


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)

May 2010

Certified By 
(Environmental Team Leader)

REMARKS:

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 26th 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 May 2010.
2. The site activities undertaken in the reporting month included:
 - TBM excavation, adit excavation and structural works for River Channel at Eastern Portal;
 - TBM excavation and adit excavation at Western Portal;
 - Excavation of Adit W0 by Drill-and-Blast method;
 - Structure Stage 1 Construction at Intake MB16;
 - Excavation of dropshaft at Intake SM1 by Hand-dug Caisson method;
 - Excavation of dropshaft at Intake RR1 by RCD method;
 - Excavation of intake structure at Intakes E7, TP4, TP789, HKU1, THR2 and MBD2;
 - Cofferdam construction at Intakes PFLR1, W10, W5, TP5 and E5B;
 - Site preparation works at Intakes P5, W8, MA15, MA17, W3, W1, DG1, HR1, BR5 and MA14;
 - Advance grouting at Intake E5A under Variation Order #53;
 - Slopeworks at Intakes M3 and MA17;
 - DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
 - DDA submissions for temporary works for Intake Structures;
 - DDA submissions for slope works and permanent works for Intake Structures;
 - DDA submissions for temporary and permanent works for Dropshafts;
 - Environmental impact monitoring; and
 - Casting of tunnel segments.

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 Inspections/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. Proposal for Temporary Suspension of Water Quality Monitoring Western Portal was submitted on 15th September 2009 and approved by EPD on 30th October 2009. Marine water quality monitoring was temporary suspended starting from 31st October 2009 until there is marine-based construction activities resumed at the Western Portal (i.e. March of 2011 tentatively.)
5. In order to assess the effectiveness of the implementation of water quality mitigation measures at Western Portal, site inspections/audits were conducted at least twice per week at Western Portal starting from November 2009.

6. 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
Intake E5A					
Noise	0	0	0	0	N/A
Intake E7					
Noise	0	1	0	1	N/A
Intake PFLR1					
Noise	0	0	0	0	N/A
Intake W0					
Noise	0	0	0	0	N/A
Intake RR1					
Noise	0	0	0	0	N/A
Intake W5					
Noise	0	0	0	0	N/A
Intake P5					
Noise	0	0	0	0	N/A

No. of Exceedance		Action Taken
Ground Borne Noise	0	N/A

Eastern Portal

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

9. 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

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

24-hour TSP Monitoring

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

Construction Noise

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

Water Quality

13. Marine water quality monitoring was temporary suspended starting from 31st October 2009.

Construction Ground Borne Noise

14. All construction ground borne noise monitoring was conducted in the reporting month. No Limit Level exceedance was recorded.

Intake E5A*Construction Noise*

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

Intake E7*Construction Noise*

16. All construction noise monitoring was conducted as scheduled in the reporting month. One Limit Level exceedance was recorded at NC9 on 14th May 2010.

Intake PFLR1*Construction Noise*

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

Intake RR1*Construction Noise*

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

Intake W0*Construction Noise*

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

Intake W5*Construction Noise*

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

Intake P5*Construction Noise*

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

Environmental Licenses and Permits

22. 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) and (FEP-01/272/2007/B) was issued on 28 January 2008 and 25 June 2009 to Dragages-Nishimatsu Joint Venture.
23. Registration of Chemical Waste Producer (License: 5213-148-D2393-02 for Eastern Portal and No. 5213-172-D2393-01 for Western Portal).
24. Water Discharge License (License No.: EP860/W10/XY0175 for Area of Mount Butler Office, EP860/W10/XY0177 for Eastern Portal, EP820/W9/XT086 and WT00005864-2010 for Western Portal, EP860/W10/XY0183 for Intake W0, WT00003372-2009 for Intake SM1, WT00003737-2009 for Intake MB16, WT00004126-2009 for Intake HKU1, WT00003738-2009 for THR2, WT00004270-2009 for PFLR1, WT00004806-2009 for Intake E7, WT00004808-2009 for MBD2, WT00004885-2009 for Intake RR1, WT00005135-2009 for Intake W10, WT00005357-2009 for Intake W5, WT00005374-2009 for Intake P5, WT00005376-2009 for Intake TP4, WT00005588-2009 for Intake TP5, WT00005643-2009 for Intake E5A, WT00005754-2010 for Intake W8, WT00005954 for Intake TP789, WT00005915 for Intake E5B, WT00006102-2010 for Intake M3, WT00006415-2010 for Intake MA15, WT00006420-2010 for Intake MA17, WT00006428-2010 for Intake BR6, WT00006609-2010 for Intake HR1 and WT00006559-2010 for Intake CR1).
25. Construction Noise Permit (License No.: GW-RS0962-09 for Eastern Portal, GW-RS0263-10 and GW-RS0348-10 for Western Portal, GW-RS0877-09 and GW-RS0412-10 for Intake W0, GW-RS0075-10 for Intake MB16, GW-RS0155-10 for Intake SM1, GW-RS0128-10 for Intake PFLR1 and GW-RS0441-10 for Intake W3).

Key Information in the Reporting Month

26. 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			
	2	Dust Nuisance at Western Portal (7 and 17 May 2010)	Investigation report was submitted	Closed	---
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 (April 2010)	Submitted to EPD on 25 May 2010 (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:

- TBM excavation and adit excavation at Eastern Portal.;
- TBM excavation and adit excavation at Western Portal;
- Excavation of Adit W0 by Drill-and-Blast method;
- Structure Construction at Intake SM1;
- Excavation of dropshaft at Intake MB16 by Raise Boring method;
- Excavation of dropshaft at Intakes RR1 and P5 by RCD method;
- Excavation of intake structure at Intakes TP789, E7, TP4, HKU1, THR2, MBD2, PFLR1, W10, TP5 and E5B;
- Cofferdam construction at Intakes W5, MA15, W3 and DG1;
- Site preparation works for Intakes W8, MA17, W1, HR1, BR5, MA14, BR6 and GL1;
- Advance grouting at Intake E5A under Variation Order #53;
- Slopeworks at Intakes M3 and MA17;
- Casting of tunnel segments; and
- Site Handover of Site Portion GL1.

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) and (FEP-01/272/2007/B) was issued on 28 January 2008 and 25 June 2009 to Dragages-Nishimatsu Joint Venture.
- 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 26th monthly EM&A report summarizing the EM&A works for the Project in May 2010.

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	
		Ms. Angela Yan	RE	3961 5206	
		Mr. Bernard Cheng	RE	98614939	
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
AEC	Independent Environmental Checker	Ms. Grace Kwok	Independent Environmental Checker	2815 7028	2815 5399
DNJV	Contractor	Mr. Sing Chu	Environmental Officer	2671 7333	2671 9300

Construction Programme

1.8 The site activities undertaken in the reporting month included:

- TBM excavation, adit excavation and structural works for River Channel at Eastern Portal;
- TBM excavation and adit excavation at Western Portal;
- Excavation of Adit W0 by Drill-and-Blast method;
- Structure Stage 1 Construction at Intake MB16;
- Excavation of dropshaft at Intake SM1 by Hand-dug Caisson method;
- Excavation of dropshaft at Intake RR1 by RCD method;
- Excavation of intake structure at Intakes E7, TP4, TP789, HKU1, THR2 and MBD2;
- Cofferdam construction at Intakes PFLR1, W10, W5, TP5 and E5B;

- Site preparation works at Intakes P5, W8, MA15, MA17, W3, W1, DG1, HR1, BR5 and MA14;
- Advance grouting at Intake E5A under Variation Order #53;
- Slope works at Intakes M3 and MA17;
- DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
- DDA submissions for temporary works for Intake Structures;
- DDA submissions for slope works and permanent works for Intake Structures;
- DDA submissions for temporary and permanent works for Dropshafts;
- Environmental impact monitoring; and
- Casting of tunnel segments.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
TBM excavation, adit excavation and structural works for River Channel at Eastern Portal	Noise, dust impact, water quality and waste generation	Provided water spraying during dust generation works On-site waste sorting and implementation of trip ticket system Appropriate desilting/sedimentation devices provided on site for treatment before discharge Use of quiet plant and well-maintained construction plant Provide movable noise barrier Provide sufficient mitigation measures as recommended in Approved EIA Report
TBM excavation and adit excavation at Western Portal		
Excavation of Adit W0 by Drill-and-Blast method		
Structure Stage 1 Construction at Intake MB16		
Excavation of dropshaft at Intake SM1 by Hand-dug Caisson method		
Excavation of dropshaft at Intake RR1 by RCD method		
Excavation of intake structure at Intakes E7, TP4, TP789, HKU1, THR2 and MBD2		
Cofferdam construction at Intakes PFLR1, W10, W5, TP5 and E5B		
Site preparation works at Intakes P5, W8, MA15, MA17, W3, W1, DG1, HR1, BR5 and MA14		
Advance grouting at Intake E5A under Variation Order #53		
Slopeworks at Intakes M3 and MA17	Nil	Nil
DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays		
DDA submissions for temporary works for Intake Structures		
DDA submissions for slope works and permanent works for Intake Structures		
DDA submissions for temporary and permanent works for Dropshafts		

Environmental impact monitoring		
Casting of tunnel segments		

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 May 2010.

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 and 3B	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 C**.
- 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 The summary of exceedance record in reporting month is shown in **Appendix H**.
- 2.26 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/>.
- 2.27 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Area	Station	Major Noise Source
Eastern Portal	AQ1 – True Light Middle School of Hong Kong	Road Traffic Dust Loading/unloading activities
Western Portal	AQ2 – Outside Aegean Terrace	Road Traffic Dust Loading/unloading activities
	AQ3 – Outside The Site Office at Western Portal	

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)	5-May-10	170.1	345	500
	5-May-10	141.4		
	5-May-10	111.3		
	11-May-10	114.6		
	11-May-10	125.5		
	11-May-10	101.0		
	17-May-10	121.8		
	17-May-10	42.4		
	17-May-10	84.9		
	20-May-10	79.2		
	20-May-10	77.9		
	20-May-10	39.6		
	26-May-10	43.4		
	26-May-10	32.5		
26-May-10	39.3			
24-hr TSP (AQ1)	6-May-10	47.0	201	260
	12-May-10	77.6		
	18-May-10	51.4		
	24-May-10	76.9		
	29-May-10	44.0		
Western Portal				
1-hr TSP (AQ2)	5-May-10	83.6	321	500
	5-May-10	83.8		
	5-May-10	83.2		
	11-May-10	87.3		
	11-May-10	87.4		
	11-May-10	87.8		
	17-May-10	82.0		
	17-May-10	82.2		
	17-May-10	82.7		
	20-May-10	62.9		
	20-May-10	62.4		
	20-May-10	62.6		
	26-May-10	73.2		
	26-May-10	73.4		
26-May-10	73.3			
24-hr TSP (AQ3)	6-May-10	60.7	156	260
	12-May-10	86.5		
	18-May-10	103.6		
	24-May-10	133.5		
	29-May-10	68.5		

3. NOISE

Airborne Construction Noise Monitoring

Monitoring Requirements

3.1 Thirteen noise monitoring stations, namely NC1, NC2, NC3, NC7, NC8, NC9, NC11, NC12, NC13, NC14, NC15, NC16 and NC19 were selected for impact monitoring in the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Noise monitoring was conducted at ten designated monitoring stations as listed in Table 3.1. **Figure 3.1a-j** 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
NC7	Buddist Li Ka Shing Care & Attention Home for the Elderly
NC8	Marymount Secondary School
NC9	117 Blue Pool Road
NC11	Honey Court
NC12	Ying Wa Girl's School
NC13	Peaksville Court
NC14	Hong Kong Japanese School
NC15	Hong Kong Academy
NC16	Raimondi College
NC19	Villa Veneto

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 SVAN 30A	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 NC7 NC8 NC9 *NC11 NC12 NC13 NC14 *NC15 NC16 NC19	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 ₁₀ (5 min.) dB(A) L ₉₀ (5 min.) dB(A) L _{eq} (5 min.) dB(A)	1900 - 2300 hrs on all other days 0700 - 2300 hrs holidays & 2300 – 0700 hrs of next day		

*Free Field Measurement

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 hrs on normal weekdays, 1900-2300 hrs on all other days, 2300-0700 hrs of next day and 0700-1900 hrs on holidays) at the three designated locations (NC1/NC1a (for restricted hours), NC2 and NC3) was conducted as scheduled in the reporting month for Eastern and Western Portal.
- 3.9 As the noise monitoring for restricted hours 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 hrs holidays & 2300 – 0700 hrs of next day) and will be used as reference only.
- 3.10 Noise monitoring (0700-1900 hrs on normal weekdays) at NC7, NC8, NC9, NC11, NC12, NC13, NC14, NC15, NC16 and NC19 were conducted as scheduled in the reporting month for Intake E5A, E7, PFLR1, RR1, THR2, W0, W5 and P5 respectively.

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

- 3.11 No Action/Limit Level exceedance was recorded.

Eastern Portal (NC1a & NC2) - 1900-2300 hrs on all other days and 0700-2300 hrs on holidays

- 3.12 No Action/Limit Level exceedance was recorded.

Eastern Portal (NC1a & NC2) - 2300-0700 hrs of next day

- 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.

Intake E5A (NC7) - 0700-1900 hrs on normal weekdays

3.17 No Action/Limit Level exceedance was recorded.

Intake E7 (NC8) - 0700-1900 hrs on normal weekdays

3.18 No Action/Limit Level exceedance was recorded.

Intake E7 (NC9) - 0700-1900 hrs on normal weekdays

3.19 One Limit Level exceedance was recorded on 14th May 2010.

Intake PFLR1 (NC11) - 0700-1900 hrs on normal weekdays

3.20 No Action/Limit Level exceedance was recorded.

Intake RR1 (NC12) - 0700-1900 hrs on normal weekdays

3.21 No Action/Limit Level exceedance was recorded.

Intake RR1 (NC13) - 0700-1900 hrs on normal weekdays

3.22 No Action/Limit Level exceedance was recorded.

Intake THR2 (NC14) - 0700-1900 hrs on normal weekdays

3.23 No Action/Limit Level exceedance was recorded.

Intake W0 (NC15) - 0700-1900 hrs on normal weekdays

3.24 No Action/Limit Level exceedance was recorded.

Intake W5 (NC16) - 0700-1900 hrs on normal weekdays

3.25 No Action/Limit Level exceedance was recorded.

Intake P5 (NC19) - 0700-1900 hrs on normal weekdays

3.26 No Action/Limit Level exceedance was recorded.

- 3.27 The summary of exceedance record in reporting month is shown in **Appendix H**.
- 3.28 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.
- 3.29 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/>.
- 3.30 The major noise source identified at the designated noise monitoring stations are as follows:

Area	Station	Major Noise Source
Eastern Portal	NC1 – True Light Middle School of Hong Kong	Traffic Noise Loading/unloading activities
	NC2 – The Legend	
Western Portal	NC3 – Outside Aegean Terrace	Traffic Noise Loading/unloading activities
Intake EA	NC7 - Buddhist Li Ka Shing Care & Attention Home for the Elderly	Traffic Noise Excavation works
Intake E7	NC8 - Marymount Secondary School	Traffic Noise Excavation works
	NC9 - 117 Blue Pool Road	Breaking Works
Intake PFLR1	NC11 - Honey Court	Traffic Noise
Intake RR1	NC12 - Ying Wa Girl's School	Excavation works
	NC13 - Peaksville Court	
Intake THR2	NC14 – Hong Kong Japanese School	
Intake W0	NC15 – Hong Kong Academy	Traffic Noise Loading/unloading activities
Intake W5	NC16 - Raimondi College	Traffic Noise Excavation works Piling works
Intake P5	NC19 – Villa Veneto	Traffic Noise Excavation works

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) 60.7 (at 2300 – 0700 hrs of next day) (reference)	65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 50 (at 2300 – 0700 hrs of next day)
NC2 – The Legend	64.8 (at 0700 – 1900 hrs on normal weekdays) 59.1 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 53.9 (at 2300 – 0700 hrs of next day)	75 (at 0700 – 1900 hrs on normal weekdays)
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)	65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 50 (at 2300 – 0700 hrs of next day)
NC7 - Buddhist Li Ka Shing Care & Attention Home for the Elderly	65.1 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)
NC8 - Marymount Secondary School	63.5 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC9 - 117 Blue Pool Road	63.3 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)
NC11 - Honey Court	63.2 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)
NC12 - Ying Wa Girl's School	67.1 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC13 - Peaksville Court	65.2 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)
NC14 – Hong Kong Japanese School	60.8 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC15 – Hong Kong Academy	63.5 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC16 - Raimondi College	70.4 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC19 – Villa Veneto	68.6 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

(*) 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,
07:00 - 19:00 hrs on normal weekdays				
Eastern Portal				
NC1	3-May-10	68.1 Measured \leq Baseline	When one documented complaint is received	70*dB(A)
	13-May-10	68.9 Measured \leq Baseline		
	19-May-10	67.8 Measured \leq Baseline		
	25-May-10	68.7 Measured \leq Baseline		
	31-May-10	68.9 Measured \leq Baseline		
NC2	3-May-10	69.7		75dB(A)
	13-May-10	71.2		
	19-May-10	71.9		
	25-May-10	68.3		
	31-May-10	71.4		
Western Portal				
NC3	3-May-10	61.3	When one documented complaint is received	75dB(A)
	13-May-10	59.8		
	19-May-10	56.9 Measured \leq Baseline		
	25-May-10	54.9 Measured \leq Baseline		
	31-May-10	56.7 Measured \leq Baseline		
Intake E5A				
NC7	3-May-10	63.3	When one documented complaint is received	75dB(A)
	13-May-10	73.2		
	19-May-10	66.6		
	25-May-10	72.1		
	31-May-10	74.1		
Intake E7				
NC8	3-May-10	63.7	When one documented complaint is received	70*dB(A)
	13-May-10	69.8		
	19-May-10	68.5		
	25-May-10	65.8		
	31-May-10	62.2		
NC9	3-May-10	73.5		75dB(A)
	13-May-10	77.1		
	19-May-10	74.4		
	25-May-10	73.0		
	31-May-10	72.3		
Intake PFLR1				
NC11	3-May-10	66.0	When one documented complaint is received	75dB(A)
	13-May-10	66.4		
	19-May-10	66.0		
	25-May-10	66.7		
	31-May-10	65.0		
Intake RR1				
NC12	3-May-10	59.5	When one documented	70*dB(A)
	13-May-10	56.9		

	19-May-10	59.5	complaint is received	
	25-May-10	65.8 Measured \leq Baseline		
	31-May-10	53.8		
NC13	3-May-10	72.0		75dB(A)
	13-May-10	73.0		
	19-May-10	71.5		
	25-May-10	72.9		
	31-May-10	71.1		
Intake THR2				
NC14	3-May-10	61.0	When one documented complaint is received	70*dB(A)
	13-May-10	64.3		
	19-May-10	62.4		
	25-May-10	62.4		
	31-May-10	62.6		
Intake W0				
NC15	3-May-10	64.1	When one documented complaint is received	70*dB(A)
	13-May-10	62.2		
	19-May-10	63.7		
	25-May-10	63.9		
	31-May-10	64.1		
Intake W5				
NC16	3-May-10	65.2 Measured \leq Baseline	When one documented complaint is received	70*dB(A)
	13-May-10	66.3 Measured \leq Baseline		
	19-May-10	65.6 Measured \leq Baseline		
	25-May-10	64.7 Measured \leq Baseline		
	31-May-10	64.3 Measured \leq Baseline		
Intake P5				
NC19	3-May-10	64.2 Measured \leq Baseline	When one documented complaint is received	75dB(A)
	13-May-10	67.6 Measured \leq Baseline		
	19-May-10	65.7 Measured \leq Baseline		
	25-May-10	65.2 Measured \leq Baseline		
	31-May-10	65.9 Measured \leq Baseline		
(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)	2-May-10	63.2	When one documented complaint is received	65dB(A)
	3-May-10	62.6		
	9-May-10	62.0		
	13-May-10	63.2		
	16-May-10	62.6		
	19-May-10	62.9		
	23-May-10	62.3		
	25-May-10	61.2		
	30-May-10	62.0		
	31-May-10	62.6		
NC2	2-May-10	62.2		
	3-May-10	61.7		
	9-May-10	62.7		

	13-May-10	63.3		
	16-May-10	62.6		
	19-May-10	62.6		
	23-May-10	63.0		
	25-May-10	63.3		
	30-May-10	63.2		
	31-May-10	63.6		
Western Portal				
NC3	2-May-10	51.7	When one documented complaint is received	65dB(A)
	3-May-10	50.6 Measured \leq Baseline		
	9-May-10	54.7		
	13-May-10	50.5 Measured \leq Baseline		
	16-May-10	51.2 Measured \leq Baseline		
	19-May-10	51.1 Measured \leq Baseline		
	23-May-10	51.6 Measured \leq Baseline		
	25-May-10	50.1 Measured \leq Baseline		
	30-May-10	52.8 Measured \leq Baseline		
	31-May-10	49.7 Measured \leq Baseline		
(Restricted Hours – 23:00 – 07:00 hrs of next day)				
Eastern Portal				
NC1a (Reference)	3-May-10	58.7 Measured \leq Baseline	When one documented complaint is received	50dB(A)
	13-May-10	59.9 Measured \leq Baseline		
	19-May-10	59.0 Measured \leq Baseline		
	25-May-10	59.4 Measured \leq Baseline		
	31-May-10	59.4 Measured \leq Baseline		
NC2	3-May-10	53.9 Measured \leq Baseline		
	13-May-10	53.3 Measured \leq Baseline		
	19-May-10	52.6 Measured \leq Baseline		
	25-May-10	52.8 Measured \leq Baseline		
	31-May-10	52.7 Measured \leq Baseline		
Western Portal				
NC3	4-May-10	49.1	When one documented complaint is received	50dB(A)
	14-May-10	48.5		
	20-May-10	48.5 Measured \leq Baseline		
	26-May-10	49.4 Measured \leq Baseline		
	1-Jun-10	49.3 Measured \leq Baseline		

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

Ground Borne Construction Noise Monitoring

Monitoring Requirements

3.31 In accordance with the recommendations of the EIA study, ground borne noise monitoring is required to carry out during the TBM operation. Eight designated monitoring stations (GNC1 to GNC8) are designated for construction groundborne noise monitoring to check for compliance.

Monitoring Locations

- 3.32 Construction Ground Borne Noise Monitoring at GNC3 was temporary suspended since 7 May 2009 as the ISS EastPoint Property Management Ltd. received an instruction from the Incorporated Owners of Aegean Terrace that we are not permitted to conduct any noise monitoring inside Aegean Terrace for the Project.
- 3.33 According to the approved EIA report, noise monitoring should be performed at NSR1a (i.e. Crane Court) when TBM is operating through the tunnel section between points A and B). Therefore, Ground borne noise monitoring has been conducted at Crane Court (GNC4) since 3 June 2009 during the TBM operated.
- 3.34 Ground borne noise monitoring at GNC1 – True Light Middle School, GNC2 – The Legend and GNC4 - Crane Court were completed by end of August 2009 accordingly.
- 3.35 Ground borne noise monitoring at GNC5 was completed by end of November 2009.
- 3.36 Ground borne noise monitoring was conducted at GNC6 – French International School in the reporting month during the TBM operation. **Figure 3.1k** shows the locations of the monitoring stations.

Monitoring Equipment

- 3.37 The noise monitoring equipment shall be the same as stated in Section 3.4.

Monitoring Parameters, Frequency and Duration

- 3.38 Table 3.6 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.6 Ground Borne Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
GNC3	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
	L ₁₀ (5 min.) dB(A) L ₉₀ (5 min.) dB(A) L _{eq} (5 min.) dB(A)	1900 - 2300 hrs on all other days 0700 - 2300 hrs holidays	

Results and Observations

- 3.39 Groundborne Noise monitoring (0700-1900 hrs on normal weekdays) at French International School (GNC6) was conducted as scheduled in the reporting month. The construction ground borne noise standards are presented at Table 3.7.

French International School (GNC6) - 0700-1900 hrs on normal weekdays

3.40 No exceedance was recorded.

Table 3.7 Construction Ground Borne Noise Standards

Uses	Ground Borne Noise Criteria, dB(A) (Leq 30 min)		
	Daytime (except General Holidays and Sundays)*	Daytime during general holidays and Sundays and all days during Evening (1900 to 2300 hrs)**	Night time (2300 to 0700 hrs)
Domestic Premises	65	55	40
Educational Institutions (normal periods)	60	55	(1)
Education Institutions (during examination periods)	55	55	(1)

*10dB(A) below the noise criteria stipulated in EIAO-TM

**10dB(A) below the noise criteria stipulated in GW-TM

(1) No sensitive uses usually present during these periods

Table 3.8 Summary Table of Ground Borne Noise Monitoring Results during the Reporting Month

Parameter	Date	Construction Ground Borne Noise Level : Leq(30min) dB (A)	Standards
GNC6	3-May-10	58.2	60 dB(A)
	13-May-10	57.9	
	19-May-10	57.7	
	25-May-10	58.7	
	31-May-10	57.2	

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.
- 4.2 Proposal for Temporary Suspension of Water Quality Monitoring Western Portal was submitted on 15th September 2009 and approved by EPD on 30th October 2009. Marine water quality monitoring was temporary suspended starting from 31st October 2009 until there is marine-based construction activities resumed at the Western Portal (i.e. March of 2011 tentatively.)

Monitoring Locations

- 4.3 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

Results and Observations

- 4.4 No marine water quality monitoring was conducted during the reporting month.

Underground water level

- 4.5 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.
- 4.6 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. The updated ground water level monitoring stations, TP789_DH2, TP5_DH2, THR2_DH7 and PFLR1_DH2 were under approval from IEC.

4.7 Ground water level monitoring location is shown in **Figure 4.2** and the Monitoring data are shown in Table 4.2.

Table 4.2 Ground Water Level Monitoring Data

Date	Water Level (from ground)/m
Location: ADH48 (Eastern Portal)	
25 May 2010	8.48

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 I**.
- 5.2 Site audits were conducted on 6th, 13th, 20nd and 27th May 2010. IEC site inspections were conducted on 27th May 2010. No non-compliance was observed during the site audits.
- 5.3 In order to assess the effectiveness of the implementation of water quality mitigation measures at Western Portal, additional site inspection was conducted on 3rd, 11th, 19th, 25th and 31st May 2010. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

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

Air Quality Monitoring

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

Noise Monitoring

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

Status of Environmental Licensing and Permitting

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

Status of Waste Management

- 5.6 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.
- 5.7 During this reporting period, a total 14 nos. of dump trucks of waste were delivered to SENT landfill and 238 nos. of dump trucks 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.

- 5.8 The rock materials from the Eastern Portal and Western Portal were received by the alternative disposal sites at ZhongShan. Some of the rock materials at Eastern Portal were also received by Leighton site at Ocean Park.
- 5.9 The amount of wastes generated by the activities of the Project during the reporting month is shown in **Appendix N**.

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/B	25/6/09	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
WT00005864-2010	20/01/10	31/01/15	Industrial discharge (Western Portal Site)	Valid
EP860/W10/XY0183	19/11/08	30/11/13	Industrial discharge (Intake W0, Stubbs Road, Wan Chai, HK)	Valid
WT00003372-2009	-	30/4/14	Industrial discharge (Intake SM1)	Valid
WT00003737-2009	-	31/5/14	Industrial discharge (Intake MB16)	Valid
WT00004126-2009	-	31/5/14	Industrial discharge (Intake HKU1)	Valid
WT00003738-2009	-	31/5/14	Industrial discharge (Intake THR2)	Valid
WT00004270-2009	-	31/7/14	Industrial discharge (Intake PFLR1)	Valid
WT00004806-2009	-	30/09/14	Industrial discharge (Intake E7)	Valid
WT00004808-2009	-	30/09/14	Industrial discharge (Intake MBD2)	Valid
WT00004885-2009	-	30/09/14	Industrial discharge (Intake RR1)	Valid
WT00005135-2009	-	31/10/14	Industrial discharge (Intake W10)	Valid
WT00005374-2009	-	30/11/14	Industrial discharge (Intake P5)	Valid
WT00005376-2009	-	30/11/14	Industrial discharge (Intake TP4)	Valid
WT00005357-2009	-	30/11/14	Industrial discharge (Intake W5)	Valid
WT00005588-2009	-	31/12/14	Industrial discharge (Intake TP5)	Valid
WT00005643-2009	-	31/12/14	Industrial discharge (Intake E5A)	Valid
WT00005754-2010	-	31/01/15	Industrial discharge (Intake W8)	Valid
WT00005954-2010	-	28/02/15	Industrial discharge (Intake TP789)	Valid
WT00005915-2010	-	31/01/15	Industrial discharge (Intake E5B)	Valid
WT00006102-2010	-	28/02/15	Industrial discharge (Intake M3)	Valid
WT00006415-2010	-	30/04/15	Industrial discharge (Intake MA15)	Valid
WT00006420-2010	-	30/04/15	Industrial discharge (Intake MA17)	Valid
WT00006428-2010	-	30/04/15	Industrial discharge (Intake BR6)	Valid
WT00006609-2010	-	31/05/15	Industrial discharge (Intake HR1)	Valid
WT00006559-2010	-	30/04/15	Industrial discharge (Intake CR1)	Valid

Permit No.	Valid Period		Details	Status
	From	To		
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-RS0962-09	23/12/09	22/06/10	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-RS0263-10	14/04/10	13/05/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work and performing prescribed construction work at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. DC/2007/10).	Valid
GW-RS0348-10	14/05/10	13/06/10		
GW-RS0877-09	24/11/09	23/05/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at a construction site of "Hong Kong West Drainage Tunnel" near Stubbs Road Garden, Wan Chai, Hong Kong	Valid
GW-RS0412-10	24/05/10	23/11/10		
GW-RS0075-10	29/01/10	28/07/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at a site near the junction of Mount Butler Road and Henderson Road, Hong Kong.	Valid
GW-RS0155-10	23/02/10	21/08/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Smithfield Road outside Mei Wah Mansion, Kennedy Town, Hong Kong.	Valid
GW-RS0128-10	20/02/10	19/08/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Section of Pokfulam Road (near Football Field, Pokfulam Road Playground), Hong Kong	Valid
GW-RS0441-10	01/06/10	30/11/10	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at outside Hongkong Electric Centre, Kennedy Road, Hong Kong	Valid

Implementation Status of Environmental Mitigation Measures

5.10 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>	06/05/2010	Sand and sediment was observed falling to the existing stream at Intake THR2. The contractor was reminded to provide mitigation measures to avoid the disturbance to the stream.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The three compartments of sedimentation tank was observed full of silty/muddy water at Intake TP5. The contractor was reminded to provide sufficient silt removal facilities so that the site discharge are comply with WPCO.	Follow-up action was needed for the item.
	27/05/2010	The three compartments of sedimentation tank were observed silty at Intake THR2. The contractor was reminded the site discharge to the public is complying with WPCO.	Rectification/improvement was observed during the follow-up audit session.
<i>Noise</i>	27/05/2010	Noise was noticed from the breaking works at Intake E7. The contractor was reminded to provide sufficient noise mitigation measures to minimize the noise impact.	Follow-up action was needed for the item.
<i>Reminders</i>	06/05/2010	The Contractor was reminded of the followings: - Clear the standing water at the drip tray and pit area at Area B and Western Portal.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - To replace the worn sand bags at the entrance of Intake E5B.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - To provide sand bag bund to direct the silty water for treatment at Intake MA 15.	Follow-up action was needed for the item.
	06/05/2010	The Contractor was reminded of the followings: - Clear the used cement bags at Intake M3.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - To provide sedimentation facilities at Intake M3 and Intake TP4 to prevent silty water from discharging out.	Follow-up action was needed for the item.
	06/05/2010	The Contractor was reminded of the followings: - Clear the deposited silt and grit at the catchpit at Intake M3.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - Ensure the capacity of the wastewater treatment facilities are enough for treating the silty water at Intake TP5.	Follow-up action was needed for the item.
	06/05/2010	The Contractor was reminded of the followings: - Clear the standing water with chemical oil and construction materials at the drip tray at	Rectification/improvement was observed during the follow-up audit session.

Parameters	Date	Observations and Recommendations	Follow-up
		Intake TP5.	
	06/05/2010	The Contractor was reminded of the followings: - To improve the noise mitigation measures at Intake TP4.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - Properly maintain the breaker at Intake TP4 to avoid the grey smoke.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - Cover the cement bags at Intake HKU1.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - Plug the hole at the concrete block at Intake P5 to prevent the water from site discharging to the public drain directly.	Follow-up action was needed for the item.
	06/05/2010	The Contractor was reminded of the followings: - Provide drip tray for the generator at Intake W3.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2010	The Contractor was reminded of the followings: - Properly maintain the curtain for directing the spoil to the spoil basin.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The Contractor was reminded of the followings: - Clear the chemical waste containers at Area B and Intake THR2.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The Contractor was reminded of the followings: - Clear the stagnant water with chemical oil as chemical waste at intake MB16, W0, M3, TP5.	Follow-up action was needed for the item.
	13/05/2010	The Contractor was reminded of the followings: - Properly maintain the piling machine to prevent oil leakage at Intake E5B.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The Contractor was reminded of the followings: - Regular clear the drainage channel at Intake E5B.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The Contractor was reminded of the followings: - To provide sedimentation facilities at Intake MA15.	Follow-up action was needed for the item.
	13/05/2010	The Contractor was reminded of the followings: - Ensure the capacity of the sedimentation tank is enough to treat the silty water at Intake M3.	Follow-up action was needed for the item.
	13/05/2010	The Contractor was reminded of the followings: - To replace the worn sand bags at the entrance of Intake W10.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2010	The Contractor was reminded of the	Follow-up action was needed

Parameters	Date	Observations and Recommendations	Follow-up
		followings: - Ensure the dropping of materials to the barge comply with APCO regulations.	for the item.
	20/05/2010	The Contractor was reminded of the followings: - To clear the stagnant water at the material skip at Intake MBD2.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Properly clear the standing water with chemical oil as chemical waste at Intake W0, TP5, and SM1.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - To provide sedimentation facilities at Intake MA15 and TP4.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Clear the mud trail at the entrance of Intake MA15.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Ensure the site discharge was treated before discharging out at Intake M3.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Provide sand bags at the base of water barriers at Intake M3.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Keep clear the sedimentation tank at Intake TP5 to ensure the site discharge and comply with WPCO.	Follow-up action was needed for the item.
	20/05/2010	The Contractor was reminded of the followings: - Ensure the dropping of materials from the conveyer outlet to the barge is complying with APCO regulations.	Follow-up action was needed for the item.
	27/05/2010	The Contractor was reminded of the followings: - To replace the worn sand bags to direct the surface runoff at Intake MBD2.	Rectification/improvement was observed during the follow-up audit session.
	27/05/2010	The Contractor was reminded of the followings: - Clear the silt and debris at the drainage channel at Intake MBD2.	Rectification/improvement was observed during the follow-up audit session.

5.11 The monthly IEC audit was carried out on 27th May 2010, the observations were recorded and they are presented as follows:

5.12 The last observations were recorded by IEC on 29th April 2010.

Follow Up Observation:

- The water sedimentation tank at SM1 was not inspected and will be inspected at next inspection.

27th May 2010

Observations

- Water in sedimentation tank at THR2 was observed slightly muddy, and the water quality inside those 3 tanks was almost the same. The Contractor was reminded to review the setup of the tank if necessary.
- Chemical container on bare ground was observed at MBD2. The Contractor was reminded to provide drip tray for all chemical containers.
- Water leakage from a sedimentation tank at MBD2. The Contractor was reminded to repair the pipe connection to prevent water leakage.

Non-compliance Recorded during Site Inspections

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

Summary of Mitigation Measures Implemented

- 5.14 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 J**.
- 5.15 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.
- 5.16 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.
 - Provide noise enclosure at Eastern Portal.
 - Submitted the Alternative Plant Inventory (EP condition 2.8(c)).
- 5.17 An updated summary of the EMIS is provided in **Appendix J**.

Implementation Status of Event Action Plans

- 5.18 The Event Action Plans for air quality and noise are presented in **Appendix K**.

Eastern Portal

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

*Western Portal*1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Water Quality

5.25 Marine water quality monitoring was temporary suspended starting from 31st October 2009.

Construction Ground Borne Noise

5.26 No Limit Level exceedance was recorded in the reporting month.

*Intake E5A*Construction Noise

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

*Intake E7*Construction Noise

5.28 One Limit Level exceedance was recorded at NC9 on 14th May 2010 in the reporting month.

*Intake PFLR1*Construction Noise

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

*Intake RR1*Construction Noise

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

*Intake THR2*Construction Noise

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

Intake W0

Construction Noise

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

Intake W5

Construction Noise

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

Intake P5

Construction Noise

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

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

5.35 Two environmental complaints were received in the reporting month. For the details, please refer to the following table: -

Complaint No.	Date	Complaint Details
COM-2010-05-105	7 May 2010	The complaint was received via EPD hotline on 7 May 2010. The anonymous complainant concerned about the dark smoke emitted from the barges on 4 May 2010 and many dump trucks parking outside the Western Portal Site on 5, 6 and 7 May 2010.
COM-2010-05-105 (2)	17 May 2010	The complaint was received via EPD hotline on 17 May 2010. The anonymous complainant complaint about the open stockpile of dusty materials without covered entirely.

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

5.37 There were a total of 51 project related environmental complaints, no warning, summons and successful prosecution received since the commencement of the Project. The Complaint Log is attached in **Appendix L**.

6. FUTURE KEY ISSUES

Key Issues for the Coming Month

6.1 Key environmental issues at Eastern and Western Portals, Intake MA16, MBD2, E5A, E5B, E7, PFLR1, RR1, THR2, SM1, W0, W5, P5, M3, TP4, TP5, TP789, HKU1, W10, W3, W8, MA15, MA17, HR1, W1, DG1, BR5, GL1, MA14 and BR6 in the coming month include:

Both Eastern and Western Portals

Intake MA16, MBD2, E5A, E5B, E7, PFLR1, RR1, THR2, SM1, W0, W5, P5, M3, TP4, TP5, TP789, HKU1, W10, W3, W8, MA15, MA17, HR1, W1, DG1, BR5, GL1, MA14 and BR6

- Noise from operation of the equipment, especially for rock-breaking activities, piling works 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.

6.2 The tentative program of major site activities and the impact prediction and control measures for the coming two month, i.e. June 2010 to July 2010 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
<ul style="list-style-type: none"> - TBM excavation and adit excavation at Eastern Portal.; - TBM excavation and adit excavation at Western Portal; 	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.
<ul style="list-style-type: none"> - Excavation of Adit W0 by Drill-and-Blast method; - Structure Construction at Intake SM1; - Excavation of dropshaft at Intake MB16 by Raise Boring method; 	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.
<ul style="list-style-type: none"> - Excavation of dropshaft at Intakes RR1 and P5 by RCD method; - Excavation of intake structure at Intakes TP789, E7, TP4, HKU1, THR2, MBD2, PFLR1, W10, TP5 and E5B; - Cofferdam construction at Intakes W5, MA15, W3 and DG1; - Site preparation works for Intakes W8, MA17, W1, HR1, BR5, MA14, BR6 and GL1; - Advance grouting at Intake E5A under Variation Order #53; - Slopeworks at Intakes M3 and MA17; - Casting of tunnel segments; and - Site Handover of Site Portion GL1. 	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 M**.

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-hr 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. One Limit Level exceedance was recorded at NC9 on 14th May 2010.

Construction Ground Borne Noise Monitoring

- 7.5 All construction ground borne noise monitoring was conducted as scheduled in the reporting month. No exceedance was recorded.

Water Quality

- 7.6 Marine water quality monitoring was temporary suspended starting from 31st October 2009.

Complaint and Prosecution

- 7.7 Two environmental complaints and no environmental prosecution were received in the reporting month.

Recommendations

- 7.8 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 quality of machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To provide hoarding along the entire length of that portion of the site boundary.

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

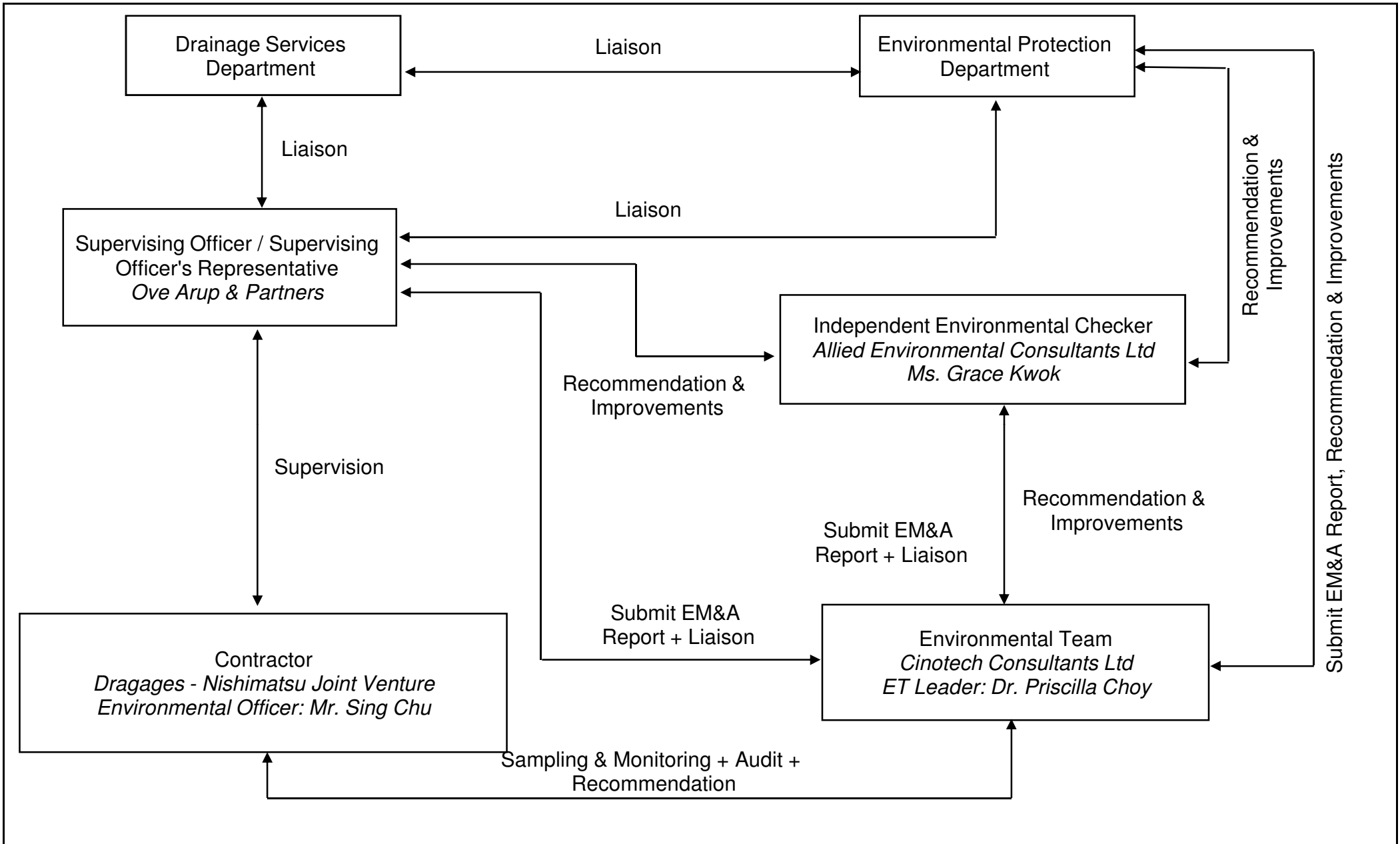
- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- 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

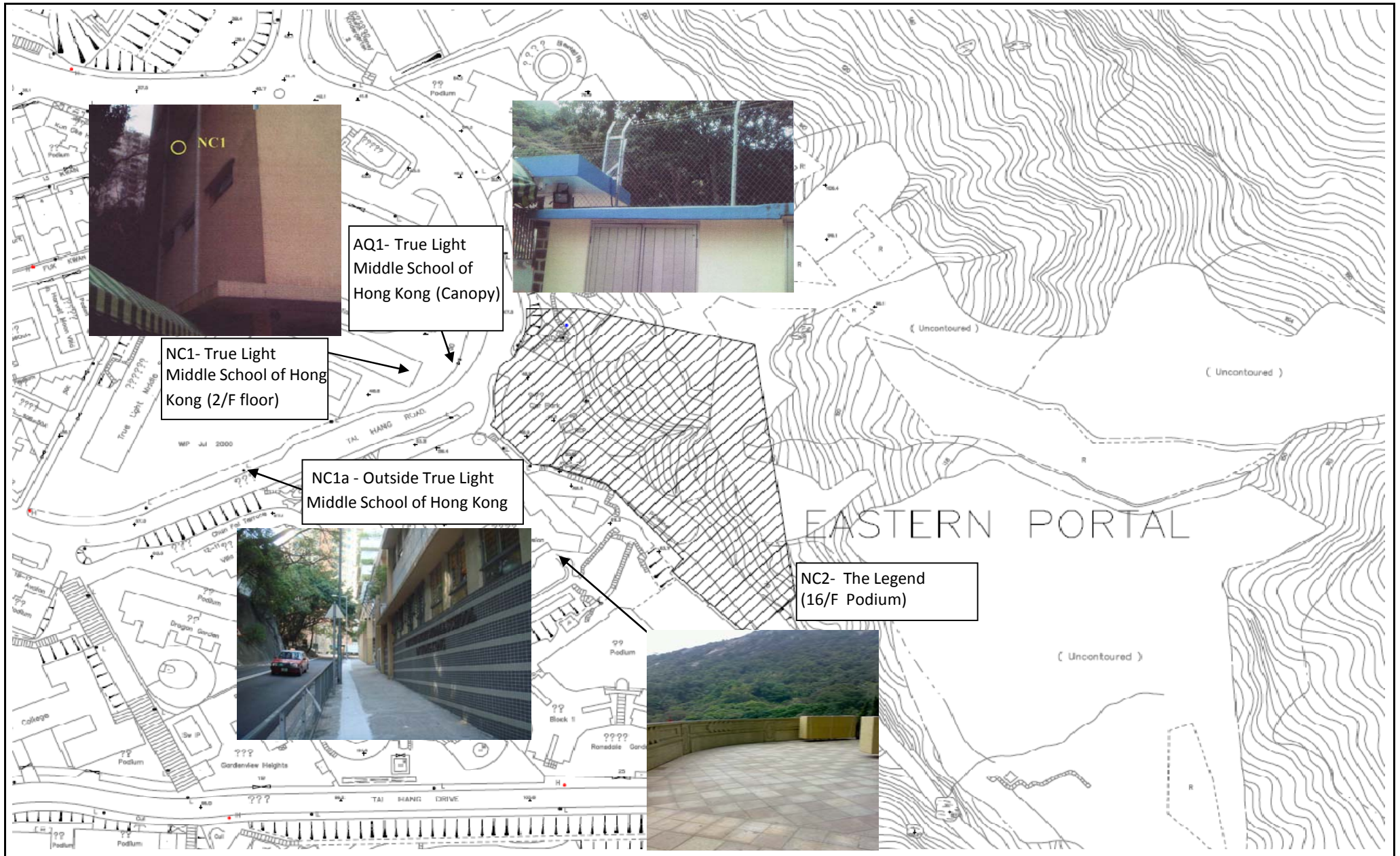


Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No. MA8001
	Site Layout Plan		Date	Figure
			Apr-08	1.1





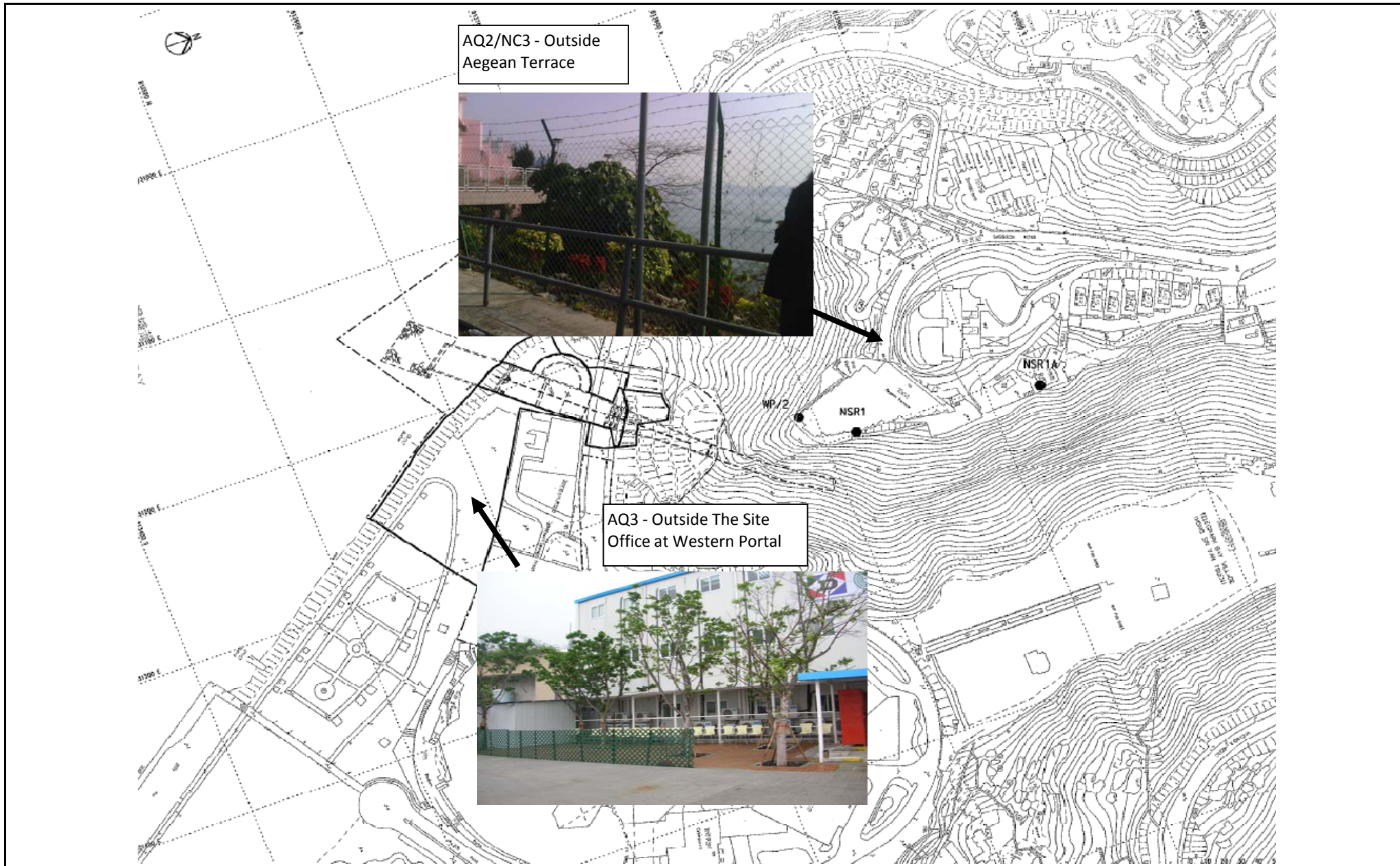
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	Design and Construction of Hong Kong West Drainage Tunnel	Date	Nov-09	Figure	2.1	
Organization Chart						



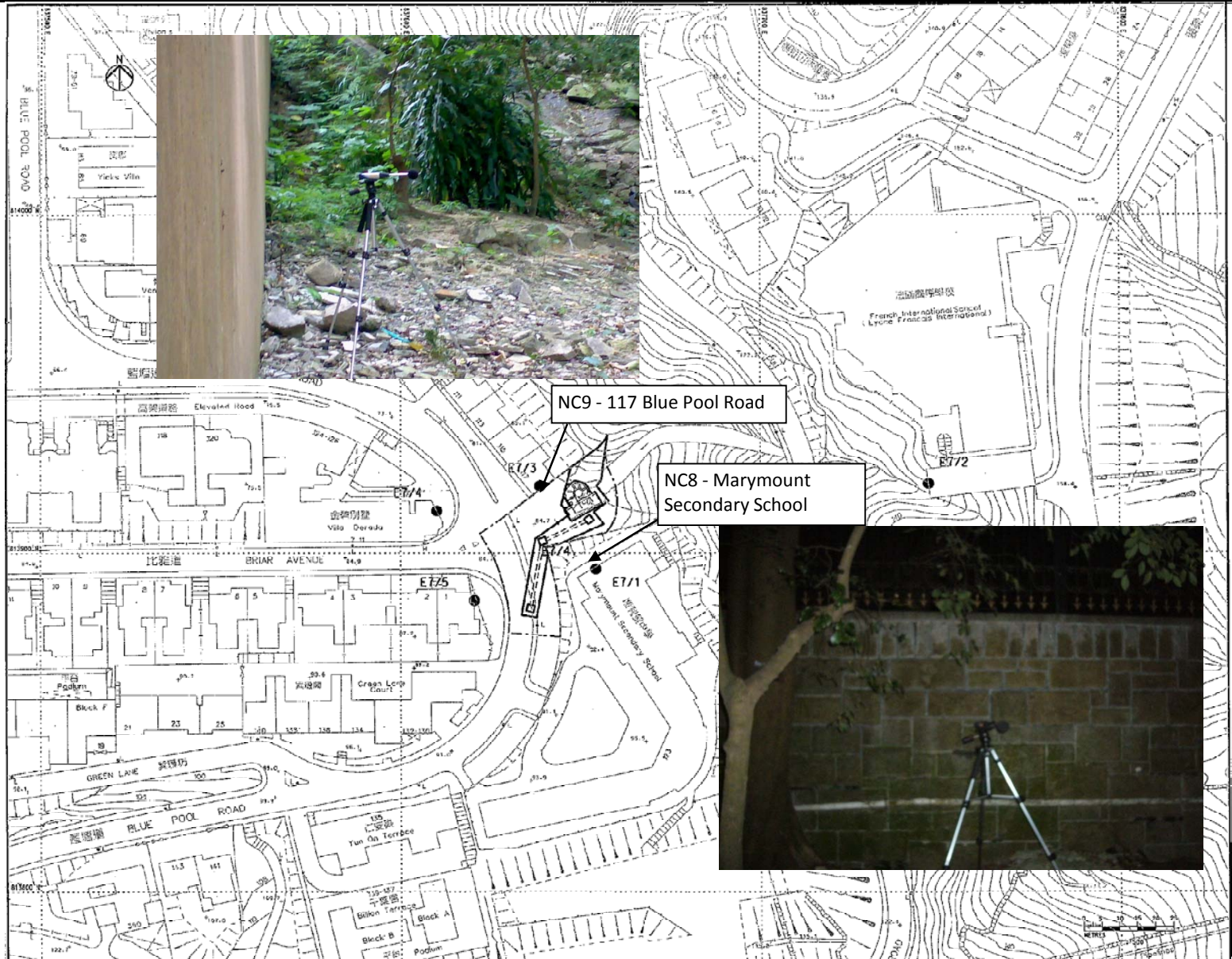
Title
 Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 (Eastern Portal)
 Locations of Air Quality and Noise Monitoring Station

Scale	N.T.S	Project No.	MA 8001
Date	Sep-09	Figure	3.1a





Title	Contract No. DC/2007/10		Scale	Project		CINOTECH
	Design and Construction of Hong Kong West Drainage Tunnel (Western Portal)			N.T.S	No.	
Locations of Air Quality and Noise Monitoring Station		Date	Figure			
		Sep-09	3.1b			



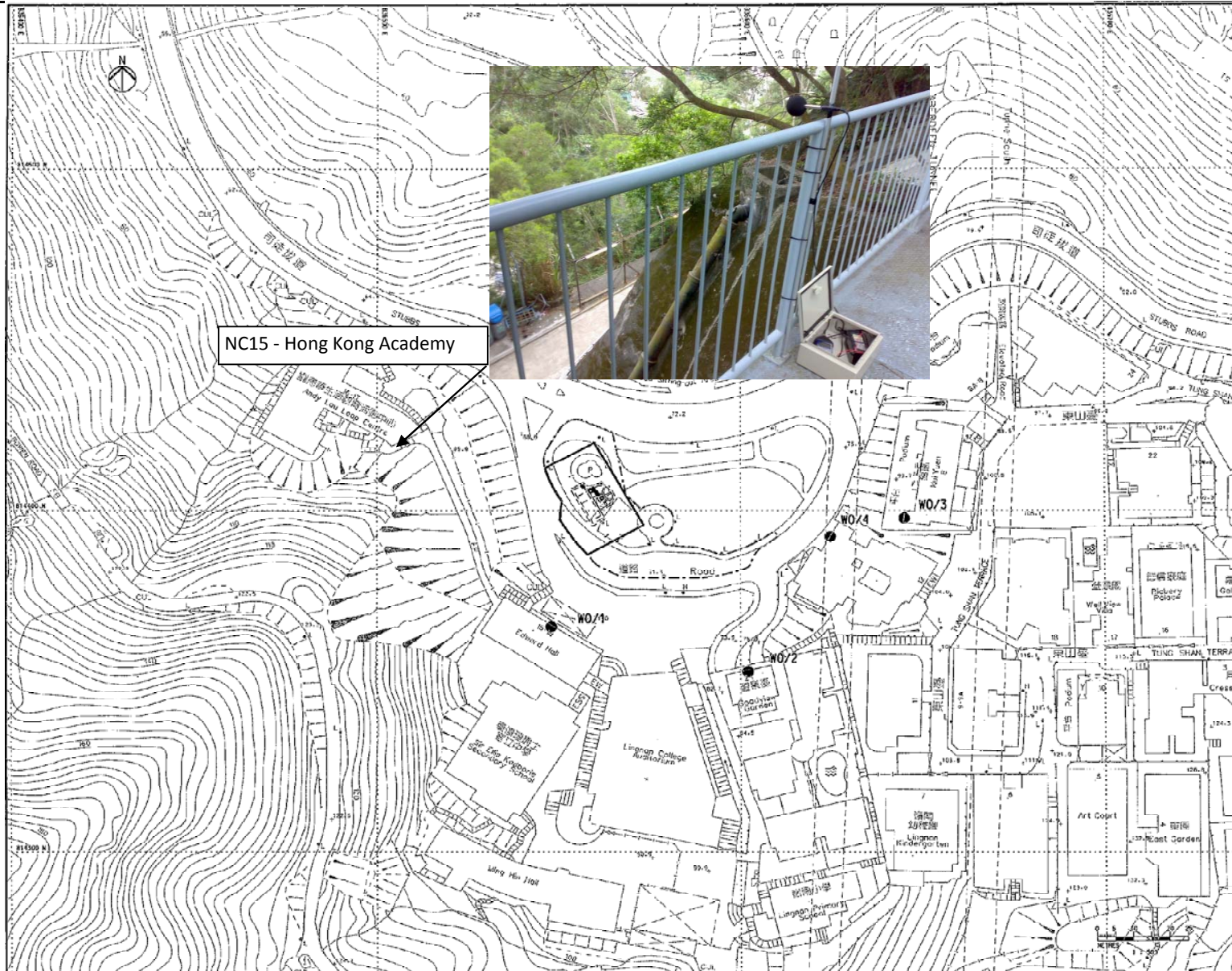
Title Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 (Intake E7)
 Locations of Noise Monitoring Stations

Scale	N.T.S	Project No.	MA 8001
Date	Sep-09	Figure	3.1c



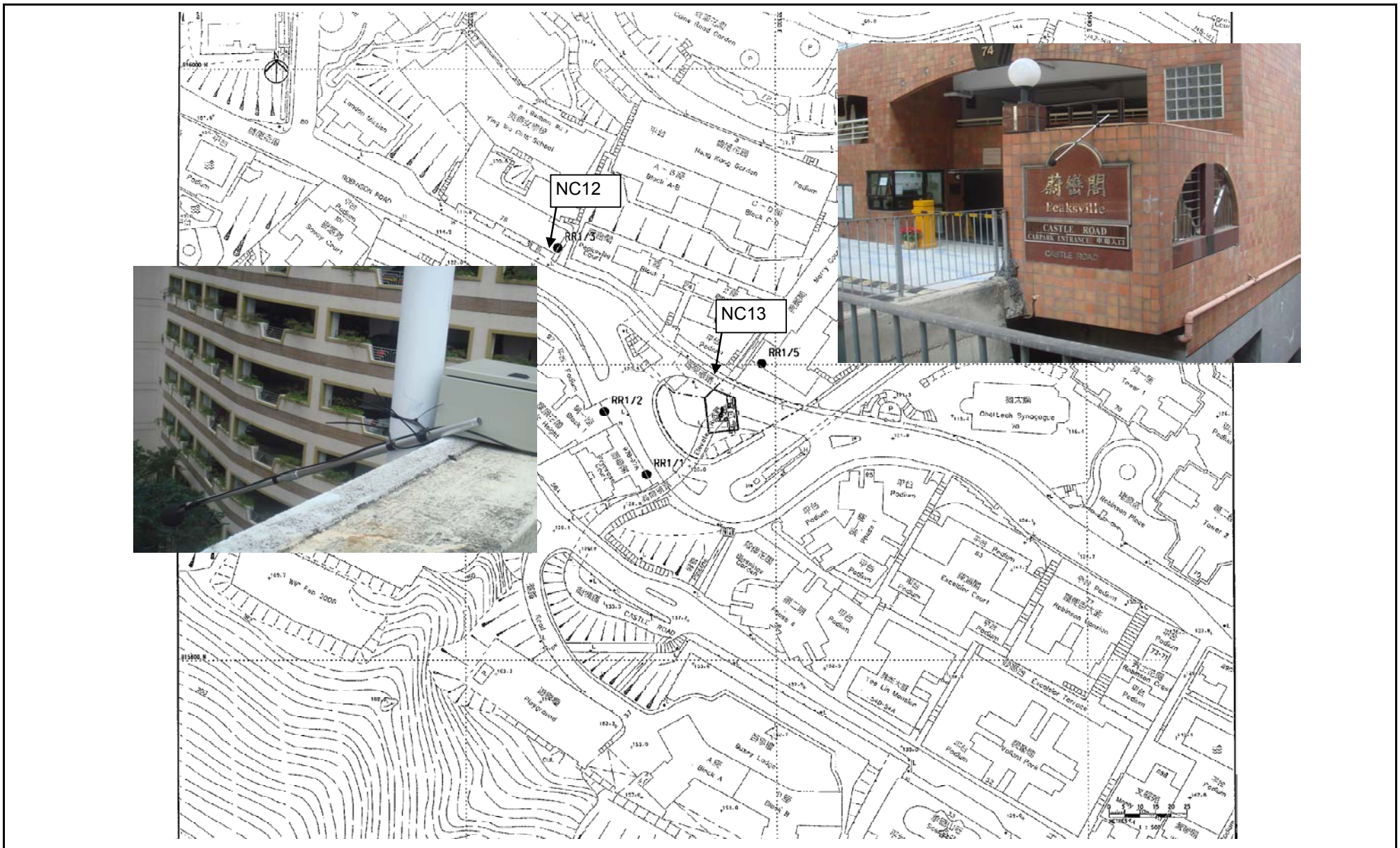


Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel (Intake PFLR1)		N.T.S	No. MA 8001
	Locations of Noise Monitoring Stations		Date	Figure
		Sep-09	3.1d	CINOTECH

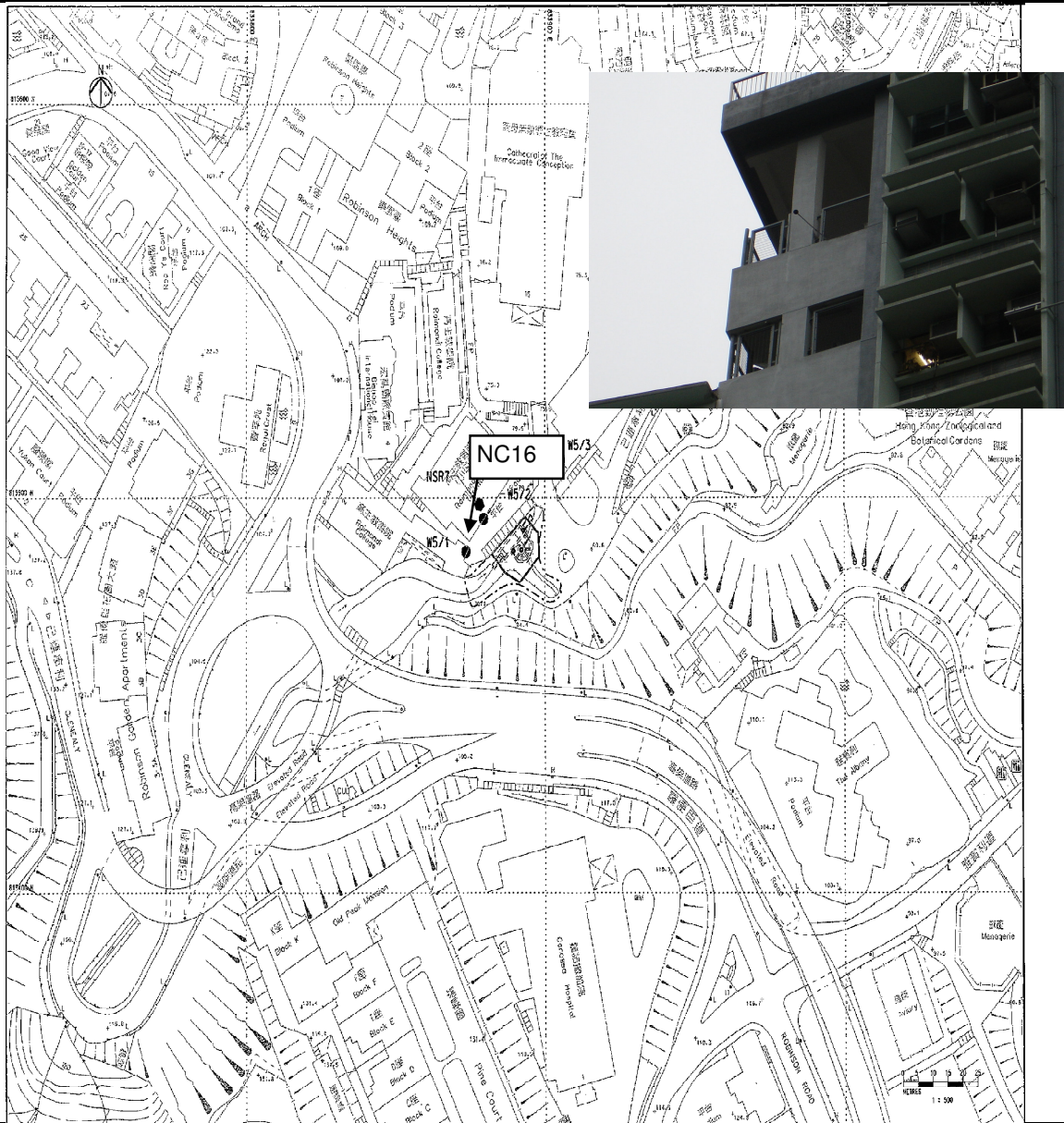


Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel (Intake W0)		N.T.S	No. MA 8001
	Locations of Noise Monitoring Stations		Date	Figure
			Sep-09	3.1e





Title	Contract No. DC/2007/10		Scale	Project	CINOTECH
	Design and Construction of Hong Kong West Drainage Tunnel				
	(Intakes RR1)		Date	Figure	
Locations of Noise Monitoring Stations		Jan-10	3.1f		



Title	Contract No. DC/2007/10		Scale	Project	
	Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No.	MA8001
	(Intakes W5)		Date	Figure	
	Locations of Noise Monitoring Stations		Jan-10	3.1g	



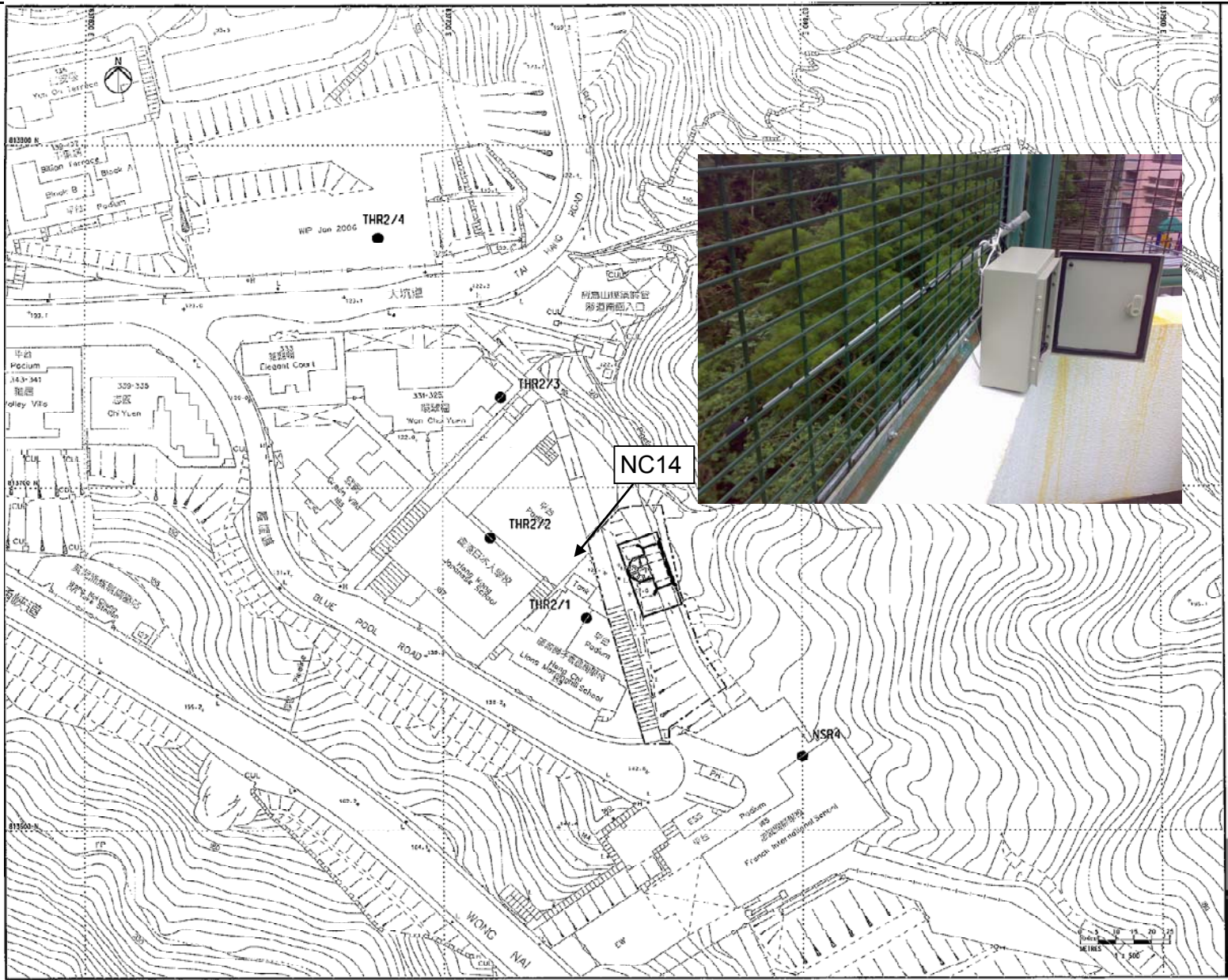


Title
 Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 (Intakes E5A)
 Locations of Noise Monitoring Stations

Scale
 N.T.S
 Date
 Feb-10

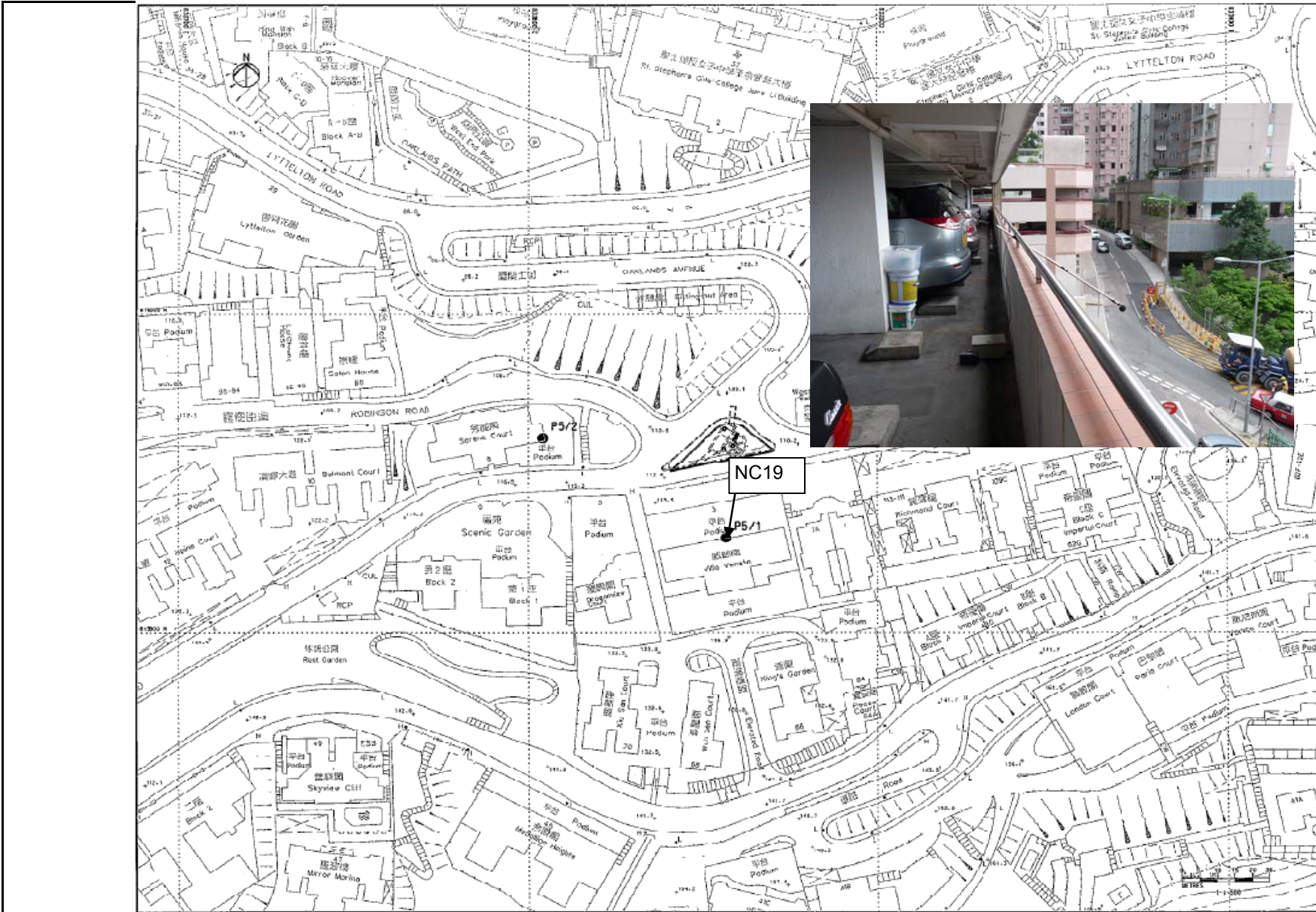
Project
 No. MA 8001
 Figure
 3.1h



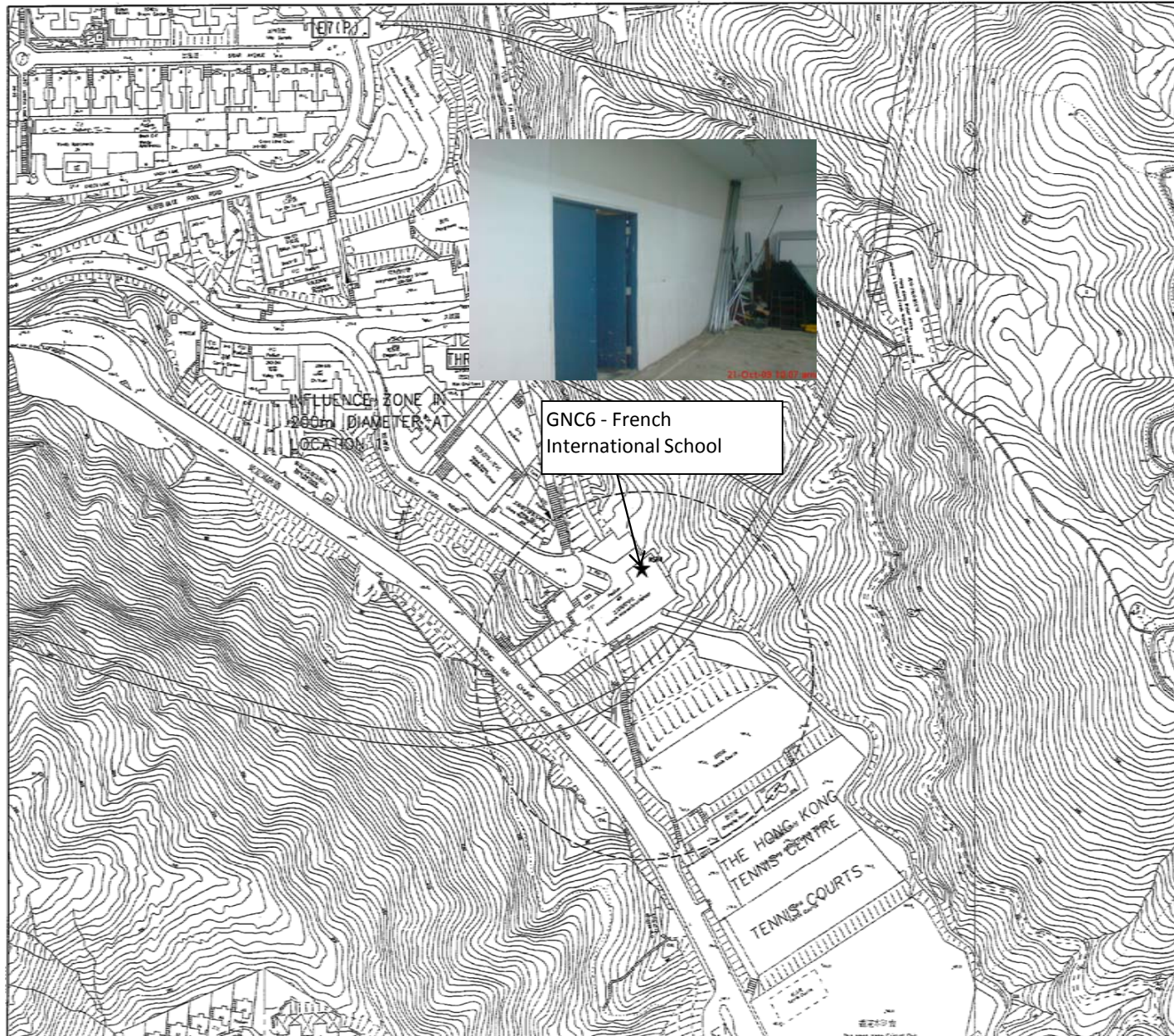


Title	Contract No. DC/2007/10		Scale	Project
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	Locations of Noise Monitoring Stations		Date	Figure
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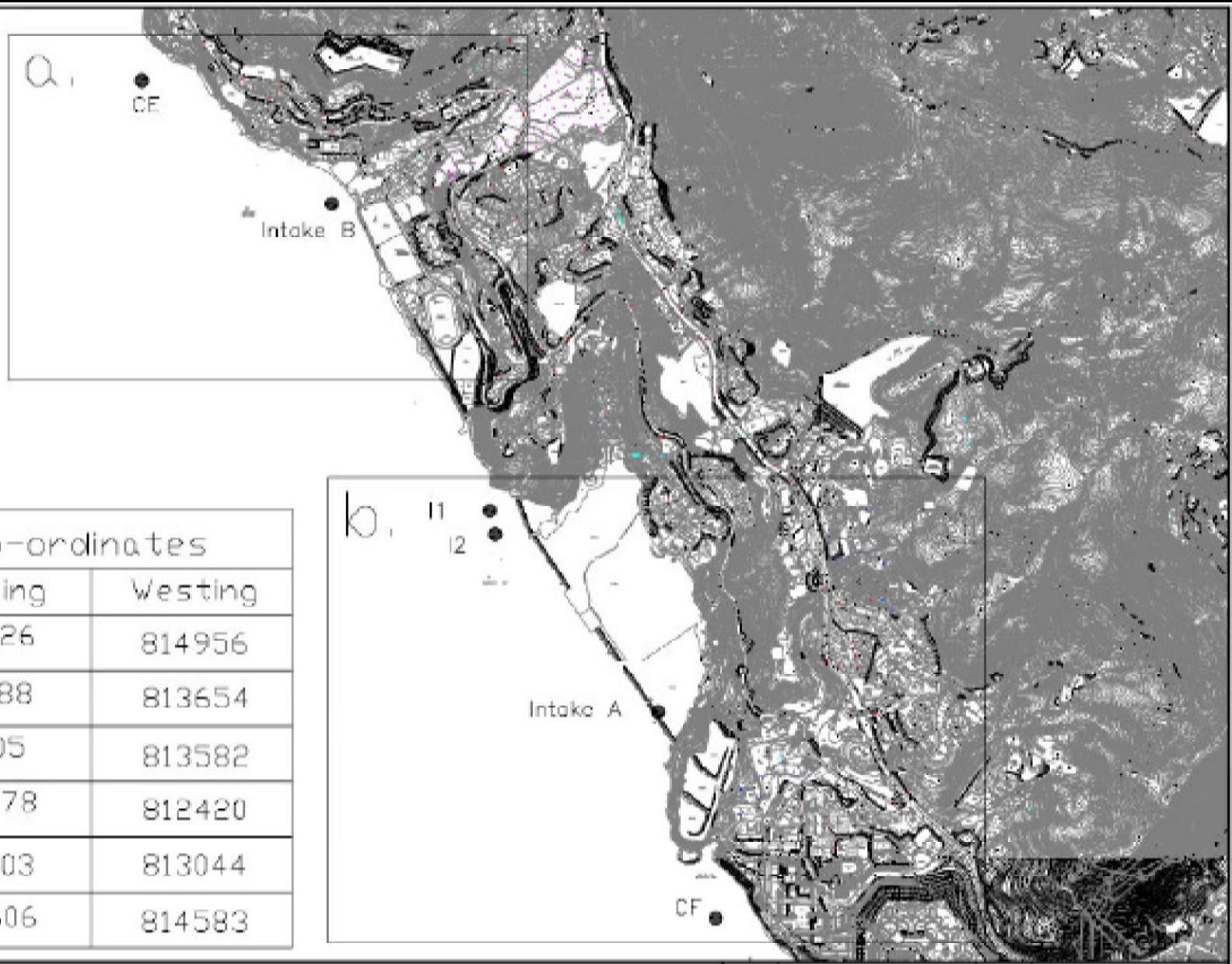


Title	Contract No. DC/2007/10		Scale	Project
	Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No. MA8001
	(Intakes P5)		Date	Figure
Locations of Noise Monitoring Stations		Feb-10	3.1j	CINOTECH



Title	Contract No. DC/2007/10		Scale	Project	
	Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No.	MA 8001
	Locations of Groundborne Noise Monitoring Station		Date	Figure	
	GNC6 (French International School)		Mar-10	3.1K	



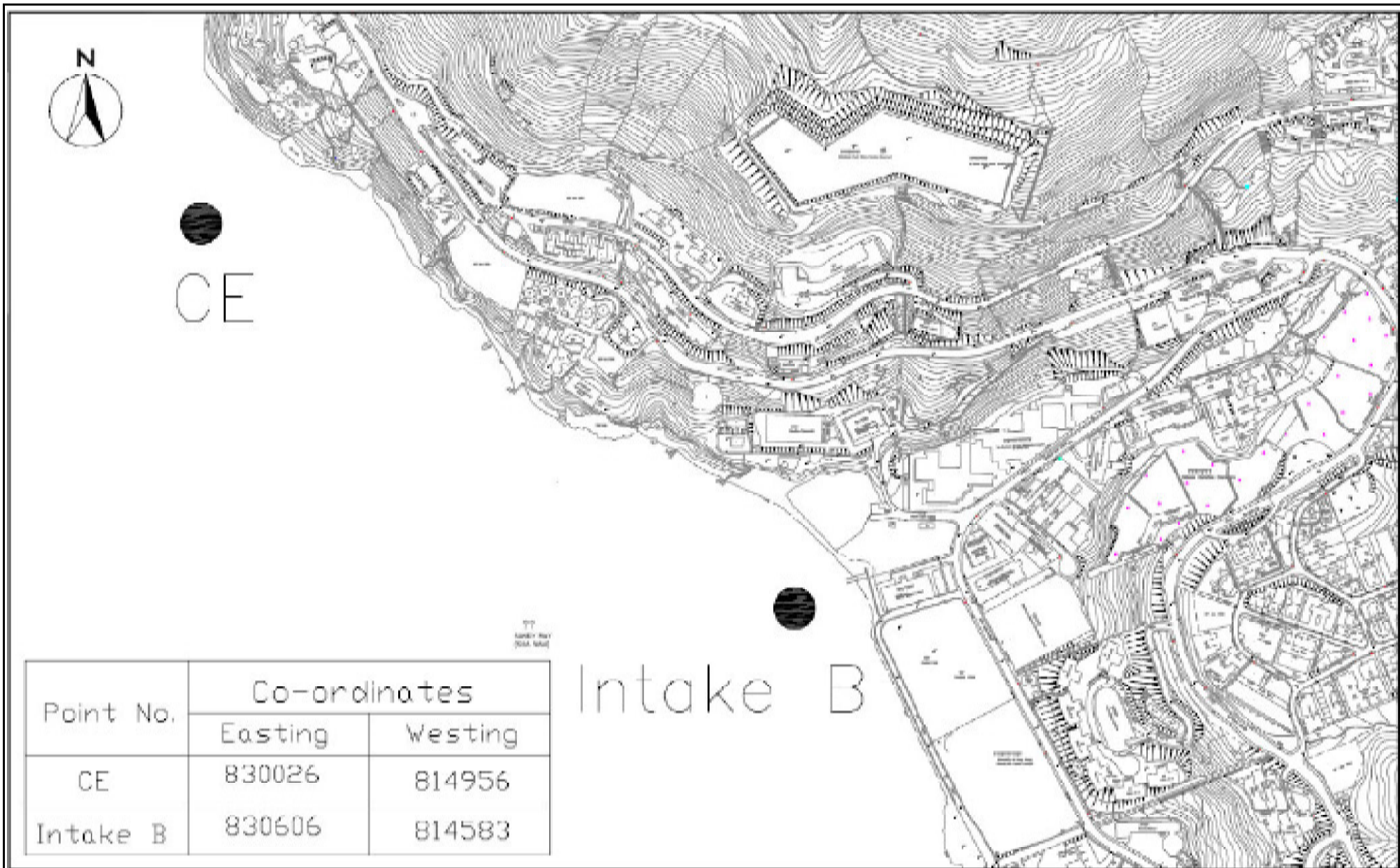


Point No.	Co-ordinates	
	Easting	Westing
CE	830026	814956
I1	831088	813654
I2	831105	813582
CF	831778	812420
Intake A	831603	813044
Intake B	830606	814583

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

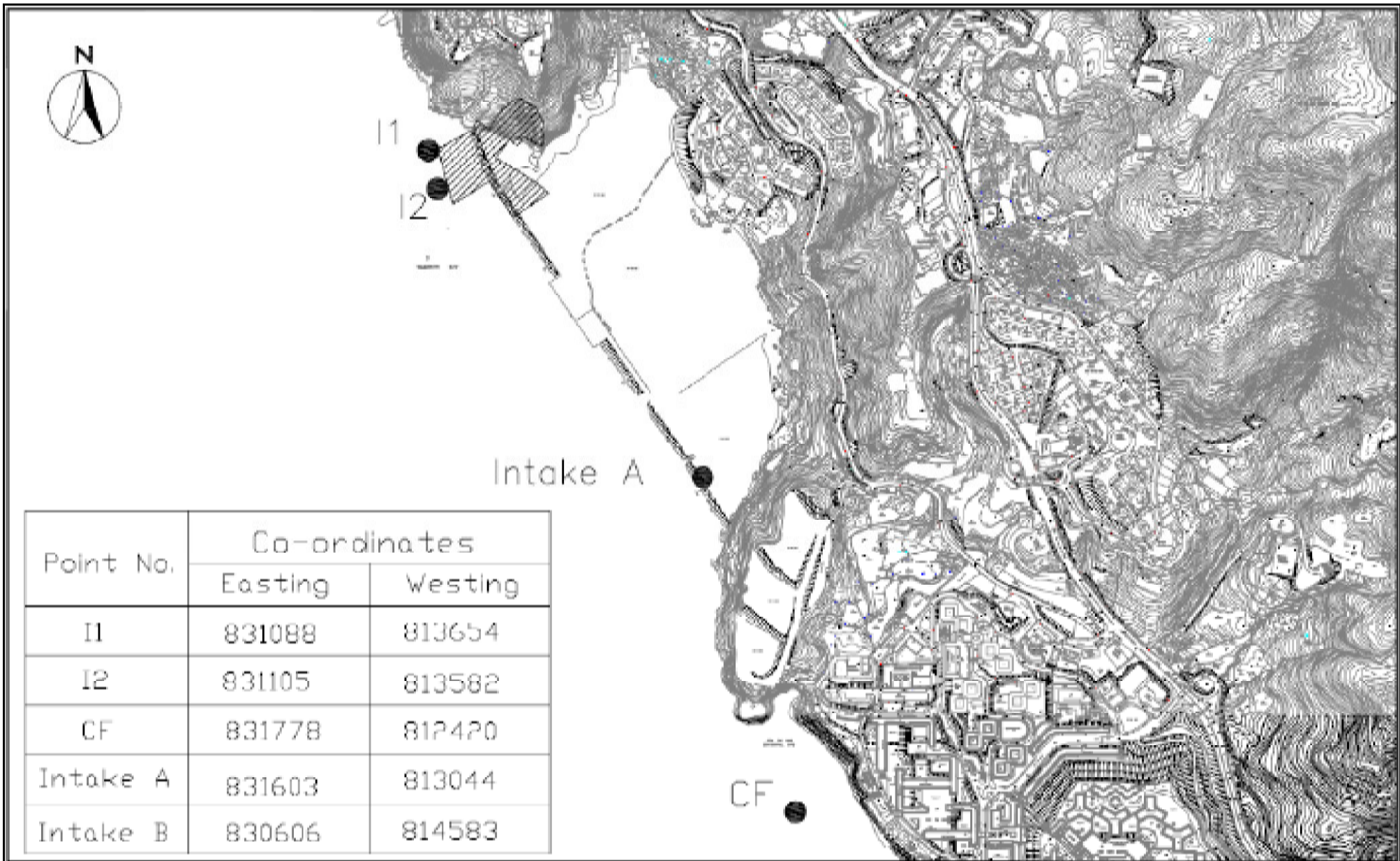




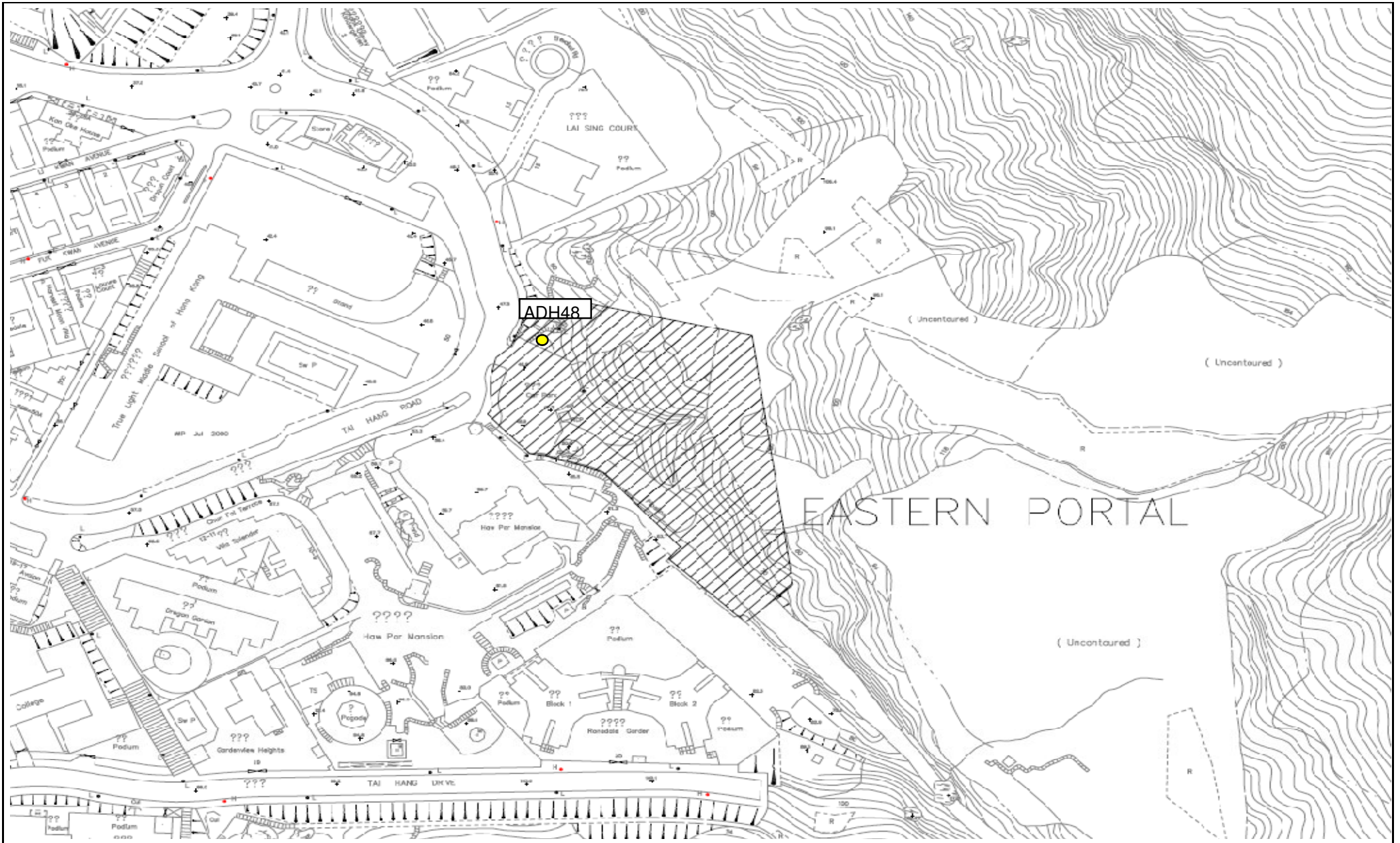
Title Contract No. DC/2007/10
 Design and Construction of Hong Kong West Drainage Tunnel
 Locations of Water Quality Monitoring Stations

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	Project	
	Date	Figure	
	N.T.S	No. MA8001	
	Jun-08	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. MA8001/44/0014

Station AQ1 - True Light Middle School of Hong Kong Operator: WK
 Date: 24-Mar-10 Next Due Date: 23-May-10
 Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	296.8	Pressure, Pa (mmHg)	757.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0488	Intercept, bc	0.0086
Last Calibration Date:	4-Nov-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Nov-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	11.6	3.41	69.64	7.8	2.79
2	9.8	3.13	64.00	6.6	2.57
3	7.6	2.76	56.34	4.8	2.19
4	5.2	2.28	46.57	3.2	1.79
5	3.1	1.76	35.92	2.0	1.41

By Linear Regression of Y on X

Slope, mw = 0.0415 Intercept, bw: -0.1093
 Correlation coefficient* = 0.9983

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 2.80

Remarks: _____

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

Date: 24/3/10
 Date: 24 March 2010

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/44/0015

Station AQ1 - True Light Middle School of Hong Kong Operator: WK
 Date: 20-May-10 Next Due Date: 19-Jul-10
 Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	302	Pressure, Pa (mmHg)	759.6

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0448	Intercept, bc	0.0086
Last Calibration Date:	4-Nov-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Nov-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	11.7	3.40	75.63	7.8	2.77
2	9.8	3.11	69.20	6.5	2.53
3	7.5	2.72	60.52	4.8	2.18
4	5.0	2.22	49.38	3.3	1.80
5	3.2	1.78	39.46	1.9	1.37

By Linear Regression of Y on X

Slope, mw = 0.0384 Intercept, bw = -0.1261
 Correlation coefficient* = 0.9992

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 2.35

Remarks: _____

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

Date: 20/5/10
 Date: 20 May 2010

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/18/0013

Station AQ3 - Outside Site Office (Western Portal) Operator: WK
 Date: 24-Mar-10 Next Due Date: 23-May-10
 Equipment No.: A-01-18 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	296.8	Pressure, Pa (mmHg)	757.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0488	Intercept, bc	0.0086
Last Calibration Date:	4-Nov-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Nov-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	11.2	3.35	68.43	7.8	2.79	
2	9.4	3.07	62.67	6.4	2.53	
3	7.4	2.72	55.59	5.1	2.26	
4	5.3	2.30	47.02	3.2	1.79	
5	3.2	1.79	36.49	2.0	1.41	

By Linear Regression of Y on X

Slope, mw = 0.0439 Intercept, bw : -0.2154
 Correlation coefficient* = 0.9978

*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) = 2.80

Remarks: _____

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

Date: 24/3/10
 Date: 24 March 2010

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/18/0014

Station AQ3 - Outside Site Office (Western Portal) Operator: WK
 Date: 20-May-10 Next Due Date: 19-Jul-10
 Equipment No.: A-01-18 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	302	Pressure, Pa (mmHg)	759.6

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0448	Intercept, bc	0.0086
Last Calibration Date:	4-Nov-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Nov-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	11.7	3.40	75.63	7.9	2.79
2	9.8	3.11	69.20	6.5	2.53
3	7.6	2.74	60.92	5.1	2.24
4	5.3	2.29	50.84	3.3	1.80
5	3.1	1.75	38.84	2.0	1.40

By Linear Regression of Y on X

Slope, mw = 0.0380 Intercept, bw : -0.0911
 Correlation coefficient* = 0.9991

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 2.42

Remarks: _____

Conducted by: Wk. Tang Signature: [Signature]
 Checked by: [Signature] Signature: [Signature]

Date: 20/5/10
 Date: 20 May 2010

TEST REPORT

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

Test Report No.:	C/A/100504
Date of Issue:	2010-05-04
Date Received:	2010-04-30
Date Tested:	2010-04-30
Date Completed:	2010-04-30
Next Due Date:	2011-05-03

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 : 22 degree Celsius
 Relative Humidity : 68%
 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



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-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Nov 04, 2009 Rootsmeter S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1272 Pa (mm) - 758.19

PLATE OR VDC #	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	1.2800	4.2	1.50
2	NA	NA	1.00	0.9910	7.1	2.50
3	NA	NA	1.00	0.9050	8.5	3.00
4	NA	NA	1.00	0.8350	9.9	3.50
5	NA	NA	1.00	0.6320	17.1	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0021	0.7829	1.2295	0.9944	0.7769	0.7640
0.9983	1.0073	1.5873	0.9906	0.9996	0.9863
0.9964	1.1010	1.7388	0.9887	1.0925	1.0804
0.9946	1.1911	1.8781	0.9869	1.1819	1.1670
0.9850	1.5586	2.4590	0.9774	1.5466	1.5279
Qstd slope (m) = 1.58420			Qa slope (m) = 0.99200		
intercept (b) = -0.00884			intercept (b) = -0.00549		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

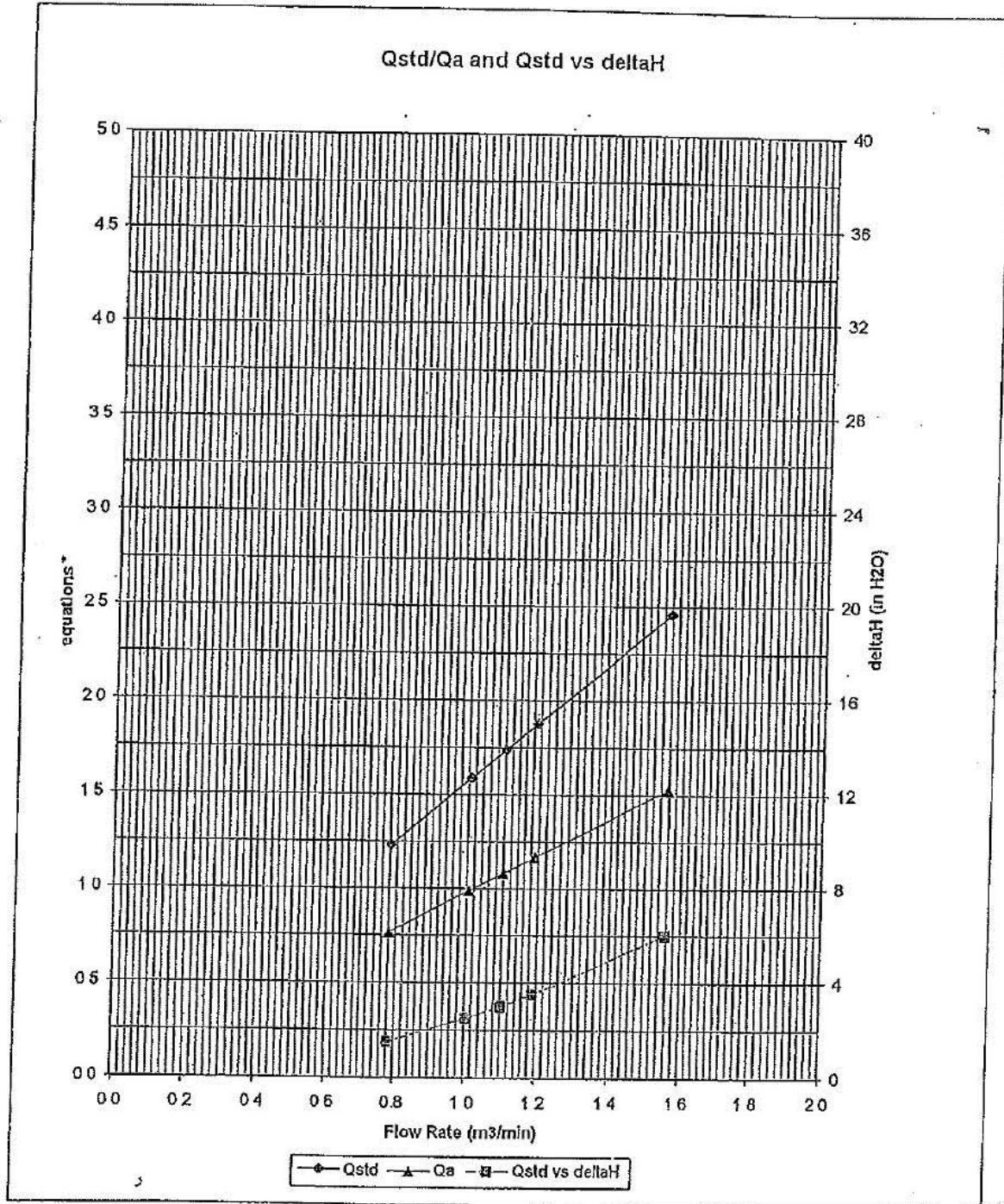
For subsequent flow rate calculations:

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



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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/100417/1A
Date of Issue:	2010-04-17
Date Received:	2010-04-16
Date Tested:	2010-04-16
Date Completed:	2010-04-17
Next Due Date:	2010-06-16

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.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 69%

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)	0.0031
-------------------------	--------

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/90903-2
Date of Issue:	2009-09-03
Date Received:	2009-09-02
Date Tested:	2009-09-02
Date Completed:	2009-09-03
Next Due Date:	2010-09-02

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	: 22 degree Celsius
Relative Humidity	: 64%

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/90925/1
Date of Issue:	2009-09-25
Date Received:	2009-09-24
Date Tested:	2009-09-24
Date Completed:	2009-09-25
Next Due Date:	2010-09-24

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 959
Serial No.	: 11275
Microphone No.	: 86553
Equipment No.	: N-08-01

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 58%

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/100116/1
Date of Issue:	2010-01-16
Date Received:	2010-01-15
Date Tested:	2010-01-15
Date Completed:	2010-01-16
Next Due Date:	2011-01-15

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14302
Microphone No.	: 17204
Equipment No.	: N-08-04

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 55%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/91114/1
Date of Issue:	2009-11-14
Date Received:	2009-11-13
Date Tested:	2009-11-13
Date Completed:	2009-11-14
Next Due Date:	2010-11-13

ATTN: Mr. Henry Leung

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 60%
Pressure	: 1015.2 hPa

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 ± 0.1 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/N/90903-3
Date of Issue:	2009-09-03
Date Received:	2009-09-02
Date Tested:	2009-09-02
Date Completed:	2009-09-03
Next Due Date:	2010-09-02

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	: 22 degree Celsius
Relative Humidity	: 64%

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

APPENDIX C
WIND DATA

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
1-May-2010	00:00	2.1	NE
1-May-2010	01:00	2	ENE
1-May-2010	02:00	2	E
1-May-2010	03:00	2.3	NE
1-May-2010	04:00	2.6	SSE
1-May-2010	05:00	2.7	NE
1-May-2010	06:00	2.2	NNE
1-May-2010	07:00	2.3	ENE
1-May-2010	08:00	2.2	ENE
1-May-2010	09:00	2.3	ENE
1-May-2010	10:00	1.9	ESE
1-May-2010	11:00	3.1	ESE
1-May-2010	12:00	3.6	SE
1-May-2010	13:00	2.8	SSE
1-May-2010	14:00	2.8	SE
1-May-2010	15:00	2.7	SE
1-May-2010	16:00	2.3	ENE
1-May-2010	17:00	2.7	ENE
1-May-2010	18:00	2.2	ESE
1-May-2010	19:00	2.4	SSE
1-May-2010	20:00	1.9	SSE
1-May-2010	21:00	2.6	ENE
1-May-2010	22:00	2.2	ENE
1-May-2010	23:00	2.3	SE
2-May-2010	00:00	2	SE
2-May-2010	01:00	1.4	SE
2-May-2010	02:00	2	SE
2-May-2010	03:00	2.3	SE
2-May-2010	04:00	2.1	SSE
2-May-2010	05:00	2.2	SE
2-May-2010	06:00	1.3	SE
2-May-2010	07:00	1.8	SE
2-May-2010	08:00	1.8	S
2-May-2010	09:00	1.7	SE
2-May-2010	10:00	1.8	SE
2-May-2010	11:00	2	SE
2-May-2010	12:00	2.4	SSW
2-May-2010	13:00	1.6	NW
2-May-2010	14:00	1.8	NNW
2-May-2010	15:00	1.8	E
2-May-2010	16:00	1.4	NE
2-May-2010	17:00	1.2	NE
2-May-2010	18:00	1.4	NE
2-May-2010	19:00	1.4	NE
2-May-2010	20:00	1.8	NNE
2-May-2010	21:00	1.7	ESE
2-May-2010	22:00	2.3	NE
2-May-2010	23:00	2.1	NE
3-May-2010	00:00	2.1	NE
3-May-2010	01:00	2.1	ESE
3-May-2010	02:00	2	E
3-May-2010	03:00	1.2	NNE
3-May-2010	04:00	1.1	NNE
3-May-2010	05:00	1.2	N

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
3-May-2010	06:00	1.4	NNE
3-May-2010	07:00	1.1	N
3-May-2010	08:00	1.3	N
3-May-2010	09:00	1.4	NNW
3-May-2010	10:00	1.4	NNW
3-May-2010	11:00	1.2	NNW
3-May-2010	12:00	1	N
3-May-2010	13:00	1.4	NW
3-May-2010	14:00	1.3	NNW
3-May-2010	15:00	2	NNW
3-May-2010	16:00	1.9	NNW
3-May-2010	17:00	2.3	ESE
3-May-2010	18:00	1.7	E
3-May-2010	19:00	1.9	E
3-May-2010	20:00	1.7	SE
3-May-2010	21:00	1.8	SE
3-May-2010	22:00	1.9	ENE
3-May-2010	23:00	2.1	ESE
4-May-2010	00:00	2.1	E
4-May-2010	01:00	2.9	E
4-May-2010	02:00	2.7	ENE
4-May-2010	03:00	2.5	ESE
4-May-2010	04:00	2.2	E
4-May-2010	05:00	2	ESE
4-May-2010	06:00	2.2	ESE
4-May-2010	07:00	2.3	ESE
4-May-2010	08:00	1.7	ESE
4-May-2010	09:00	1.9	ESE
4-May-2010	10:00	1.9	ESE
4-May-2010	11:00	1.6	ESE
4-May-2010	12:00	1.7	SE
4-May-2010	13:00	1.7	SE
4-May-2010	14:00	1.3	SE
4-May-2010	15:00	1.7	SE
4-May-2010	16:00	1.5	SE
4-May-2010	17:00	1.7	SSE
4-May-2010	18:00	1.6	SSE
4-May-2010	19:00	0.7	SSE
4-May-2010	20:00	0.5	SSE
4-May-2010	21:00	0.7	SSW
4-May-2010	22:00	0.7	SSW
4-May-2010	23:00	0.9	SSW
5-May-2010	00:00	0.4	SSW
5-May-2010	01:00	0.8	S
5-May-2010	02:00	1.2	SE
5-May-2010	03:00	0.9	SE
5-May-2010	04:00	1.3	SSE
5-May-2010	05:00	1.8	SE
5-May-2010	06:00	1.2	SSE
5-May-2010	07:00	1.2	SE
5-May-2010	08:00	1.2	ESE
5-May-2010	09:00	1.1	SE
5-May-2010	10:00	1.5	ESE
5-May-2010	11:00	2.1	SSE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
5-May-2010	12:00	2.1	SSE
5-May-2010	13:00	1.8	SSE
5-May-2010	14:00	1.6	SSE
5-May-2010	15:00	2.1	S
5-May-2010	16:00	1.7	SE
5-May-2010	17:00	1.3	S
5-May-2010	18:00	0.9	SE
5-May-2010	19:00	0.6	SSE
5-May-2010	20:00	1.2	SE
5-May-2010	21:00	0.9	SW
5-May-2010	22:00	0.8	SW
5-May-2010	23:00	0.9	S
6-May-2010	00:00	1	ESE
6-May-2010	01:00	0.8	ESE
6-May-2010	02:00	2	SE
6-May-2010	03:00	2.7	SSE
6-May-2010	04:00	1.9	S
6-May-2010	05:00	1.7	SSE
6-May-2010	06:00	2.4	SSE
6-May-2010	07:00	1.7	SSE
6-May-2010	08:00	2.1	SSE
6-May-2010	09:00	2.8	SW
6-May-2010	10:00	2.4	WSW
6-May-2010	11:00	2.3	NE
6-May-2010	12:00	2.1	ENE
6-May-2010	13:00	2.5	NE
6-May-2010	14:00	2.2	SW
6-May-2010	15:00	2.4	ESE
6-May-2010	16:00	2.4	ESE
6-May-2010	17:00	2	ESE
6-May-2010	18:00	1.7	ESE
6-May-2010	19:00	1.5	ESE
6-May-2010	20:00	1.5	ENE
6-May-2010	21:00	1.7	ESE
6-May-2010	22:00	1.9	ESE
6-May-2010	23:00	1.3	ENE
7-May-2010	00:00	1.3	N
7-May-2010	01:00	2	SW
7-May-2010	02:00	1.6	WSW
7-May-2010	03:00	1.8	SSW
7-May-2010	04:00	2	NE
7-May-2010	05:00	1.2	NW
7-May-2010	06:00	1.1	N
7-May-2010	07:00	0.5	N
7-May-2010	08:00	1.1	WNW
7-May-2010	09:00	0.7	WNW
7-May-2010	10:00	0.6	W
7-May-2010	11:00	1.1	W
7-May-2010	12:00	1.5	W
7-May-2010	13:00	1.4	WSW
7-May-2010	14:00	1.4	WSW
7-May-2010	15:00	1.3	WSW
7-May-2010	16:00	1.4	SW
7-May-2010	17:00	1	SSW

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
7-May-2010	18:00	1.2	W
7-May-2010	19:00	1.6	W
7-May-2010	20:00	1.1	SW
7-May-2010	21:00	1	SW
7-May-2010	22:00	1.9	SSW
7-May-2010	23:00	1	SE
8-May-2010	00:00	0.8	ENE
8-May-2010	01:00	0.8	SSE
8-May-2010	02:00	0.5	SSE
8-May-2010	03:00	0.8	E
8-May-2010	04:00	0.7	E
8-May-2010	05:00	0.7	E
8-May-2010	06:00	0.9	SE
8-May-2010	07:00	0.6	SE
8-May-2010	08:00	1.1	SE
8-May-2010	09:00	2	SSW
8-May-2010	10:00	2.4	SSW
8-May-2010	11:00	1.1	S
8-May-2010	12:00	1.5	SSW
8-May-2010	13:00	2.2	SW
8-May-2010	14:00	3.8	S
8-May-2010	15:00	3.1	WSW
8-May-2010	16:00	2.6	W
8-May-2010	17:00	2	SW
8-May-2010	18:00	2.1	N
8-May-2010	19:00	2.2	N
8-May-2010	20:00	2.3	N
8-May-2010	21:00	2.6	NNE
8-May-2010	22:00	2.6	NE
8-May-2010	23:00	1.8	NE
9-May-2010	00:00	2	N
9-May-2010	01:00	2.2	NNE
9-May-2010	02:00	2.3	NNE
9-May-2010	03:00	2.5	NE
9-May-2010	04:00	2.4	ENE
9-May-2010	05:00	1.6	ENE
9-May-2010	06:00	1.5	ENE
9-May-2010	07:00	1.3	E
9-May-2010	08:00	1	NE
9-May-2010	09:00	1.1	NNE
9-May-2010	10:00	1.7	NNE
9-May-2010	11:00	2.2	NNE
9-May-2010	12:00	1.8	NNE
9-May-2010	13:00	1.6	NNE
9-May-2010	14:00	1.3	NNE
9-May-2010	15:00	1.8	N
9-May-2010	16:00	1.9	NNE
9-May-2010	17:00	1.6	N
9-May-2010	18:00	1.5	NNE
9-May-2010	19:00	1	NNE
9-May-2010	20:00	1.6	N
9-May-2010	21:00	1.6	NNE
9-May-2010	22:00	1.3	N
9-May-2010	23:00	1.2	N

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
10-May-2010	00:00	1	NNE
10-May-2010	01:00	1	NNE
10-May-2010	02:00	0.9	NNE
10-May-2010	03:00	1.2	NNE
10-May-2010	04:00	1.2	N
10-May-2010	05:00	0.9	NE
10-May-2010	06:00	0.9	N
10-May-2010	07:00	1	W
10-May-2010	08:00	1	W
10-May-2010	09:00	1.7	S
10-May-2010	10:00	2.5	SW
10-May-2010	11:00	3.4	SW
10-May-2010	12:00	3.8	SSW
10-May-2010	13:00	3.8	S
10-May-2010	14:00	3.7	SSW
10-May-2010	15:00	2.9	W
10-May-2010	16:00	3.3	W
10-May-2010	17:00	3	WSW
10-May-2010	18:00	2.5	W
10-May-2010	19:00	2.7	W
10-May-2010	20:00	2.7	WSW
10-May-2010	21:00	1.7	WSW
10-May-2010	22:00	2	WSW
10-May-2010	23:00	2.1	SSE
11-May-2010	00:00	2.3	SSW
11-May-2010	01:00	2.1	SSW
11-May-2010	02:00	2.3	S
11-May-2010	03:00	2	WNW
11-May-2010	04:00	1.6	WSW
11-May-2010	05:00	1.6	NE
11-May-2010	06:00	2.1	NE
11-May-2010	07:00	2.1	NNE
11-May-2010	08:00	2	NNE
11-May-2010	09:00	2.3	NNE
11-May-2010	10:00	2.5	NNE
11-May-2010	11:00	2.6	NNE
11-May-2010	12:00	2.6	NNE
11-May-2010	13:00	2.3	NNE
11-May-2010	14:00	2.7	NE
11-May-2010	15:00	2.5	ENE
11-May-2010	16:00	1.9	ENE
11-May-2010	17:00	1.9	ENE
11-May-2010	18:00	1.5	ENE
11-May-2010	19:00	1.5	NNE
11-May-2010	20:00	1.5	NE
11-May-2010	21:00	0.9	N
11-May-2010	22:00	1.7	NE
11-May-2010	23:00	1.4	NE
12-May-2010	00:00	1.7	NE
12-May-2010	01:00	1.1	ENE
12-May-2010	02:00	0.9	ENE
12-May-2010	03:00	1.3	ENE
12-May-2010	04:00	1.3	ESE
12-May-2010	05:00	1.2	ESE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
12-May-2010	06:00	1.1	ESE
12-May-2010	07:00	0.5	SSE
12-May-2010	08:00	0.4	SSE
12-May-2010	09:00	1.8	ENE
12-May-2010	10:00	1.7	ENE
12-May-2010	11:00	2	ESE
12-May-2010	12:00	2	ENE
12-May-2010	13:00	1.6	E
12-May-2010	14:00	2	SSE
12-May-2010	15:00	1.6	NNE
12-May-2010	16:00	1.3	ENE
12-May-2010	17:00	1.6	NE
12-May-2010	18:00	1.2	NE
12-May-2010	19:00	1	NE
12-May-2010	20:00	1.1	NE
12-May-2010	21:00	1	SSE
12-May-2010	22:00	1.1	SE
12-May-2010	23:00	1.3	SE
13-May-2010	00:00	1.9	ENE
13-May-2010	01:00	1.2	SSE
13-May-2010	02:00	1.2	NE
13-May-2010	03:00	1.2	ENE
13-May-2010	04:00	1.6	ENE
13-May-2010	05:00	1.3	NNE
13-May-2010	06:00	0.7	NNE
13-May-2010	07:00	1.2	SSE
13-May-2010	08:00	1.5	SE
13-May-2010	09:00	2.1	SE
13-May-2010	10:00	2.5	SE
13-May-2010	11:00	2.8	ESE
13-May-2010	12:00	3.2	SSE
13-May-2010	13:00	3.4	SSE
13-May-2010	14:00	3.5	SE
13-May-2010	15:00	2.9	ESE
13-May-2010	16:00	2.7	E
13-May-2010	17:00	3.1	E
13-May-2010	18:00	2.4	E
13-May-2010	19:00	1.7	ESE
13-May-2010	20:00	1.2	SSE
13-May-2010	21:00	1.4	SSE
13-May-2010	22:00	1.6	SE
13-May-2010	23:00	1.1	ESE
14-May-2010	00:00	1.3	ESE
14-May-2010	01:00	2.4	ESE
14-May-2010	02:00	2.2	ESE
14-May-2010	03:00	2.7	ESE
14-May-2010	04:00	2.6	SE
14-May-2010	05:00	2.6	SE
14-May-2010	06:00	2.9	SE
14-May-2010	07:00	2.8	SE
14-May-2010	08:00	2.7	SE
14-May-2010	09:00	2.7	SE
14-May-2010	10:00	3	ESE
14-May-2010	11:00	2.4	ESE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
14-May-2010	12:00	2.8	ESE
14-May-2010	13:00	3.3	ESE
14-May-2010	14:00	2.2	SE
14-May-2010	15:00	2	SE
14-May-2010	16:00	2.9	SSE
14-May-2010	17:00	2.6	ESE
14-May-2010	18:00	1.5	ESE
14-May-2010	19:00	1.6	ESE
14-May-2010	20:00	1.8	E
14-May-2010	21:00	1.8	ESE
14-May-2010	22:00	1.8	E
14-May-2010	23:00	2.1	ESE
15-May-2010	00:00	2.2	SE
15-May-2010	01:00	2	ESE
15-May-2010	02:00	1.6	ESE
15-May-2010	03:00	1.6	ESE
15-May-2010	04:00	1.4	ESE
15-May-2010	05:00	1.7	ESE
15-May-2010	06:00	1.7	SE
15-May-2010	07:00	1.8	SE
15-May-2010	08:00	2.1	SE
15-May-2010	09:00	1.6	SE
15-May-2010	10:00	2	SE
15-May-2010	11:00	1.7	SE
15-May-2010	12:00	2.2	SE
15-May-2010	13:00	2.2	SSE
15-May-2010	14:00	2	SSE
15-May-2010	15:00	2.3	SSE
15-May-2010	16:00	2	SSE
15-May-2010	17:00	1.5	SSE
15-May-2010	18:00	1.5	SSE
15-May-2010	19:00	1.3	SE
15-May-2010	20:00	1.1	SE
15-May-2010	21:00	1.1	SE
15-May-2010	22:00	1	ESE
15-May-2010	23:00	1.1	ESE
16-May-2010	00:00	1.1	ESE
16-May-2010	01:00	1.5	ESE
16-May-2010	02:00	0.6	S
16-May-2010	03:00	0.6	ENE
16-May-2010	04:00	0.9	ENE
16-May-2010	05:00	0.8	E
16-May-2010	06:00	0.9	NNE
16-May-2010	07:00	1.3	NNE
16-May-2010	08:00	1.5	NNE
16-May-2010	09:00	1.9	NE
16-May-2010	10:00	1.5	NE
16-May-2010	11:00	1.3	SE
16-May-2010	12:00	2	SE
16-May-2010	13:00	1.8	SSE
16-May-2010	14:00	1.6	SSE
16-May-2010	15:00	2	SSE
16-May-2010	16:00	1.9	SSE
16-May-2010	17:00	1.9	SSE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
16-May-2010	18:00	1.6	ESE
16-May-2010	19:00	0.9	ESE
16-May-2010	20:00	0.8	SE
16-May-2010	21:00	0.8	ESE
16-May-2010	22:00	1.3	ESE
16-May-2010	23:00	0.8	SE
17-May-2010	00:00	0.9	SSE
17-May-2010	01:00	0.8	SSE
17-May-2010	02:00	0.5	SSE
17-May-2010	03:00	0.4	SSE
17-May-2010	04:00	0.2	SSE
17-May-2010	05:00	0.2	SE
17-May-2010	06:00	0.1	SSE
17-May-2010	07:00	0.2	SSE
17-May-2010	08:00	0.1	SSE
17-May-2010	09:00	0.8	SE
17-May-2010	10:00	1.3	SE
17-May-2010	11:00	1.9	SSE
17-May-2010	12:00	2.1	SSE
17-May-2010	13:00	2.5	SSE
17-May-2010	14:00	2.9	SSE
17-May-2010	15:00	2.9	ESE
17-May-2010	16:00	2.2	SSE
17-May-2010	17:00	1.6	SSE
17-May-2010	18:00	1.9	ESE
17-May-2010	19:00	1.6	SSE
17-May-2010	20:00	1.4	ESE
17-May-2010	21:00	1	ESE
17-May-2010	22:00	1	ESE
17-May-2010	23:00	0.5	NE
18-May-2010	00:00	0.5	SSE
18-May-2010	01:00	0.6	SE
18-May-2010	02:00	0.6	SE
18-May-2010	03:00	0.1	SSE
18-May-2010	04:00	0.1	E
18-May-2010	05:00	0.2	E
18-May-2010	06:00	0.5	ESE
18-May-2010	07:00	0.4	ESE
18-May-2010	08:00	0.9	ESE
18-May-2010	09:00	1.8	ESE
18-May-2010	10:00	2.8	ESE
18-May-2010	11:00	2.8	SE
18-May-2010	12:00	2.7	SSE
18-May-2010	13:00	3	ENE
18-May-2010	14:00	3.2	ENE
18-May-2010	15:00	3.2	WNW
18-May-2010	16:00	3.1	W
18-May-2010	17:00	3.1	W
18-May-2010	18:00	2.7	S
18-May-2010	19:00	2.2	NNE
18-May-2010	20:00	2.3	E
18-May-2010	21:00	1.6	NNE
18-May-2010	22:00	2	S
18-May-2010	23:00	2	SSW

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
19-May-2010	00:00	2.5	S
19-May-2010	01:00	1.8	S
19-May-2010	02:00	2.1	SSW
19-May-2010	03:00	1.8	SSW
19-May-2010	04:00	2.3	SSW
19-May-2010	05:00	1.7	SSW
19-May-2010	06:00	2.1	SSW
19-May-2010	07:00	1.7	W
19-May-2010	08:00	1.8	W
19-May-2010	09:00	2.8	W
19-May-2010	10:00	2.8	WNW
19-May-2010	11:00	3.1	W
19-May-2010	12:00	3.6	WNW
19-May-2010	13:00	3	NNE
19-May-2010	14:00	3.4	WNW
19-May-2010	15:00	2.8	WSW
19-May-2010	16:00	2.2	ESE
19-May-2010	17:00	2	ESE
19-May-2010	18:00	1.4	SSW
19-May-2010	19:00	0.7	ENE
19-May-2010	20:00	0.9	ENE
19-May-2010	21:00	0.8	ENE
19-May-2010	22:00	0.9	NE
19-May-2010	23:00	0.6	NE
20-May-2010	00:00	0.5	NE
20-May-2010	01:00	0.5	NE
20-May-2010	02:00	0.8	NNE
20-May-2010	03:00	0.8	NNE
20-May-2010	04:00	0.9	E
20-May-2010	05:00	0.9	WNW
20-May-2010	06:00	0.7	NNE
20-May-2010	07:00	0.5	NNE
20-May-2010	08:00	1	ENE
20-May-2010	09:00	1	W
20-May-2010	10:00	2.1	WSW
20-May-2010	11:00	2.4	WNW
20-May-2010	12:00	2.4	SSW
20-May-2010	13:00	2.5	W
20-May-2010	14:00	2.6	W
20-May-2010	15:00	2.5	WNW
20-May-2010	16:00	3	WSW
20-May-2010	17:00	2.8	SW
20-May-2010	18:00	2.3	SSW
20-May-2010	19:00	1.8	SW
20-May-2010	20:00	1.7	SSW
20-May-2010	21:00	1.8	SSW
20-May-2010	22:00	2.2	NNE
20-May-2010	23:00	1.8	NNE
21-May-2010	00:00	2	NNE
21-May-2010	01:00	1.7	NE
21-May-2010	02:00	1.9	NNW
21-May-2010	03:00	2	SSW
21-May-2010	04:00	1.9	SSW
21-May-2010	05:00	1.6	NW

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
21-May-2010	06:00	1.5	SSW
21-May-2010	07:00	1.8	SW
21-May-2010	08:00	2.2	ENE
21-May-2010	09:00	2.6	ENE
21-May-2010	10:00	3	NNE
21-May-2010	11:00	3	WNW
21-May-2010	12:00	2.9	NNE
21-May-2010	13:00	2.7	N
21-May-2010	14:00	2	NW
21-May-2010	15:00	2.1	N
21-May-2010	16:00	2	NNE
21-May-2010	17:00	2.3	N
21-May-2010	18:00	1.7	ENE
21-May-2010	19:00	1.2	N
21-May-2010	20:00	1.3	NNE
21-May-2010	21:00	1	W
21-May-2010	22:00	1.1	SE
21-May-2010	23:00	1.2	S
22-May-2010	00:00	1.3	WSW
22-May-2010	01:00	2.3	NW
22-May-2010	02:00	1.6	NW
22-May-2010	03:00	1.6	SSW
22-May-2010	04:00	0.9	SSW
22-May-2010	05:00	1.3	WSW
22-May-2010	06:00	1.2	SW
22-May-2010	07:00	1.3	WSW
22-May-2010	08:00	1.6	SSW
22-May-2010	09:00	1.5	SW
22-May-2010	10:00	1.5	NW
22-May-2010	11:00	1.6	SW
22-May-2010	12:00	2.3	SW
22-May-2010	13:00	1.7	W
22-May-2010	14:00	1.9	W
22-May-2010	15:00	1.2	SW
22-May-2010	16:00	1.2	WNW
22-May-2010	17:00	1.1	W
22-May-2010	18:00	1.4	WNW
22-May-2010	19:00	0.8	WNW
22-May-2010	20:00	1.3	W
22-May-2010	21:00	1.3	SW
22-May-2010	22:00	0.9	SW
22-May-2010	23:00	1.2	WNW
23-May-2010	00:00	1.1	WNW
23-May-2010	01:00	1.5	SW
23-May-2010	02:00	0.8	SW
23-May-2010	03:00	1	SSE
23-May-2010	04:00	0.9	WSW
23-May-2010	05:00	0.8	SSW
23-May-2010	06:00	1.1	SSW
23-May-2010	07:00	0.5	SSW
23-May-2010	08:00	0.7	WNW
23-May-2010	09:00	1.4	W
23-May-2010	10:00	2	NE
23-May-2010	11:00	2.5	SW

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
23-May-2010	12:00	2.3	W
23-May-2010	13:00	1.8	NE
23-May-2010	14:00	2.2	NE
23-May-2010	15:00	2	NE
23-May-2010	16:00	1.6	NE
23-May-2010	17:00	1.4	ESE
23-May-2010	18:00	1	W
23-May-2010	19:00	1.6	SW
23-May-2010	20:00	1.2	W
23-May-2010	21:00	1.3	W
23-May-2010	22:00	1.9	WSW
23-May-2010	23:00	1.6	SW
24-May-2010	00:00	1.9	WSW
24-May-2010	01:00	1.5	SW
24-May-2010	02:00	1.3	SW
24-May-2010	03:00	1.4	W
24-May-2010	04:00	1.3	W
24-May-2010	05:00	2.1	SW
24-May-2010	06:00	1.5	WSW
24-May-2010	07:00	1	SW
24-May-2010	08:00	1.1	SW
24-May-2010	09:00	2.2	SSW
24-May-2010	10:00	2.9	NNE
24-May-2010	11:00	2.9	N
24-May-2010	12:00	2.6	NNE
24-May-2010	13:00	2.8	NNE
24-May-2010	14:00	2.8	NE
24-May-2010	15:00	2.9	NE
24-May-2010	16:00	2.6	ENE
24-May-2010	17:00	1.9	ENE
24-May-2010	18:00	1.1	ENE
24-May-2010	19:00	0.6	E
24-May-2010	20:00	0.9	E
24-May-2010	21:00	1.2	E
24-May-2010	22:00	0.8	ENE
24-May-2010	23:00	0.8	E
25-May-2010	00:00	0.6	E
25-May-2010	01:00	0.7	E
25-May-2010	02:00	0.8	ENE
25-May-2010	03:00	0.6	E
25-May-2010	04:00	0.6	E
25-May-2010	05:00	0.5	E
25-May-2010	06:00	0.4	E
25-May-2010	07:00	0.6	E
25-May-2010	08:00	0.9	E
25-May-2010	09:00	1.7	E
25-May-2010	10:00	2.3	E
25-May-2010	11:00	2.6	NE
25-May-2010	12:00	2.8	NNE
25-May-2010	13:00	2.4	NE
25-May-2010	14:00	3.1	NE
25-May-2010	15:00	2.6	NE
25-May-2010	16:00	2.1	ENE
25-May-2010	17:00	1.8	NE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
25-May-2010	18:00	1.3	NE
25-May-2010	19:00	0.8	E
25-May-2010	20:00	0.7	ENE
25-May-2010	21:00	0.9	E
25-May-2010	22:00	0.8	ENE
25-May-2010	23:00	0.8	E
26-May-2010	00:00	0.2	E
26-May-2010	01:00	0.4	E
26-May-2010	02:00	0.2	ENE
26-May-2010	03:00	0.2	ENE
26-May-2010	04:00	0.1	ENE
26-May-2010	05:00	0.1	ENE
26-May-2010	06:00	0.1	E
26-May-2010	07:00	0.1	E
26-May-2010	08:00	0.3	ESE
26-May-2010	09:00	0.7	ESE
26-May-2010	10:00	1.5	NE
26-May-2010	11:00	1.8	NE
26-May-2010	12:00	2.4	ENE
26-May-2010	13:00	3	ENE
26-May-2010	14:00	2.8	ESE
26-May-2010	15:00	2.7	ESE
26-May-2010	16:00	1.9	NE
26-May-2010	17:00	1.9	ENE
26-May-2010	18:00	1.1	ENE
26-May-2010	19:00	1.1	NE
26-May-2010	20:00	0.7	ENE
26-May-2010	21:00	0.7	NE
26-May-2010	22:00	0.5	ENE
26-May-2010	23:00	0.5	ENE
27-May-2010	00:00	0.3	NNE
27-May-2010	01:00	0.2	NNE
27-May-2010	02:00	0.4	NE
27-May-2010	03:00	0.3	NE
27-May-2010	04:00	0.3	ENE
27-May-2010	05:00	0.3	ENE
27-May-2010	06:00	0.4	ENE
27-May-2010	07:00	0.3	WNW
27-May-2010	08:00	0.3	W
27-May-2010	09:00	0.7	W
27-May-2010	10:00	1.8	SSW
27-May-2010	11:00	2.2	SSW
27-May-2010	12:00	2.6	W
27-May-2010	13:00	2.6	SSE
27-May-2010	14:00	2.2	SSE
27-May-2010	15:00	2.5	WSW
27-May-2010	16:00	2.1	NE
27-May-2010	17:00	2.2	WSW
27-May-2010	18:00	1.2	SW
27-May-2010	19:00	1.1	WSW
27-May-2010	20:00	0.3	W
27-May-2010	21:00	0.7	W
27-May-2010	22:00	0.3	W
27-May-2010	23:00	0.5	ESE

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
28-May-2010	00:00	0.6	NNE
28-May-2010	01:00	1.2	SE
28-May-2010	02:00	1.3	SE
28-May-2010	03:00	1.7	ESE
28-May-2010	04:00	1.5	ESE
28-May-2010	05:00	1.3	SSE
28-May-2010	06:00	0.9	SSE
28-May-2010	07:00	0.8	NE
28-May-2010	08:00	1.2	ENE
28-May-2010	09:00	2.6	SSW
28-May-2010	10:00	3.1	SW
28-May-2010	11:00	3.2	NW
28-May-2010	12:00	3.4	NW
28-May-2010	13:00	3.4	NW
28-May-2010	14:00	3.3	N
28-May-2010	15:00	3	N
28-May-2010	16:00	2.9	NNE
28-May-2010	17:00	2.7	ENE
28-May-2010	18:00	1.9	ENE
28-May-2010	19:00	1.3	E
28-May-2010	20:00	1.5	ESE
28-May-2010	21:00	1	ESE
28-May-2010	22:00	1.6	SE
28-May-2010	23:00	1.6	SE
29-May-2010	00:00	1.5	S
29-May-2010	01:00	1.4	ESE
29-May-2010	02:00	1.4	SE
29-May-2010	03:00	1.2	SW
29-May-2010	04:00	1.2	E
29-May-2010	05:00	1.5	ESE
29-May-2010	06:00	1.2	SE
29-May-2010	07:00	1.3	ESE
29-May-2010	08:00	1.9	ESE
29-May-2010	09:00	2.8	SW
29-May-2010	10:00	3.3	S
29-May-2010	11:00	3.5	NW
29-May-2010	12:00	2.8	ESE
29-May-2010	13:00	2.9	ESE
29-May-2010	14:00	3.3	S
29-May-2010	15:00	2.7	S
29-May-2010	16:00	3.2	S
29-May-2010	17:00	2.8	S
29-May-2010	18:00	1.8	E
29-May-2010	19:00	1.7	E
29-May-2010	20:00	1.8	WSW
29-May-2010	21:00	1.4	WSW
29-May-2010	22:00	1.7	NW
29-May-2010	23:00	1.2	NE
30-May-2010	00:00	1.9	WSW
30-May-2010	01:00	2	NW
30-May-2010	02:00	1.2	SW
30-May-2010	03:00	1.7	ESE
30-May-2010	04:00	2.5	NNW
30-May-2010	05:00	2.4	NW

Appendix C - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
30-May-2010	06:00	2.7	NNW
30-May-2010	07:00	2.1	NW
30-May-2010	08:00	3.7	WSW
30-May-2010	09:00	3.5	WNW
30-May-2010	10:00	4.4	NNW
30-May-2010	11:00	4.1	NNW
30-May-2010	12:00	4	NNW
30-May-2010	13:00	4.1	WNW
30-May-2010	14:00	3.8	NNW
30-May-2010	15:00	3.6	NNW
30-May-2010	16:00	3.5	NW
30-May-2010	17:00	3.4	WSW
30-May-2010	18:00	3.3	WSW
30-May-2010	19:00	2.2	WSW
30-May-2010	20:00	2.6	SE
30-May-2010	21:00	2.5	SSE
30-May-2010	22:00	2.3	SSE
30-May-2010	23:00	2.5	NNE
31-May-2010	00:00	2.2	NE
31-May-2010	01:00	2.1	ENE
31-May-2010	02:00	1.9	NE
31-May-2010	03:00	1.8	NNE
31-May-2010	04:00	1.8	N
31-May-2010	05:00	2	E
31-May-2010	06:00	1.8	ENE
31-May-2010	07:00	1.4	SE
31-May-2010	08:00	1.8	SE
31-May-2010	09:00	2.1	SSE
31-May-2010	10:00	3.2	S
31-May-2010	11:00	2.9	SE
31-May-2010	12:00	2.8	ESE
31-May-2010	13:00	3.1	ESE
31-May-2010	14:00	2.7	SE
31-May-2010	15:00	2.8	SE
31-May-2010	16:00	2.4	SE
31-May-2010	17:00	2.4	ESE
31-May-2010	18:00	1.8	SE
31-May-2010	19:00	1.6	ESE
31-May-2010	20:00	0.9	SE
31-May-2010	21:00	0.9	SE
31-May-2010	22:00	1.3	S
31-May-2010	23:00	1	SE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
1-May-2010	00:00	2.5	ESE
1-May-2010	01:00	2.3	ESE
1-May-2010	02:00	2.1	ENE
1-May-2010	03:00	2.1	ENE
1-May-2010	04:00	2.0	N
1-May-2010	05:00	1.9	WSW
1-May-2010	06:00	1.7	SSW
1-May-2010	07:00	2.0	NE
1-May-2010	08:00	1.7	NW
1-May-2010	09:00	2.1	N
1-May-2010	10:00	1.9	N
1-May-2010	11:00	2.4	WNW
1-May-2010	12:00	2.2	WNW
1-May-2010	13:00	2.7	W
1-May-2010	14:00	2.8	W
1-May-2010	15:00	2.8	NW
1-May-2010	16:00	2.8	WNW
1-May-2010	17:00	2.5	WNW
1-May-2010	18:00	2.4	WNW
1-May-2010	19:00	2.2	WNW
1-May-2010	20:00	2.3	WNW
1-May-2010	21:00	2.4	WNW
1-May-2010	22:00	2.2	NNE
1-May-2010	23:00	2.2	SSE
2-May-2010	00:00	2.3	NNE
2-May-2010	01:00	2.3	ESE
2-May-2010	02:00	2.2	SSE
2-May-2010	03:00	2.1	ESE
2-May-2010	04:00	2.1	SSE
2-May-2010	05:00	2.4	ESE
2-May-2010	06:00	2.2	ESE
2-May-2010	07:00	2.3	NE
2-May-2010	08:00	2.4	NE
2-May-2010	09:00	2.4	NE
2-May-2010	10:00	2.7	ESE
2-May-2010	11:00	2.9	NE
2-May-2010	12:00	2.7	NE
2-May-2010	13:00	2.4	NE
2-May-2010	14:00	2.5	ESE
2-May-2010	15:00	2.9	NE
2-May-2010	16:00	2.7	ENE
2-May-2010	17:00	2.1	WNW
2-May-2010	18:00	2.0	SE
2-May-2010	19:00	1.8	SE
2-May-2010	20:00	1.7	ESE
2-May-2010	21:00	1.8	ESE
2-May-2010	22:00	1.7	ESE
2-May-2010	23:00	1.6	NNE
3-May-2010	00:00	1.6	NE
3-May-2010	01:00	1.8	NNE
3-May-2010	02:00	1.7	NNE
3-May-2010	03:00	1.7	ENE
3-May-2010	04:00	1.7	ENE
3-May-2010	05:00	1.8	ESE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
3-May-2010	06:00	1.5	W
3-May-2010	07:00	1.5	W
3-May-2010	08:00	1.5	WNW
3-May-2010	09:00	2.0	W
3-May-2010	10:00	2.2	W
3-May-2010	11:00	2.1	WSW
3-May-2010	12:00	2.5	WSW
3-May-2010	13:00	2.6	WNW
3-May-2010	14:00	2.3	WNW
3-May-2010	15:00	2.8	W
3-May-2010	16:00	2.3	WSW
3-May-2010	17:00	2.3	SW
3-May-2010	18:00	2.0	SW
3-May-2010	19:00	1.6	SSW
3-May-2010	20:00	1.6	W
3-May-2010	21:00	1.6	W
3-May-2010	22:00	1.4	W
3-May-2010	23:00	1.6	W
4-May-2010	00:00	1.7	SSE
4-May-2010	01:00	1.7	SE
4-May-2010	02:00	1.6	ENE
4-May-2010	03:00	2.3	NE
4-May-2010	04:00	1.9	ENE
4-May-2010	05:00	1.5	ENE
4-May-2010	06:00	1.6	ESE
4-May-2010	07:00	1.4	ESE
4-May-2010	08:00	1.5	ESE
4-May-2010	09:00	1.7	SSE
4-May-2010	10:00	1.9	SE
4-May-2010	11:00	2.3	SE
4-May-2010	12:00	2.5	SSE
4-May-2010	13:00	2.4	SSE
4-May-2010	14:00	2.1	SSW
4-May-2010	15:00	2.5	SSE
4-May-2010	16:00	2.2	SSE
4-May-2010	17:00	2.2	SE
4-May-2010	18:00	1.9	E
4-May-2010	19:00	1.5	ENE
4-May-2010	20:00	1.5	ESE
4-May-2010	21:00	1.7	E
4-May-2010	22:00	1.9	SSE
4-May-2010	23:00	1.6	ENE
5-May-2010	00:00	1.9	ENE
5-May-2010	01:00	1.9	ENE
5-May-2010	02:00	2.1	SSE
5-May-2010	03:00	2.2	SSE
5-May-2010	04:00	1.5	SW
5-May-2010	05:00	1.4	W
5-May-2010	06:00	1.5	N
5-May-2010	07:00	1.4	N
5-May-2010	08:00	1.5	S
5-May-2010	09:00	2.0	SE
5-May-2010	10:00	1.9	SE
5-May-2010	11:00	2.2	SE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
5-May-2010	12:00	2.4	ENE
5-May-2010	13:00	2.6	WNW
5-May-2010	14:00	2.4	WNW
5-May-2010	15:00	2.6	WNW
5-May-2010	16:00	2.3	WNW
5-May-2010	17:00	2.1	ENE
5-May-2010	18:00	1.9	WNW
5-May-2010	19:00	1.9	SSE
5-May-2010	20:00	2.1	SSE
5-May-2010	21:00	1.9	SSE
5-May-2010	22:00	1.6	SE
5-May-2010	23:00	1.8	SE
6-May-2010	00:00	1.8	SE
6-May-2010	01:00	1.9	ENE
6-May-2010	02:00	2.1	NE
6-May-2010	03:00	2.1	SW
6-May-2010	04:00	2.1	SE
6-May-2010	05:00	1.9	S
6-May-2010	06:00	2.1	SW
6-May-2010	07:00	2.2	S
6-May-2010	08:00	2.1	WSW
6-May-2010	09:00	2.0	NE
6-May-2010	10:00	2.4	SW
6-May-2010	11:00	2.5	SW
6-May-2010	12:00	2.8	NE
6-May-2010	13:00	2.7	SSW
6-May-2010	14:00	2.9	WNW
6-May-2010	15:00	2.9	SW
6-May-2010	16:00	2.5	WSW
6-May-2010	17:00	2.5	WSW
6-May-2010	18:00	2.3	WSW
6-May-2010	19:00	2.6	W
6-May-2010	20:00	2.6	WNW
6-May-2010	21:00	2.1	NNW
6-May-2010	22:00	2.0	WNW
6-May-2010	23:00	1.9	N
7-May-2010	00:00	1.9	N
7-May-2010	01:00	1.6	WSW
7-May-2010	02:00	2.0	W
7-May-2010	03:00	1.9	SW
7-May-2010	04:00	1.9	SW
7-May-2010	05:00	1.7	SW
7-May-2010	06:00	1.5	SSW
7-May-2010	07:00	1.6	SE
7-May-2010	08:00	1.7	W
7-May-2010	09:00	2.1	N
7-May-2010	10:00	2.2	NE
7-May-2010	11:00	2.5	WNW
7-May-2010	12:00	2.9	NE
7-May-2010	13:00	3.0	SW
7-May-2010	14:00	3.0	SSW
7-May-2010	15:00	1.6	SW
7-May-2010	16:00	1.5	W
7-May-2010	17:00	1.6	NE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
7-May-2010	18:00	2.3	ENE
7-May-2010	19:00	1.9	N
7-May-2010	20:00	1.6	E
7-May-2010	21:00	1.6	NNE
7-May-2010	22:00	1.8	SE
7-May-2010	23:00	1.9	W
8-May-2010	00:00	1.9	NE
8-May-2010	01:00	1.8	NE
8-May-2010	02:00	1.7	NE
8-May-2010	03:00	1.9	NE
8-May-2010	04:00	1.6	SSE
8-May-2010	05:00	1.7	SSE
8-May-2010	06:00	1.8	SW
8-May-2010	07:00	1.9	SSE
8-May-2010	08:00	2.3	SSE
8-May-2010	09:00	2.5	SSE
8-May-2010	10:00	2.6	SSW
8-May-2010	11:00	2.6	SW
8-May-2010	12:00	2.9	WSW
8-May-2010	13:00	2.9	WSW
8-May-2010	14:00	2.9	WSW
8-May-2010	15:00	2.6	WSW
8-May-2010	16:00	2.4	ESE
8-May-2010	17:00	2.8	ESE
8-May-2010	18:00	2.2	ESE
8-May-2010	19:00	2.3	ESE
8-May-2010	20:00	2.2	ESE
8-May-2010	21:00	2.0	ESE
8-May-2010	22:00	2.2	NE
8-May-2010	23:00	2.2	SE
9-May-2010	00:00	2.1	ENE
9-May-2010	01:00	2.1	SSE
9-May-2010	02:00	1.9	SSE
9-May-2010	03:00	2.3	ENE
9-May-2010	04:00	2.3	ENE
9-May-2010	05:00	2.2	SE
9-May-2010	06:00	2.3	SE
9-May-2010	07:00	2.3	SE
9-May-2010	08:00	2.7	SE
9-May-2010	09:00	3.1	SE
9-May-2010	10:00	3.1	WNW
9-May-2010	11:00	3.2	WNW
9-May-2010	12:00	2.8	W
9-May-2010	13:00	2.9	SSW
9-May-2010	14:00	2.9	WNW
9-May-2010	15:00	2.8	ENE
9-May-2010	16:00	2.6	ENE
9-May-2010	17:00	2.2	ENE
9-May-2010	18:00	2.2	ENE
9-May-2010	19:00	1.7	ENE
9-May-2010	20:00	1.3	SSW
9-May-2010	21:00	1.9	S
9-May-2010	22:00	1.9	E
9-May-2010	23:00	1.6	E

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
10-May-2010	00:00	1.7	E
10-May-2010	01:00	2.2	ENE
10-May-2010	02:00	1.8	NE
10-May-2010	03:00	2.0	NE
10-May-2010	04:00	1.8	ENE
10-May-2010	05:00	1.6	NE
10-May-2010	06:00	1.2	ENE
10-May-2010	07:00	1.5	NE
10-May-2010	08:00	1.6	ENE
10-May-2010	09:00	1.8	ENE
10-May-2010	10:00	2.2	ENE
10-May-2010	11:00	2.1	ENE
10-May-2010	12:00	2.4	NNE
10-May-2010	13:00	2.5	NNE
10-May-2010	14:00	2.4	S
10-May-2010	15:00	2.2	WNW
10-May-2010	16:00	2.3	E
10-May-2010	17:00	2.1	NW
10-May-2010	18:00	1.6	WNW
10-May-2010	19:00	1.6	NNE
10-May-2010	20:00	1.5	N
10-May-2010	21:00	1.5	NNE
10-May-2010	22:00	1.4	NE
10-May-2010	23:00	1.6	N
11-May-2010	00:00	1.6	N
11-May-2010	01:00	1.4	NNE
11-May-2010	02:00	1.4	N
11-May-2010	03:00	1.9	N
11-May-2010	04:00	1.8	N
11-May-2010	05:00	1.4	N
11-May-2010	06:00	1.6	SSE
11-May-2010	07:00	1.5	SSE
11-May-2010	08:00	1.6	SSW
11-May-2010	09:00	2.0	SW
11-May-2010	10:00	2.4	WSW
11-May-2010	11:00	2.6	WSW
11-May-2010	12:00	2.7	ENE
11-May-2010	13:00	2.8	ENE
11-May-2010	14:00	2.8	WSW
11-May-2010	15:00	2.9	ENE
11-May-2010	16:00	2.4	WSW
11-May-2010	17:00	2.4	NE
11-May-2010	18:00	2.4	WSW
11-May-2010	19:00	2.1	SW
11-May-2010	20:00	1.9	SW
11-May-2010	21:00	1.4	S
11-May-2010	22:00	1.0	E
11-May-2010	23:00	1.3	ENE
12-May-2010	00:00	1.7	SE
12-May-2010	01:00	1.6	ESE
12-May-2010	02:00	1.5	ENE
12-May-2010	03:00	1.6	N
12-May-2010	04:00	1.7	NE
12-May-2010	05:00	1.5	SW

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
12-May-2010	06:00	1.5	SE
12-May-2010	07:00	1.6	S
12-May-2010	08:00	1.8	SW
12-May-2010	09:00	2.1	S
12-May-2010	10:00	2.5	WSW
12-May-2010	11:00	2.8	NE
12-May-2010	12:00	3.2	NE
12-May-2010	13:00	2.9	SW
12-May-2010	14:00	2.9	SW
12-May-2010	15:00	3.0	SSE
12-May-2010	16:00	3.0	SE
12-May-2010	17:00	2.4	ESE
12-May-2010	18:00	2.5	ESE
12-May-2010	19:00	2.6	SE
12-May-2010	20:00	2.2	SE
12-May-2010	21:00	2.2	SSE
12-May-2010	22:00	2.2	SE
12-May-2010	23:00	2.3	ESE
13-May-2010	00:00	2.2	SE
13-May-2010	01:00	2.3	SE
13-May-2010	02:00	1.6	SE
13-May-2010	03:00	1.6	SSE
13-May-2010	04:00	1.8	ENE
13-May-2010	05:00	1.9	E
13-May-2010	06:00	1.9	ENE
13-May-2010	07:00	1.9	NNE
13-May-2010	08:00	2.1	ESE
13-May-2010	09:00	2.3	ESE
13-May-2010	10:00	2.4	ESE
13-May-2010	11:00	2.9	SE
13-May-2010	12:00	3.2	ENE
13-May-2010	13:00	2.9	ESE
13-May-2010	14:00	2.9	SE
13-May-2010	15:00	2.9	SE
13-May-2010	16:00	2.8	SE
13-May-2010	17:00	2.6	ESE
13-May-2010	18:00	2.6	NE
13-May-2010	19:00	2.1	ESE
13-May-2010	20:00	2.2	NE
13-May-2010	21:00	2.0	NNE
13-May-2010	22:00	1.8	NNE
13-May-2010	23:00	1.8	NE
14-May-2010	00:00	1.8	SE
14-May-2010	01:00	1.6	ESE
14-May-2010	02:00	1.8	SE
14-May-2010	03:00	1.6	SE
14-May-2010	04:00	1.6	S
14-May-2010	05:00	1.7	SSE
14-May-2010	06:00	1.5	SE
14-May-2010	07:00	1.9	SE
14-May-2010	08:00	2.0	SE
14-May-2010	09:00	2.8	SE
14-May-2010	10:00	2.6	S
14-May-2010	11:00	2.7	SSW

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
14-May-2010	12:00	2.0	SSE
14-May-2010	13:00	2.1	SSW
14-May-2010	14:00	1.9	SSW
14-May-2010	15:00	2.0	SE
14-May-2010	16:00	1.9	NE
14-May-2010	17:00	1.9	NE
14-May-2010	18:00	1.8	ESE
14-May-2010	19:00	2.3	NE
14-May-2010	20:00	2.3	NE
14-May-2010	21:00	2.4	ESE
14-May-2010	22:00	2.2	NE
14-May-2010	23:00	2.4	NNE
15-May-2010	00:00	2.6	NE
15-May-2010	01:00	2.5	E
15-May-2010	02:00	2.4	ESE
15-May-2010	03:00	2.4	E
15-May-2010	04:00	2.3	ESE
15-May-2010	05:00	1.6	E
15-May-2010	06:00	2.0	W
15-May-2010	07:00	2.2	ESE
15-May-2010	08:00	2.3	W
15-May-2010	09:00	2.3	SE
15-May-2010	10:00	2.7	SE
15-May-2010	11:00	2.8	SE
15-May-2010	12:00	2.8	E
15-May-2010	13:00	2.9	E
15-May-2010	14:00	2.7	E
15-May-2010	15:00	2.4	E
15-May-2010	16:00	2.6	ESE
15-May-2010	17:00	2.4	ESE
15-May-2010	18:00	2.2	SE
15-May-2010	19:00	2.1	N
15-May-2010	20:00	1.9	N
15-May-2010	21:00	2.1	NNE
15-May-2010	22:00	2.1	NE
15-May-2010	23:00	2.2	ESE
16-May-2010	00:00	2.1	ESE
16-May-2010	01:00	1.8	ESE
16-May-2010	02:00	1.7	N
16-May-2010	03:00	1.9	NE
16-May-2010	04:00	2.1	NE
16-May-2010	05:00	2.0	ESE
16-May-2010	06:00	1.6	SE
16-May-2010	07:00	1.6	E
16-May-2010	08:00	1.7	E
16-May-2010	09:00	1.8	ENE
16-May-2010	10:00	1.7	NE
16-May-2010	11:00	2.1	NE
16-May-2010	12:00	2.5	ESE
16-May-2010	13:00	2.6	ESE
16-May-2010	14:00	2.5	NE
16-May-2010	15:00	2.3	NE
16-May-2010	16:00	2.2	NE
16-May-2010	17:00	2.5	NE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
16-May-2010	18:00	2.0	ESE
16-May-2010	19:00	2.1	SE
16-May-2010	20:00	2.0	SSW
16-May-2010	21:00	2.0	SSW
16-May-2010	22:00	2.0	SE
16-May-2010	23:00	2.2	S
17-May-2010	00:00	2.0	S
17-May-2010	01:00	1.9	NW
17-May-2010	02:00	1.9	NW
17-May-2010	03:00	1.8	N
17-May-2010	04:00	1.7	N
17-May-2010	05:00	1.7	N
17-May-2010	06:00	1.6	N
17-May-2010	07:00	1.6	NNE
17-May-2010	08:00	1.8	ESE
17-May-2010	09:00	1.9	ESE
17-May-2010	10:00	2.3	ESE
17-May-2010	11:00	2.5	E
17-May-2010	12:00	2.5	ENE
17-May-2010	13:00	2.2	NE
17-May-2010	14:00	2.5	NNE
17-May-2010	15:00	2.3	NNE
17-May-2010	16:00	2.5	NE
17-May-2010	17:00	2.2	NE
17-May-2010	18:00	1.8	NE
17-May-2010	19:00	1.8	NE
17-May-2010	20:00	1.8	N
17-May-2010	21:00	1.8	NE
17-May-2010	22:00	1.9	ENE
17-May-2010	23:00	1.9	E
18-May-2010	00:00	1.7	WNW
18-May-2010	01:00	1.7	WNW
18-May-2010	02:00	1.6	N
18-May-2010	03:00	1.7	E
18-May-2010	04:00	1.8	E
18-May-2010	05:00	1.6	SE
18-May-2010	06:00	1.6	ESE
18-May-2010	07:00	3.3	ESE
18-May-2010	08:00	3.4	E
18-May-2010	09:00	3.9	ESE
18-May-2010	10:00	4.1	E
18-May-2010	11:00	3.0	E
18-May-2010	12:00	2.9	E
18-May-2010	13:00	4.2	NE
18-May-2010	14:00	3.6	NNE
18-May-2010	15:00	3.1	N
18-May-2010	16:00	4.0	SSE
18-May-2010	17:00	3.9	SE
18-May-2010	18:00	3.6	SE
18-May-2010	19:00	3.3	SE
18-May-2010	20:00	3.0	SE
18-May-2010	21:00	3.3	SE
18-May-2010	22:00	3.3	SE
18-May-2010	23:00	3.4	SE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
19-May-2010	00:00	3.6	SE
19-May-2010	01:00	3.5	SSE
19-May-2010	02:00	3.4	WNW
19-May-2010	03:00	3.5	SE
19-May-2010	04:00	3.4	SE
19-May-2010	05:00	4.6	SE
19-May-2010	06:00	4.3	W
19-May-2010	07:00	4.3	NW
19-May-2010	08:00	4.2	ESE
19-May-2010	09:00	4.4	E
19-May-2010	10:00	2.9	E
19-May-2010	11:00	2.9	E
19-May-2010	12:00	3.6	E
19-May-2010	13:00	4.2	E
19-May-2010	14:00	4.0	NE
19-May-2010	15:00	3.0	NE
19-May-2010	16:00	2.9	SE
19-May-2010	17:00	2.8	SE
19-May-2010	18:00	2.6	ESE
19-May-2010	19:00	2.6	ESE
19-May-2010	20:00	2.1	W
19-May-2010	21:00	3.0	NW
19-May-2010	22:00	2.4	W
19-May-2010	23:00	3.1	WNW
20-May-2010	00:00	3.0	WNW
20-May-2010	01:00	2.3	W
20-May-2010	02:00	2.6	SSW
20-May-2010	03:00	2.6	SW
20-May-2010	04:00	2.4	SW
20-May-2010	05:00	2.9	W
20-May-2010	06:00	2.7	SSW
20-May-2010	07:00	1.7	NNE
20-May-2010	08:00	1.7	ESE
20-May-2010	09:00	2.2	E
20-May-2010	10:00	3.5	ESE
20-May-2010	11:00	3.7	SE
20-May-2010	12:00	3.5	E
20-May-2010	13:00	3.7	S
20-May-2010	14:00	3.6	SSW
20-May-2010	15:00	3.2	SSW
20-May-2010	16:00	3.0	SSW
20-May-2010	17:00	2.1	ESE
20-May-2010	18:00	2.0	SE
20-May-2010	19:00	1.8	SE
20-May-2010	20:00	1.7	SE
20-May-2010	21:00	1.7	NNE
20-May-2010	22:00	1.7	NNE
20-May-2010	23:00	1.8	NNE
21-May-2010	00:00	1.9	NNE
21-May-2010	01:00	2.0	S
21-May-2010	02:00	1.9	ESE
21-May-2010	03:00	2.0	ESE
21-May-2010	04:00	1.9	ENE
21-May-2010	05:00	1.6	N

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
21-May-2010	06:00	1.4	ENE
21-May-2010	07:00	1.5	E
21-May-2010	08:00	1.9	ENE
21-May-2010	09:00	1.9	ENE
21-May-2010	10:00	1.8	E
21-May-2010	11:00	2.2	ESE
21-May-2010	12:00	2.4	NE
21-May-2010	13:00	2.7	NE
21-May-2010	14:00	2.0	NE
21-May-2010	15:00	2.1	NE
21-May-2010	16:00	2.3	NE
21-May-2010	17:00	2.2	NE
21-May-2010	18:00	1.9	NE
21-May-2010	19:00	1.4	ENE
21-May-2010	20:00	1.4	ENE
21-May-2010	21:00	1.7	NE
21-May-2010	22:00	1.2	NE
21-May-2010	23:00	1.4	NE
22-May-2010	00:00	1.6	NE
22-May-2010	01:00	1.7	NE
22-May-2010	02:00	1.4	E
22-May-2010	03:00	1.6	ESE
22-May-2010	04:00	1.5	ESE
22-May-2010	05:00	1.4	ENE
22-May-2010	06:00	1.5	ENE
22-May-2010	07:00	1.5	ENE
22-May-2010	08:00	2.3	ENE
22-May-2010	09:00	2.6	ENE
22-May-2010	10:00	2.8	ENE
22-May-2010	11:00	2.8	E
22-May-2010	12:00	3.1	ESE
22-May-2010	13:00	3.0	ENE
22-May-2010	14:00	2.9	ENE
22-May-2010	15:00	2.9	ENE
22-May-2010	16:00	2.8	ENE
22-May-2010	17:00	2.3	ENE
22-May-2010	18:00	2.2	NE
22-May-2010	19:00	1.9	NE
22-May-2010	20:00	1.9	NE
22-May-2010	21:00	2.1	ENE
22-May-2010	22:00	2.1	ENE
22-May-2010	23:00	2.0	ENE
23-May-2010	00:00	1.9	ENE
23-May-2010	01:00	1.8	E
23-May-2010	02:00	1.8	ESE
23-May-2010	03:00	1.8	NE
23-May-2010	04:00	1.9	NE
23-May-2010	05:00	1.8	NW
23-May-2010	06:00	1.7	ESE
23-May-2010	07:00	1.7	SE
23-May-2010	08:00	2.1	ESE
23-May-2010	09:00	2.2	ESE
23-May-2010	10:00	2.7	NE
23-May-2010	11:00	2.8	NE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
23-May-2010	12:00	3.1	NNW
23-May-2010	13:00	3.1	NNE
23-May-2010	14:00	3.1	NNW
23-May-2010	15:00	3.1	N
23-May-2010	16:00	2.8	N
23-May-2010	17:00	2.7	NE
23-May-2010	18:00	2.5	NE
23-May-2010	19:00	2.1	NE
23-May-2010	20:00	1.9	NE
23-May-2010	21:00	1.7	NE
23-May-2010	22:00	2.1	ENE
23-May-2010	23:00	1.8	ESE
24-May-2010	00:00	1.9	ESE
24-May-2010	01:00	1.9	ESE
24-May-2010	02:00	2.1	E
24-May-2010	03:00	2.2	ESE
24-May-2010	04:00	2.2	ESE
24-May-2010	05:00	2.9	SE
24-May-2010	06:00	2.8	ESE
24-May-2010	07:00	3.0	ESE
24-May-2010	08:00	3.2	ESE
24-May-2010	09:00	3.2	ESE
24-May-2010	10:00	3.3	ESE
24-May-2010	11:00	3.5	W
24-May-2010	12:00	3.5	W
24-May-2010	13:00	3.3	W
24-May-2010	14:00	3.3	WNW
24-May-2010	15:00	3.3	NE
24-May-2010	16:00	3.1	NE
24-May-2010	17:00	3.1	NE
24-May-2010	18:00	2.4	ESE
24-May-2010	19:00	2.3	ESE
24-May-2010	20:00	2.5	ESE
24-May-2010	21:00	2.0	ESE
24-May-2010	22:00	2.5	WSW
24-May-2010	23:00	2.4	WSW
25-May-2010	00:00	2.3	SSW
25-May-2010	01:00	2.2	WSW
25-May-2010	02:00	2.3	NE
25-May-2010	03:00	2.2	ENE
25-May-2010	04:00	2.0	ENE
25-May-2010	05:00	1.9	ENE
25-May-2010	06:00	2.0	SE
25-May-2010	07:00	1.6	ENE
25-May-2010	08:00	2.1	NE
25-May-2010	09:00	2.7	NE
25-May-2010	10:00	3.0	SSW
25-May-2010	11:00	3.3	W
25-May-2010	12:00	3.1	SSW
25-May-2010	13:00	3.1	SSW
25-May-2010	14:00	3.1	SSE
25-May-2010	15:00	3.3	SSE
25-May-2010	16:00	2.8	ENE
25-May-2010	17:00	2.3	SSE

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
25-May-2010	18:00	1.9	ENE
25-May-2010	19:00	1.8	NE
25-May-2010	20:00	1.9	ENE
25-May-2010	21:00	2.0	WNW
25-May-2010	22:00	1.9	SW
25-May-2010	23:00	2.3	N
26-May-2010	00:00	1.9	SW
26-May-2010	01:00	1.8	WNW
26-May-2010	02:00	1.7	WSW
26-May-2010	03:00	1.6	NNW
26-May-2010	04:00	1.9	SE
26-May-2010	05:00	1.9	SSE
26-May-2010	06:00	1.7	WNW
26-May-2010	07:00	1.5	SE
26-May-2010	08:00	1.5	WNW
26-May-2010	09:00	2.0	NE
26-May-2010	10:00	2.3	ESE
26-May-2010	11:00	2.4	NE
26-May-2010	12:00	2.9	SE
26-May-2010	13:00	2.7	SE
26-May-2010	14:00	2.8	NE
26-May-2010	15:00	2.7	NE
26-May-2010	16:00	2.3	ESE
26-May-2010	17:00	2.2	ESE
26-May-2010	18:00	1.6	SW
26-May-2010	19:00	1.5	WSW
26-May-2010	20:00	1.4	W
26-May-2010	21:00	1.5	WSW
26-May-2010	22:00	1.5	NE
26-May-2010	23:00	1.4	N
27-May-2010	00:00	1.4	ENE
27-May-2010	01:00	1.4	NE
27-May-2010	02:00	1.4	NE
27-May-2010	03:00	1.7	E
27-May-2010	04:00	1.8	ENE
27-May-2010	05:00	1.9	NNE
27-May-2010	06:00	1.9	ESE
27-May-2010	07:00	2.0	SSE
27-May-2010	08:00	2.0	SSE
27-May-2010	09:00	2.6	SSE
27-May-2010	10:00	2.8	SSE
27-May-2010	11:00	3.1	SSE
27-May-2010	12:00	2.8	SSE
27-May-2010	13:00	2.7	SSW
27-May-2010	14:00	2.6	SSE
27-May-2010	15:00	2.5	SE
27-May-2010	16:00	2.5	SE
27-May-2010	17:00	2.4	W
27-May-2010	18:00	2.2	WSW
27-May-2010	19:00	2.1	W
27-May-2010	20:00	2.3	W
27-May-2010	21:00	2.2	WSW
27-May-2010	22:00	1.9	W
27-May-2010	23:00	1.8	SW

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
28-May-2010	00:00	1.7	W
28-May-2010	01:00	1.9	W
28-May-2010	02:00	1.7	W
28-May-2010	03:00	1.7	SW
28-May-2010	04:00	1.5	SSW
28-May-2010	05:00	1.6	NE
28-May-2010	06:00	1.6	SW
28-May-2010	07:00	1.4	SW
28-May-2010	08:00	1.6	SSE
28-May-2010	09:00	2.1	SSE
28-May-2010	10:00	2.5	SSE
28-May-2010	11:00	2.9	SE
28-May-2010	12:00	2.5	SSE
28-May-2010	13:00	2.5	SSE
28-May-2010	14:00	2.3	S
28-May-2010	15:00	2.3	ENE
28-May-2010	16:00	2.5	ENE
28-May-2010	17:00	2.2	ENE
28-May-2010	18:00	2.0	WSW
28-May-2010	19:00	1.7	ESE
28-May-2010	20:00	1.6	SSE
28-May-2010	21:00	1.7	ESE
28-May-2010	22:00	1.5	SE
28-May-2010	23:00	1.5	SE
29-May-2010	00:00	1.7	SSE
29-May-2010	01:00	1.7	ENE
29-May-2010	02:00	1.6	NNE
29-May-2010	03:00	1.5	NE
29-May-2010	04:00	1.9	NNE
29-May-2010	05:00	1.8	NNE
29-May-2010	06:00	1.7	N
29-May-2010	07:00	1.8	NNE
29-May-2010	08:00	1.8	N
29-May-2010	09:00	2.3	N
29-May-2010	10:00	2.6	WNW
29-May-2010	11:00	2.7	N
29-May-2010	12:00	2.8	WNW
29-May-2010	13:00	2.5	W
29-May-2010	14:00	2.4	W
29-May-2010	15:00	2.4	NNW
29-May-2010	16:00	2.3	WNW
29-May-2010	17:00	2.5	N
29-May-2010	18:00	2.2	NNE
29-May-2010	19:00	2.6	SW
29-May-2010	20:00	2.5	SW
29-May-2010	21:00	2.5	SW
29-May-2010	22:00	2.2	SSE
29-May-2010	23:00	2.1	ESE
30-May-2010	00:00	2.0	SSE
30-May-2010	01:00	2.4	SSE
30-May-2010	02:00	1.9	SW
30-May-2010	03:00	2.3	SW
30-May-2010	04:00	2.2	SW
30-May-2010	05:00	2.4	SW

Appendix C - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
30-May-2010	06:00	1.6	ENE
30-May-2010	07:00	1.9	NE
30-May-2010	08:00	2.1	E
30-May-2010	09:00	2.2	SSE
30-May-2010	10:00	2.2	ESE
30-May-2010	11:00	2.3	N
30-May-2010	12:00	2.5	WSW
30-May-2010	13:00	2.9	ENE
30-May-2010	14:00	2.8	NE
30-May-2010	15:00	3.0	SW
30-May-2010	16:00	2.6	ESE
30-May-2010	17:00	2.8	ENE
30-May-2010	18:00	2.6	E
30-May-2010	19:00	2.6	ENE
30-May-2010	20:00	2.1	ESE
30-May-2010	21:00	2.1	E
30-May-2010	22:00	2.2	ESE
30-May-2010	23:00	2.0	NE
31-May-2010	00:00	2.5	NE
31-May-2010	01:00	2.6	ENE
31-May-2010	02:00	2.0	ENE
31-May-2010	03:00	2.1	ENE
31-May-2010	04:00	2.2	NE
31-May-2010	05:00	2.0	ENE
31-May-2010	06:00	2.2	SSE
31-May-2010	07:00	2.3	SSE
31-May-2010	08:00	2.3	ENE
31-May-2010	09:00	2.5	SW
31-May-2010	10:00	2.7	NE
31-May-2010	11:00	3.1	SSW
31-May-2010	12:00	3.3	NE
31-May-2010	13:00	3.1	ENE
31-May-2010	14:00	3.0	ENE
31-May-2010	15:00	2.8	ENE
31-May-2010	16:00	2.8	N
31-May-2010	17:00	2.3	W
31-May-2010	18:00	2.1	NNE
31-May-2010	19:00	2.4	W
31-May-2010	20:00	2.3	WSW
31-May-2010	21:00	2.0	WNW
31-May-2010	22:00	1.9	W
31-May-2010	23:00	1.8	W

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for May 2010 (Eastern Portal)**

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

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
(for restricted hours)

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for May 2010 (Western Portal)**

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

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 Noise Monitoring Schedule for May 2010 (Intake W0, PFLR1, E7, RR1, W5, THR2, E5A and P5)**

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

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

Noise Monitoring Station

- Intake W0 - Hong Kong Academy (NC15)
- Intake PFLR1 - Honey Court (NC11)
- Intake E7 - Marymount Secondary School (NC8) and 117 Blue Pool Road (NC9)
- Intake RR1 - Ying Wa Girl's School (NC12) and Peakville Court (NC13)
- Intake W5 - Raimondi College (NC16)
- Intake E5A - Buddhist Li Ka Shing Care & Attention Home for the Elderly (NC7)
- Intake THR2 - Hong Kong Japanese School (NC14)
- Intake P5 - Villa Veneto (NC19)

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Ground Borne Constructon Noise Schedule for May 2010**

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

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

Ground Borne Construction Noise Monitoring Station

GNC6 - French International School

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for June 2010 (Eastern Portal)**

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

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
 (for restricted hours)

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for June 2010 (Western Portal)**

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

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 Noise Monitoring Schedule for June 2010 (Intake W0, PFLR1, E7, RR1, W5, THR2, E5A, P5 and W8)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Jun	2-Jun	3-Jun	4-Jun	5-Jun
6-Jun	7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun
		Noise Daytime (07:00-19:00)				
13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
					Noise Daytime (07:00-19:00)	
20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun
		Noise Daytime (07:00-19:00)				
27-Jun	28-Jun	29-Jun	30-Jun			
	Noise Daytime (07:00-19:00)					

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

Noise Monitoring Station

- Intake W0 - Hong Kong Academy (NC15)
- Intake PFLR1 - Honey Court (NC11)
- Intake E7 - Marymount Secondary School (NC8) and 117 Blue Pool Road (NC9)
- Intake RR1 - Ying Wa Girl's School (NC12) and Peakville Court (NC13)
- Intake W5 - Raimondi College (NC16)
- Intake E5A - Buddhist Li Ka Shing Care & Attention Home for the Elderly (NC7)
- Intake THR2 - Hong Kong Japanese School (NC14)
- Intake P5 - Villa Veneto (NC19)
- Intake W8 - Hong Kong Institute of Technology (NC17) and Blk A, 80 Robinson Road (NC18)

**Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Ground Borne Constructon Noise Schedule for June 2010**

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

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

Ground Borne Construction Noise Monitoring Staiton

GNC6 - French International School

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

Appendix E - 1-hour TSP Monitoring Results

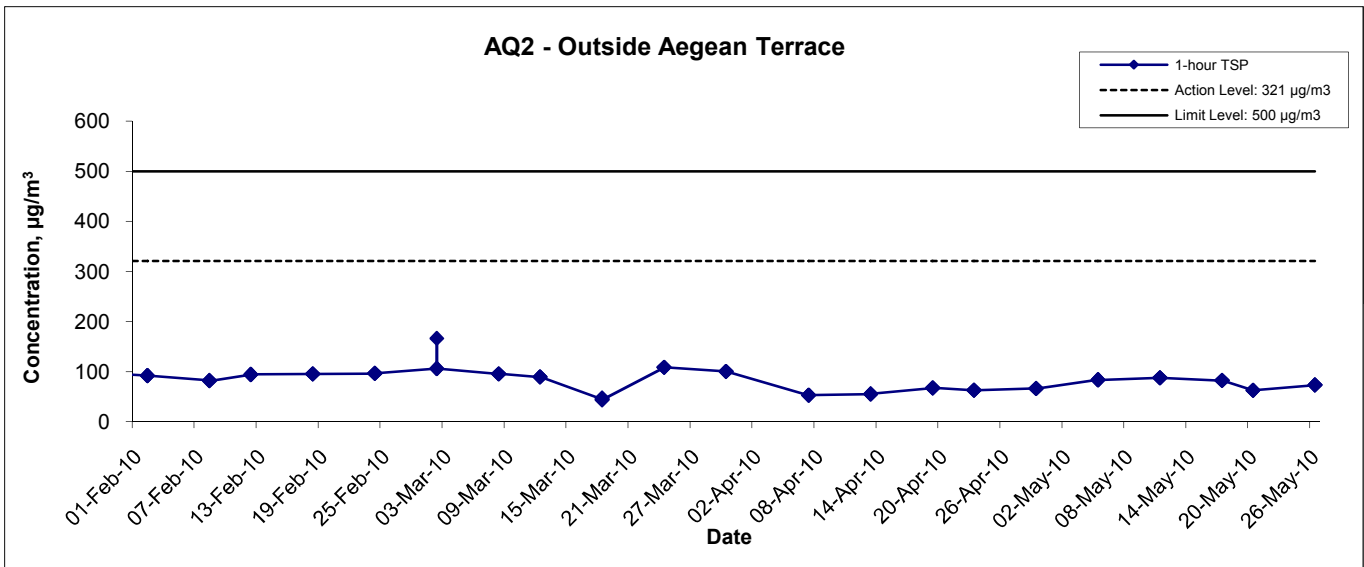
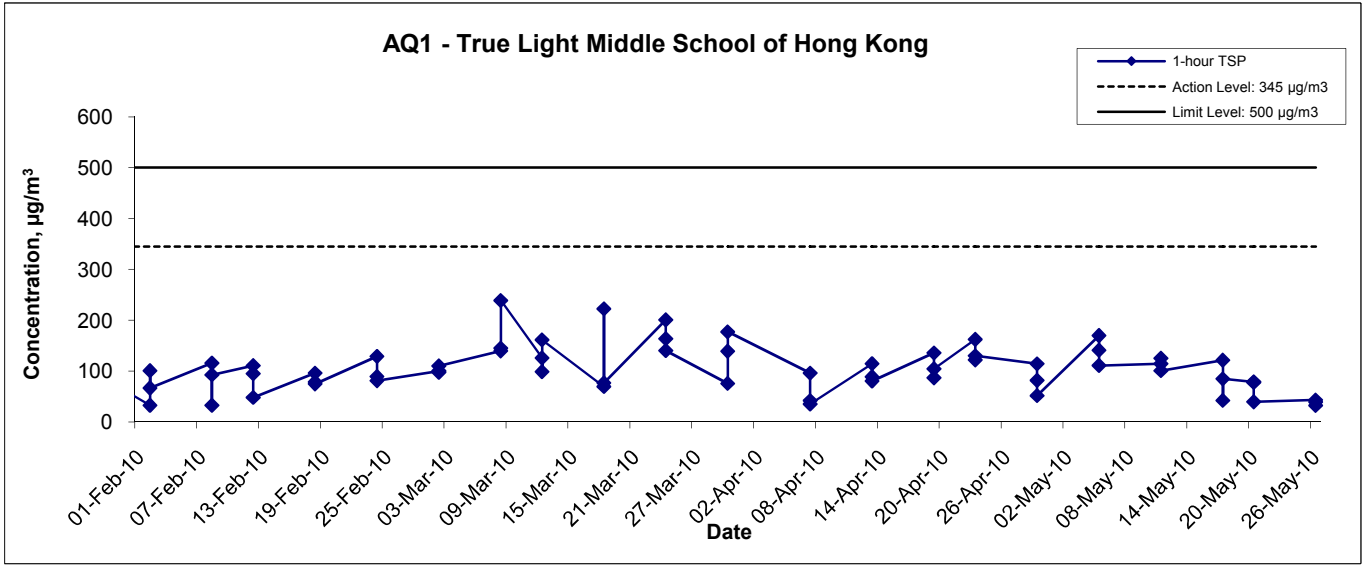
Station AQ1 (True Light Middle School of Hong Kong)

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			
5-May-10	09:00	Cloudy	297.9	758.6	2.7980	2.8104	0.0124	4622.3	4623.3	1.0	1.21	1.21	1.21	72.9	170.1
5-May-10	10:00	Cloudy	298.1	758.5	2.8084	2.8187	0.0103	4623.3	4624.3	1.0	1.21	1.21	1.21	72.9	141.4
5-May-10	11:00	Cloudy	298.5	758.3	2.7606	2.7687	0.0081	4624.3	4625.3	1.0	1.21	1.21	1.21	72.8	111.3
11-May-10	09:00	Cloudy	295.7	762.4	2.8391	2.8475	0.0084	4649.3	4650.3	1.0	1.22	1.22	1.22	73.3	114.6
11-May-10	10:00	Cloudy	295.9	762.2	2.8175	2.8267	0.0092	4650.3	4651.3	1.0	1.22	1.22	1.22	73.3	125.5
11-May-10	11:00	Cloudy	296.0	762.0	2.8643	2.8717	0.0074	4651.3	4652.3	1.0	1.22	1.22	1.22	73.3	101.0
17-May-10	09:00	Sunny	297.6	762.3	2.8298	2.8387	0.0089	4676.3	4677.3	1.0	1.22	1.22	1.22	73.1	121.8
17-May-10	10:00	Sunny	297.7	762.1	2.8378	2.8409	0.0031	4677.3	4678.3	1.0	1.22	1.22	1.22	73.1	42.4
17-May-10	11:00	Sunny	297.9	761.9	2.8258	2.8320	0.0062	4678.3	4679.3	1.0	1.22	1.22	1.22	73.0	84.9
20-May-10	09:00	Sunny	295.8	760.7	3.1756	3.1814	0.0058	4703.3	4704.3	1.0	1.22	1.22	1.22	73.2	79.2
20-May-10	10:00	Sunny	295.9	760.6	3.1859	3.1916	0.0057	4704.3	4705.3	1.0	1.22	1.22	1.22	73.2	77.9
20-May-10	11:00	Sunny	296.1	760.4	3.1588	3.1617	0.0029	4705.3	4706.3	1.0	1.22	1.22	1.22	73.2	39.6
26-May-10	09:00	Sunny	300.0	758.5	3.1704	3.1736	0.0032	4730.3	4731.3	1.0	1.23	1.23	1.23	73.8	43.4
26-May-10	10:00	Sunny	300.2	758.3	3.1722	3.1746	0.0024	4731.3	4732.3	1.0	1.23	1.23	1.23	73.7	32.5
26-May-10	11:00	Sunny	300.4	758.3	3.1750	3.1779	0.0029	4732.3	4733.3	1.0	1.23	1.23	1.23	73.7	39.3
														Min	32.5
														Max	170.1
														Average	88.3

Appendix E - 1-hour TSP Monitoring Results

Station AQ2 (Outside Aegean Terrace)			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
5-May-10	13:15	Cloudy	83.6
5-May-10	14:15	Cloudy	83.8
5-May-10	15:15	Cloudy	83.2
11-May-10	13:00	Cloudy	87.3
11-May-10	14:00	Cloudy	87.4
11-May-10	15:00	Cloudy	87.8
17-May-10	13:00	Sunny	82.0
17-May-10	14:00	Sunny	82.2
17-May-10	15:00	Sunny	82.7
20-May-10	13:00	Sunny	62.9
20-May-10	14:00	Sunny	62.4
20-May-10	15:00	Sunny	62.6
26-May-10	13:00	Sunny	73.2
26-May-10	14:00	Sunny	73.4
26-May-10	15:00	Sunny	73.3
		Average	77.9
		Maximum	87.8
		Minimum	62.4

1-hr TSP Concentration Levels



Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA8001	
	Date May 10	Appendix E	

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

Appendix F - 24-hour TSP Monitoring Results

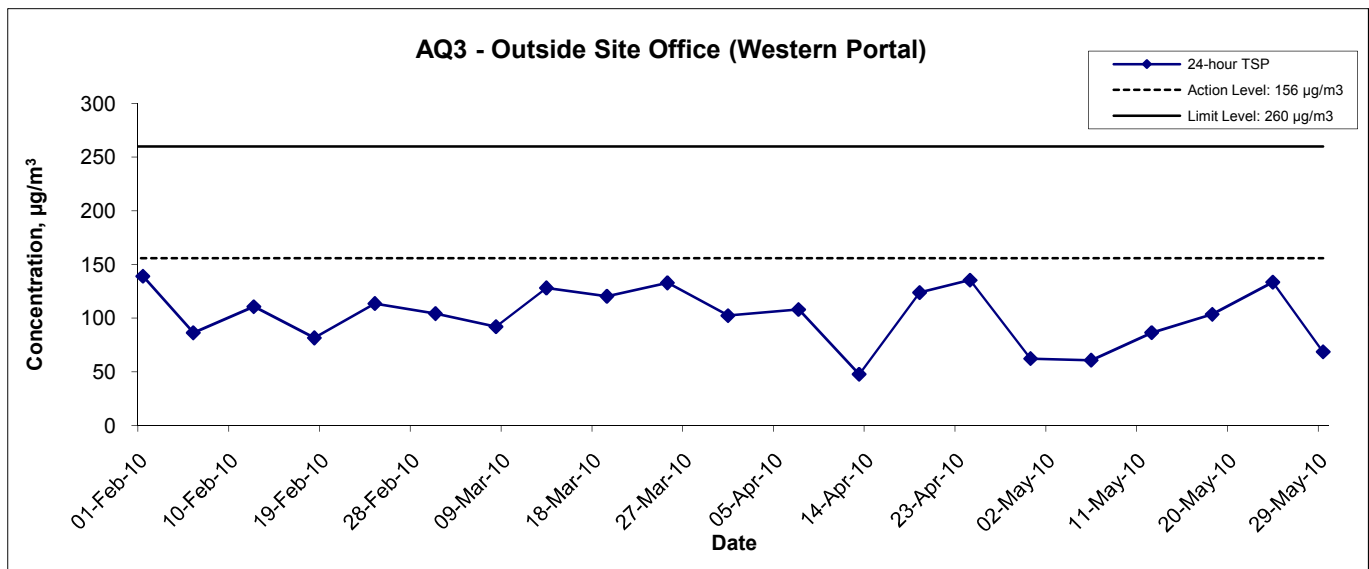
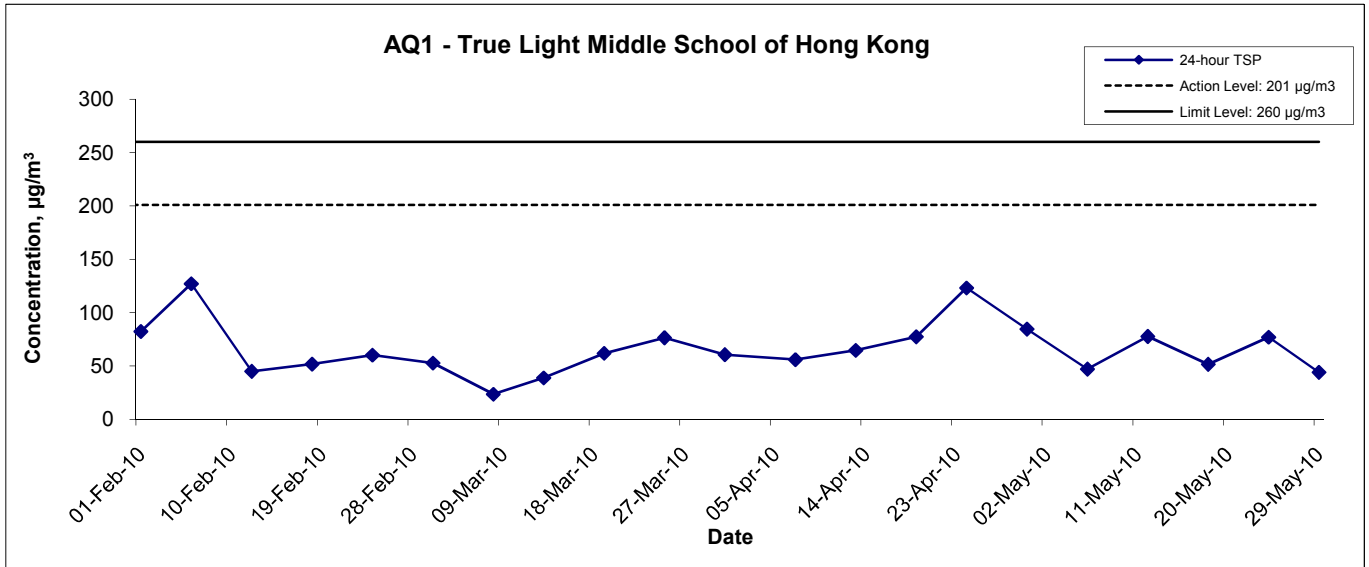
Station AQ1 - True Light Middle School of Hong Kong

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			
6-May-10	Cloudy	300.1	758.8	2.8027	2.8846	0.0819	4625.3	4649.3	24.0	1.21	1.21	1.21	1743.4	47.0
12-May-10	Cloudy	295.9	762.7	2.8490	2.9855	0.1365	4652.3	4676.3	24.0	1.22	1.22	1.22	1759.2	77.6
18-May-10	Cloudy	302.4	761.1	2.7768	2.8663	0.0895	4679.3	4703.3	24.0	1.21	1.21	1.21	1739.7	51.4
24-May-10	Sunny	298.6	758.5	3.2120	3.3484	0.1364	4706.3	4730.3	24.0	1.23	1.23	1.23	1774.8	76.9
29-May-10	Cloudy	299.9	758.4	3.1637	3.2416	0.0779	4730.3	4754.3	24.0	1.23	1.23	1.23	1770.9	44.0
													Min	44.0
													Max	77.6
													Average	59.4

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			
6-May-10	Cloudy	300.1	758.8	2.8254	2.9314	0.1060	8603.1	8627.1	24.0	1.21	1.21	1.21	1746.6	60.7
12-May-10	Cloudy	295.9	762.7	2.8657	3.0181	0.1524	8627.1	8651.1	24.0	1.22	1.22	1.22	1761.6	86.5
18-May-10	Cloudy	302.4	761.1	2.8495	3.0301	0.1806	8651.1	8675.1	24.0	1.21	1.21	1.21	1743.1	103.6
24-May-10	Sunny	298.6	758.5	3.1742	3.4087	0.2345	8675.1	8699.1	24.0	1.22	1.22	1.22	1755.9	133.5
29-May-10	Cloudy	299.9	758.4	3.1712	3.2913	0.1201	8699.1	8723.1	24.0	1.22	1.22	1.22	1752.0	68.5
													Min	60.7
													Max	133.5
													Average	90.6

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 May 10	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-May-10	14:25	Sunny	68.1	70.9	64.7	70.2	68.1 Measured ≤ Baseline
13-May-10	10:20	Sunny	68.9	71.7	65.0		68.9 Measured ≤ Baseline
19-May-10	14:20	Cloudy	67.8	70.3	63.7		67.8 Measured ≤ Baseline
25-May-10	14:00	Sunny	68.7	71.5	64.7		68.7 Measured ≤ Baseline
31-May-10	13:45	Cloudy	68.9	71.7	65.0		68.9 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-May-10	15:10	Sunny	70.9	73.6	66.0	64.8	69.7
13-May-10	11:05	Sunny	72.1	74.8	67.9		71.2
19-May-10	15:05	Cloudy	72.7	75.5	68.0		71.9
25-May-10	14:50	Sunny	69.9	72.7	66.3		68.3
31-May-10	14:35	Cloudy	72.3	75.1	68.2		71.4

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-May-10	13:00	Sunny	62.9	65.7	59.7	57.7	61.3
13-May-10	8:45	Sunny	61.9	64.3	57.3		59.8
19-May-10	8:00	Cloudy	56.9	59.2	53.8		56.9 Measured ≤ Baseline
25-May-10	8:00	Sunny	54.9	56.9	50.1		54.9 Measured ≤ Baseline
31-May-10	11:35	Cloudy	56.7	58.7	52.0		56.7 Measured ≤ Baseline

Location NC7 - Buddhist Li Ka Shing Care & Attention Home for the Elderly							
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-May-10	13:45	Sunny	67.3	69.8	62.1	65.1	63.3
13-May-10	9:35	Sunny	73.8	76.9	69.4		73.2
19-May-10	11:30	Cloudy	68.9	71.6	64.1		66.6
25-May-10	13:00	Sunny	72.9	76.7	70.1		72.1
31-May-10	10:50	Cloudy	74.6	77.7	70.1		74.1

Location NC8 - Marymount Secondary School							
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-May-10	10:45	Sunny	66.6	71.3	65.1	63.5	63.7
13-May-10	13:30	Sunny	70.7	73.3	64.0		69.8
19-May-10	13:35	Cloudy	69.7	72.6	66.3		68.5
25-May-10	11:30	Sunny	67.8	70.6	60.8		65.8
31-May-10	13:00	Cloudy	65.9	70.7	63.1		62.2

Location NC9 - 117 Blue Pool Road							
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-May-10	11:25	Sunny	73.9	76.9	69.8	63.3	73.5
13-May-10	14:05	Sunny	77.3	79.2	70.7		77.1
19-May-10	13:00	Cloudy	74.7	77.8	70.3		74.4
25-May-10	10:55	Sunny	73.4	76.4	68.6		73.0
31-May-10	13:35	Cloudy	72.8	75.5	67.2		72.3

Location NC11 - Honey Court							
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-May-10	8:00	Cloudy	67.8	70.6	63.9	63.2	66.0
13-May-10	8:00	Cloudy	68.1	70.7	64.2		66.4
19-May-10	8:45	Cloudy	67.8	71.5	63.0		66.0
25-May-10	13:50	Sunny	68.3	70.5	63.1		66.7
31-May-10	8:00	Cloudy	67.2	69.4	62.9		65.0

* Bolded value indicated limit level exceedance

Appendix G - Noise Monitoring Results

Location NC12 - Ying Wa Girl's School							
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-May-10	16:05	Sunny	67.8	70.3	62.0	67.1	59.5
13-May-10	15:30	Sunny	67.5	70.1	63.2		56.9
19-May-10	13:50	Cloudy	67.8	70.4	62.7		59.5
25-May-10	14:50	Sunny	65.8	68.6	62.2		65.8 Measured \leq Baseline
31-May-10	14:35	Cloudy	67.3	69.9	62.3		53.8

Location NC13 - Peakville Court							
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-May-10	16:45	Sunny	72.8	75.6	68.7	65.2	72.0
13-May-10	14:45	Sunny	73.7	76.5	68.0		73.0
19-May-10	17:00	Cloudy	72.4	75.1	67.8		71.5
25-May-10	15:30	Sunny	73.6	76.4	66.3		72.9
31-May-10	15:15	Cloudy	72.1	74.8	65.8		71.1

Location NC14 - Hong Kong Japanese School							
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-May-10	9:25	Sunny	63.9	66.7	57.9	60.8	61.0
13-May-10	16:00	Sunny	65.9	68.2	60.8		64.3
19-May-10	10:10	Cloudy	64.7	67.2	60.3		62.4
25-May-10	9:30	Sunny	64.7	67.0	58.7		62.4
31-May-10	9:30	Cloudy	64.8	67.4	58.9		62.6

Location NC15 - Hong Kong Academy							
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-May-10	14:20	Sunny	66.8	72.2	65.1	63.5	64.1
13-May-10	17:40	Cloudy	65.9	71.4	65.0		62.2
19-May-10	15:55	Cloudy	66.6	71.1	63.9		63.7
25-May-10	17:15	Sunny	66.7	71.1	63.0		63.9
31-May-10	17:05	Cloudy	66.8	70.3	63.9		64.1

Location NC16 - Raimondi College							
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-May-10	17:25	Cloudy	65.2	67.8	60.7	70.4	65.2 Measured \leq Baseline
13-May-10	14:00	Sunny	66.3	68.8	62.3		66.3 Measured \leq Baseline
19-May-10	14:45	Cloudy	65.6	68.0	62.6		65.6 Measured \leq Baseline
25-May-10	16:15	Sunny	64.7	67.2	59.7		64.7 Measured \leq Baseline
31-May-10	16:00	Cloudy	64.3	66.5	59.9		64.3 Measured \leq Baseline

Location NC19 - Villa Veneto							
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-May-10	8:45	Sunny	64.2	66.7	60.2	68.6	64.2 Measured \leq Baseline
13-May-10	15:20	Sunny	67.6	69.3	62.1		67.6 Measured \leq Baseline
19-May-10	9:30	Cloudy	65.7	68.3	61.8		65.7 Measured \leq Baseline
25-May-10	8:50	Sunny	65.2	67.7	60.9		65.2 Measured \leq Baseline
31-May-10	8:45	Cloudy	65.9	68.6	60.3		65.9 Measured \leq Baseline

Location GNC6 - French International School							
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-May-10	10:00	Sunny	58.2	64.4	57.6		
13-May-10	16:40	Cloudy	57.9	63.8	56.7		
19-May-10	10:45	Cloudy	57.7	54.1	56.6		
25-May-10	10:10	Sunny	58.7	63.1	56.8		
31-May-10	10:10	Cloudy	57.2	63.4	56.8		

Appendix G - Noise Monitoring Results

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

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}	
2-May-10	9:20	Sunny	67.4	68.5	62.5	67.7	65.8	63.2
	9:25		67.6	68.5	62.5			
	9:30		68.2	69.0	63.0			
3-May-10	19:00	Cloudy	67.3	69.7	63.2	67.5		62.6
	19:05		67.6	69.9	63.4			
	19:10		67.7	69.9	63.5			
9-May-10	9:30	Sunny	67.4	69.0	62.5	67.3		62.0
	9:35		66.9	69.0	62.0			
	9:40		67.5	69.0	62.5			
13-May-10	19:00	Cloudy	67.8	70.4	63.4	67.7		63.2
	19:05		67.5	70.0	63.1			
	19:10		67.7	70.3	63.3			
16-May-10	9:25	Cloudy	67.3	68.5	64.5	67.5		62.6
	9:30		67.6	69.0	64.0			
	9:35		67.7	68.5	64.0			
19-May-10	19:00	Cloudy	67.6	69.8	62.8	67.6	62.9	
	19:05		67.5	69.7	62.7			
	19:10		67.7	69.9	62.8			
23-May-10	10:35	Cloudy	67.3	69.5	64.0	67.4	62.3	
	10:40		67.7	69.0	63.5			
	10:45		67.2	69.0	64.0			
25-May-10	19:00	Cloudy	67.2	69.7	63.4	67.1	61.2	
	19:05		67.3	69.8	63.5			
	19:10		67.1	69.6	63.5			
30-May-10	09:20	Cloudy	67.1	69.5	63.5	67.3	62.0	
	09:25		67.6	69.5	63.5			
	09:30		67.2	69.0	63.5			
31-May-10	19:00	Cloudy	67.6	69.8	62.0	67.5	62.6	
	19:05		67.4	69.7	61.9			
	19:10		67.5	69.8	62.0			

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

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}
2-May-10	10:00	Sunny	64.2	66.0	60.5	63.9	59.1	62.2
	10:05		63.6	65.5	60.0			
	10:10		63.9	65.5	60.5			
3-May-10	19:30	Cloudy	63.6	67.1	60.8	63.6		61.7
	19:35		63.5	67.0	60.9			
	19:40		63.7	67.2	60.9			
9-May-10	9:55	Sunny	63.8	65.5	61.0	64.3		62.7
	10:00		64.3	66.0	61.5			
	10:05		64.8	66.5	61.5			
13-May-10	19:30	Cloudy	64.7	67.3	60.4	64.7		63.3
	19:35		64.6	67.2	60.2			
	19:40		64.7	67.3	60.4			
16-May-10	9:00	Cloudy	64.6	65.5	63.0	64.2		62.6
	9:05		63.9	65.0	62.5			
	9:10		64.2	65.5	63.0			
19-May-10	19:30	Cloudy	64.0	66.7	60.8	64.2	62.6	
	19:35		64.2	66.8	60.9			
	19:40		64.3	66.9	61.0			
23-May-10	10:05	Cloudy	64.8	66.0	52.5	64.5	63.0	
	10:10		64.2	65.5	63.0			
	10:15		64.5	65.5	63.0			
25-May-10	19:30	Cloudy	64.8	67.2	60.7	64.7	63.3	
	19:35		64.7	67.2	60.6			
	19:40		64.6	67.1	60.5			
30-May-10	09:45	Cloudy	64.3	66.5	62.5	64.6	63.2	
	09:50		64.8	66.5	63.0			
	09:55		64.8	66.5	62.5			
31-May-10	19:30	Cloudy	65.1	67.6	61.3	64.9	63.6	
	19:35		64.8	67.3	61.1			
	19:40		64.7	67.3	61.0			

(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}
2-May-10	11:30	Sunny	55.6	58.0	52.5	55.9	53.8	51.7
	11:35		56.2	57.5	53.0			
	11:40		55.8	58.0	52.5			
3-May-10	20:30	Cloudy	50.9	52.1	47.7	50.6		50.6 Measured ≤ Baseline
	20:35		50.7	52.0	47.6			
	20:40		50.3	51.8	47.3			
9-May-10	10:50	Sunny	58.4	60.5	53.0	57.3		54.7
	10:55		56.6	60.0	53.5			
	11:00		56.8	60.0	53.5			
13-May-10	20:30	Cloudy	50.3	52.5	47.8	50.5		50.5 Measured ≤ Baseline
	20:35		50.5	52.8	47.9			
	20:40		50.6	52.9	48.0			
16-May-10	10:30	Cloudy	50.8	52.5	50.0	51.2		51.2 Measured ≤ Baseline
	10:35		51.5	53.0	50.0			
	10:40		51.2	53.0	50.0			
19-May-10	20:30	Cloudy	50.9	53.2	46.7	51.1	51.1 Measured ≤ Baseline	
	20:35		51.1	53.4	46.8			
	20:40		51.3	53.5	47.0			
23-May-10	11:30	Cloudy	52.0	53.5	50.5	51.6	51.6 Measured ≤ Baseline	
	11:35		51.3	52.5	50.5			
	11:40		51.6	52.5	50.5			
25-May-10	20:30	Cloudy	50.1	52.1	47.0	50.1	50.1 Measured ≤ Baseline	
	20:35		50.1	52.0	47.0			
	20:40		50.2	52.2	47.2			
30-May-10	10:55	Cloudy	52.8	54.0	50.5	52.8	52.8 Measured ≤ Baseline	
	11:00		52.6	54.0	50.5			
	11:05		53.1	54.5	50.5			
31-May-10	20:30	Cloudy	49.7	51.8	46.7	49.7	49.7 Measured ≤ Baseline	
	20:35		49.8	51.8	46.8			
	20:40		49.6	51.7	46.5			

Appendix G - Noise Monitoring Results

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

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-May-10	23:25	Cloudy	58.4	59.5	53.0	58.7	60.7	58.7 Measured ≤ Baseline			
	23:30		58.7	60.0	53.0						
	23:35		59.0	60.5	53.5						
13-May-10	23:25	Cloudy	60.3	62.0	53.5	59.9		60.7	59.9 Measured ≤ Baseline		
	23:30		59.8	62.0	52.0						
	23:35		59.5	62.0	51.5						
19-May-10	23:25	Cloudy	58.8	61.5	54.5	59.0			60.7	59.0 Measured ≤ Baseline	
	23:30		59.2	62.0	55.0						
	23:35		58.9	62.0	54.5						
25-May-10	23:25	Cloudy	59.8	61.0	54.5	59.4				60.7	59.4 Measured ≤ Baseline
	23:30		58.8	60.5	54.5						
	23:35		59.6	60.5	54.5						
31-May-10	23:25	Cloudy	59.2	62.5	53.5	59.4	60.7				59.4 Measured ≤ Baseline
	23:30		59.6	62.0	53.0						
	23:35		59.3	62.5	53.0						

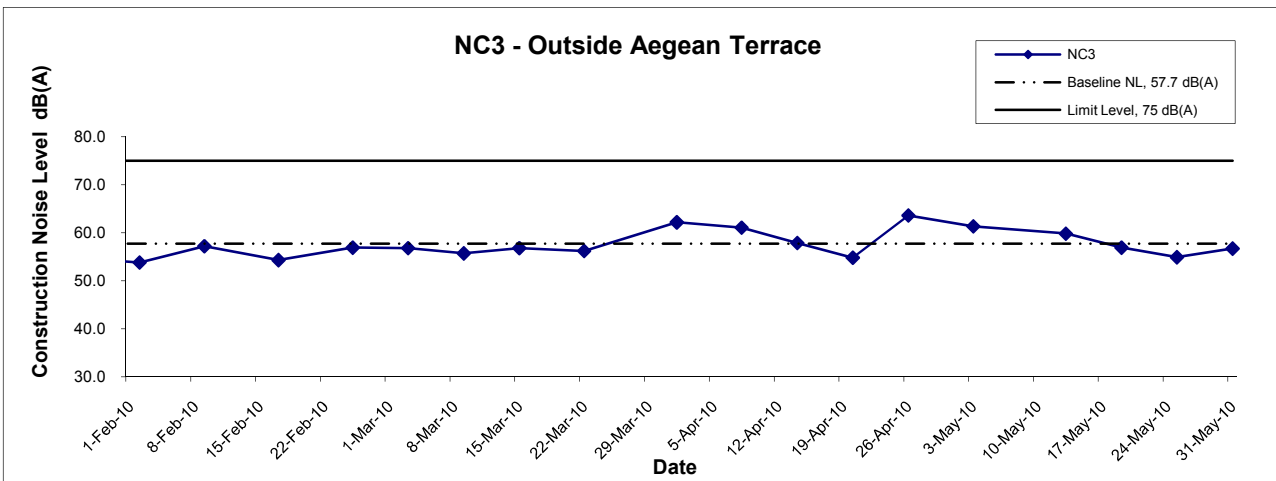
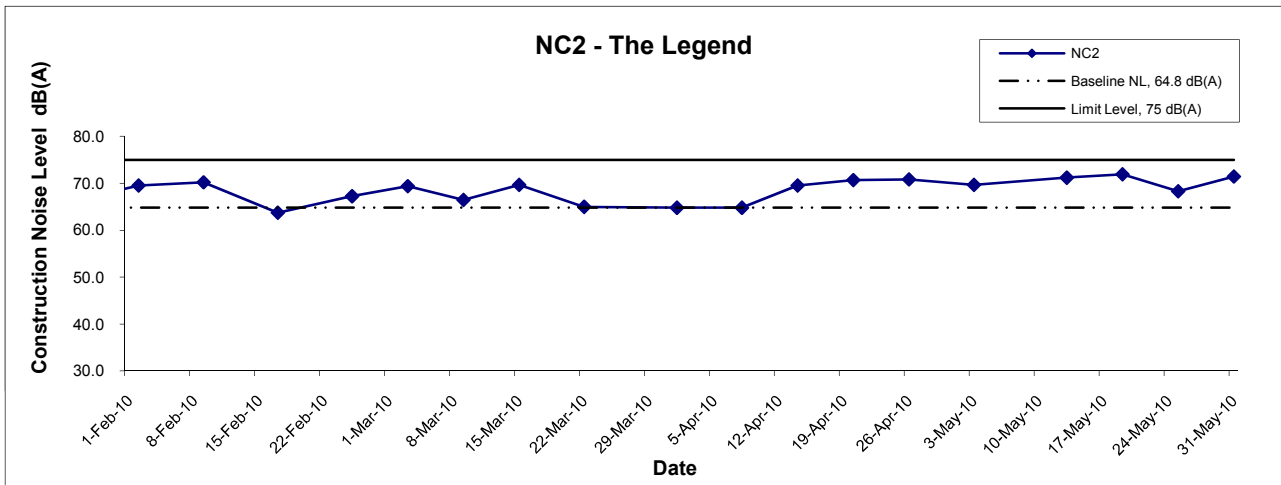
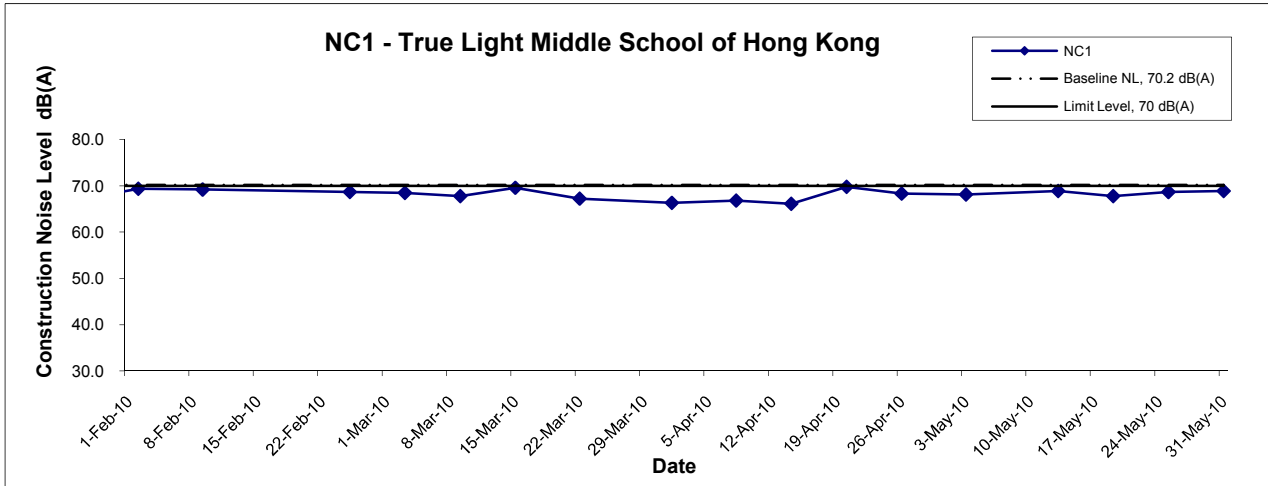
(Restricted Hours - 23:00 to 07:00 on all days)

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-May-10	23:00	Cloudy	53.2	55.5	49.5	53.2	53.9	53.9 Measured ≤ Baseline			
	23:05		53.5	55.5	49.5						
	23:10		53.0	55.0	49.5						
13-May-10	23:00	Cloudy	53.8	55.0	50.0	53.3		53.9	53.3 Measured ≤ Baseline		
	23:05		52.7	54.5	50.5						
	23:10		53.4	54.5	50.0						
19-May-10	23:00	Cloudy	52.8	54.0	50.0	52.6			53.9	52.6 Measured ≤ Baseline	
	23:05		52.6	54.0	50.5						
	23:10		52.4	54.0	50.0						
25-May-10	23:00	Cloudy	53.1	55.0	50.5	52.8				53.9	52.8 Measured ≤ Baseline
	23:05		52.8	54.0	50.0						
	23:10		52.5	54.0	50.0						
31-May-10	23:00	Cloudy	52.8	54.5	50.5	52.7	53.9				52.7 Measured ≤ Baseline
	23:05		52.6	54.5	50.5						
	23:10		52.8	54.5	50.5						

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

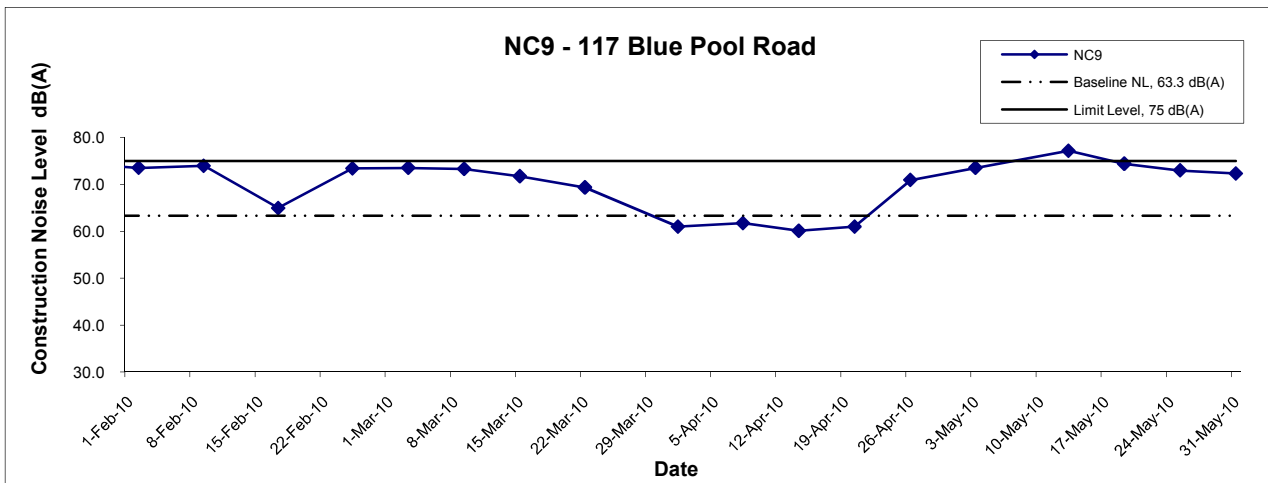
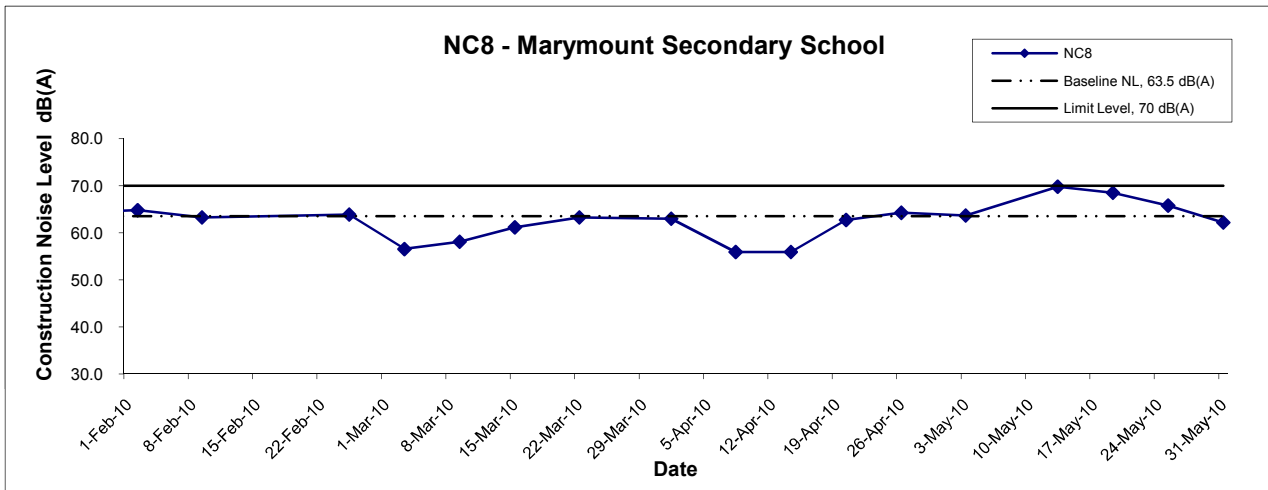
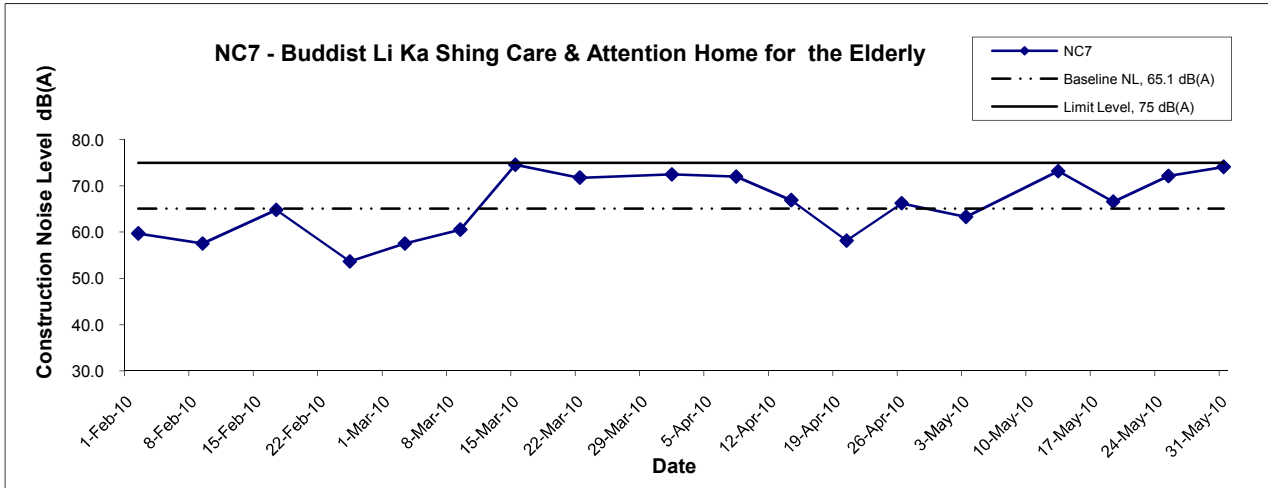
Location NC3 - Outside Aegean Terrace											
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀		L _{eq}	L _{eq}			
4-May-10	00:20	Cloudy	54.2	56.0	51.0	53.8	52.0	49.1			
	00:25		53.4	55.0	50.5						
	00:30		53.8	55.5	51.0						
14-May-10	00:15	Cloudy	52.4	54.5	51.0	53.6		52.0	48.5		
	00:20		53.8	55.5	52.5						
	00:25		54.2	56.0	52.0						
20-May-10	00:20	Cloudy	48.9	51.0	47.0	48.5			52.0	48.5 Measured ≤ Baseline	
	00:25		48.3	50.5	47.0						
	00:30		48.3	50.5	47.5						
26-May-10	00:30	Cloudy	49.3	51.0	49.0	49.4				52.0	49.4 Measured ≤ Baseline
	00:35		49.2	51.0	49.0						
	00:40		49.6	50.5	49.0						
1-Jun-10	00:30	Cloudy	49.3	50.0	48.5	49.3	52.0				49.3 Measured ≤ Baseline
	00:35		49.1	50.0	48.5						
	00:40		49.5	50.0	48.5						

Noise Levels



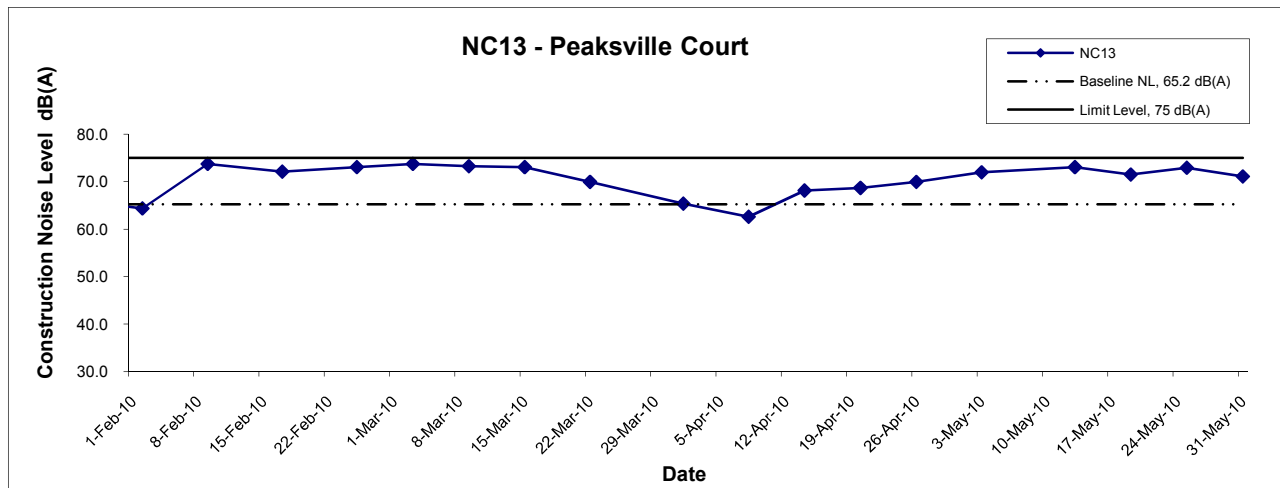
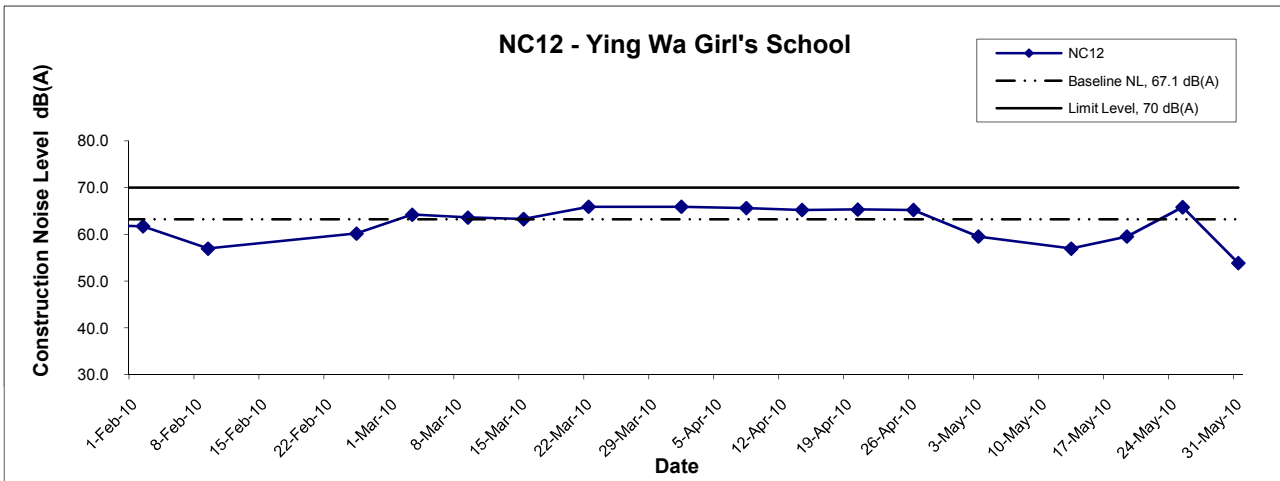
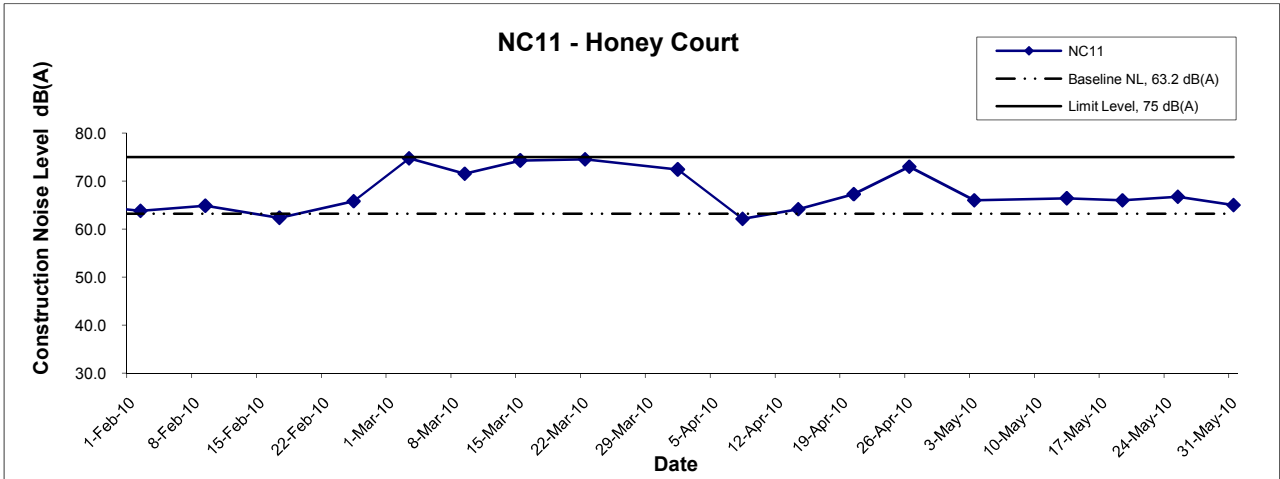
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date May 10	Appendix G	

Noise Levels



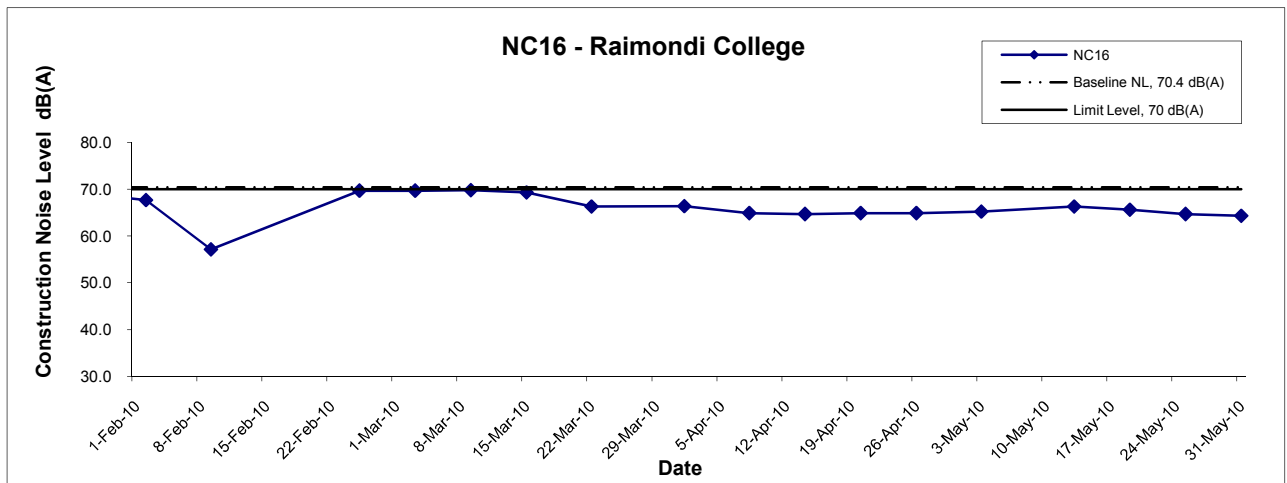
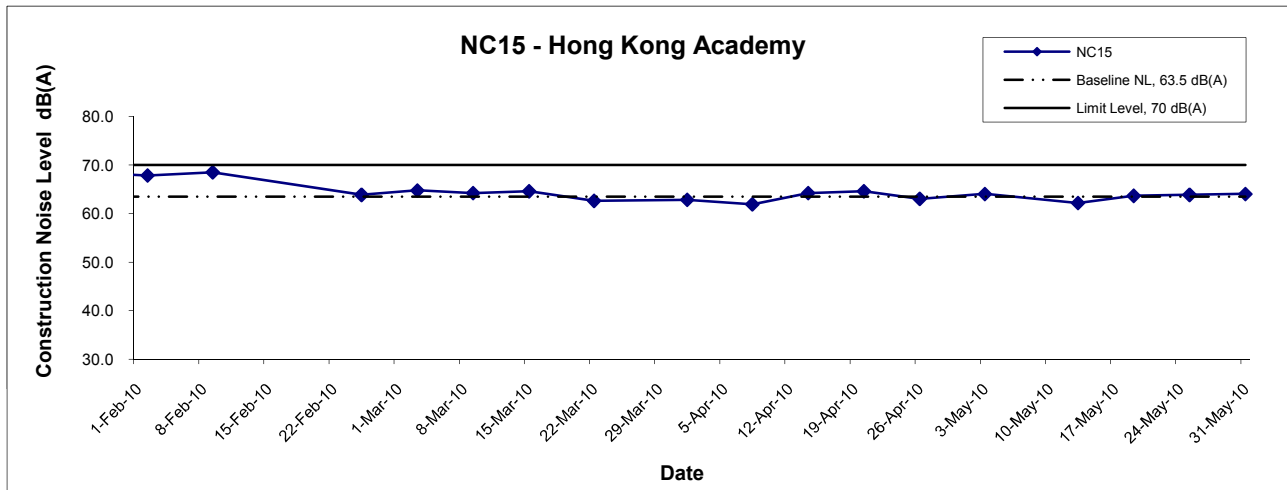
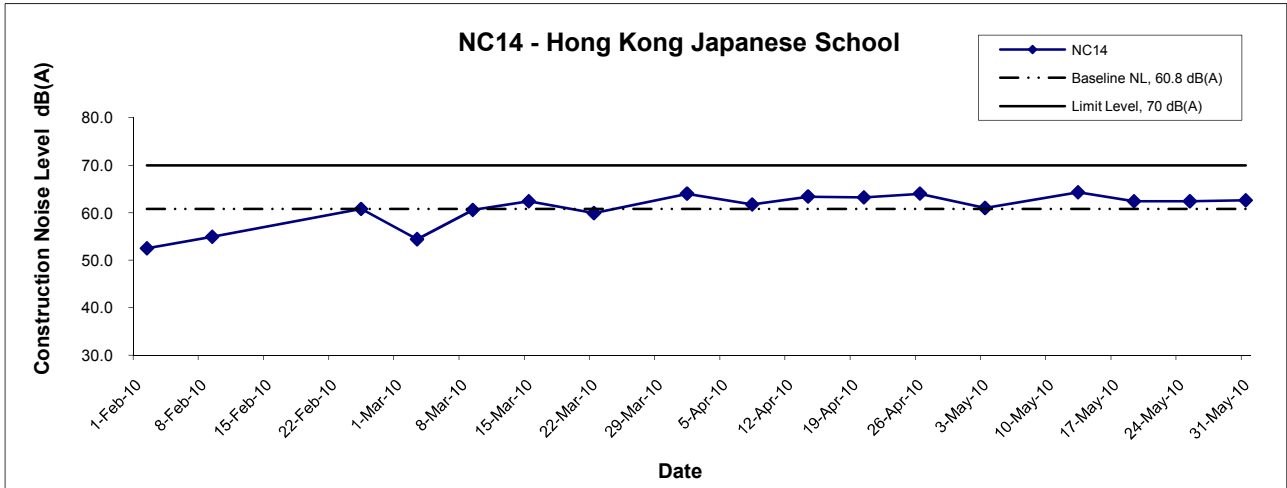
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date May 10	Appendix G	

Noise Levels



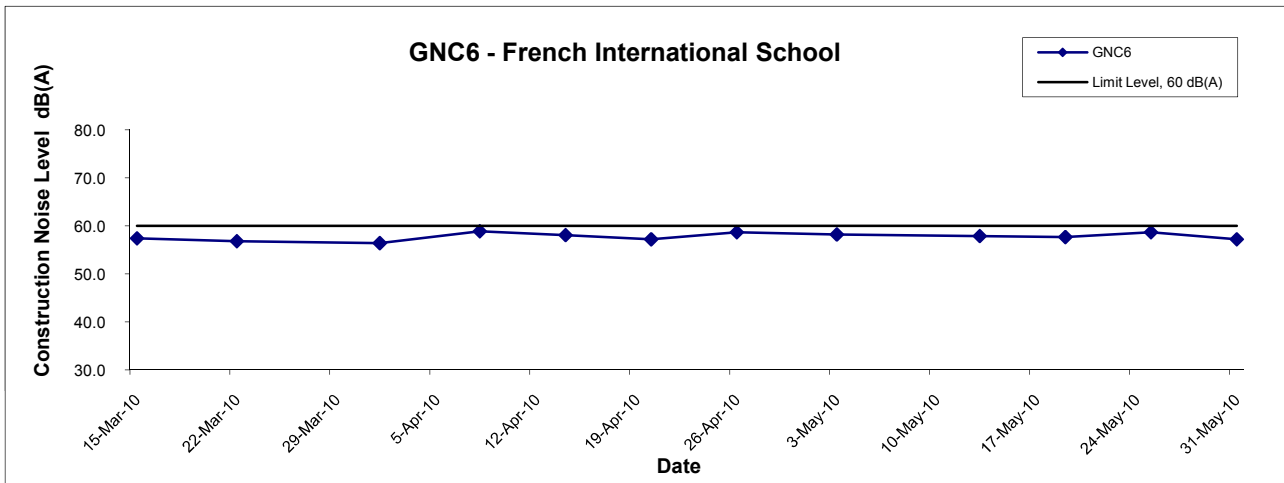
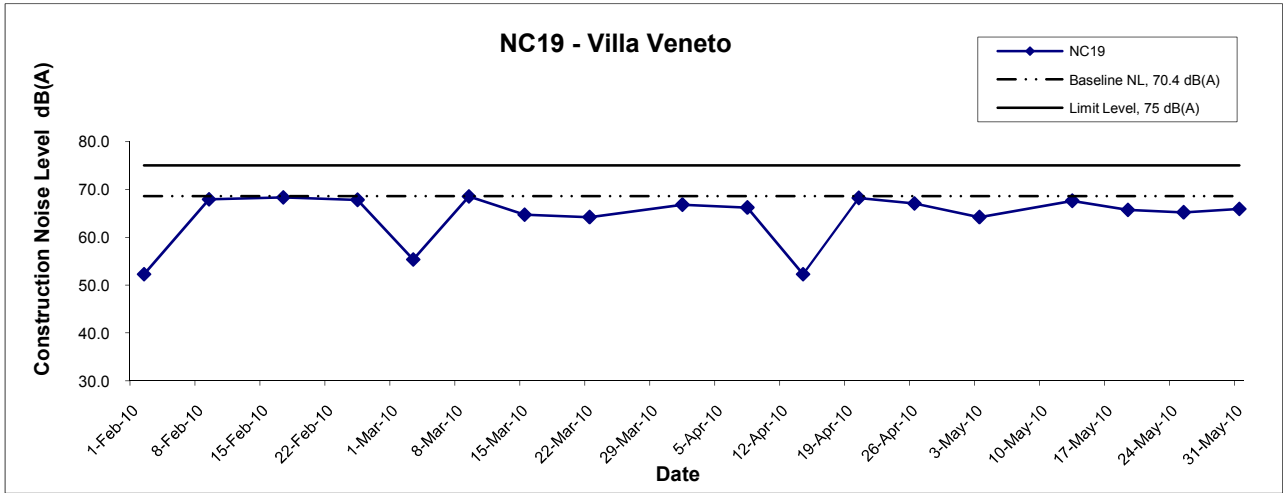
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale	N.T.S	Project No.	MA8001	CINOTECH
	Date	May 10	Appendix	G	

Noise Levels



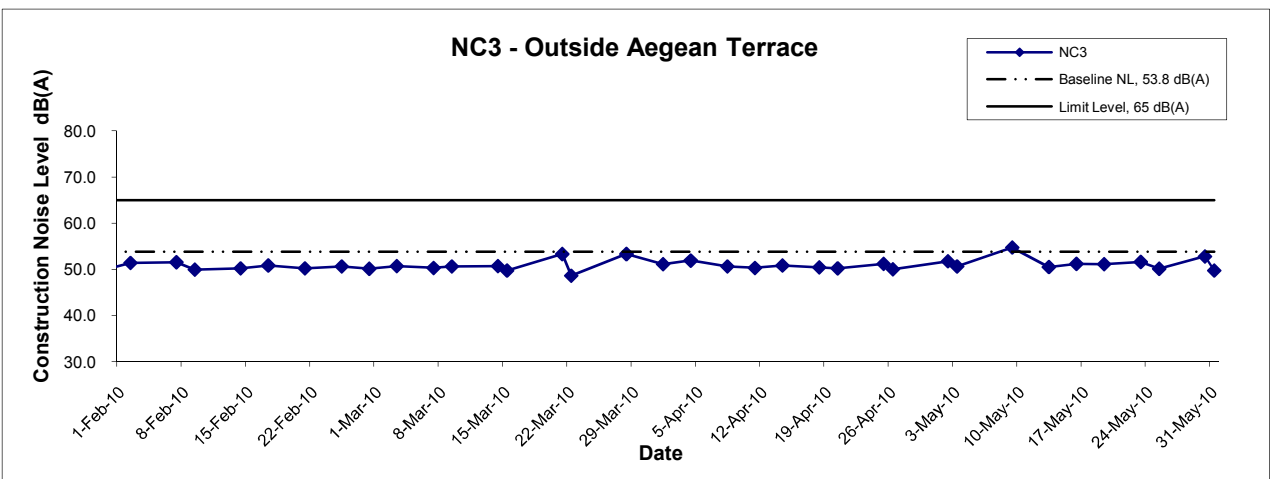
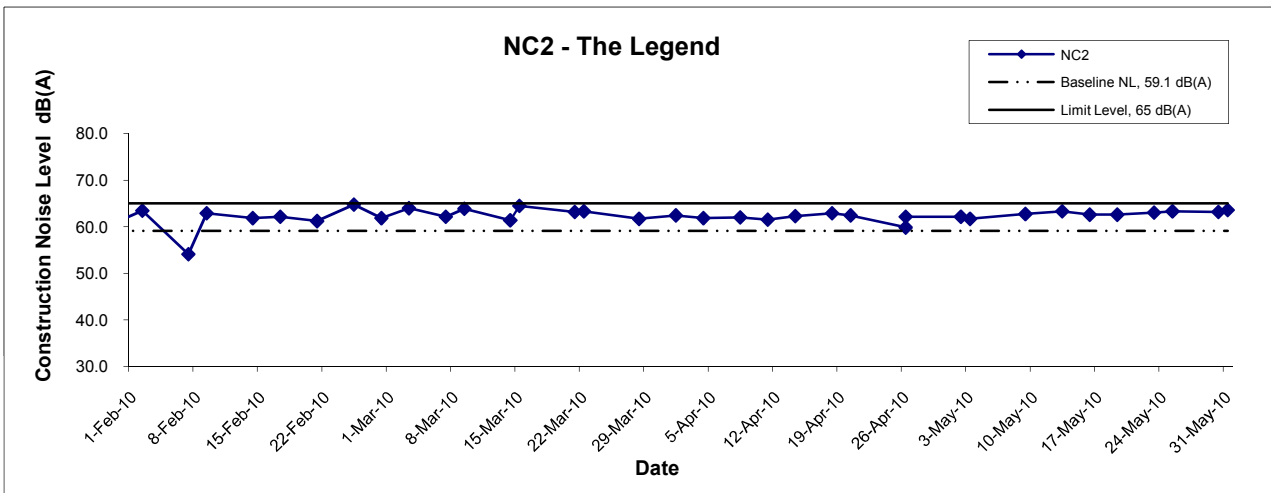
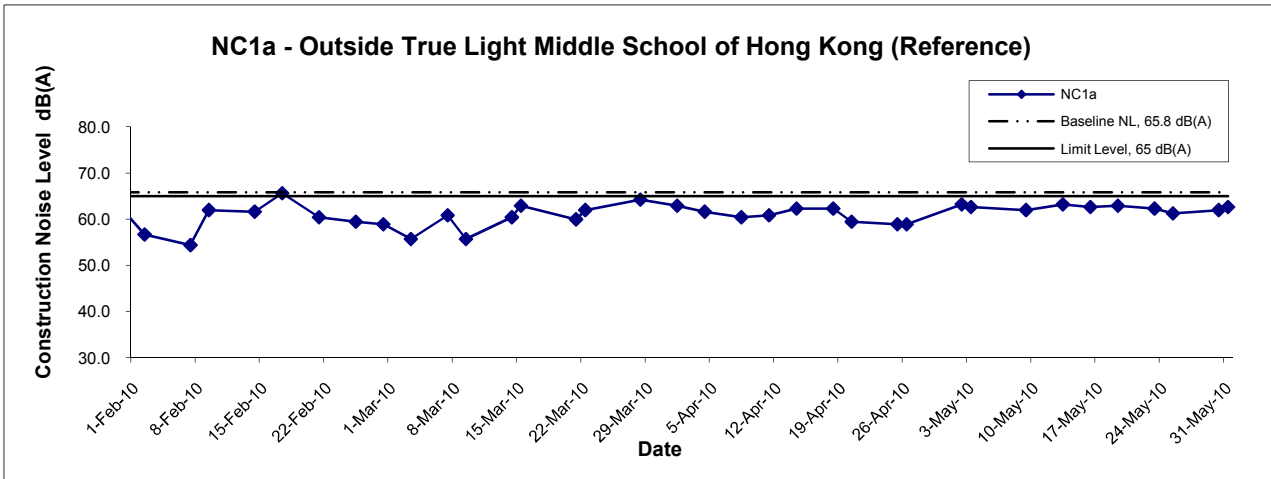
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date May 10	Appendix G	

Noise Levels



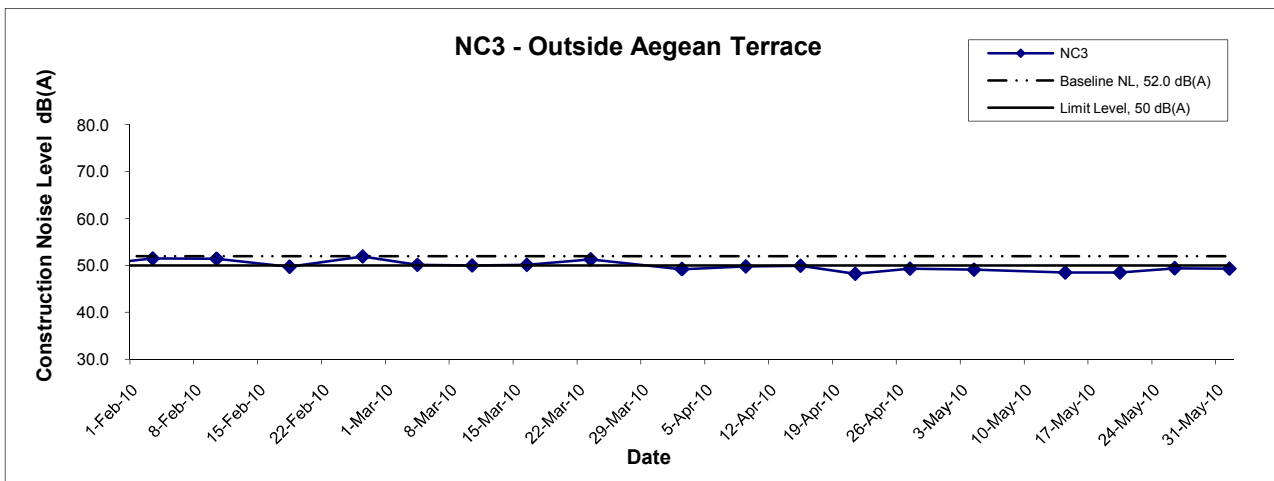
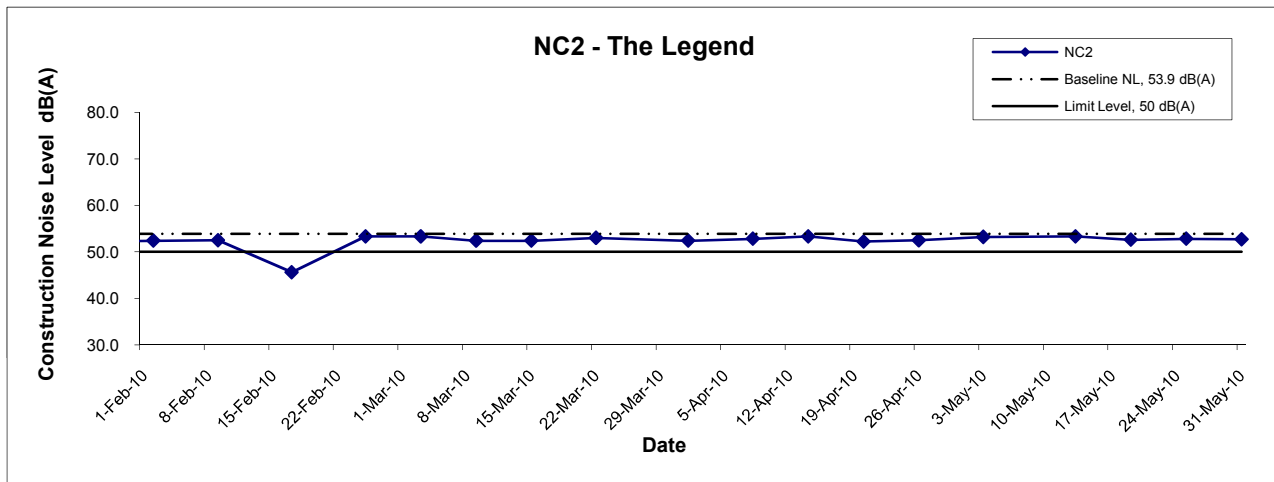
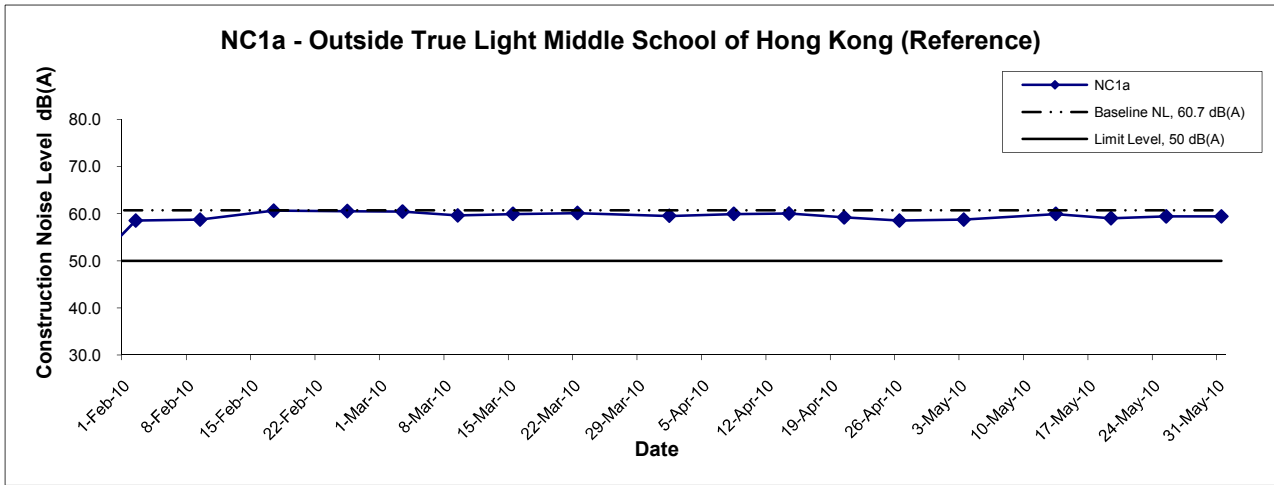
Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date May 10	Appendix G	

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	
	Date May 10	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	
	Date May 10	Appendix G	

APPENDIX H
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)**

Intake E5A

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

Intake E7

- (H) Exceedance Report for Construction Noise
(One Limit Level exceedance was recorded at NC9 on 14th May 2010)**

Intake PFLR1

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

Intake RR1

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

Intake THR2

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

Intake W0

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

Intake W5

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

Intake P5

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

**APPENDIX I
SITE AUDIT SUMMARY**



Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	100506
Date	6 May 2010 (Thursday)
Time	9:10 – 17:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
100506-O01	<ul style="list-style-type: none"> Sand and sediment was observed falling to the existing stream at Intake THR2. The contractor was reminded to provide mitigation measures to avoid the disturbance to the stream. 	G1
	B. Air Quality	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	C. Noise	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	D. Waste / Chemical Management	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	E. Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	F. Marine Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	G. Reminders	
100506-R02	<ul style="list-style-type: none"> Clear the standing water at the drip tray and pit area at Area B and Western Portal. 	B15
100506-R03	<ul style="list-style-type: none"> To replace the worn sand bags at the entrance of Intake E5B. 	B5
100506-R04	<ul style="list-style-type: none"> To provide sand bag bund to direct the silty water for treatment at Intake MA 15. 	B5
100506-R05	<ul style="list-style-type: none"> Clear the used cement bags at Intake M3. 	D6
100506-R06	<ul style="list-style-type: none"> To provide sedimentation facilities at Intake M3 and Intake TP4 to prevent silty water from discharging out. 	B7i.
100506-R07	<ul style="list-style-type: none"> Clear the deposited silt and grit at the catchpit at Intake M3. 	F9
100506-R08	<ul style="list-style-type: none"> Ensure the capacity of the wastewater treatment facilities are enough for treating the silty water at Intake TP5. 	B7iii.
100506-R09	<ul style="list-style-type: none"> Clear the standing water with chemical oil and construction materials at the drip tray at Intake TP5. 	B15, F2ii.
100506-R10	<ul style="list-style-type: none"> To improve the noise mitigation measures at Intake TP4. 	E7
100506-R11	<ul style="list-style-type: none"> Properly maintain the breaker at Intake TP4 to avoid the grey smoke. 	D13
100506-R12	<ul style="list-style-type: none"> Cover the cement bags at Intake HKU1. 	D6
100506-R13	<ul style="list-style-type: none"> Plug the hole at the concrete block at Intake P5 to prevent the water from site discharging to the public drain directly. 	B7i.
100506-R14	<ul style="list-style-type: none"> Provide drip tray for the generator at Intake W3. 	F3i.
100506-R15	<ul style="list-style-type: none"> Properly maintain the curtain for directing the spoil to the spoil basin. 	D10
	H. Others	
	<ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:100429), follow-up action is needed for the item (100429 – F04). 	

Weekly Site Inspection Record Summary



	Name	Signature	Date
Recorded by	Ivy Tam		6 May 2010
Checked by	Dr. Priscilla Choy		6 May 2010

Weekly Site Inspection Record Summary (For Western Portal Only)

Inspection Information

Checklist Reference Number	100503
Date	3 May 2010 (Monday)
Time	12:30-13:00

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.	
	G. Reminders	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• NIL	



	Name	Signature	Date
Recorded by	Yeung Wing Kun		3 May 2010
Checked by	Dr. Priscilla Choy		3 May 2010

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	100513
Date	13 May 2010 (Thursday)
Time	9:00 – 18:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
100513-O01	<ul style="list-style-type: none"> The three compartments of sedimentation tank was observed full of silty/muddy water at Intake TP5. The contractor was reminded to provide sufficient silt removal facilities so that the site discharge are comply with WPCO. 	B7iii. and B9
	B. Air Quality	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	C. Noise	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	D. Waste / Chemical Management	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	E. Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	F. Marine Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	G. Reminders	
100513-R02	<ul style="list-style-type: none"> Clear the chemical waste containers at Area B and Intake THR2. 	F2ii.
100513-R03	<ul style="list-style-type: none"> Clear the stagnant water with chemical oil as chemical waste at intake MB16, W0, M3, TP5. 	B15 and F2ii.
100513-R04	<ul style="list-style-type: none"> Properly maintain the piling machine to prevent oil leakage at Intake E5B. 	F8
100513-R05	<ul style="list-style-type: none"> Regular clear the drainage channel at Intake E5B. 	F9
100513-R06	<ul style="list-style-type: none"> To provide sedimentation facilities at Intake MA15. 	B7i.
100513-R07	<ul style="list-style-type: none"> Ensure the capacity of the sedimentation tank is enough to treat the silty water at Intake M3. 	B7iii.
100513-R08	<ul style="list-style-type: none"> To replace the worn sand bags at the entrance of Intake W10. 	B5
100513-R09	<ul style="list-style-type: none"> Ensure the dropping of materials to the barge comply with APCO regulations. 	D10
	H. Others	
	<ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:100506), follow-up action is needed for the items (100506 – R04, R06, R08 and R13). 	

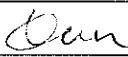

	Name	Signature	Date
Recorded by	Ivy Tam		13 May 2010
Checked by	Dr. Priscilla Choy		13 May 2010

Weekly Site Inspection Record Summary (For Western Portal Only)

Inspection Information

Checklist Reference Number	100511
Date	11 May 2010 (Monday)
Time	12:40-13:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>A. Water Quality</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>G. Reminders</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>H. Others</i>	
	• NIL	



	Name	Signature	Date
Recorded by	Yeung Wing Kun		11 May 2010
Checked by	Dr. Priscilla Choy		11 May 2010

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	100520
Date	20 May 2010 (Thursday)
Time	9:00 – 17:00

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	
	• No environmental deficiency was identified during site inspection.	
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
100520-R01	• To clear the stagnant water at the material skip at Intake MBD2.	B15
100520-R02	• Properly clear the standing water with chemical oil as chemical waste at Intake W0, TP5, and SM1.	B15, F2ii
100520-R03	• To provide sedimentation facilities at Intake MA15 and TP4.	B7i
100520-R04	• Clear the mud trail at the entrance of Intake MA15.	D2
100520-R05	• Ensure the site discharge was treated before discharging out at Intake M3.	B7i
100520-R06	• Provide sand bags at the base of water barriers at Intake M3.	B5
100520-R07	• Keep clear the sedimentation tank at Intake TP5 to ensure the site discharge and comply with WPCO.	B9
100520-R08	• Ensure the dropping of materials from the conveyer outlet to the barge is complying with APCO regulations.	D10
	H. Others	
	• Follow-up on previous audit section (Ref. No.:100513), follow-up action is needed for the items (100513 – 001, R03, R06, R07 and R09).	

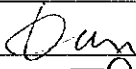
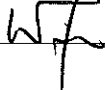
	Name	Signature	Date
Recorded by	Ivy Tam		20 May 2010
Checked by	Dr. Priscilla Choy		20 May 2010

Weekly Site Inspection Record Summary (For Western Portal Only)

Inspection Information

Checklist Reference Number	100519
Date	19 May 2010 (Wednesday)
Time	12:25-12:40

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>A. Water Quality</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>G. Reminders</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>H. Others</i>	
	• NIL	



	Name	Signature	Date
Recorded by	Yeung Wing Kun		19 May 2010
Checked by	Dr. Priscilla Choy		19 May 2010

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	100527
Date	27 May 2010 (Thursday)
Time	14:00 – 17:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
100527-O01	<ul style="list-style-type: none"> The three compartments of sedimentation tank were observed silty at Intake THR2. The contractor was reminded the site discharge to the public is complying with WPCO. 	B9
	B. Air Quality	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	C. Noise	
100527-O02	<ul style="list-style-type: none"> Noise was noticed from the breaking works at Intake E7. The contractor was reminded to provide sufficient noise mitigation measures to minimize the noise impact. 	E7
	D. Waste / Chemical Management	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	E. Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	F. Marine Ecology	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	G. Reminders	
100527-R03	<ul style="list-style-type: none"> To replace the worn sand bags to direct the surface runoff at Intake MBD2. 	B5
100527-R04	<ul style="list-style-type: none"> Clear the silt and debris at the drainage channel at Intake MBD2. 	B9
	H. Others	
	<ul style="list-style-type: none"> Intakes W0, TP5, SM1, MA15, M3, WP, and TP4 were not observed during the site inspection. Follow-up action is needed for the outstanding items. 	



	Name	Signature	Date
Recorded by	Ivy Tam		27 May 2010
Checked by	Dr. Priscilla Choy		27 May 2010

Weekly Site Inspection Record Summary (For Western Portal Only)

Inspection Information

Checklist Reference Number	100525
Date	25 May 2010 (Tuesday)
Time	12:15-12:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>A. Water Quality</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>G. Reminders</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>H. Others</i>	
	• NIL	

	Name	Signature	Date
Recorded by	Yeung Wing Kun		25 May 2010
Checked by	Dr. Priscilla Choy		25 May 2010

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

Appendix J - 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. 	^
	<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. 	^
	<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	

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	<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>

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	<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>^</p> <p>^</p> <p>^</p> <p>^</p>

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	<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>^</p>

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Water Quality	<u>Precautionary measures for construction work near natural streams</u>	
	<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/ivers and riparian vegetation by construction plant. 	^
	<ul style="list-style-type: none"> • 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. 	^
	<ul style="list-style-type: none"> • 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. 	^
	<ul style="list-style-type: none"> • 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. 	^ *
<u>Construction of temporary berthing point at the Western Portal</u>		
<p>A refuse collection vessel shall be provided to collect refuse or materials lost into the sea.</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>	N/A	

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	<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>	^
	<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>	^
	<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>	^
	<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>	N/A
	<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>	N/A

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	<p>Transfer of rock fill material (armour 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> <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> <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>	<p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>*</p> <p>*</p>

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	<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>

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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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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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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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	<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>N/A</p> <p>^</p> <p>^</p>

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Landscape and Visual	The proposed landscape and visual mitigation measures during the construction phase include:	
	CM1 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	^
	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.	^
	CM3 - Trees unavoidably affected by the works should be transplanted where practical.	^
	CM4 - Compensatory tree planting should be provided to compensate for felled trees.	^
	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.	^
	CM7 – Control of night-time lighting	^
	CM8 – Erection of decorative screen hoarding	^

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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>	^

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
Fisheries	<p>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.</p> <p>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.</p>	<p>N/A</p> <p>^</p>
Hazard to Life	<p>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.</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.

**APPENDIX K
EVENT ACTION PLANS**

Appendix K - 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"> 1. Repeat in situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor and Supervising Officer's Representative; 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor 6. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. 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 2. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative; 6. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor; 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. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. 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 2. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented. 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Supervising Officer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative within 3 working days; 6. Implement the agreed mitigation measures.
LIMIT LEVEL				
Limit level being exceeded by one sampling day	<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. 	<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; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation. 3. Request Contractor to view the working methods. 4. Ensure mitigation measures are properly implemented. 	<ol style="list-style-type: none"> 1. Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. 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 L
COMPLAINT LOG**

APPENDIX L – 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

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2009-01-021	Muddy Water Discharged into Sea at Western Portal	21 January 2009	Muddy water was observed from discharging into the sea at Western Portal Site	<p>Base on the information collected, the muddy water discharged into the sea is considered due to the operations of excavation of stilling basin and poor condition of the silt curtain.</p> <p>The Contractor agreed to review their current provisions to prevent any muddy water from discharging into the sea again and close check the condition of the silt curtain.</p>	Closed
COM-2009-01-022(A)	Construction site at Western Portal	12 January 2009	The complaint was lodged by Mr Chan, the assistant of Mr CHAN Ngok pang (Southern District Councillor) about the resident in Baguio Villa near Victoria Road, Mr Ronald Chan concerns on the noisy activities carried out at Western Portal site.	<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). Aegean Terrace is at location close to the major site activities compared with Baguio Vila. Also, The Contractor agreed to reschedule their current works activities, no noisy work will be carried out at Western Portal Site before 8:00a.m.</p>	Closed
COM-2009-01-022(B)		21 January 2009	The complaint was lodged by resident of Aegean Terrace at Sassoon Road about the noise nuisance generated from Western Portal Site.		
COM-2009-01-022(C)		21 January 2009	The complaint was lodged by the resident in Baguio Villa near Victoria Road about noisy works at Western Portal Site.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2009-02-023	Construction site at Eastern Portal	7 February 2009	Complaint of Construction Noise at Early Morning (07:45hrs) at Eastern Portal Site	<p>Based on the information collected, the construction noise at about 07:45hrs on 7 February 2009 was due to the checking of the backhole by the sub-contractor.</p> <p>The Contractor was reminded to strengthen their site supervision and provide sufficient site-specific environmental training for sub-contractor to ensure that such situation would not be recurred.</p>	Closed
COM-2009-03-025	Construction site at Western Portal	2 March 2009 4 March 2009	Complaint of noise generated by midnight works and night-time lighting at Western Portal Site	<p>Base on the information collected, the regular noise monitoring was conducted during the construction works at the restricted hours. The noise measurement results were well below the construction noise limit of 65dB(A) for the period of 0700-2300 hrs on holiday; and 1900-2300 hrs on all other days and baseline level during the night time.</p> <p>The Contractor was reminded to strengthen their site supervision and implement necessary noise mitigation measures to minimize and avoid the construction noise impact to the residents nearby especially during the restricted hours.</p> <p>Regarding the complaint of spotlight hanging on the plant at the site portion WP, The Contractor was reminded to implement the mitigation measures for Visual during the construction by controlling the night-</p>	Closed
COM-2009-03-026		7 March 2009	Complaint of pipe hitting noise at midnight at Western Portal Site.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				time lighting so that the residual visual impacts can be accepted.	
COM-2009-04-028	Construction site at Western Portal	7 April 2009	Complaint of noise generated from the construction works conducted till 11:00pm at Western Portal of the Hong Kong West Drainage Tunnel.	<p>According to the information provided by The Contractor, TBM, conveyor belt, ventilation fan, tower crane and cherry picker were operated for the construction works on 7 April 2009 before 11:00pm and only TBM works with conveyor belt and ventilation fan were operated on 10 April 09 (Sunday). No operation of derrick barge on 10 April 09.</p> <p>According to the photos taken on 8 April 2009, misplacement of plant was observed at Western Portal Site. Upon advice, The Contractor immediately moved the fan properly.</p> <p>Based on the information collected, the construction noise levels measured were well below the construction noise limit of 75 dB(A) for the period of 0700-1900 hrs on normal weekdays, 65 dB(A) for the period of 0700-2300 hrs on holiday; and 1900-2300 hrs on all other days and baseline level for the period of 2300-0700 hrs of next day. The ground borne noise levels measured were also well below the construction ground borne noise standards (i.e. 65</p>	Closed
COM-2009-04-029		10 April 2009	Complaint of noise generated by TBM works at Western Portal.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>dB(A) – Daytime (except General Holiday and Sundays) and 55 dB(A) – Daytime during general holidays and Sunday and all days during Evening (1900 to 2300 hrs). No exceedances of noise level have been recorded in March and April 2009.</p> <p>The Contractor was advised to strictly follow the conditions of the permit to avoid any misplacement of plants in the future. Also, The Contractor should take sufficient noise mitigation measures to minimize the environmental impact on the nearby community as recommended in the approved EIA report.</p> <p>In addition, DNJV already arranged tailors made training for the Production Team including the senior management and foreman to explain the conditions and requirements listed on the CNP and delegated one Engineer to ensure all construction activities and PMEs to be used are fully complying with CNP and legislation requirements before the commencement of the construction activities during the restricted hour.</p>	

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Base on the information collected, regular noise Monitoring was conducted during the night time to check the noise levels are complying with the construction noise criteria. The noise levels measured at NC3 during the construction works at night time were well below the construction noise limit.</p> <p>The Contractor was reminded to strengthen their site supervision by delegated Engineer to ensure all construction activities and PMEs to be used are fully complying with CNP and legislation requirements and implement necessary noise mitigation measures as recommended in the Approved EIA report to minimize and avoid the construction noise impact to the residents nearby especially during the restricted hours.</p>	
COM-2009-04-030	Construction site at Western Portal	30 April 2009	Complaint of Construction Noise Generated at Night at Western Portal.	According to the site activities diaries, TBM chainage, TBM excavation, installation of segment ring, pea gravel & mortar injection and installation cables & pipes at gantries were the activities conducted in the night of 30 April 2009.	Closed
COM-2009-05-031		4 May 2009	Complaint of low frequency noise emitted from the construction site at Western Portal.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
		11 May 2009	Complaint of Construction Noise nuisance generated from the Western Portal Site from day to night.	<p>sound of locomotive and tower crane operations.</p> <p>No exceedance of noise level was recorded since the commencement of the project works at Western Portal Site. The noise levels measured at NC3 during the construction works were well below the construction noise limit.</p> <p>The Contractor will continue implementing their mitigation measures (e.g. Instruct workers not to shout during work in the evening; no horn signal of locomotive after 6:55 pm).</p>	
COM-2009-05-032	Construction site at Eastern Portal	13 May 2009	The complaint was lodged by a resident regarding the Construction Noise Nuisance from the construction works that were carried out from early morning till night time at Eastern Portal Site Area.	<p>Based on the information collected, the noise levels measured at NC1/NC1a and NC2 during the construction works were well below the construction noise limit or baseline level.</p> <p>The Contractor is also committed to implement sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents especially during the restricted hours.</p>	Closed
COM-2009-06-035	Hong Kong West Drainage Tunnel Construction Site at Cyberport	3 June 2009	EPD received a public complaint raised by Mr. Lee regarding the transportation and disposal of construction wastes from Hong Kong West	Base on the information collected, alternative disposal ground is proposed by The Contractor and they have been submitted the relevant information and sought the approval from Supervising	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			Drainage Tunnel Construction Site at Cyberport on 3 June 2009.	Officer. The Contractor also maintains the daily record with details of each disposal trip from the Site and the disposal ground.	
COM-2009-06-037	Construction site at Eastern Portal	23 June 2009	The few noise complaints were lodged by a resident of The Legend and Ronsdale Garden regarding the Construction Noise Nuisance from the construction works at Eastern Portal Site Area since 7:00a.m and in the afternoon.	Based on the information collected, the noise levels measured at NC1 and NC2 during the construction works were well below the construction noise limit or baseline level. In response to the complaints, the head of hydraulic breaker has been wrapped with sound proof materials and movable noise barriers were provided for rock excavation to reduce noise. The Contractor is also committed to implement sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents.	Closed
COM-2009-06-038			The complaint was raised by Ms Wong of Goodwell Property Management, she wrote on behalf of the Estate Owner Committee of Legend at Tai Hang about noise nuisance arising from the excavation works at Eastern Portal site portion. The Committee requested the Contractor to provide mitigation measures to minimise the impact.		
COM-2009-08-040	Construction site at Intake PFLR1	26 August 2009	The complaint was relating to the noise generated from the construction activities of breaking of the existing boundary wall of Pokfulam Road Playground by use of the	Noise monitoring results conducted on 1 September 2009 at NC11 - Honey Court for the Intake PFLR1 was submitted and no exceedance was recorded. In addition, based on the regular site inspection conducted at Intake PFLR1, no observation/non-	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			hand-held electric breaker.	<p>compliance on air quality was identified. The environmental conditions of the site will be continuously reviewed and monitored.</p> <p>DNJV had installed tarpaulin shielding and cover to mitigate not only the potential emission of exhausted smoke, but also the visual impact to the residents nearby.</p>	
COM-2009-09-042	Construction site at Eastern Portal	21 September 2009	The complaint was raised by a resident of The Legend regarding poor housekeeping and construction noise nuisance from the Eastern Portal Site Area.	<p>Based on the information gathered in the Investigation, the Contractor had taken action immediately to rectify the complaint of poor housekeeping. The white site office was painted green in harmony with the surrounding environment and the site was maintained in a clean and tidy condition. All materials required for temporary works were stored in an orderly manner.</p> <p>Regarding the complaint of construction noise impact, the noise levels measured at The Legend (NC2) during the construction works in the normal working hours were well below the construction noise limit level.</p> <p>Nevertheless, the Contractor is also committed to implementing sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents and</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				provide training for the workers to increase awareness of their environmental responsibilities.	
COM-2009-10-044	Construction site at Eastern Portal	6 and 7 October 2009	The complaint was raised by a resident of The Legend and Ronsdale Garden regarding the construction noise nuisance from the Eastern Portal Site Area.	Based on the information gathered in the Investigation, the noise levels measured (additional noise monitoring) at The Legend (NC2) and Ronsdale Garden during the construction works including rock breaking works and soil nailing works were ranged from 68.4dB(A) to 75.3 dB(A) in the normal working hours. The Contractor is committed to implementing sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents and provide training for the workers to increase awareness of their environmental responsibilities. It is recommended to increase the construction noise monitoring frequency for Eastern Portal Site to check the mitigation effectiveness.	Closed
COM-2009-10-045					
COM-2009-11-054	Construction site at Western Portal	23 and 29 November 2009	The complaint was raised by a resident of Aegean Terrace regarding the construction noise nuisance from the Western Portal Site Area.	Base on the information collected, the noise levels measured at NC3 during the construction works were well below the construction noise limit.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Nevertheless, the Contractor is also committed to implement sufficient noise mitigation measures as recommended in the approved EIA report, Clause 5.4.15 to minimize/avoid the nuisance caused to the nearby residents.</p>	
COM-2009-12-059	Construction site at Intake MB16	27 November 2009	<p>The complaint was received on 2 November 2009 regarding the dust nuisance caused by the works at the Construction Site at Mount Butler Road near Clementi Road (Intake MB16). EPD subsequently issued a notice of complaint.</p>	<p>Based on the information collected, the Contractor has implemented the dust suppression measures to prevent dust nuisance from the construction activities.</p> <p>During the site inspection in November 2009, slope improvement works including soil nailing works were observed from other construction site adjacent to DNJV's construction works at Mount Butler Road.</p>	Closed
COM-2009-12-061	Construction site at Intake PFLR1	23 and 28 December 2009	<p>Two public complaints were received from the resident of Pok Fu Lam Road on 23rd and 28th December 2009 respectively about the construction noise nuisance from the construction site at Intake PFLR 1.</p>	<p>Based on the information gathered in the Investigation, the noise levels measured at Honey Court (NC11) during the construction works were well below the construction noise limit.</p> <p>The location of the designated noise monitoring station (NC11 – Honey Court) is at location close to the construction site compared with Pok Fu Lam Height.</p> <p>In addition, a large scale innovation works being undertaken at a resident building adjacent to the Pok Fu Lam Height was observed during the routine site inspection.</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				The innovation works included hammering and drilling on the outer walls of the building and contributed significantly to the noisy environment.	
COM-2010-01-062	Construction site at Western Portal	3 January 2010	The public complaint was received from the resident of Bel-Air through the project hotline on 3rd January 2010 about “wooning” sound heard after midnight, and he suspected that the sound was coming the construction sites at Cyberport.	Base on the information collected, the noise levels measured at NC3 during the construction works were well below the baseline level. The location of the designated noise monitoring station (NC3 – Outside Aegean Terrace) is at location close to the construction site compared with Bel-Air. The Contractor will continue implementing the existing noise mitigation measures at the Western Portal to minimize the environmental impact to the nearby residents.	Closed
COM-2010-01-063 COM-2010-01-066(1), (2) and (3)	Intake MB16	20 January 2010 23, 25, 27 January and 2 February 2010	The first complaint was raised by the resident at No. 58 Mount Butler Road about the noise and vibration generated from the works on 20 January 2010. Three complaints were raised by the resident of Amber Lodge through the Project Hotline regarding the low frequent vibration from underground on 23, 25, 27 January and 2 February 2010.	Based on the EIA assessment results, No. 58 Mount Butler Road and Amber Lodge are not the potential ground borne noise sensitive receivers as they are not within the influence zone near the Main Tunnel alignments from Cyberport to Tai Hang and the alignments of the adits. The additional ground borne noise levels measured at inside Amber Lodge during the TBM works were well within the construction ground borne noise standards.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>The Contractor volunteered to stop the operation of the East TBM between midnight and 07:00 hours in Week 6 and 7 after which the machine has moved far away from these premises</p>	
COM-2010-02-073	Western Portal	3 February 2010	<p>Complaint of noise generated by the operation of plants, rock falling and flash lighting within Western Portal site area.</p>	<p>Base on the regular noise monitoring, the noise levels measured at NC3 during the construction works were well below the baseline level.</p> <p>The Contractor will continue implementing the existing noise mitigation measures at the Western Portal to minimize the environmental impact to the nearby residents.</p>	Closed
COM-2010-03-080	Intake PFLR1	1 March 2010	<p>The public complaint was received from the resident of Honey Court referred by a DC member (Mr. Stephen Chan) on 1st March 2010 about the construction noise nuisance from the construction site at Intake PFLR 1</p>	<p>Based on the information gathered in the Investigation, the noise levels measured at Honey Court (NC11) in February and March 2010 were ranged from 62.3 dB(A) to 74.7 dB(A). The noise levels were marginally below the 75dB (A) limit level.</p> <p>The contractor was reminded to implement necessary mitigation measures to curb inducing contribution to the surrounding noise environment.</p>	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2010-03-081	Intake TP789	5 March 2010	The complaint was received from Kerry Management Ltd. on 5th March 2010 about the construction noise complaints raised by some tenants of Tavistock. They complained about the noisy activities being carried out at Intake TP789 on Saturday.	Based on the information gathered in the investigation, the noise levels measured at Tregunter Path near Tavistock were below the construction noise limit and the Contractor has already implemented the noise mitigation measures to reduce noise impact to the residents arising from the construction works. Nevertheless, we reminded the Contractor to closely monitor the effective implementation of the existing noise mitigation measures at Intake TP789. Review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.	Closed
COM-2010-03-082 and COM-2010-03-087	Western Portal	6 March 2010 15 March 2010	Two public complaints were received from the residents of Bel-Air at Western Portal on 6th and 15th March 2010 about the Construction Noise and Dust Nuisance from Hong Kong West Drainage Tunnel Construction Site at Cyberport (i.e. Western Portal Site) respectively.	Based on the information collected, the noise and air quality levels measured at NC3 and AQ2/AQ3 during the construction works were below the noise and air quality criteria respectively. Also, the Contractor has implemented appropriate environmental mitigation measures on site to reduce noise and dust impact to the residents arising from the construction works. Nevertheless, the Contractor was reminded to review the effectiveness of the implemented noise and air quality mitigation measures from time to time	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				during different construction phases.	
COM-2010-04-094	Western Portal	9 April 2010	The public complaint was received by EPD hotline on 9 th April 2010 regarding construction dust nuisance from the Hong Kong West Drainage Tunnel construction site at Cyberport (i.e. Western Portal Site)	Based on the information collected, the air quality levels measured at AQ2 and AQ3 during the construction works were below the air quality criteria. Also, the Contractor has implemented appropriate dust mitigation measures on site to reduce dust impact to the residents arising from the construction works. Although the air quality levels measured at AQ2 and AQ3 were below the air quality criteria, we advised the Contractor to maintain the existing air quality mitigation measures, to reduce the environmental impact on the nearby residents. Nevertheless, the Contractor was reminded to review the existing measures if such measures are enough and appropriate to suit the site condition from time to time during different construction phases to minimize the dust nuisance.	Closed
COM-2010-04-097	Intake TP789/TP4	22 April 2010	The complaint was received from resident of Tregunter Tower on 22 nd April 2010 about the noisy activities being carried out at Intake	Based on the information gathered in the investigation, the noise levels measured at Tregunter Path near Tavistock were below the construction noise limit and the Contractor has further improved the noise	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			TP789/TP4 in the morning.	<p>mitigation measures to reduce noise impact to the residents arising from the noise generation works.</p> <p>The Contractor agreed to reschedule the starting time of the noisy works to 9:00am on in the morning that no noisy works such as rock breaking will be conducted before 9:00am. In addition, enclosures consist of noise absorption blankets have been applied for enclosing Intakes construction areas to minimize the noise nuisance to the nearest residents.</p>	
COM-2010-04-100	Western Portal	30 April 2010	<p>The public complaint was received from the resident of Bel-Air on 30th April 2010 regarding the dust nuisance generated during loading / unloading operation from two barges at pier of Cyberport. Dark smoke was also emitted from the two barges.</p>	<p>Based on the information collected, the air quality levels measured at AQ2 and AQ3 during the construction works were below the air quality criteria.</p> <p>The Contractor has taken initiative to minimize dust nuisance to the nearby residents by implementation of additional mitigation measures as below:</p> <ul style="list-style-type: none"> - To plan the installation of 3-sided curtain-like enclosure at the conveyor discharge point to the barge. - Mechanical cover closed even for empty trucks leaving the Site. - Written advice to subcontractor on the subject of dust suppression and speeding of vehicles. - Toolbox training to drivers on the new measures. 	Closed


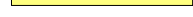


Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2010-05-105	Western Portal	7 May 2010	The second complaint was received via EPD Hotline on 7 May 2010. The anonymous complainant concerned about the dark smoke emitted from the barges on 4 May 2010 and many dump trucks parking outside the Western Portal Site on 5, 6 and 7 May 2010.	Based on the information collected, the air quality levels measured at AQ2 and AQ3 during the construction works were below the air quality criteria.	Closed
COM-2010-05-105 (2)		17 May 2010	The complaint was received via EPD Hotline on 17 May 2010. The anonymous complainant complaint about the open stockpile of dusty materials without covered entirely.	<p>Although the air quality levels measured at AQ2 and AQ3 were below the air quality criteria, we advised the Contractor to maintain the existing air quality mitigation measures and review the existing measures if such measures are enough and appropriate to suit the site condition from time to time during different construction phases to minimize the dust nuisance.</p> <p>Other suitable dust control measures as stipulated in the Air Pollution Control (Construction Dust) Regulation, where appropriate, should be adopted.</p> <p>Nevertheless, the Contractor is also committed to take sufficient dust mitigation measures as recommended in the approved EIA report including installation of 3-sided curtain-like enclosure at the conveyor discharge point to the barge to minimize the dust nuisance on the nearby residents.</p>	

APPENDIX M
CONSTRUCTION PROGRAMME

Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
HK West Drainage Project															
CC01 - PRELIMINARIES & GENERAL REQUIREMENTS															
Milestone															
General															
M1-1186	1.19a-Complete to All Obligat's From 841to870d	0	0		06MAY10A	100	0	0							
M1-1190	1.19-Complete to All Obligat's From 841to900d	0	0		31MAY10*	0	0	0							
M1-1200	1.20-Complete to All Obligat's From 901to960d	0	0		31JUL10*	0	0	0							
M1-1570	1.57-Acceptance of Monthly Report on TDMS(28M)	0	0		06MAY10A	100	0	-36							
M1-1580	1.58-Acceptance of Monthly Report on TDMS(29M)	0	0		24MAY10*	0	0	-24							
M1-1590	1.59-Acceptance of Monthly Report on TDMS(30M)	0	0		31MAY10*	0	0	0							
M1-1600	1.60-Acceptance of Monthly Report on TDMS(31M)	0	0		30JUN10*	0	0	0							
M1-1610	1.61-Acceptance of Monthly Report on TDMS(32M)	0	0		31JUL10*	0	0	0							
CC02 - DESIGN & DESIGN CHECKING OF THE WORKS															
Design Stage															
Section 1 (Eastern Portal)															
D00275	APP Cofferdam for Intake Shaft DDA	42	7	21MAY08A	31MAY10	90	7	-124							
D00279	APP Reinst Perm Slope at Coff Intake Shaft DDA	92	7	31OCT09A	31MAY10	90	7	-121							
Section 1 Dropshaft															
D00636	P&S Dropshaft Temp Rock Supt (Excl. W0) DDA	60	60	25MAY10*	23JUL10	0	60	-124							
D00639	APP Dropshaft Temp Rock Supt (Excl. W0) DDA	92	92	24JUL10	23OCT10	0	92	-124							
D00651	APP Dropshaft Permanent Lining(Excl W0) DDA	92	7	13MAR10A	31MAY10	90	7	-32							
Section 1 (Portion W0)															
D01166	APP W0-Permanent Works Intake DDA VO10	7	5	01DEC09A	29MAY10	90	5	-124							
Section 7 (Portion THR2)															
D00955	APP THR2-Permanent Works Intake DDA	92	7	13OCT09A	31MAY10	95	7	-94							
Section 31 (Portion PFLR1)															
D02265	APP PFLR1-Permanent Works Intake DDA	92	7	29NOV09A	31MAY10	90	7	-92							
D02272	VO # SOI 16 Due to Design placed on-hold-(PFLR1)	213	7	25AUG09A	31MAY10	90	7	-67							
Section30 (Portion HKU1)															
D02215	APP HKU1-Permanent Works Intake DDA	92	7	01OCT09A	31MAY10	90	7	-117							
Section 6 (Portion E7)															
D00895	APP E7 - Permanent Works Intake DDA	92	7	29NOV09A	31MAY10	90	7	-92							
D00937	VO # 15 Design stoppage - (E7)	182	7	22JUL09A	31MAY10	90	7	-124							
D00939	VO # 15 Design Revision & IDC Check - (E7)	31	31	01JUN10	01JUL10	0	31	-124							
Section 29 (Portion W10)															
D02165	APP W10-Permanent Works Intake DDA	92	7	13NOV09A	31MAY10	90	7	-108							
Section 32 (Portion SM1)															
D02315	APP SM1-Permanent Works Intake DDA	92	7	18NOV09A	31MAY10	90	7	-103							
Section 26 (Portion RR1)															
D02015	APP RR1-Permanent Works Intake DDA	92	7	28NOV09A	31MAY10	90	7	-93							
D02019	APP RR1-Temp Works & Drainage Diversion DDA	122	5	10SEP09A	29MAY10	95	5	-124							
Section 5 (Portion MBD2)															
D00845	APP MBD2-Permanent Works Intake DDA	92	7	18NOV09A	31MAY10	90	7	-103							
Section 23 (Portion TP4)															
D01855	APP TP4-Permanent Works Intake DDA	92	7	18NOV09A	31MAY10	90	7	-103							
D01859	APP TP4-Temp Works & Drainage Diversion DDA	92	5	04SEP09A	29MAY10	95	5	-124							
Section 28 (Portion P5)															
D02115	APP P5-Permanent Works Intake DDA	92	7	29NOV09A	31MAY10	90	7	-92							
D02119	APP P5-Temp Works & Drainage Diversion DDA	122	7	28OCT09A	31MAY10	90	7	-2							
Section 22 (Portion TP5)															
D01805	APP TP5-Permanent Works Intake DDA	92	7	25NOV09A	31MAY10	90	7	-32							
D01809	APP TP5-Temp Works & Drainage Diversion DDA	92	0	23SEP09A	14MAY10A	100	0	-107							
Section 21 (Portion TP789)															
D01745	APP TP789-Permanent Works Intake DDA	92	7	12DEC09A	31MAY10	90	7	-79							
D01749	APP TP789-Temp Works & Drainage Diversion DDA	92	7	05SEP09A	31MAY10	90	7	-124							
Section 24 (Portion W5)															
D01907	APP W5-Permanent Works Intake DDA	92	0	29NOV09A	20MAY10A	100	0	-81							
D01913	APP W5-Temp Works & Drainage Diversion DDA	122	7	31OCT09A	31MAY10	90	7	-91							
Section 2 (Portion E5A)															
D00686	APP E5A-Permanent Works Intake DDA	92	7	29NOV09A	31MAY10	90	7	-92							
D00695	APP E5A-Temp Works & Drainage Diversion DDA	92	7	12SEP09A	31MAY10	92	7	-124							
Section 27 (Portion W8)															
D02065	APP W8-Permanent Works Intake DDA	122	7	29NOV09A	31MAY10	90	7	-62							
D02069	APP W8-Temp Works & Drainage Diversion DDA	122	5	23SEP09A	29MAY10	95	5	-124							
Section 3 (Portion E5B)															
D00745	APP E5B-Permanent Works Intake DDA	92	7	29NOV09A	31MAY10	90	7	-92							
Section 20 (Portion M3)															
D01685	APP M3-Permanent Works Intake DDA	92	38	01APR10A	01JUL10	59	38	-37							
D01689	APP M3-Temp Works & Drainage Diversion DDA	92	7	12FEB10A	31MAY10	90	7	-32							
D01725	APP M3-Permanent Slopeworks DDA	122	7	28NOV09A	31MAY10	90	7	-73							
Section 19 (Portion MA17)															
D01625	APP MA17-Permanent Works Intake DDA	92	7	29DEC09A	31MAY10	90	7	-61							
D01629	APP MA17-Temp Works & Drainage Diversion DDA	92	7	29NOV09A	31MAY10	90	7	-92							
Section 15 (Portion W3)															
D01415	APP W3-Permanent Works Intake DDA	92	10	29JAN10A	03JUN10	90	10	-21							
D01419	APP W3-Temp Works & Drainage Diversion DDA	92	52	15APR10A	15JUL10	44	52	-77							
Section 17 (Portion MA14)															
D01515	APP MA14-Permanent Works Intake DDA	92	7	31DEC09A	31MAY10	90	7	-60							
D01519	APP MA14-Temp Works & Drainage Diversion DDA	92	7	28NOV09A	31MAY10	90	7	-93							
Section 18 (Portion MA15)															
D01575	APP MA15-Permanent Works Intake DDA	92	7	24DEC09A	31MAY10	90	7	-66							

M	APR	MAY	JUN	JUL	AUG
2010					

Start Date	30NOV07
Finish Date	31MAY12
Data Date	25MAY10
Run Date	31MAY10 09:40

	Early Bar
	Previous Month (004D)
	Progress Bar
	Critical Activity

005A Sheet 1 of 10
Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY				
Date	Revision	Checked	Approved	
13JAN09	Approved Works Programme # 1	SOR	804B	
27MAR09	Approved Works Programme # 2	SOR	9032	
10DEC10	Approved Works Programme # 3	SOR	9116	
01MAR10	Approved Works Programme # 4	SOR	003A	

Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
Section 18 (Portion MA15)															
D01595	APP MA15-Temp Works & Drainage Diversion DDA	92	0	13OCT09A	11MAY10A	100	0	-106							
Section 10 (Portion DG1)															
D01105	APP DG1-Permanent Works Intake DDA	92	7	31DEC09A	31MAY10	90	7	-60							
D01109	APP DG1-Temp Works & Drainage Diversion DDA	92	0	12JAN10A	28APR10A	100	0	-15							
Section 9 (Portion HR1)															
D01055	APP HR1-Permanent Works Intake DDA	92	7	31JAN10A	31MAY10	90	7	0							
D01057	APP HR1-Temp Works & Drainage Diversion AIP	92	7	01OCT09A	31MAY10	90	7	-121							
D01059	APP HR1-Temp Works & Drainage Diversion DDA	92	54	17APR10A	24JUL10	41	54	-42							
Section 14 (Portion BR6)															
D01365	APP BR6-Permanent Works Intake DDA	92	7	31JAN10A	31MAY10	90	7	15							
D01385	APP BR6-Temp Works & Drainage Diversion DDA	92	7	16JAN10A	31MAY10	90	7	-37							
Section 12 (Portion W1)															
D01265	APP W1-Permanent Works Intake DDA	92	7	31JAN10A	31MAY10	90	7	-10							
Section 8 (Portion GL1)															
D01005	APP GL1-Permanent Works Intake DDA	92	7	30JAN10A	31MAY10	90	7	9							
D01009	APP GL1--Temp Works & Drainage Diversion DDA	92	25	19MAR10A	18JUN10	73	25	-10							
Section 25 (Portion CR1)															
D01965	APP CR1-Permanent Works Intake DDA	92	7	28FEB10A	31MAY10	90	7	62							
D01969	APP CR1-Temp Works & Drainage Diversion DDA	122	73	13APR10A	05AUG10	34	73	-70							
Section 13 (Portion BR5)															
D01319	APP BR5-Temp Works & Drainage Diversion DDA	92	7	30JAN10A	31MAY10	90	7	-12							
Section 11 (Portion BR4)															
D01209	APP BR4-Temp Works & Drainage Diversion DDA	92	5	25AUG09A	29MAY10	95	5	-124							
D01245	APP BR4-Permanent Slopeworks DDA	122	0	04SEP09A	05MAY10A	100	0	-100							
Section 16 (Portion B2)															
D01465	APP B2-Permanent Works Intake DDA	92	7	01MAR10A	31MAY10	90	7	90							
D01469	APP B2-Temp Works & Drainage Diversion DDA	92	33	27MAR10A	26JUN10	64	33	-3							
E&M															
D02350	P&S E&M AIP	86	86	25MAY10*	18AUG10	0	86	-124							
D02355	APP E&M AIP	42	42	19AUG10	29SEP10	0	42	-124							
Landscaping															
D02370	P&S Landscaping AIP	85	85	25MAY10*	17AUG10	0	85	-124							
D02375	APP Landscaping AIP	42	42	18AUG10	28SEP10	0	42	-124							
Main Tunnel															
D00480	P&S Adit/main tun intrct Perm Ling at W0 AIP	63	50	12MAY10A	13JUL10	21	50	-111							
D00485	APP Adit/main tun intrct Perm Ling at W0 AIP	92	92	14JUL10	13OCT10	0	92	-111							
D00490	P&S Adit/main tunl intrct Perm Ling at W0 DDA	63	63	25MAY10*	26JUL10	0	63	-124							
D00495	APP Adit/main tunl intrct Perm Ling at W0 DDA	92	92	27JUL10	26OCT10	0	92	-124							
D00510	P&S TBM Dismantle Chamber Temp Supt at W0 DDA	63	43	05MAY10A	06JUL10	32	43	-104							
D00515	APP TBM Dismantle Chamber Temp Supt at W0 DDA	92	92	07JUL10	06OCT10	0	92	-104							
Milestone															
Design Submission															
M2-1100	2.10-DDA-Adits&Stilling Chambers Consent	0	0		24MAY10	0	0	-93							
M2-1130	2.13-DDA-Dropshaft Submission	0	0		24MAY10	0	0	-117							
M2-1140	2.14-DDA-Dropshaft Consent	0	0		31MAY10	0	0	-32							
CC03-PART OF SECTION 1 OF THE WORKS(MAIN TUNNEL)															
Preliminary and General Requirements															
Prefabrication Precast Segment for Main Tunnel															
B2240	Precast Segment Fabrication (E.Tunnel)	592	83	16DEC08A	15AUG10	86	83	1							
B2280	Precast Segment Fabrication (W.Tunnel)	745	254	17DEC08A	02FEB11	66	254	1							
Construction															
TBM Excavation (Eastern Tunnel)															
E1550	TBM Excav (to CH2652-GL1,HR1)+200m =610m	59	9	07APR10A	03JUN10	85	9	18							
E1560	TBM Excav (to CH3315-DG1)+200m =663m	47	47	04JUN10	29JUL10	0	47	18							
E1570	TBM Excav (to CH3933-W0)=418m - Ring stop CH3923	36	36	30JUL10	09SEP10	0	36	18							
TBM Excavation (Western Tunnel)															
W1160	TBM Excav'n (to CH7447-W8,RR1)+200m =898m	84	0	09FEB10A	28APR10A	100	0	13							
W1170	TBM Excav'n (to CH7006-CR1,W5)+200m =441m	42	7	29APR10A	31MAY10	83	7	22							
W1180	TBM Excav'n (to CH6705-TP4)+200m =301m	28	28	01JUN10	28JUN10	0	28	22							
W1190	TBM Excav's (to CH6595-TP5)+200m =110m	10	10	29JUN10	08JUL10	0	10	22							
W1200	TBM Excav'n (to CH6398-TP789)+200m =197m	18	18	09JUL10	26JUL10	0	18	22							
W1210	TBM Excav'n (to CH6088-M3)+200m =310m	29	29	27JUL10	24AUG10	0	29	22							
W1220	TBM Excav'n (to CH5936-MA17)+200m =152m	14	14	25AUG10	07SEP10	0	14	22							
Milestone															
Section 1 (Main Tunnel)															
M3-1190	3.19-Excavation, Support & Lining CH2000 to 2250	0	0		06MAY10A	100	0	-9							
M3-1200	3.20-Excavation, Support & Lining CH2250 to 2500	0	0		24MAY10	0	0	-1							
M3-1210	3.21-Excavation, Support & Lining CH2500 to 2750	0	0		25MAY10	0	0	21							
M3-1220	3.22-Excavation, Support & Lining CH2750 to 3000	0	0		10JUN10	0	0	22							
M3-1230	3.23-Excavation, Support & Lining CH3000 to 3250	0	0		05JUL10	0	0	21							
M3-1240	3.24-Excavation, Support & Lining CH3250 to 3500	0	0		28JUL10	0	0	21							
M3-1250	3.25-Excavation, Support & Lining CH3500 to 3750	0	0		22AUG10	0	0	21							
M3-1350	3.35-Excavation, Support & Lining CH6000 to 6250	0	0		14AUG10	0	0	22							
M3-1360	3.36-Excavation, Support & Lining CH6250 to 6500	0	0		21JUL10	0	0	22							
M3-1370	3.37-Excavation, Support & Lining CH6500 to 6750	0	0		29JUN10	0	0	22							
M3-1380	3.38-Excavation, Support & Lining CH6750 to 7000	0	0		05JUN10	0	0	22							
M3-1390	3.39-Excavation, Support & Lining CH7000 to 7250	0	0		24MAY10	0	0	11							
M3-1400	3.40-Excavation, Support & Lining CH7250 to 7500	0	0		06MAY10A	100	0	5							
M3-1410	3.41-Excavation, Support & Lining CH7500 to 7750	0	0		06MAY10A	100	0	-18							

M	APR	MAY	JUN	JUL	AUG
2010					

Start Date 30NOV07
Finish Date 31MAY12
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Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

Legend:
 Early Bar
 Previous Month (004D)
 Progress Bar
 Critical Activity

WORKS PROGRAMME APPROVAL HISTORY			
Date	Revision	Checked	Approved
13JAN09	Approved Works Programme # 1	SOR	804B
27MAR09	Approved Works Programme # 2	SOR	9032
10DEC10	Approved Works Programme # 3	SOR	9116
01MAR10	Approved Works Programme # 4	SOR	003A

Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
CC04 - PART OF SECTION 1 OF THE WORKS (ADITS)															
Construction															
Adit Tunnel Excavation & Tunnel Lining - W0															
S010280	Adit Excav D&B/Enlarge/Turnbays Ch464-Ch420 (W0)	58	0	01APR10A	07MAY10A	100	0	13							
S010290	Adit Excavation by Drill & Blast Ch420-287 (W0)	59	49	08MAY10A	27JUL10	18	49	12							
S010292	Adit Excavation by Drill & Blast Ch287-119(W0)	61	61	28JUL10	14OCT10	0	61	12							
Adit Tunnel Excavation & Tunnel Lining - E5A															
S020200	Adit Excavation by Drill & Blast Ch07-193(E5A)	68	40	31MAR10A	16JUL10	42	40	-52							
S020202	Adit Excavation by Drill & Blast Ch193-336(E5A)	54	54	17JUL10	24SEP10	0	54	-52							
Adit Tunnel Excavation & Tunnel Lining - MB16															
S040250	Adit Excavation by Drill & Blast Ch07-117(MB16)	39	25	05MAY10A	26JUN10	35	25	-33							
S040320	Stilling Chamber Enlargement (MB16)	10	10	28JUN10	09JUL10	0	10	-33							
Adit Tunnel Excavation & Tunnel Lining - MBD2															
S050090	Probe Drilling & Mechanical Excavation - (MBD2)	19	0	24MAR10A	30APR10A	100	0	-16							
S050095	Temp Facilities & Blast Door Installation-(MBD2)	29	0	03MAY10A	14MAY10A	100	0	-22							
S050105	Adit Excavation by Drill & Blast Ch07-128(MBD2)	42	42	25MAY10	19JUL10	0	42	-28							
S050107	Adit Excavation by Drill & Blast Ch128-236(MBD2)	40	40	20JUL10	09SEP10	0	40	-28							
Adit Tunnel Excavation & Tunnel Lining - E7															
S060254	Removal of Segments - (E7)	5	0	22MAR10A	24MAY10	0	0	-39							
S060256	Probe Drilling & Mechanical Excavation - (E7)	19	6	29MAR10A	31MAY10	90	6	-26							
S060258	Temp Facilities & Blast Door Installation-(E7)	29	29	25MAY10	02JUL10	0	29	-45							
S060270	Adit Excavation by Drill & Blast Ch07-171(E7)	58	58	03JUL10	15SEP10	0	58	-45							
Adit Tunnel Excavation & Tunnel Lining - THR2															
S070094	Removal of Segments - (THR2)	5	5	25MAY10	29MAY10	0	5	-21							
S070096	Probe Drilling & Mechanical Excavation - (THR2)	19	19	31MAY10	25JUN10	0	19	-21							
S070098	Temp Facilities & Blast Door Installation-(THR2)	29	29	09JUN10	17JUL10	0	29	-34							
S070130	Adit Excavation by Drill & Blast (THR2)	49	49	19JUL10	20SEP10	0	49	-34							
Adit Tunnel Excavation & Tunnel Lining - GL1															
S080050	Adit Grouting & Rock Dowel Installation - (GL1)	8	8	04JUN10	15JUN10	0	8	14							
S080055	Removal of Segments - (GL1)	5	5	17JUN10	22JUN10	0	5	14							
S080060	Probe Drilling & Mechanical Excavation - (GL1)	19	19	24JUN10	17JUL10	0	19	14							
S080065	Temp Facilities & Blast Door Installation-(GL1)	29	29	15JUN10	22JUL10	0	29	14							
S080070	Adit Excavation by Drill & Blast Ch07 - 105(GL1)	35	35	23JUL10	07SEP10	0	35	14							
Adit Tunnel Excavation & Tunnel Lining - DG1															
S100194	Adit Grouting & Rock Dowel Installation - (DG1)	8	8	30JUL10	09AUG10	0	8	16							
S100196	Removal of Segments - (DG1)	5	5	11AUG10	16AUG10	0	5	16							
S100198	Probe Drilling & Mechanical Excavation - (DG1)	19	19	17AUG10	09SEP10	0	19	16							
S100201	Temp Facilities & Blast Door Installation-(DG1)	29	29	09AUG10	14SEP10	0	29	16							
Adit Tunnel Excavation & Tunnel Lining - M3															
S200391	Adit Grouting & Rock Dowel Installation - (M3)	8	8	25AUG10	03SEP10	0	8	18							
Adit Tunnel Excavation & Tunnel Lining - TP789															
S210401	Adit Grouting & Rock Dowel Installation -(TP789)	8	8	27JUL10	06AUG10	0	8	16							
S210403	Removal of Segments - (TP789)	5	5	07AUG10	13AUG10	0	5	16							
S210405	Probe Drilling & Mechanical Excavation - (TP789)	19	19	14AUG10	07SEP10	0	19	16							
S210407	Temp Facilities & Blast Door Installation-(TP789)	29	29	06AUG10	11SEP10	0	29	16							
Adit Tunnel Excavation & Tunnel Lining - TP5															
S220321	Adit Grouting & Rock Dowel Installation -(TP5)	8	8	09JUL10	19JUL10	0	8	17							
S220323	Removal of Segments - (TP5)	5	5	20JUL10	24JUL10	0	5	17							
S220325	Probe Drilling & Mechanical Excavation - (TP5)	19	19	26JUL10	19AUG10	0	19	17							
S220327	Temp Facilities & Blast Door Installation-(TP5)	29	29	19JUL10	25AUG10	0	29	17							
Adit Tunnel Excavation & Tunnel Lining - TP4															
S230401	Adit Grouting & Rock Dowel Installation - (TP4)	8	8	29JUN10	08JUL10	0	8	17							
S230403	Removal of Segments - (TP4)	5	5	09JUL10	15JUL10	0	5	17							
S230405	Probe Drilling & Mechanical Excavation - (TP4)	19	19	16JUL10	09AUG10	0	19	17							
S230407	Temp Facilities & Blast Door Installation-(TP4)	29	29	08JUL10	14AUG10	0	29	17							
S230420	Adit Excavation by Drill & Blast CH07 - 53 (TP4)	15	15	16AUG10	03SEP10	0	15	17							
Adit Tunnel Excavation & Tunnel Lining - W5															
S240341	Adit Grouting & Rock Dowel Installation - (W5)	8	8	01JUN10	10JUN10	0	8	16							
S240343	Removal of Segments - (W5)	5	5	11JUN10	18JUN10	0	5	16							
S240345	Probe Drilling & Mechanical Excavation - (W5)	19	19	19JUN10	14JUL10	0	19	16							
S240347	Temp Facilities & Blast Door Installation-(W5)	29	29	10JUN10	19JUL10	0	29	16							
S240352	Adit Excavation by Drill & Blast Ch07 - 210(W5)	72	72	20JUL10	20OCT10	0	72	16							
Adit Tunnel Excavation & Tunnel Lining - RR1															
S260361	Adit Grouting & Rock Dowel Installation - (RR1)	8	0	03MAY10A	12MAY10A	100	0	7							
S260363	Removal of Segments - (RR1)	5	0	13MAY10A	19MAY10A	100	0	7							
S260365	Probe Drilling & Mechanical Excavation - (RR1)	19	18	20MAY10A	17JUN10	5	18	5							
S260367	Temp Facilities & Blast Door Installation-(RR1)	29	29	25MAY10	02JUL10	0	29	-2							
S260380	Adit Excavation by Drill & Blast Ch07 - 115(RR1)	38	38	03JUL10	20AUG10	0	38	-2							
S260384	Adit Excavation by Drill & Blast Ch115- 331(RR1)	78	78	21AUG10	25NOV10	0	78	-2							
Adit Tunnel Excavation & Tunnel Lining - P5															
S280105	Probe Drilling & Mechanical Excavation - (P5)	19	0	01MAR10A	12MAY10A	100	0	-34							
S280107	Temp Facilities & Blast Door Installation-(P5)	29	3	09APR10A	27MAY10	95	3	-41							
S280122	Adit Excavation by Drill & Blast Ch07 - 210(P5)	72	72	28MAY10	31AUG10	0	72	-41							
Adit Tunnel Excavation & Tunnel Lining - HKU1															
S300810	Adit Excavation by Drill & Blast Ch0 - 120(HKU1)	43	43	26JUL10	20SEP10	0	43	-41							
Adit Tunnel Excavation & Tunnel Lining - SM1															
S321640	Adit Excavation by Drill & Blast Ch07-185(SM1)	73	59	28APR10A	11AUG10	20	59	-30							
S321644	Adit Excavation by Drill & Blast Ch185-350(SM1)	70	70	12AUG10	06NOV10	0	70	-30							
Milestone															
Section 1 (Adits)															
M41010	4.001-25% Completion of Excav'n (Adit E5A)	0	0		24JUN10	0	0	-71							

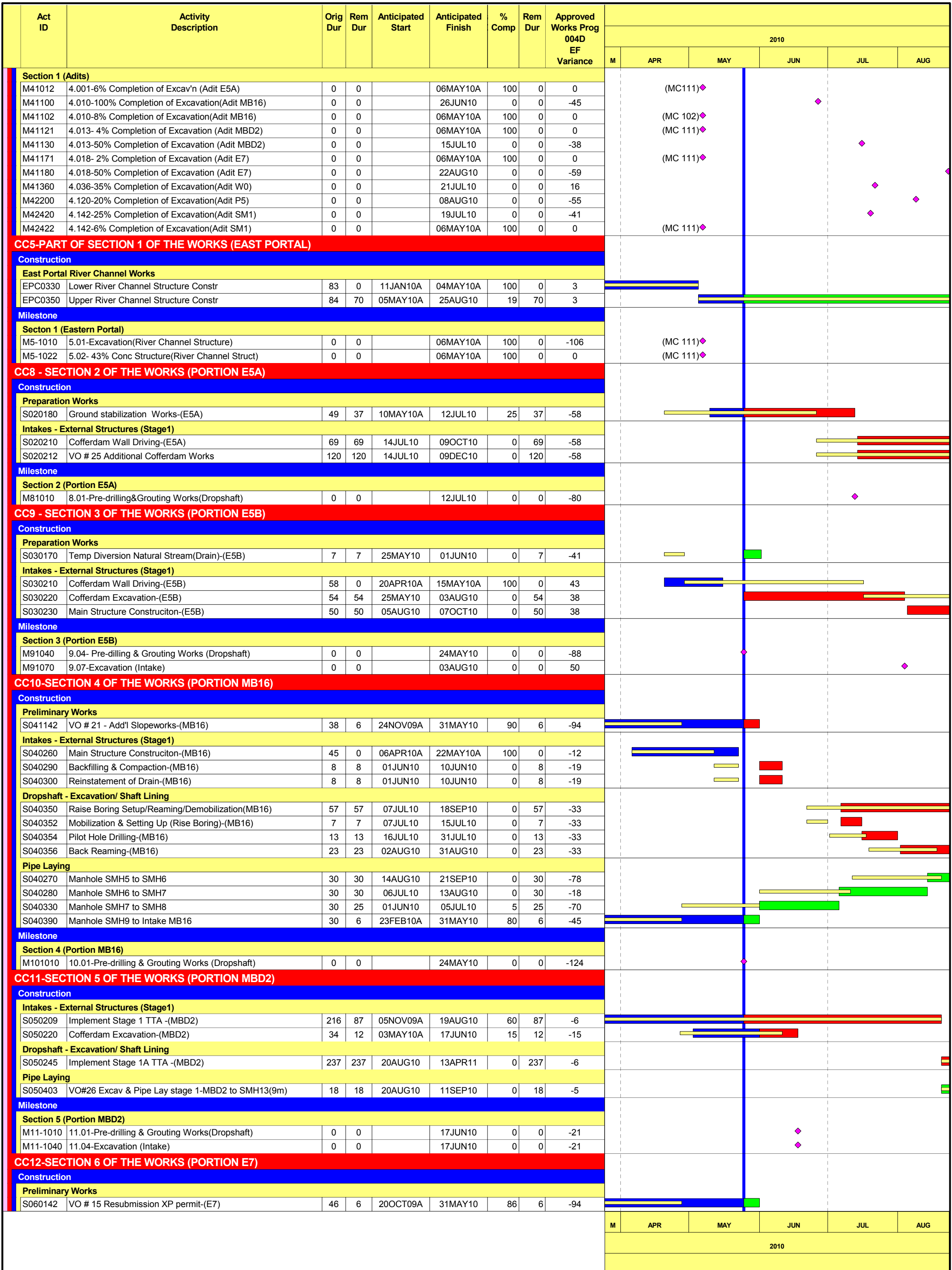
M	APR	MAY	JUN	JUL	AUG
2010					

Start Date	30NOV07
Finish Date	31MAY12
Data Date	25MAY10
Run Date	31MAY10 09:40

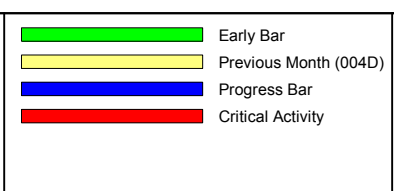
	Early Bar
	Previous Month (004D)
	Progress Bar
	Critical Activity

005A Sheet 3 of 10
Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY			
Date	Revision	Checked	Approved
13JAN09	Approved Works Programme # 1	SOR	804B
27MAR09	Approved Works Programme # 2	SOR	9032
10DEC10	Approved Works Programme # 3	SOR	9116
01MAR10	Approved Works Programme # 4	SOR	003A



Start Date 30NOV07
 Finish Date 31MAY12
 Data Date 25MAY10
 Run Date 31MAY10 09:40



005A Sheet 4 of 10
Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY			
Date	Revision	Checked	Approved
13JAN09	Approved Works Programme # 1	SOR	804B
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Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010					
									M	APR	MAY	JUN	JUL	AUG
Intakes - External Structures (Stage1)														
S060360	Excavation & Lodging-(E7)	6	0	17APR10A	08MAY10A	100	0	-4						
S060380	Excavation (Soft) Soil & Strutting-(E7)	48	0	19MAR10A	08MAY10A	100	0	44						
S060381	Excavation (Rock) - (E7)	48	24	10MAY10A	25JUN10	12	24	0						
Dropshaft - Excavation/ Shaft Lining														
S060440	Strutting (Concrete Lining) & Shotcreting	24	24	31JUL10	31AUG10	0	24	-114						
S060550	Mobilization & Setting Up-(E7)	3	3	26JUN10	29JUN10	0	3	10						
S060560	Hard Rock Excavation (From 0 to 9.5m)by Mechanic	24	24	30JUN10	30JUL10	0	24	10						
S060600	Hard Rock Excavation (Remaining 1.5m by Jumbo)	2	2	31JUL10	02AUG10	0	2	10						
S060610	Demobilization-(E7)	6	6	03AUG10	11AUG10	0	6	10						
S060640	Inspection & Method Approval-(E7)	2	2	09AUG10	11AUG10	0	2	10						
S060650	Stabilization of Shaft-(E7)	3	3	12AUG10	14AUG10	0	3	10						
S060720	Mobilizatn,Setup& Prep(ShaftLining)-(E7)	6	6	16AUG10	21AUG10	0	6	10						
Pipe Laying														
S060170	Pipeline SMH16 to SMH15	30	30	25MAY10	03JUL10	0	30	-94						
S060200	Manhole SMH15 & Pipeline SMH15 to SMH14	72	72	05JUL10	05OCT10	0	72	-94						
Milestone														
Section 6 (Portion E7)														
M121010	12.01-Pre-drilling & Grouting Works(Dropshaft)	0	0		24MAY10	0	0	-91						
M121020	12.02-Excavation (Dropshaft)	0	0		02AUG10	0	0	14						
M121033	12.04- 10% Excavation (Intake)	0	0		06MAY10A	100	0	0	(MC 111)◆					
M121040	12.04-Excavation (Intake)	0	0		25JUN10	0	0	13						
CC13-SECTION 7 OF THE WORKS (PORTION THR2)														
Construction														
Preliminary Works														
S070180	Access Ramp Construction	58	0	13JUN09A	30APR10A	100	0	-47						
Preparation Works														
S070200	Pre-drilling & Grouting Works-(THR2)	26	0	15MAR10A	30APR10A	100	0	-52						
Intakes - External Structures (Stage1)														
S070240	Cofferdam Excavation-(THR2)	62	46	03MAY10A	23JUL10	16	46	-19						
S070250	Cast Concrete Column & Backfill-(THR2)	21	21	24JUL10	20AUG10	0	21	-19						
S070260	Main Structure Constructon-(THR2)	57	57	21AUG10	01NOV10	0	57	-19						
Milestone														
Section 7 (Portion THR2)														
M13-1010	13.01-Pre-drilling & Grouting Works(Dropshaft)	0	0		24MAY10	0	0	-90						
M13-1040	13.04-Excavation (Intake)	0	0		23JUL10	0	0	-24						
CC14-SECTION 8 OF THE WORKS (PORTION GL1)														
Construction														
Preliminary Works														
S080110	25 wks prior to Portion Possess Date-(GL1)	104	0	07DEC09A	04MAY10A	100	0	0						
S080145	Complete All Utility Diversions by Others - GL1	0	0		04MAY10A	100	0	1						
S080150	Site Possession - (GL1)	0	0	25MAY10*		0	0	-13						
S080160	Site Setting up/Mobilization-(GL1)	30	30	25MAY10	03JUL10	0	30	-13						
Preparation Works														
S080180	Install Geotech Monitoring Instruments-(GL1)	6	6	25MAY10	31MAY10	0	6	-13						
S080190	Pre-drilling & Grouting Works-(GL1)	29	29	05JUL10	11AUG10	0	29	-13						
Intakes - External Structures (Stage1)														
S080170	Temp Diversion Natural Stream(Drain)-(GL1)	30	30	19JUN10	27JUL10	0	30	-7						
S080200	Cofferdam Wall Driving-(GL1)	70	70	28JUL10	26OCT10	0	70	-7						
Milestone														
Section 8 (Portion GL1)														
M141010	14.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		11AUG10	0	0	-19						
CC15-SECTION9 OF THE WORKS(PORTION HR1)														
Construction														
Preliminary Works														
S090150	Site Possession - (HR1)	0	0	27APR10A		100	0	-15						
S090160	Site Setting up/Mobilization-(HR1)	24	4	27APR10A	28MAY10	85	4	-15						
S090200	Install Steel Working Platform	33	33	29MAY10	12JUL10	0	33	0						
Preparation Works														
S090180	Install Geotech Monitoring Instruments-(HR1)	6	6	25MAY10	31MAY10	0	6	-35						
S090190	Pre-drilling & Grouting Works-(HR1)	25	25	01JUN10	05JUL10	0	25	-17						
Intakes - External Structures (Stage1)														
S090210	Temp Diversion Natural Stream(Drain)-(HR1)	24	24	26JUL10	26AUG10	0	24	-32						
Milestone														
Section 9 (Portion HR1)														
M151060	15.06-Pre-drilling & Grouting Works (Dropshaft)	0	0		05JUL10	0	0	-25						
CC16-SECTION 10 OF THE WORKS (PORTION DG1)														
Construction														
Preliminary Works														
S100130	Site Possession - (DG1)	0	0	27APR10A		100	0	40						
S100140	Site Setting up/Mobilization-(DG1)	40	18	27APR10A	17JUN10	55	18	42						
Preparation Works														
S100150	Install Geotech Monitoring Instruments-(DG1)	6	6	25MAY10	31MAY10	0	6	20						
S100160	Pre-drilling & Grouting Works-(DG1)	25	25	18JUN10	20JUL10	0	25	42						
Intakes - External Structures (Stage1)														
S100170	Temp Diversion Natural Stream(Drain)-(DG1)	24	24	18JUN10	19JUL10	0	24	42						
S100180	Cofferdam Wall Driving / Grouting/Platform(DG1)	45	45	21JUL10	17SEP10	0	45	42						
S100192	VO/Claim # 22-Intake Stucture Increase 40mm -SM1	2	2	21JUL10	22JUL10	0	2	42						
Milestone														
Section 10 (Portion DG1)														
M16-1010	16.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		20JUL10	0	0	55						

M	APR	MAY	JUN	JUL	AUG
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Start Date	30NOV07	Early Bar
Finish Date	31MAY12	Previous Month (004D)
Data Date	25MAY10	Progress Bar
Run Date	31MAY10 09:40	Critical Activity

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Design & Construction of HK. West Drainage Tunnel
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3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY			
Date	Revision	Checked	Approved
13JAN09	Approved Works Programme # 1	SOR	804B
27MAR09	Approved Works Programme # 2	SOR	9032
10DEC10	Approved Works Programme # 3	SOR	9116
01MAR10	Approved Works Programme # 4	SOR	003A

Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
CC17-SECTION 11 OF THE WORKS (PORTION BR4)															
Construction															
Preliminary Works															
S110110	25 wks prior to Portion Possess Date-(BR4)	168	36	21JAN10A	29JUN10	79	36	8							
S110170	Site Possession - BR4	0	0	30JUN10*		0	0	6							
S110180	Site Setting up/Mobilization-(BR4)	24	24	30JUN10	30JUL10	0	24	6							
S110190	Install Loading/Unloading Platform + Gantry	60	60	30JUN10	15SEP10	0	60	6							
S110220	Install Geotech Instruments-(BR4)	6	6	30JUN10	07JUL10	0	6	6							
S110230	Erect Hoarding,Site Office,Toilet,Desilting Tank	12	12	16JUL10	30JUL10	0	12	-6							
S110240	Relocate the existing Staircase-(BR4)	12	12	30JUN10	15JUL10	0	12	18							
S110250	Mobilization-(BR4)	3	3	31JUL10	03AUG10	0	3	-6							
S110260	Pre-drilling-(BR4)	7	7	05AUG10	13AUG10	0	7	-6							
S110270	Analysis of the SI-(BR4)	6	6	14AUG10	20AUG10	0	6	-6							
S110280	Skin Wall to the Existing Retaining Wall	30	30	16JUL10	23AUG10	0	30	18							
S110290	Grouting Works-(BR4)	12	12	21AUG10	06SEP10	0	12	-6							
Preparation Works															
S110330	Mobilization for Cofferdam Construction	3	3	25AUG10	27AUG10	0	3	18							
CC18-SECTION 12 OF THE WORKS (PORTION W1)															
Construction															
Preliminary Works															
S120130	Site Possession - W1	0	0	26APR10A		100	0	0							
S120140	Site Setting up/Mobilization-(W1)	24	16	26APR10A	14JUN10	10	16	-12							
S120160	Load/Unload Platf/Overhead Gantry & Access	74	74	25MAY10	30AUG10	0	74	-12							
Preparation Works															
S120150	Pre-drilling & Grouting Works-(W1)	25	25	25MAY10	26JUN10	0	25	-20							
S120170	Install Geotech Instruments-(W1)	6	6	25MAY10	31MAY10	0	6	-20							
Milestone															
Section 12 (Portion W1)															
M181010	18.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		26JUN10	0	0	-28							
CC19-SECTION 13 OF WORKS (PORTION BR5)															
Construction															
Preliminary Works															
S130110	25 wks prior to Portion Possess Date-(BR5)	102	0	22JAN10A	02MAY10A	100	0	0							
S130125	Complete All Utility Diversion by Others - (BR5)	0	0		02MAY10A	100	0	0							
S130130	Site Possession - (BR5)	0	0	03MAY10A		100	0	0							
S130140	Cut Slope to Form Working Platform	48	48	26JUN10	27AUG10	0	48	-40							
S130160	Site Setting up/Mobilization-(BR5)	24	24	25MAY10	25JUN10	0	24	32							
Intakes - External Structures (Stage1)															
S130190	Temp Diversion Natural Stream(Drain)-(BR5)	24	24	26JUN10	26JUL10	0	24	32							
CC20-SECTION 14 OF THE WORKS (PORTION BR6)															
Construction															
Preliminary Works															
S140110	25 wks prior to Portion Possess Date-(BR6)	175	0	08DEC09A	23MAY10A	100	0	-17							
S140127	Complete All Utility Diversion by Others - (BR6)	0	0		23MAY10A	100	0	-5							
S140130	Site Possession - (BR6)	0	0	24MAY10A		100	0	-4							
S140140	Site Setting up/Mobilization-(BR6)	24	19	24MAY10A	18JUN10	2	19	0							
Preparation Works															
S140150	Install Geotech Instruments-(BR6)	6	6	25MAY10	31MAY10	0	6	-5							
S140160	Pre-drilling & Grouting Works-(BR6)	24	24	19JUN10	20JUL10	0	24	0							
Intakes - External Structures (Stage1)															
S140180	Cofferdam Construction-(BR6)	48	48	21JUL10	21SEP10	0	48	0							
Pipe Laying															
S140170	Jacking Pit Construction at SMH17	59	59	19JUN10	04SEP10	0	59	0							
CC21-SECTION 15 OF THE WORKS (PORTION W3)															
Construction															
Preliminary Works															
S150140	Site Setting up/Mobilization-(W3)	24	0	16APR10A	08MAY10A	100	0	6							
Preparation Works															
S150160	Install Geotech Monitoring Instruments-(W3)	6	6	02JUL10	08JUL10	0	6	-56							
S150161	Existing Bldg & Structure(EBS) Survey - (W3)	6	6	02JUL10	08JUL10	0	6	-56							
Intakes - External Structures (Stage1)															
S150170	1st StageTemp.Diversion Natural Stream-(W3)	24	24	09JUL10	09AUG10	0	24	-38							
S150180	West - Cofferdam Wall Driving - (W3)	30	30	11AUG10	17SEP10	0	30	-38							
Milestone															
Section 15 (Portion W3)															
M211010	21.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		01JUL10	0	0	-45							
CC22-SECTION 16 OF THE WORKS (PORTION B2)															
Construction															
Preliminary Works															
S160020	Notify,Coord&Obtain Permit-Utility Prov - B2	149	0	20OCT09A	08MAY10A	100	0	-12							
S160110	25 wks prior to Portion Possess Date-(B2)	152	110	13APR10A	11SEP10	28	110	0							
CC23-SECTION 17 OF THE WORKS (PORTION MA14)															
Construction															
Preliminary Works															
S170120	Site Possession - MA14	0	0	15MAY10A		100	0	-3							
S170140	Hoarding/Fencing-(MA14)	12	10	15MAY10A	04JUN10	10	10	-7							
S170160	Haul Road & Platform-(MA14)	18	18	25MAY10	17JUN10	0	18	-9							
Preparation Works															
S170150	Install Geotech Monitoring Instruments-(MA14)	3	3	25MAY10	27MAY10	0	3	-9							
S170151	Existing Bldg & Structure(EBS) Survey - (MA14)	6	6	25MAY10	31MAY10	0	6	-9							

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005A Sheet 6 of 10
Design & Construction of HK. West Drainage Tunnel
 Contract No. DC/2007/10
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Preparation Works														
S170180	Skin Wall-(MA14)	30	30	18JUN10	26JUL10	0	30	-9						
S170190	Soil Nails-(MA14)	25	25	18JUN10	20JUL10	0	25	-9						
S170210	Mobilization&Setup(Pre-drill & Grouting)-(MA14)	3	3	18JUN10	21JUN10	0	3	-9						
S170220	Pre-drilling-(MA14)	16	16	22JUN10	12JUL10	0	16	-9						
S170230	Analysis of the SI-(MA14)	6	6	14JUL10	20JUL10	0	6	-9						
S170240	Grouting Works-(MA14)	12	12	21JUL10	05AUG10	0	12	-9						
Intakes - External Structures (Stage1)														
S170260	Mobilization&Setup(Cofferdam Constn)-(MA14)	3	3	06AUG10	09AUG10	0	3	-9						
S170290	Cofferdam Wall pile driving-(MA14)	29	29	11AUG10	15SEP10	0	29	-9						
Milestone														
Section 17 (Portion MA14)														
M23-1010	23.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		05AUG10	0	0	-13						
CC24-SECTION 18 OF THE WORKS (PORTION MA15)														
Construction														
Preliminary Works														
S180150	Hoarding/Fencing-(MA15)	12	0	13APR10A	08MAY10A	100	0	-24						
S180180	Power & Water Points-(MA15)	24	0	09APR10A	22MAY10A	100	0	-21						
Intakes - External Structures (Stage1)														
S180260	Mobilization&Setup(Cofferdam Constn)-(MA15)	6	6	25MAY10	31MAY10	0	6	7						
S180280	Pre-boring,Backfilling with Sand-(MA15)	15	15	01JUN10	21JUN10	0	15	7						
S180290	Driving of Sheet-piling-(MA15)	5	5	22JUN10	28JUN10	0	5	7						
S180300	Grouting for Rock Socket-(MA15)	3	3	29JUN10	02JUL10	0	3	7						
S180320	Expose Existing Box Culvert by Excav-(MA15)	6	6	03JUL10	09JUL10	0	6	7						
S180340	Excavation (Soft) Soil-(MA15)	24	24	03JUL10	02AUG10	0	24	7						
S180350	Saw-cut Box-culvert&place Steel Pipes-(MA15)	3	3	10JUL10	14JUL10	0	3	7						
S180360	Secure Pipes Hang&SealantConnect-(MA15)	17	17	15JUL10	05AUG10	0	17	7						
S180370	Removal Lower Sector Box-culvert-(MA15)	3	3	06AUG10	09AUG10	0	3	7						
S180380	Excavation (Hard) Rock-(MA15)	24	24	03AUG10	03SEP10	0	24	7						
S180390	Excavation & Lodging-(MA15)	6	6	11AUG10	17AUG10	0	6	7						
Milestone														
Section 18 (Portion MA15)														
M241010	24.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	8						
M241040	24.04-Excavation (Intake)	0	0		17AUG10	0	0	9						
CC25-SECTION 19 OF THE WORKS (PORTION MA17)														
Construction														
Preliminary Works														
S190150	Hoarding/Fencing-(MA17)	9	7	07APR10A	01JUN10	5	7	-33						
S190160	Cut/Fill/Place Concrete Block&Platform-(M17)	15	15	25MAY10	11JUN10	0	15	-35						
S190170	Power & Water Points-(MA17)	21	21	25MAY10	21JUN10	0	21	-35						
S190180	Implement Traffic Divn Scheme-(MA17)	7	7	25MAY10	01JUN10	0	7	-35						
S190300	Site Office-(MA17)	3	3	22JUN10	25JUN10	0	3	-35						
Preparation Works														
S190200	Skin Wall-(MA17)	48	48	25MAY10	26JUL10	0	48	-32						
S190210	Soil Nails-(MA17)	26	26	25MAY10	28JUN10	0	26	-32						
S190220	Install Geotech Instruments-(MA17)	3	3	02JUN10	04JUN10	0	3	-33						
S190260	Mobilization&Setup(Pre-drill & Grouting)-(MA17)	3	3	14JUN10	17JUN10	0	3	-35						
S190270	Pre-drilling-(MA17)	14	14	18JUN10	06JUL10	0	14	-35						
S190320	Shotcreting	9	9	29JUN10	09JUL10	0	9	-32						
S190340	Analysis of the SI-(MA17)	6	6	07JUL10	14JUL10	0	6	-35						
S190350	Grouting Works-(MA17)	12	12	15JUL10	28JUL10	0	12	-35						
Intakes - External Structures (Stage1)														
S190290	Mobilization&Setup(Cofferdam Constn)-(MA17)	3	3	30JUL10	02AUG10	0	3	-34						
S190310	Pre-boring,Backfilling with Sand-(MA17)	48	48	03AUG10	04OCT10	0	48	-34						
Milestone														
Section 19 (Portion MA17)														
M25-1010	25.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		28JUL10	0	0	-47						
CC26-SECTION 20 OF THE WORKS (PORTION M3)														
Construction														
Preliminary Works														
S200170	Cut/Fill/Divn/Place Concrete Block&Platform-(M3)	28	28	25MAY10	30JUN10	0	28	-83						
S200180	Power & Water Points-(M3)	21	21	25MAY10	21JUN10	0	21	-83						
Preparation Works														
S200190	Install Geotech Monitoring Instruments-(M3)	3	3	25MAY10	27MAY10	0	3	-74						
Intakes - External Structures (Stage1)														
S200230	Slope Protection Works-(M3)	60	30	20APR10A	09AUG10	50	30	3						
S200270	Sheet-piling Wall, Drop Shaft & Manhole	24	24	15JUN10	16JUL10	0	24	3						
S200300	Mobilization&Setup(Cofferdam Constn)-(M3)	6	6	25MAY10	31MAY10	0	6	-20						
S200310	Pre-boring,Backfilling with Sand-(M3)	36	36	01JUN10	19JUL10	0	36	-20						
S200320	Excavatio Laying of Steel Pipes & Strutting	12	12	17JUL10	31JUL10	0	12	3						
S200330	Shotcreting & Diversion and etc. - (M3)	6	6	02AUG10	09AUG10	0	6	3						
S200350	Driving of Sheet-piling-(M3)	10	10	11AUG10	21AUG10	0	10	3						
S200360	Grouting for Rock Socket-(M3)	5	5	23AUG10	28AUG10	0	5	3						
Milestone														
Section 20 (Portion M3)														
M261010	26.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-30						
CC27-SECTION 21 OF THE WORKS (PORTION TP789)														
Construction														
Intakes - External Structures (Stage1)														
S210270	Open Cut Excavation	58	21	19APR10A	21JUN10	15	21	-19						
S210275	VO # 09 Addl Excav for box culvert Works - TP789	7	0	24APR10A	04MAY10A	100	0	-28						

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Intakes - External Structures (Stage1)															
S210300	Excavation (Hard) Rock-(TP789)	44	21	05MAY10A	21JUN10	64	21	-19							
S210310	VO#29 - Forming Steeped Channel & Catchpit	12	0	05MAY10A	20MAY10A	100	0	-28							
S210320	VO#29 Demolish Existing Steeped Channel- (TP789)	6	4	22MAY10A	28MAY10	33	4	-28							
S210350	Blinding-(TP789)	3	3	22JUN10	25JUN10	0	3	-19							
S210360	Base Slabs-(TP789)	17	17	26JUN10	17JUL10	0	17	-19							
S210370	External Walls-(TP789)	36	36	19JUL10	03SEP10	0	36	-19							
Milestone															
Section 21 (Portion TP789)															
M27-1010	27.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		21JUN10	0	0	-26							
M27-1031	27.04-20% Excavation (Intake)	0	0		06MAY10A	100	0	0	(MC 111)◆						
M27-1040	27.04-Excavation (Intake)	0	0		21JUN10	0	0	-26							
CC28-SECTION 22 OF THE WORKS (PORTION TP5)															
Construction															
Intakes - External Structures (Stage1)															
S220380	Cofferdam Wall Driving -(TP5)	40	5	20APR10A	29MAY10	90	5	7							
S220440	Grouting for Rock Socket-(TP5)	3	3	31MAY10	02JUN10	0	3	22							
S220450	Demobilization-(TP5)	3	3	03JUN10	05JUN10	0	3	22							
S220470	Excavation (Soft) Soil-(TP5)	18	18	08JUN10	02JUL10	0	18	22							
S220490	Strutting-(TP5)	9	9	03JUL10	14JUL10	0	9	22							
S220510	Blinding-(TP5)	3	3	15JUL10	17JUL10	0	3	22							
S220520	Base Slabs-(TP5)	20	20	19JUL10	13AUG10	0	20	22							
S220530	External Walls-(TP5)	30	30	14AUG10	21SEP10	0	30	22							
Milestone															
Section 22 (Portion TP5)															
M28-1010	28.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-59							
M28-1040	28.04-Excavation (Intake)	0	0		14JUL10	0	0	29							
CC29-SECTION 23 OF THE WORKS (PORTION TP4)															
Construction															
Intakes - External Structures (Stage1)															
S230325	Gantry Installation	33	24	22FEB10A	25JUN10	10	24	-58							
S230350	Excavation (Hard) Rock-(TP4)	72	51	22MAR10A	30JUL10	31	51	-13							
S230360	Strutting-(TP4)	6	6	31JUL10	07AUG10	0	6	-13							
S230380	Blinding-(TP4)	6	6	31JUL10	07AUG10	0	6	-13							
S230400	Base Slabs-(TP4)	12	12	09AUG10	23AUG10	0	12	-13							
S230410	External Walls-(TP4)	30	30	25AUG10	30SEP10	0	30	-13							
Milestone															
Section 23 (Portion TP4)															
M291010	29.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-61							
M291040	29.04-Excavation (Intake)	0	0		07AUG10	0	0	-17							
CC30-SECTION 24 OF THE WORKS (PORTION W5)															
Construction															
Intakes - External Structures (Stage1)															
S240260	Cofferdam Wall Driving-(W5)	46	14	15MAR10A	19JUN10	26	14	-9							
S240290	Expose Existing Box Culvert by Excav-(W5)	6	6	21JUN10	28JUN10	0	6	-9							
S240300	Dropshaft Temporary Lining	30	30	21JUN10	28JUL10	0	30	-9							
S240310	Saw-cut Box-culvert&place Steel Pipes-(W5)	3	3	29JUN10	02JUL10	0	3	-9							
S240320	Secure Pipes Hang&SealantConnect-(W5)	6	6	03JUL10	09JUL10	0	6	-9							
S240330	Removal Lower Sector Box-culvert-(W5)	6	6	10JUL10	17JUL10	0	6	-9							
S240360	Excavation & Lodging-(W5)	6	6	19JUL10	24JUL10	0	6	-9							
S240380	Excavation (Soft) Soil-(W5)	52	52	30JUL10	05OCT10	0	52	-9							
Milestone															
Section 24 (Portion W5)															
M301010	30.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-33							
CC31-SECTION 25 OF THE WORKS (PORTION CR1)															
Construction															
Preliminary Works															
S250110	25 wks prior to Portion Possess Date-(CR1)	175	0	18FEB10A	30APR10A	100	0	-1							
S250130	Complete All utility Diversions by Others - CR1	0	0		30JUN10*	0	0	-45							
S250140	Site Possession - CR1	0	0	02JUL10*		0	0	-45							
S250160	Implement Traffic Divn Scheme Stage 1-(CR1)	12	12	02JUL10	16JUL10	0	12	-45							
S250170	Hoarding/Fencing-(CR1)	12	12	02JUL10	16JUL10	0	12	-45							
S250180	Power & Water Points-(CR1)	24	24	02JUL10	31JUL10	0	24	-45							
S250210	Implement Traffic Divn Scheme Stage 2-(CR1)	9	9	17JUL10	27JUL10	0	9	-45							
S250260	Site Office-(CR1)	3	3	02AUG10	05AUG10	0	3	-45							
Preparation Works															
S250201	Existing Bldg & Structure(EBS) Survey - (CR1)	6	6	02JUL10	08JUL10	0	6	-45							
S250205	Install Geotech Monitoring Instruments-(CR1)	3	3	17JUL10	20JUL10	0	3	-45							
S250209	Mobilization&Setup(Pre-drill & Grouting)-(CR1)	6	6	06AUG10	13AUG10	0	6	-45							
S250225	VO#11 - Utility Diversion works (CR1)	12	12	14AUG10	28AUG10	0	12	-45							
CC32-SECTION 26 OF THE WORKS (PORTION RR1)															
Construction															
Intakes - External Structures (Stage1)															
S260240	Upgrading RetainingStructure ofBoxCulvert Outlet	24	24	12AUG10	10SEP10	0	24	-30							
Dropshaft - Excavation/ Shaft Lining															
S260460	RCD Drilling in Rock-(RR1)	18	0	04MAR10A	05MAY10A	100	0	-30							
S260470	RCD Drilling in Rock (17m)-(RR1)	20	7	06MAY10A	01JUN10	90	7	-30							
S260480	Demobilization of RCD-(RR1)	7	7	02JUN10	10JUN10	0	7	-30							
S260490	Mobilization & Installation of Sacrificial Casing	18	18	11JUN10	06JUL10	0	18	-30							
S260500	Mobilization & Setup of Grouting Equipment	3	3	07JUL10	09JUL10	0	3	-30							
S260520	1st Pour of Lining - 0~5m-(RR1)	12	12	10JUL10	24JUL10	0	12	-30							

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Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
Dropshaft - Excavation/ Shaft Lining															
S260530	Grouting	7	7	10JUL10	19JUL10	0	7	-30							
S260540	Demobilization of Grouting Equipment	2	2	22JUL10	23JUL10	0	2	-30							
S260550	Stabilization of Shaft-(RR1)	9	9	10JUL10	21JUL10	0	9	-30							
S260560	Airlifting & Cleaning-(RR1)	6	6	24JUL10	31JUL10	0	6	-30							
S260580	Demob of RC D, Oscillator, Crane & etc.-(RR1)	2	2	02AUG10	03AUG10	0	2	-30							
S260590	2nd Pour of Lining - 6~10m-(RR1)	12	12	26JUL10	11AUG10	0	12	-30							
Milestone															
Section 26 (Portion RR1)															
M32-1010	32.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-79							
M32-1020	32.02-Excavation (Dropshaft)	0	0		10JUN10	0	0	-41							
CC33-SECTION 27 OF THE WORKS (PORTION W8)															
Construction															
Preliminary Works															
S270150	Hoarding/Fencing-(W8)	9	7	12MAR10A	01JUN10	55	7	-52							
S270160	Cut/Fill/Place Concrete Block&Platform-(W8)	15	12	20APR10A	08JUN10	10	12	-51							
S270170	Power & Water Points-(W8)	24	24	25MAY10	25JUN10	0	24	-54							
S270270	Site Office-(W8)	3	3	02JUN10	04JUN10	0	3	-37							
S270290	DSD - Foul Sewer	12	12	05JUN10	22JUN10	0	12	-37							
Intakes - External Structures (Stage1)															
S270310	Pre-bored Pile,SandFile Drive SheetPile-(W8)	24	24	05JUN10	08JUL10	0	24	-20							
S270320	Excavation, strutting & Decking	18	18	09JUL10	31JUL10	0	18	-20							
S270330	Temp Diversion - W8	6	6	02AUG10	09AUG10	0	6	-20							
S270340	Temporary Steel Casing of Dropshaft	42	42	11AUG10	02OCT10	0	42	-20							
Milestone															
Section 27 (Portion W8)															
M33-1010	33.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-16							
CC34-SECTION 28 OF THE WORKS (PORTION P5)															
Construction															
Preliminary Works															
S280170	Cut/Fill/Place Concrete Block&Platform-(P5)	60	0	21JAN10A	28APR10A	100	0	-16							
S280180	Power & Water Points-(P5)	36	0	23MAR10A	28APR10A	100	0	-40							
S280190	Stage 1 - Drainage Diversion	40	40	25MAY10	16JUL10	0	40	-11							
S280230	Site Office-(P5)	18	0	29APR10A	15MAY10A	100	0	-35							
Preparation Works															
S280270	Mobilization&Setup(Pre-drill & Grouting)-(P5)	3	0	30APR10A	04MAY10A	100	0	-77							
S280300	Pre-drilling-(P5)	9	0	05MAY10A	15MAY10A	100	0	-77							
S280310	Analysis of the SI-(P5)	6	0	17MAY10A	24MAY10A	100	0	-76							
Dropshaft - Excavation/ Shaft Lining															
S280390	Mobilization Crane & Oscillator	12	12	05AUG10	19AUG10	0	12	-25							
S280400	Excavation with Grab	3	3	20AUG10	23AUG10	0	3	-25							
S280410	Mobilization of RCD & PWP - (P5)	6	6	25AUG10	31AUG10	0	6	-25							
Milestone															
Section 28 (Portion P5)															
M341010	34.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-86							
CC35-SECTION 29 OF THE WORKS (PORTION W10)															
Construction															
Intakes - External Structures (Stage1)															
S290350	Drive Cofferdam Wall-(W10)	66	5	26FEB10A	29MAY10	96	5	-5							
S290370	Removal Lower Sector Box-culvert-(W10)	6	6	24JUL10	31JUL10	0	6	-5							
S290372	VO#13 Stg 2 Diversion works (W10)	23	23	25JUN10	23JUL10	0	23	-5							
S290380	Soft Excavation & ELS-(W10)	37	37	02AUG10	18SEP10	0	37	-5							
S290440	Grouting for Rock Socket-(W10)	3	3	31MAY10	02JUN10	0	3	-5							
S290450	Demobilization Piling-(W10)	3	3	03JUN10	05JUN10	0	3	-5							
S290470	Excav(Soft) Soil up to Culvert level +132 -(W10)	12	12	08JUN10	24JUN10	0	12	-5							
Milestone															
Section 29 (Portion W10)															
M351010	35.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-81							
CC36-SECTION 30 OF THE WORKS (PORTION HKU1)															
Construction															
Intakes - External Structures (Stage1)															
S300350	Excavation (Soft) Soil-(HKU1)	66	33	06APR10A	07JUL10	50	33	-32							
S300370	Expose Existing Box Culvert by Excav-(HKU1)	12	0	13APR10A	28APR10A	100	0	-35							
S300390	Saw-cut Box-culvert&place Steel Pipes-(HKU1)	6	0	29APR10A	06MAY10A	100	0	-35							
S300400	Secure Pipes Hang&SealantConnect-(HKU1)	6	0	07MAY10A	14MAY10A	100	0	-35							
S300410	Removal Lower Sector Box-culvert-(HKU1)	6	0	15MAY10A	24MAY10A	100	0	-35							
S300420	Excavation & Lodging-(HKU1)	12	12	25MAY10	08JUN10	0	12	-35							
S300450	Blinding-(HKU1)	3	3	08JUL10	10JUL10	0	3	-32							
S300460	Base Slabs-(HKU1)	12	12	12JUL10	26JUL10	0	12	-32							
S300470	External Walls-(HKU1)	60	60	27JUL10	12OCT10	0	60	-32							
Milestone															
Section30 (Portion HKU1)															
M361010	36.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-79							
M361032	36.04- 20% Excavation (Intake)	0	0		06MAY10A	100	0	0							
M361040	36.04-Excavation (Intake)	0	0		07JUL10	0	0	-43							
CC37-SECTION 31 OF THE WORKS (PORTION PFLR1)															
Construction															
Preliminary Works															
S311106	VO # 23 Add'l Drainage Diversion - (PFLR1)	23	10	02OCT09A	04JUN10	20	10	-94							
Intakes - External Structures (Stage1)															
S311210	Grouting for Rock Socket-(PFLR1)	3	3	18JUN10	21JUN10	0	3	-44							

M	APR	MAY	JUN	JUL	AUG
2010					

Start Date 30NOV07
Finish Date 31MAY12
Data Date 25MAY10
Run Date 31MAY10 09:40

Early Bar
 Previous Month (004D)
 Progress Bar
 Critical Activity

005A Sheet 9 of 10
Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY			
Date	Revision	Checked	Approved
13JAN09	Approved Works Programme # 1	SOR	804B
27MAR09	Approved Works Programme # 2	SOR	9032
10DEC10	Approved Works Programme # 3	SOR	9116
01MAR10	Approved Works Programme # 4	SOR	003A

Act ID	Activity Description	Orig Dur	Rem Dur	Anticipated Start	Anticipated Finish	% Comp	Rem Dur	Approved Works Prog 004D EF Variance	2010						
									M	APR	MAY	JUN	JUL	AUG	
Intakes - External Structures (Stage1)															
S311230	Excav(Soft) Soil MHS Level(+95.5/+98) -(PFLR1)	12	12	22JUN10	07JUL10	0	12	-44							
S311232	VO # 23 Add'l Cofferdam Excavation -(PFLR1)	9	9	08JUL10	19JUL10	0	9	-44							
S311233	VO # 23 Const Manhole at +95.5 & +98 -(PFLR1)	24	24	20JUL10	19AUG10	0	24	-44							
S311235	Excavation (Soft) Soil-(PFLR1)	24	24	08JUL10	07AUG10	0	24	-44							
S311240	Excavation (Hard) Rock-(PFLR1)	30	30	09AUG10	15SEP10	0	30	-44							
S311249	VO # 23 Add'l Cofferdam Wall Driving - (PFLR1)	18	0	20APR10A	08MAY10A	100	0	-34							
S311250	Excavation & ELS Works-(PFLR1)	66	66	22JUN10	15SEP10	0	66	-44							
S311252	VO # 23 Construct Temp Steel Deck - (PFLR1)	18	18	25MAY10	17JUN10	0	18	-44							
S311270	Expose Existing Box Culvert by Excav-(PFLR1)	20	20	24JUL10	19AUG10	0	20	-44							
S311280	Saw-cut Box-culvert&place Steel Pipes-(PFLR1)	3	3	20AUG10	23AUG10	0	3	-44							
S311290	Secure Pipes Hang&SealantConnect-(PFLR1)	3	3	25AUG10	27AUG10	0	3	-44							
Milestone															
Section 31 (Portion PFLR1)															
M371010	37.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		04JUN10	0	0	-90							
CC38-SECTION 32 OF THE WORKS (PORTION SM1)															
Construction															
Intakes - External Structures (Stage1)															
S321250	Blinding-(SM1)	6	6	09JUN10	17JUN10	0	6	-15							
S321260	Base Slabs-(SM1)	12	12	18JUN10	03JUL10	0	12	-15							
S321270	External Walls-(SM1)	26	26	05JUL10	06AUG10	0	26	-15							
S321290	Top Slab with Opening-(SM1)	12	12	07AUG10	21AUG10	0	12	-15							
S321310	Backfilling & Compaction-(SM1)	5	5	17AUG10	21AUG10	0	5	-15							
S321320	Extracting of Sheet Piling-(SM1)	5	5	23AUG10	28AUG10	0	5	-15							
Dropshaft - Excavation/ Shaft Lining															
S321340	Excavation from 0m~17m	18	6	15APR10A	31MAY10	70	6	-15							
S321350	Demobilization-(SM1)	6	6	01JUN10	08JUN10	0	6	-15							
Intakes - Internal Structures (Stage 2)															
S321430	Low Flow Slab & Bottom Rack Bar-(SM1)	12	12	23AUG10	07SEP10	0	12	-15							
Milestone															
Section 32 (Portion SM1)															
M381010	38.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		24MAY10	0	0	-117							
M381020	38.02-Excavation (Dropshaft)	0	0		08JUN10	0	0	-20							
M381040	38.04-Excavation (Intake)	0	0		06MAY10A	100	0	-28							

M	APR	MAY	JUN	JUL	AUG
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005A Sheet 10 of 10

█ Early Bar
█ Previous Month (004D)
█ Progress Bar
█ Critical Activity

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
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MAY/2010 MONTHLY REPORT

WORKS PROGRAMME APPROVAL HISTORY			
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APPENDIX N
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	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 m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in Kg)	(in Kg)	(in Kg)	(in Kg)	(in m ³)
Jan 2010	39537		15	38356	1166		6550	220		650	118
Feb 2010	30693		62	29570	1061		10730	180		3222	78
Mar 2010	40031		53	39263	715		13940	300		3726	112
Apr 2010	42997		62	42129	806		12810	200		1700	84
May 2010	42039		38	40859	1142		12290	315		2287	78
Jun 2010											
Sub-Total	195297		230	190177	4890		56320	1215		11585	470
July 2010											
Aug 2010											
Sep 2010											
Oct 2010											
Nov 2010											
Dec 2010											
Total	195297		230	190177	4890		56320	1215		11585	470

- 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) Quantities in May 2010 are upto 31 May 2010.
 - (4) Assuming the conversion factor from m³ to ton for rock is 2.5.
 - (5) The materials reused in other Project shall not be treated as waste under the Waste Disposal Ordinance (Cap 354).
 - (6) The figures are included for the sake of completeness of record.