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TEST REPORT

LEADER - WAI KEE (C&T) JOINT VENTURE

REMAINING ENGINEERING
INFRASTRUCTURE WORKS FOR
PAK SHEK KOK DEVELOPMENT
PACKAGE 2A
(CONTRACT NO.: TP 37/03)
MONTHLY EM&A REPORT
(DECEMBER 2005)

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EXECUTIVE SUMMARY

This monthly EM&A report (No.8) has been prepared to document the impact monitoring works conducted for the Contract of the Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No: TP 37/03) during the reporting period from 01 to 31 December 2005.

Construction Progress

The major construction works in this reporting month were as below:

- Drainage works (Excavation, pipe laying and breaking) at Section 5 (Road L4), 6 (the proposed cycle track), 7 and 8 (Promenade) of the Works
- Installation of precast concrete planter units at Section 7 & 8 (Promenade) of the Works
- Installation of watermain at Section 5 (Road L4) & 6 (the proposed cycle track) of the Works
- Road works at Section 5 (Road L4) and 6 (the proposed cycle track) of the Works
- Construction of granite stone facing with concrete backing at the proposed return wall of the Public Landing Steps
- Piling works at Voided Abutment and Pier of the proposed Ma Liu Shui Bridge (Alternative Design)
- Existing Box Culvert reinstatement and installation of the precast units for the proposed Outfall 1 at Landscape Node P1
- Backfilling at the proposed Landscape Node P2
- Placing leveling stone at the proposed Landscape Node P3
- Construction of Kerb planter wall and feature wall at the proposed Public Plaza at Section 7 of the Works

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring month is listed below:

- Noise Monitoring (Day-time): 4 Occasion at 4 designated locations
- 24-hour TSP Monitoring: 6 Occasions at 3 designated locations
- 1-hour TSP Monitoring: 14 Occasions at 3 designated locations
- Weekly-site inspection: 5 Occasions

Noise Monitoring

No exceedances of Action and Limit levels for noise monitoring were recorded in the reporting month.

Air Monitoring

No exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring in the reporting month.

Wastewater Monitoring

No wastewater quality monitoring was carried out in this reporting month since the Discharge Licence required carrying out wastewater monitoring at effluent discharge point quarterly and the current wastewater monitoring was carried out at Ma Liu Shui Pier 1 on 11 November 2005. The next wastewater monitoring should be at February 2006.

Site Inspection

Environmental site inspections conducted in this reporting month are presented as follows:

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
Weekly site inspection (ET)	01, 10, 17, 21 and 30
Monthly site inspection (IEC/LWKJV/RE)	21

The observations were raised during this reporting month. The site inspection findings are presented as follows:

Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
1	Air	Follow up action to the finding observed at the previous month, stockpiles at SA14 were found covered during weekly site inspections on 10/12/2005.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
2	Air	Follow up action to the finding observed at the previous month, the excavator emitted black smoke at Ma Liu Shui was found removed during the weekly site inspection on 01/12/05.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
3	Site Practice	Follow up action to the finding observed at the previous month, no rubbish was observed on the ground next to the rubbish skip at Road L4 during weekly site inspection on 01/12/2005.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.



Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
4	Water	Follow up action to the finding observed at the previous month, mud / silt accumulated in the drainage channel at Ma Liu Shui was cleaned up during weekly site inspection (25/11/2005).	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
5	Water	Wastewater produced from the piling works was found directly discharge to the U-channel at Ma Liu Shui during weekly site inspection (10/12/05).	LWKJV replied to divert wastewater to sedimentation tank before discharge.	During the subsequent weekly site inspection (17/12/05), no wastewater was found discharged directly to the U-channel. Hence, no further action was required.
6	Air	Construction site at Ma Liu Shui was dry and potential fugitive dust emission was observed during weekly site inspection (17/12/05).	LWKJV replied to water the dry area regularly, or if necessary.	During the subsequent weekly site inspection (21/12/05), no potential fugitive dust emission was observed. Hence, no further action was required.
7	Site Practice	Rubbish was observed at Ma Liu Shui site area (e.g. near new wheel-washing bay) during weekly site inspection (21/12/05).	LWKJV replied to arrange site workers to collect and dispose of the rubbish immediately.	During the subsequent weekly site inspection (30/12/05), no rubbish was found on the site area.

Waste Management

According to weekly site inspection, ET found that the Contractor followed the recommended procedures stipulated in the Waste Management Plan (WMP) on handling and disposal of wastes. 8040m³ inert C&D materials and 2000 kg general refuse were generated. All inert C&D materials were reused in the Contract and other wastes were handling under the instruction and procedure stated in the WMP in this reporting month.

Environmental Complaints

No environmental complaints were received in this monitoring month.

Notification of summons and successful prosecutions

No notification of summons and prosecutions with respect to environmental issues were registered in this reporting month.

Future Key Issues

Base on the site inspections and forecast of engineering works in the coming month, key issues to be considered are as follows:

- Noise and air quality impact due to construction works;
- Maintain wheel washing facilities properly;
- Cleanup the access road regularly;
- Watering, hydro-seeding or covering all stockpiles with tarpaulin to avoid wind and water erosion;
- Diverting the silty runoff to sedimentation trap or sedimentation tanks;
- Use and maintenance of silt curtain properly during marine works;
- Maintain good site practice and waste management to minimize environmental impacts at the site;
- Follow-up improvements on waste management issues.



1.0 INTRODUCTION

Leader – Wai Kee (C&T) Joint Venture (LWKJV) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No.: TP 37/03).

In accordance with the Section 10 of Environmental Permit to Construct and Operate a Designate Project (EP-108/2001/AEP-108/2001), EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A manual, environmental monitoring of air quality and noise is required for the Project. The EM&A requirement for each parameter are described in details in subsequent 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 report;
- Environmental requirements in contract documents.

This monthly EM&A report summarizes the impact monitoring results and audit findings of the EM&A program during the reporting period from 01 to 31 December 2005.

2.0 PROJECT INFORMATION

2.1 Background

Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No.: TP 37/03) was planned and designed by the Civil Engineering and Development Department (CEDD).

As the main Contractor of the captioned project: contracted by, LWKJV will follow the environmental monitoring recommendation stated at the EM&A Manual that was prepared with reference to the EIA Study for Feasibility Study on the Pak Shek Kok Development Area (PSKDA) Environmental Monitoring and Audit Manual under Agreement No. CE 90/96.

2.2 Site Description

Generally, the construction site is located at Pak Shek Kok development area. Surrounding the construction site, there are two air sensitive receivers: HKIB Staff Accommodation and Cheung Shue Tan Village and three noise sensitive receivers: HKIB Staff Accommodation, CUHK Residence No.10 and Cheung Shue Tan Village.

Figure 1 and 2 show the noise and air monitoring locations of this project.

2.3 Construction Programme

Details of construction programme are shown in Appendix F.

2.4 Project Organization and Management Structure

The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in Appendix A.

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.



Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel. No.	Fax No.
CEDD	Mr. M. S. Lam	Employer	2158 5630	2693 2918
Hyder	Mr. Herman Fong	Engineer	2603 6638	2603 7883
LWJV	Mr. T. T. Wong	Project Manager	2442 1123	2442 9733
Hyder	Ir. Coleman Ng	Independent Environmental Checker	2911 2233	2805 5028
ETL	Mr. C.L. Lau	Environmental Team Leader	2946 7791	2695 3944

3.0 CONSTRUCTION PROGRESS IN THIS REPORTING MONTH

The site area of this project is shown in Appendix G.

A summary of the major construction activities undertaken in this monitoring month is shown in Table 3.1. The implementation of corresponding mitigation measures is summarized in Table 3.2.

Table 3.1 Major Construction Activities in this reporting month

Major Construction Activity	Location
Drainage Works (Excavation, pipe laying and breaking)	Section 5 (Road L4), 6 (the proposed cycle track), 7 and 8 (Promenade) of the Works
Installation of precast concrete planter units	Section 7 & 8 (Promenade) of the Works
Installation of watermain	Section 5 (Road L4) & 6 (the proposed cycle track) of the Works
Road Works	Section 5 (Road L4) and 6 (the proposed cycle track) of the Works
Construction of granite stone facing with concrete backing	the proposed return wall of the Public Landing Steps
Piling works	Voided Abutment and Pier of the proposed Ma Liu Shui Bridge (Alternative Design)
Existing Box Culvert reinstatement and installation of the precast units for the proposed Outfall 1	Landscape Node P1
Backfilling	the proposed Landscape Node P2
Placing leveling stone	the proposed Landscape Node P3
Construction of Kerb planter wall and feature wall	the proposed Public Plaza at Section 7 of the Works

Table 3.2 Implementation of Environmental Mitigation Measures

General construction works	<ul style="list-style-type: none"> • Effective water sprays used on the site at potential dust emission sources such as haul roads and unpaved areas; • The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading; • Minimize of exposed soil areas to reduce the potential for increased siltation and contamination of run-off; • Water, hydro-seed or cover the open stockpile and exposed loose soil areas by using clean tarpaulin sheets; • Provide proper and efficient drainage facilities (e.g. wheel washing facilities) and sedimentation system to ensure that site runoff should be treated before discharged to drains; • Remove the sand/rubbish accumulated in the drain/channel regularly; • Use and maintenance of silt curtain properly during marine works; • Provide good site practice (e.g. selection of quieter plant and working methods and reduction in number of plant operating in critical areas close to NSRs) to limit noise emissions at source; • Remove the construction waste accumulated inside or outside the site regularly.
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4.0 AIR QUALITY MONITORING

4.1 Monitoring Requirement

1-hour and 24-hour TSP monitoring were required to be conducted to monitor the air quality, at designated monitoring locations:

- HKIB Staff Accommodation (on ground floor near the entrance facing south-east);
- Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring;
- Cheung Shue Tan Village (in front of Man Kee Store) for 24-hr TSP monitoring;
- Near Wen Chih Tang at the CUHK.

4.2 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. One portable dust meter was used to carry out the 1-hour TSP monitoring. Table 4.1 summarizes the equipment used in the air quality monitoring programme. A copy of the calibration certificates for the HVS and portable dust meter are attached in Appendix B1.

Table 4.1 Air Quality Monitoring Equipment

<i>Equipment</i>	<i>Model and Make</i>
<i>HVS</i>	<i>Greasby GMWS2310</i>
<i>Calibrator</i>	<i>Tisch TE-5025A</i>
<i>1-hour TSP Dust Meter</i>	<i>TSI Model 8520 Dust Trak™ Aerosol Monitor</i>

4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring.

Table 4.2 Monitoring parameters, duration, frequencies of impact air quality monitoring

<i>Parameter</i>	<i>Duration</i>	<i>Frequency</i>
<i>24-hr TSP</i>	<i>24 hr (0000-2400)</i>	<i>Once every six days</i>
<i>1-hr TSP</i>	<i>1 hr (0700-1900)</i>	<i>Three times every six days</i>

4.4 Monitoring Locations and Schedule

Table 4.3 tabulates the air quality monitoring locations of this project.

Table 4.3 Air quality monitoring locations

<i>Monitoring stations</i>	<i>Locations</i>
<i>AM1</i>	<i>HKIB Staff Accommodation (on ground floor near the entrance facing south-east) for 1-hr TSP monitoring</i>
<i>AM3</i>	<i>Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring</i>
<i>AM3A</i>	<i>Cheung Shue Tan (in front of Man Kee Store) for 24-hr TSP monitoring</i>
<i>AM5</i>	<i>Near Wen Chih Tang at the CUHK</i>

The air quality monitoring schedule for 24-hr and 1-hr TSP monitoring at designated monitoring locations is summarized in table 4.4.



Table 4.4 Monitoring Schedule for the air quality monitoring stations

Air quality monitoring stations	Location	Monitoring Period						
		24-hr TSP				1-hr TSP		
		Start		Finish		Date	Start	Finish
		Date	Time	Date	Time			
AM1	HKIB Staff Accommodation					01/12/05	13:25	14:25
						03/12/05	14:35	15:35
						06/12/05	08:30	09:30
						08/12/05	10:40	11:40
						10/12/05	09:30	10:30
						13/12/05	08:30	09:30
						15/12/05	11:00	12:00
						17/12/05	09:46	10:46
						20/12/05	08:05	09:05
						22/12/05	10:15	11:15
						24/12/05	08:30	09:30
						29/12/05	08:30	09:30
						30/12/05	13:08	14:08
						31/12/05	10:00	11:00
AM3	Cheung Shue Tan Village (Near the outer building, temple)					01/12/05	10:03	11:03
						03/12/05	17:06	18:06
						06/12/05	13:00	14:00
						08/12/05	09:20	10:20
						10/12/05	15:45	16:45
						13/12/05	13:15	14:15
						15/12/05	13:00	14:00
						17/12/05	14:55	15:55
						20/12/05	13:15	14:15
						22/12/05	15:15	16:15
						24/12/05	14:30	15:30
						29/12/05	13:05	14:05
						30/12/05	15:38	16:38
						31/12/05	14:00	15:00
AM5	Near Wen Chih Tang at the CUHK					01/12/05	08:49	09:49
						03/12/05	15:50	16:50
						06/12/05	14:15	15:15
						08/12/05	15:00	16:00
						10/12/05	10:50	11:50
						13/12/05	14:40	15:40
						15/12/05	16:15	17:15
						17/12/05	11:00	12:00
						20/12/05	10:50	11:50
						22/12/05	09:00	10:00
						24/12/05	15:45	16:45
						29/12/05	16:43	17:43
						30/12/05	14:25	15:25
						31/12/05	15:30	16:30
AM1	HKIB Staff Accommodation	01/12/05	11:15	02/12/05	11:20			
		07/12/05	09:10	08/12/05	08:47			
		13/12/05	08:30	14/12/05	08:25			
		19/12/05	15:16	20/12/05	15:15			
		23/12/05	09:03	24/12/05	08:27			
		29/12/05	09:32	30/12/05	09:22			
AM3A	Cheung Shue Tan (in front of Man Kee Store)	01/12/05	08:45	02/12/05	09:07			
		07/12/05	09:30	08/12/05	09:12			
		13/12/05	13:15	14/12/05	14:01			
		19/12/05	16:05	20/12/05	16:25			
		23/12/05	09:30	24/12/05	08:58			
		29/12/05	14:07	30/12/05	14:32			
AM5	Near Wen Chih Tang at the CUHK	01/12/05	10:00	02/12/05	10:15			
		07/12/05	09:50	08/12/05	09:33			
		13/12/05	14:30	14/12/05	14:35			
		19/12/05	15:38	20/12/05	16:01			
		23/12/05	09:38	24/12/05	09:09			
		29/12/05	17:55	30/12/05	18:05			



4.5 Monitoring Methodology

4.5.1 24-hour TSP Monitoring

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets are employed for 24-hour TSP. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling period of 24 hours. 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.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C ± 3°C and the relative humidity (RH) <50% ±5%.

Maintenance & Calibration

- The HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

4.5.2 1-hour TSP Monitoring

Measuring Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Set POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Calibrate the dust meter by zero check;
- Set the TIME CONSTANT of the dust meter;
- Press SAMPLE to start the TSP monitoring;



- Record the maximum, minimum and average reading directly from the dust meter by press STATISTICS when monitoring complete.

Maintenance & Calibration

- 1-hr dust meter should be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of impact air quality monitoring.

4.5.3 Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Sha Tin Station (located at Sha Tin Race Course) of Hong Kong Observatory. All wind data during this reporting month are shown in Appendix D.

4.6 Action and Limit Levels

Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 4.5.

Table 4.5 Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Location	24-hr TSP ($\mu\text{g}/\text{m}^3$)		1-hr TSP ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
AM1	164 *	260 *	325 *	500 *
AM3	---	---	306 **	500 **
AM3A	183 **	260 **	---	---
AM5	174	260	329	500

* = Reference to the information contained in the Baseline Monitoring Report submitted under the "Advance Engineering Infrastructure Works for Pak Shek Kok Development – Southern Access Road and Sewage Pumping Station No.3.

** = Reference to the information contained in the Baseline Monitoring Report submitted under the "Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 – Contract No. TP 35/02.

4.7 Event-Action Plans

Please refer to Appendix E for details.

4.8 Results

4.8.1 24-hour TSP Monitoring

All monitoring data of 24-hour TSP monitoring is provided in Appendix B2. Graphical presentation of 24-hour TSP monitoring results for the reporting month is shown in Appendix B3.

No exceedances of Action and Limit Level of 24-hour TSP monitoring results were recorded during the reporting month.

4.8.2 1-hour TSP Monitoring

1-hour TSP monitoring was carried out at monitoring stations, AM1 and AM3 in the reporting month. All monitoring data of 1-hour TSP monitoring is provided in Appendix B2. Graphical presentation of 1-hour TSP monitoring results for the reporting month is shown in Appendix B3.

No exceedances of Action and Limit Level of 1-hour TSP monitoring results were recorded during the reporting month.



5.0 Noise Monitoring

5.1 Monitoring Requirements

As the requirement in EM&A Manual, noise monitoring was conducted at designated monitoring locations:

- HKIB Staff Accommodation (on ground floor near the entrance facing south-east);
- Cheung Shue Tan Village (near the outer building, temple);
- CUHK Residence No.10;
- Near Wen Chih Tang at the CUHK.

5.2 Monitoring Equipment

Integrating Sound Level Meters were used for noise monitoring. They were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electro technical Commission Publications 651:1979 (Type1) and 804:1985 (Type1), and speed in m/s was used to monitor the wind speed.

Table 5.1 summarized noise monitoring equipment model being used. A copy of the calibration certificates for noise meters and calibrator are attached in Appendix C1.

Table 5.1 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-31 Sound Level Meter
Calibrator	Rion NL-73 Sound Level Calibrator
Portable Wind Speed Indicator	TSI Model 8340-M Air Velocity Meter

5.3 Monitoring Parameters, duration and Frequency

Noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} were recorded. The following guide on the regular monitoring frequency for each monitoring station on a per week basis when noise generating activities are underway:

- One set of measurements between 0700-1900 hours on normal weekdays (6 consecutive $L_{eq(5-min)}$);
- One set of measurements between 1900-2300 hours (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 2300-0700 hours of next day (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 0700-1900 hours on holidays (3 consecutive $L_{eq(5-min)}$)*.

(*): Noise monitoring to be conducted only when there is construction work.

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

Table 5.2 Duration, Frequencies and Parameters of Noise Monitoring

Time period	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal weekday	30	L_{eq} , L_{10} , L_{90}	Once per week
Evening-time: 1900-2300 hrs	15	L_{eq} , L_{10} , L_{90}	Once per week
Night-time: 2300-0700 hrs of next day	15	L_{eq} , L_{10} , L_{90}	Once per week
Holiday: 0700-1900 hrs	15	L_{eq} , L_{10} , L_{90}	Once per week

5.4 Monitoring Locations and Period

In this reporting month, there were four noise monitoring locations: HKIB Staff Accommodation, Cheung Shue Tan Village, CUHK Residence No.10 and Near Wen Chih Tang at the CUHK. The location of the monitoring stations are described in Table 5.3 and depicted in Figure 1.



Table 5.3 Noise Monitoring Locations

Noise Monitoring station	Location
NM1	HKIB Staff Accommodation (on ground floor near the entrance facing south-east)
NM2	CUHK Residence No.10
NM3	Cheung Shue Tan Village (near the outer building, a temple)
NM8	Near Wen Chih Tang at the CUHK

The noise-monitoring programme of monitoring locations (Day-time, Evening-time, Holiday and Night-time) is summarized in Table 5.4.

Table 5.4 Monitoring Periods for noise monitoring stations

Monitoring stations	Monitoring Period							
	Day-time		Evening-time		Holiday		Night-time	
NM1	06/12/05	08:32	---	---	---	---	---	---
	13/12/05	08:34	---	---	---	---	---	---
	20/12/05	08:12	---	---	---	---	---	---
	29/12/05	08:33	---	---	---	---	---	---
NM2	06/12/05	09:12	---	---	---	---	---	---
	13/12/05	14:05	---	---	---	---	---	---
	20/12/05	13:22	---	---	---	---	---	---
	29/12/05	16:30	---	---	---	---	---	---
NM3	06/12/05	13:02	---	---	---	---	---	---
	13/12/05	13:18	---	---	---	---	---	---
	20/12/05	10:55	---	---	---	---	---	---
	29/12/05	13:02	---	---	---	---	---	---
NM8	06/12/05	14:17	---	---	---	---	---	---
	13/12/05	14:50	---	---	---	---	---	---
	20/12/05	10:55	---	---	---	---	---	---
	29/12/05	09:55	---	---	---	---	---	---

5.5 Monitoring Procedures and Calibration Details

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- 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 : 5 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Free Field correction to the measurements should be made. Correction factor of +3dB(A) should be made to the free Field measurements.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter is sent to be supplier or HOKLAS laboratory to check and calibrated at yearly intervals.



5.6 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.5.

Table 5.5 Action and Limit Levels for noise monitoring

Time Period	Time Period	Action	Limit
Normal hours	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *
Holiday	0700-1900 hrs on holidays		70 dB(A) **
Evening-time	1900-2300 hrs on all other days		
Night-time	2300-0700 hrs of next day		55 dB(A) **

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

** = Area Sensitivity Rating (ASR) C is selected from the "Technical Memorandum on Noise from Construction Work Other Than Percussive Piling".

5.7 Event-Action Plans

Please refer to the Appendix E for details.

5.8 Results

Only Day-time noise monitoring were carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period. All noise levels are provided in Appendix C2. Graphical presentation of the monitoring results for the reporting month is shown in Appendix C3.

No Day-time noise monitoring results at all monitoring stations exceeded the Action Level since no documented complaints on noise issue were received in this reporting month. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring.

6.0 WASTEWATER MONITORING

Effluent Discharge License of this Project is valid from 06 December 2004 (Discharge Licence No.: 3246-Part A and Part B).

Water quality monitoring was carried out at Ma Liu Shui Pier 1 at 11 November 2005. One wastewater sample was collected from the discharge point during the monitoring. The result of suspended solids content of the wastewater sample was complied the discharge limit of the Discharge Licence. The test report was attached at Appendix I. The test report had been submitted to the EPD at 28 November 2005 (Ref No.: J0402/03.09/05/6230L).

Since the Discharge Licence required carrying out wastewater monitoring at effluent discharge point quarterly, no wastewater monitoring was carried out in this reporting month and the next wastewater monitoring should be at February 2006.

7.0 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of environmental monitoring

No exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month.

No day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month. No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during these periods.

No wastewater quality monitoring was carried out in this reporting month since the Discharge Licence required carrying out wastewater monitoring at effluent discharge point



quarterly and the current wastewater monitoring was carried out at Ma Liu Shui Pier 1 on 11 November 2005. The next wastewater monitoring should be at February 2006.

7.2 Summary of Environmental Complaints

No environmental complaints were received in this monitoring month.

7.3 Summary of Notification of Summons and Prosecution

There was no notification of summons respect to environmental issues registered in this month.

8.0 SITE INSPECTION

Weekly site inspections were carried out by the ET in this reporting month (01, 10, 21 and 30 December 2005). Monthly joint site inspection at 21 December 2005 was carried out by Engineer's Representative, IEC and LWKJV. The implementation status of the mitigation measures on site inspections in this reporting month is presented in Appendix H.

8.1 Summary of the site inspection findings and Action(s) taken by LWKJV and ET

Summaries of the site inspection findings in this reporting month are shown in Table 8.1.

Table 8.1 The summary of the site inspection findings and Action(s) taken by LWKJV and ET

Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
1	Air	Follow up action to the finding observed at the previous month, stockpiles at SA14 were found covered during weekly site inspections on 10/12/2005.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
2	Air	Follow up action to the finding observed at the previous month, the excavator emitted black smoke at Ma Liu Shui was found removed during the weekly site inspection on 01/12/05.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
3	Site Practice	Follow up action to the finding observed at the previous month, no rubbish was observed on the ground next to the rubbish skip at Road L4 during weekly site inspection on 01/12/2005.	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
4	Water	Follow up action to the finding observed at the previous month, mud / silt accumulated in the drainage channel at Ma Liu Shui was cleaned up during weekly site inspection (25/11/2005).	Since the finding had been improved, no further action was required.	Since the finding was improved, no further action was required.
5	Water	Wastewater produced from the piling works was found directly discharge to the U-channel at Ma Liu Shui during weekly site inspection (10/12/05).	LWKJV replied to divert wastewater to sedimentation tank before discharge.	During the subsequent weekly site inspection (17/12/05), no wastewater was found discharged directly to the U-channel. Hence, no further action was required.
6	Air	Construction site at Ma Liu Shui was dry and potential fugitive dust emission was observed during weekly site inspection (17/12/05).	LWKJV replied to water the dry area regularly, or if necessary.	During the subsequent weekly site inspection (21/12/05), no potential fugitive dust emission was observed. Hence, no further action was required.
7	Site Practice	Rubbish was observed at Ma Liu Shui site area (e.g. near new wheel-washing bay) during weekly site inspection (21/12/05).	LWKJV replied to arrange site workers to collect and dispose of the rubbish immediately.	During the subsequent weekly site inspection (30/12/05), no rubbish was found on the site area.

8.2 Status of Environmental Licensing and Permitting

All permits/licenses valid in this reporting month are summarized in Table 8.2.



Table 8.2 Summary of environmental licensing and permit status

Description	Permit No.	Valid Period		Section
		From	To	
Construction Noise Permit for the Construction Site of Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A adjacent to Ma Liu Shui Interchange, N.T. (CEDD Contract No. TP37/03)	GW-RN0517-05	07/11/05	05/05/06	Group A One Derrick Barge (CNP061) One Tug Boat (CNP221) Group B One Derrick Barge (CNP061) One Excavator, tracked (CNP081) Four Dump Truck, 5.5 tonne < gross vehicle weight ≤ 38 tonne
Construction Noise Permit for Marine Work at Reclamation area of Science Park Phase 2 & 3, Pak Shek Kok	GW-RN0248-05	14/06/05	13/12/05	Group A One Tug Boat (CNP221) Group B One Derrick Barge (CNP061)
Construction Noise Permit for the Construction Works of the Project at Seafront in Vicinity of Existing Ma Liu Shui Pier, N.T.	GW-RN0379-05	23/08/05	22/02/06	Group A One Poker, vibrator, hand-held (CNP170) One Concrete pump, lorry mounted (CNP047) One Concrete lorry mixer (CNP044) Group B One Dump Truck (CNP067) One Excavator, tracked (CNP081) Group C One Grout Pump One Grout Mixer
Construction Noise Permit for the Construction Works of the Project at Pak Shek Kok Development Package 2A, Tai Po	GW-RN0265-05	14/06/05	13/12/05	Group A One Poker, vibrator, hand-held (CNP170) One Concrete lorry mixer (CNP044) One Excavator, tracked (CNP081) Group B One Dump Truck (CNP067) One Excavator, tracked (CNP081) Group C One Asphalt Paver (CNP004) One Roller, Vibratory (CNP186) One Road Roller (CNP185)
Wastewater Discharge License	3246 – Part A	06/12/04	05/12/09	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and sedimentation tank to Coastal water or communal drain for the carriage of surface drainage water.
Wastewater Discharge License	3246 – Part B	06/12/04	05/12/09	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and on-site aerobic waste water treatment system to soak-away pit.

8.3 Recommendations on site inspection findings in Site Inspections of this month

Based on the site inspection findings, the recommendations are as below:

- All stockpiles should be covered with clean tarpaulin sheets, spraying with water or hydro-seeding to avoid wind and water erosion;
- The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading;
- Minimize of exposed soil areas to reduce the potential for increased siltation and contamination of run-off;
- Checking and maintaining all the site machines to prevent dust emission;
- Providing briefing to the concerned site staff on remedial actions, such as handling method of chemicals and chemical waste;
- Use and maintenance of silt curtain properly during marine works;
- Provide good site practice (e.g. selection of quieter plant and working methods and reduction in number of plant operating in critical areas close to NSRs) to limit noise emissions at source;
- Maintain good waste management at the site.



9.0 WASTE MANAGEMENT

9.1 Waste Management Audit

Waste management audit was carried out by the ET on a weekly basis. The implementation status of the mitigation measures on waste management in this reporting month is presented in Appendix H.

9.2 Records of Waste Quantities

All type of wastes arising from the construction work are classified into the following:

- General refuses;
- Chemical waste;
- Construction & demolition (C&D) material.

The quantities of waste for disposal in this month are summarized in Table 9.1.

Table 9.1 Summary of Quantities of Waste for Disposal in this reporting month

Type of Waste		Quantity	Disposal Location	Cumulative Quantity
Inert C&D Materials	Total Quantity Generated (m ³)	8040	Reused in the Contract	87635
	Broken Concrete (m ³)	40	N/A	705
	Reused in the Contract (m ³)	8000	N/A	87000
	Reused in other Projects (m ³)	0	N/A	0
	Disposal as Public Fill (m ³)	0	N/A	0
C&D Waste	Metals (1000kg)	0.000	N/A	37.385
	Paper/Cardboard Packaging (1000kg)	0.000	N/A	0.066
	Plastics (1000kg)	0.000	N/A	0.023
	Chemical Waste (1000kg)	0.000	N/A	1.000
	Other, e.g. General Refuse (1000kg)	2.000	SENT	76.290

10.0 IMPLEMENTATION STATUS

10.1 Implementation Status of Environmental Mitigation Measures

LWKJV has been implementing the required environmental mitigation measures according to the Mitigation Protection Measures stated in Implementation Schedule of the EM&A Manual. The implementation status of the environmental mitigation measures in this reporting month is presented in Appendix H.

Air Quality

The Contractor was reminded to water or cover all the stockpiles by using clean tarpaulin sheets. The Contractor was also reminded to cleanup the access road regularly to avoid dust emission and provide effective wheel washing facilities.

Noise

All mitigation measures stated in Appendix H were implemented properly in this reporting month.

Water Quality

The Contractor was reminded to provide more effort to implement mitigation measures, such as diverting site runoff to suitable treatment processes before discharge, sedimentation system and drainage facilities.

Waste Management

LWKJV has been implementing most mitigation measures on waste management.



10.2 Implementation Status of Event and Action Plan

There were no exceedances in air quality and noise monitoring parameters recorded in this monitoring month. No further mitigation measures were required.

10.3 Implementation Status of Environmental Complaint Handling

No complaints had been received during this monitoring month.

11.0 CONCLUSION

Impact monitoring of air quality and noise were carried out at designated locations in accordance with the EM&A Manual in this reporting month.

According to the summary of air and noise monitoring results, no exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month. Besides, No Day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during these periods.

No wastewater quality monitoring was carried out in this reporting month since the Discharge Licence required carrying out wastewater monitoring at effluent discharge point quarterly and the current wastewater monitoring was carried out at Ma Liu Shui Pier 1 on 11 November 2005. The next wastewater monitoring should be at February 2006.

According to the ET weekly site inspection and IEC monthly site audit carried out this month, it indicated that site practices of the LWKJV were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory.

12.0 FUTURE KEY ISSUES

12.1 Upcoming EM&A Schedule in coming two months

The Proposed EM&A program in coming two months are presented as following table:

Table 12.1 – Upcoming EM&A Schedule in coming two months

Type of Monitoring	January 2006	February 2006
Noise Monitoring (Day-time)	03, 10, 17, 24	07, 14, 21, 28
1-hour TSP	03, 05, 07, 10, 12, 14, 17, 19, 21, 24, 26, 27	02, 03, 04, 07, 09, 11, 14, 16, 18, 21, 23, 25, 28
24-hour TSP	04, 10, 16, 21, 27	02, 08, 14, 20, 25
Site Inspection	05, 12, 19, 26	02, 09, 16, 23

12.2 Upcoming construction works schedule in the coming month

The major construction works planned to be carried out in next two months and their possible impact is tabulated (Table 12.2) for reference.



Table 12.2 – Construction Plan in the coming month

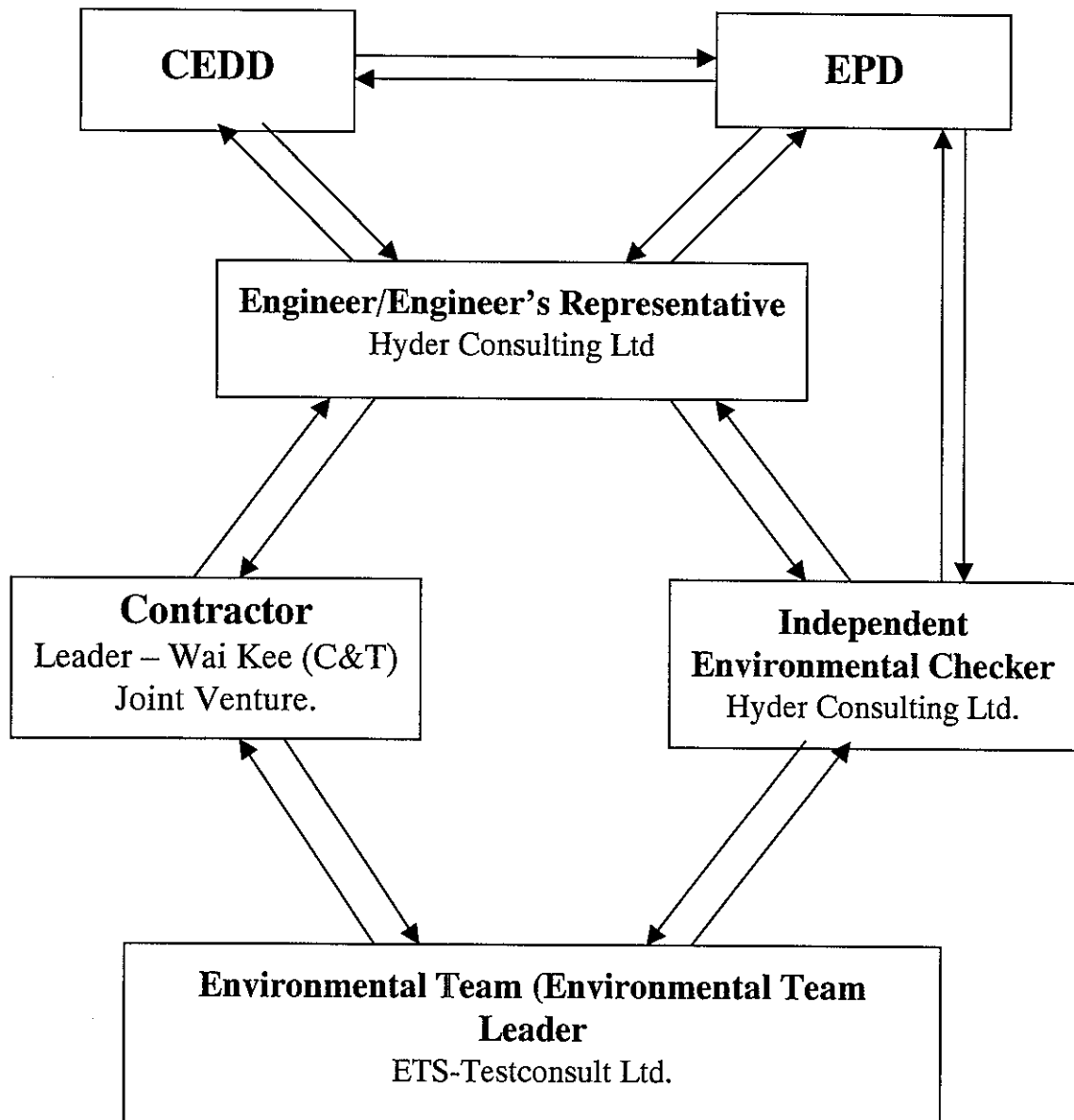
Month	Works Planned to be Carried Out
Between January and February 2006	<ul style="list-style-type: none">▪ Drainage Works (excavation, pipe laying and breaking) at Section 1 and 2 (Ma Liu Shui), 7 and 8 (Promenade) of the Works;▪ Piling works at Pier 2 of the proposed Ma Liu Shui Bridge (Alternative Design), and removal of preloading mound of the North Abutment Wall;▪ Installation of precast concrete planter and parapet wall units along the proposed Promenade;▪ Backfilling and construction of the outfall at the proposed Landscape Node P2;▪ Construction of concrete backing at the proposed PLS;▪ Installation of seawall block at the proposed Landscape Node P3;▪ Construction of in-situ Outfall 2 at the proposed Landscape Node P2;▪ Construction of parapet wall, kerb planter wall and feature wall at the Public Plaza at Section 7 of the Works;▪ Installation of watermain at Sections 5 & 6 of the Works;▪ Roadworks at Section 5 & 6 of the Works;▪ Drainage works at Section 1 & 2 (Ma Liu Shui Zone ZB) of the Works.



Appendix A

Organization Chart and Lines of Communication

Lines of Communication





Appendix B1

Calibration Certificates for Air Quality Monitoring Equipments



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

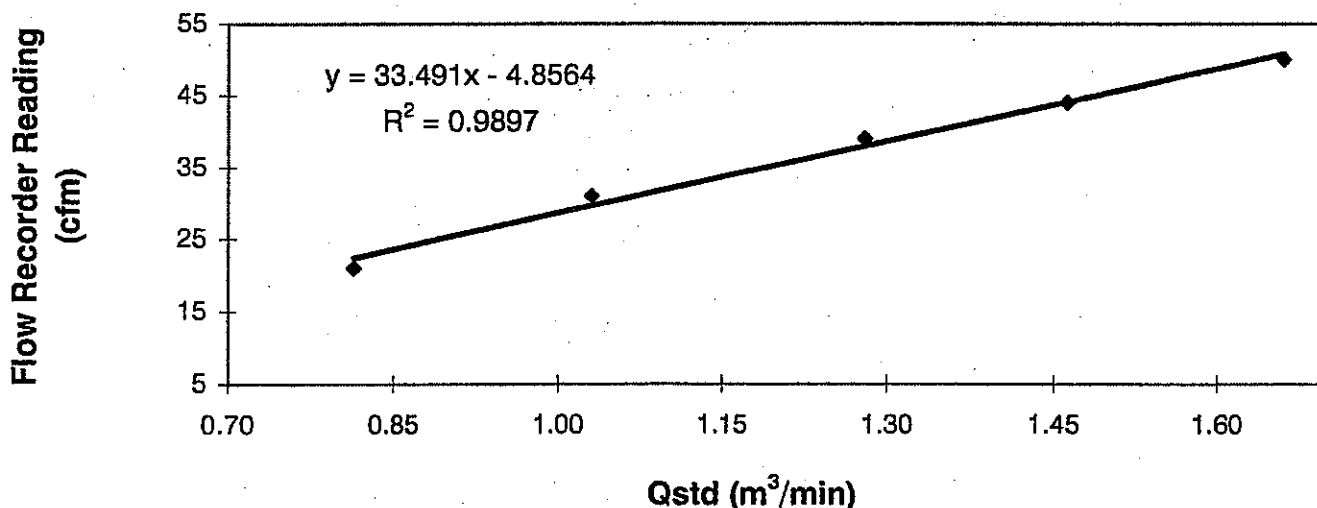
Calibration Report
of
High Volume Air Sampler

Manufacturer : Greasby GMW **Date of Calibration** : 14 November 2005
Serial No. : 1178 (ET / EA / 003 / 01) **Calibration Due Date** : 13 January 2006
Method : Based on Operations Manual for Graseby Model GS2310 series using calibration kit TE-5025A

Results :

Flow recorder reading (cfm)	50	44	39	31	21
Qstd (Actual flow rate, m ³ /min)	1.66	1.46	1.28	1.03	0.81
Pressure :	759.59 mm Hg		Temp. :	298 K	

Sampler 1178 Calibration Curve
Site: Pak Shek Kok (AM1) (24hr.)
Date of Calibration: 14 November 2005



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by : Ken Leung
Ken Leung
(Technician)

Approved by : Linda Law
Linda Law
(Environmental Officer)



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TEST REPORT

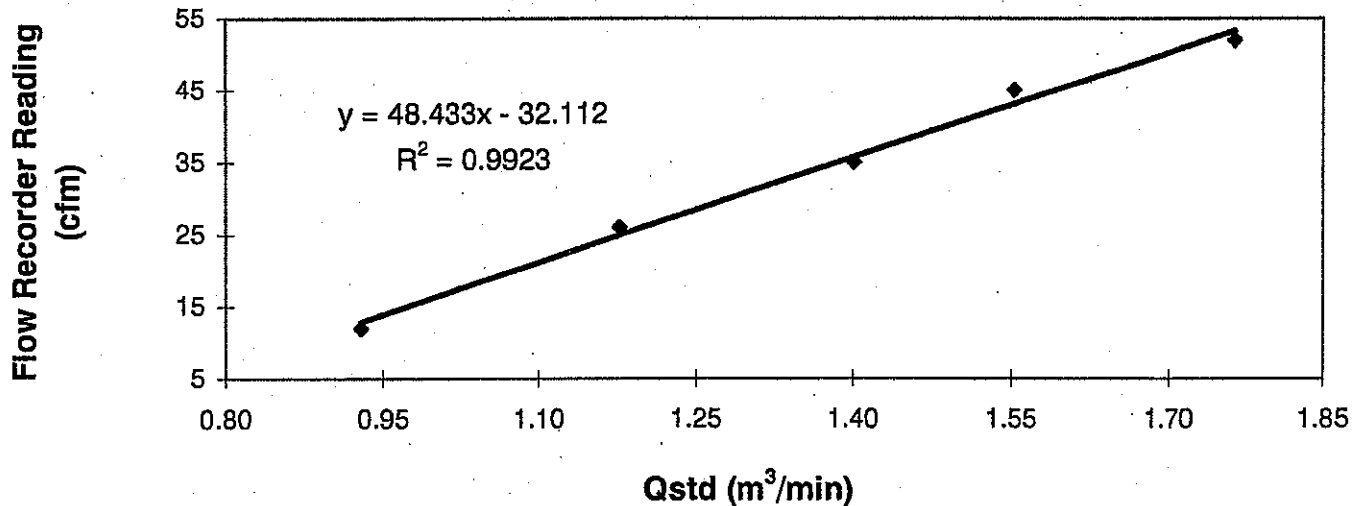
Calibration Report
of
High Volume Air Sampler

Manufacturer : Greasby GMW **Date of Calibration** : 14 November 2005
Serial No. : 7179 (ET / EA / 003 / 16) **Calibration Due Date** : 13 January 2006
Method : Based on Operations Manual for Graseby Model GS2310 series using calibration kit TE-5025A

Results

Flow recorder reading (cfm)	52	45	35	26	12
Qstd (Actual flow rate, m ³ /min)	1.76	1.55	1.40	1.18	0.93
Pressure :	759.59 mm Hg			Temp. :	298 K

Sampler 7179 Calibration Curve
Site: Pak Shek Kok (AM3A)
Date of Calibration: 14 November 2005



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by : Ken Leung
Ken Leung
(Technician)

Approved by : Linda Law
Linda Law
(Environmental Officer)



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TEST REPORT

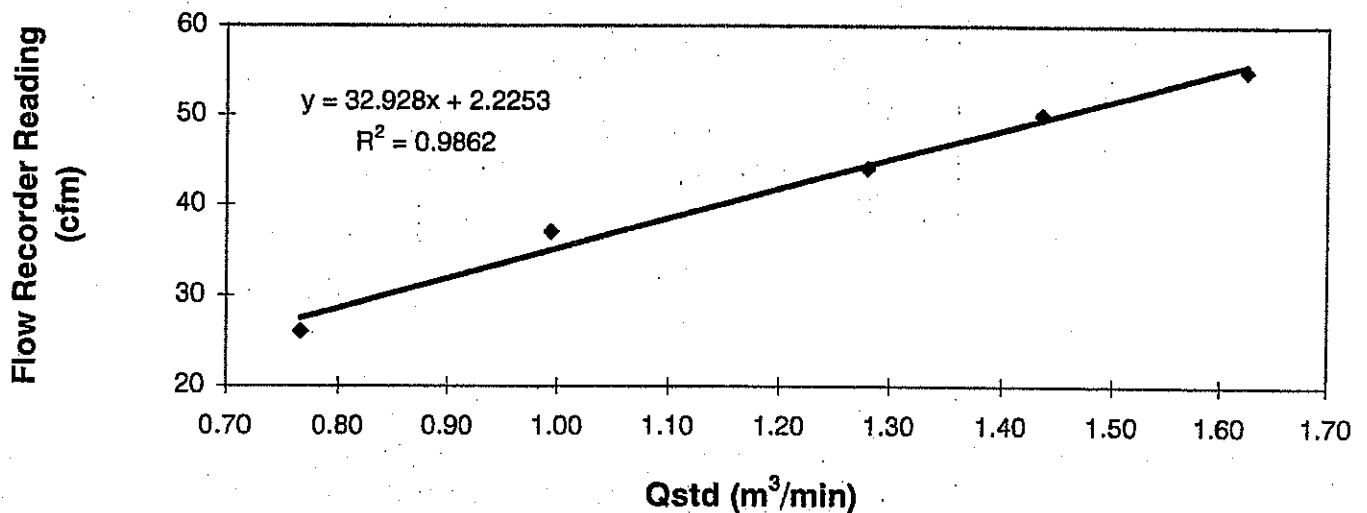
Calibration Report
of
High Volume Air Sampler

Manufacturer : Greasby GMW **Date of Calibration** : 14 November 2005
Serial No. : 1172 (ET / EA / 003 / 11) **Calibration Due Date** : 13 January 2006
Method : Based on Operations Manual for Graseby Model GS2310 series using calibration kit TE-5025A

Results :

Flow recorder reading (cfm)	55	50	44	37	26
Qstd (Actual flow rate, m ³ /min)	1.62	1.44	1.28	0.99	0.77
Pressure :	759.59 mm Hg			Temp. :	298 K

Sampler 1172 Calibration Curve
Site: Pak Shek Kok (AM5)
Date of Calibration: 14 November 2005



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by : Ken Leung
Ken Leung
(Technician)

Approved by : Linda Law
Linda Law
(Environmental Officer)



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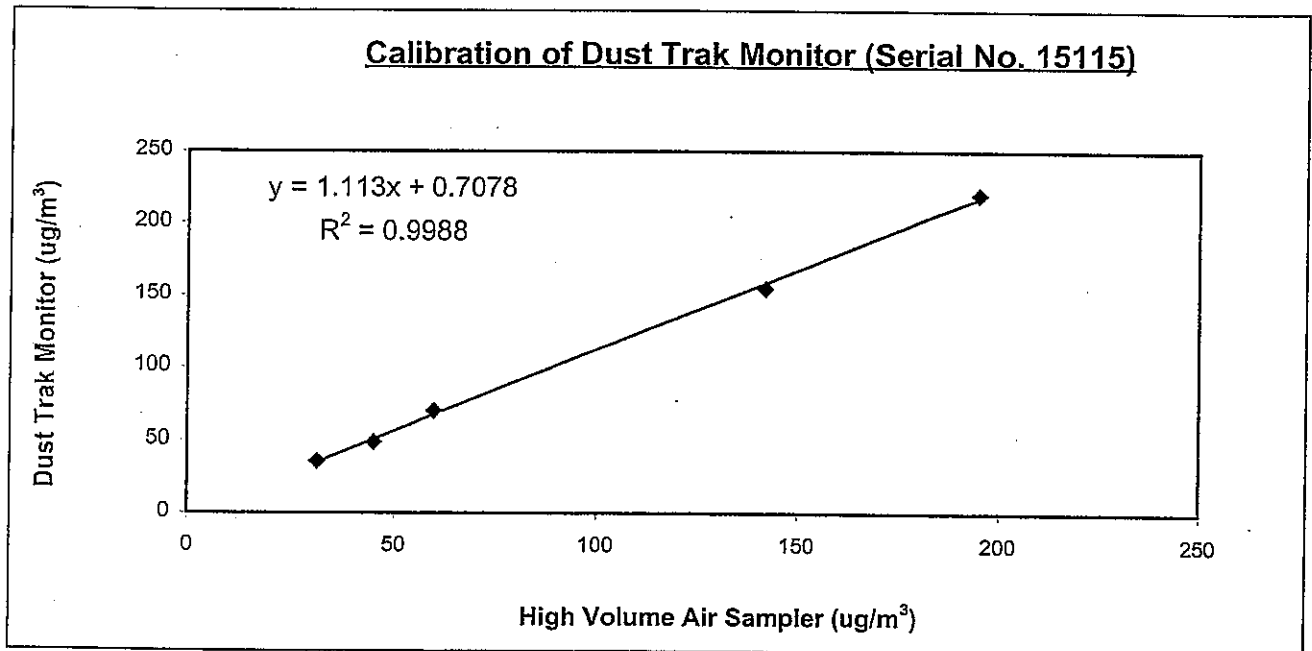
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 17 September 2005
Serial No. : 15115 (EA/001/02) Calibration Due Date : 16 March 2006
Method : Place two Dust Trak Monitor together at same environment condition for parallel measurement with five point calibration

Results :

Dust Trak Monitor ($\mu\text{g}/\text{m}^3$)	36	49	70	155	220
High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	31	45	60	142	195
High Volume Air Sampler Serial No.: 1178			Calibration Date: 12 / 11 / 2005		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by : K W Mak
K W Mak
(Technician)

Approved by : H. T. Chow
H. T. Chow
(Asst. Environmental Officer)



Appendix B2

Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1
Location : HKIB Staff Accommodation

Start Date	Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final		Initial	Final		
01/12/05	11:15	02/12/05	11:20	9361.24	9385.33	24.09	1.22	1.22	1.22	2.8925	3.0779	105	Sunny
07/12/05	09:10	08/12/05	08:47	9385.33	9408.94	23.61	1.13	1.13	1.13	2.9075	3.1105	127	Cloudy
13/12/05	08:30	14/12/05	08:25	9408.94	9432.85	23.91	1.31	1.31	1.31	2.8865	3.1599	145	Cloudy
19/12/05	15:16	20/12/05	15:15	9432.85	9456.83	23.98	1.07	1.07	1.07	2.8906	3.0425	99	Sunny
23/12/05	09:03	24/12/05	08:27	9456.83	9480.33	23.50	1.10	1.10	1.10	2.8984	3.0563	102	Sunny
29/12/05	09:32	30/12/05	09:22	9480.33	9504.17	23.84	1.28	1.28	1.28	2.8502	2.9308	44	Cloudy

Monitoring Station : AM3A
Location : Cheung Shue Tan (in front of Man Kee Store)

Start Date	Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final		Initial	Final		
01/12/05	08:45	02/12/05	09:07	14710.99	14735.35	24.36	1.45	1.45	1.45	2.8946	3.0793	92	Sunny
07/12/05	09:30	08/12/05	09:12	14735.35	14759.05	23.70	1.45	1.45	1.45	2.9065	3.1059	97	Cloudy
13/12/05	13:15	14/12/05	14:01	14759.05	14783.82	24.77	1.28	1.28	1.28	2.8991	3.1911	153	Cloudy
19/12/05	16:05	20/12/05	16:25	14783.82	14808.16	24.34	1.28	1.28	1.28	2.8845	3.1049	118	Sunny
23/12/05	09:30	24/12/05	08:58	14808.16	14831.63	23.47	1.49	1.49	1.49	2.8749	3.0593	88	Sunny
29/12/05	14:07	30/12/05	14:32	14831.63	14856.05	24.42	1.41	1.41	1.41	2.8388	2.9892	73	Cloudy

Monitoring Station : AM5
Location : Near Wen Chin Tung at the CUHK

Start Date	Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final		Initial	Final		
01/12/05	10:00	02/12/05	10:15	4744.33	4768.58	24.25	1.24	1.24	1.24	2.9090	3.0218	63	Sunny
07/12/05	09:50	08/12/05	09:33	4768.58	4792.29	23.71	1.03	1.03	1.03	2.9199	3.0633	98	Cloudy
13/12/05	14:30	14/12/05	14:35	4792.29	4816.38	24.09	1.09	1.09	1.09	2.8895	3.0843	124	Cloudy
19/12/05	15:38	20/12/05	16:01	4816.38	4840.76	24.38	1.12	1.12	1.12	2.9064	3.0339	78	Sunny
23/12/05	09:38	24/12/05	09:09	4840.76	4864.27	23.51	1.09	1.09	1.09	2.8808	3.0017	79	Sunny
29/12/05	17:55	30/12/05	18:05	4864.27	4888.45	24.18	1.21	1.21	1.21	2.8303	2.9069	44	Cloudy

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1 (HKIB Staff Accommodation)

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)				Weather
	Start	Finish	Minimum	Maximum	Average		
01/12/05	13:25	14:25	90	375	147	Sunny	
03/12/05	14:35	15:35	88	397	131	Cloudy	
06/12/05	08:30	09:30	89	370	165	Cloudy	
08/12/05	10:40	11:40	78	376	116	Sunny	
10/12/05	09:30	10:30	95	389	157	Cloudy	
13/12/05	08:30	09:30	98	378	154	Cloudy	
15/12/05	11:00	12:00	92	392	128	Cloudy	
17/12/05	09:46	10:46	99	346	131	Sunny	
20/12/05	08:05	09:05	53	571	125	Sunny	
22/12/05	10:15	11:15	89	317	117	Sunny	
24/12/05	08:30	09:30	97	385	163	Sunny	
29/12/05	08:30	09:30	100	352	163	Cloudy	
30/12/05	13:08	14:08	46	324	98	Rainy	
31/12/05	10:00	11:00	92	396	155	Cloudy	

Monitoring Station : AM3 – Cheung Shue Tan Village (near the outer building, a temple)

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)				Weather
	Start	Finish	Minimum	Maximum	Average		
01/12/05	10:03	11:03	87	334	97	Sunny	
03/12/05	17:06	18:06	70	296	87	Cloudy	
06/12/05	13:00	14:00	62	312	92	Cloudy	
08/12/05	09:20	10:20	69	312	87	Sunny	
10/12/05	15:45	16:45	64	320	104	Cloudy	
13/12/05	13:15	14:15	68	316	106	Cloudy	
15/12/05	13:00	14:00	63	310	91	Cloudy	
17/12/05	14:55	15:55	90	207	91	Sunny	
20/12/05	13:15	14:15	46	309	84	Sunny	
22/12/05	15:15	16:15	62	301	87	Sunny	
24/12/05	14:30	15:30	69	326	96	Sunny	
29/12/05	13:05	14:05	76	316	107	Cloudy	
30/12/05	15:38	16:38	35	296	72	Rainy	
31/12/05	14:00	15:00	62	337	92	Cloudy	

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM5 – Near Wen Chih Tang at the CUHK

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
01/12/05	08:49	09:49	81	351	106	Sunny
03/12/05	15:50	16:50	82	352	113	Cloudy
06/12/05	14:15	15:15	76	337	104	Cloudy
08/12/05	15:00	16:00	72	356	104	Sunny
10/12/05	10:50	11:50	79	348	120	Cloudy
13/12/05	14:40	15:40	82	355	150	Cloudy
15/12/05	16:15	17:15	77	349	105	Cloudy
17/12/05	11:00	12:00	81	330	110	Sunny
20/12/05	10:50	11:50	50	348	99	Sunny
22/12/05	09:00	10:00	78	310	95	Sunny
24/12/05	15:45	16:45	75	345	111	Sunny
29/12/05	16:43	17:43	82	348	130	Cloudy
30/12/05	14:25	15:25	42	303	79	Rainy
31/12/05	15:30	16:30	77	364	112	Cloudy

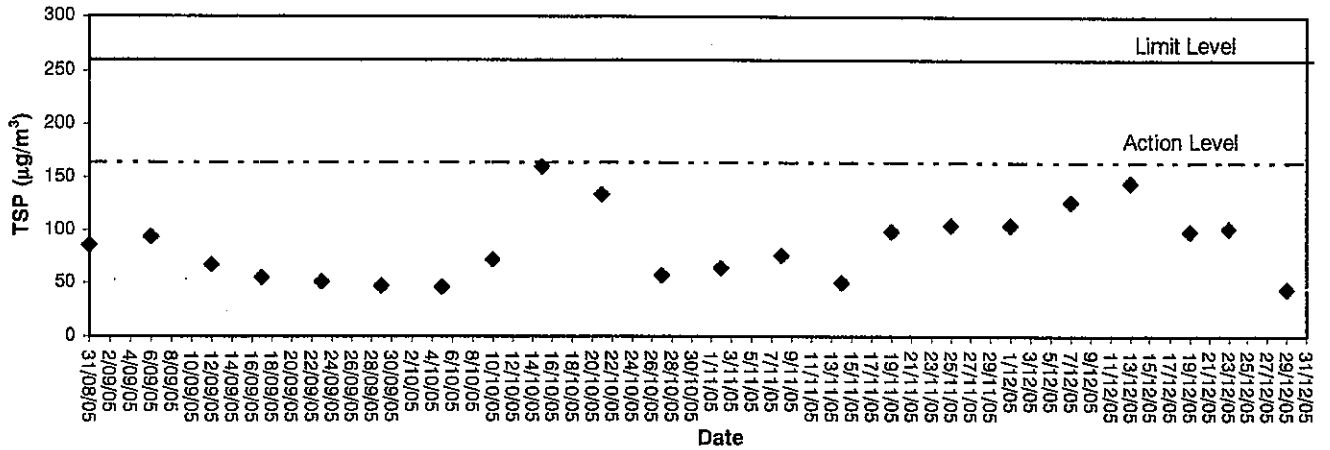


Appendix B3

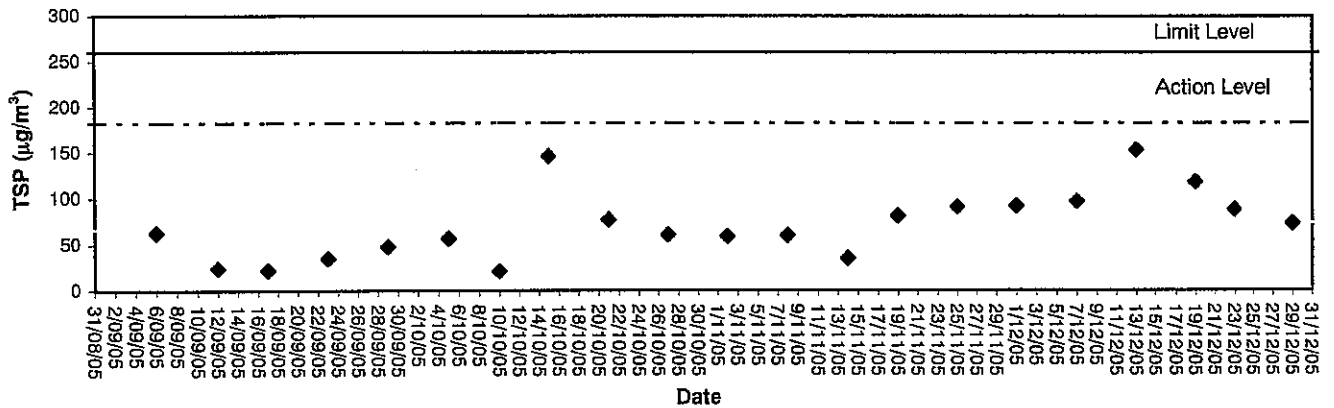
Graphical Plots of Air Quality Monitoring Data



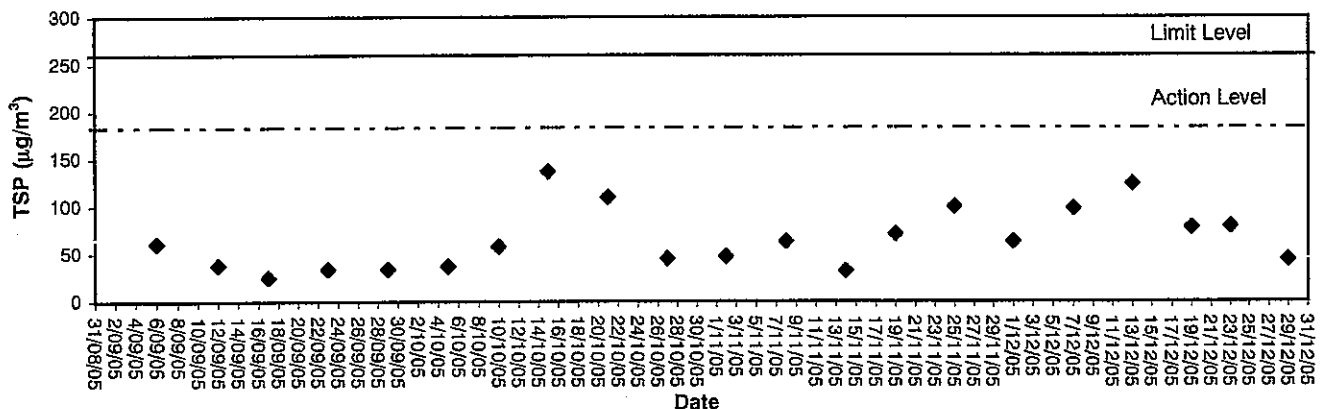
24-hour TSP level at AM1 (HKIB Staff Accommodation)



**24-hour TSP level at AM3A
(Cheung Shue Tan in front of Man Kee Store)**

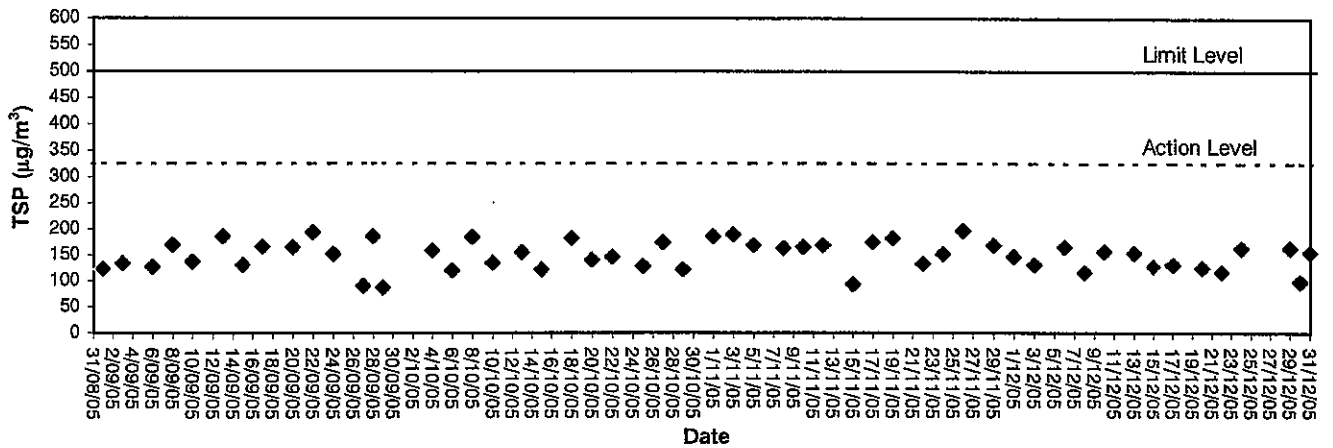


**24-hour TSP level at AM5
(Wen Chih Tang at the CUHK)**

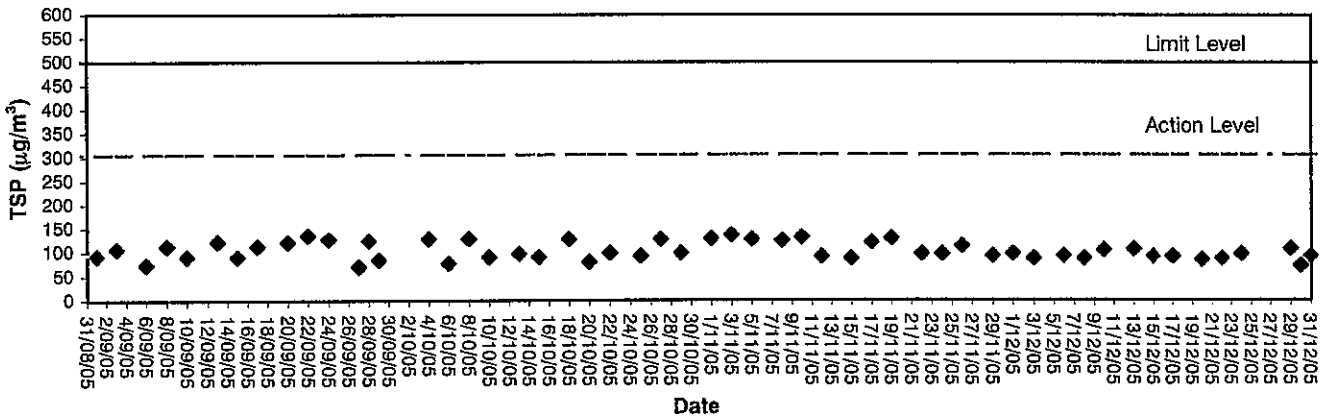




1-hour TSP level at AM1, HKIB Staff Accommodation



**1-hour TSP level at AM3, Cheung Shue Tan Village
(near the outer building, a temple)**





Appendix C1

Calibration Certificates for Noise Monitoring Equipments



Calibration Certificate

Certificate No. 51472

Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q50535

Date of receipt : 7-Apr-05

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31

Serial No. : 00531142

Test Conditions

Date of Test : 20-Apr-05

Supply Voltage : --

Ambient Temperature : $(22.5 \pm 2.5)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 20) \%$

Test Specifications

Calibration check according to customer's requirement.

Calibration procedure : Z01.

Test Results

All results were within the manufacturer's, IEC 651 Type 1, IEC 804 Type 1 specification.

The results are shown in the attached page(s).

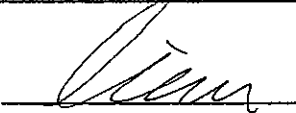
Test equipment used:


<u>Equipment No.</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	C051022	21-Mar-06	PRC-NIM
S024	S41431	22-May-05	PRC-NIM

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 

Approved by : 
Alan Chu - Manager

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 20-Apr-05



Calibration Certificate

Certificate No. 51472

Page 2 of 3 Pages

Results :

1. SPL Accuracy

UUT Setting			UUT Reading (dB)	Correction (dB)
Level Range (dB)	Weight	Response		
20 – 100	L _A	Fast	94.0	+ 0.1
		Slow		+ 0.1
	L _C	Fast		0.0
	L _p	Fast		0.0
30 – 120	L _A	Fast	94.0	+ 0.1
		Slow		+ 0.1
	L _C	Fast		+ 0.1
	L _p	Fast		+ 0.1
30 – 120	L _A	Fast	114.0	+ 0.1
		Slow		+ 0.1
	L _C	Fast		0.0
	L _p	Fast		0.0

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.2 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB



Calibration Certificate

Certificate No. 51472

Page 3 of 3 Pages

3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.6	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.2	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- 8.6 dB, ± 1 dB
500 Hz	- 3.2	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+ 1.3	+ 1.2 dB, ± 1 dB
5 kHz	+ 1.1	+ 1.0 dB, ± 1 dB
8 kHz	- 1.1	- 1.1 dB, + 1.5 dB \sim - 3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB \sim ∞

Uncertainty : ± 0.1 dB

4. Time Averaging

Applied Burst duty Factor	UUT Reading (dB)	Correction (dB)	IEC 804 Type 1 Spec.
continuous	40.0	--	--
1/10	39.9	+ 0.1	± 0.5 dB
1/10 ²	39.9	+ 0.1	± 1.0 dB
1/10 ³	39.9	+ 0.1	
1/10 ⁴	39.8	+ 0.2	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. True Value = UUT Reading + Correction.

3. The uncertainty claimed is for a confidence probability of not less than 95%.

4. Atmospheric Pressure : 1 000 hPa.

----- END -----



Calibration Certificate

Certificate No. 51473

Page 1 of 2 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q50535

Date of receipt : 7-Apr-05

Item Tested

Description : Sound Level Calibrator (Equip No.: ET/0527/004)

Manufacturer : Rion

Model : NC-73

Serial No. : 10196943

Test Conditions

Date of Test : 20-Apr-05

Supply Voltage : --

Ambient Temperature : (22.5 ± 2.5)°C

Relative Humidity : (50 ± 20) %

Test Specifications

Calibration check according to customer's requirement.

Calibration procedure : F21, Z02.

Test Results

All results were within the manufacturer's specification.

The results are shown in the attached page(s).


Test equipment used:


<u>Equipment No.</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	43147	7-Jul-05	PRC-NIM
S024	S41431	22-May-05	PRC-NIM
S041	43734	12-Aug-05	PRC-NIM

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 

Approved by : 
Alan Chu - Manager

Date: 20-Apr-05



Calibration Certificate

Certificate No. 51473

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.1 dB	± 1 dB

Uncertainty : ± 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.991 kHz	± 2 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.3 %

Mfr's Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 000 hPa

4. The above measured values are the mean of 3 measurement.

----- END -----



Appendix C2

Noise Monitoring Results

Day-time Noise Monitoring

Monitoring Location: NM1 (HKIB Staff Accommodation)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
06/12/05	08:32	58.5	60.7	57.0	0.8	Cloudy
13/12/05	08:34	55.6	60.9	56.1	1.0	Cloudy
20/12/05	08:12	62.7	68.1	59.7	1.3	Sunny
29/12/05	08:33	60.9	62.5	59.1	1.0	Fine

Monitoring Location: NM2 (CUHK Residence No.10)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
06/12/05	09:12	56.7	58.2	54.3	0.7	Cloudy
13/12/05	14:05	56.6	60.0	53.9	0.8	Cloudy
20/12/05	13:22	61.3	66.7	58.1	0.6	Sunny
29/12/05	16:30	59.3	61.2	58.2	1.0	Fine

Mon Monitoring Location: NM3 (Cheung Shue Tan Village)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
06/12/05	13:02	53.1	55.3	49.7	1.0	Cloudy
13/12/05	13:18	53.6	56.6	51.4	0.7	Cloudy
20/12/05	10:55	53.5	57.2	50.5	0.7	Sunny
29/12/05	13:02	61.1	62.5	59.7	1.2	Fine

Monitoring Location: NM8 (Near Wen Chih Tang at the CUHK)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
06/12/05	14:17	55.1	57.9	51.9	1.2	Cloudy
13/12/05	14:50	55.3	58.0	52.2	0.9	Cloudy
20/12/05	10:55	58.8	62.0	56.2	1.6	Sunny
29/12/05	09:55	59.9	61.0	58.8	0.8	Fine



Appendix C3

Graphical Plots of Noise Monitoring Data



Appendix D

Weather Condition



Weather Condition

Date	Rainfall (mm)	Max. Temp (°C)	Min. Temp. (°C)	Relative Humidity (%)	Wind Direction	Wind Speed (m/s)
01/12/05	-	22.7	19.6	79	E	<5
02/12/05	-	24.0	20.0	81	NE	<5
03/12/05	-	24.0	20.9	76	NE	<5
04/12/05	-	22.3	17.2	61	N	<5
05/12/05	-	17.6	12.8	56	N	<5
06/12/05	Trace	13.6	11.1	54	N	<5
07/12/05	-	16.5	11.7	55	N	<5
08/12/05	-	19.6	15.5	66	NE	<5
09/12/05	-	21.3	17.2	78	NE	<5
10/12/05	-	22.5	19.0	81	NE	<5
11/12/05	-	21.9	17.2	70	N	<5
12/12/05	-	17.7	14.7	63	N	<5
13/12/05	Trace	17.4	13.5	63	N	<5
14/12/05	-	16.9	13.8	52	N	<5
15/12/05	-	17.0	12.0	39	N	<5
16/12/05	-	17.5	12.3	48	N	<5
17/12/05	-	18.3	13.4	42	N	<5
18/12/05	-	15.6	11.2	48	N	<5
19/12/05	-	16.7	11.4	65	NE	<5
20/12/05	-	19.1	13.9	68	N	<5
21/12/05	-	16.9	12.5	37	N	<5
22/12/05	-	14.8	10.4	32	N	<5
23/12/05	-	17.0	11.7	58	NE	<5
24/12/05	-	19.8	15.2	72	NE	<5
25/12/05	-	20.8	16.6	62	NE	<5
26/12/05	-	21.1	17.7	63	NE	<5
27/12/05	Trace	19.5	16.7	75	NE	<5
28/12/05	1.6	17.5	16.0	86	NE	<5
29/12/05	0.1	21.5	16.0	83	NE	<5
30/12/05	7.8	19.5	15.9	93	NE	<5
31/12/05	Trace	22.9	18.0	85	NE	<5

Remark: Data of wind speed and wind direction were extracted from Hong Kong Observatory (Shatin Station).



Appendix E

Event-Action Plans



Event / Action Plan for Air Quality

EVENT	ACTION			CNTRACTOR
	ET Leader	IC(E)	ER	
<p>Action Level</p> <p>1. Exceedance of one sample</p> <p>2. Exceedance for two more consecutive samples</p>	<p>1. Identify source</p> <p>2. Inform IC(E) and ER</p> <p>3. Repeat measurement to confirm finding</p> <p>4. Increase monitoring frequency to daily</p> <p>1. Identify source</p> <p>2. Inform IC(E) and ER</p> <p>3. Repeat measurement to confirm findings</p> <p>4. Increase monitoring frequency to daily</p> <p>5. Discuss with IC(E) and Contractor on remedial actions required</p> <p>6. If exceedance continuous, arrange meeting with IC(E) and ER</p> <p>7. If exceedance stops, cease additional monitoring</p>	<p>1. Check monitoring data submitted by ET</p> <p>2. Check Contractor's working method.</p> <p>1. Checking monitoring data submitted by ET</p> <p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise the ER on the effectiveness of the proposed remedial measures</p> <p>5. Supervisor implementation of remedial measures</p>	<p>1. Notify Contractor</p> <p>1. Confirm receipt of notification of failure in writing</p> <p>2. Notify Contractor</p> <p>3. Ensure remedial measures properly implemented</p>	<p>1. Rectify any unacceptable practice</p> <p>2. Amend working methods if possible</p> <p>1. Submit proposals for remedial action to IC(E) within 3 working days of notification</p> <p>2. Implement the agreed proposals</p> <p>3. Amend proposal if possible</p>
<p>Limit Level</p> <p>1. Exceedance of one sample</p>	<p>1. Identify source</p> <p>2. Inform ER and EPD</p> <p>3. Repeat measurement to confirm finding</p> <p>4. Increase monitoring frequency to daily</p> <p>5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results</p>	<p>1. Check monitoring data submitted by ET</p> <p>2. Check Contractor's working method.</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise the ER on the effectiveness of the proposal remedial measures</p> <p>5. Supervisor implementation of remedial measures</p>	<p>1. Confirm receipt of notification of failure in writing</p> <p>2. Notify Contractor</p> <p>3. Ensure remedial measures properly implemented</p>	<p>1. Take immediate action to avoid further exceedance</p> <p>2. Submit proposal for remedial actions to IC(E) within 3 working days of notification</p> <p>3. Implement the agreed proposals</p> <p>4. Amend proposal if appropriate</p>
<p>2. Exceedance for two or more consecutive samples</p>	<p>1. Notify IC(E), ER, Contractor and EPD</p> <p>2. Identify source</p> <p>3. Repeat measurement to confirm findings</p> <p>4. Increase monitoring frequency to daily</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</p> <p>6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER to discuss the remedial action to taken</p> <p>8. If exceedance stops, cease additional monitoring</p>	<p>1. Discuss amongst ER, ET, and Contractor on potential remedial actions</p> <p>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</p> <p>3. Supervise the implementation of remedial measures</p>	<p>1. Confirm receipt of notification of failure in writing</p> <p>2. Notify Contractor</p> <p>3. In consultation with the IC(E), agreed with the Contractor on the remedial measures to be implemented</p> <p>4. Ensure remedial measures properly implemented</p> <p>5. If exceedance continues, consider what portion of this work is responsible and instruct the Contract to stop that portion of work until the exceedance is abated.</p>	<p>1. Take immediate action to avoid further exceedance</p> <p>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification</p> <p>3. Implement the agreed proposals</p> <p>4. Resubmit proposals if possible still not under control</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>



Event / Action Plan for Construction Noise

EVENT	ACTION				CNTRACTOR
	ET Leader	IC(E)	ER		
Action Level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor 2. Carry out investigation 3. Report the results of investigation to the IC(E) 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 analyzed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IC(E) 2. Implement noise mitigation proposals 	
Limit Level	<ol style="list-style-type: none"> 1. Notify IC(E), ER, and Contractor 2. Identify source 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 IC(E), ER and EPD the causes & action taken for the exceedances 7. Assess effectiveness of Contractor's remedial action and keep IC(E), EPD and ER informed to the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures 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 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IC(E) within 3 working 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 	



Appendix F

Construction Programme

ID	Description	Orig. Dur.	Start	Finish	Percent Complete	Start	Finish	Lat	Long
SUA0000	Particulars of Concrete Design Mix	16	10JUN04 A	24JUN04 A	100	10JUN04 A	24JUN04 A	10JUN04 A	24JUN04 A
SUA0000	Engineer Approval of Concrete Design Mix	23	10JUN04 A	06NOV04 A	100	25JUN04 A	06NOV04 A	25JUN04 A	06NOV04 A
SUA0000	Particulars of Precast Concrete Pipe	12	10JUN04 A	24JUN04 A	100	10JUN04 A	24JUN04 A	10JUN04 A	24JUN04 A
SUA0000	Engineer Approval of Precast Concrete Pipe	12	10JUN04 A	25JUN04 A	100	25JUN04 A	25JUN04 A	25JUN04 A	25JUN04 A
SUA0000	Glazed Skylight Roof Cover System Details	50	06SEP04 A	08NOV04 A	100	06SEP04 A	08NOV04 A	06SEP04 A	08NOV04 A
SUA0000	Engineer Approval of Roof Cover System	72	56d	06OCT05	90	08NOV04 A	12DEC05	08NOV04 A	12DEC05
SUA0000	Sample Panels	50	06SEP04 A	08NOV04 A	100	06SEP04 A	08NOV04 A	06SEP04 A	08NOV04 A
SUA0000	Engineer Approval of Sample Panels	72	56d	06OCT05	90	08NOV04 A	12DEC05	08NOV04 A	12DEC05
ehod Statement Submissions									
SUME0100	Treatment Work Before Discharge of Effluent	24	10JUN04 A	24JUN04 A	100	10JUN04 A	24JUN04 A	10JUN04 A	24JUN04 A
SUME0200	Engineer Approval of Treatment Work	18	25JUN04 A	27NOV04 A	100	25JUN04 A	27NOV04 A	25JUN04 A	27NOV04 A
SUME0300	Drainage Works	18	17JUL04 A	06AUG04 A	100	17JUL04 A	06AUG04 A	17JUL04 A	06AUG04 A
SUME0400	Engineer Approval of Drainage Works	12	07AUG04 A	31AUG04 A	100	07AUG04 A	31AUG04 A	07AUG04 A	31AUG04 A
SUME0500	Tree Transplant	24	02JUL04 A	30JUL04 A	100	02JUL04 A	30JUL04 A	02JUL04 A	30JUL04 A
SUME0600	Engineer Approval of Tree Transplant	18	31JUL04 A	18AUG04 A	100	31JUL04 A	18AUG04 A	31JUL04 A	18AUG04 A
SUME0700	Pre-drilling	18	10JUL04 A	30JUL04 A	100	10JUL04 A	30JUL04 A	10JUL04 A	30JUL04 A
SUME0800	Engineer Approval of Pre-drilling	12	31JUL04 A	25AUG04 A	100	31JUL04 A	25AUG04 A	31JUL04 A	25AUG04 A
SUME0900	MLS Bridge Piling Works	18	18AUG04 A	20SEP04 A	100	18AUG04 A	20SEP04 A	18AUG04 A	20SEP04 A
SUME1000	Engineer Approval of MLS Bridge Piling Works	12	21SEP04 A	28SEP04 A	100	21SEP04 A	28SEP04 A	21SEP04 A	28SEP04 A
SUME1100	MLS Bridge Construction	48	19NOV04 A	25NOV04 A	100	19NOV04 A	25NOV04 A	19NOV04 A	25NOV04 A
SUME1200	Engineer Approval of MLS Bridge Construction	12	28NOV04 A	04AUG05 A	100	28NOV04 A	04AUG05 A	28NOV04 A	04AUG05 A
SUME1300	Construction of Public Toilet No.2	18	02JUL05 A	07JUL05 A	100	02JUL05 A	07JUL05 A	02JUL05 A	07JUL05 A
SUME1400	Engineer Approval of Public Toilet No.2	12	30d	28SEP05	90	08JUL05 A	11NOV05	08JUL05 A	11NOV05
SUME1500	Construction of Ma Liu Shui Subway	48	06JUL05 A	30JUN05 A	100	06JUL05 A	30JUN05 A	06JUL05 A	30JUN05 A
SUME1600	Engineer Approval of Ma Liu Shui Subway	12	06JUL05 A	28SEP05 A	100	06JUL05 A	28SEP05 A	06JUL05 A	28SEP05 A
SUME1700	Retaining Wall No. 1	24	02AUG05 A	01AUG05 A	100	02AUG05 A	01AUG05 A	02AUG05 A	01AUG05 A
SUME1800	Engineer Approval for Retaining Wall No. 1	12	8d	28SEP05	90	02AUG05 A	11JAN06	02AUG05 A	11JAN06
SUME1900	Construction of Public Landing Step	60	10JUN04 A	12JUL04 A	100	10JUN04 A	12JUL04 A	10JUN04 A	12JUL04 A
SUME2000	Engineer Approval of Public Landing Step	12	13JUL04 A	30JUL04 A	100	13JUL04 A	30JUL04 A	13JUL04 A	30JUL04 A
SUME2100	Construction of Landscape Node P1, P2 & P3	60	05AUG04 A	19AUG04 A	100	05AUG04 A	19AUG04 A	05AUG04 A	19AUG04 A
SUME2200	Engineer Approval of Construction for P1-3	12	20AUG04 A	24AUG04 A	100	20AUG04 A	24AUG04 A	20AUG04 A	24AUG04 A
Alternative Design Submissions									
SUA0000	Submit & Approve Preliminary Design	36	16AUG04 A	28SEP04 A	100	16AUG04 A	28SEP04 A	16AUG04 A	28SEP04 A
SUA0000	Submit Preliminary Design to ACABAS	3	30SEP04 A	04OCT04 A	100	30SEP04 A	04OCT04 A	30SEP04 A	04OCT04 A
SUA0000	ACABAS Approval	1	19OCT04 A	19OCT04 A	100	19OCT04 A	19OCT04 A	19OCT04 A	19OCT04 A
SUA0000	Detail Design	50	20OCT04 A	20JAN05 A	100	20OCT04 A	20JAN05 A	20OCT04 A	20JAN05 A
SUA0000	Check by ICE	29	22OCT04 A	28JUN05 A	100	22OCT04 A	28JUN05 A	22OCT04 A	28JUN05 A
SUA0000	Submit Detail Design to the Engineer	0	100	23DEC04 A	100	23DEC04 A	23DEC04 A	23DEC04 A	23DEC04 A
SUA0000	Engineer Approval of Details Design	29	23DEC04 A	28JUL05 A	100	23DEC04 A	28JUL05 A	23DEC04 A	28JUL05 A
SUA0000	Comment / Agreement from HyD Structure	23	31DEC04 A	18JUL05 A	100	31DEC04 A	18JUL05 A	31DEC04 A	18JUL05 A
SUA0000	Comment / Agreement from HyD Maintenance	11	31DEC04 A	25JAN05 A	100	31DEC04 A	25JAN05 A	31DEC04 A	25JAN05 A
SUA0000	Comment / Agreement from GEO	17	31DEC04 A	18JUL05 A	100	31DEC04 A	18JUL05 A	31DEC04 A	18JUL05 A
SUA0000	Comment / Agreement from DLO, DSD, TD	11	31DEC04 A	31DEC04 A	100	31DEC04 A	31DEC04 A	31DEC04 A	31DEC04 A
SUA0000	Engineer Approval of A.D. Founding Level	12	21APR05 A	28APR05 A	100	21APR05 A	28APR05 A	21APR05 A	28APR05 A

Legend
 Entry bar
 Progress bar
 Critical bar
 Summary bar
 Start milestone point
 Finish milestone point

Leader - Wal Kee (G&T) Joint Venture
TP37/03 - Revised Works Programme - RP04

WALTER
LEADER

Section	Description	Start	Finish	Early Start	Early Finish	Percent Complete	Unit	Milestones
MSS70100	Complete Connection for ArchSD's Works	20JAN08	31JUL05*	20JAN08	28DEC04 A	0	0	20JAN08, 28DEC04 A, 02NOV05*
MSS70200	Complete Toilet & Pavilion by ASD's Contractor	28DEC04 A	02NOV05	28DEC04 A	02NOV05	100	0	28DEC04 A, 02NOV05
MSS70300	Complete ASD's Works	02NOV05	02NOV05	02NOV05	02NOV05	0	0	02NOV05

Section	Description	Start	Finish	Early Start	Early Finish	Percent Complete	Unit	Milestones
MSS90100	Complete Connection of Utilities	11MAY08	20APR09*	11MAY08	20APR09*	0	-210	11MAY08, 20APR09*
MSS90200	Complete ASD's Works	22JUL05	22JUL05	22JUL05	22JUL05	0	-880	22JUL05
MSS90300	Complete ASD's Works	27SEP06	27SEP06	27SEP06	27SEP06	0	-870	27SEP06

Section	Description	Start	Finish	Early Start	Early Finish	Percent Complete	Unit	Milestones
VO0010	Issue VO/047A (Section 5)	22MAR05 A	22MAR05 A	22MAR05 A	22MAR05 A	100	0	22MAR05 A
VO0020	Issue VO/051 (Section 5)	12APR05 A	12APR05 A	12APR05 A	12APR05 A	100	0	12APR05 A
VO0030	Issue VO/056 (Section 7)	03JUN05 A	03JUN05 A	03JUN05 A	03JUN05 A	100	0	03JUN05 A
VO0040	Issue VO/055A (Section 7 & 11)	07JUN05 A	07JUN05 A	07JUN05 A	07JUN05 A	100	0	07JUN05 A
VO0050	Issue VO/005 (Section 8 & 12)	07JUN05 A	07JUN05 A	07JUN05 A	07JUN05 A	100	0	07JUN05 A
VO0060	Issue VO/073 (Section 7)	23JUN05 A	23JUN05 A	23JUN05 A	23JUN05 A	100	0	23JUN05 A
VO0070	Issue VO/057 (Section 7 & 8)	27JUN05 A	27JUN05 A	27JUN05 A	27JUN05 A	100	0	27JUN05 A
VO0080	Issue VO/053B (Section 2)	27JUN05 A	27JUN05 A	27JUN05 A	27JUN05 A	100	0	27JUN05 A
VO0090	Issue VO/070 (Section 7)	06JUL05 A	06JUL05 A	06JUL05 A	06JUL05 A	100	0	06JUL05 A
VO0100	Issue VO/030E (Section 7)	11JUL05 A	11JUL05 A	11JUL05 A	11JUL05 A	100	0	11JUL05 A
VO0110	Issue VO/058A (Section 7)	21JUL05 A	21JUL05 A	21JUL05 A	21JUL05 A	100	0	21JUL05 A
VO0120	Issue VO/068A (Section 7)	28JUL05 A	28JUL05 A	28JUL05 A	28JUL05 A	100	0	28JUL05 A
VO0130	Issue VO/068 (Section 7 & 5)	28JUL05 A	28JUL05 A	28JUL05 A	28JUL05 A	100	0	28JUL05 A
VO0140	Issue VO/069 (Section 7)	29AUG05 A	29AUG05 A	29AUG05 A	29AUG05 A	100	0	29AUG05 A
VO0150	Issue VO/064 (Section 5)	30AUG05 A	30AUG05 A	30AUG05 A	30AUG05 A	100	0	30AUG05 A
VO0160	Issue VO/063 - Supplement Ref. 2508 (Section 7)	05SEP05 A	05SEP05 A	05SEP05 A	05SEP05 A	100	0	05SEP05 A
VO0170	Issue VO/068 (Section 8)	13SEP05 A	13SEP05 A	13SEP05 A	13SEP05 A	100	0	13SEP05 A

Section	Description	Start	Finish	Early Start	Early Finish	Percent Complete	Unit	Milestones
A1AMEA0100	Remove Ext. Surcharge Mound	17NOV05	10DEC05	17NOV05	10DEC05	22	340	17NOV05, 10DEC05
A1AMDW0100	Decide Exact Location of Manholes & Catchpits	30SEP05	30SEP05	30SEP05	30SEP05	1	580	30SEP05, 09DEC05
A1AMDW0200	S868 - Existing Box Culvert	12OCT05	30NOV05	12OCT05	10DEC05	43	880	12OCT05, 10DEC05, 10FEB06
A1AMDW0300	S879 - Existing Box Culvert	01DEC05	21JAN06	01DEC05	11FEB06	43	580	01DEC05, 01APR06, 24MAR06
A1AMDW0400	S870 - Existing Box Culvert	28DEC05	13FEB06	28DEC05	09FEB06	38	340	28DEC05, 09FEB06, 24MAR06
A1AMDW0500	S878 - Existing Box Culvert	18NOV05	20DEC05	18NOV05	08FEB06	33	340	18NOV05, 08FEB06, 24MAR06
A1AMDW0600	300UC at Planting Area (South Section)	19MAR06	22APR06	19MAR06	16JUL06	30	720	19MAR06, 16JUL06, 18JUL06
A1AMDW0700	300UC at Planting Area (North Section)	03MAR06	28APR06	03MAR06	21JUN06	24	670	03MAR06, 21JUN06, 18JUL06
A1AMDW0800	375UC at Parking Area (South Section)	02FEB06	29APR06	02FEB06	29APR06	27	660	02FEB06, 29APR06, 01JUN06
A1AMDW0900	375UC at Landing Steps Area	02JAN06	17MAR06	02JAN06	08APR06	45	820	02JAN06, 17MAR06, 08APR06, 01JUN06
A1AMDW1000	375UC at Parking Area (North Section)	07MAR06	03APR06	07MAR06	17APR06	24	340	07MAR06, 03APR06, 15MAY06
A1AMUT0100	Watermain - WP9-4 to M9 (South Section)	08MAR06	05APR06	08MAR06	03JUL06	15	870	08MAR06, 03JUL06, 18JUL06
A1AMUT0200	Watermain - WP7-3 to M7 (North Section)	03MAR06	16APR06	03MAR06	03JUL06	15	760	03MAR06, 16APR06, 03JUL06, 18JUL06
A1AMUT0300	Install Public Lighting Post	18MAR06	27MAR06	18MAR06	11JUL06	6	840	18MAR06, 27MAR06, 11JUL06, 18JUL06

Public Lighting District North

Start date	10JUN04	Early bar
Start date	20OCT07	Program bar
Start date	28SEP05	Critical bar
Start date	11OCT05	Summary bar
Ag number	5A	Start milestone point
		Finish milestone point

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ID	Activity	Start	Finish	Duration	Priority	Dependencies
AZTTMS010A	TTA No. 01 - Sul Cheung St. (S/B Slow Lane)	13FEB06	07MAR06	19d	1	
AZTTMS020A	TTA No. 02 - Sul Cheung St. (S/B Fast Lane)	24APR06	17MAY06	19d	1	
AZTTMS030A	TTA No. 03 - Extending Ma Lu Shui Bridge	27MAY06	22JUL06	48d	1	
AZTTMS040A	TTA No. 04 - Cycle Track	28MAY06	05JUN06	5d	1	
AZTTMS050A	TTA No. 05 - Sul Cheung St. Roundabout	27MAY06	28SEP06	101d	1	
AZTTMS060A	TTA No. 06 - Sul Cheung St. Roundabout	22JUN06	20OCT06	101d	1	
AZTTMS070A	TTA No. 07 - Sul Cheung St. Roundabout	13JUL06	10NOV06	101d	1	
AZTTMS080A	TTA No. 08 - Sul Cheung St. & EML SB	21AUG06	28AUG06	5d	1	
AZTTMS090A	TTA No. 09 - Road D1 & Sul Cheung St. R/A	02DEC06	04DEC06	1d	1	
AZTTMS100A	Implement Permanent Traffic Scheme	28DEC06	28DEC06	1d	1	

Activity	Start	Finish	Duration	Priority	Dependencies
Utility Diversion at Sul Cheung Street					
Trial Pits	18AUG04	08SEP04	18d	1	
Liason with CLP & WSD for Diversion Works	23AUG04	17SEP04	17d	1	
Submit TTA for Approval	10SEP04	23SEP04	10d	1	
Implement TTA	03NOV04	03NOV04	1d	1	
CLP 11kV Cables Diversion	16JAN05	16JAN05	1d	1	
CLP 132kV Cable Ducts Diversion	26DEC04	06JAN05	11d	1	
Watermain Diversion & Advance Notice to WSD	09NOV04	11JAN05	30d	1	
Watermain Connection by WSD	22JAN05	22JAN05	1d	1	
Division of Ext. Drainage at VA (VO033B)	08DEC05	08JAN06	24d	1	

Activity	Start	Finish	Duration	Priority	Dependencies
Existing Bridge & Road Survey	07JUL04	20JUL04	12d	1	
Submit Monitoring Proposal	18AUG04	23AUG04	12d	1	
Engineer Approval of Monitoring Proposal	30AUG04	24AUG04	12d	1	
Submit the Coordinates of Culvert	28AUG04	28AUG04	1d	1	
Predrilling (Voided Abutment)	11NOV04	28SEP04	48d	1	
Predrilling (Pier)	23OCT04	25SEP04	30d	1	
Predrilling (North Abutment)	21AUG04	24SEP04	24d	1	
Submit Proposed Founding Level (Voided Abut.)	100	01APR05	12	1	
Engineer Approve Founding Level (Voided Abut.)	100	20APR05	12	1	
Submit Proposed Founding Level (Pier)	100	01APR05	6	1	
Engineer Approval of Founding Level (Pier)	100	20APR05	12	1	
Submit Proposed Founding Level (N-Abutment)	100	01APR05	6	1	
Engineer Approval of Founding Level (N-Abutment)	100	20APR05	12	1	
Prestressing at North Abutment & Up Ramp	100	15OCT05	100	40d	

Activity	Start	Finish	Duration	Priority	Dependencies
Mobilization of Piling Plants	08AUG05	08AUG05	6	1	
Construct Pile AV1-AV17	12	23AUG05	68	1d	
Construct Pier Pile P1-P12	0	28SEP05	35	24d	
Construct N-Abutment Pile AN1-AN6	0	11NOV05	24	24d	
Load Test at Voided Abutment & Pier (Optional)	0	08DEC05	24	1d	
Load Test at North Abutment (Optional)	0	09DEC05	24	24d	
Construct Ground Beams (Stage 1)	0	07JAN06	12	13d	
Construct Ground Beams (Stage 2)	0	21JAN06	12	13d	

Activity	Start	Finish	Duration	Priority	Dependencies
Early bar	10JUN04				
Progress bar	20OCT07				
Critical bar	28SEP05				
Summary bar	17OCT05				
Start milestone point	1A				
Finish milestone point	1A				

Division of Ext. Drainage at VA (VO033B)

Watermain Diversion & Advance Notice to WSD

Watermain Connection by WSD

Existing Bridge & Road Survey

Submit Monitoring Proposal

Engineer Approval of Monitoring Proposal

Submit the Coordinates of Culvert

Predrilling (Voided Abutment)

Predrilling (Pier)

Predrilling (North Abutment)

Submit Proposed Founding Level (Voided Abut.)

Engineer Approve Founding Level (Voided Abut.)

Submit Proposed Founding Level (Pier)

Engineer Approval of Founding Level (Pier)

Submit Proposed Founding Level (N-Abutment)

Engineer Approval of Founding Level (N-Abutment)

Prestressing at North Abutment & Up Ramp

TTA No. 01 - Sul Cheung St. (S/B Slow Lane)

TTA No. 02 - Sul Cheung St. (S/B Fast Lane)

TTA No. 03 - Extending Ma Lu Shui Bridge

TTA No. 04 - Cycle Track

TTA No. 05 - Sul Cheung St. Roundabout

TTA No. 06 - Sul Cheung St. Roundabout

TTA No. 07 - Sul Cheung St. Roundabout

TTA No. 08 - Sul Cheung St. & EML SB

TTA No. 09 - Road D1 & Sul Cheung St. R/A

TTA No. 10 - Sul Cheung St. Roundabout

Leader - Wal Koo (C&T) Joint Venture

TP37103 - Revised Works Programme - RP04

ID	Description	Div	Start	Finish	Start	Finish	Start	Finish
A2NBVA000	Construct Ground Beams (Stage 3)	12	16	01JAN06	20JAN06	06JAN06	21JAN06	Construct Ground Beams (Stage 3)
A2NBVA040	Construct Ground Beams (Stage 4)	12	16	01JAN06	06FEB06	23JAN06	07FEB06	Construct Ground Beams (Stage 4)
A2NBVA050	Construct Ground Beams (Stage 5)	12	21d	01FEB06	20FEB06	03MAR06	18MAR06	Construct Ground Beams (Stage 5)
A2NBVA060	Construct Wall (Stage 1)	16	13d	01FEB06	27FEB06	22FEB06	14MAR06	Construct Wall (Stage 1)
A2NBVA070	Construct Wall (Stage 2)	16	13d	02FEB06	20MAR06	15MAR06	05APR06	Construct Wall (Stage 2)
A2NBVA080	Construct Wall (Stage 3)	16	16	01FEB06	24FEB06	08FEB06	25FEB06	Construct Wall (Stage 3)
A2NBVA090	Construct Wall (Stage 4)	16	16	02FEB06	15MAR06	27FEB06	18MAR06	Construct Wall (Stage 4)
A2NBVA100	Construct Wall (Stage 5)	16	16	01MAR06	09APR06	17MAR06	05APR06	Construct Wall (Stage 5)
A2NBVA110	Construct Slab	36	67d	05APR06	17MAY06	24JUN06	05AUG06	Construct Slab
A2NBPA0100	Construct Pile Cap	12	40d	07JAN06	20JAN06	25FEB06	16MAR06	Construct Pile Cap
A2NBPA0200	Construct Columns	21	40d	02JAN06	19FEB06	11MAR06	05APR06	Construct Columns
A2NBNA0100	Construct RE Wall to Formation of Abutment	18	24d	06JAN06	26JAN06	06FEB06	28FEB06	Construct RE Wall to Formation of Abutment
A2NBNA0200	Construct RE Wall to Formation of RC Wall Type A	36	33d	01FEB06	14MAR06	11MAR06	22APR06	Construct RE Wall to Formation of RC Wall Type A
A2NBNA0300	Fix RE Wall to Face of Abutment & RC Wall	36	27d	13APR06	28MAY06	18MAY06	27JUN06	Fix RE Wall to Face of Abutment & RC Wall
A2NBNA1100	Construct Pile Cap	18	24d	01FEB06	21MAR06	01MAR06	21MAR06	Construct Pile Cap
A2NBNA1200	Construct Abutment Walls	24	24d	02FEB06	21MAR06	22MAR06	19APR06	Construct Abutment Walls
A2NBNA1300	Construct RC Wall Type A	36	27d	02MAR06	04MAY06	24APR06	08JUN06	Construct RC Wall Type A
A2NBNA1400	Construct RC Wall Type B	36	33d	01FEB06	14MAR06	11MAR06	22APR06	Construct RC Wall Type B
A2NBNA1500	Construct RC Wall Type C	18	33d	01MAR06	08APR06	24APR06	18MAY06	Construct RC Wall Type C
A2NBDA0100	Erect Scaffolding	18	1d	05APR06	28APR06	06APR06	28APR06	Erect Scaffolding
A2NBDA0200	Erect Formwork (Bottom Slab)	12	1d	02APR06	16MAY06	27APR06	11MAY06	Erect Formwork (Bottom Slab)
A2NBDA0300	Steel Fixing	6	13d	11MAY06	19MAY06	19MAY06	05JUN06	Steel Fixing
A2NBDA0400	Erect Formwork (Kicker)	6	13d	20MAY06	29MAY06	29MAY06	14JUN06	Erect Formwork (Kicker)
A2NBDA0500	Concreting	1	13d	30MAY06	30MAY06	15JUN06	15JUN06	Concreting
A2NBDA0600	Erect Formwork (Diaphragm & Top Slab)	10	13d	01JUN06	12JUN06	18JUN06	27JUN06	Erect Formwork (Diaphragm & Top Slab)
A2NBDA0700	Steel Fixing	8	13d	13JUN06	21JUN06	28JUN06	07JUL06	Steel Fixing
A2NBDA0800	Concreting	1	13d	22JUN06	22JUN06	08JUL06	08JUL06	Concreting
A2NBDA0900	Install, Stress Tendons & Grouting	24	1d	08JUL06	04AUG06	10JUL06	05AUG06	Install, Stress Tendons & Grout
A2NBDA1000	Remove Formwork & Scaffolding	6	45d	12AUG06	21AUG06	04OCT06	13OCT06	Remove Formwork & Scaffolding
A2NBDA1100	Construct Parapet	70	1d	05AUG06	26OCT06	07AUG06	27OCT06	Construct Parapet
A2NBDA1200	Construct Centre Barrier	36	1d	02SEP06	03NOV06	22SEP06	04NOV06	Construct Centre Barrier
A2NBDC0100	Erect Scaffolding	18	24d	02MAR06	12APR06	20APR06	11MAY06	Erect Scaffolding
A2NBDC0200	Erect Formwork (Bottom Slab)	12	1d	01MAY06	24MAY06	12MAY06	25MAY06	Erect Formwork (Bottom Slab)
A2NBDC0300	Steel Fixing	8	1d	05JUN06	13JUN06	28MAY06	05JUN06	Steel Fixing
A2NBDC0400	Erect Formwork (Kicker)	8	1d	01JUN06	14JUN06	06JUN06	14JUN06	Erect Formwork (Kicker)
A2NBDC0500	Concreting	1	1d	01JUN06	15JUN06	15JUN06	15JUN06	Concreting
A2NBDC0600	Erect Formwork (Diaphragm & Top Slab)	10	1d	01JUN06	28JUN06	18JUN06	27JUN06	Erect Formwork (Diaphragm & Top Slab)
A2NBDC0700	Steel Fixing	8	1d	02JUN06	08JUL06	28JUN06	07JUL06	Steel Fixing
A2NBDC0800	Concreting	1	1d	07JUL06	07JUL06	08JUL06	08JUL06	Concreting
A2NBDC0900	Install, Stress Tendons & Grouting	24	1d	08JUL06	04AUG06	10JUL06	05AUG06	Install, Stress Tendons & Grout
A2NBDC1000	Remove Formwork & Scaffolding	8	38d	01AUG06	28AUG06	04OCT06	13OCT06	Remove Formwork & Scaffolding
A2NBDC1100	Construct Parapet	70	1d	05AUG06	26OCT06	07AUG06	27OCT06	Construct Parapet

Legend

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Leader - Wal Kee (C&T) Joint Venture
TP37/03 - Revised Works Programme - RP04

ACT ID	Description	Orig. Est. Cost	Total Cost	Percent Complete	Start	Finish	ETA
A2SRP0100	Laying Lighting Cross Road Duct (TTA No. 06)	4	101d	0	08JUN06	12JUN06	08OCT06
A2SRP0200	Laying Lighting Cross Road Duct (TTA No. 06)	4	101d	0	26JUN06	29JUN06	27OCT06
A2SRP0300	Demolish Existing Island (TTA No. 06)	8	101d	0	29MAY06	07JUN06	26SEP06
A2SRP0400	Construct Proposed Island (TTA No. 06)	8	101d	0	13JUN06	21JUN06	19OCT06
A2SRP0500	Demolish Existing Kerb (TTA No. 06)	2	101d	0	23JUN06	24JUN06	21OCT06
A2SRP0600	Lay Kerb (TTA No. 06)	8	101d	0	30JUN06	10JUL06	28OCT06
A2SRP0700	Demolish Existing Roundabout (TTA No. 07)	8	101d	0	14JUL06	22JUL06	11NOV06
A2SRP0800	Reconstruct Roundabout (TTA No. 07)	8	101d	0	24JUL06	01AUG06	21NOV06
A2SRP0900	Reinststate Road Pavement (TTA No. 08)	2	101d	0	11JUL06	12JUL06	08NOV06
A2SRP1000	Resurfacing Wearing Course	8	101d	0	02AUG06	10AUG06	30NOV06
A2SRP1100	Construct Proposed Island (TTA No. 09)	12	7d	0	04DEC06	18DEC06	12DEC06
A2SRP1200	Apply Road Marking	2	101d	0	25AUG06	29AUG06	23DEC06
A2SRP1300	Erect Signage	12	101d	0	11AUG06	24AUG06	09DEC06
A2SRP1400	Install Railing, Fencing & etc	12	101d	0	11AUG06	24AUG06	09DEC06
A2BUT0100	Install Public Lighting Post	8	61d	0	03OCT06	12OCT06	16DEC06
A2BPR0100	Lay Kerb (TTA No. 03)	6	46d	0	13JUN06	21JUN06	07AUG06
A2BPR0200	Cable Duct Laying on Island (TTA No. 03)	6	75d	0	26AUG06	01SEP06	24NOV06
A2BPR0300	Cable Duct Laying on Reserve (TTA No. 03)	6	57d	0	08SEP06	11SEP06	10NOV06
A2BRP0100	Demolish Existing Parapet (TTA No. 03)	12	114d	0	28MAY06	12JUN06	12OCT06
A2BRP0200	Demolish Island & Paved Area (TTA No. 03)	12	46d	0	28MAY06	12JUN06	05AUG06
A2BRP0300	Road Pavement (TTA No. 03)	8	46d	0	22JUN06	30JUN06	16AUG06
A2BRP0400	Construct Roundabout on V-Abutment (TTA No. 03)	8	114d	0	13JUN06	21JUN06	28OCT06
A2BRP0500	Remove Pavement at Proposed Island (TTA No. 06)	4	75d	0	22AUG06	28NOV06	23NOV06
A2BRP0600	Construct Traffic Island (TTA No. 06)	8	75d	0	02SEP06	11SEP06	01DEC06
A2BRP0700	Construct Remaining Roundabout (TTA No. 06)	12	81d	0	22AUG06	04SEP06	27NOV06
A2BRP0800	Demolish Existing Central Reserve (TTA No. 06)	12	57d	0	22AUG06	28OCT06	11NOV06
A2BRP0900	Construct New Central Reserve (TTA No. 06)	16	57d	0	12SEP06	02OCT06	20NOV06
A2BRM0100	Apply Road Marking (TTA No. 01)	1	46d	0	03JUL06	03JUL06	25AUG06
A2BRM0200	Apply Road Marking (TTA No. 06)	1	57d	0	18OCT06	18OCT06	25DEC06
A2BRM0300	Erect Signage	12	57d	0	03OCT06	17OCT06	11DEC06
A2BRM0400	Install Railing, Fencing & etc	12	57d	0	03OCT06	17OCT06	11DEC06
A2CPM1200	S882 - Existing Culvert	21	86d	0	08MAY06	30MAY06	19AUG06
A2CPM1300	CP632 - S884	16	86d	0	01JUN06	16JUN06	13SEP06
A2CPM1600	Install Public Lighting Post	8	106d	0	14AUG06	22AUG06	16DEC06
A2CPM1700	Construct Dwarf Wall	23	86d	0	20JUN06	17JUL06	02OCT06
A2CPM2000	Lay Kerb	8	86d	0	04AUG06	12AUG06	17NOV06

- Laying Lighting Cross Road Duct (TTA No. 06)
- Laying Lighting Cross Road Duct (TTA No. 06)
- Demolish Existing Island (TTA No. 06)
- Construct Proposed Island (TTA No. 06)
- Demolish Existing Kerb (TTA No. 06)
- Lay Kerb (TTA No. 06)
- Demolish Existing Roundabout (TTA No. 07)
- Reconstruct Roundabout (TTA No. 07)
- Reinststate Road Pavement (TTA No. 08)
- Resurfacing Wearing Course
- Construct Proposed Island (TTA No. 09)
- Apply Road Marking
- Erect Signage
- Install Railing, Fencing & etc
- Install Public Light
- Lay Kerb (TTA No. 03)
- Cable Duct Laying on Island
- Cable Duct Laying on Reserve
- Demolish Existing Parapet (TTA No. 03)
- Demolish Island & Paved Area (TTA No. 03)
- Road Pavement (TTA No. 03)
- Construct Roundabout on V-Abutment (TTA No. 03)
- Remove Pavement at Proposed Island (TTA No. 06)
- Construct Traffic Island
- Construct Remaining Roundabout
- Demolish Existing Central Reserve
- Construct New Central Reserve
- Apply Road Marking (TTA No. 01)
- Apply Road Marking (TTA No. 06)
- Erect Signage
- Install Railing, Fencing & etc
- S882 - Existing Culvert
- CP632 - S884
- Install Public Lighting Post
- Construct Dwarf Wall
- Lay Kerb

ACT ID: 10AUN04
 Start date: 20OCT06
 Finish date: 26SEP06
 Sun date: 17OCT06
 Page number: 12A

Legend:
 ■ Early bar
 ■ Progress bar
 ■ Critical bar
 ■ Summary bar
 ◆ Start milestone point
 ◆ Finish milestone point

CLADER

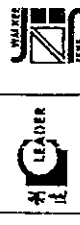

WALKEE

 1985

Leader - Wal Kee (C&T) Joint Venture
 TP37103 - Revised Works Programme - RP04

ACT ID	Description	Orig Div	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
A3MSSE100	Construct E1 Ramp Base Slab	6	13d	0	23NOV05	01DEC05	08DEC05	18DEC05
A3MSSE100	Construct E1 Ramp Base Slab	6	15d	0	02DEC05	10DEC05	20DEC05	30DEC05
A3MSSE140	Construct E1 Ramp Walls	6	8d	0	21DEC05	29DEC05	03JAN06	08JAN06
A3MSSE160	Construct E2 Ramp Walls	6	8d	0	14DEC05	20DEC05	24DEC05	02JAN06
A3MSSE180	Construct E3 Ramp Walls	6	8d	0	07DEC05	13DEC05	17DEC05	24DEC05
A3MSSE1700	Construct E4 Ramp Walls	6	8d	0	28NOV05	05DEC05	08DEC05	18DEC05
A3MSSE2000	Construct E5 Ramp Walls	10	5d	0	18DEC05	31DEC05	24DEC05	06JAN06
A3MSSE2100	Construct E6 Ramp Walls	10	5d	0	07DEC05	17DEC05	13DEC05	23DEC05
A3MSSE2200	Construct E7 Ramp Walls	12	5d	0	23NOV05	09DEC05	28NOV05	12DEC05
A3MSSE2300	Construct E8 Ramp Walls	10	8d	0	07DEC05	17DEC05	17DEC05	30DEC05
A3MSSE2500	Construct E9 Ramp Walls	6	8d	0	18DEC05	24DEC05	31DEC05	06JAN06
A3MSSE2600	Backfilling	20	5d	0	18DEC05	10JAN06	22DEC05	16JAN06
A3MSSE2700	Install Roof Steel Posts	18	62d	0	11JAN06	02FEB06	27MAR06	17APR06
A3MSSE2800	Construct Roof Slab E8	12	62d	0	03FEB06	16FEB06	18APR06	02MAY06
A3MSSE2900	Construct Roof Slab E5	12	62d	0	17FEB06	03MAR06	03MAY06	18MAY06
A3MSSE3000	Construct Roof Slab E4, E7	12	62d	0	03MAR06	18MAR06	17MAY06	30MAY06
A3MSSE3100	Construct Roof Slab E3, E8	12	62d	0	17MAR06	30MAR06	01JUN06	14JUN06
A3MSSE3200	Construct Roof Slab E2	12	62d	0	31MAR06	14APR06	18JUN06	28JUN06
A3MSSE3300	Construct Roof Slab E1, E9	12	62d	0	15APR06	28APR06	28JUN06	13JUL06
Shimizu West Ramp Construction								
A3MSW0100	Excavation (Western Ramp)	41	20d	0	28NOV05	18JAN06	21DEC05	10FEB06
A3MSW0200	Construct W1 Ramp Base Slab	6	43d	0	17JAN06	25JAN06	10MAR06	18MAR06
A3MSW0300	Construct W2 Ramp Base Slab	8	42d	0	06JAN06	14JAN06	27FEB06	07MAR06
A3MSW0400	Construct W3 Ramp Base Slab	10	20d	0	20DEC05	05JAN06	18JAN06	28JAN06
A3MSW0500	Construct W4 Ramp Base Slab	12	20d	0	09DEC05	22DEC05	04JAN06	17JAN06
A3MSW0600	Construct W5 Ramp Base Slab	10	20d	0	23DEC05	05JAN06	18JAN06	28JAN06
A3MSW0700	Construct W6 Ramp Base Slab	6	52d	0	06JAN06	14JAN06	10MAR06	18MAR06
A3MSW0800	Construct W1 Ramp Walls	10	20d	0	24FEB06	07MAR06	20MAR06	30MAR06
A3MSW1000	Construct W2 Ramp Walls	10	20d	0	13FEB06	23FEB06	08MAR06	18MAR06
A3MSW1200	Construct W3 Ramp Walls	10	20d	0	01FEB06	11FEB06	24FEB06	07MAR06
A3MSW1300	Construct W4 Ramp Walls	20	20d	0	08JAN06	28JAN06	01FEB06	23FEB06
A3MSW1400	Construct W5 Ramp Walls	20	20d	0	01FEB06	23FEB06	24FEB06	18MAR06
A3MSW1500	Construct W6 Ramp Walls	10	20d	0	24FEB06	07MAR06	20MAR06	30MAR06
A3MSW1600	Backfilling	20	20d	0	08MAR06	30MAR06	31MAR06	24APR06
A3MSW1700	Install Roof Posts	18	20d	0	03MAR06	21APR06	25APR06	18MAY06
A3MSW1800	Construct Roof Slab W3	12	20d	0	22APR06	08MAY06	17MAY06	30MAY06
A3MSW1900	Construct Roof Slab W4	12	20d	0	08MAY06	20MAY06	01JUN06	14JUN06
A3MSW2000	Construct Roof Slab W2, W5	12	20d	0	22MAY06	05JUN06	15JUN06	28JUN06
A3MSW2100	Construct Roof Slab W1, W6	12	20d	0	06JUN06	18JUN06	28JUN06	13JUL06
Pumping and Drainage System								
A3MSPO0100	Pumping System Installation	80	165d	0	08MAR06	12APR06	25SEP06	31OCT06
A3MSPO0200	Drainage System Installation	20	20d	0	20JUN06	13JUL06	14JUL06	05AUG06
Miscellaneous Works								
A3MSAW0100	Miscellaneous Metal Works	24	44d	0	05OCT06	04NOV06	28NOV06	28DEC06
Finishing Works								
A3MSFW0100	Finishing Works # Barrel	24	20d	0	14JUL06	10AUG06	07AUG06	02SEP06

Early bar
 Progress bar
 Critical bar
 Summary bar
 Milestone point
 Start milestone point
 Finish milestone point

Leader - Wal Kee (C&T) Joint Venture
 TP37/03 - Revised Works Programme - RP04

ID	Description	Start	Finish	Early Start	Early Finish	Latency	Lead
A3MSFW0200	Finishing Works at East Ramp	04SEP06	07SEP06	04SEP06	07SEP06	04SEP06	30SEP06
A3MSFW0300	Finishing Works at West Ramp	02OCT06	05OCT06	02OCT06	05OCT06	02OCT06	31OCT06
ES - All Works							
A3MSEM0100	Electrical Installation at Barrel & Pump House	01NOV06	07SEP06	01NOV06	07SEP06	01NOV06	28NOV06
A3MSEM0200	Electrical Installation at East Ramp	01NOV06	05OCT06	01NOV06	05OCT06	01NOV06	28NOV06
A3MSEM0300	Electrical Installation at West Ramp	01NOV06	04NOV06	01NOV06	04NOV06	01NOV06	28NOV06
Testing and Commissioning							
A3MSTC0100	Pumping System & Electrical Installation Loading and Unloading Area	28NOV06	02DEC06	28NOV06	02DEC06	28NOV06	29DEC06
Drainage Works							
A3LUOW0100	Decide Location of Manholes & Catchpits	27APR06	30SEP06	27APR06	30SEP06	27APR06	27APR06
A3LUOW0200	F302 - F306	03JUL06	05JUL06	03JUL06	05JUL06	03JUL06	01AUG06
A3LUOW0300	Tryal Pit for F306 - F306A (Deleted)	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A
A3LUOW0400	F306 - F306A	14OCT06	14OCT06	14OCT06	14OCT06	14OCT06	01NOV06
A3LUOW0500	F306 - F306A (TTA No. 06)	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	06DEC06
A3LUOW0600	F306A - Existing Sewer Manhole	08NOV06	08NOV06	08NOV06	08NOV06	08NOV06	25NOV06
A3LUOW0700	S712 - S622	28APR06	28APR06	28APR06	28APR06	28APR06	23MAY06
A3LUOW0800	S617 - S618	09MAY06	09MAY06	09MAY06	09MAY06	09MAY06	06JUN06
A3LUOW0900	S678 - S623 (TTA no. 04)	03JUN06	03JUN06	03JUN06	03JUN06	03JUN06	30JUN06
A3LUOW1000	S713 - S634	04AUG06	04AUG06	04AUG06	04AUG06	04AUG06	27SEP06
A3LUOW1100	S713 - S634	26JUL06	26JUL06	26JUL06	26JUL06	26JUL06	25AUG06
Utility Works							
A3LUJTB0100	CLP - Laying LV Cable	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	04OCT06
A3LUJTB0200	CLP - Construct Pillar Box	08APR06	08APR06	08APR06	08APR06	08APR06	28SEP06
A3LUJTB0300	Install Public Lighting Post	13SEP06	13SEP06	13SEP06	13SEP06	13SEP06	20DEC06
Public Lighting and Signage							
A3LUPK0100	Construct Dwarf Wall	02AUG06	01SEP06	02AUG06	01SEP06	02AUG06	28SEP06
A3LUPK0200	Construct Dwarf Wall (TTA No. 04)	05AUG06	05AUG06	05AUG06	05AUG06	05AUG06	04OCT06
A3LUPK0300	Lay Kerb (TTA No. 04)	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	10NOV06
A3LUPK0400	Lay Kerb (TTA No. 06)	02AUG06	02AUG06	02AUG06	02AUG06	02AUG06	06DEC06
A3LUPK0500	Lighting Drawpit & Cable Duct (TTA No. 04)	08SEP06	08SEP06	08SEP06	08SEP06	08SEP06	29OCT06
A3LUPK0600	Lighting Drawpit & Cable Duct (TTA No. 06)	04SEP06	04SEP06	04SEP06	04SEP06	04SEP06	10DEC06
Roads and Pavement							
A3LURP0100	Trim Formation & Lay Subbase (TTA No. 06)	14OCT06	23OCT06	14OCT06	23OCT06	14OCT06	10DEC06
A3LURP0200	Road Pavement (TTA No. 06)	02NOV06	02NOV06	02NOV06	02NOV06	02NOV06	22DEC06
A3LURP0300	Construct Footpath (TTA No. 04)	11NOV06	11NOV06	11NOV06	11NOV06	11NOV06	06DEC06
A3LURP0400	Construct Footpath (TTA No. 06)	18NOV06	18NOV06	18NOV06	18NOV06	18NOV06	15DEC06
Road Marking, Traffic Signs and Fencing							
A3LURM0100	Apply Road Marking	28NOV06	28NOV06	28NOV06	28NOV06	28NOV06	25DEC06
A3LURM0200	Erect Signs	25NOV06	25NOV06	25NOV06	25NOV06	25NOV06	22DEC06
A3LURM0300	Install Railing, Fencing, etc	28NOV06	28NOV06	28NOV06	28NOV06	28NOV06	22DEC06
Amenity Areas							
A3AMCH0100	Construct U-Channels	14OCT06	14OCT06	14OCT06	14OCT06	14OCT06	28DEC06
Utility Works							
A3AMJT0100	Water Point WP-4.2 to Water Meter No.3	27SEP06	27SEP06	27SEP06	27SEP06	27SEP06	28NOV06
A3AMJT0200	Water Point WP5-2 to Water Meter No.6	10OCT06	10OCT06	10OCT06	10OCT06	10OCT06	06DEC06
A3AMJT0300	Water Point WP6-2 to Water Meter No.6	28OCT06	28OCT06	28OCT06	28OCT06	28OCT06	26DEC06

ID	Description	Start	Finish	Early Start	Early Finish	Latency	Lead
A3MSFW0200	Finishing Works at East Ramp	04SEP06	07SEP06	04SEP06	07SEP06	04SEP06	30SEP06
A3MSFW0300	Finishing Works at West Ramp	02OCT06	05OCT06	02OCT06	05OCT06	02OCT06	31OCT06
ES - All Works							
A3MSEM0100	Electrical Installation at Barrel & Pump House	01NOV06	07SEP06	01NOV06	07SEP06	01NOV06	28NOV06
A3MSEM0200	Electrical Installation at East Ramp	01NOV06	05OCT06	01NOV06	05OCT06	01NOV06	28NOV06
A3MSEM0300	Electrical Installation at West Ramp	01NOV06	04NOV06	01NOV06	04NOV06	01NOV06	28NOV06
Testing and Commissioning							
A3MSTC0100	Pumping System & Electrical Installation Loading and Unloading Area	28NOV06	02DEC06	28NOV06	02DEC06	28NOV06	29DEC06
Drainage Works							
A3LUOW0100	Decide Location of Manholes & Catchpits	27APR06	30SEP06	27APR06	30SEP06	27APR06	27APR06
A3LUOW0200	F302 - F306	03JUL06	05JUL06	03JUL06	05JUL06	03JUL06	01AUG06
A3LUOW0300	Tryal Pit for F306 - F306A (Deleted)	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A	28JAN06 A
A3LUOW0400	F306 - F306A	14OCT06	14OCT06	14OCT06	14OCT06	14OCT06	01NOV06
A3LUOW0500	F306 - F306A (TTA No. 06)	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	06DEC06
A3LUOW0600	F306A - Existing Sewer Manhole	08NOV06	08NOV06	08NOV06	08NOV06	08NOV06	25NOV06
A3LUOW0700	S712 - S622	28APR06	28APR06	28APR06	28APR06	28APR06	23MAY06
A3LUOW0800	S617 - S618	09MAY06	09MAY06	09MAY06	09MAY06	09MAY06	06JUN06
A3LUOW0900	S678 - S623 (TTA no. 04)	03JUN06	03JUN06	03JUN06	03JUN06	03JUN06	30JUN06
A3LUOW1000	S713 - S634	04AUG06	04AUG06	04AUG06	04AUG06	04AUG06	27SEP06
A3LUOW1100	S713 - S634	26JUL06	26JUL06	26JUL06	26JUL06	26JUL06	25AUG06
Utility Works							
A3LUJTB0100	CLP - Laying LV Cable	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	04OCT06
A3LUJTB0200	CLP - Construct Pillar Box	08APR06	08APR06	08APR06	08APR06	08APR06	28SEP06
A3LUJTB0300	Install Public Lighting Post	13SEP06	13SEP06	13SEP06	13SEP06	13SEP06	20DEC06
Public Lighting and Signage							
A3LUPK0100	Construct Dwarf Wall	02AUG06	01SEP06	02AUG06	01SEP06	02AUG06	28SEP06
A3LUPK0200	Construct Dwarf Wall (TTA No. 04)	05AUG06	05AUG06	05AUG06	05AUG06	05AUG06	04OCT06
A3LUPK0300	Lay Kerb (TTA No. 04)	02SEP06	02SEP06	02SEP06	02SEP06	02SEP06	10NOV06
A3LUPK0400	Lay Kerb (TTA No. 06)	02AUG06	02AUG06	02AUG06	02AUG06	02AUG06	06DEC06
A3LUPK0500	Lighting Drawpit & Cable Duct (TTA No. 04)	08SEP06	08SEP06	08SEP06	08SEP06	08SEP06	29OCT06
A3LUPK0600	Lighting Drawpit & Cable Duct (TTA No. 06)	04SEP06	04SEP06	04SEP06	04SEP06	04SEP06	10DEC06
Roads and Pavement							
A3LURP0100							

AS ID	Description	Dur.	Start	Early Finish	Late Finish
ATLONS0040	Tracking Up of Existing Underlayer, Below +2.5	2	15/02	07/NOV/05	08/JUN/05
ATLONS0050	Tracking Up of Existing Rubble, Below +2.5	18	15/02	02/DEC/05	10/JUN/05
ATLONS0060	Placing Leveling Stone	23	15/02	28/DEC/05	20/JUL/05
ATLONS0070	Block Wall Construction	31	15/02	20/DEC/06	20/AUG/05
ATLONS0080	Backfill Rubble Behind	10	15/02	08/FEB/06	30/AUG/05
ATLONS0090	Reinstate 3200 Dia. Concrete Pipe	14	15/02	22/FEB/06	13/SEP/05
ATLONS0100	Fabrication of Box Culvert Outfalls	70	10/44	22/FEB/06	08/NOV/05
ATLONS1000	Install Box Culvert Outfalls	12	10/44	08/MAR/06	18/NOV/05
ATLONS1100	Install Remaining Blocks for Both Side Outfall	4	10/44	10/MAR/06	22/NOV/05
ATLONS1200	Reinstate Armour & Underlayer	10	10/44	20/MAR/06	02/DEC/05

Wastewater Promenade
 Phuma Hansen Construction
 ATWPPH0100 Construct Infiltration Pump House

AS ID	Description	Dur.	Start	Early Finish	Late Finish
ATWPPH0100	Construct Infiltration Pump House	48	15/02	02/NOV/05	07/NOV/05

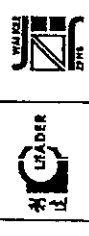
AS ID	Description	Dur.	Start	Early Finish	Late Finish
ATWPPW0100	Decide Exact Location of Manholes & Catchpits	1	28/JUL/04	28/JUL/04	28/JUL/04
ATWPPW0200	S708 - S714	50	08/01	04/OCT/05	18/OCT/04
ATWPPW0300	S701 - S708	48	08/01	14/DEC/04	14/DEC/04
ATWPPW0400	S714 - Existing Box Culvert	30	12/04	08/MAR/06	12/OCT/05
ATWPPW0500	F901 - F902 (TTA No. 10) Partially Aborted	18	10/25/FEB/05	24/JUN/05	24/JUN/05
ATWPPW0600	F902 - F903 (TTA No. 11) Aborted	34	10/10/MAY/05	24/JUN/05	24/JUN/05
ATWPPW0700	F903 - F904 (TTA No. 12)	16	10/08/APR/05	08/MAY/05	08/MAY/05
ATWPPW0720	F901 - F902 (TTA No. 48) (VO/030E)	6	14/44	18/OCT/05	22/APR/05
ATWPPW0740	F901 - F902 (TTA No. 49) (VO/030E)	12	14/44	14/NOV/05	24/MAY/05
ATWPPW0760	F901 - F902 (TTA No. 50) (VO/030E)	18	14/44	20/DEC/05	30/JUN/05
ATWPPW0780	F902 - F903 (TTA No. 51) (VO/030E)	24	14/44	20/JAN/06	04/JUL/05
ATWPPW0800	F904 - Existing Manhole	28	10/04/APR/05	18/JUN/05	18/JUN/05
ATWPPW0900	S770 - S773 - S771 (VO/073)	25	13/01	28/OCT/05	13/OCT/05
ATWPPW0920	S773 - Ex. Manhole (TTA No. 48) (VO/073)	18	14/44	28/OCT/05	18/APR/05
ATWPPW0940	S773 - Ex. Manhole (TTA No. 49) (VO/073)	18	13/06	01/NOV/05	18/MAY/05
ATWPPW0960	S773 - Ex. Manhole (TTA No. 50) (VO/073)	24	12/06	29/DEC/05	04/JUL/05
ATWPPW1000	CP 102 - CP 104 (in ZU)	20	13/01	21/NOV/05	14/OCT/05
ATWPPW1050	Ex. MH - MH-36 - F901 (VO/058A)	20	17/01	03/JAN/06	08/SEP/05
ATWPPW1100	S716 - Existing Box Culvert	22	13/04	20/MAR/06	12/OCT/05
ATWPPW1200	225 Dia. Perforated Drain (in ZS S. End - 200m)	28	8/23	02/DEC/05	27/JUL/05
ATWPPW1250	225 Dia. Perforated Drain (in ZS 200m - 400m)	28	8/23	02/NOV/05	27/JUL/05
ATWPPW1280	225 Dia. Perforated Drain (in ZS 400m - N. End)	12	13/01	27/APR/06	08/NOV/05
ATWPPW1300	225HR & Catchpit with 2000.L. along Parapet Wall	50	8/30	04/MAR/06	03/MAY/06
ATWPPW1600	225CUC (in ZU)	24	4/71	02/NOV/05	28/OCT/05
ATWPPW1800	300CUC (in ZU)	25	4/71	23/JAN/06	28/NOV/05
ATWPPW1700	225Dia. Perforated Drain (in ZU)	21	4/64	02/NOV/05	18/DEC/05
ATWPPW1800	300 CUC (in ZU3)	18	3/31	02/NOV/05	08/DEC/05
ATWPPW1900	225 Dia. Perforated Drain (in ZU3)	18	7/81	04/JAN/06	30/SEP/05

AS ID	Description	Dur.	Start	Early Finish	Late Finish
ATWPPU0000	D.I. Pipes & Fittings Delivery On Site	30	8/31	27/APR/05	30/JUL/05
ATWPPU0001	Order Additional Valve & Bend (VO/063)	76	12/01	08/SEP/05	18/JUL/05
ATWPPU0100	Wastewater - Lay Silt Main (TTA No. 10) Aborted	10	19/APR/05	24/JUN/05	24/JUN/05

Start date 10/JUN/04
 Finish date 20/OCT/07
 Data date 28/SEP/05
 Run date 17/OCT/05
 P900 number 21A

Legend:
 ■ Early bar
 ■ Progress bar
 ■ Critical bar
 ■ Summary bar
 ◆ Start milestone point
 ◆ Finish milestone point

C. Engineers Systems, Inc.



AS ID	Description	Orig Dur	Total Post	Percent Complete	Early Start	Early Finish	Lead Start	Lead Finish
AB.LNS1500	Reinstate Ext. Utility Services	24	-47d	0	27OCT05	23NOV05	30AUG05	27SEP05
AB.LNS1600	Reinstate Ext. Cycle Track	12	-88d	0	07DEC05	20DEC05	28SEP05	13OCT05
AB.LNS1700	Resume Ext. Cycle Track	1	-56d	0	21DEC05	21DEC05	14OCT05	14OCT05

General Adjacent to Landing Step

AS ID	Description	Orig Dur	Total Post	Percent Complete	Early Start	Early Finish	Lead Start	Lead Finish
ABALMA0100	Taking Up of Armour to +2.5 (South Section)	2		100	10NOV04 A	11NOV04 A	10NOV04 A	11NOV04 A
ABALMA0110	Taking Up of Underlayer to +2.5 (South Section)	2		100	15NOV04 A	16NOV04 A	15NOV04 A	16NOV04 A
ABALMA0200	Taking Up of Rubble to +2.5 (South Section)	6		100	01DEC04 A	17JAN05 A	01DEC04 A	17JAN05 A
ABALMA0210	Taking Up of Armour Below +2.5 (South Section)	3		100	27NOV04 A	01DEC04 A	27NOV04 A	01DEC04 A
ABALMA0220	Taking Up Underlayer Below +2.5 (South Section)	3		100	09DEC04 A	12DEC04 A	09DEC04 A	12DEC04 A
ABALMA0230	Taking Up of Rubble Below +2.5 (South Section)	12		100	13DEC04 A	11JUL05 A	13DEC04 A	11JUL05 A
ABALMA0240	Placing Leveling Stone (South Section)	10		100	12JUL05 A	30JUL05 A	12JUL05 A	30JUL05 A
ABALMA0400	Block Wall Construction (South Section)	25		100	02AUG05 A	17AUG05 A	02AUG05 A	17AUG05 A
ABALMA0500	Backfill the Rubble Behind (South Section)	6	-46d	80	18AUG05 A	28SEP05	18AUG05 A	13AUG05
ABALMA0600	Backfill G200 Rockfill Behind (South Section)	5	-46d	0	28SEP05	03OCT05	14AUG05	18AUG05
ABALMA0810	Division of Ext. Cycle Track (Phase 1)	1		100	28MAY05 A	28MAY05 A	28MAY05 A	28MAY05 A
ABALMA0820	Removal of Ext. Cycle Track Pavement (Phase 1)	2		100	30MAY05 A	30MAY05 A	30MAY05 A	11JUN05 A
ABALMA0830	Take Up / Divert Ext. Utility Services (Phase 1)	18		100	30MAY05 A	08JUN05 A	30MAY05 A	08JUN05 A
ABALMA0700	Taking Up of Armour to +2.5 (North Section)	2		100	08NOV04 A	10NOV04 A	08NOV04 A	10NOV04 A
ABALMA0710	Taking Up of Underlayer to +2.5 (North Section)	2		100	15NOV04 A	16NOV04 A	15NOV04 A	16NOV04 A
ABALMA0900	Taking Up of Rubble to +2.5 (North Section)	8		100	17NOV04 A	17NOV04 A	17NOV04 A	17NOV04 A
ABALMA0920	Taking Up of Armour Below +2.5 (North Section)	3		100	21NOV04 A	23NOV04 A	21NOV04 A	23NOV04 A
ABALMA0930	Taking Up Underlayer Below +2.5 (North Section)	2		100	01DEC04 A	04DEC04 A	01DEC04 A	04DEC04 A
ABALMA0940	Taking Up of Rubble Below +2.5 (North Section)	30		100	19DEC04 A	18FEB05 A	19DEC04 A	18FEB05 A
ABALMA0910	Placing Leveling Stone (North Section)	10		100	20FEB05 A	13MAY05 A	20FEB05 A	19MAY05 A
ABALMA1000	Block Wall Construction (North Section)	25		100	01MAR05 A	24MAY05 A	01MAR05 A	24MAY05 A
ABALMA1100	Backfill the Rubble Behind (North Section)	6		100	15MAR05 A	25JUN05 A	15MAR05 A	25JUN05 A
ABALMA1200	Backfill G200 Rockfill Behind (North Section)	5	-83d	0	28SEP05	02OCT05	27JUN05	01JUL05
ABALMA1300	Reinstatement of Armour & Underlayer	14	116d	0	03OCT05	16OCT05	26JAN06	12FEB06

Vertical Promenade

AS ID	Description	Orig Dur	Total Post	Percent Complete	Early Start	Early Finish	Lead Start	Lead Finish
ABWP0W0100	Decide Exact Location of Manholes & Catchpits	1		100	27SEP04 A	27SEP04 A	27SEP04 A	27SEP04 A
ABWP0W0200	S745 - S739	55		100	21OCT04 A	08MAY05 A	21OCT04 A	08MAY05 A
ABWP0W0300	S717 - S729	78		100	22DEC04 A	25AUG05 A	22DEC04 A	25AUG05 A
ABWP0W0400	S729 - S730	14	28d	0	06JAN05	21JAN05	10FEB05	28FEB05
ABWP0W0500	S739 - S732	50	27d	0	23NOV05	21JAN05	24DEC05	24FEB05
ABWP0W0560	F421 - TM05	10	-47d	5	23JUL05 A	04NOV05 A	23JUL05 A	07SEP05
ABWP0W0590	F414 - F421 (in ZK)	12	-38d	0	28SEP05	13OCT05	18AUG05	29AUG05
ABWP0W0600	S745 - Existing Box Culvert	27	25d	80	08JUL05 A	09DEC05	08JUL05 A	10JAN06
ABWP0W0700	S755 - S747	73		100	05NOV04 A	16DEC04 A	05NOV04 A	16DEC04 A
ABWP0W0710	S747 - Existing Box Culvert	18	18d	30	07JUL05 A	17DEC05	07JUL05 A	10JAN06
ABWP0W0800	225HR & Catchpit/2000.L along Parapet Wall (ZK)	48	26d	0	10MAR05	08MAY05	11APR05	07JUN05
ABWP0W0900	225HR & Catchpit/2000.L along Parapet Wall (ZK)	24	25d	0	30MAY05	27JUN05	28JUN05	27JUL05
ABWP0W1000	225HR & Catchpit/2000.L along Parapet Wall (ZK)	12	25d	0	18MAY05	29MAY05	18JUN05	28JUN05
ABWP0W1100	225HR & Catchpit/2000.L along Parapet Wall (ZK)	6	25d	0	09MAY05	15MAY05	09JUN05	14JUN05
ABWP0W1200	225HR & Catchpit/2000.L Parapet Wall (J.M.L.1)	60	26d	0	02DEC05	09MAR05	04JAN05	10APR05

Early bar
 Progress bar
 Critical bar
 Summary bar
 Start milestone point
 Finish milestone point

LEADER
 WALTER
 PMS

Leader - Wal Kee (C&T) Joint Venture
 TP37/03 - Revised Works Programme - RP04

Start date: 10JUN04
 Finish date: 20OCT07
 Data date: 28SEP05
 Run date: 17OCT05
 Page number: 2/4

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AG ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
ARSLW1000	Construct Shelter Roof	24	56d	0	14JUL06	10AUG06	16SEP06	16OCT06
ARSLW1100	Public Lighting	8	66d	0	11AUG06	19AUG06	17OCT06	25OCT06
ARSLW1200	Rubber, Step & Land Site	18	56d	0	12AUG06	06SEP06	29OCT06	18NOV06
ARSLW1300	Surface Mounted Seats	18	56d	0	11SEP06	30SEP06	17NOV06	07DEC06
ARSLW1400	Construct In situ Concrete Paving	18	56d	0	02OCT06	21OCT06	06DEC06	26DEC06

Section 10

Remainder Works

Miscellaneous works

AG ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
BORWVW0100	EI to Demolish HY788/02 CRE Office	1	107d	0	03MAR06	03MAR06	11JUL06	14JUL06
BORWVW0200	Demolish HY788/02 CRE Office (P1)	30	107d	0	29MAR06	26APR06	02AUG06	06SEP06
BORWVW0300	EI to Demolish HY788/02 Contractor's Office	1	100	100	22NOV04	22NOV04	22NOV04	22NOV04
BORWVW0400	Demolish HY788/02 Contractor's Office (P1)	30	100	100	21MAY05	27MAY05	21MAY05	27MAY05
BORWVW0500	EI to Remove Run-in & Reinstale FPCT	1	128d	0	02MAY06	02MAY06	02OCT06	02OCT06
BORWVW0600	Remove Run-in & Reinstale FPCT(P1)	18	111d	0	15JUN06	08JUL06	29OCT06	16NOV06
BORWVW0700	EI to Demolish Existing Paving	1	107d	0	02MAY06	02MAY06	06SEP06	06SEP06
BORWVW0800	Demolish Existing Paving (P1)	18	107d	0	24MAY06	14JUN06	26SEP06	19OCT06
BORWVW0900	EI to Fencing Around LO Site	1	111d	0	07JUL06	07JUL06	18NOV06	18NOV06
BORWVW1000	Fencing Around LO Site (P1)	18	111d	0	26JUL06	18AUG06	06DEC06	26DEC06

EI to Demolish HY788/02 Contractor's Office (P1)

EI to Remove Run-in & Reinstale FPCT

Demolish Existing Paving (P1)

Demolish Existing Paving (P1)

EI to Fencing Around LO Site

Fencing Around LO Site (P1)

Section 11

Area 8A2, 8A11B & 8A14

Landscaping/Softworks

AG ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
B1AASL0100	Soil Mix (Section 5)	24	-132d	0	09FEB06	07MAR06	30AUG06	27SEP06
B1AASL0200	Soil Mix (In Z3, South End - 100m)	10	-67d	0	03DEC05	14DEC05	13SEP06	24SEP06
B1AASL0300	Soil Mix (In Z3, 100 - 200m)	10	-66d	0	11JAN06	21JAN06	19SEP06	24SEP06
B1AASL0400	Soil Mix (In Z5, 200 - 300m)	10	-58d	0	11JAN06	21JAN06	02NOV06	12NOV06
B1AASL0500	Soil Mix (In Z5, 300 - 400m)	10	-73d	0	28JAN06	10FEB06	02NOV06	12NOV06
B1AASL0600	Soil Mix (In Z5, 400 - North End)	10	-132d	0	17MAY06	27MAY06	07DEC06	17DEC06
B1AASL0700	Soil Mix (In Z1, 300m)	30	-78d	0	25JAN06	02MAR06	24OCT06	28NOV06
B1AASL0800	Planting Works	90	-132d	0	09MAR06	21JUN06	26SEP06	12JAN06
B1AASL0900	Groundcovers Works	50	-132d	0	29MAY06	27JUL06	19DEC06	19FEB06
B1AASL1000	Root Barrier (Z5, 100m - 200m) (VO1055A)	12	-78d	0	03DEC05	16DEC05	30AUG06	12SEP06
B1AASL1100	Root Barrier (Z5, 200m - 300m) (VO1055A)	12	-55d	0	22DEC05	06JAN06	19OCT06	01NOV06
B1AASL1200	Root Barrier (Z5, 300m - 400m) (VO1055A)	12	-55d	0	22DEC05	06JAN06	19OCT06	01NOV06
B1AASL1300	Root Barrier (Z5, 400m - N. End) (VO1055A)	2	-116d	0	28APR06	28APR06	03DEC06	08DEC06

Soil Mix (Section 5)

Soil Mix (In Z3, South End - 100m)

Soil Mix (In Z3, 100 - 200m)

Soil Mix (In Z5, 200 - 300m)

Soil Mix (In Z5, 300 - 400m)

Soil Mix (In Z5, 400 - North End)

Soil Mix (In Z1, 300m)

Planting Works

Groundcovers Works

Root Barrier (Z5, 100m - 200m) (VO1055A)

Root Barrier (Z5, 200m - 300m) (VO1055A)

Root Barrier (Z5, 300m - 400m) (VO1055A)

Root Barrier (Z5, 400m - N. End) (VO1055A)

Section 12

Area 8A7, 8A10, 8A11A, 8A12 & 8A13

Landscaping/Softworks

AG ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
B2ABSLO100	Soil Mix (In ZR, 365m)	47	18d	0	22APR06	17JUN06	15MAY06	10JUL06
B2ABSLO200	Soil Mix (In ZK, 180m)	24	28d	0	18APR06	17MAY06	23MAY06	20JUN06
B2ABSLO300	Soil Mix (In ZJ, 85m)	12	37d	0	24MAR06	07APR06	06MAY06	22MAY06
B2ABSLO400	Soil Mix (In ZJ, 50m)	7	37d	0	10MAR06	23MAR06	29APR06	08MAY06
B2ABSLO500	Soil Mix (ZJ - Landscape Node 1 South, 260m)	30	18d	0	25MAR06	26APR06	17APR06	22MAY06
B2ABSLO600	Soil Mix (ZM, ZL1, ZJ)	71	16d	0	08FEB06	03MAY06	27FEB06	22MAY06
B2ABSLO700	Planting Works	90	16d	0	04MAY06	18AUG06	23MAY06	06SEP06
B2ABSLO800	Groundcovers Works	50	18d	0	19AUG06	17OCT06	07SEP06	03NOV06
B2ABSLO900	Root Barrier (In ZM) (VO1065)	12	23d	0	18JAN06	28JAN06	13FEB06	25FEB06
B2ABSLO1000	Root Barrier (In ZR) (VO1065)	2	34d	0	31MAR06	01APR06	12MAY06	13MAY06

Soil Mix (In ZR, 365m)

Soil Mix (In ZK, 180m)

Soil Mix (In ZJ, 85m)

Soil Mix (In ZJ, 50m)

Soil Mix (ZJ - Landscape Node 1 South, 260m)

Soil Mix (ZM, ZL1, ZJ)

Planting Works

Groundcovers Works

Root Barrier (In ZM) (VO1065)

Root Barrier (In ZR) (VO1065)

Start date 10JUN06
 Finish date 20OCT07
 Data date 28SEP06
 Sun date 17OCT05
 Page number 27A

Legend:
 ■ Early bar
 ■ Progress bar
 ■ Critical bar
 ■ Summary bar
 ◆ Start milestone point
 ◆ Finish milestone point

Company Logo: LEADER
 Logo: ZHA
 Logo: ZHA

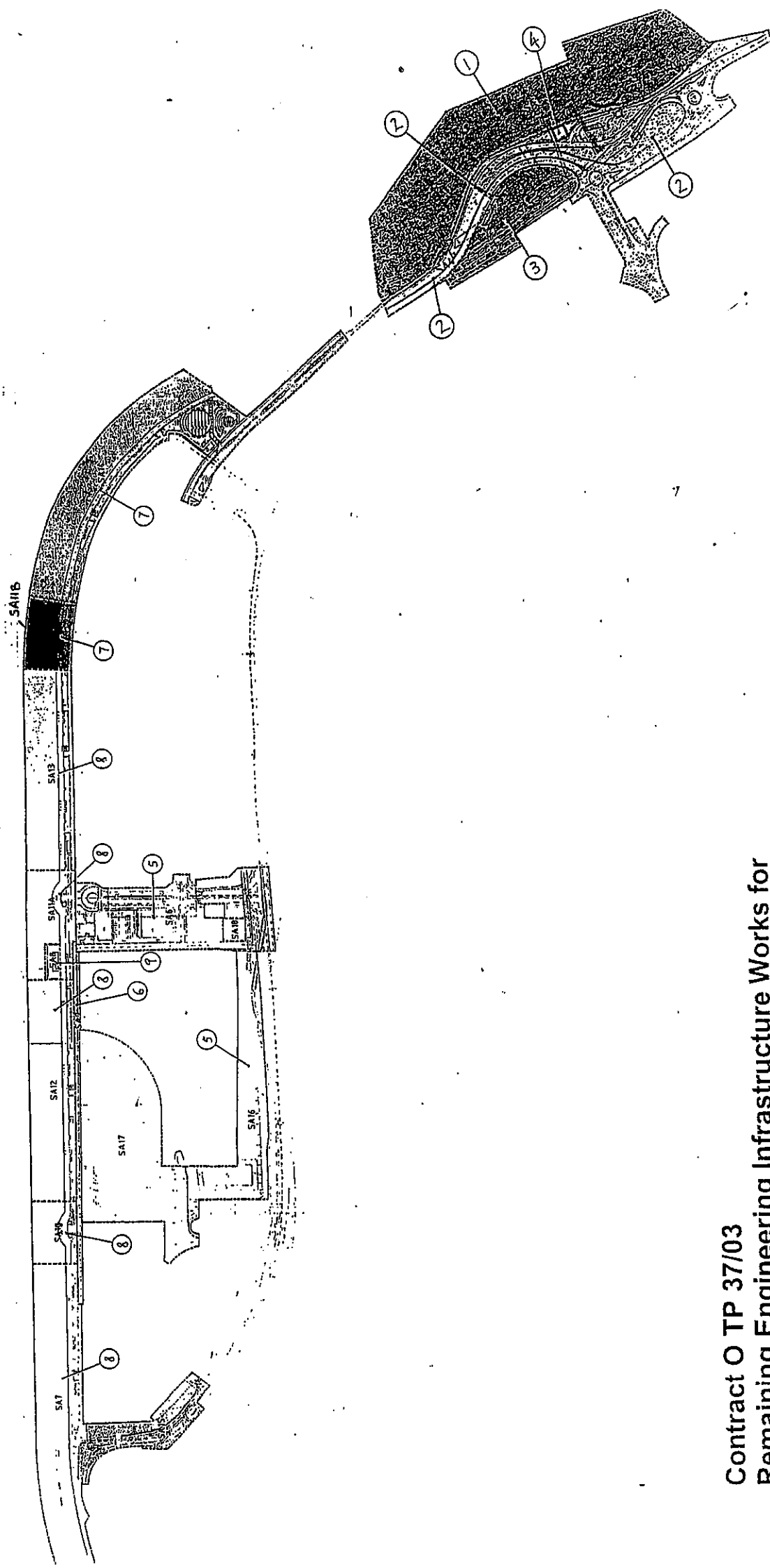
Leader - Wal Kee (C&T) Joint Venture
 TP37103 - Revised Works Programme - RP04

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Appendix G

Construction Site Area



Contract O TP 37/03
 Remaining Engineering Infrastructure Works for
 Pak Shek Kok Development Package 2A

Location and Key Plan



Appendix H

The Implementation Status
of
Mitigation Measures and Follow-up Actions during Weekly
Site Inspections

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Inspection Date : 1 December 2008 Inspected by : (RSS) Sunny Yung (LWKKM) *Sunny Yung* (ET) H.T. Chow
 Time : 15:15 Signature : *[Signature]*

Weather Condition : Sunny / Fine / Overcast / Drizzle / Rain / Storm / Hazy
 Wind : Calm / Light / Breeze / Strong Temperature : 22°C Humidity : High / Moderate / Low

	Implementation Stages*		Remark
	Yes	No / N/A	
Mitigation Measures on Waste Management			
Air Quality			
▪ The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading.	<input checked="" type="checkbox"/>		
▪ During transportation by truck, material should be loaded to a level lower than the side and tail boards, and should be dampened or covered before transport.	<input checked="" type="checkbox"/>		
▪ All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	<input checked="" type="checkbox"/>		#2
▪ The haul road should be either paved or regular watering.	<input checked="" type="checkbox"/>		
▪ Unpaved areas should be watered regularly to avoid dust generation.	<input checked="" type="checkbox"/>		
▪ The public road around the site entrance should be kept clean and free from dust.	<input checked="" type="checkbox"/>		
▪ Vehicle speed should be limited to 20 km/hr.	<input checked="" type="checkbox"/>		
▪ Wheel washing facilities should be provided at all main entrance of work site.	<input checked="" type="checkbox"/>		
▪ The enclosures should be around the main dust-generating activities.	<input checked="" type="checkbox"/>		
▪ Dusty materials should be sprayed prior to loading.	<input checked="" type="checkbox"/>		
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	<input checked="" type="checkbox"/>		
▪ Vehicle and equipment should be switched off while not in use.	<input checked="" type="checkbox"/>		
▪ Open burning should be prohibited.	<input checked="" type="checkbox"/>		
Noise			
▪ The constructions works should be scheduled to minimize noise nuisance.	<input checked="" type="checkbox"/>		
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	<input checked="" type="checkbox"/>		
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	<input checked="" type="checkbox"/>		
▪ Plant known to emit noise strongly in on direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs.	<input checked="" type="checkbox"/>		
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	<input checked="" type="checkbox"/>		
▪ Noise enclosures, noise barriers, or portable noise barriers used where necessary.	<input checked="" type="checkbox"/>		
▪ Air compressors and hand held breakers should have noise labels.	<input checked="" type="checkbox"/>		
▪ Compressors and generators should operate with door closed.	<input checked="" type="checkbox"/>		
▪ Construction Noise Permits should be available for inspection.	<input checked="" type="checkbox"/>		

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Water Quality				
General Construction Activities				
▪ Temporary ditches shall be provided to facilitate runoff discharge into appropriate watercourses, via a sediment trap / sedimentation tanks, prior to discharge.	✓			
▪ Permanent drainage channels shall incorporate sediment basins / traps, and baffles.	✓			
▪ All traps shall incorporate oil and grease removal facilities.	✓			
▪ Sediment traps / sedimentation tanks shall be regular cleaned and maintained regularly.	✓			
▪ All drainage facilities should be adequate for controlled release of storm flows.	✓			
▪ Minimizing of exposed soil areas to reduce the potential for increased siltation and contamination of runoff.	✓			
▪ Open stockpiles of more than 50m ³ should be covered.	✓			#2
▪ Temporary stockpiles of excavated materials should be covered during rainstorms.	✓			
▪ Manholes should be covered and sealed.	✓			
▪ All chemical stores shall be contained (bunded) such that spills are not allowed to gain access to water bodies.	✓			
▪ Vehicles and plant should be cleaned of earth, mud and debris before leaving the site.	✓			
▪ Vehicle washing facilities should be provided at every site exit.	✓			
▪ Vehicle washing facilities should be adequate to settle out the sand and silt.	✓			
▪ Washing area and road exiting from washing facility should be paved.	✓			
▪ Access road should have sufficient back fall toward washing facility.	✓			
Dredging Activities				
▪ Dredging of designated contaminated marine mud shall only be undertaken by a suitable grab dredger using a close grab.	✓			
▪ Mechanical grabs shall be designed and maintained to avoid spillage and shall be seal tightly while being lifted.	✓			
▪ All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipelines at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller on the water within the site.	✓			
▪ The works shall cause no visible foam, oil, grease, scum litter or other objectionable matter to be present on the water within the site.	✓			
▪ All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials.	✓			
▪ Excess material shall be cleaned from the decks and exposed fittings of the barges before the vessels are moved.	✓			
▪ Loading of barges shall be controlled to prevent splashing of dredging material to the surrounding water and the barges shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation.	✓			
▪ Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
 Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Filling Activities				
<ul style="list-style-type: none"> Use of silt screen around the filling face to reduce the losses to the surrounding. All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipeline at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash or pipelines damaged. The works shall cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site. All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material. Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water and barges shall not be filled to a level which will cause overflowing of material or polluted water during loading transportation. 	✓	✓	✓	
Waste Management				
Marine Dredged Sediment				
<ul style="list-style-type: none"> Relevant licence / permits for disposal of marine dredged sediment are available for inspection. Bottom opening of barges is fitted with tight fitting seals to prevent leakage of material. Excess material is cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. Monitoring of the barging loading is conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels are equipped with automatic self-monitoring devices as specified by the EPD. Transport of dredged marine sediments to the disposal site is by split barge of not less than 750m³ capacity, well maintained and capable of rapid opening and discharge at the disposal site. Inspection of the barge loading to ensure that loss of material does not take place during transportation. 	✓	✓	✓	
Construction and Demolition (C&D) Waste				
<ul style="list-style-type: none"> Most of the C&D materials generated from the construction are sorted immediately in-situ to find out if they can be re-used for this job site or for other job sites. Sufficient spaces are identified and provided during the construction stage for the collection, temporary storage and on-site sorting of C&D materials. Proper protective measures, such as fences and tarpaulin, are provided, in order to protective the temporary stockpiled materials for later reuse / recycle. Avoiding cross contamination to reusable and / or recyclable materials collected (e.g. covering the reusable materials) In order to reduce the impacts to the public, except for those sorted inert C&D materials to be reused on site, all other sorted non-inert materials (e.g. general refuse and waste formworks) shall be removed off site as soon as practicable in order to optimise the use of the on-site storage space. If the non-inert materials need to be stored on site for a short period, the materials shall be centralized and stored at specific areas far away the sensitive receivers. All Public Fill arising from the demolition works shall be limited to a size not more than 250mm and free of reinforcement bars, timber, etc. before re-using it. Recyclable materials sorted from the site should be collected by potential recycling contractors under the Contractor's arrangement. Trip ticket system will be implemented to ensure proper waste disposal at public filling and landfills Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. Proper resource planning and calculations before ordering the construction materials to be used will ensure that the wastage of the materials can be minimized 	✓	✓	✓	

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
• Proper storage will minimize the damage and thus the wastage of the materials	✓			
• Training of site personnel in proper waste management procedures. The workers shall be constantly educated for the awareness of the proper handling of waste and to reduce the amount of waste while Site Agent shall be constantly met to discuss the effectiveness of the implementation of the waste management plan. Information to promote the waste management and the reduction concept shall be posted at the site to raise alertness of the personnel concerned.	✓			
• Chemical Waste				
• It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (General) Regulation should be observed and complied with for control of chemical wastes.	✓			
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	✓			
• Chemical wastes should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	✓			
• Containers used for the storage of chemical wastes	✓			
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed	✓			
• Have a capacity of less than 450L unless the specification have been approved by the EPD	✓			
• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste (General) Regulations and Codes of Practice	✓			
• Labelling	✓			
• Every container of chemical waste would bear an appropriate label, which would contain the particulars details.	✓			
• The waste produced would ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste	✓			
• Storage Area				
• Be clearly labeled and used solely for the storage of chemical waste	✓			
• Be enclosed on at least 3 sides	✓			
• Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest	✓			
• Have adequate ventilation	✓			
• Be covered to prevent rainfall entering	✓			
• Be arranged so that incompatible materials are adequately separated	✓			
• Be clean and maintain regularly	✓			
• Disposal				
• Be via a licensed waste collector	✓			
• To a licensed disposal facility, such as Chemical Waste Treatment Centre	✓			
• Be a reuser of the waste, under approval from the EPD	✓			

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
• Spillage				
• Establish source of spill or discharge and determine nature of material, where possible halt discharge			✓	
• Commencing at the source of the spill, establish all current and potential impacted areas			✓	
• Commence containment of spill using bunds made from available materials and ground water cut-off trenches where necessary			✓	
• After spill is contained remove material (including contaminated soil where necessary) using pumps and/or absorbent materials			✓	
• Dispose of materials as chemical wastes			✓	
• General Refuse				
• General refuse generated on-site is in enclosed bins or compaction units separate from construction and chemical waste	✓			
• A reputable waste collector is employed by the Contractor to remove general refuse from the site, separately from the construction and chemical waste.	✓			
• General refuse generated is removed on daily or every second day basis to minimise odour, pest and litter impacts	✓			
• Aluminium cans are recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.	✓			
• Office wastes are reduced through recycling of paper if volumes are large enough to warrant collection.	✓			
• Site Practice				
• Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment.	✓			
• Construction sites should be cleaned on a regular basis.	✓			
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal of all wastes generated at the site.	✓			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	✓			
• The Environmental Permit should be displaced conspicuously on site	✓			
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	✓			
• Any unused chemicals or those with remaining functional capacity should be recycled.	✓			
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.	✓			
• Suitable collection sites around site offices will be required. For environmental hygiene reasons and to minimize odor, refuse should not be stored for a period exceeding 48 hours, however, removal every 24 hours is preferable.	✓			
• Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container.	✓			
• All generators, fuel and oil storage are within bundle areas.	✓			
• Oil leakage from machinery, vehicle and plant is prevented.	✓			
• Chemical storage area, drainage systems, silt traps, sumps and oil interceptors are cleaned and maintained regularly.	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Inspection Date : 10 December 2008 Inspected by Name : (RSS) Eric Leung (LWKJM) Ben Yip (ET) H. T. Chow
 Time : 10:00 Signature : *[Signature]* *[Signature]* *[Signature]*

Weather : Sunray / Fine / Overcast / Drizzle / Rain / Storm / Hazy Temperature : 18°C
 Wind : Calm / Light / Breeze / Strong Humidity : High / Moderate / Low

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Air Quality				
▪ The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading.	<input checked="" type="checkbox"/>			
▪ During transportation by truck, material should be loaded to a level lower than the side and tail boards, and should be dampened or covered before transport.	<input checked="" type="checkbox"/>			
▪ All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	<input checked="" type="checkbox"/>			
▪ The haul road should be either paved or regular watering.	<input checked="" type="checkbox"/>			
▪ Unpaved areas should be watered regularly to avoid dust generation.	<input checked="" type="checkbox"/>			
▪ The public road around the site entrance should be kept clean and free from dust.	<input checked="" type="checkbox"/>			
▪ Vehicle speed should be limited to 20 km/hr.	<input checked="" type="checkbox"/>			
▪ Wheel washing facilities should be provided at all main entrance of work site.	<input checked="" type="checkbox"/>			
▪ The enclosures should be around the main dust-generating activities.	<input checked="" type="checkbox"/>			
▪ Dusty materials should be sprayed prior to loading.	<input checked="" type="checkbox"/>			
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	<input checked="" type="checkbox"/>			
▪ Vehicle and equipment should be switched off while not in use.	<input checked="" type="checkbox"/>			
▪ Open burning should be prohibited.	<input checked="" type="checkbox"/>			
Noise				
▪ The constructions works should be scheduled to minimize noise nuisance.	<input checked="" type="checkbox"/>			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	<input checked="" type="checkbox"/>			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	<input checked="" type="checkbox"/>			
▪ Plant known to emit noise strongly in on direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs.	<input checked="" type="checkbox"/>			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	<input checked="" type="checkbox"/>			
▪ Noise enclosures, noise barriers, or portable noise barriers used where necessary.	<input checked="" type="checkbox"/>			
▪ Air compressors and hand held breakers should have noise labels.	<input checked="" type="checkbox"/>			
▪ Compressors and generators should operate with door closed.	<input checked="" type="checkbox"/>			
▪ Construction Noise Permits should be available for inspection.	<input checked="" type="checkbox"/>			

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Water Quality				
General Construction Activities				
▪ Temporary ditches shall be provided to facilitate runoff discharge into appropriate watercourses, via a sediment trap / sedimentation tanks, prior to discharge.	✓			
▪ Permanent drainage channels shall incorporate sediment basins / traps, and baffles.	✓			
▪ All traps shall incorporate oil and grease removal facilities.	✓			
▪ Sediment traps / sedimentation tanks shall be regular cleaned and maintained regularly.	✓			
▪ All drainage facilities should be adequate for controlled release of storm flows.	✓			
▪ Minimizing of exposed soil areas to reduce the potential for increased siltation and contamination of runoff.	✓			
▪ Open stockpiles of more than 50m ³ should be covered.	✓			
▪ Temporary stockpiles of excavated materials should be covered during rainstorms.	✓			
▪ Manholes should be covered and sealed.	✓			
▪ All chemical stores shall be contained (bunded) such that spills are not allowed to gain access to water bodies.	✓			
▪ Vehicles and plant should be cleaned of earth, mud and debris before leaving the site.	✓			
▪ Vehicle washing facilities should be provided at every site exit.	✓			
▪ Vehicle washing facilities should be adequate to settle out the sand and silt.	✓			
▪ Washing area and road exiting from washing facility should be paved.	✓			
▪ Access road should have sufficient back fall toward washing facility.	✓			
Dredging Activities				
▪ Dredging of designated contaminated marine mud shall only be undertaken by a suitable grab dredger using a close grab.			✓	
▪ Mechanical grabs shall be designed and maintained to avoid spillage and shall be seal tightly while being lifted.			✓	
▪ All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipelines at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller on the water within the site.			✓	
▪ The works shall cause no visible foam, oil, grease, scum litter or other objectionable matter to be present on the water within the site.			✓	
▪ All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials.			✓	
▪ Excess material shall be cleaned from the decks and exposed fittings of the barges before the vessels are moved.			✓	
▪ Loading of barges shall be controlled to prevent splashing of dredging material to the surrounding water and the barges shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation.			✓	
▪ Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.			✓	

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Filling Activities				
• Use of silt screen around the filling face to reduce the losses to the surrounding.			✓	
• All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipeline at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash or pipelines damaged.			✓	
• The works shall cause no visible foam, oil, grease, silt, litter or other objectionable matter to be present on the water within the site.			✓	
• All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material.			✓	
• Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water and barges shall not be filled to a level which will cause overflowing of material or polluted water during loading transportation.			✓	
Waste Management				
Marine Dredged Sediment				
• Relevant licence / permits for disposal of marine dredged sediment are available for inspection.			✓	
• Bottom opening of barges is fitted with tight fitting seals to prevent leakage of material. Excess material is cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.			✓	
• Monitoring of the barging loading is conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels are equipped with automatic self-monitoring devices as specified by the EPD.			✓	
• Transport of dredged marine sediments to the disposal site is by split barge of not less than 750m ³ capacity, well maintained and capable of rapid opening and discharge at the disposal site.			✓	
• Inspection of the barge loading to ensure that loss of material does not take place during transportation.			✓	
Construction and Demolition (C&D) Waste				
• Most of the C&D materials generated from the construction are sorted immediately in-situ to find out if they can be re-used for this job site or for other job sites.	✓			
• Sufficient spaces are identified and provided during the construction stage for the collection, temporary storage and on-site sorting of C&D materials.	✓			
• Proper protective measures, such as fences and tarpaulin, are provided, in order to protective the temporary stockpiled materials for later reuse / recycle.	✓			
• Avoiding cross contamination to reusable and / or recyclable materials collected (e.g. covering the reusable materials)	✓			
• In order to reduce the impacts to the public, except for those sorted inert C&D materials to be reused on site, all other sorted non-inert materials (e.g. general refuse and waste formworks) shall be removed off site as soon as practicable in order to optimise the use of the on-site storage space. If the non-inert materials need to be stored on site for a short period, the materials shall be centralized and stored at specific areas far away the sensitive receivers.	✓			
• All Public Fill arising from the demolition works shall be limited to a size not more than 250mm and free of reinforcement bars, timber, etc. before re-using it.	✓			
• Recyclable materials sorted from the site should be collected by potential recycling contractors under the Contractor's arrangement.	✓			
• Trip ticket system will be implemented to ensure proper waste disposal at public filling and landfills	✓			
• Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	✓			
• Proper resource planning and calculations before ordering the construction materials to be used will ensure that the wastage of the materials can be minimized	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
• Proper storage will minimize the damage and thus the wastage of the materials	✓			
• Training of site personnel in proper waste management procedures. The workers shall be constantly educated for the awareness of the proper handling of waste and to reduce the amount of waste while Site Agent shall be constantly met to discuss the effectiveness of the implementation of the waste management plan. Information to promote the waste management and the reduction concept shall be posted at the site to raise alertness of the personnel concerned.	✓			
• Chemical Waste				
• It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	✓			
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	✓			
• Chemical wastes should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	✓			
• Containers used for the storage of chemical wastes				
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed	✓			
• Have a capacity of less than 450L unless the specification have been approved by the EPD	✓			
• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste (General) Regulations and Codes of Practice	✓			
• Labelling				
• Every container of chemical waste would bear an appropriate label, which would contain the particulars details.	✓			
• The waste produced would ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste	✓			
• Storage Area				
• Be clearly labeled and used solely for the storage of chemical waste	✓			
• Be enclosed on at least 3 sides	✓			
• Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest	✓			
• Have adequate ventilation	✓			
• Be covered to prevent rainfall entering	✓			
• Be arranged so that incompatible materials are adequately separated	✓			
• Be clean and maintain regularly	✓			
• Disposal				
• Be via a licensed waste collector	✓			
• To a licensed disposal facility, such as Chemical Waste Treatment Centre	✓			
• Be a reuser of the waste, under approval from the EPD	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
• Spillage				
• Establish source of spill or discharge and determine nature of material, where possible halt discharge			✓	
• Commencing at the source of the spill, establish all current and potential impacted areas			✓	
• Commence containment of spill using bunds made from available materials and ground water cut-off trenches where necessary			✓	
• After spill is contained remove material (including contaminated soil where necessary) using pumps and/or absorbent materials			✓	
• Dispose of materials as chemical wastes				
• General Refuse				
• General refuse generated on-site is in enclosed bins or compaction units separate from construction and chemical waste	✓			
• A reputable waste collector is employed by the Contractor to remove general refuse from the site, separately from the construction and chemical waste.	✓			
• General refuse generated is removed on daily or every second day basis to minimise odour, pest and litter impacts	✓			
• Aluminium cans are recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.	✓			
• Office wastes are reduced through recycling of paper if volumes are large enough to warrant collection.	✓			
• Site Practice				
• Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment.	✓			
• Construction sites should be cleaned on a regular basis.	✓			
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal of all wastes generated at the site.	✓			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	✓			
• The Environmental Permit should be displaced conspicuously on site	✓			
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	✓			
• Any unused chemicals or those with remaining functional capacity should be recycled.	✓			
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.	✓			
• Suitable collection sites around site offices will be required. For environmental hygiene reasons and to minimize odor, refuse should not be stored for a period exceeding 48 hours, however, removal every 24 hours is preferable.	✓			
• Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container.	✓			
• All generators, fuel and oil storage are within bundle areas.	✓			
• Oil leakage from machinery, vehicle and plant is prevented.	✓			
• Chemical storage area, drainage systems, silt traps, surps and oil interceptors are cleaned and maintained regularly.	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
 Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Inspection Date : 17 December 2005 Inspected by : Sunny Yeung (LWKJN) Name : (RSS) Signature : *[Signature]* (ET) H.T. Chow
 Time : 10:15
 Weather Condition : Sunny / Fine / Overcast / Drizzle / Rain / Storm / Hazy Temperature : 15°C
 Wind : Calm / Light / Breeze / Strong Humidity : High / Moderate / Low

	Implementation Stages*		Remark
	Yes	No / N/A	
Mitigation Measures on Waste Management			
Air Quality			
▪ The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading.	✓		
▪ During transportation by truck, material should be loaded to a level lower than the side and tail boards, and should be dampened or covered before transport.	✓		
▪ All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	✓		
▪ The haul road should be either paved or regular watering.	✓		
▪ Unpaved areas should be watered regularly to avoid dust generation.	✓		①
▪ The public road around the site entrance should be kept clean and free from dust.	✓		
▪ Vehicle speed should be limited to 20 km/hr.	✓		
▪ Wheel washing facilities should be provided at all main entrance of work site.	✓		
▪ The enclosures should be around the main dust-generating activities.	✓		
▪ Dusty materials should be sprayed prior to loading.	✓		
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	✓		
▪ Vehicle and equipment should be switched off while not in use.	✓		
▪ Open burning should be prohibited.	✓		
Noise			
▪ The constructions works should be scheduled to minimize noise nuisance.	✓		
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	✓		
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	✓		
▪ Plant known to emit noise strongly in on direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs.	✓		
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	✓		
▪ Noise enclosures, noise barriers, or portable noise barriers used where necessary.	✓		
▪ Air compressors and hand held breakers should have noise labels.	✓		
▪ Compressors and generators should operate with door closed.	✓		
▪ Construction Noise Permits should be available for inspection.	✓		

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Water Quality				
General Construction Activities				
▪	✓			Temporary ditches shall be provided to facilitate runoff discharge into appropriate watercourses, via a sediment trap / sedimentation tanks, prior to discharge.
▪	✓			Permanent drainage channels shall incorporate sediment basins / traps, and baffles.
▪	✓			All traps shall incorporate oil and grease removal facilities.
▪	✓			Sediment traps / sedimentation tanks shall be regular cleaned and maintained regularly.
▪	✓			All drainage facilities should be adequate for controlled release of storm flows.
▪	✓			Minimizing of exposed soil areas to reduce the potential for increased siltation and contamination of runoff.
▪	✓			Open stockpiles of more than 50m ³ should be covered.
▪	✓			Temporary stockpiles of excavated materials should be covered during rainstorms.
▪	✓			Manholes should be covered and sealed.
▪	✓			All chemical stores shall be contained (bunded) such that spills are not allowed to gain access to water bodies.
▪	✓			Vehicles and plant should be cleaned of earth, mud and debris before leaving the site.
▪	✓			Vehicle washing facilities should be provided at every site exit.
▪	✓			Vehicle washing facilities should be adequate to settle out the sand and silt.
▪	✓			Washing area and road exiting from washing facility should be paved.
▪	✓			Access road should have sufficient back fall toward washing facility.
Dredging Activities				
▪	✓			Dredging of designated contaminated marine mud shall only be undertaken by a suitable grab dredger using a close grab.
▪	✓			Mechanical grabs shall be designed and maintained to avoid spillage and shall be seal tightly while being lifted.
▪	✓			All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipelines at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller on the water within the site.
▪	✓			The works shall cause no visible foam, oil, grease, scum litter or other objectionable matter to be present on the water within the site.
▪	✓			All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials.
▪	✓			Excess material shall be cleaned from the decks and exposed fittings of the barges before the vessels are moved.
▪	✓			Loading of barges shall be controlled to prevent splashing of dredging material to the surrounding water and the barges shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation.
▪	✓			Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*		Remark
	Yes	No / N/A	
Mitigation Measures on Waste Management			
Filling Activities			
Use of silt screen around the filling face to reduce the losses to the surrounding.	✓		
All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipeline at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash or pipelines damaged.	✓		
The works shall cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site.	✓		
All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material.	✓		
Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water and barges shall not be filled to a level which will cause overflowing of material or polluted water during transportation.	✓		
Waste Management			
Marine Dredged Sediment			
Relevant licence / permits for disposal of marine dredged sediment are available for inspection.	✓		
Bottom opening of barges is fitted with tight fitting seals to prevent leakage of material. Excess material is cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.	✓		
Monitoring of the barging loading is conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels are equipped with automatic self-monitoring devices as specified by the EPD.	✓		
Transport of dredged marine sediments to the disposal site is by split barge of not less than 750m ³ capacity, well maintained and capable of rapid opening and discharge at the disposal site.	✓		
Inspection of the barge loading to ensure that loss of material does not take place during transportation.	✓		
Construction and Demolition (C&D) Waste			
Most of the C&D materials generated from the construction are sorted immediately in-situ to find out if they can be re-used for this job site or for other job sites.	✓		
Sufficient spaces are identified and provided during the construction stage for the collection, temporary storage and on-site sorting of C&D materials.	✓		
Proper protective measures, such as fences and tarpaulin, are provided, in order to protect the temporary stockpiled materials for later reuse / recycle.	✓		
Avoiding cross contamination to reusable and / or recyclable materials collected (e.g. covering the reusable materials)	✓		
In order to reduce the impacts to the public, except for those sorted inert C&D materials to be reused on site, all other sorted non-inert materials (e.g. general refuse and waste formworks) shall be removed off site as soon as practicable in order to optimise the use of the on-site storage space. If the non-inert materials need to be stored on site for a short period, the materials shall be centralized and stored at specific areas far away the sensitive receivers.	✓		
All Public Fill arising from the demolition works shall be limited to a size not more than 250mm and free of reinforcement bars, timber, etc. before re-using it.	✓		
Recyclable materials sorted from the site should be collected by potential recycling contractors under the Contractor's arrangement.	✓		
Trip ticket system will be implemented to ensure proper waste disposal at public filling and landfills	✓		
Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	✓		
Proper resource planning and calculations before ordering the construction materials to be used will ensure that the wastage of the materials can be minimized	✓		



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*		Remark
	Yes	No	
	N/A		
Mitigation Measures on Waste Management			
• Proper storage will minimize the damage and thus the wastage of the materials	✓		
• Training of site personnel in proper waste management procedures. The workers shall be constantly educated for the awareness of the proper handling of waste and to reduce the amount of waste while Site Agent shall be constantly met to discuss the effectiveness of the implementation of the waste management plan. Information to promote the waste management and the reduction concept shall be posted at the site to raise alertness of the personnel concerned.	✓		
• Chemical Waste			
• It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	✓		
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	✓		
• Chemical wastes should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	✓		
• Containers used for the storage of chemical wastes			
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed	✓		
• Have a capacity of less than 450L unless the specification have been approved by the EPD	✓		
• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste (General) Regulations and Codes of Practice	✓		
• Labelling	✓		
• Every container of chemical waste would bear an appropriate label, which would contain the particulars details.	✓		
• The waste produced would ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste	✓		
• Storage Area			
• Be clearly labeled and used solely for the storage of chemical waste	✓		
• Be enclosed on at least 3 sides	✓		
• Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest.	✓		
• Have adequate ventilation	✓		
• Be covered to prevent rainfall entering	✓		
• Be arranged so that incompatible materials are adequately separated	✓		
• Be clean and maintain regularly	✓		
• Disposal			
• Be via a licensed waste collector	✓		
• To a licensed disposal facility, such as Chemical Waste Treatment Centre	✓		
• Be a reuser of the waste, under approval from the EPD	✓		



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Mitigation Measures on Waste Management	Implementation Stages*			Remark
	Yes	No	N/A	
• Spillage				
• Establish source of spill or discharge and determine nature of material, where possible halt discharge			✓	
• Commencing at the source of the spill, establish all current and potential impacted areas			✓	
• Commence containment of spill using bunds made from available materials and ground water cut-off trenches where necessary			✓	
• After spill is contained remove material (including contaminated soil where necessary) using pumps and/or absorbent materials			✓	
• Dispose of materials as chemical wastes			✓	
• General Refuse				
• General refuse generated on-site is in enclosed bins or compaction units separate from construction and chemical waste	✓			
• A reputable waste collector is employed by the Contractor to remove general refuse from the site, separately from the construction and chemical waste.	✓			
• General refuse generated is removed on daily or every second day basis to minimise odour, pest and litter impacts	✓			
• Aluminium cans are recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.	✓			
• Office wastes are reduced through recycling of paper if volumes are large enough to warrant collection.	✓			
• Site Practice				
• Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. Construction sites should be cleaned on a regular basis.	✓			
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	✓			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	✓			
• The Environmental Permit should be displaced conspicuously on site	✓			
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	✓			
• Any unused chemicals or those with remaining functional capacity should be recycled.	✓			
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.	✓			
• Suitable collection sites around site offices will be required. For environmental hygiene reasons and to minimize odor, refuse should not be stored for a period exceeding 48 hours, however, removal every 24 hours is preferable.	✓			
• Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container.	✓			
• All generators, fuel and oil storage are within bundle areas.	✓			
• Oil leakage from machinery, vehicle and plant is prevented.	✓			
• Chemical storage area, drainage systems, silt traps, sumps and oil interceptors are cleaned and maintained regularly.	✓			

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Inspection Date : 21/12/25
 Time : 10:15
 Inspected by : Sunny Yeung (LWKN) (ET) Linda Lam
 Name : (RSS) Signature :
 Weather Condition : Sunny / Fine / Overcast / Drizzle / Rain / Storm / Hazy
 Wind : Calm / Light / Breeze / Strong
 Temperature : 17 °C
 Humidity : High / Moderate / Low

	Implementation Stages*			Remark
	Yes	No	N/A	
Air Quality				
▪ The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading.	/			
▪ During transportation by truck, material should be loaded to a level lower than the side and tail boards, and should be dampened or covered before transport.	/			
▪ All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	/			
▪ The haul road should be either paved or regular watering.	/			
▪ Unpaved areas should be watered regularly to avoid dust generation.	/			
▪ The public road around the site entrance should be kept clean and free from dust.	/			
▪ Vehicle speed should be limited to 20 km/hr.	/			
▪ Wheel washing facilities should be provided at all main entrance of work site.	/			
▪ The enclosures should be around the main dust-generating activities.	/			
▪ Dusty materials should be sprayed prior to loading.	/			
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	/			
▪ Vehicle and equipment should be switched off while not in use.	/			
▪ Open burning should be prohibited.	/			
Noise				
▪ The constructions works should be scheduled to minimize noise nuisance.	/			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	/			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	/			
▪ Plant known to emit noise strongly in on direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs.	/			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	/			
▪ Noise enclosures, noise barriers, or portable noise barriers used where necessary.	/			
▪ Air compressors and hand held breakers should have noise labels.	/			
▪ Compressors and generators should operate with door closed.	/			
▪ Construction Noise Permits should be available for inspection.	/			

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

		Implementation Stages*			Remark
Water Quality					
General Construction Activities					
▪	Temporary ditches shall be provided to facilitate runoff discharge into appropriate watercourses, via a sediment trap / sedimentation tanks, prior to discharge.	/			
▪	Permanent drainage channels shall incorporate sediment basins / traps, and baffles.	/			
▪	All traps shall incorporate oil and grease removal facilities.	/			
▪	Sediment traps / sedimentation tanks shall be regular cleaned and maintained regularly.	/			
▪	All drainage facilities should be adequate for controlled release of storm flows.	/			
▪	Minimizing of exposed soil areas to reduce the potential for increased siltation and contamination of runoff.	/			
▪	Open stockpiles of more than 50m ³ should be covered.	/			
▪	Temporary stockpiles of excavated materials should be covered during rainstorms.	/			
▪	Manholes should be covered and sealed.	/			
▪	All chemical stores shall be contained (bunded) such that spills are not allowed to gain access to water bodies.	/			
▪	Vehicles and plant should be cleaned of earth, mud and debris before leaving the site.	/			
▪	Vehicle washing facilities should be provided at every site exit.	/			
▪	Vehicle washing facilities should be adequate to settle out the sand and silt.	/			
▪	Washing area and road exiting from washing facility should be paved.	/			
▪	Access road should have sufficient back fall toward washing facility.	/			
Dredging Activities					
▪	Dredging of designated contaminated marine mud shall only be undertaken by a suitable grab dredger using a close grab.	/			
▪	Mechanical grabs shall be designed and maintained to avoid spillage and shall be seal tightly while being lifted.	/			
▪	All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipelines at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller on the water within the site.	/			
▪	The works shall cause no visible foam, oil, grease, scum litter or other objectionable matter to be present on the water within the site.	/			
▪	All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials.	/			
▪	Excess material shall be cleaned from the decks and exposed fittings of the barges before the vessels are moved.	/			
▪	Loading of barges shall be controlled to prevent splashing of dredging material to the surrounding water and the barges shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation.	/			
▪	Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.	/			



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*		Remark
	Yes	No / N/A	
Mitigation Measures on Waste Management			
Filling Activities			
<ul style="list-style-type: none"> ▪ Use of silt screen around the filling face to reduce the losses to the surrounding. ▪ All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipeline at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash or pipelines damaged. ▪ The works shall cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site. ▪ All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material. ▪ Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water and barges shall not be filled to a level which will cause overflowing of material or polluted water during loading transportation. 	/		
Waste Management			
Marine Dredged Sediment			
<ul style="list-style-type: none"> • Relevant licence / permits for disposal of marine dredged sediment are available for inspection. • Bottom opening of barges is fitted with tight fitting seals to prevent leakage of material. Excess material is cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barging loading is conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels are equipped with automatic self-monitoring devices as specified by the EPD. • Transport of dredged marine sediments to the disposal site is by split barge of not less than 750m³ capacity, well maintained and capable of rapid opening and discharge at the disposal site. • Inspection of the barge loading to ensure that loss of material does not take place during transportation. 	/		
Construction and Demolition (C&D) Waste			
<ul style="list-style-type: none"> • Most of the C&D materials generated from the construction are sorted immediately in-situ to find out if they can be re-used for this job site or for other job sites. • Sufficient spaces are identified and provided during the construction stage for the collection, temporary storage and on-site sorting of C&D materials. • Proper protective measures, such as fences and tarpaulin, are provided, in order to protect the temporary stockpiled materials for later reuse / recycle. • Avoiding cross contamination to reusable and / or recyclable materials collected (e.g. covering the reusable materials) • In order to reduce the impacts to the public, except for those sorted inert C&D materials to be reused on site, all other sorted non-inert materials (e.g. general refuse and waste formworks) shall be removed off site as soon as practicable in order to optimise the use of the on-site storage space. If the non-inert materials need to be stored on site for a short period, the materials shall be centralized and stored at specific areas far away from the sensitive receivers. • All Public Fill arising from the demolition works shall be limited to a size not more than 250mm and free of reinforcement bars, timber, etc. before re-using it. • Recyclable materials sorted from the site should be collected by potential recycling contractors under the Contractor's arrangement. • Trip ticket system will be implemented to ensure proper waste disposal at public filling and landfills • Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Proper resource planning and calculations before ordering the construction materials to be used will ensure that the wastage of the materials can be minimized 	/		



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*		Remark
	Yes	No / N/A	
Mitigation Measures on Waste Management			
• Proper storage will minimize the damage and thus the wastage of the materials	/		
• Training of site personnel in proper waste management procedures. The workers shall be constantly educated for the awareness of the proper handling of waste and to reduce the amount of waste while Site Agent shall be constantly met to discuss the effectiveness of the implementation of the waste management plan. Information to promote the waste management and the reduction concept shall be posted at the site to raise alertness of the personnel concerned.	/		
• Chemical Waste			
• It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (General) Regulation should be observed and complied with for control of chemical wastes.	/		
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	/		
• Chemical wastes should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	/		
• Containers used for the storage of chemical wastes			
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed	/		
• Have a capacity of less than 450L unless the specification have been approved by the EPD	/		
• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste (General) Regulations and Codes of Practice	/		
• Labelling			
• Every container of chemical waste would bear an appropriate label, which would contain the particulars details.	/		
• The waste produced would ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste	/		
• Storage Area			
• Be clearly labeled and used solely for the storage of chemical waste	/		
• Be enclosed on at least 3 sides	/		
• Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest	/		
• Have adequate ventilation	/		
• Be covered to prevent rainfall entering	/		
• Be arranged so that incompatible materials are adequately separated	/		
• Be clean and maintain regularly	/		
• Disposal			
• Be via a licensed waste collector	/		
• To a licensed disposal facility, such as Chemical Waste Treatment Centre	/		
• Be a reuser of the waste, under approval from the EPD	/		



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Mitigation Measures on Waste Management	Implementation Stages*			Remark
	Yes	No	N/A	
• Spillage				
• Establish source of spill or discharge and determine nature of material, where possible halt discharge				
• Commencing at the source of the spill, establish all current and potential impacted areas				
• Commence containment of spill using bunds made from available materials and ground water cut-off trenches where necessary				
• After spill is contained remove material (including contaminated soil where necessary) using pumps and/or absorbent materials				
• Dispose of materials as chemical wastes				
• General Refuse				
• General refuse generated on-site is in enclosed bins or compaction units separate from construction and chemical waste				
• A reputable waste collector is employed by the Contractor to remove general refuse from the site, separately from the construction and chemical waste.				
• General refuse generated is removed on daily or every second day basis to minimise odour, pest and litter impacts				
• Aluminium cans are recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.				
• Office wastes are reduced through recycling of paper if volumes are large enough to warrant collection.				
• Site Practice				
• Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. Construction sites should be cleaned on a regular basis.				
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.				①
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.				①
• The Environmental Permit should be displaced conspicuously on site				
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.				
• Any unused chemicals or those with remaining functional capacity should be recycled.				
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.				
• Suitable collection sites around site offices will be required. For environmental hygiene reasons and to minimize odor, refuse should not be stored for a period exceeding 48 hours, however, removal every 24 hours is preferable.				
• Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container.				
• All generators, fuel and oil storage are within bundle areas.				
• Oil leakage from machinery, vehicle and plant is prevented.				
• Chemical storage area, drainage systems, silt traps, sumps and oil interceptors are cleaned and maintained regularly.				

Contract No.: TP 37/03 Remaining Engineering Infrastructure Works for
Pak Shek Kok Development Package 2A

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

Inspection Date : 30 December 2005 Inspected by Name : (RE) Reads Lo (LWKJN) (ET) H.T. Chow
 Time : 10:15 Signature : *[Signature]*

Weather Condition : Sunny / Fine / Overcast / Drizzle / Rain / Storm / Hazy
 Wind : Calm / Light / Breeze / Strong Temperature : 15°C Humidity : High / Moderate / Low

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
Air Quality				
▪ The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading.	✓			
▪ During transportation by truck, material should be loaded to a level lower than the side and tail boards, and should be dampened or covered before transport.	✓			
▪ All stockpiles of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	✓			
▪ The haul road should be either paved or regular watering.	✓			
▪ Unpaved areas should be watered regularly to avoid dust generation.	✓			
▪ The public road around the site entrance should be kept clean and free from dust.	✓			
▪ Vehicle speed should be limited to 20 km/hr.	✓			
▪ Wheel washing facilities should be provided at all main entrance of work site.	✓			
▪ The enclosures should be around the main dust-generating activities.	✓			
▪ Dusty materials should be sprayed prior to loading.	✓			
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	✓			
▪ Vehicle and equipment should be switched off while not in use.	✓			
▪ Open burning should be prohibited.	✓			
Noise				
▪ The constructions works should be scheduled to minimize noise nuisance.	✓			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	✓			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	✓			
▪ Plant known to emit noise strongly in on direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs.	✓			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	✓			
▪ Noise enclosures, noise barriers, or portable noise barriers used where necessary.	✓			
▪ Air compressors and hand held breakers should have noise labels.	✓			
▪ Compressors and generators should operate with door closed.	✓			
▪ Construction Noise Permits should be available for inspection.	✓			

SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark	
	Yes	No	N/A		
Mitigation Measures on Waste Management					
Filling Activities					
<ul style="list-style-type: none"> ▪ Use of silt screen around the filling face to reduce the losses to the surrounding. ▪ All vessels shall be sized such that adequate clearance is maintained between vessel and the sea bed and under water pipeline at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash or pipelines damaged. ▪ The works shall cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site. ▪ All barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material. ▪ Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water and barges shall not be filled to a level which will cause overflowing of material or polluted water during loading transportation. 					
Waste Management					
Marine Dredged Sediment					
<ul style="list-style-type: none"> • Relevant licence / permits for disposal of marine dredged sediment are available for inspection. • Bottom opening of barges is fitted with tight fitting seals to prevent leakage of material. Excess material is cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barging loading is conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels are equipped with automatic self-monitoring devices as specified by the EPD. • Transport of dredged marine sediments to the disposal site is by split barge of not less than 750m³ capacity, well maintained and capable of rapid opening and discharge at the disposal site. • Inspection of the barge loading to ensure that loss of material does not take place during transportation. 					
Construction and Demolition (C&D) Waste					
<ul style="list-style-type: none"> • Relevant licence / permits for disposal of C&D materials available for inspection. • Most of the C&D materials generated from the construction are sorted immediately in-situ to find out if they can be re-used for this job site or for other job sites. • Sufficient spaces are identified and provided during the construction stage for the collection, temporary storage and on-site sorting of C&D materials. • Proper protective measures, such as fences and tarpaulin, are provided, in order to protect the temporary stockpiled materials for later reuse / recycle. • Avoiding cross contamination to reusable and / or recyclable materials collected (e.g. covering the reusable materials) • In order to reduce the impacts to the public, except for those sorted inert C&D materials to be reused on site, all other sorted non-inert materials (e.g. general refuse and waste formworks) shall be removed off site as soon as practicable in order to optimise the use of the on-site storage space. If the non-inert materials need to be stored on site for a short period, the materials shall be centralized and stored at specific areas far away the sensitive receivers. • All Public Fill arising from the demolition works shall be limited to a size not more than 250mm and free of reinforcement bars, timber, etc. before re-using it. • Recyclable materials sorted from the site should be collected by potential recycling contractors under the Contractor's arrangement. • Trip ticket system will be implemented to ensure proper waste disposal at public filling and landfills • Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Proper resource planning and calculations before ordering the construction materials to be used will ensure that the wastage of the materials can be minimized 					



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*		Remark
	Yes	No N/A	
Mitigation Measures on Waste Management			
• Proper storage will minimize the damage and thus the wastage of the materials	✓		
• Training of site personnel in proper waste management procedures. The workers shall be constantly educated for the awareness of the proper handling of waste and to reduce the amount of waste while Site Agent shall be constantly met to discuss the effectiveness of the implementation of the waste management plan. Information to promote the waste management and the reduction concept shall be posted at the site to raise alertness of the personnel concerned.	✓		
Chemical Waste			
• It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	✓		
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	✓		
• Chemical wastes should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	✓		
Containers used for the storage of chemical wastes			
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed	✓		
• Have a capacity of less than 450L unless the specification have been approved by the EPD	✓		
• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste (General) Regulations and Codes of Practice	✓		
Labelling			
• Every container of chemical waste would bear an appropriate label, which would contain the particulars details.	✓		
• The waste produced would ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste	✓		
Storage Area			
• Be clearly labeled and used solely for the storage of chemical waste	✓		
• Be enclosed on at least 3 sides	✓		
• Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest	✓		
• Have adequate ventilation	✓		
• Be covered to prevent rainfall entering	✓		
• Be arranged so that incompatible materials are adequately separated	✓		
• Be clean and maintain regularly	✓		
Disposal			
• Be via a licensed waste collector	✓		
• To a licensed disposal facility, such as Chemical Waste Treatment Centre	✓		
• Be a reuser of the waste, under approval from the EPD	✓		



SITE INSPECTION CHECKLIST ON THE IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES

	Implementation Stages*			Remark
	Yes	No	N/A	
Mitigation Measures on Waste Management				
• Spillage				
• Establish source of spill or discharge and determine nature of material, where possible halt discharge				
• Commencing at the source of the spill, establish all current and potential impacted areas				
• Commence containment of spill using bunds made from available materials and ground water cut-off trenches where necessary				
• After spill is contained remove material (including contaminated soil where necessary) using pumps and/or absorbent materials				
• Dispose of materials as chemical wastes				
General Refuse				
• General refuse generated on-site is in enclosed bins or compaction units separate from construction and chemical waste				
• A reputable waste collector is employed by the Contractor to remove general refuse from the site, separately from the construction and chemical waste.				
• General refuse generated is removed on daily or every second day basis to minimise odour, pest and litter impacts				
• Aluminium cans are recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.				
• Office wastes are reduced through recycling of paper if volumes are large enough to warrant collection.				
Site Practice				
• Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby environment. Construction sites should be cleaned on a regular basis.				
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.				
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.				
• The Environmental Permit should be displaced conspicuously on site				
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.				
• Any unused chemicals or those with remaining functional capacity should be recycled.				
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.				
• Suitable collection sites around site offices will be required. For environmental hygiene reasons and to minimize odor, refuse should not be stored for a period exceeding 48 hours, however, removal every 24 hours is preferable.				
• Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container.				
• All generators, fuel and oil storage are within bundle areas.				
• Oil leakage from machinery, vehicle and plant is prevented.				
• Chemical storage area, drainage systems, silt traps, sumps and oil interceptors are cleaned and maintained regularly.				



Appendix I

IEC and RE Comments on Monthly EM&A Report

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November 2005

IEC and RE Comments on Monthly Environmental Monitoring and Audit Report – November 2005

Item No.	Document Reference	Comment	ET Response
---	---	No RE and IEC comments were noticed.	No responses were required since no comments were noticed.



Appendix J

Wastewater Monitoring

—

Test Reports of Wastewater Samples from Discharge Points



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : A-051003-1
DATE OF ISSUE : 21 November 2005
PAGE : 1 of 1

1. Client

Leader - Wai Kee (C&T) Joint Venture
Unit 1001-1005, 10/F., Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Sha Tin, N.T., HK
Attn.: Mr. Ben Yip

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater
Sampling : Conducted by Enviro Labs Ltd.
Sampling Point : Outlet of sedimentation tank at
Construction Site of Remaining Engineering Infrastructure Works for Pak Shek Kok
Development Package 2A, Pak Shek Kok, N.T. (Contract No. TP 37/03)
Preservation : Delivered and stored under refrigerated condition
Sampling Date : 11 Nov 2005
Received Date : 11 Nov 2005

3. Test Method

Parameter	Reference Method	Testing Period
(i) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17c 2540 D	14 Nov 2005

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Result*

Sample Label	Test Parameter	Sample No.	Test Result	Discharge Limit **	Unit
MLS Pier 1	Total Suspended Solids	051003-2	8.7	≤30	mg/L

* Test results relate only to the items received.

** Information provided by the client. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :

Kenneth Lam
(Laboratory Manager)

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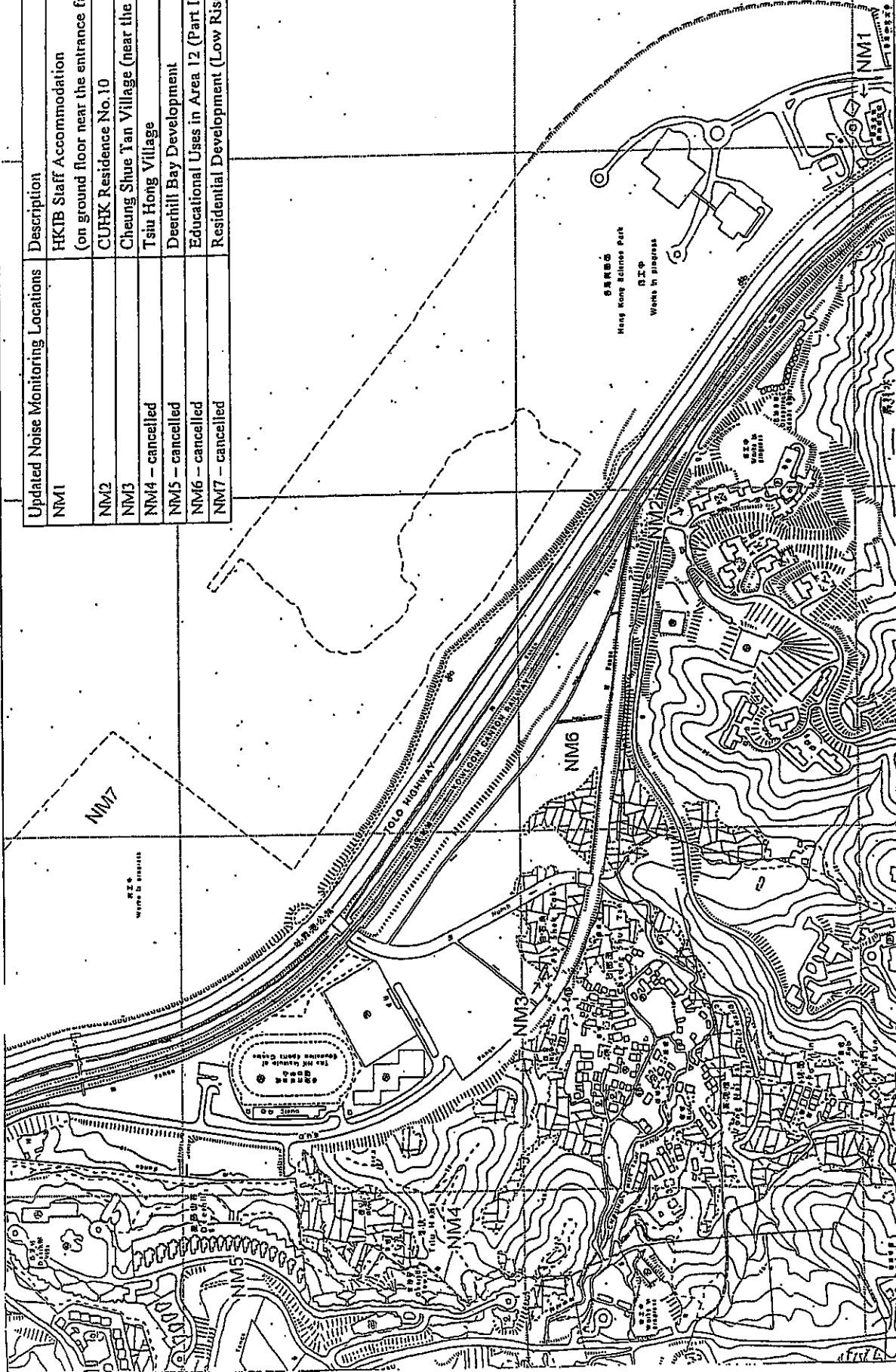
<http://www.envirolabs.com.hk>

e-mail: all@envirolabs.com.hk



Figures

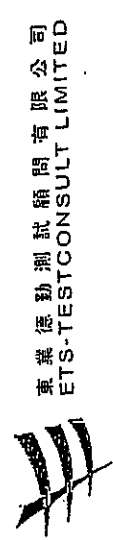
Updated Noise Monitoring Locations	Description
NM1	HKTB Staff Accommodation (on ground floor near the entrance facing south-east)
NM2	CUHK Residence No.10
NM3	Cheung Shue Tan Village (near the outer building, temple)
NM4 - cancelled	Tsui Hong Village
NM5 - cancelled	Deerhill Bay Development
NM6 - cancelled	Educational Uses in Area 12 (Part 1)
NM7 - cancelled	Residential Development (Low Rise Building) - R1



Scale : ---

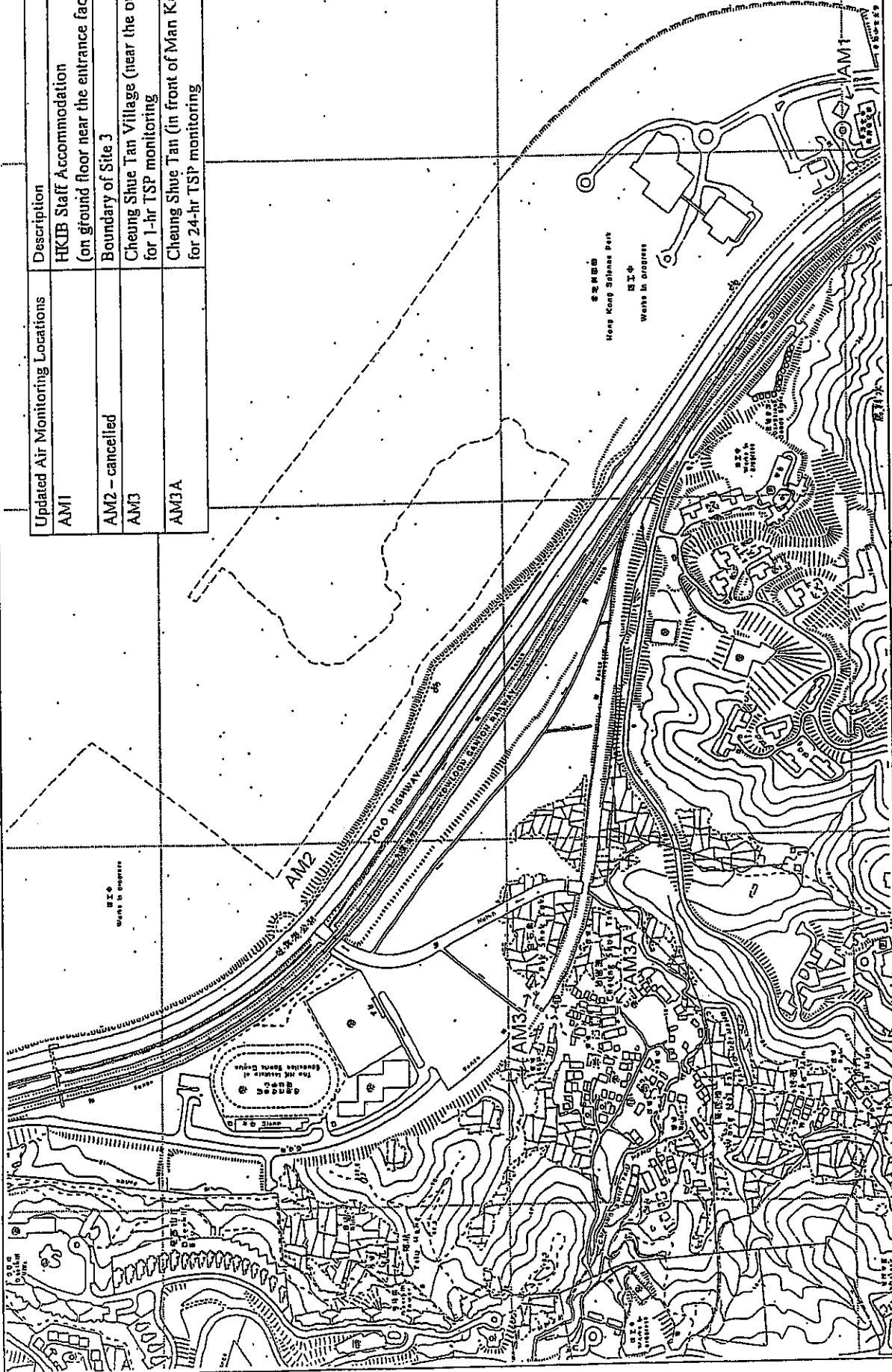
Revised Date: June 2004

Remaining Engineering Infrastructure Works for
 Pak Shek Kok Development Package 2A
 Contract No. TP 37/03
 Figure 1 Location of Noise Monitoring Stations



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Updated Air Monitoring Locations	Description
AM1	HKIB Staff Accommodation (on ground floor near the entrance facing south-east)
AM2 - cancelled	Boundary of Site 3
AM3	Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring
AM3A	Cheung Shue Tan (in front of Man Kee Store) for 24-hr TSP monitoring



Scale : ---

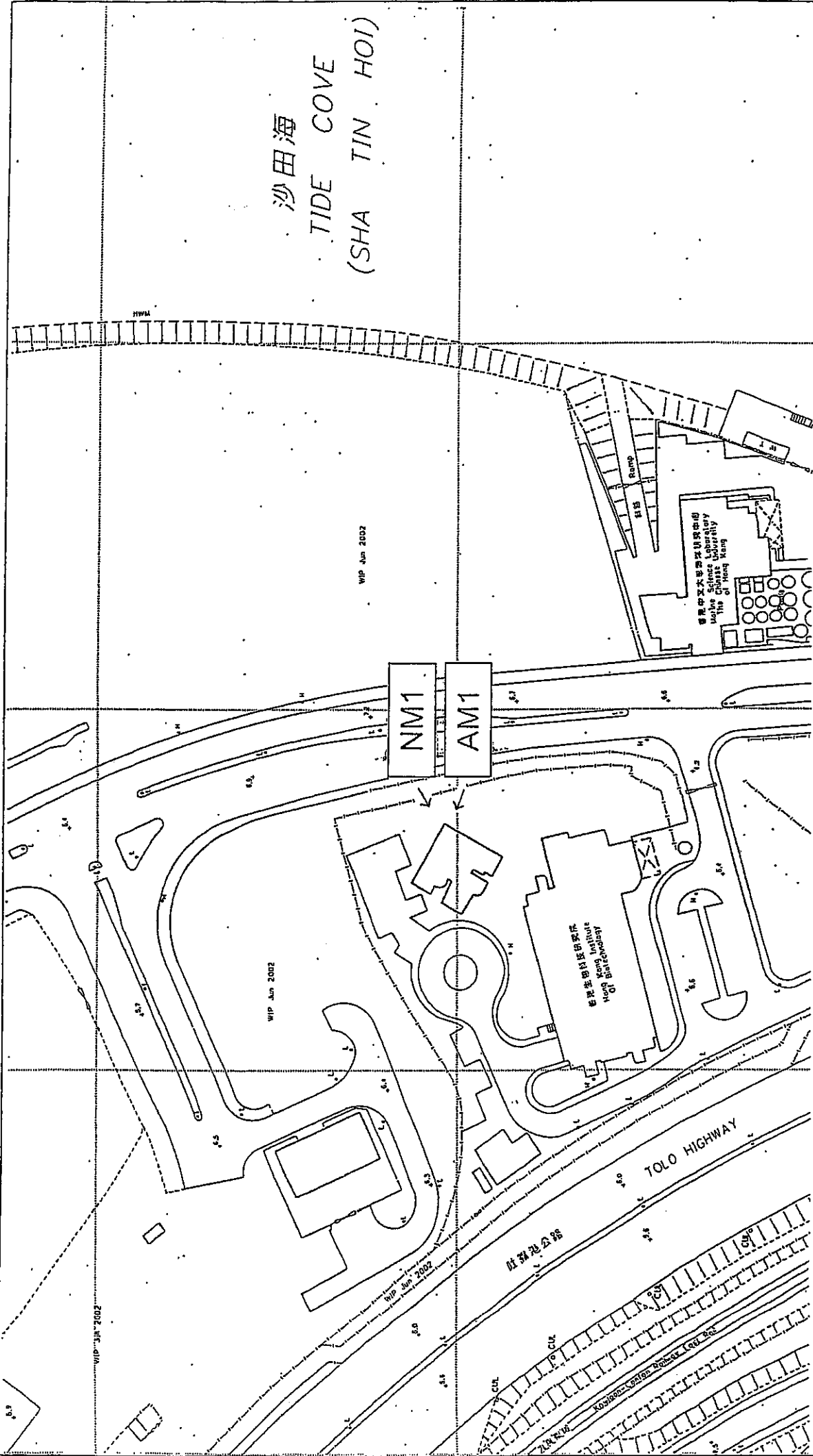
Revised Date:
June 2004

Remaining Engineering Infrastructure Works for
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Contract No. TP 37/03
Figure 2 Location of Air Monitoring Stations



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沙田海
TIDE COVE
(SHA TIN HOI)



Remaining Engineering Infrastructure Works for
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Contract No. TP 37/03
Figure 3 Location of Air and Noise Monitoring Stations
at HKIB Staff Accommodation

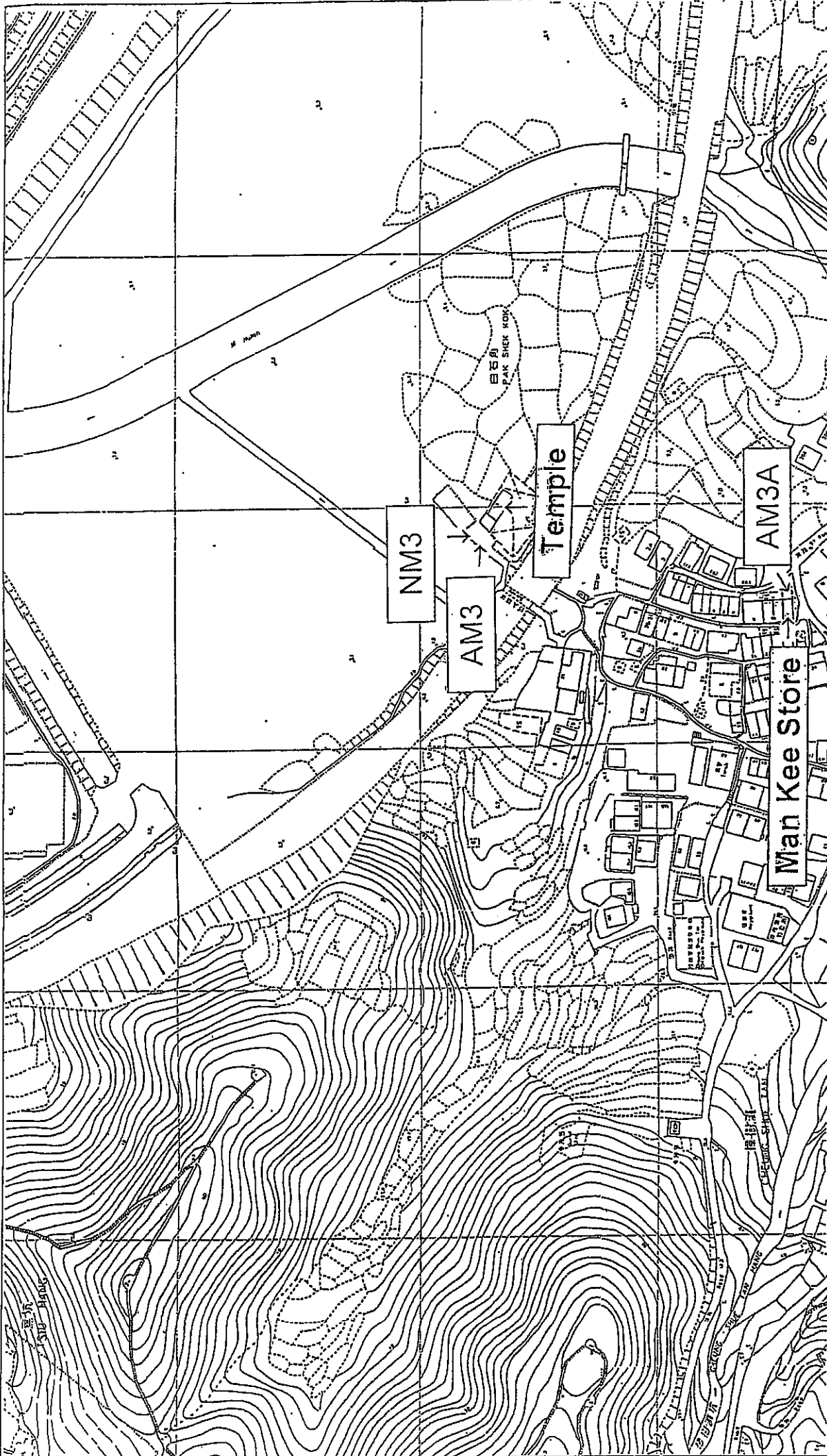
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Revised Date:

June 2004



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Remaining Engineering Infrastructure Works for
 Pak Shek Kok Development Package 2 A
 Contract No. TP 37/03
 Figure 5 Location of Air and Noise Monitoring Stations
 at Cheung Shue Tan Village

Scale : ---

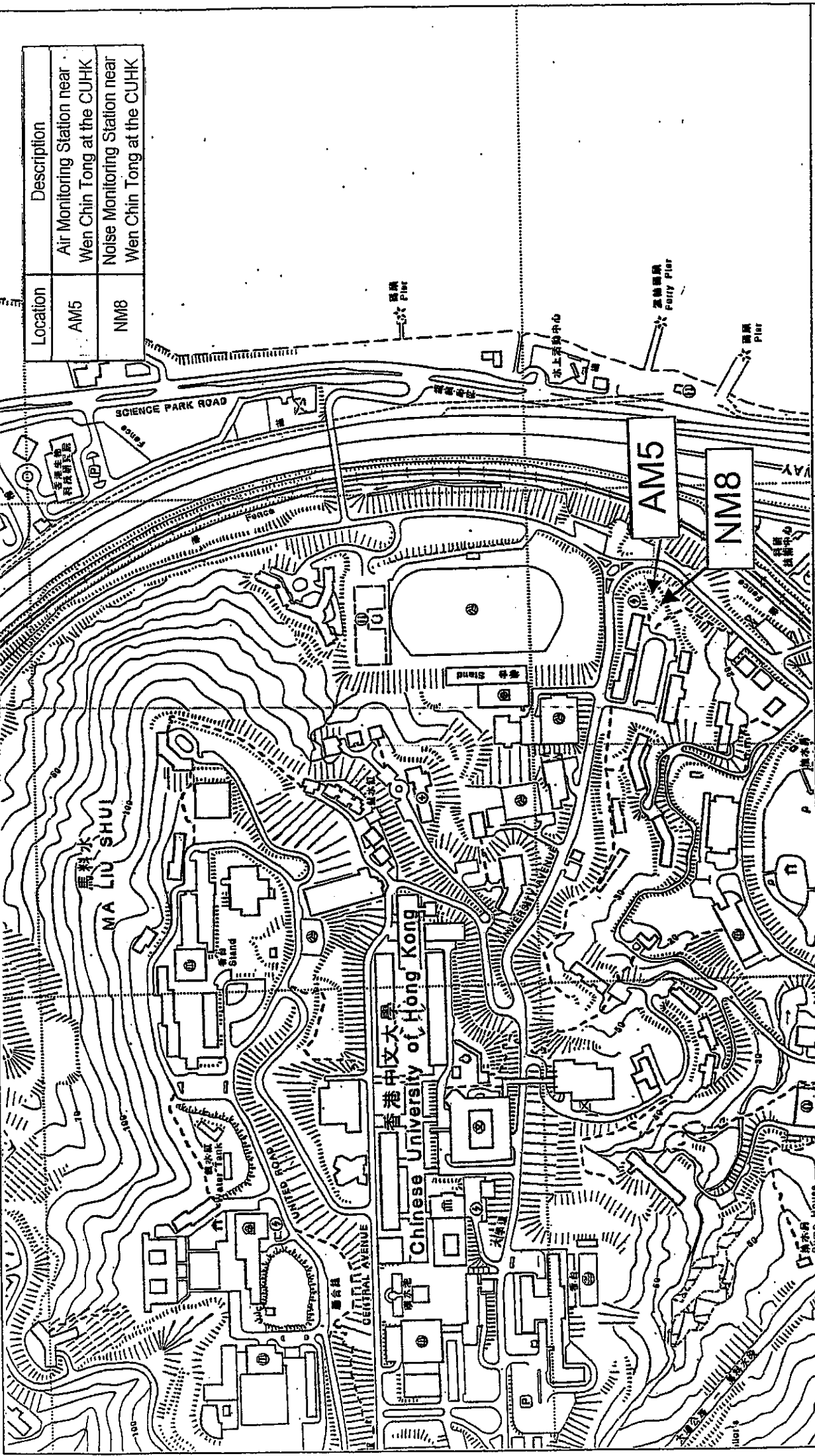
Revised Date:

June 2004



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Location	Description
AM5	Air Monitoring Station near Wen Chin Tong at the CUHK
NM8	Noise Monitoring Station near Wen Chin Tong at the CUHK



Remaining Engineering Infrastructure Works for Pak Shek Kok Development

Package 2A Contract No. TP 37/03

Figure 7 Additional Locations of Air and Noise Monitoring Stations at the Chinese University of Hong Kong

Scale : ---

Revised Date :
October 2004



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