at design stage.</p> <ul style="list-style-type: none"> • Purpose of the by-pass device is to maintain the base-flow of the affected stream course. • The by-pass system comprises an approach link and a trapezoidal channel. • The approach link is section with inclined profiled surface at a gradient of 1 in 100. It is used to direct the base flow to the bypass trapezoidal channel at its down stream end during the normal days. • The trapezoidal channel is sized such that it could handle the base flow in the affected stream course which is estimated to be no more than 20 l/s. • Whenever the flow in the stream course exceeding the base flow rate, the excessive flow will overflow into the intake structure via the bottom rack structure. The bottom rack structure has bar screen on the top and inclined channel at the bottom. The top level of the bar screen is level with the by-pass channel with an aim to receive the overflow from the by-pass channel. • The by-pass channel is designed requiring minimum maintenance. However, it is recommended that the maintenance authority carry out regular maintenance inspection prior to onset of seasons and after significant rainstorm event to prevent blockage of the by-pass and bottom rack structure. 	<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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Types of Impacts	Mitigation Measures	Status
Waste/Chemical	<p><u>General</u></p> <p>A proper waste management plan should be implemented to promote waste minimisation at source. Where waste generation is unavoidable then the potential for recycling or reuse should be explored and opportunities taken. If wastes cannot be recycled then the recommended disposal routes should be followed.</p>	*
	<p>All waste materials shall be segregated into categories covering:</p> <ul style="list-style-type: none"> • Excavated material or construction waste suitable for reuse on-site • Excavated material or construction waste suitable for public filling areas • Remaining C&D waste for landfill • Chemical waste, and • General refuse 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
	<p>Proper segregation and disposal of construction waste should be implemented. Separate containers for inert and non-inert wastes should be provided. The inert waste should be taken to public filling area and the non-inert waste should be transported to strategic landfills.</p>	^
	<p>A trip-ticket system on the solid waste transfer/disposal operations should be included as one of the contractual requirements (ETWB TCW No. 31/2004). The Independent Environmental Checker (IEC) should be responsible for auditing this system.</p>	^
	<p>IEC should also be responsible for auditing the well-documented record system which includes: (i) quantity of waste generation, (ii) quantity of recycled material, (iii) quantity of disposed material, (iv) disposal methods and (v) sites should be implemented during construction phase.</p>	^
	<p>Regular cleaning and maintenance of the waste storage area should be conducted throughout the construction stage.</p>	^
	<p><u>Excavated spoil</u></p> <p>Control measures for soil temporarily stockpiled on-site should be taken in order to minimize the noise, generation of dust, pollution of water and visual impact. Key impacts include:</p>	^

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Types of Impacts	Mitigation Measures	Status
Terrestrial Ecology	<p>During the detailed design stage, the following issues should also be considered as possible to further minimise the impacts:</p> <ul style="list-style-type: none"> • Adjustment of site boundary to minimise temporary loss of natural stream habitat during construction. • Adjustment of site boundary to minimise use of mixed woodland as temporary works area. In particular, the woodland habitat in temporary works area of the Eastern Portal will be avoided, thereby greatly reducing the area of temporary loss of woodland habitat. • Minimizing felling of large trees. • About 20% of trees within the works area will be transplanted. The individual of <i>Artocarpus hypargyreus</i> recorded within the temporary works area of HKU1, if to be encroached, would also be transplanted. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
	<p>Standard site practices including the following, should be enforced to minimise the disturbance to the surroundings:</p> <ul style="list-style-type: none"> • Treat any damage that may occur to large individual trees in the adjacent area using materials and methods appropriate for tree surgery. • Reinstate work sites/disturbed areas immediately after completion of the construction works, in particular, through on-site tree/shrub planting along the woodland and shrubland section within the temporary works area. Tree/shrub species used should make reference from those in the surrounding area. • Regularly check the work site boundaries to ensure that they are not exceeded and that no damage occurs to surrounding areas. 	<p>^</p> <p>^</p> <p>^</p>
	<p>A total of 1.02 ha would be replanted with woodland species, reaching almost a 1.5:1 ratio for compensatory planting. Tree/shrub species used should be based on those in the surrounding areas, including those which are commonly recorded during the baseline surveys.</p>	<p>^</p>
	<p>A low-flow channel would be provided within the channelised section to maintain a deeper water depth in the expanded channel, in particular during dry season as well as a basin at the end of the channelised section to provide living space for aquatic life. Step chute in the form of a series of descending water pools would be constructed between the low flow channel and the undisturbed stream course. There would also be openings for aquatic fauna between each chute step (pool). These could work like a “ladder” to help avoid isolating the aquatic fauna in the channelised section from natural habitats.</p>	<p>^</p>
	<p>Measures are also needed to maintain the flow of all affected streams/nullahs during the construction stages. Temporary bypass should be provided if the stream/nullah flows will be cut off by the construction works. After the construction works are finished, sections of temporary loss should be reinstated. Construction materials, wastes, and equipment should be cleared from the sites.</p>	<p>^</p>

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Types of Impacts	Mitigation Measures	Status
	<p>Surveys of amphibians at E4(P), PFLR1(P), W12(P), MB16, E5(B)(P), TP789(P) and P5(P) prior to commencement of construction is recommended. Frogs, including Hong Kong Cascade Frog and Lesser Spiny Frog, and tadpoles found at work areas of these proposed intake points will be collected and translocated to nearby streams that will not be affected by the project. These procedures should be performed by experienced herpetologists. A detailed translocation proposal will be submitted during the detailed design stage.</p> <p>Measures should also be taken to avoid runoff to streams and marine habitats. Stream/channel which could potentially be affected during construction should be prevented from sedimentation by erection of sediment barriers. Site runoff should be desilted by siltation traps in streams/channels or diverted, to reduce the potential for suspended sediments, organics and other contaminants to enter the local stream environment.</p>	<p>^</p> <p>^</p>
Marine Ecology	<p>Silt curtains will be deployed during the construction and demolition of the temporary berthing point. Deployment of silt curtains around the berthing point area would effectively avoid adverse water quality impacts due to barge filling. No significant ecological impact is anticipated.</p> <p>The invert of the stilling basin would be at -5.4 mPD. A cofferdam in the form of pipe-pile wall is to be constructed outside the stilling basin prior to the construction of basin. The cofferdam will be dewatered to provide a working area for construction of the stilling basin. The boulders from the seawall will then be removed by landbased grabs.</p> <p>Although the speed of the working vessels to be used in the Project (mainly barges) would not be high, a speed limit for marine traffic is proposed as a precautionary measure. A speed limit of 10 knots should be strictly enforced in the works area, in particular in the waters between the outfall location and the navigation channel in East Lamma Channel.</p>	<p>^</p> <p>N/A</p> <p>^</p>

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Types of Impacts	Mitigation Measures	Status
<p>Landscape and Visual</p>	<p>The proposed landscape and visual mitigation measures during the construction phase include:</p> <p>CM1 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.</p> <p>CM2 - Existing trees to be retained on site should be carefully protected during construction. The detailed proposal for any trees felling and transplantation is subject to Lands Department's approval on tree felling application at the detailed design stage.</p> <p>CM3 - Trees unavoidably affected by the works should be transplanted where practical.</p> <p>CM4 - Compensatory tree planting should be provided to compensate for felled trees.</p> <p>CM5 - The extent of disturbance on the existing stream course should be minimized. Any temporary works areas within the stream course shall be reinstated after construction.</p> <p>CM7 – Control of night-time lighting</p> <p>CM8 – Erection of decorative screen hoarding</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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Types of Impacts	Mitigation Measures	Status
Cultural Heritage	<p>The Cultural Heritage Impact Assessment has identified the following resources which will require mitigation measures during the construction stage;</p>	
	<p><u>Haw Par Mansion (including boundary wall and gate)</u> A condition survey must be undertaken by a qualified professional prior to the commencement of construction works for the tunnel portal in order to assess the structural integrity of the mansion, wall and gate (with special attention paid to any fragile architectural features). A report containing description of the types of construction, identification of fragile elements, an appraisal of the condition and a photographic record must be prepared. The report must also provide an assessment indicating whether further precautionary measures will be necessary during the construction phase, and if so provide details for sufficient protective measures, including monitoring for vibration control to ensure that no damage to the structure and fabric of the house, wall and gate results from the construction works. The report must be submitted to AMO for approval before construction activities commence. Upon approval the appropriate monitoring and precautionary measures shall be put into place.</p>	^
	<p>A buffer zone with a minimum width of 3 metres and an obstruction free access point must be maintained between the boundary wall/gate and the temporary works area (during construction works associated for both the tunnel portal and the permanent vehicle access ramp). This is to enable access for routine maintenance works on the wall and to ensure that the wall is not damaged by machinery operation or related construction activities. The temporary works area will be enclosed by standard DSD site hoarding.</p>	^
	<p><u>Former Explosive Magazine of Victoria Barracks</u> A condition survey must be undertaken by a qualified professional prior to the commencement of construction works in order to assess the structural integrity of the retaining wall and the extent of damage from cracks and vegetation growth. A report containing a description of the wall's construction materials, identification of fragile and/or endangered elements, an appraisal of the condition and a photographic record of the retaining wall must be prepared. The report must also provide an assessment indicating whether further precautionary measures will be necessary during the construction phase, and if so provide details for sufficient protective measures, such as monitoring for vibration control, to ensure that no damage to the retaining wall results from the construction works. The report must be submitted to AMO for approval before construction activities commence. Upon approval the appropriate monitoring and precautionary measures shall be put into place.</p> <p>A buffer zone with a minimum width of 3 metres and an obstruction free access point must be maintained between the retaining wall and the temporary works area (for the duration of the construction phase). The works area will be enclosed by standard DSD site hoarding.</p>	^

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Types of Impacts	Mitigation Measures	Status
Fisheries	Silt curtain will be deployed during the construction and demolition of the temporary berthing point. With the deployment of silt curtains around the berthing point area, adverse water quality impact associated with the filling would not be anticipated. No significant fisheries impact is anticipated.	^
	The invert of stilling basin will be found at -5.4 mPD. A cofferdam in the form of pipe-pipe wall is to be constructed outside the stilling basin prior to the construction of basin. The cofferdam will be dewatered to provide a working space for the construction of stilling basin. The boulders from the seawall will then be removed by landbased grabs.	N/A
Hazard to Life	There will be no overnight storage of explosives for this project. Transportation of explosives to site for the construction of adit will be undertaken on a daily basis. The contractor is required to destroy any unused explosives before nightfall. If contractor wishes to set up magazines for overnight storage of explosives, it is necessary to carry out risk assessment and seek the relevant approval following the EIAO process.	^

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APPENDIX M
EVENT ACTION PLANS

Appendix M - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	CONTRACTOR
ACTION LEVEL				
1.Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source and investigate the causes and propose remedial measures 2. Inform Supervising Officer's Representative & IEC 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2.Check Contractor's working methods 	<ol style="list-style-type: none"> 1.Notify Contractor 	<ol style="list-style-type: none"> 1.Rectify any unacceptable practice 2.Amend working methods if appropriate
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify the source 2. Inform Supervising Officer's Representative & IEC 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with Supervising Officer's Representative & IEC for remedial actions required 6. If exceedance continues, arrange meeting with Supervising Officer's Representative & IEC 7. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1.Checking monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET, IEC and Contractor on proposed remedial actions 4. Advise the Supervising Officer's Representative & ET on the effectiveness of the proposed remedial measures 5.Supervise the implementation of the remedial measures 	<ol style="list-style-type: none"> 1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.Ensure remedial actions properly implemented 	<ol style="list-style-type: none"> 1.Submit proposals for remedial actions to Supervising Officer's Representative within 3 working days of notification 2.Implement the agreed proposals 3.Amend proposal if appropriate
LIMIT LEVEL				
1.Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source,,investigate the causes and propose remedial measures 2. Inform Supervising Officer's Representative & IEC and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep EPD and Supervising Officer's Representative & IEC informed of the results 	<ol style="list-style-type: none"> 1.Check monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET and Contractor on proposed remedial actions 4. Advise the Supervising Officer's Representative on the effectiveness of the proposed remedial measures 5.Supervise the implementation of the remedial measures 	<ol style="list-style-type: none"> 1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.Ensure remedial actions properly implemented 	<ol style="list-style-type: none"> 1.Take immediate action to avoid further exceedance 2.Submit proposals for remedial actions to Supervising Officer's Representative within 3 working days of notification 3.Implement the agreed proposals 4.Amend proposal if appropriate
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source 2. Inform Supervising Officer's Representative, IEC and EPD the causes & actions taken for the exceedances 3. Repeat measurement to confirm findings 	<ol style="list-style-type: none"> 1.Discuss amongst Supervising Officer's Representative, ET and Contractor on the potential remedial actions 2.Review Contractor's remedial actions to assure their effectiveness and advise the 	<ol style="list-style-type: none"> 1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.In consultation with the IEC, agree with the Contractor on the remedial measures to be 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to Supervising Officer's Representative within 3 working

ACTION				
EVENT	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	CONTRACTOR
ACTION LEVEL				
	4. Increase monitoring frequency to daily 5. Investigate the causes of exceedance 6. Arrange meeting with & IEC and Supervising Officer's Representative to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep ER, IEC and EPD informed of the results 8. If exceedance stops, cease additional monitoring	Supervising Officer's Representative accordingly 3. Supervise the implementation of the remedial measures	implemented 4. Ensure remedial measure are properly implemented 5. 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	days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC, Supervising Officer's Representative and Contractor 2. carry our investigation by reviewing all the relevant monitoring data and the corresponding construction activities. Exceedances should also be confirmed by immediate verification in the field as far as practical. 3. Report the results of investigation to the IEC, Supervising Officer's Representative and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the Supervising Officer's Representative & ET accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify Contractor 3. require Contractor to proposed remedial measures for analyzed noise problem 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Identify practicable measures to minimize the noise impact. Submit noise mitigation proposals to ET, IEC and ET. 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, Supervising Officer's Representative, EPD and Contractor 2. Identify the source(s) of impact by reviewing all the relevant monitoring data and the corresponding construction activities. Exceedances should also be confirmed by immediate verification in the field as far as practical. 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. inform IEC, Supervising Officer's Representative and EPD the cause & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Supervising Officer's Representative informed of the results 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst Supervising Officer's Representative, ET, and Contractor on the potential remedial actions 2. Review Contractor's remedial actions to assure their effectiveness and advise the Supervising Officer's Representative & ET accordingly 3. Supervise the implementation of the remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continuous, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is aborted 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Identify practicable measures to minimize the noise impact. Submit proposals for remedial actions to Supervising Officer's Representative within three working days of notification 3. Implement the agreed proposals 4. Resubmit proposal if problem still not under control 5. Stop the relevant portion of works as determined by the Supervising Officer's Representative until the exceedance is abated

Event/Action Plan for Water Quality

EVENT	ACTION			
	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	CONTRACTOR
ACTION LEVEL				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement to confirm findings; Identify source(s) of impact; Inform IEC, contractor and Supervising Officer's Representative; Check monitoring data, all plant, equipment and Contractor's working methods. Discuss mitigation measures with IEC and Contractor Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures. Review proposals on mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; and Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; and Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative; Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC, contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures. Review proposals on mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; and Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; and Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the Supervising Officer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative within 3 working days; Implement the agreed mitigation measures.
LIMIT LEVEL				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat measurement on next of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, Supervising Officer's Representative and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working methods. Discuss with ET and Contractor on possible mitigation measures; Review the proposed mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Discuss with IEC, ET and Contractor on the proposed mitigation. Request Contractor to view the working methods. Ensure mitigation measures are properly implemented. 	<ol style="list-style-type: none"> Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Discuss with ET, IEC and Supervising Officer's Representative and propose mitigation measures to Supervising Officer's Representative and IEC within 3 working days;

EVENT	ACTION			
	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	CONTRACTOR
				5. Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat measurement on next of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, Supervising Officer's Representative and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working methods. 2. Discuss with ET and Contractor on possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Discuss with ET, IEC and Supervising Officer's Representative and propose mitigation measures to Supervising Officer's Representative and IEC within 3 working days; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

**APPENDIX N
COMPLAINT LOG**

APPENDIX N – COMPLAINT LOG

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
Com-2008-05-003	Construction site at Eastern Portal	22 May 2008	The complaint was lodged by Ms. Ng on 22 May 2008 regarding noise nuisance generated from the construction activities at the construction site of Eastern Portal	<p>According to the Contractor, only one excavator and one generator were operated for the excavation works around 8 am on 22 May 2008 at the Eastern portal. No other construction activities were conducted.</p> <p>In response to the complaint, The Contractor agreed to reschedule their current works activities, with immediate effect from 23 May 2008, that only site preparation works without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at the Eastern Portal area.</p> <p>Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in May and (2) no non-compliance or observation on noise was recorded.</p>	Closed
Com-2008-05-004	Construction site at Western Portal (Marine Works)	31 May 2008	The complaint was lodged by one of the local resident on 31 May 2008 regarding the noise nuisance generated from the marine works at Western Portal.	According to the Contractor, only two derrick barges and one tug boat were operated for the seabed formation works around 18:00 hrs on 31 May 2008 at the Western Portal. No other construction activities were conducted.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in May and (2) no non-compliance or observation on noise was recorded.</p>	
Com-2008-07-007	Construction site at Eastern Portal	2 July 2008	<p>The complaint was lodged by a resident of The Legend on 2 July 2008 regarding noise nuisance generated from the construction activities at the construction site of Eastern Portal</p>	<p>According to the Contractor, only one generator and one drilling rig (Jumbo) were operated for the preparation works around 7:30a.m on 2 July 2008 at the Eastern portal. Construction noise was found from other construction site (Gammon Construction Limited) adjacent to Eastern Portal area.</p> <p>In response to the complaint, The Contractor review his forthcoming operations within the Eastern Portal site as previous they agreed, reschedule their current works activities, with immediate effect from 23 May 2008, that only site preparation works without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at the Eastern Portal area.</p> <p>Additional noise monitoring was conducted on 16 and 17 July 2008 during the drilling rig (Jumbo), excavator and wheel loader were operated for drilling works.</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in June and July 2008 and additional noise monitoring (2) no non-compliance or observation on noise was recorded.</p>	
COM-2008-10-011	Construction site at Western Portal	11 October 2008	<p>The complaint was lodged by one of the resident of Victoria Road, Ms Cheung on 11 October regarding about the noise nuisance generated from the construction works at Western Portal</p>	<p>According to the Contractor, excavation works and marine works including sheet piling works were also conducted at the time of complaint at Western Portal</p> <p>Additional noise monitoring was conducted on 15 October 2008, drilling works, excavation works and marine works including sheet piling works were also conducted. The construction noise levels measured during the construction works were well below the construction noise limit of 75 dB(A)</p> <p>The Contractor agreed to reschedule the starting time of the construction works to 8:15am on every Saturday that without noise nuisance from the construction works to the nearby residents will be carried out from 7:00 am to 8:15 am at the Western Portal area.</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Base on the information collected, the noise level measured at outside Aegean Terrace during the construction works at Western Portal site were well below the construction noise limit of 75 dB(A). Also, the Contractor has implemented the remedial measure that reschedule the starting time of the construction works to 8:15am on every Saturday immediately after receiving the complaint to minimize the noise nuisance to the nearby residents.</p>	
COM-2008-10-012	Construction site at Intake TP5	15 October 2008	<p>The complaint was lodged by Mr Choi on 15 October 2008 regarding about the noise generated from the GI works, which starts from 8:30 hrs to 17:30 hrs next to Aigburth at May Road.</p>	<p>According to the information provided by the Contractor, only rotary type drill rigs and water pumps were operated for the GI works at the time of complaint at Intake TP5.</p>	Closed
COM-2008-10-013	Construction site at Intake TP5	31 October 2008	<p>The complaint was lodged by Mr Lai on 31 October 2008 regarding the black smoke is emitted and noise is generated from the machine at the site (Intake TP5), he needed to close the windows to prevent the black smoke from entering his flat and to attenuate the noise.</p>	<p>Additional site inspection and noise monitoring at the podium of the Valverde at May Road were conducted on 3 Nov 2008 and 24 Oct, 5 Nov, 7 Nov 2008 respectively.</p> <p>The Contractor agreed to reschedule the starting time of the construction works to 9:30am on every Saturday and 8:00 on normal weekdays that without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at Intake TP5. Acoustic insulating materials</p>	

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2008-11-015	Construction site at Intake TP5	4 November 2008	The complaint was lodged by Ms Lee on 4 November regarding the noise nuisance generated from the construction works at Intake TP5.	<p>have been applied for enclosing water pump and rotary type drill rigs to minimize the noise nuisance to the nearest residents.</p> <p>Base on the information collected, the noise level measured at the podium of the Valverde at May Road were well below the construction noise limit of 75 dB(A) after the Contractor has implemented the remedial measure.</p>	
COM-2008-11-016	Construction site at Western Portal	17 November 2008	The complaint was lodged by Mr Cheng on 17 November 2008 regarding dust nuisance arising from the soil nailing works at the roadside slope of Cyberport Road.	<p>According to the information provided by the Contractor, soil nailing works were conducted and some plant equipments i.e air compressor and generator were operated at the time of complaint at Western Portal.</p> <p>Base on the regular air quality monitoring in November 2008 at Outside Aegean Terrace (AQ2) and Outside The Site Office at Western Portal (AQ3), the dust levels measured at AQ2 for 1 hour TSP and at AQ3 for 24 hour TSP were well below the Action Level (321µg/m³ for 1 hour TSP and 156µg/m³ for 24 hour TSP). Also, the Contractor has implemented the dust suppression measures to prevent dust nuisance from the construction activities including soil nailing works.</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2008-11-019	Construction site at Western Portal	29 November 2008	The complaint was lodged by Ms Cheung on 1 December 2008 regarding noise nuisance at Western Portal at 08:30 hrs approx on 29 November 2008 and 00:30 on 1 December 2008.	<p>According to the information provided by The Contractor, no construction works was carried out at the temporary jetty at the time of complaint (00:30 on 1 December 2008) at Western Portal.</p> <p>However, base on the regular noise monitoring at Outside Aegean Terrace (NC3), the noise level measured during the construction works at Western Portal site were well below the construction noise limit of 75 dB(A).</p>	Closed
COM-2008-12-020	Construction site at Western Portal	28 December 2008	The complaint was lodged by Ms Cheung on 28 December 2008 regarding the excavator was found working within Western Portal works area on Sunday.	<p>The complaint was considered not justifiable as Construction Noise Permit (CNP) – CNP No. GW-RS0827-08 has been granted from EPD for carrying out the construction works at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. DC/2007/10) between 1 December 2008 at 1900 hours and 28 February 2009 at 2400 hours. The powered mechanical equipment can be operated during the hours as below:</p> <ul style="list-style-type: none"> a) Any day not being a general holiday between 1900 – 2300 hours b) General holiday (including Sundays) between 0700 – 1900 hours 	Closed

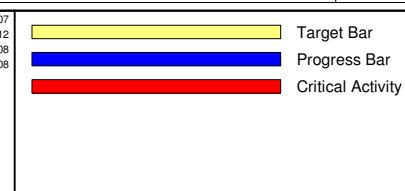
APPENDIX O
CONSTRUCTION PROGRAMME

Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009				
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR		
								CC01 - PRELIMINARIES & GENERAL REQUIREMENTS									
Milestone																	
General																	
M1-1110	1.11-Complete of All Obligat's From 361to420d	0		31/JAN/09*	0	0	0										
M1-1400	1.40-Acceptance of Monthly Report on TDMS(11M)	0		22/DEC/08*	0	-53	0										
M1-1410	1.41-Acceptance of Monthly Report on TDMS(12M)	0		22/DEC/08*	0	-23	0										
M1-1420	1.42-Acceptance of Monthly Report on TDMS(13M)	0		30/DEC/08*	0	0	0										
M1-1430	1.43-Acceptance of Monthly Report on TDMS(14M)	0		31/JAN/09*	0	0	0										
M1-1440	1.44-Acceptance of Monthly Report on TDMS(15M)	0		28/FEB/09*	0	0	0										
CC02 - DESIGN & DESIGN CHECKING OF THE WORKS																	
Design Stage																	
Section 1 (Eastern Portal)																	
D00245	APP East P Temp Drainage Divrsn Main Stream AIP	90	26/SEP/08A	29/JAN/09	61	61	90										
D00250	P&S East P Temp Drainage Divrsn Main Stream DDA	61	08/OCT/08A	28/NOV/08A	21		100										
D00255	APP East P Temp Drainage Divrsn Main Stream DDA	90	29/NOV/08A	10/MAR/09	21	21	13										
D00275	APP Cofferdam for Intake Shaft DDA	42	21/MAY/08A	29/DEC/08	-88	-269	90										
D00282	APP Temp&Perm Line EP Non-TBM Tuntl to ch250 AIP	42	13/SEP/08A	29/DEC/08	0	-84	90										
D00283	P&S Temp Supt EP Non-TBM Tunnel to Ch250 - DDA	15	16/SEP/08A	04/NOV/08A	0		100										
D00284	APP Temp Supt EP Non-TBM Tunnel to Ch250 - DDA	30	05/NOV/08A	29/DEC/08	0	-80	90										
D00286	P&S Perm Supt EP Non-TBM Tunnel to Ch250 - DDA	62	23/DEC/08*	22/FEB/09	504	450	0										
D00287	APP Perm Supt EP Non-TBM Tunnel to Ch250 - DDA	92	23/FEB/09	25/MAY/09	504	450	0										
D00292	APP EP Intake Tunnel&Intake Chamber Temp Sup AIP	21	01/OCT/08A	28/OCT/08A	0		100										
D00294	APP EP Intake Tunnel&Intake Chamber Temp Sup DDA	20	01/OCT/08A	26/NOV/08A	0		100										
D00317	APP Boulder Assess Rep(EP)-inside Bound Stage 1	23	06/FEB/08A	12/NOV/08A	-62		100										
D00319	APP Boulder Assess Rep(EP)-outside Bound Stage 2	24	09/APR/08A	12/NOV/08A	3		100										
D02334	APP East P Temp Drainage Divn Side Stream-DDA	76	28/MAR/08A	29/DEC/08	-19	-235	90										
D02354	APP Temp Drain Divsn Main Stream ELS - AIP	42	10/OCT/08A	29/DEC/08	0	-80	90										
D02364	P&S Temp Drain Divsn Main Stream ELS - DDA	24	21/OCT/08A	28/NOV/08A	0		100										
D02374	APP Temp Drain Divsn Main Stream ELS - DDA	52	29/NOV/08A	18/JAN/09	0	-57	51										
Section 1 (Western Portal)																	
D00375	APP Temp Suppt West Portal Soft Grd Tunnel DDA	42	12/JUN/08A	29/DEC/08	89	-66	90										
D00414	APP Temp ELS WP Deep Struct (Basin)Single SP DDA	21	27/AUG/08A	02/DEC/08A	0		100										
D00421	P&S Temp Suppt WP Hard Rd Tunnel(Arch shape)-AIP	15	29/AUG/08A	06/NOV/08A	0		100										
D00422	APP Temp Suppt WP Hard Rd Tunnel(Arch shape)-AIP	27	07/NOV/08A	22/NOV/08A	0		100										
D00423	P&S Temp Suppt WP Hard Rd Tunnel(Arch shape)-DDA	15	11/SEP/08A	04/DEC/08A	0		100										
D00424	APP Temp Suppt WP Hard Rd Tunnel(Arch shape)-DDA	22	05/DEC/08A	25/DEC/08	0	-70	86										
Section 1 (Portion W0) - Dropshaft																	
D00630	P&S Dropshaft Temp Rock Supt (Excl. W0) AIP	70	23/OCT/08A	21/DEC/08A	97		100										
D00633	APP Dropshaft Temp Rock Supt (Excl. W0) AIP	91	22/DEC/08A	22/MAR/09	97	97	1										
D00636	P&S Dropshaft Temp Rock Supt (Excl. W0) DDA	60	22/JAN/09*	22/MAR/09	276	276	0										
D00639	APP Dropshaft Temp Rock Supt (Excl. W0) DDA	92	23/MAR/09	22/JUN/09	276	276	0										
D00642	P&S Dropshaft Permanent Lining (Excl W0) AIP	45	23/DEC/08*	05/FEB/09	132	80	0										
D00645	APP Dropshaft Permanent Lining (Excl W0) AIP	47	06/FEB/09	24/MAR/09	132	80	0										
D00654	P&S Dropshaft & SC at W0 Temp Rock Supt AIP	88	04/JUL/08A	07/NOV/08A	48		100										
D00657	APP Dropshaft & SC at W0 Temp Rock Supt AIP	42	08/NOV/08A	22/NOV/08A	48		100										
D00660	P&S Dropshaft & SC at W0 Temp Rock Supt DDA	46	10/OCT/08A	16/JAN/09	2	1,097	48										
D00663	APP Dropshaft & SC at W0 Temp Rock Supt DDA	42	17/JAN/09	27/FEB/09	2	1,097	0										
Section 1 (Portion W0)																	
D01145	APP W0-Permanent Works Intake AIP	64	18/JUL/08A	13/NOV/08A	98		100										
D01150	P&S W0-Permanent Works Intake DDA	62	23/AUG/08A	29/DEC/08	831	756	90										
D01155	APP W0-Permanent Works Intake DDA	92	30/DEC/08	31/MAR/09	831	756	0										
D01157	APP W0-Temp Works & Drainage Diversion AIP	92	30/AUG/08A	25/NOV/08A	126		100										
D01158	P&S W0-Temp Works & Drainage Diversion DDA	62	27/AUG/08A	29/DEC/08	38	-6	90										
D01159	APP W0-Temp Works & Drainage Diversion DDA	92	30/DEC/08	31/MAR/09	38	-6	0										
Section 7 (Portion THR2)																	
D00945	APP THR2-Permanent Works Intake AIP	92	08/AUG/08A	13/NOV/08A	403		100										
D00950	P&S THR2-Permanent Works Intake DDA	62	01/FEB/09*	03/APR/09	244	244	0										
D00957	APP THR2-Temp Works & Drainage Diversion AIP	92	24/SEP/08A	28/NOV/08A	117		100										
D00958	P&S THR2-Temp Works & Drainage Diversion DDA	62	01/FEB/09*	03/APR/09	55	55	0										
Section 4 (Portion MB16)																	
D00785	APP MB16-Permanent Works Intake AIP	92	13/OCT/08A	08/JAN/09	266	266	81										
D00790	P&S MB16-Permanent Works Intake DDA	62	01/MAR/09*	01/MAY/09	153	153	0										
D00797	APP MB16-Temp Works & Drainage Diversion - AIP	92	13/OCT/08A	01/JAN/09	160	160	89										
D00798	P&S MB16-Temp Works & Drainage Diversion - DDA	62	01/DEC/08A	30/JAN/09	145	131	59										
D00799	APP MB16-Temp Works & Drainage Diversion - DDA	92	31/JAN/09	02/MAY/09	145	131	0										
D00825	APP MB16-Permanent Slopeworks AIP	122	07/OCT/08A	07/FEB/09	139	139	61										
D00826	P&S MB16-Permanent Slopeworks DDA	62	23/DEC/08*	22/FEB/09	938	532	0										
D00828	APP MB16-Permanent Slopeworks DDA	122	23/FEB/09	24/JUN/09	938	532	0										
Section 31 (Portion PFLR1)																	
D02255	APP PFLR1-Permanent Works Intake AIP	92	20/SEP/08A	29/DEC/08	290	263	90										
D02260	P&S PFLR1-Permanent Works Intake DDA	62	01/FEB/09*	03/APR/09	230	230	0										
D02266	P&S PFLR1-Temp Works & Drainage Diversion AIP	62	14/AUG/08A	09/DEC/08A	61		100										
D02267	APP PFLR1-Temp Works & Drainage Diversion AIP	92	10/DEC/08A	10/MAR/09	61	7	75										
D02268	P&S PFLR1-Temp Works & Drainage Diversion DDA	62	11/MAR/09*	11/MAY/09	17	7	0										
Section30 (Portion HKU1)																	
D02205	APP HKU1-Permanent Works Intake AIP	92	08/AUG/08A	09/DEC/08A	458		100										
D02210	P&S HKU1-Permanent Works Intake DDA	62	02/OCT/08A	29/DEC/08	422	394	90										
D02215	APP HKU1-Permanent Works Intake DDA	92	30/DEC/08	31/MAR/09	422	394	0										
D02217	APP HKU1-Temp Works & Drainage Diversion AIP	122	24/SEP/08A	26/DEC/08	79	75	96										
D02218	P&S HKU1-Temp Works & Drainage Diversion DDA	62	22/JAN/09*	24/MAR/09	25	21	0										
Section 6 (Portion E7)																	
D00885	APP E7 - Permanent Works Intake AIP	92	20/SEP/08A	15/JAN/09	206	206	73										
D00890	P&S E7 - Permanent Works Intake DDA	62	01/MAR/09*	01/MAY/09	100	100	0										
D00896	P&S E7 - Temp Works & Drainage Diversion - AIP	62	01/AUG/08A	06/DEC/08A	220		100										
D00897	APP E7 - Temp Works & Drainage Diversion - AIP	92	07/DEC/08A	08/MAR/09	220	154	90										
D00898	P&S E7 - Temp Works & Drainage Diversion - DDA	62	06/JAN/09*	08/MAR/09	175	154	0										
D00899	APP E7 - Temp Works & Drainage Diversion - DDA	92	09/MAR/09	08/JUN/09	175	154	0										
D00925	APP E7 - Permanent Slopeworks AIP	122	10/OCT/08A	27/NOV/08A	591		100										
D00930	P&S E7 - Permanent Slopeworks DDA	62	01/JAN/09*	03/MAR/09	591	591	0										
D00935	APP E7 - Permanent Slopeworks DDA	122	04/MAR/09	03/JUL/09	591	591	0										
Section 29 (Portion W10)																	
D02150	P&S W10-Permanent Works Intake AIP	62	23/AUG/08A	10/NOV/08A	430		100										
D02155	APP W10-Permanent Works Intake AIP	92	11/NOV/08A	15/JAN/09	430	430	73										
D02166	P&S W10-Temp Works & Drainage Diversion AIP	62	29/SEP/08A	18/NOV/08A	75		100										
D02167	APP W10-Temp Works & Drainage Diversion AIP	122	19/NOV/08A	20/MAR/09	75												

Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009				
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR		
D02310	P&S SM1-Permanent Works Intake DDA	63	05/NOV/08A	02/JAN/09	237	237	82										
D02315	APP SM1-Permanent Works Intake DDA	92	03/JAN/09	04/APR/09	237	237	0										
D02317	APP SM1-Temp Works & Drainage Diversion AIP	92	24/SEP/08A	01/JAN/09	238	238	89										
D02318	P&S SM1-Temp Works & Drainage Diversion DDA	62	23/DEC/08*	22/FEB/09	187	186	0										
D02319	APP SM1-Temp Works & Drainage Diversion DDA	92	23/FEB/09	25/MAY/09	187	186	0										
Section 26 (Portion RR1)																	
D02000	P&S RR1-Permanent Works Intake AIP	62	08/OCT/08A	08/DEC/08A	644		100										
D02005	APP RR1-Permanent Works Intake AIP	92	09/DEC/08A	10/MAR/09	644	637	24										
D02016	P&S RR1-Temp Works & Drainage Diversion AIP	62	03/NOV/08A	01/JAN/09	112	112	83										
D02017	APP RR1-Temp Works & Drainage Diversion AIP	122	02/JAN/09	03/MAY/09	204	204	0										
D02018	P&S RR1-Temp Works & Drainage Diversion DDA	62	01/FEB/09*	03/APR/09	112	112	0										
Section 5 (Portion MBD2)																	
D00830	P&S MBD2-Permanent Works Intake AIP	62	09/OCT/08A	29/DEC/08	274	246	90										
D00835	APP MBD2-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	274	246	0										
D00850	P&S MBD2-Temp Works & Drainage Diversion AIP	62	16/OCT/08A	20/NOV/08A	166		100										
D00855	APP MBD2-Temp Works & Drainage Diversion AIP	92	21/NOV/08A	08/DEC/08A	166		100										
Section 23 (Portion TP4)																	
D01845	APP TP4-Permanent Works Intake AIP	92	13/OCT/08A	16/JAN/09	358	358	72										
D01856	P&S TP4-Temp Works & Drainage Diversion AIP	62	04/SEP/08A	13/NOV/08A	190		100										
D01857	APP TP4-Temp Works & Drainage Diversion AIP	92	14/NOV/08A	01/FEB/09	190	190	55										
D01858	P&S TP4-Temp Works & Drainage Diversion DDA	62	01/FEB/09*	03/APR/09	129	129	0										
D01880	P&S TP4-Permanent Slopeworks AIP	62	30/AUG/08A	23/OCT/08A	130		100										
D01885	APP TP4-Permanent Slopeworks AIP	122	24/OCT/08A	12/NOV/08A	130		100										
D01890	P&S TP4-Permanent Slopeworks DDA	62	01/FEB/09*	03/APR/09	99	99	0										
Section 28 (Portion P5)																	
D02100	P&S P5-Permanent Works Intake AIP	62	03/SEP/08A	10/NOV/08A	323		100										
D02105	APP P5-Permanent Works Intake AIP	92	11/NOV/08A	01/FEB/09	323	323	55										
D02116	P&S P5-Temp Works & Drainage Diversion AIP	62	16/SEP/08A	14/NOV/08A	248		100										
D02117	APP P5-Temp Works & Drainage Diversion AIP	122	15/NOV/08A	18/MAR/09	248	248	29										
Section 22 (Portion TP5)																	
D01790	P&S TP5-Permanent Works Intake AIP	62	04/SEP/08A	10/NOV/08A	426		100										
D01795	APP TP5-Permanent Works Intake AIP	92	11/NOV/08A	01/FEB/09	426	426	55										
D01806	P&S TP5-Temp Works & Drainage Diversion AIP	62	23/SEP/08A	27/NOV/08A	206		100										
D01807	APP TP5-Temp Works & Drainage Diversion AIP	92	28/NOV/08A	20/FEB/09	206	206	34										
Section 21 (Portion TP789)																	
D01730	P&S TP789-Permanent Works Intake AIP	62	16/SEP/08A	10/NOV/08A	295		100										
D01735	APP TP789-Permanent Works Intake AIP	92	11/NOV/08A	03/MAR/09	295	295	22										
D01746	P&S TP789-Temp Works & Drainage Diversion AIP	62	04/SEP/08A	02/DEC/08A	325		100										
D01747	APP TP789-Temp Works & Drainage Diversion AIP	92	03/DEC/08A	01/FEB/09	325	325	55										
D01748	P&S TP789-Temp Works & Drainage Diversion DDA	62	01/MAR/09*	01/MAY/09	236	236	0										
Section 24 (Portion W5)																	
D01904	P&S W5-Permanent Works Intake AIP	62	16/OCT/08A	29/DEC/08	496	483	90										
D01905	APP W5-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	496	483	0										
D01910	P&S W5-Temp Works & Drainage Diversion AIP	63	10/NOV/08A	02/JAN/09	221	214	82										
D01911	APP W5-Temp Works & Drainage Diversion AIP	122	03/JAN/09	04/MAY/09	221	214	0										
D01912	P&S W5-Temp Works & Drainage Diversion DDA	62	16/JAN/09*	18/MAR/09	194	194	0										
D01913	APP W5-Temp Works & Drainage Diversion DDA	122	19/MAR/09	18/JUL/09	194	194	0										
Section 2 (Portion E5A)																	
D00680	P&S E5A-Permanent Works Intake AIP	62	19/SEP/08A	10/NOV/08A	370		100										
D00682	APP E5A-Permanent Works Intake AIP	92	11/NOV/08A	16/FEB/09	370	370	39										
D00688	APP E5A-Temp Works & Drainage Diversion AIP	92	18/OCT/08A	16/FEB/09	243	243	39										
Section 27 (Portion W8)																	
D02050	P&S W8-Permanent Works Intake AIP	62	08/OCT/08A	28/NOV/08A	605		100										
D02055	APP W8-Permanent Works Intake AIP	92	29/NOV/08A	28/FEB/09	605	608	26										
D02066	P&S W8-Temp Works & Drainage Diversion AIP	62	04/NOV/08A	11/DEC/08A	226		100										
D02067	APP W8-Temp Works & Drainage Diversion AIP	92	12/DEC/08A	13/MAR/09	226	247	11										
Section 3 (Portion E5B)																	
D00735	APP E5B-Permanent Works Intake AIP	92	13/OCT/08A	01/FEB/09	427	427	55										
D00746	P&S E5B-Temp Works & Drainage Diversion AIP	62	09/SEP/08A	29/DEC/08	334	280	90										
D00747	APP E5B-Temp Works & Drainage Diversion AIP	92	30/DEC/08	31/MAR/09	334	280	0										
Section 20 (Portion M3)																	
D01670	P&S M3-Permanent Works Intake AIP	62	08/OCT/08A	29/DEC/08	306	278	90										
D01675	APP M3-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	306	278	0										
D01686	P&S M3-Temp Works & Drainage Diversion AIP	62	08/OCT/08A	29/DEC/08	306	278	90										
D01687	APP M3-Temp Works & Drainage Diversion AIP	92	30/DEC/08	31/MAR/09	306	278	0										
D01710	P&S M3-Permanent Slopeworks AIP	62	15/OCT/08A	29/DEC/08	246	218	90										
D01715	APP M3-Permanent Slopeworks AIP	122	30/DEC/08	30/APR/09	246	218	0										
Section 19 (Portion MA17)																	
D01610	P&S MA17-Permanent Works Intake AIP	62	16/OCT/08A	29/DEC/08	252	239	90										
D01615	APP MA17-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	252	239	0										
D01626	P&S MA17-Temp Works & Drainage Diversion AIP	63	05/NOV/08A	02/JAN/09	235	235	83										
D01627	APP MA17-Temp Works & Drainage Diversion AIP	92	03/JAN/09	04/APR/09	235	235	0										
D01650	P&S MA17-Permanent Slopeworks AIP	62	02/OCT/08A	29/DEC/08	269	241	90										
D01655	APP MA17-Permanent Slopeworks AIP	122	30/DEC/08	30/APR/09	269	241	0										
Section 15 (Portion W3)																	
D01400	P&S W3-Permanent Works Intake AIP	62	01/NOV/08A	01/JAN/09	472	472	83										
D01405	APP W3-Permanent Works Intake AIP	92	02/JAN/09	03/APR/09	472	472	0										
D01416	P&S W3-Temp Works & Drainage Diversion AIP	62	06/NOV/08A	01/JAN/09	534	534	83										
D01417	APP W3-Temp Works & Drainage Diversion AIP	92	02/JAN/09	03/APR/09	534	534	0										
D01418	P&S W3-Temp Works & Drainage Diversion DDA	62	01/MAR/09*	01/MAY/09	506	506	0										
Section 17 (Portion MA14)																	
D01500	P&S MA14-Permanent Works Intake AIP	62	01/NOV/08A	01/JAN/09	413	413	83										
D01505	APP MA14-Permanent Works Intake AIP	92	02/JAN/09	03/APR/09	413	413	0										
D01516	P&S MA14-Temp Works & Drainage Diversion AIP	62	07/NOV/08A	01/JAN/09	344	344	83										
D01517	APP MA14-Temp Works & Drainage Diversion AIP	92	02/JAN/09	03/APR/09	344	344	0										
D01518	P&S MA14-Temp Works & Drainage Diversion DDA	62	16/FEB/09*	18/APR/09	329	329	0										
D01540	P&S MA14-Permanent Slopeworks AIP	62	03/NOV/08A	01/JAN/09	323	323	83										
D01545	APP MA14-Permanent Slopeworks AIP	122	02/JAN/09	03/MAY/09	323	323	0										
D01550	P&S MA14-Permanent Slopeworks DDA	62	01/MAR/09*	01/MAY/09	286	286	0										
Section 18 (Portion MA15)																	
D01560	P&S MA15-Permanent Works Intake AIP	62	01/NOV/08A	01/JAN/09	402	402	83										
D01565	APP MA15-Permanent Works Intake AIP	92	02/JAN/09	03/APR/09	402	402	0										
D01580	P&S MA15-Temp Works & Drainage Diversion AIP	62	01/NOV/08A	01/JAN/09	286	286	83										
D01585	APP MA15-Temp Works & Drainage Diversion AIP	92	02/JAN/09														

Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009			
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
								D01107	APP DG1-Temp Works & Drainage Diversion AIP	92	30/DEC/08	31/MAR/09	319	306	0	
Section 9 (Portion HR1)																
D01040	P&S HR1-Permanent Works Intake AIP	62	19/SEP/08A	10/NOV/08A	607		100									
D01045	APP HR1-Permanent Works Intake AIP	92	11/NOV/08A	16/FEB/09	607	607	39									
D01056	P&S HR1-Temp Works & Drainage Diversion AIP	62	23/DEC/08*	22/FEB/09	348	311	0									
D01057	APP HR1-Temp Works & Drainage Diversion AIP	92	23/FEB/09	25/MAY/09	348	311	0									
Section 14 (Portion BR6)																
D01350	P&S BR6-Permanent Works Intake AIP	62	17/NOV/08A	16/JAN/09	365	365	59									
D01355	APP BR6-Permanent Works Intake AIP	92	17/JAN/09	18/APR/09	365	365	0									
D01370	P&S BR6-Temp Works & Drainage Diversion AIP	62	23/DEC/08*	22/FEB/09	302	265	0									
D01375	APP BR6-Temp Works & Drainage Diversion AIP	92	23/FEB/09	25/MAY/09	302	265	0									
Section 12 (Portion W1)																
D01250	P&S W1-Permanent Works Intake AIP	62	16/OCT/08A	29/DEC/08	404	391	90									
D01255	APP W1-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	404	391	0									
D01266	P&S W1-Temp Works & Drainage Diversion AIP	62	04/NOV/08A	01/JAN/09	396	396	83									
D01267	APP W1-Temp Works & Drainage Diversion AIP	92	02/JAN/09	03/APR/09	396	396	0									
Section 8 (Portion GL1)																
D00990	P&S GL1-Permanent Works Intake AIP	62	19/SEP/08A	28/NOV/08A	420		100									
D00995	APP GL1-Permanent Works Intake AIP	92	29/NOV/08A	28/FEB/09	420	408	40									
D01006	P&S GL1-Temp Works & Drainage Diversion AIP	62	18/SEP/08A	22/NOV/08A	395		100									
D01007	APP GL1-Temp Works & Drainage Diversion AIP	92	23/NOV/08A	22/FEB/09	395	389	40									
Section 25 (Portion CR1)																
D01950	P&S CR1-Permanent Works Intake AIP	63	01/DEC/08A	01/FEB/09	462	462	34									
D01955	APP CR1-Permanent Works Intake AIP	92	02/FEB/09	04/MAY/09	462	462	0									
D01966	P&S CR1-Temp Works & Drainage Diversion AIP	63	05/DEC/08A	05/FEB/09	402	398	35									
D01967	APP CR1-Temp Works & Drainage Diversion AIP	122	06/FEB/09	07/JUN/09	402	398	0									
Section 13 (Portion BR5)																
D01300	P&S BR5-Permanent Works Intake AIP	62	17/NOV/08A	16/JAN/09	484	484	59									
D01305	APP BR5-Permanent Works Intake AIP	92	17/JAN/09	18/APR/09	484	484	0									
D01316	P&S BR5-Temp Works & Drainage Diversion AIP	62	21/NOV/08A	16/JAN/09	422	422	59									
D01317	APP BR5-Temp Works & Drainage Diversion AIP	92	17/JAN/09	18/APR/09	422	422	0									
Section 11 (Portion BR4)																
D01190	P&S BR4-Permanent Works Intake AIP	62	16/OCT/08A	29/DEC/08	575	562	90									
D01195	APP BR4-Permanent Works Intake AIP	92	30/DEC/08	31/MAR/09	575	562	0									
D01206	P&S BR4-Temp Works & Drainage Diversion AIP	62	18/OCT/08A	11/DEC/08A	599		100									
D01207	APP BR4-Temp Works & Drainage Diversion AIP	92	12/DEC/08A	13/MAR/09	599	604	11									
D01208	P&S BR4-Temp Works & Drainage Diversion DDA	62	01/JAN/09*	03/MAR/09	522	522	0									
D01209	APP BR4-Temp Works & Drainage Diversion DDA	92	04/MAR/09	03/JUN/09	522	522	0									
D01230	P&S BR4-Permanent Slopeworks AIP	62	22/OCT/08A	22/NOV/08A	985		100									
D01235	APP BR4-Permanent Slopeworks AIP	122	23/NOV/08A	24/MAR/09	985	993	24									
D01240	P&S BR4-Permanent Slopeworks DDA	62	16/JAN/09*	18/MAR/09	477	477	0									
D01245	APP BR4-Permanent Slopeworks DDA	122	19/MAR/09	18/JUL/09	477	477	0									
Section 16 (Portion B2)																
D01450	P&S B2-Permanent Works Intake AIP	62	17/NOV/08A	16/JAN/09	524	524	59									
D01455	APP B2-Permanent Works Intake AIP	92	17/JAN/09	18/APR/09	524	524	0									
D01466	P&S B2-Temp Works & Drainage Diversion AIP	62	25/NOV/08A	16/JAN/09	477	477	59									
D01467	APP B2-Temp Works & Drainage Diversion AIP	92	17/JAN/09	18/APR/09	477	477	0									
Adits & Stilling Chambers																
D00520	P&S Adits & Stilling Chamber Temp Support AIP	79	16/JUL/08A	06/NOV/08A	116		100									
D00525	APP Adits & Stilling Chamber Temp Support AIP	92	07/NOV/08A	22/NOV/08A	116		100									
D00530	P&S Adits & Stilling Chamber Temp Support DDA	63	23/DEC/08	23/FEB/09	116	127	0									
D00535	APP Adits & Stilling Chamber Temp Support DDA	122	24/FEB/09	25/JUN/09	116	127	0									
D00540	P&S Adits & SC Permanent Lining AIP	33	31/OCT/08A	29/DEC/08	97	54	90									
D00545	APP Adits Permanent Lining AIP	92	30/DEC/08	31/MAR/09	97	54	0									
D00560	P&S SCs Permanent Lining AIP	33	31/OCT/08A	29/DEC/08	82	54	90									
D00565	APP SCs Permanent Lining AIP	92	30/DEC/08	31/MAR/09	82	54	0									
Project Wide																
D00145	APP Detailed Const Risk Assess(Portals) DDA	42	02/AUG/08A	29/DEC/08	11	-51	90									
D00147	P&S Det Const Risk Assess Vol 1-(W0) DDA	24	09/SEP/08A	29/DEC/08	0	1,097	90									
D00148	APP Det Const Risk Assess Vol 1-(W0) DDA	60	30/DEC/08	27/FEB/09	0	1,097	0									
D00149	P&S DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc DDA	63	16/DEC/08A	16/FEB/09	86	39	11									
D00150	APP DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc DDA	92	17/FEB/09	19/MAY/09	86	39	0									
D00151	P&S DCRA V3-W10,P5,W8,RR1,CR1,W5,TP4,TP5,etc DDA	63	10/MAR/09*	11/MAY/09	58	58	0									
D00160	P&S Impact Assess Rep Waterwork Fac V 1-(W0) DDA	24	24/SEP/08A	05/DEC/08A	0		100									
D00161	APP Impact Assess Rep Waterwork Fac V 1-(W0) DDA	40	06/DEC/08A	14/JAN/09	0	-50	42									
D00162	P&S Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	63	23/DEC/08*	23/FEB/09	183	151	0									
D00163	APP Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	92	24/FEB/09	26/MAY/09	183	151	0									
D00168	P&S Water Inflow Assess Rep(Tunnel, Adit & DS)	31	30/OCT/08A	29/DEC/08	24	24	77									
D00169	APP Water Inflow Assess Rep(Tunnel, Adit & DS)	60	30/DEC/08	27/FEB/09	24	24	0									
D00189	APP Blasting Assessment - Volume 2B(Adit W0)	92	17/OCT/08A	17/JAN/09	0	332	71									
D00190	P&S BA - Vol 3A(E5A,MB16,MBD2,E7,THR2,HR1,GL1)	93	03/NOV/08A	01/JAN/09	177	177	89									
D00191	APP BA - Vol 3A(E5A,MB16,MBD2,E7,THR2,HR1,GL1)	122	02/JAN/09	03/MAY/09	177	177	0									
D00192	P&S BA-Vol 3B MA17,M3,TP789,TP4-5,HKU1,PFLR1,SM1	93	23/DEC/08*	25/MAR/09	113	91	0									
D00194	P&S BA - Vol 3C (W5,CR1,RR1,W8,P5,W10)	93	01/FEB/09*	04/MAY/09	464	464	0									
Main Tunnel																
D00440	P&S Adit/main tun intrct Temp Sup(excl W0) AIP	51	15/AUG/08A	29/DEC/08	269	183	90									
D00445	APP Adit/main tun intrct Temp Sup(excl W0) AIP	122	30/DEC/08	30/APR/09	269	183	0									
D00500	P&S TBM Dismantle Chamber Temp Supt at W0 AIP	194	16/MAY/08A	29/DEC/08	672	643	90									
D00505	APP TBM Dismantle Chamber Temp Supt at W0 AIP	92	30/DEC/08	31/MAR/09	672	643	0									
D00510	P&S TBM Dismantle Chamber Temp Supt at W0 DDA	63	30/DEC/08*	02/MAR/09	671	671	0									
D00515	APP TBM Dismantle Chamber Temp Supt at W0 DDA	92	03/MAR/09	02/JUN/09	671	671	0									
Milestone																
Design Submission																
M2-1110	2.11-AIP-Dropshaft Submission	0		05/FEB/09	1,108	1,119	0									
M2-1150	2.15-AIP-Intakes Submission	0		01/FEB/09*	1,060	1,123	0									
M2-1160	2.16A-AIP-Intakes Consent (6.5%)	0		05/NOV/08A	968		100									
M2-1170	2.17A-DDA-Intakes Submission(3.75%)	0		05/NOV/08A	578		100									
M2-1190	2.19A-AIP Slope Protect(except E&W Portals)14.5%	0		05/NOV/08A	1,091		100									
M2-1191	2.19-AIP Slope Protect(Except E&W Portals)100%	0		01/JAN/09	0	1,154	0									
CC03-PART OF SECTION 1 OF THE WORKS(MAIN TUNNEL)																
Preliminary and General Requirements																
TBM Procurement & Delivery																
B2023	TBM Fabrication for 6.25m ID (Eastern Tunnel)	361	19/JAN/08A	08/FEB/09	0	-44	89									
B2026	TBM Transport & Delivery to Site(Eastern Portal)	38	09/FEB/09	18/MAR/09	0	-44	0									
B2030	TBM Fabrication for 7.25m ID (Western Tunnel)	336	19/JAN/08A	04/JAN/09	0	-71	92									
B2040	TBM Transport & Delivery to Site (West Portal)	36	05/JAN/09	09/FEB/09	0	-71	0									
Prefabrication Precast Segment for Main Tunnel																
B2220	Segment Mould Fabrication (E.Tunnel)	120	18/JUN/08A	02/JAN/09	61	75	80									

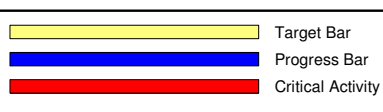
Start Date 23/NOV/07
 Finish Date 29/FEB/12
 Data Date 23/DEC/08
 Run Date 27/DEC/08 15:08



Date	Revision	Checked	Approved
24/NOV/08	12th Monthly Update		
18/NOV/08	23/Dec08		

Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009			
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
								B2230	Segment Mould Delivery & Installation (E.Tunnel)	30	03/JAN/09	01/FEB/09	61	75	0	
B2240	Precast Segment Fabrication (E.Tunnel)	452	02/FEB/09	29/APR/10	61	75	0									
B2260	Segment Mould Fabrication (W.Tunnel) - 8nos.	120	18/JUN/08A	02/JAN/09	5	29	70									
B2270	Segment Mould Delivery & Installation (W.Tunnel)	30	03/JAN/09	01/FEB/09	5	29	0									
B2280	Precast Segment Fabrication (W.Tunnel)	640	09/JAN/09	10/OCT/10	5	29	0									
Construction																
TBM Excavation (Eastern Tunnel)																
E1410	East TBM Assembly-(MT)	60	19/MAR/09	10/JUN/09	0	-38	0									
TBM Excavation (Western Tunnel)																
W1060	West TBM Assembly-(MT)	48	10/FEB/09	07/APR/09	0	-55	0									
Milestone																
Section 1 (Main Tunnel)																
M3-1030	3.03A-Delivery of TBM to Site(6.25m dia.) 50%	0		05/NOV/08A	1,059		100									
M3-1031	3.03-Delivery of TBM to Site(6.25m dia.) 100%	0		18/MAR/09	0	1,078	0									
M3-1040	3.04A-Commission&Compln 100mExcav(6.25mDia.)25%	0		05/NOV/08A	928		100									
M3-1080	3.08A-Delivery of TBM to Site (7.25m dia.) 50%	0		05/NOV/08A	1,068		100									
M3-1081	3.08-Delivery of TBM to Site (7.25m dia.) 100%	0		09/FEB/09	0	1,115	0									
M3-1090	3.09A-Commission of 100m Excav'n(7.25m dia)25%	0		05/NOV/08A	1,012		100									
M3-1110	3.11A-Junction Bet M Tunnel& E Portal&CH250 25%	0		05/NOV/08A	905		100									
CC5-PART OF SECTION 1 OF THE WORKS (EAST PORTAL)																
Construction																
Preliminary Works																
EPA0180	Noise Enclosure for Temporary Stockpile Yard	60	23/DEC/08	09/MAR/09	57	44	0									
EPA0190	Noise Enclosure for Wastewater Treatment PLant	48	23/DEC/08	23/FEB/09	57	-18	0									
EPA0200	Noise Enclosure at Tunnel Entrance	42	29/SEP/08A	23/JAN/09	75	0	10									
EPA0220	Tower Crane Installation	60	31/DEC/08*	14/MAR/09	21	3	0									
Stage 1 (Before TBM Drive)																
EPA0240	Installation of Invert Segments	78	31/DEC/08	06/APR/09	3	3	0									
EPA0250	Track & Spoil Tremie Installation	34	02/MAR/09	15/APR/09	3	3	0									
EPC0150	Ini Excav-Launch Tunl Non-Blast Method (0-CH43)	117	11/JUN/08A	02/NOV/08A	0		100									
EPC0160	Excavation for Launch Tunnel by D&B (upto CH77)	65	03/NOV/08A	27/NOV/08A	0		100									
EPC0170	Excavation for Intake Tunnel by D&B (upto CH8)	12	17/NOV/08A	07/JAN/09	8	0	90									
EPC0180	Excav for Temporary Spoil Cavern by D&B (20m)	19	08/JAN/09	02/FEB/09	8	0	0									
EPC0190	Temp Cofferdam for Access for Segment Delivery	48	18/AUG/08A	30/DEC/08	44	25	90									
Milestone																
Secton 1 (Eastern Portal)																
M5-1072	5.07-Excavation (Intake Tunnel) 100%	0		04/DEC/08A	0		100									
CC6-PART OF SECTION 1 OF THE WORKS (WEST PORTAL)																
Construction																
Sea Wall & Temporary Pier Construction																
WPE0300	Construction of 10T Bollard and In-situ Coping	25	23/SEP/08A	12/NOV/08A	52		100									
WPE0320	Construction of Temp. Site Slab + Access	25	23/DEC/08	23/JAN/09	52	-20	0									
Stilling Basin & TBM Launch Shaft Construction																
WPF0100	Pre-drill and Fill Hole for Single Sheetpile	26	11/AUG/08A	02/JAN/09	1	599	90									
WPF0160	Driven Pipe pile upto Exist Shore Line	26	11/SEP/08A	02/JAN/09	1	599	90									
WPF0400	Construct Temp. Steel Bridge	12	23/DEC/08	08/JAN/09	1	-13	0									
Site Installation - Phase 2																
WPC0140	Spoil Basin-(WP)	48	23/DEC/08	23/FEB/09	2	-51	0									
WPC0160	Conveyor Belt-(WP)	80	24/FEB/09	10/JUN/09	2	-51	0									
WPC0180	Water Treatment Plant	52	19/MAR/09	30/MAY/09	20	-51	0									
WPC0200	Tower Crane Footing	17	20/OCT/08A	16/NOV/08A	2		100									
WPC0220	Gantry Crane	73	23/DEC/08	24/MAR/09	16	-14	0									
WPC0240	Other Temp. Facilities for TMB Operation	100	23/DEC/08	04/MAY/09	16	-51	0									
WPC0260	Noise Enclosure	120	29/SEP/08A	01/APR/09	23	-11	30									
WPC0280	Temporary Steel Bridge	12	04/FEB/09	17/FEB/09	16	6	0									
Slope Stabilization																
WPD0290	BreakOut with PowerKing RockSplitter(to CH10533)	84	17/SEP/08A	03/FEB/09	0	-54	55									
Milestone																
Section 1 (Western Portal)																
M6-1030	6.02A-Concrete Structure(Stilling Basin) 56.3%	0		05/NOV/08A	167		100									
M6-1051	6.04A-Excavation 50% (Rectangular Trans Tunnel)	0		03/FEB/09	0	1,121	0									
M6-1081	6.07A-Excavation 70% (Arch-shaped Trans Tunnel)	0		05/NOV/08A	0		100									
M6-1082	6.07B-Excavation 100% (Arch-shaped Trans Tunnel)	0		22/DEC/08	0	1,164	0									
CC7 - PART OF SECTION 1 OF THE WORKS (PORTION W0)																
Construction																
Preliminary Works																
S010114	Install ENV Instruments & start monitor-(W0)	12	13/OCT/08A	31/DEC/08	78	897	50									
S010116	P&S Environmental Baseline Monitoring Report(W0)	12	02/JAN/09	15/JAN/09	78	897	0									
S010121	TMLG submission, coordination & Approval - W0	48	03/APR/08A	10/JAN/09	90	901	50									
S010150	Site Possession - W0	0	29/DEC/08		0	0	0									
S010160	Implement Traffic Divn Scheme-(W0)	7	29/DEC/08	06/JAN/09	52	52	0									
S010170	Utilities Diversion (Light Post & Cable)by Other	6	29/DEC/08	05/JAN/09	0	0	0									
S010200	Site Setting up/Mobilization-(W0)	24	07/JAN/09	06/FEB/09	52	52	0									
Preparation Works																
S010180	Install Geotech Monitoring Instruments-(W0)	6	29/DEC/08	05/JAN/09	0	0	0									
S010220	Pre-drilling & Grouting Works-(W0)	24	14/JAN/09	13/FEB/09	60	60	0									
Intakes - External Structures (Stage1)																
S010190	Cofferdam Wall Driving-(W0)	65	06/JAN/09	25/MAR/09	0	0	0									
Milestone																
Section 1 (Portion W0)																
M7-1010	7.01-Pre-drilling&Grouting Works(Dropshaft)	0		13/FEB/09	1,048	1,111	0									
CC8 - SECTION 2 OF THE WORKS (PORTION E5A)																
Construction																
Preliminary Works																
S020025	Conduct Utility Identification Works - E5A	43	03/SEP/08A	08/NOV/08A	116		100									
S020030	Prepare Utility Diversion Plans - E5A	70	23/DEC/08	20/MAR/09	116	41	0									
S020040	Notify,Coord&Obtain Permit-Utility Prov - E5A	149	21/MAR/09	08/OCT/09	116	41	0									
CC9 - SECTION 3 OF THE WORKS (PORTION E5B)																
Construction																
Preliminary Works																
S030010	Prepare Utility Diversion Plans - E5B	70	23/DEC/08	20/MAR/09	209	68	0									
S030020	Notify,Coord&Obtain Permit-Utility Prov - E5B	149	21/MAR/09	08/OCT/09	209	68	0									

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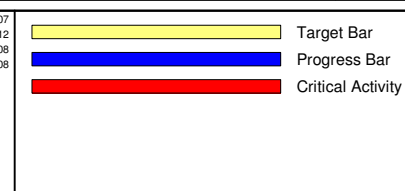
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Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009							
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR					
								CC10-SECTION 4 OF THE WORKS (PORTION MB16)												
Construction																				
Preliminary Works																				
S040100	Notify SO for Portion Possession - (MB16)	0		27/NOV/08A	0		100													
S040110	25 wks prior to Portion Possess Date-(MB16)	175	27/NOV/08A	20/MAY/09	0	37	14													
S040112	Obtain permit Inst Env Base Monitor Inst(MB16)	24	23/DEC/08	22/JAN/09	73	80	0													
S040114	Install ENV Instruments & start monitor(MB16)	12	23/JAN/09	09/FEB/09	73	80	0													
S040116	P & S Environmental Base Monitoring Report(MB16)	12	10/FEB/09	23/FEB/09	73	80	0													
S040118	Conduct Tree Survey (MB16)	6	24/FEB/09	02/MAR/09	73	80	0													
S040119	P & S Tree Survey Report (MB16)	6	03/MAR/09	09/MAR/09	73	80	0													
S040121	TMLG submission, coordination & Approval - MB16	48	23/DEC/08	23/FEB/09	85	92	0													
CC11-SECTION 5 OF THE WORKS (PORTION MBD2)																				
Construction																				
Preliminary Works																				
S050015	Conduct Utility Identification Works - MBD2	40	08/SEP/08A	29/NOV/08A	81		100													
S050020	Prepare Utility Diversion Plans - MBD2	70	23/DEC/08	20/MAR/09	81	845	0													
S050030	Notify,Coord&Obtain Permit-Utility Prov - MBD2	149	23/DEC/08	08/JUL/09	81	93	0													
CC12-SECTION 6 OF THE WORKS (PORTION E7)																				
Construction																				
Preliminary Works																				
S060020	Prepare Utility Diversion Plans - E7	70	23/DEC/08	20/MAR/09	76	696	0													
S060030	Notify,Coord&Obtain Permit-Utility Prov - E7	149	21/MAR/09	08/OCT/09	76	696	0													
S060100	Notify SO for Portion Possession - E7	0		03/MAR/09*	0	0	0													
S060110	25 wks prior to Portion Possess Date-(E7)	175	04/MAR/09	25/AUG/09	0	0	0													
S060112	Obtain permit Install Env Base Monitor Inst(E7)	24	04/MAR/09	31/MAR/09	70	70	0													
S060125	TMLG submission, coordination & Approval - E7	48	04/MAR/09	07/MAY/09	82	82	0													
CC13-SECTION 7 OF THE WORKS (PORTION THR2)																				
Construction																				
Preliminary Works																				
S070010	Prepare Utility Diversion Plans - THR2	70	23/DEC/08*	20/MAR/09	52	696	0													
S070020	Notify,Coord&Obtain Permit-Utility Prov - THR2	149	21/MAR/09	08/OCT/09	52	696	0													
S070100	Notify SO for Portion Possession - (THR2)	0		27/NOV/08A	0	0	100													
S070110	25 wks prior to Portion Possess Date-(THR2)	175	27/NOV/08A	20/MAY/09	0	23	14													
S070112	Obtain permit Env Base Monitor Inst(THR2)	24	23/DEC/08	22/JAN/09	72	70	0													
S070114	Install ENV Instruments & start monitor(THR2)	12	23/JAN/09	09/FEB/09	72	70	0													
S070116	P & S Environmental Base Monitoring Report(THR2)	12	10/FEB/09	23/FEB/09	72	70	0													
S070118	Conduct Tree Survey (THR2)	6	24/FEB/09	02/MAR/09	72	70	0													
S070120	P & S Tree Survey Report (THR2)	6	03/MAR/09	09/MAR/09	72	70	0													
CC14-SECTION 8 OF THE WORKS (PORTION GL1)																				
Construction																				
Preliminary Works																				
S080010	Conduct Ground Investigation Works - GL1	12	25/SEP/08A	23/NOV/08A	222		100													
S080020	Prepare Utility Diversion Plans - GL1	70	23/DEC/08	20/MAR/09	217	845	0													
S080030	Notify,Coord&Obtain Permit-Utility Prov - GL1	149	23/DEC/08	08/JUL/09	217	266	0													
CC15-SECTION 9 OF THE WORKS (PORTION HR1)																				
Construction																				
Preliminary Works																				
S090020	Prepare Utility Diversion Plans - HR1	70	23/DEC/08*	20/MAR/09	329	696	0													
S090030	Notify,Coord&Obtain Permit-Utility Prov - HR1	149	21/MAR/09	08/OCT/09	329	696	0													
CC20-SECTION 14 OF THE WORKS (PORTION BR6)																				
Construction																				
Preliminary Works																				
S140015	Conduct Utility Identification Works - BR6	39	05/AUG/08A	30/NOV/08A	251		100													
S140020	Prepare Utility Diversion Plans - BR6	70	23/DEC/08	20/MAR/09	251	845	0													
S140030	Notify,Coord&Obtain Permit-Utility Prov - BR6	149	23/DEC/08	08/JUL/09	251	243	0													
CC21-SECTION 15 OF THE WORKS (PORTION W3)																				
Construction																				
Preliminary Works																				
S150020	Prepare Utility Diversion Plans - W3	70	23/DEC/08	20/MAR/09	222	696	0													
S150030	Notify,Coord&Obtain Permit-Utility Prov - W3	149	21/MAR/09	08/OCT/09	222	696	0													
CC23-SECTION 17 OF THE WORKS (PORTION MA14)																				
Construction																				
Preliminary Works																				
S170010	Prepare Utility Diversion Plans - MA14	70	19/MAR/09*	24/JUN/09	66	66	0													
CC24-SECTION 18 OF THE WORKS (PORTION MA15)																				
Construction																				
Preliminary Works																				
S180010	Prepare Utility Diversion Plans - MA15	70	19/MAR/09*	24/JUN/09	70	70	0													
CC25-SECTION 19 OF THE WORKS (PORTION MA17)																				
Construction																				
Preliminary Works																				
S190010	Conduct Ground Investigation Works - MA17	54	27/OCT/08A	16/DEC/08A	159		100													
S190020	Prepare Utility Diversion Plans - MA17	70	23/DEC/08	20/MAR/09	140	845	0													
S190030	Notify,Coord&Obtain Permit-Utility Prov - MA17	149	23/DEC/08	08/JUL/09	140	175	0													
CC28-SECTION 22 OF THE WORKS (PORTION TP5)																				
Construction																				
Preliminary Works																				
S220010	Conduct Ground Investigation Works -TP5	37	14/OCT/08A	15/NOV/08A	66		100													
S220015	Conduct Utility Identification Works - TP5	44	03/NOV/08A	15/NOV/08A	59		100													
S220020	Prepare Utility Diversion Plans - TP5	70	23/DEC/08	20/MAR/09	59	696	0													
S220030	Notify,Coord&Obtain Permit-Utility Prov - TP5	149	21/MAR/09	08/OCT/09	59	696	0													
CC29-SECTION 23 OF THE WORKS (PORTION TP4)																				
Construction																				
Preliminary Works																				
S230010	Conduct Ground Investigation Works -TP4	47	18/SEP/08A	08/NOV/08A	86		100													
CC30-SECTION 24 OF THE WORKS (PORTION W5)																				
Construction																				
Preliminary Works																				
S240015	Conduct Utility Identification Works - W5	43	13/OCT/08A	30/NOV/08A	86		100													
S240020	Prepare Utility Diversion Plans - W5	70	23/DEC/08	20/MAR/09	86	696	0													
S240030	Notify,Coord&Obtain Permit-Utility Prov - W5	149	21/MAR/09	08/OCT/09	86	696	0													
CC31-SECTION 25 OF THE WORKS (PORTION CR1)																				
Construction																				
Preliminary Works																				
S250015	Conduct Utility Identification Works - CR1	45	10/OCT/08A	15/NOV/08A	228		100													

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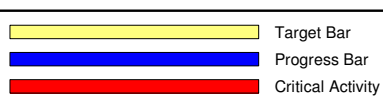
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Activity ID	Activity Description	Current or Forecast Duration	Current or Forecast Early Start	Current or Forecast Early Finish	Works Prog Total Float	Progress Total Float as of 21-Oct-08	% Comp	2008					2009			
								AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
								S250020	Prepare Utility Diversion Plans - CR1	70	23/DEC/08	20/MAR/09	228	696	0	
S250030	Notify,Coord&Obtain Permit-Utility Prov - CR1	149	21/MAR/09	08/OCT/09	228	696	0									
CC32-SECTION 26 OF THE WORKS (PORTION RR1)																
Construction																
Preliminary Works																
S260010	Conduct Ground Investigation Works -RR1	37	13/OCT/08A	15/NOV/08A	35		100									
S260015	Conduct Utility Identification Works - RR1	45	13/OCT/08A	30/NOV/08A	32		100									
S260020	Prepare Utility Diversion Plans - RR1	70	23/DEC/08	20/MAR/09	32	696	0									
S260030	Notify,Coord&Obtain Permit-Utility Prov - RR1	149	21/MAR/09	08/OCT/09	32	696	0									
CC33-SECTION 27 OF THE WORKS (PORTION W8)																
Construction																
Preliminary Works																
S270020	Prepare Utility Diversion Plans - W8	70	23/DEC/08	20/MAR/09	114	696	0									
S270030	Notify,Coord&Obtain Permit-Utility Prov - W8	149	21/MAR/09	08/OCT/09	114	696	0									
CC34-SECTION 28 OF THE WORKS (PORTION P5)																
Construction																
Preliminary Works																
S280015	Conduct Utility Identification Works - P5	91	08/SEP/08A	08/NOV/08A	93		100									
S280020	Prepare Utility Diversion Plans - P5	70	23/DEC/08	20/MAR/09	87	696	0									
S280030	Notify,Coord&Obtain Permit-Utility Prov - P5	149	21/MAR/09	08/OCT/09	87	696	0									
CC35-SECTION 29 OF THE WORKS (PORTION W10)																
Construction																
Preliminary Works																
S290020	Prepare Utility Diversion Plans - W10	70	23/DEC/08	20/MAR/09	158	745	0									
S290030	Notify,Coord&Obtain Permit-Utility Prov - W10	100	21/MAR/09	05/AUG/09	158	745	0									
CC36-SECTION 30 OF THE WORKS (PORTION HKU1)																
Construction																
Preliminary Works																
S300010	Prepare Utility Diversion Plans - HKU1	70	23/DEC/08*	20/MAR/09	101	696	0									
S300020	Notify,Coord&Obtain Permit-Utility Prov - HKU1	149	21/MAR/09	08/OCT/09	101	696	0									
S300100	Notify SO for Portion Possession - (HKU1)	0		20/FEB/09*	0	0	0									
S300110	25 wks prior to Portion Possess Date-(HKU1)	175	21/FEB/09	14/AUG/09	0	0	0									
S300112	Obtain permit Env Base Monitor Inst(HKU1)	24	21/FEB/09	20/MAR/09	74	71	0									
S300114	Install ENV Instruments & start monitor(HKU1)	12	21/MAR/09	03/APR/09	74	71	0									
CC37-SECTION 31 OF THE WORKS (PORTION PFLR1)																
Construction																
Preliminary Works																
S310920	Notify SO for Portion Possession - (PFLR1)	0		27/NOV/08A	0		100									
S310930	25 wks prior to Portion Possess Date-(PFLR1)	175	27/NOV/08A	20/MAY/09	0	55	14									
S310932	Obtain permit Env Base Monitor Inst(PFLR1)	24	23/DEC/08	22/JAN/09	71	93	0									
S310934	Install ENV Instruments & start monitor(PFLR1)	12	23/JAN/09	09/FEB/09	71	93	0									
S310936	P&S Environmental Base Monitoring Report(PFLR1)	12	10/FEB/09	23/FEB/09	71	93	0									
S310938	Conduct Tree Survey (PFLR1)	6	24/FEB/09	02/MAR/09	71	93	0									
S310939	P & S Tree Survey Report (PFLR1)	6	03/MAR/09	09/MAR/09	71	93	0									
CC38-SECTION 32 OF THE WORKS (PORTION SM1)																
Construction																
Preliminary Works																
S320920	Notify SO for Portion Possession - SM1)	0		26/NOV/08A	0		100									
S320930	25 wks prior to Portion Possess Date-(SM1)	175	26/NOV/08A	19/MAY/09	0	9	15									
S320932	Obtain permit Install Env Base Monitor Inst(SM1)	24	23/DEC/08	22/JAN/09	73	58	0									
S320934	Install ENV Instruments & start monitor(SM1)	12	23/JAN/09	09/FEB/09	73	58	0									
S320936	P & S Environmental Base Monitoring Report(SM1)	12	10/FEB/09	23/FEB/09	73	58	0									
S320938	Conduct Tree Survey (SM1)	6	24/FEB/09	02/MAR/09	73	58	0									
S320940	P & S Tree Survey Report (SM1)	6	03/MAR/09	09/MAR/09	73	58	0									

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APPENDIX P
WASTE GENERATED QUANTITY

Monthly Waste Flow Table

Quarter ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see notes 2)	Chemical Waste	Others, e.g. general refuse
	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)	(in ' 000 m ³)
Feb-08											40 m ³
Mar-08					6 m ³						84 m ³
Apr-08					34 m ³						34 m ³
May-08					566 m ³			2 m ³			39 m ³
Jun-08					486 m ³	30 m ³				0.4 m ³	6 m ³
Jul-08					1311 m ³	3004 m ³				0.2 m ³	45 m ³
Aug-08			1100 m ³		904 m ³	2404 m ³		2 m ³		0.2 m ³	34 m ³
Sep-08			1620 m ³		64 m ³	11504 m ³					11 m ³
Oct-08			650 m ³		2488 m ³	1882 m ³					28 m ³
Nov-08					4211 m ³	102 m ³		3 m ³		0.2 m ³	22m ³
Dec-08					9226 m ³			3 m ³			28 m ³
Total	0	0	3370 m³	0	19296 m³	18926 m³	0	10 m³	0	1.0 m³	371 m³

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic/foam from packaging material.
 - (3) Broken concrete for recycling into aggregates.
 - (4) The Figures for December 2008 are as of 31-12-08.