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TEST REPORT

PENTA-OCEAN CONSTRUCTION COMPANY LIMITED

REMAINING ENGINEERING INFRASTRUCTURE WORKS FOR PAK SHEK KOK DEVELOPMENT PACKAGE 1 (CONTRACT NO.: TP 35/02)

MONTHLY EM&A REPORT (AUGUST 2004)

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EXECUTIVE SUMMARY

This monthly EM&A report (No.20) 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 1 (Contract No: TP 35/02) during the reporting period from 01 to 31 August 2004.

Construction Progress

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

- *Excavation works for PS1 and PS2*
- *Drainageworks in Area 7A, Area 15, Zone P and Zone H*
- *Watermain installation works*
- *Roadworks for Area 15 and Zone P*
- *Pile cap construction for road D1 bridge*
- *Demolition of cyclist bridge at the northern entrance*
- *Construction of pumping station no.1 and no.2*
- *Rectification of jogging track and cross-link fence in HKIED*

Environmental Monitoring Progress

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

- *Noise Monitoring (Day-time): 5 Occasions at 3 designated locations*
- *Noise Monitoring (Evening-time): 5 Occasions at 3 designated locations*
- *Noise Monitoring (Holiday): 5 Occasions at 3 designated locations*
- *24-hour TSP Monitoring: 5 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 13 Occasions at 2 designated locations*
- *Weekly-site inspection: 4 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 TSP and 1-hr TSP monitoring in the reporting month.

Site Inspection

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

Concerned Parties	*Dates of Audit / Inspection*
ET (weekly site inspection)	*07, 14, 21, 28*
IEC/POC/ET (Monthly site inspection)	*19*

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

Item	*Aspects*	*Findings*	*Action(s) taken by POC*	*ET Verification*
1	*Air (Obs.)*	*Some of the stockpiles were not entirely covered during weekly site inspection. They should be backfilled, entirely covered with impervious tarpaulin sheets or hydroseeded.*	*POC replied that the stockpile will be covered with tarpaulin sheets or sprayed with water.*	*During the last weekly site inspection in this reporting month, most of the stockpile were covered with tarpaulin sheets or sprayed with water.*
2	*Air (Obs)*	*Some dusty ground was observed during weekly and monthly joint site inspections.*	*The dusty ground was covered and watering was provided more frequently.*	*During the last site inspection in this reporting month, the dusty ground was found watered and no fugitive dust was observed.*
3	*Air (Obs)*	*The haul road at Science Park Phase 1 and Phase 2 was dusty during site inspections.*	*The frequency of watering haul road had been increased.*	*During the last site inspection in this reporting month, no fugitive dust emission from haul road was observed.*

Item	Aspects	Findings	Action(s) taken by POC	ET Verification
4	*Water (Obs)*	*Brownish water was observed in the wheel-washing bay during the weekly and monthly site inspection.*	*The frequency of clearing wheel washing facilities had been increased.*	*During the last weekly site inspection in this reporting month, brownish water was still observed and therefore the construction team was reminded to remove the silt from the water before used for wheel washing. This finding will be verified in the weekly site inspection of next month.*
5	*Waste (Obs)*	*Rubbish was observed inside the site area.*	*Rubbish was removed immediately. More manpower was provided to collect rubbish and more rubbish bins were provided.*	*During the subsequent weekly site inspection, most of the rubbish had been collected. However, the construction team was still reminded to collect the rubbish regularly.*

Remark: "NC" = Non-compliance and "Obs" = Observation

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 before discharge;
- Maintain good site practice and waste management to minimize environmental impacts at the site;
- Follow-up improvements on waste management issues.

1.0 INTRODUCTION

Penta-Ocean Construction Co., Ltd. (POC) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit for Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Contract No.: TP 35/02).

Under the requirements of 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 form 01 to 31 August 2004.

2.0 PROJECT INFORMATION

2.1 Background

Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Contract No.: TP 35/02) was planned and designed by the Territory Development Department (TDD).

As the main Contractor of the captioned project: contracted by, POC 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 1and 2 show the noise and air monitoring locations of this project.

2.3 Construction Programme

Details of construction programme (**from June to September 2004**) 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.*
TDD	*Employer*	*Mr. H W Lau*	*2158 5629*	---
Hyder	*Engineer*	*Mr. Herman Fong*	*2911 2233*	*2827 2891*
Hyder	*Independent Environmental Checker*	*Ir. Coleman Ng*	*2911 2233*	*2827 2891*
POC	*Contractor*	*Mr. Roger Lau*	*9870 6390*	*2691 6012*
ETL	*Contractor's Environmental Team*	*Mr C L Lau (Environmental Team Leader)*	*2946 7792*	*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

Location	*Major Construction Activity*
Area 7A, Area 15, Zone P and Zone H	*Drainage work*
Zone P and Area 15	*Roadworks*
PS1 and PS2	*Excavation works*
Road D1 bridge	*Pile cap construction*
No.1 & No.2	*Construction of pump stations*
Northern entrance	*Demolition of cyclist bridge*
HKIED	*Rectification of jogging track and cross-link fence*

Table 3.2 Implementation of Environmental Mitigation Measures

General construction works	• *Effective water sprays used on the site at potential dust emission sources such as unpaved area;* • *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;* • *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;* • *Keep good waste management.*

4.0 AIR QUALITY MONITORING

4.1 Monitoring Requirement

1-hour and 24-hour TSP monitoring were required to 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.*

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 certificate for the HVS and portable dust meter are attached in Appendix B1.

Table 4.1 Air Quality Monitoring Equipment

Equipment	*Model and Make*
HVS Sampler	*Greasby GMWS2310*
Calibrator	*G25 A*
1-hour TSP Dust Meter	*TSI Model 8520 Dust Trak™ Aerosol Monitor*

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

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

4.4 Monitoring Locations and Schedule

Two designated air quality monitoring locations – Cheung Shue Tan Village and HKIB Staff Accommodation were selected. Table 4.3 tabulates the air quality monitoring locations of this project.

Table 4.3 Air quality monitoring locations

Air quality Monitoring stations	*Locations*
AM1	*HKIB Staff Accommodation (on ground floor near the entrance facing south-east) for 1-hr TSP monitoring*
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*

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*	---				*03/08/04*	*09:45*	*10:45*
						05/08/04	*08:25*	*09:25*
						07/08/04	*09:05*	*10:05*
						10/08/04	*14:00*	*15:00*
						12/08/04	*09:10*	*10:10*
						14/08/04	*09:08*	*10:08*
						17/08/04	*09:48*	*10:48*
						19/08/04	*09:20*	*10:20*
						21/08/04	*13:40*	*14:40*
						24/08/04	*09:45*	*10:45*
						26/08/04	*09:00*	*10:00*
						28/08/04	*14:18*	*15:18*
						31/08/04	*13:30*	*14:30*
AM3	*Cheung Shue Tan Village (near the outer building, temple)*	---				*03/08/04*	*10:56*	*11:56*
						05/08/04	*13:20*	*14:20*
						07/08/04	*10:50*	*11:50*
						10/08/04	*16:10*	*17:10*
						12/08/04	*13:30*	*14:30*
						14/08/04	*10:28*	*11:28*
						17/08/04	*11:18*	*12:18*
						19/08/04	*10:36*	*11:36*
						21/08/04	*14:58*	*15:58*
						24/08/04	*15:45*	*16:45*
						26/08/04	*10:16*	*11:16*
						28/08/04	*13:00*	*14:00*
						31/08/04	*15:10*	*16:10*
AM1	*HKIB Staff Accommodation*	*06/08/04*	*10:30*	*07/08/04*	*10:30*	---		
		12/08/04	*11:30*	*13/08/04*	*11:25*			
		18/08/04	*16:05*	*19/08/04*	*16:04*			
		24/08/04	*09:49*	*25/08/04*	*09:45*			
		30/08/04	*15:25*	*31/08/04*	*15:30*			
AM3A	*Cheung Shue Tan (in front of Man Kee Store)*	*06/08/04*	*10:50*	*07/08/04*	*10:59*	---		
		12/08/04	*14:40*	*13/08/04*	*14:57*			
		18/08/04	*16:20*	*19/08/04*	*16:34*			
		24/08/04	*15:49*	*25/08/04*	*15:59*			
		30/08/04	*15:40*	*31/08/04*	*15:53*			

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 0.6m^3/min and 1.7m^3/min.) in accordance withthe 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 recoded.
- 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 (μg/m³)*		*1-hr TSP (μg/m³)*	
	Action Level	*Limit Level*	*Action Level*	*Limit Level*
AM1	*164 **	*260 **	*325 **	*500 **
AM3	---	---	*306*	*500*
AM3A	*183*	*260*	---	---

* = 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

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.*

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 (Lx). 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-14 Sound Level Meter*
Calibrator	*Quest QC-20 Acoustic 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 Leq, L10 and L90 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 $L_{eq(5\text{-}min)}$);*
- *One set of measurements between 1900-2300 hours (3 consecutive $L_{eq(5\text{-}min)}$)*;*
- *One set of measurements between 2300-0700 hours of next day (3 consecutive $L_{eq(5\text{-}min)}$)*;*
- *One set of measurements between 0700-1900 hours on holidays (3 consecutive $L_{eq(5\text{-}min)}$)*.*

(*): 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 accordance with the EM&A Manual, there are three noise monitoring locations: HKIB Staff Accommodation, Cheung Shue Tan Village and CUHK Residence No.10. 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)*

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

Noise monitoring stations	*Monitoring Period*							
	Day-time		*Evening-time*		*Holiday*		*Night-time*	
NM1	*03/08/04*	*09:48*	*03/08/04*	*19:00*	*01/08/04*	*14:40*	---	---
	10/08/04	*14:05*	*10/08/04*	*19:30*	*08/08/04*	*14:05*	---	---
	17/08/04	*09:50*	*17/08/04*	*19:12*	*15/08/04*	*09:45*	---	---
	24/08/04	*09:47*	*24/08/04*	*19:00*	*22/08/04*	*14:45*	---	---
	31/08/04	*13:35*	*31/08/04*	*20:10*	*29/08/04*	*15:40*	---	---
NM2	*03/08/04*	*08:25*	*03/08/04*	*19:35*	*01/08/04*	*15:20*	---	---
	10/08/04	*15:20*	*10/08/04*	*19:55*	*08/08/04*	*14:42*	---	---
	17/08/04	*10:38*	*17/08/04*	*19:45*	*15/08/04*	*10:10*	---	---
	24/08/04	*15:00*	*24/08/04*	*19:25*	*22/08/04*	*15:12*	---	---
	31/08/04	*14:18*	*31/08/04*	*19:35*	*29/08/04*	*14:05*	---	---

Noise monitoring stations	*Monitoring Period*							
	Day-time		*Evening-time*		*Holiday*		*Night-time*	
NM3	*03/08/04*	*11:05*	*03/08/04*	*20:10*	*01/08/04*	*16:03*	---	---
	10/08/04	*16:19*	*10/08/04*	*20:20*	*08/08/04*	*15:26*	---	---
	17/08/04	*11:22*	*17/08/04*	*20:13*	*15/08/04*	*10:35*	---	---
	24/08/04	*15:47*	*24/08/04*	*19:50*	*22/08/04*	*15:35*	---	---
	31/08/04	*15:12*	*31/08/04*	*19:00*	*29/08/04*	*13:30*	---	---

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

Day-time, Evening-time and Holiday noise monitoring were carried out at monitoring stations, NM1, NM2 and NM3 in this reporting month. No night-time 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 are shown in Appendix C3.

No day-time, evening-time and holiday 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, evening-time and holiday noise monitoring.

During the restricted hours, ET found that the PMEs used complied with the requirements stated in the valid CNP and no PMEs other than ones specified in the CNP to be used in the construction site.

6.0 WASTEWATER MONITORING

6.1 According to the Discharge of Industrial Trade Effluent Licence (Licence No.: 2946), POC is required to carry out wastewater monitoring of suspended solids quarterly at all effluent discharge points within the site.

6.2 POC appointed ET of ETL to sampling the wastewater samples at the effluent discharge points. The collected sample will be transport to the Environmental Laboratory of ETL for suspended solids content analysis. The Environmental Laboratory of ETL is HOKLAS accredited and the test method used for suspended solids analysis is also HOKLAS accredited in accordance with the 2540D of Standard Methods for the Examination of Water and Wastewater (APHA 19th edition).

6.3 Under the Wastewater Discharge Licence (No.: 2946), the discharge limit of Suspended Solids content of the effluent at this site should be 30mg/L. It means that the suspended solids of wastewater discharged should be less than 30mg/L or otherwise no wastewater can be discharged under this Licence.

6.4 During June 2004, wastewater monitoring was carried out by ET at 05 June 2004 at one discharges point. During this monitoring, one wastewater sample was collected from the effluent discharge point and transport to ETL immediately for analysis. The result of suspended solids content of the wastewater sample was found below 30mg/L and within the discharge limit of the Discharge Licence. The test report for this monitoring was attached in Appendix J.

6.5 Since the effluent discharge licence required to carry out wastewater monitoring of suspended solids quarterly at all effluent discharge points within the site, the next wastewater monitoring should be at September 2004.

7.0 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of air quality, noise and wastewater 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, evening-time and holiday noise levels recorded at all monitoring stations exceeded the Action and Limit Level in the reporting month.

The suspended solids results of wastewater samples from Discharge points were found within the discharge limit during monitoring period.

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 were no notification of summons respect to environmental issues registered in this month. Cumulative log of Notification of Summons and Prosecution is tabulated in Table 7.1.

Table 7.1 Cumulative Log of Notification of Summons and Prosecution

Date	*Detail of Notice of Summons or Prosecution*	*Action Taken*	*Environmental Outcome*
16 Oct 2002	*The site main haul road was neither paved with any one of concrete, bituminous materials, hard core or metal plates, nor had the entire road surface maintained wet by the spraying of water or dust suppression chemical.*	• *POC paved the site main haul road with concrete and bituminous materials;* • *The road surface was wet by the spraying of water regularly by POC.*	*It was observed that the problem of dust emission from the site main haul road has been improved. No further complaint or ticket was received during the reporting month.*
11 July 2003	*Three stockpiles of dusty material namely aggregate, were wither covered entirely by impervious sheeting, nor place in an area sheltered on top and three sites, nor sprayed with water or dust suppression chemical so as to maintain entire surface wet.*	*The stockpiles of aggregates / excavated materials were covered with tarpaulin sheet / sprayed with water in order to avoid the dust emission.*	*No further complaints were received during the reporting month.*

8.0 SITE INSPECTION

Weekly site inspections were carried out by the ET. Five site inspections were undertaken in this reporting month (07, 14, 21 and 28 August 2004). Monthly joint site inspection at 19 August 2004 was carried out by Engineer's Representative, IEC, POC and ET. A summary of the implementation status of the mitigation measures on site inspections is presented in Appendix H.

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

Item	*Aspects*	*Findings*	*Action(s) taken by POC*	*ET Verification*
1	*Air (Obs.)*	*Some of the stockpiles were not entirely covered during weekly site inspection. They should be backfilled, entirely covered with impervious tarpaulin sheets or hydroseeded.*	*POC replied that the stockpile will be covered with tarpaulin sheets or sprayed with water.*	*During the last weekly site inspection in this reporting month, most of the stockpile were covered with tarpaulin sheets or sprayed with water.*
2	*Air (Obs)*	*Some dusty ground was observed during weekly and monthly joint site inspections.*	*The dusty ground was covered and watering was provided more frequently.*	*During the last site inspection in this reporting month, the dusty ground was found watered and no fugitive dust was observed.*
3	*Air (Obs)*	*The haul road at Science Park Phase 1 and Phase 2 was dusty during site inspections.*	*The frequency of watering haul road had been increased.*	*During the last site inspection in this reporting month, no fugitive dust emission from haul road was observed.*

Item	Aspects	Findings	Action(s) taken by POC	ET Verification
4	Water (Obs)	Brownish water was observed in the wheel-washing bay during the weekly and monthly site inspection.	The frequency of clearing wheel washing facilities had been increased.	During the last weekly site inspection in this reporting month, brownish water was still observed and therefore the construction team was reminded to remove the silt from the water before used for wheel washing. This finding will be verified in the weekly site inspection of next month.
5	Waste (Obs)	Rubbish was observed inside the site area.	Rubbish was removed immediately. More manpower was provided to collect rubbish and more rubbish bins were provided.	During the subsequent weekly site inspection, most of the rubbish had been collected. However, the construction team was still reminded to collect the rubbish regularly.

8.2 Status of Environmental Licensing and Permitting

All permits/licenses valid in August 2004 are summarized in Table 8.2.

Table 8.2 Summary of environmental licensing and permit status

Description	Permit No.	Valid Period		Section
		From	To	
Environmental Permit	EP-108/2001	05/11/02	---	Whole work site
Construction Noise Permit (General / Prescribed construction works)	GW-TN0095-04	15/03/04	14/09/04	Group A (For Area B or C): • 1 Dump truck (CNP 067) • 2 Excavator, tracked (CNP 081) • 1Bulldozer (CNP 030) Group B (For Area A, D or E): • 1 Dump trucks (CNP 067) • 1 Excavator, tracked (CNP 081) Group C (For Area B, B2 or E): • 1 Crane, mobile (CNP 048) • 1 Generator (CNP 102) • 1 Vibration Hammer • 1 Power Pack Group D (For Area B2 or E): • 1 Generator (CNP 102) • 1 Crane, mobile (CNP 048) • 1 Oscillator, piling large diameter bored (CNP 165) • 2 Concrete lorry mixers (CNP 044) Group E (For Area B2 or E): • 2 Concrete lorry mixers (CNP 044) • 1 Concrete pump lorry (CNP047) • 1 Poker, handheld (CNP 170) Group F (For Area B2 or E): • 2 Concrete lorry mixers (CNP 044) • 1 Crane, mobile (CNP 048) • 1 Poker, handheld (CNP 170) Group G (For Area B, C or D): • 2 Concrete lorry mixers (CNP 044) • 1 Excavator, tracked (CNP 081) • 1 Poker, handheld (CNP 170) Group H (For Area B2 or E): • 1 Air compressor, air flow >10m³/min and30m³/min (CNP 002) • 1 Crane, mobile (diesel) (CNP 048) • 1 Generator, silenced, 75 dB(A) at 7m (CNP 102) • 1 piling, large diameter bored crab and chisel (CNP 164) • 1 piling, large diameter bored oscillator (CNP 165) • 1 Piling, large diameter bored, reverse circulation drill (CNP 166) Group I (For Area B, C or D): • 1 Dump truck (CNP 067) • 1 Asphalt Paver (CNP 004) • 1 Roller, vibratory (CNP 186) • 1 Road Roller (CNP 185) Group J (For Area A or F): • 1 Excavator, tracked (CNP 081) • 1 Roller, vibratory (CNP 186)

Description	Permit No.	Valid Period		Section
		From	To	
Construction Noise Permit (General / Prescribed construction works)	GW-TN0287-04	01/07/04	30/09/04	Group A • 1 Crane, mobile (CNP 048) • 1 Generator (CNP 102) Group F (For Area B2 or E): • 1 Lorry with Crane
Construction Noise Permit (General / Prescribed construction works)	GW-TN0287-04	01/07/04	30/09/04	Group A • 1 Crane, mobile (CNP 048) • 1 Generator (CNP 102) Group F (For Area B2 or E): • 1 Lorry with Crane
Waste Producer	5213 729 P2800 11	03/10/02	---	Generating waste at the work site
Wastewater Discharge License	No. 2946	18/12/02	18/12/07	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and sedimentation tank

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 with a volume of greater than 50m³ should be covered with clean tarpaulin sheets, watering 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;*
- *Placing enough sand bags or other protection should be applied to prevent the slity surface runoff onto the drains system;*
- *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;*
- *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. A summary of the implementation status of the mitigation measures on waste management 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
C&D Material (Inert) (m^3)	0	Nil
C&D material (Non-inert) (m^3)	0	Nil
General Refuse (m^3)	40	Disposed at NENT Landfills
Chemical Waste (L)	0	Nil

10.0 IMPLEMENTATION STATUS

10.1 Implementation Status of Environmental Mitigation Measures

POC has been implementing the required environmental mitigation measures according to Implementation of Mitigation Measures (clause 4.2, 5.2 and 6.2) in Environmental Management Plan for Contract No. TP 35/02 Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Revision 2). A summary of the implementation status of the mitigation measures is presented in Appendix H.

Air Quality

The Contractor was reminded to water, hydro-seed 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.

Noise

All mitigation measures stated in Appendix I 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 (e.g. sedimentation trap and U-channels), and remove the sand/rubbish accumulated in the drain / channel regularly.

Waste Management

POC 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, evening-time and holiday noise levels were recorded at all monitoring stations exceeded the Action and Limit Level in this reporting month. No night-time noise monitoring were required since no construction works were processed during the night-time period.

During the restricted hours, ET found that the PMEs used complied with the requirements stated in the valid CNP and no PMEs other than ones specified in the CNP to be used in the site.

According to the ET weekly site inspections and IEC monthly site audit carried out this month, it indicated that site practices of the POC 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	*September 2004*	*October 2004*
Noise Monitoring (Day-time)	*07, 14, 21, 28*	*05, 12, 19, 26*
Noise Monitoring (Evening-time)	*07, 14, 21, 28*	*05, 12, 19, 26*
Noise Monitoring (Holiday)	*05, 12, 19, 26*	*03, 10, 17, 24, 31*
1-hour TSP	*02, 04, 07, 09, 11, 14, 16, 18, 21, 23, 25, 28, 30*	*02, 05, 07, 09, 12, 14, 16, 19, 21, 23, 26, 28, 30*
24-hour TSP	*06, 11, 17, 23, 28*	*04, 09, 15, 21, 27*
Site Inspection	*04, 11, 18, 25*	*02, 09, 16, 23, 30*

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 September and October 2004	▪ *Excavation works for PS1 and PS2*
	▪ *Drainageworks in Area 7A, Area 15, Zone P and Zone H*
	▪ *Watermain installation works*
	▪ *Roadworks for Area 15 and Zone P*
	▪ *Pile cap construction for road D1 bridge*
	▪ *Demolition of cyclist bridge at the northern entrance*
	▪ *Construction of pumping station no.1 and no.2*
	▪ *Rectification of jogging track and cross-link fence in HKIED*

Appendix A

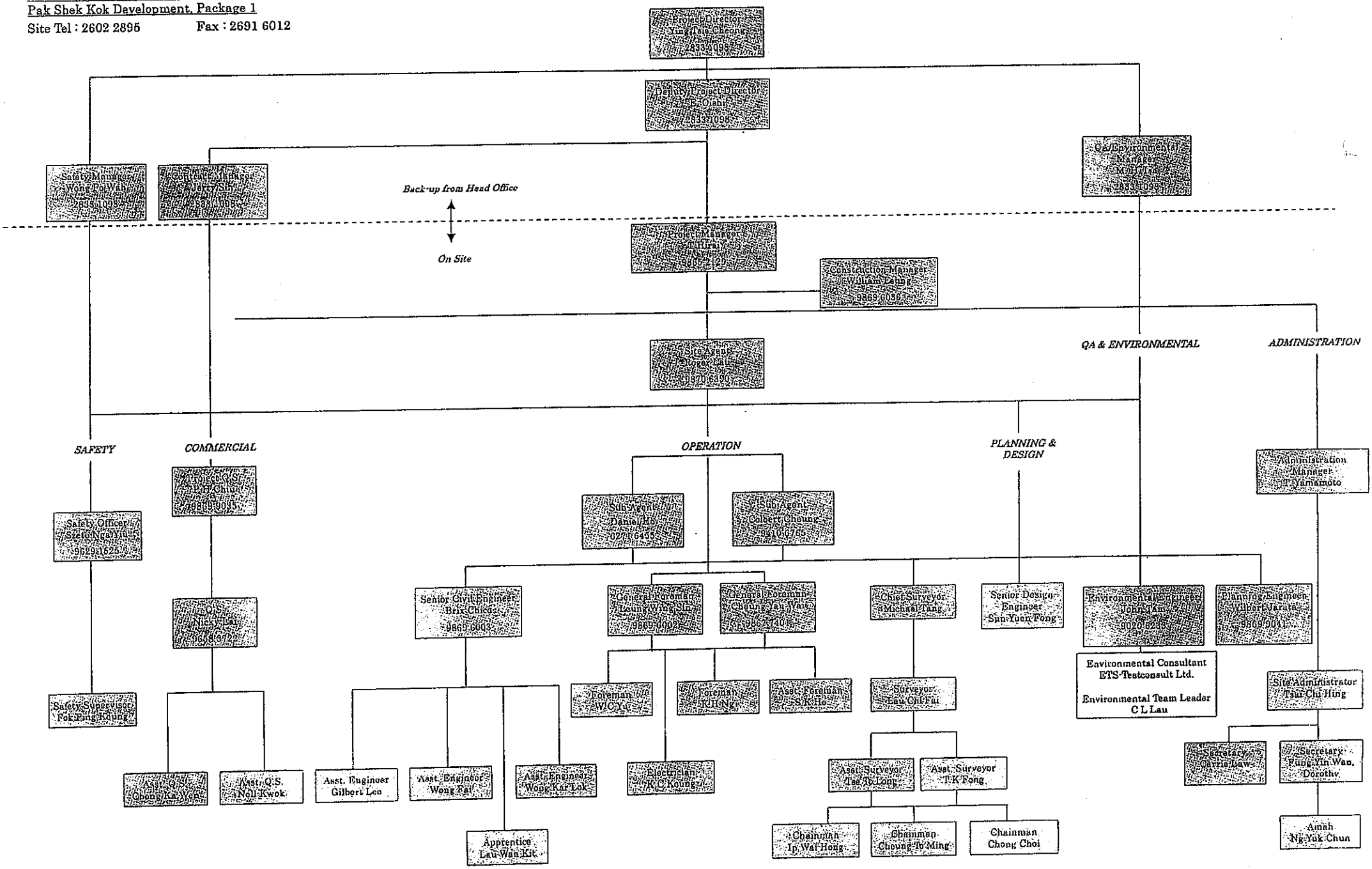
Organization Chart and Lines of Communication

Contract No. TP 35/02
Remaining Engineering Infrastructure Works for
Pak Shek Kok Development, Package 1
Site Tel : 2602 2895 Fax : 2691 6012

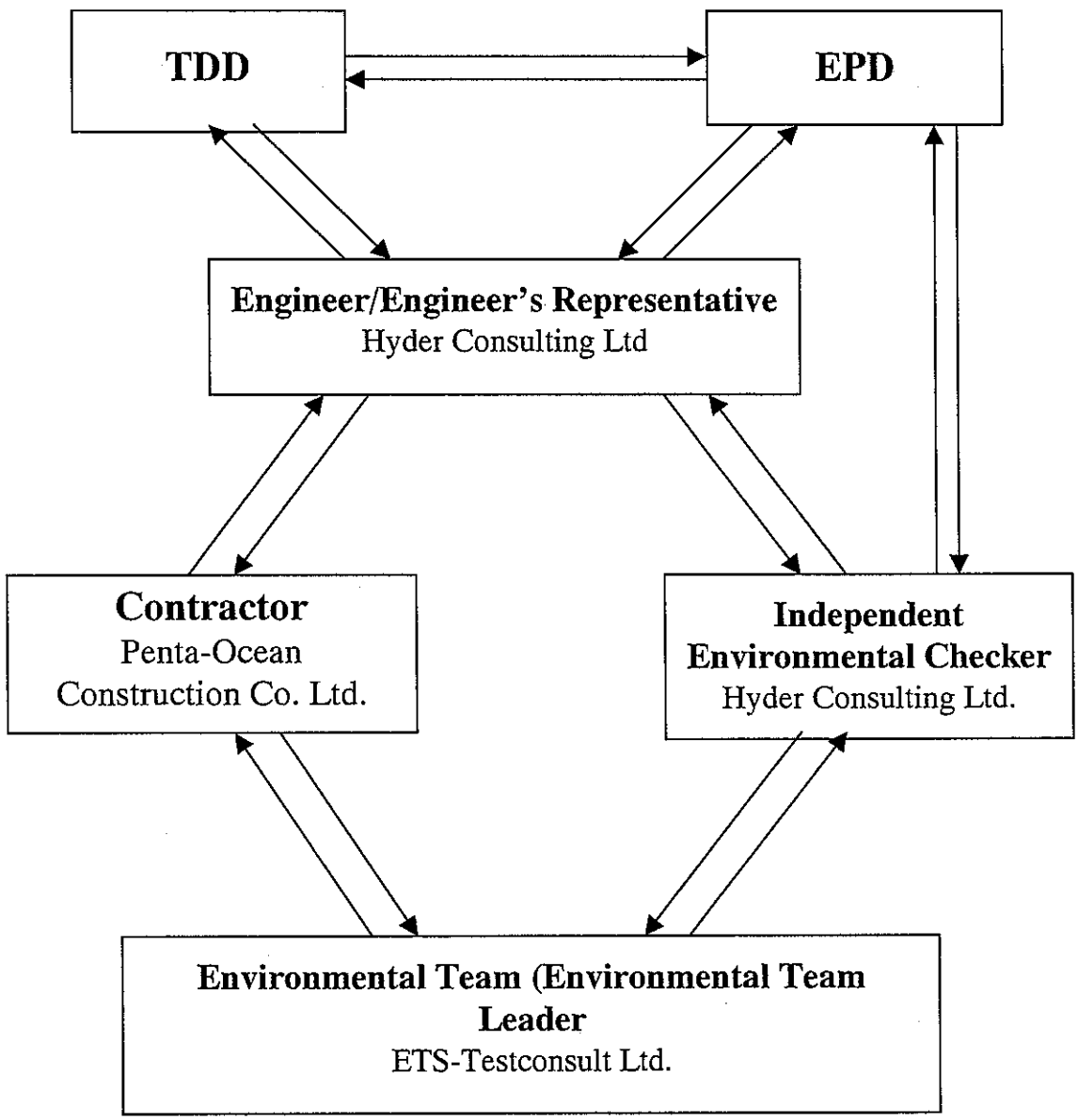
Project Site Organization Chart (with contact details)

Rev. H

Date : 19 Aug 03



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 : 20 July 2004

Serial No. : 7179 (EA / 003 / 16)

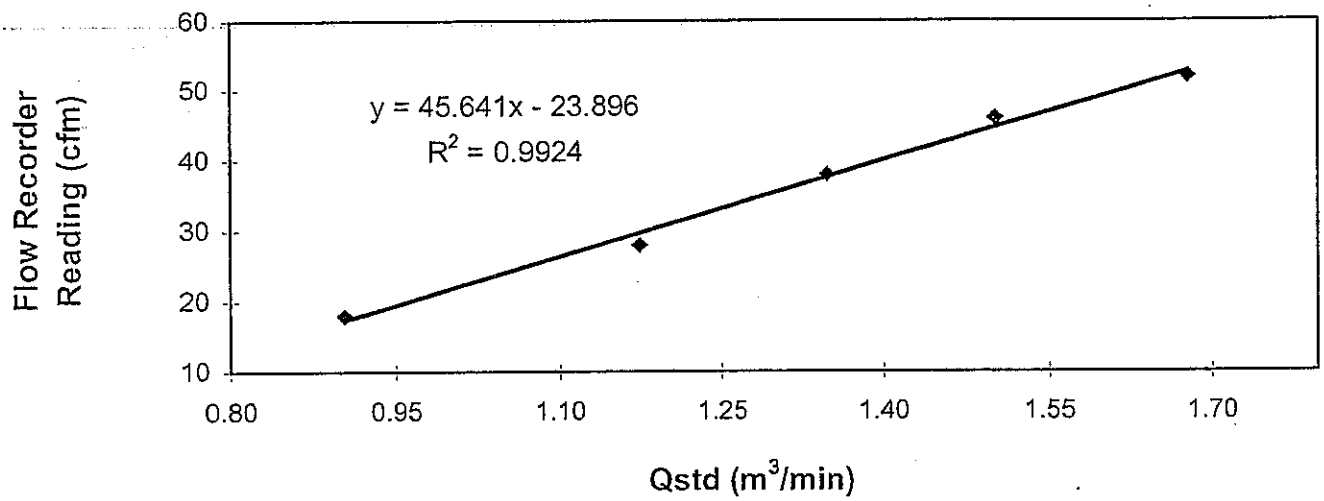
Calibration Due Date : 19 September 2004

Method : Based on Operations Manual for Graseby Model GS2310 series using calibration kit TE-5025A

Results :

Flow recorder reading (cfm)	52	46	38	28	18
Qstd (Actual flow rate, m^3/min)	1.68	1.50	1.35	1.17	0.90
Pressure : 753.06 mm Hg		Temp. : 303 K			

Sampler 7179 Calibration Curve
Site: Pak Shek Kok (AM3A)
Date of Calibration: 20 July 2004



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 deeme acceptable */ ~~unacceptable *~~ for use.

Calibrated by : _____
Felix Tin
(Technician)

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

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 : 20 July 2004

Serial No. : 1178 (EA/003/01)

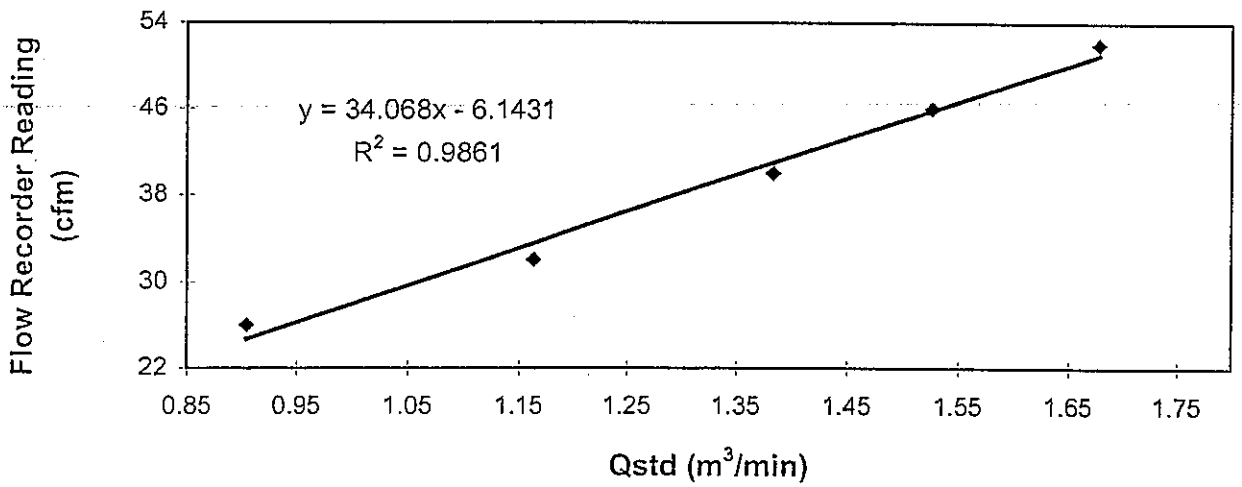
Calibration Due Date : 19 September 2004

Method : Based on Operations Manual for Graseby Model GS2310 series using calibration kit TE-5025A

Results :

Flow recorder reading (cfm)	52	46	40	32	26
Qstd (Actual flow rate, m^3/min)	1.68	1.53	1.38	1.16	0.90
Pressure : 753.06 mm Hg		Temp. : 303 K			

Sampler1178 Calibration Curve
Site: Pak Shek Kok Monitoring Station AM1 (24hr.)
Date of Calibration: 20 July 2004



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 : Felix Tin (Technician)

Approved by : 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		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
06/08/04	10:30	07/08/04	10:30	6351.44	6375.44	24.00	1.03	1.03	1.03	2.7786	2.8130	23	Rainy
12/08/04	11:30	13/08/04	11:25	6375.44	6399.36	23.92	1.09	1.09	1.09	2.8183	2.9348	74	Cloudy
18/08/04	16:05	19/08/04	16:04	6399.36	6423.34	23.98	1.09	1.09	1.09	2.8404	3.0679	145	Cloudy
24/08/04	09:49	25/08/04	09:45	6423.34	6447.27	23.93	1.09	1.09	1.09	2.8306	2.9881	101	Sunny
30/08/04	15:25	31/08/04	15:30	6447.27	6471.35	24.08	1.09	1.09	1.09	2.8523	3.0206	107	Rainy

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

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
06/08/04	10:50	07/08/04	10:59	11685.65	11709.80	24.15	1.14	1.14	1.14	2.7922	2.8391	28	Rainy
12/08/04	14:40	13/08/04	14:57	11709.80	11734.07	24.27	1.22	1.22	1.22	2.8438	2.9714	72	Cloudy
18/08/04	16:20	19/08/04	16:34	11734.07	11758.30	24.23	1.22	1.22	1.22	2.8352	3.1065	153	Cloudy
24/08/04	15:49	25/08/04	15:59	11758.30	11782.47	24.17	1.14	1.14	1.14	2.8623	3.0485	113	Sunny
30/08/04	15:40	31/08/04	15:53	11782.47	11806.69	22.44	1.18	1.18	1.18	2.8016	2.9495	86	Rainy

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1
Location : HKIB Staff Accommodation

Date	Monitoring Period		1-hr TSP (μg/m³)			Weather
	Start	Finish	Minimum	Maximum	Average	
03/08/04	09:45	10:45	85	496	94	Sunny
05/08/04	08:25	09:25	103	393	229	Sunny
07/08/04	09:05	10:05	88	506	124	Sunny
10/08/04	14:00	15:00	109	496	136	Cloudy
12/08/04	09:10	10:10	108	511	140	Cloudy
14/08/04	09:08	10:08	102	392	133	Sunny
17/08/04	09:48	10:48	68	553	127	Sunny
19/08/04	09:20	10:20	102	482	157	Sunny
21/08/04	13:40	14:40	60	283	91	Rainy
24/08/04	09:45	10:45	97	392	157	Sunny
26/08/04	09:00	10:00	62	394	105	Cloudy
28/08/04	14:18	15:18	98	421	106	Cloudy
31/08/04	13:30	14:30	75	456	108	Cloudy

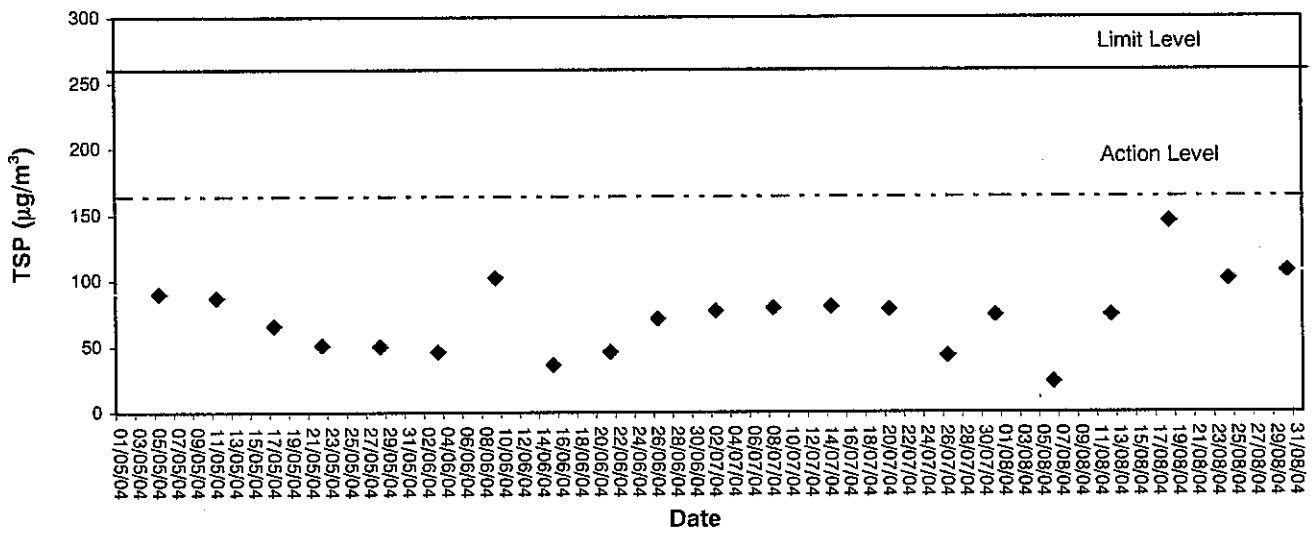
Monitoring Station : AM3
Location : Cheung Shue Tan Village (near the outer building, a temple)

Date	Monitoring Period		1-hr TSP (μg/m³)			Weather
	Start	Finish	Minimum	Maximum	Average	
03/08/04	10:56	11:56	55	351	84	Sunny
05/08/04	13:20	14:20	98	352	195	Sunny
07/08/04	10:50	11:50	63	432	91	Sunny
10/08/04	16:10	17:10	101	306	121	Cloudy
12/08/04	13:30	14:30	101	321	130	Cloudy
14/08/04	10:28	11:28	100	288	105	Sunny
17/08/04	11:18	12:18	56	497	105	Sunny
19/08/04	10:36	11:36	95	415	133	Sunny
21/08/04	14:58	15:58	45	226	80	Rainy
24/08/04	15:45	16:45	89	354	145	Sunny
26/08/04	10:16	11:16	59	360	90	Cloudy
28/08/04	13:00	14:00	81	306	96	Cloudy
31/08/04	15:10	16:10	50	313	84	Cloudy

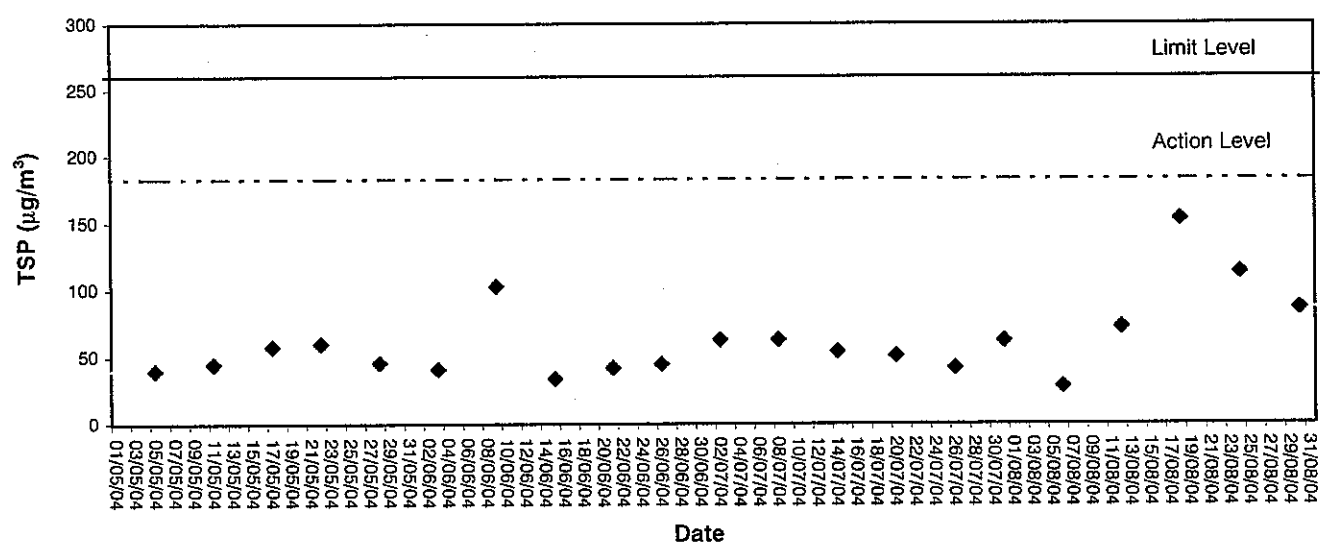
Appendix B3

Graphical Plots of Air Quality Monitoring Data

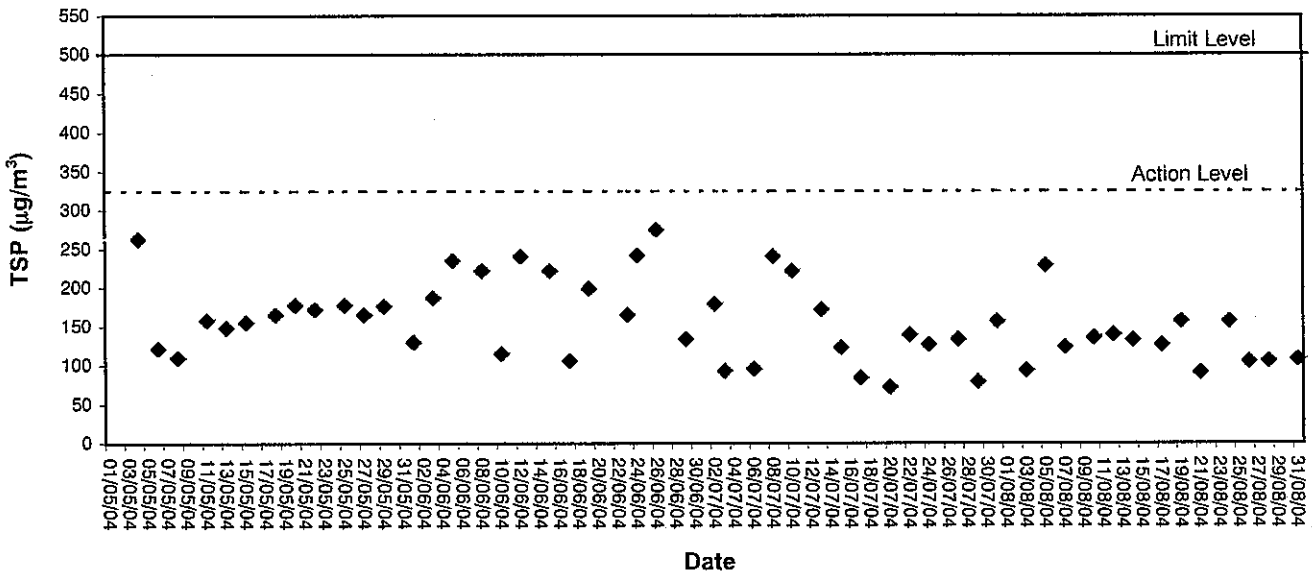
24-hour TSP level at AM1 (HKIB Staff Accommodation)



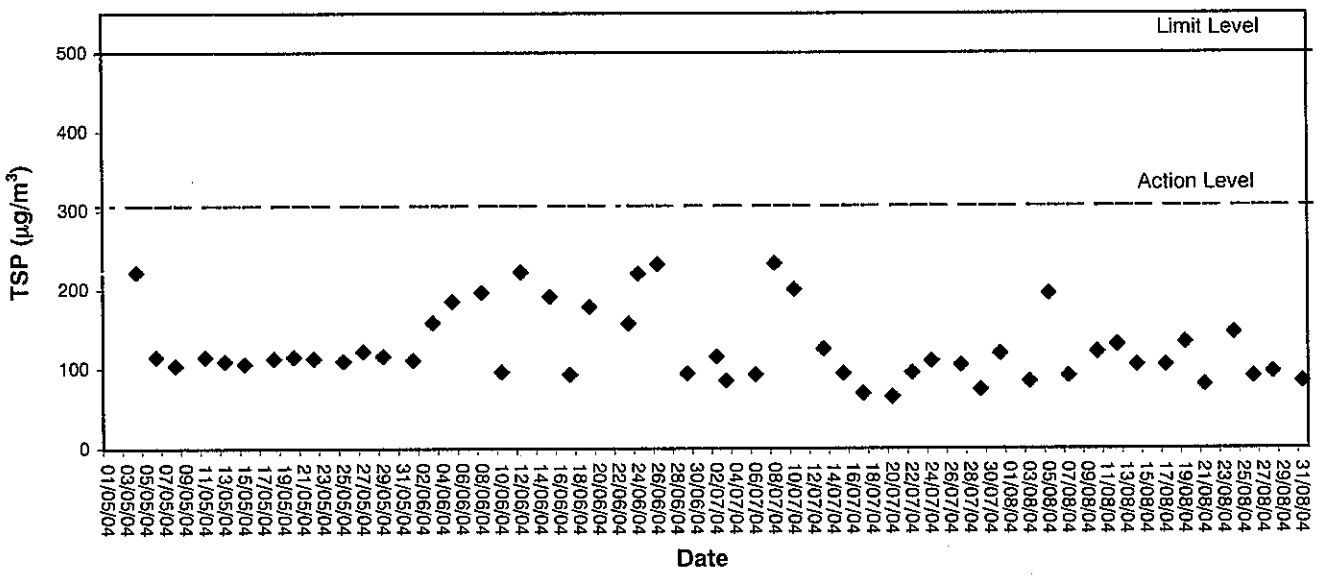
24-hour TSP level at AM3A (Cheung Shue Tan in front of Man Kee Store)



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

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. 41649 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. : Q40536 **Date of receipt :** 6-Apr-04

Item Tested

Description : Sound Level Calibrator (ET/0527/002)

Manufacturer : Rion

Model : NC-73 **Serial No. :** 10644871

Test Conditions

Date of Test : 16-Apr-04 **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:

Equipment No.	Cert. No.	Due Date	Traceable to
S014	30961	1-Jun-04	PRC-NIM
S024	Z02050078	29-May-04	PRC-NIM
S041	35075	2-Dec-04	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 national standards/International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : _____

Approved by : _____
Alan Chu - Manager

Date: 16-Apr-04

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 8601 Fax: 2425 8646

Calibration Certificate

Results :

1. **Level Accuracy (at 1 kHz)**

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	- 0.8 dB	± 1 dB

Uncertainty : ± 0.2 dB

2. **Frequency Accuracy**

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.986 kHz	± 2 %

Uncertainty : ± 0.1 %

3. **Level Stability** : 0.0 dB
   Uncertainty : ± 0.01 dB

4. **Total Harmonic Distortion** : < 0.2 %
   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 : 995 hPa
4. The above measured values are the mean of 3 measurement.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 41648

Customer : ETS-Testconsult Limited

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

Order No. : Q40536 **Date of receipt :** 6-Apr-04

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31 **Serial No. :** 00531142

Test Conditions

Date of Test : 16-Apr-04 **Supply Voltage :** --

Ambient Temperature : (22.5 ± 2.5)°C **Relative Humidity :** (50 ± 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:

Equipment No.	Cert. No.	Due Date	Traceable to
S017	S30857	8-Apr-05	PRC-NIM
S024	Z02050078	29-May-04	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 national standards/International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : _____

Approved by : _____
Alan Chu - Manager

Date: 16-Apr-04

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

Calibration Certificate

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		+ 0.1
	Lp	Fast		0.0
30 – 120	L_A	Fast	94.0	+ 0.1
		Slow		+ 0.1
	L_C	Fast		+ 0.1
	Lp	Fast		0.0
30 – 120	L_A	Fast	114.0	0.0
		Slow		0.0
	L_C	Fast		0.0
	Lp	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

3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.5	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.3	- 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	- 3.3	- 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 ~ - 3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB

4. Time Averaging

Applied Burst duty Factor	UUT Reading (dB)	Correction (dB)	IEC 804 Type 1 Spec.
continuous	36.9	--	--
1/10	36.7	+ 0.2	± 0.5 dB
$1/10^2$	36.7	+ 0.2	
$1/10^3$	36.7	+ 0.2	± 1.0 dB
$1/10^4$	36.7	+ 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 : 995 hPa.

---------- END ----------

ID	Description	Dur	Start	Finish	Complete
Completion Dates					
KD-2040	Section 4- Waterworks in Area 3, 4 & 6	0		25JUN04 *	0
KD-2040B	Assumed Extension of Time for KD-2040	0		09JUL04 *	0
KD-2040A	Achievement Date for KD-2040	0		26JUL04	0
KD-2150	Section 15- Waterworks in Area 1E	0		11JUL04 *	0
KD-2150B	Assumed Extension of Time for KD-2150	0		24SEP04 *	0
KD-2050	Section 5- Work in Area 7A except P.Stn.1, LS&EW	0		25AUG04 *	0
KD-2050A	Achievement Date for KD-2050	0		08SEP04	0
KD-2050B	Assumed Ext. of Time for Section 5	0		09SEP04 *	0
Utilities Milestone Dates					
KD-3020	Completion-ElecCable/Substation to S.Park1,2,3)	0		26AUG04	0
Submission & Approval					
B0-170240	PS1-Approv.of/Equ/pt.Sub.-Deodorizer System	200	29AUG03 A	05JUL04	95
B0-170310	PS2-Approv.of/Equ/pt.SUb-Deodorizer System	200	29AUG03 A	05JUL04	85
B0-175250	PS1-Approv.of/Equ/pt.Sub.-Lifting Appliance	160	06OCT03 A	29JUN04	88
Preliminaries & Procurement					
B0-205720	PS1-Fabrication&Delivery-Mechanical Screen System	334	22OCT03 A	30SEP04	68
B0-205710	PS1-Fabrication&Delivery-Sewage Pumpset and VSD	224	18DEC03 A	13SEP04	70
B0-205790	PS2-Fabrication&Delivery-Sewage Pumpset and VSD	234	18DEC03 A	30AUG04	72
B0-123010	Pumping Stations E&M, Pumps, etc.	180	25DEC03 A	20JUL04	86
B0-205740	PS1-Fabrication&Delivery -Valves & Pipeworks	164	23FEB04 A	16AUG04	72
B0-205805	PS2-Fabrication&Delivery -Valves & Pipeworks	154	23FEB04 A	16AUG04	72
B0-170110	Fabrication & Delivery - Prestressing	90	26MAR04 A	18JUL04	75
B0-205770	PS1-Fabrication&Delivery-LVSwitchbrd&ControlPan.	122	14APR04 A	03SEP04	43
B0-205795	PS2-Fabrication&Delivery-Mechanical Screen System	154	14APR04 A	18SEP04	46
B0-205820	PS2-Fabrication&Delivery-LVSwitchbrd&ControlPan.	121	14APR04 A	02SEP04	43
B0-205610	Fabrication & Delivery-Fabricated Movement Joint	90	20APR04 A	27JUL04	65
B0-205780	PS1-Fabrication&Delivery-Lifting Appliance	92	29MAY04 A	18SEP04	27
B0-205815	PS2-Fabrication&Delivery-Lifting Appliance	84	29MAY04 A	04SEP04	29
B0-205750	PS1-Fabrication&Delivery-Deodorizer System	105	07JUL04	20OCT04	0
B0-205810	PS2-Fabrication&Delivery-Deodorizer System	88	09JUL04	21OCT04	0
Part 1.1 Preliminaries					
B1-0103E1	Operate/ maintain Mobile Phones, 4nr	1020	03SEP02 A	17JUN05	85
B1-0107D0	Update Waste Management Plan	1080	03SEP02 A	20AUG05	61
B1-0107E0	Implement & Monitor Waste Management Plan	1080	03SEP02 A	20AUG05	61
B1-0102B0	Operate & maintain 4-wheel drive vehicle, 2 nr	1001	05SEP02 A	31MAY05	68
B1-0101G0	Maintain/remove measures for traffic flow	1140	10SEP02 A	17OCT05	58
B1-0102D0	Progress Photographs, 30nr	900	01OCT02 A	22MAR05	70
B1-0106N0	Maintain Noise Monitoring	1118	09OCT02 A	18OCT05	67
B1-0108K0	Maintain Air Monitoring	1104	18OCT02 A	24OCT05	68
B1-0103E2	Operate/ maintain Mobile Phones, 3nr	1020	03DEC02 A	17SEP05	85
B1-0101D5	Servicing Contractor's Site Accommodation	1045	16DEC02 A	19OCT05	54
B1-0101B0	Servicing Engineer's Site Accommodation	1031	25DEC02 A	15OCT05	64
B1-0107F0	Maintain Ex.Cyclist/Pedestrian Bridge@N.RoundA	320	21MAY03 A	28JUN04	99
B1-0103J1	Maintain W.Washing Facilities, WB2 at Zone Q	424	10AUG03 A	13OCT04	74
B1-0103J4	Maintain W.Washing Facilities, WB4 at Zone L	424	15AUG03 A	18OCT04	73
B1-0103B1	Erect Signboards, 1nr at Zone A	21	26JUN04	16JUL04	0

JUN | JUL | AUG | SEP

14 21 28 05 12 19 26 02 09 16 23 30 06 13 20 27

Data date	21JUN04
Page number	1A
Page count	2A
Number/Version	TP3502/3MON0322
Company name	Penta-Ocean Construction Co. Ltd.

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

Contract No.TP35/02
Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1
3MONTHS ROLLING PROGRAM

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}(30)	L10	L90		
03/08/04	09:48	62.9	66.9	59.2	1.3	Sunny
10/08/04	14:05	60.2	61.8	56.0	1.2	Cloudy
17/08/04	09:50	61.9	64.9	59.0	0.7	Sunny
24/08/04	09:47	58.1	60.5	53.6	0.4	Sunny
31/08/04	13:35	63.7	66.2	61.2	1.8	Cloudy

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}(30)	L10	L90		
03/08/04	08:25	59.0	62.2	55.2	0.8	Sunny
10/08/04	15:20	58.2	59.4	54.4	1.4	Cloudy
17/08/04	10:38	56.5	58.9	53.3	1.2	Sunny
24/08/04	15:00	56.1	58.3	52.2	0.5	Sunny
31/08/04	14:18	56.0	58.3	53.7	2.7	Cloudy

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}(30)	L10	L90		
03/08/04	11:05	51.8	54.2	48.6	1.0	Sunny
10/08/04	16:19	56.5	58.0	53.3	1.1	Cloudy
17/08/04	11:22	54.1	55.9	50.5	0.9	Sunny
24/08/04	15:47	54.2	56.8	49.5	0.2	Sunny
31/08/04	15:12	51.7	53.5	49.1	1.3	Cloudy

Evening-time Noise Monitoring

Monitoring Location: NM1 (HKIB Staff Accommodation)

Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
03/08/04	19:00	57.6	58.2	59.1	59.6	59.9	60.7	53.9	54.6	60.7	1.4	Fine
10/08/04	19:30	57.2	57.0	56.9	58.9	58.3	57.3	52.6	52.0	51.6	0.4	Fine
17/08/04	19:12	56.9	57.2	56.6	59.2	59.6	58.9	54.6	54.8	54.1	0.8	Cloudy
24/08/04	19:00	56.7	57.0	56.8	58.2	59.4	58.7	51.4	52.0	51.1	0.5	Cloudy
31/08/04	20:10	59.1	59.9	61.0	60.9	61.0	62.4	55.9	56.3	56.8	1.4	Cloudy

Monitoring Location: NM2 (CUHK Residence No.10)

Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
03/08/04	19:35	56.1	55.4	56.9	57.8	57.1	58.2	52.3	51.9	52.9	1.2	Fine
10/08/04	19:55	54.2	54.0	54.3	56.8	56.5	56.7	49.7	49.4	49.2	0.5	Fine
17/08/04	19:45	58.0	58.2	58.5	59.9	60.2	60.6	55.7	55.9	56.4	0.8	Cloudy
24/08/04	19:25	54.0	53.9	53.7	56.2	55.7	55.6	49.8	49.2	48.9	0.6	Cloudy
31/08/04	19:35	57.6	58.7	56.0	58.9	59.9	58.0	54.9	55.3	54.1	1.5	Cloudy

Monitoring Location: NM3 (Cheung Shue Tan Village)

Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
03/08/04	20:10	54.7	55.9	56.0	55.8	56.9	57.7	50.9	49.8	51.7	1.0	Fine
10/08/04	20:20	52.6	52.5	52.1	54.9	55.1	54.2	47.6	47.3	46.9	0.3	Fine
17/08/04	20:13	51.0	50.8	50.4	52.6	52.5	52.1	48.0	47.4	47.2	0.5	Cloudy
24/08/04	19:50	52.4	52.5	52.3	54.6	54.9	54.5	47.5	47.8	47.2	0.5	Cloudy
31/08/04	19:00	53.7	51.6	55.2	55.0	52.9	57.0	48.1	47.9	48.6	1.1	Cloudy

Holiday Noise Monitoring

Monitoring Location: NM1 (HKIB Staff Accommodation)

Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
01/08/04	14:40	58.1	57.6	59.2	59.5	59.0	60.4	54.3	54.0	55.6	1.2	Sunny
08/08/04	14:05	60.2	60.6	61.0	63.5	63.8	64.2	58.4	58.8	59.3	0.7	Sunny
15/08/04	09:45	56.7	57.0	56.7	59.0	59.4	58.8	50.8	51.3	50.4	0.3	Cloudy
22/08/04	14:45	59.1	59.4	59.2	62.0	62.8	62.3	56.3	57.0	56.5	2.1	Cloudy
29/08/04	15:40	58.1	59.2	60.1	59.8	60.7	61.8	57.0	56.2	57.3	1.8	Cloudy

Monitoring Location: NM2 (CUHK Residence No.10)

Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
01/08/04	15:20	56.4	57.6	58.1	57.6	58.9	59.6	53.8	54.7	54.1	1.4	Sunny
08/08/04	14:42	58.6	58.2	59.1	61.5	61.0	62.2	55.9	55.1	56.4	0.9	Sunny
15/08/04	10:10	55.6	55.0	55.4	57.8	57.1	58.0	49.3	49.0	50.2	0.2	Cloudy
22/08/04	15:12	54.6	55.0	54.2	57.1	58.0	56.8	52.1	52.9	51.6	1.4	Cloudy
29/08/04	14:05	57.6	58.0	58.8	58.9	59.3	59.9	55.9	56.1	56.7	1.8	Cloudy

Monitoring Location: NM3 (Cheung Shue Tan Village)

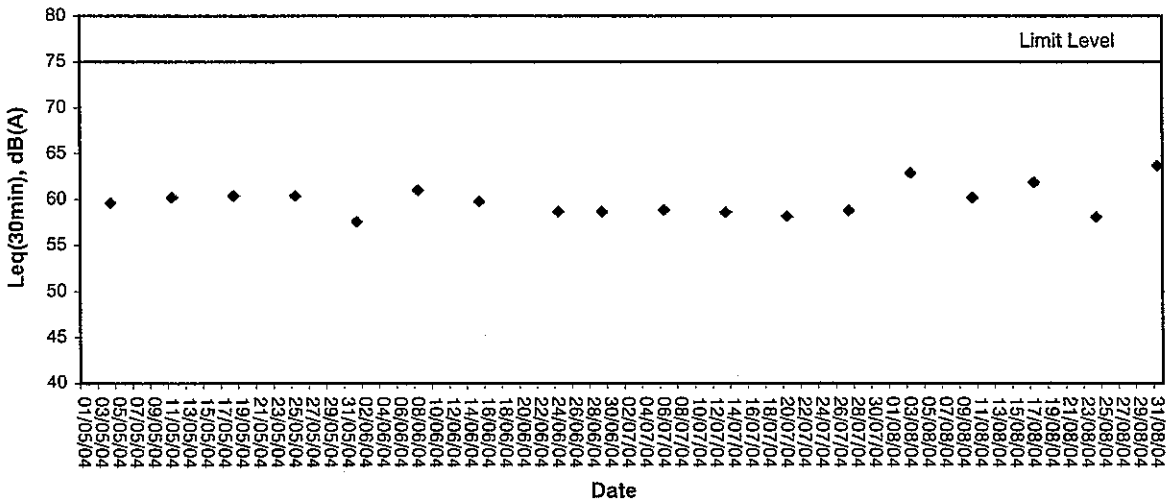
Date	Start Sampling Time	Noise Level dB (A)									Wind Speed (m/s)	Weather Condition
		$L_{eq}(5)$			L10			L90				
01/08/04	16:03	55.7	56.4	54.9	56.7	58.0	56.1	53.0	53.6	52.7	1.1	Sunny
08/08/04	15:26	50.1	50.4	51.2	52.2	52.6	52.9	45.9	46.3	47.0	0.8	Sunny
15/08/04	10:35	53.7	53.6	53.0	55.9	55.3	55.1	47.4	47.2	47.0	0.3	Cloudy
22/08/04	15:35	52.3	52.0	51.4	54.6	54.1	53.7	48.8	48.4	47.9	1.2	Cloudy
29/08/04	13:30	55.9	56.2	55.3	56.8	57.9	56.3	54.9	55.4	55.1	1.3	Cloudy

Appendix C3

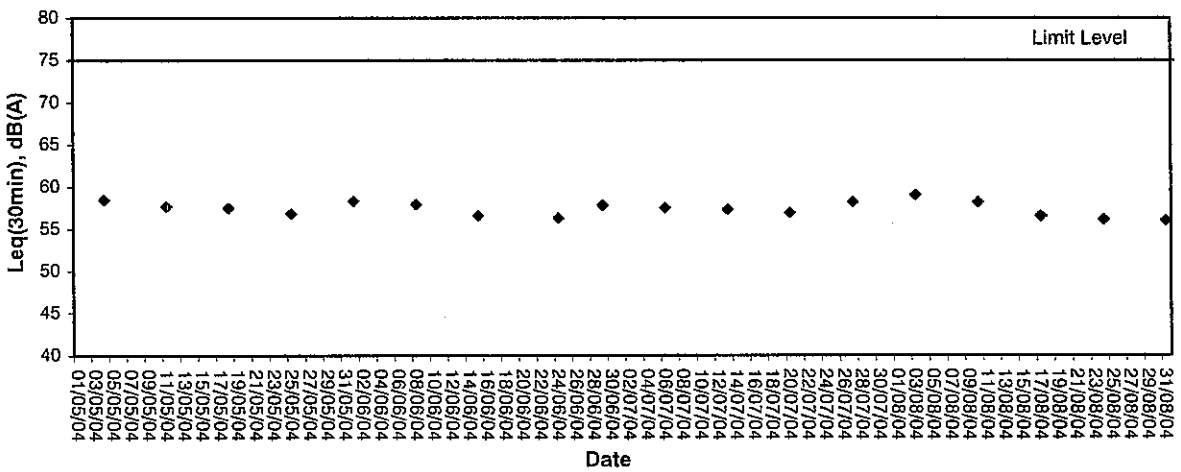
Graphical Plots of Noise Monitoring Data

Noise Monitoring (Day-time)

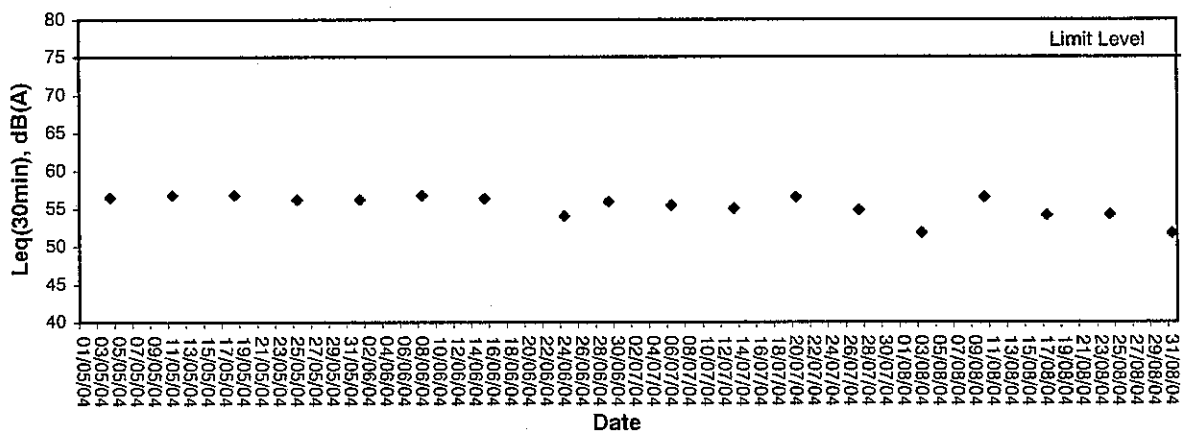
Noise level at NM1, HKIB Staff Accommodation



Noise level at NM2, CUHK Residence No.10

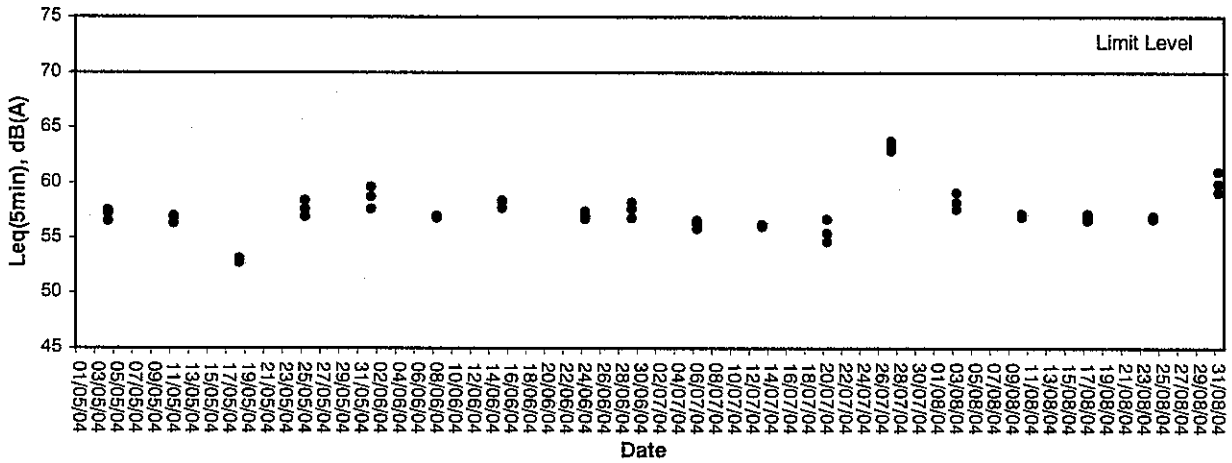


Noise level at NM3, Cheung Shue Tan Village

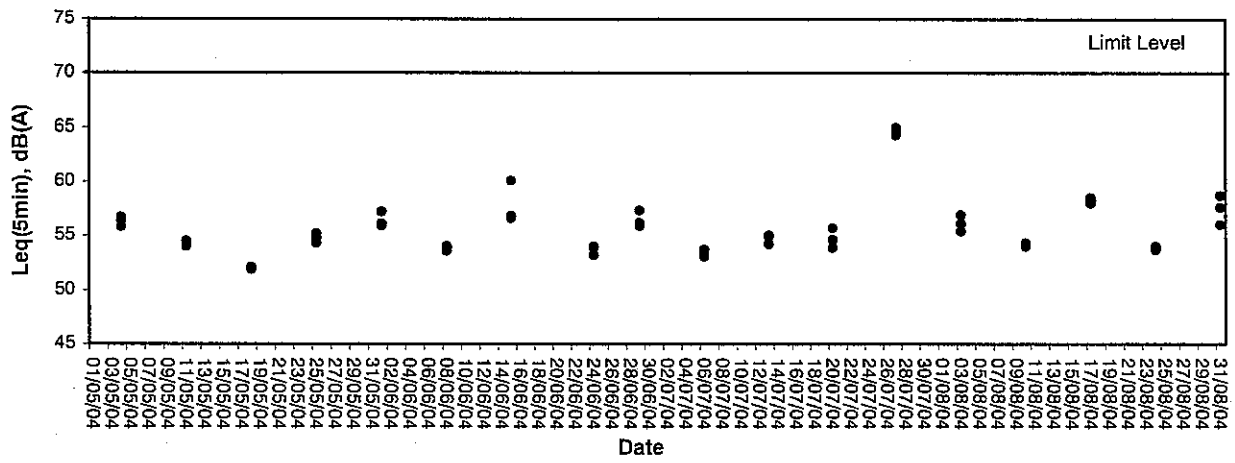


Noise Monitoring (Evening-time)

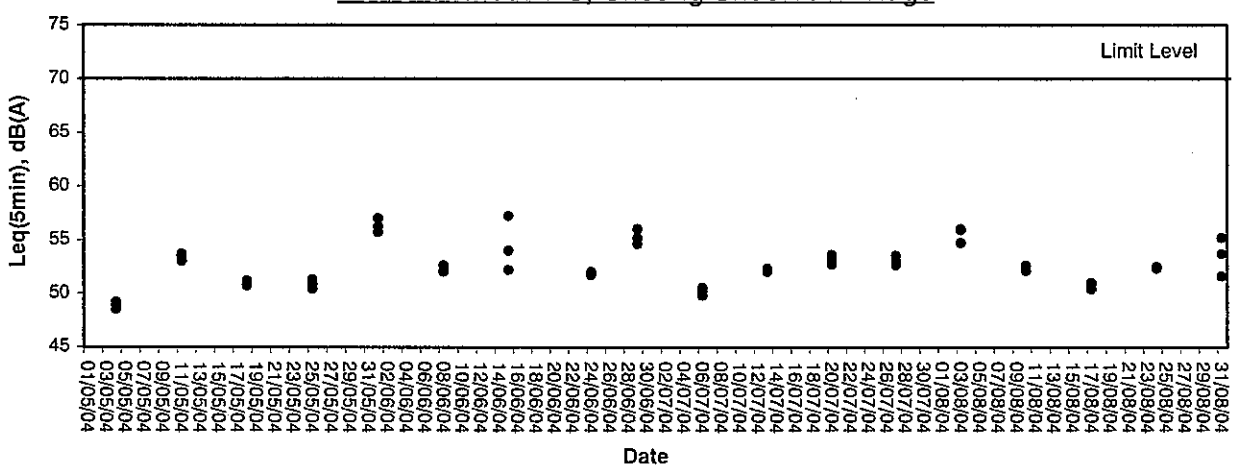
Noise level at NM1, HKIB Staff Accommodation



Noise level at NM2, CUHK Residence No.10

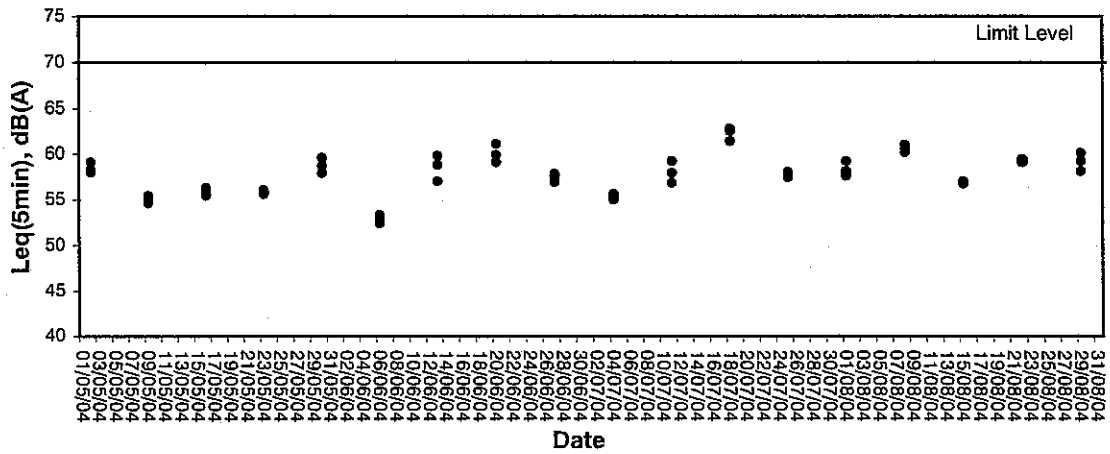


Noise level at NM3, Cheung Shue Tan Village

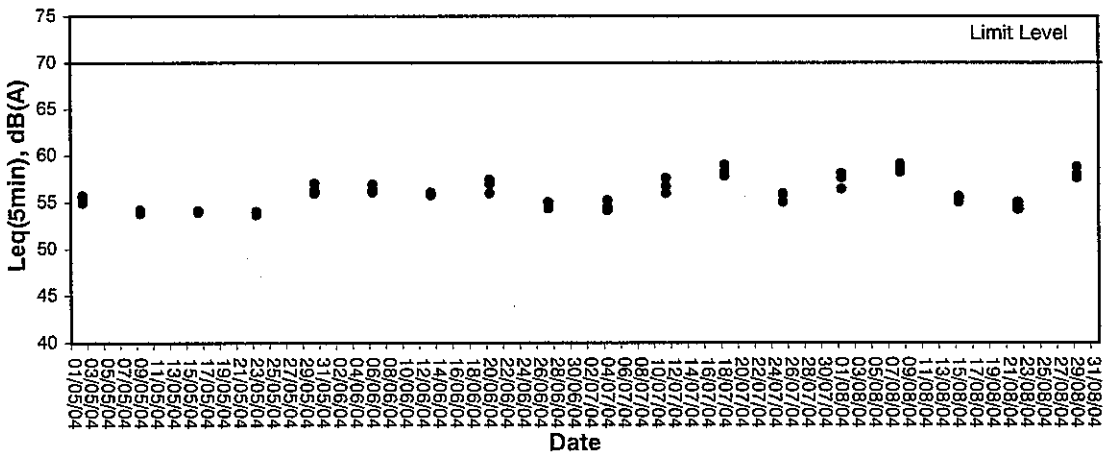


Noise Monitoring (Holiday)

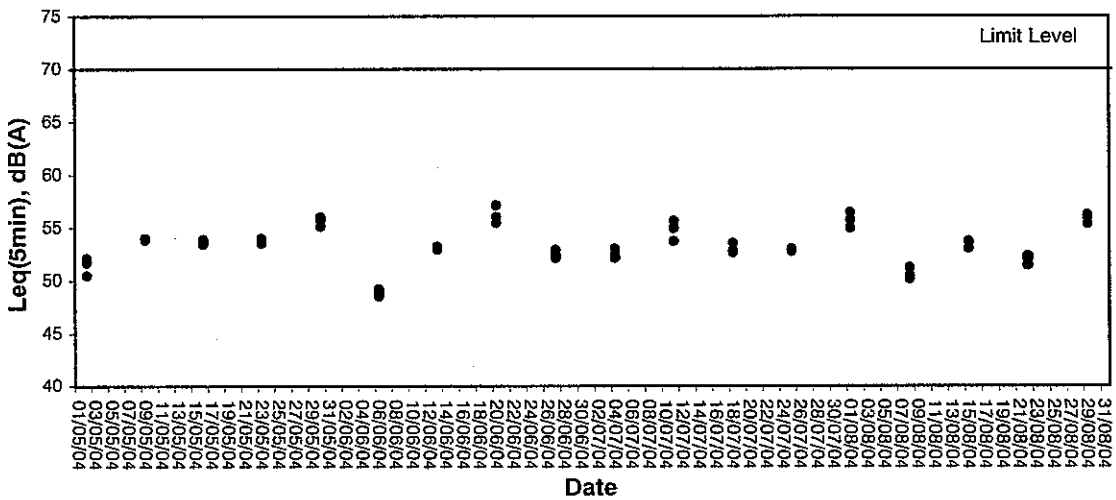
Noise level at NM1, HKIB Staff Accommodation



Noise level at NM2, CUHK Residence No.10



Noise level at NM3, Cheung Shue Tan Village



Appendix D

Weather Condition

Weather Condition

Date	Rainfall (mm)	Max. Temp (°C)	Min. Temp. (°C)	Relative Humidity (%)	Wind Direction	Wind Speed (m/s)
01/08/04	-	31.9	26.6	76	SW	<5
02/08/04	-	32.0	27.3	76	S	<5
03/08/04	-	31.9	28.0	74	S	<5
04/08/04	23.0	31.8	25.6	78	SW	<5
05/08/04	14.0	29.1	25.3	88	SE	<5
06/08/04	83.9	27.4	24.7	92	SW	<5
07/08/04	-	30.6	26.7	79	SW	<5
08/08/04	-	31.7	27.2	74	NW	<5
09/08/04	-	32.9	28.0	76	SW	<5
10/08/04	-	33.9	28.9	72	NW	<5
11/08/04	36.4	31.1	25.2	81	N	<5
12/08/04	2.7	29.9	25.9	80	SW	<5
13/08/04	-	32.0	27.0	76	SW	<5
14/08/04	18.3	32.1	25.9	80	S	<5
15/08/04	Trace	30.3	27.8	81	SE	<5
16/08/04	-	31.9	27.1	75	SW	<5
17/08/04	-	33.4	27.5	73	NW	<5
18/08/04	Trace	32.7	29.3	77	S	<5
19/08/04	-	32.4	28.8	80	SE	<5
20/08/04	10.3	30.1	25.7	85	E	<5
21/08/04	64.3	27.3	25.3	95	N	<5
22/08/04	16.4	27.4	25.5	93	N	<5
23/08/04	12.0	31.4	26.2	84	NE	<5
24/08/04	29.8	31.4	26.9	84	N	<5
25/08/04	-	32.7	27.5	72	NW	<5
26/08/04	12.0	29.6	25.3	78	S	<5
27/08/04	5.7	27.1	24.9	93	E	<5
28/08/04	21.8	29.0	25.3	92	S	<5
29/08/04	114.7	28.6	25.2	91	S	<5
30/08/04	14.3	29.6	25.6	87	SW	<5
31/08/04	8.9	29.9	26.0	88	SE	<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

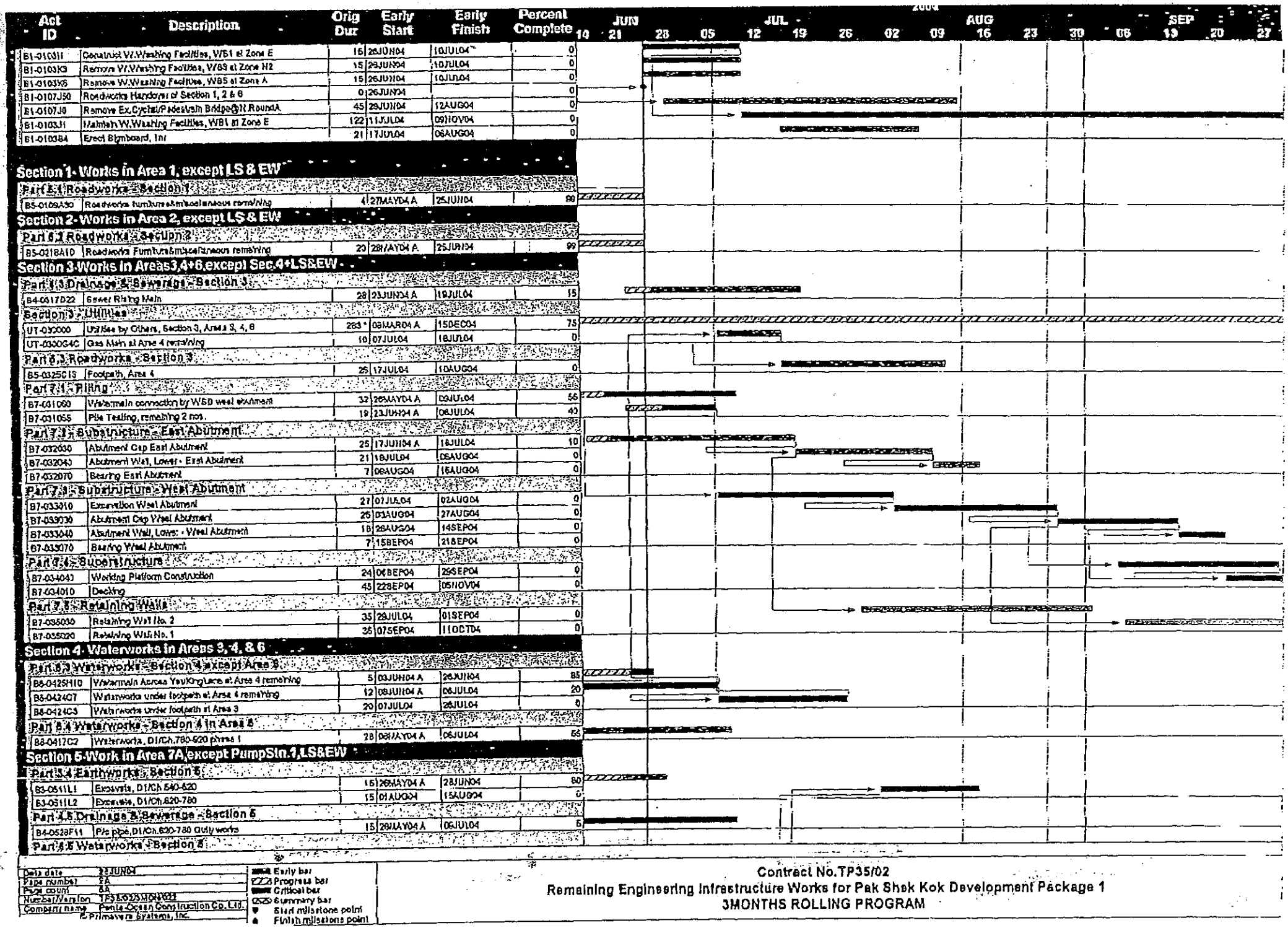
EVENT	ACTION			
	ET Leader	IC(E)	ER	CNOTRACTOR
Action Level				
1. Exceedance of one sample	1. Identify source 2. Inform IC(E) and ER 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET 2. Check Contractor's working method.	1. Notify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

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET Leader	IC(E)	ER	CNOTRACTOR
Action Level	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	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	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	1. Submit noise mitigation proposal to IC(E) 2. Implement noise mitigation proposals
Limit Level	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	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 advice the ER accordingly 3. Supervise the implementation of remedial measures	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 protion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	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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Description
Orig Dur
Early Start
Early Finish
Percent Complete
2004
JUN
JUL
AUG
SEP
14 21 28 05 12 19 26 02 09 16 23 30 06 13 20 27
B1-0103I1 Construct W.Washing Facilities, WB1 at Zone E 15 26JUN04 10JUL04 0
B1-0103K3 Remove W.Washing Facilities, WB3 at Zone N2 15 26JUN04 10JUL04 0
B1-0103K5 Remove W.Washing Facilities, WB5 at Zone A 15 26JUN04 10JUL04 0
B1-0107J50 Roadworks Handover of Section 1, 2 & 6 0 26JUN04 0
B1-0107J9 Remove Ex.Cycle/Pedestrain Bridge@N RoundA 45 26JUN04 12AUG04 0
B1-0103J1 Maintain W.Washing Facilities, WB1 at Zone E 122 11JUL04 09NOV04 0
B1-0103B4 Erect Signboard, Int 21 17JUN04 06AUG04 0
Section 1- Works in Area 1, except LS & EW
Part 5.1 Roadworks - Section 1
B5-0109A30 Roadworks furniture&miscellaneous remaining 4 27MAY04 A 25JUN04 99
Section 2- Works in Area 2, except LS & EW
Part 5.1 Roadworks - Section 2
B5-0218A10 Roadworks Furniture&miscellaneous remaining 20 28MAY04 A 25JUN04 99
Section 3-Works in Areas3,4+6,except Sec.4+LS&EW
Part 7.3 Drainage & Sewerage - Section 3
B4-0617D22 Sewer Rising Main 28 23JUN04 A 19JUL04 15
Section 3 - Utilities
UT-030000 Utilities by Others, Section 3, Areas 3, 4, 6 283* 08MAR04 A 15DEC04 75
UT-030G4C Gas Main at Area 4 remaining 10 07JUL04 16JUL04 0
Part 5.3 Roadworks - Section 3
B5-032501S Footpath, Area 4 25 17JUL04 10AUG04 0
Part 7.1 - Piling
B7-031060 Watermain connection by WSD west abutment 32 26MAY04 A 09JUL04 55
B7-031055 Pile Testing, remaining 2 nos. 19 23JUN04 A 06JUL04 40
Part 7.1 - Substructure - East Abutment
B7-032000 Abutment Cap East Abutment 25 17JUN04 A 16JUL04 10
B7-032040 Abutment Wall, Lower - East Abutment 21 16JUL04 06AUG04 0
B7-032070 Bearing East Abutment 7 06AUG04 15AUG04 0
Part 7.1 - Substructure - West Abutment
B7-033010 Excavation West Abutment 27 07JUL04 02AUG04 0
B7-033030 Abutment Cap West Abutment 25 03AUG04 27AUG04 0
B7-033040 Abutment Wall, Lower - West Abutment 18 28AUG04 14SEP04 0
B7-033070 Bearing West Abutment 7 15SEP04 21SEP04 0
Part 7.4 - Superstructure
B7-034040 Working Platform Construction 24 06SEP04 29SEP04 0
B7-034010 Decking 45 22SEP04 05NOV04 0
Part 7.5 - Retaining Walls
B7-035030 Retaining Wall No. 2 35 28JUL04 01SEP04 0
B7-035020 Retaining Wall No. 1 35 07SEP04 11OCT04 0
Section 4- Waterworks in Areas 3, 4, & 6
Part 5.3 Waterworks - Section 4 except Area 3
B5-0425H10 Watermain Across Yau Kong Lane at Area 4 remaining 5 03JUN04 A 26JUN04 85
B5-0424G7 Waterworks under footpath at Area 4 remaining 12 08JUN04 A 06JUL04 20
B5-0424C5 Waterworks under footpath at Area 3 20 07JUL04 26JUL04 0
Part 5.4 Waterworks - Section 4 in Area 6
B5-0417C2 Waterworks, D1/Ch.780-820 phase 1 28 08MAY04 A 06JUL04 65
Section 5-Work in Area 7A,except PumpStn.1,LS&EW
Part 5.4 Earthworks - Section 5
B5-0511L1 Excavate, D1/Ch.540-620 15 26MAY04 A 28JUN04 80
B5-0511L2 Excavate, D1/Ch.620-780 15 01AUG04 15AUG04 0
Part 5.5 Drainage & Sewerage - Section 5
B4-0528F11 P/s pipe,D1/Ch.620-780 duty works 15 26MAY04 A 06JUL04 5
Part 5.5 Waterworks - Section 5
Data date 23JUN04
Page number 1A
Page count 6A
Number/Version TP35.02/3MONTH03
Company name Penta-Ocean Construction Co. Ltd.
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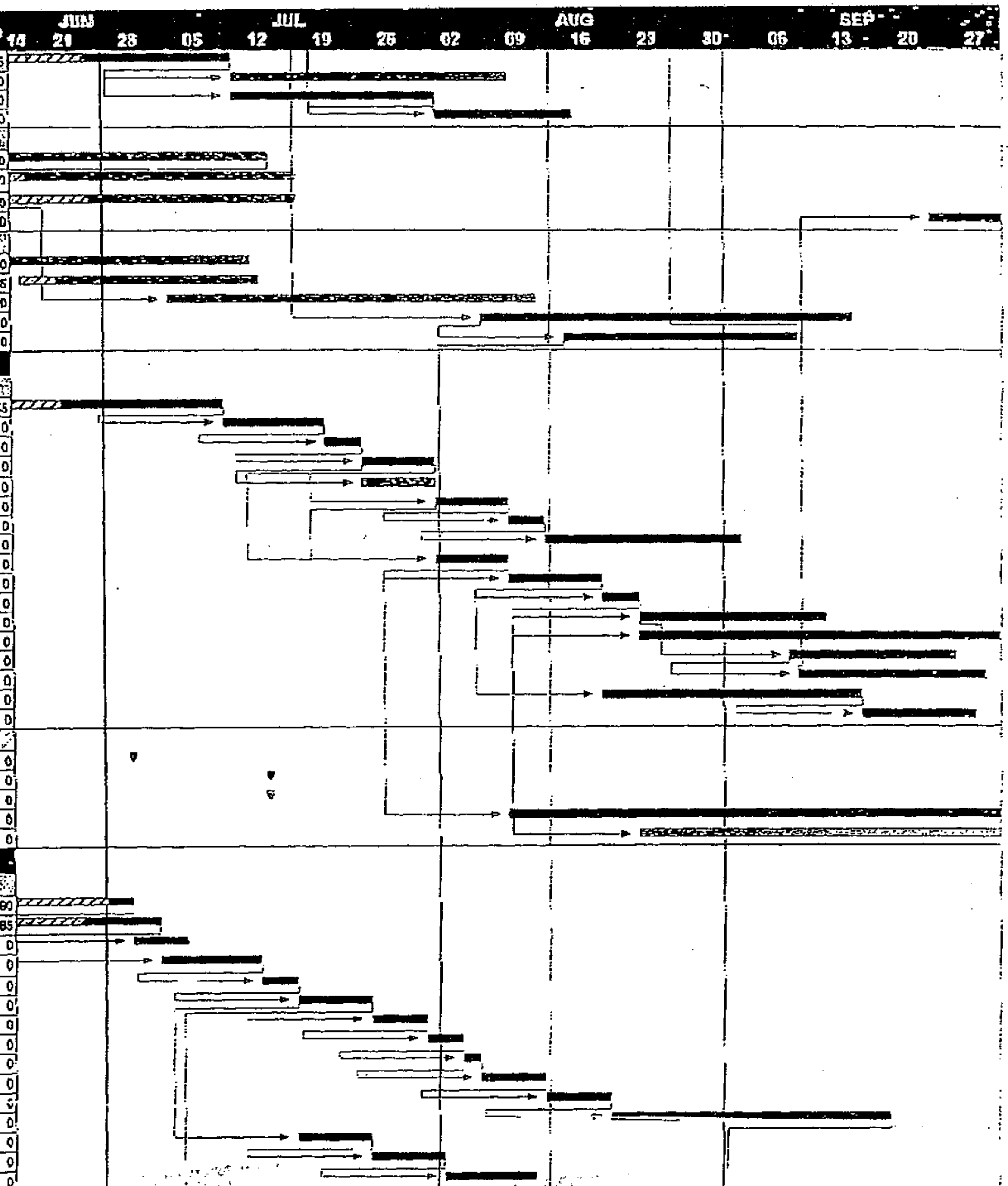
Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point
Contract No.TP35/02
Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1
3MONTHS ROLLING PROGRAM

Act ID	Description	Orig Dur	Early Start	Early Finish	Percent Complete
BS-0503A2	Watermains, D1/Ch.620-780	40	26MAY04 A	09JUL04	65
BS-0503A3	Watermains, At PS1	30	10JUL04	08AUG04	0
BS-0503A5	Replace Existing Watermain Ch.620-710	22	10JUL04	31JUL04	0
BS-0503A6	Realigned existing watermain connection by WSD	15	01AUG04	15AUG04	0
Section 8 - Utilities					
UT-0500P2	Power(11kV), D1/Ch.620-780	25	26MAY04 A	13JUL04	30
UT-0500T2A	PCCW, D1/Ch.620-780	25	05JUN04 A	18JUL04	30
UT-0500T2B	HGC-New World, D1/Ch.620-780	25	16JUN04 A	18JUL04	30
UT-0500P3	Power(11kV) at PS1	12	23SEP04	04OCT04	0
Part 8.8 Roadworks - Section 8					
BS-0540F1	Roadworks, D1/Ch.540-620	20	07JUN04 A	11JUL04	20
BS-0541B1	Cycle track & Footpath, D1/Ch.540-620	20	17JUN04 A	12JUL04	15
BS-0541B2	Cycle track & Footpath, D1/Ch.620-780	40	03JUL04	11AUG04	0
BS-0540F2	Roadworks, D1/Ch.620-780	40	06AUG04	14SEP04	0
BS-0543E0	Roadworks Furnitures & Miscellaneous	26	16AUG04	06SEP04	0
Section 12- Works of Sewage Pumping Station No.1					
Part 11.1 Pumping Station 1 Piling+Struct.Work					
BS-120350	Excavation & Strutting	24	07JUN04 A	08JUL04	45
BS-120400	Construction of base slab	11	09JUL04	19JUL04	0
BS-120410	Baseslab Waterproofing	4	20JUL04	23JUL04	0
BS-120500	Constr.Walls,BeamstoGrndFlrSlabofSRShelfWallofDW	8	24JUL04	31JUL04	0
BS-120510	Backfilling Works around Base Slab	6	24JUL04	31JUL04	0
BS-120520	Scaffoldingremoval@screenroomafter 3days curing	8	01AUG04	08AUG04	0
BS-120650	WaterproofingforWalls Beams&SlabSoffitsofScrnRm.	4	09AUG04	12AUG04	0
BS-120710	Watertightness test of half screen wel.	16	13AUG04	02SEP04	0
BS-120670	Construct Upperwallof DryWell to GrndSlabGL.2-5	8	01AUG04	08AUG04	0
BS-120680	Scaffolding removal after 7days curing@GL. 2-5	10	02AUG04	18AUG04	0
BS-120690	Waterproofing of Walls & Beam,Slab soffit. GL.2-5	4	19AUG04	22AUG04	0
BS-120720	WatertightnessTest for wet well	16	23AUG04	11SEP04	0
BS-120800	Finishing & Furniture	60	23AUG04	21OCT04	0
BS-120660	Watertightness Test for rem. wall&screen wel.	18	06SEP04	26SEP04	0
BS-120700	Drainage & Backfill	20	09SEP04	28SEP04	0
BS-120600	Construct Walls, Columns, Beams & Roof Slab	26	19AUG04	15SEP04	0
BS-120610	Scaffoldingremovalafter7dayscuring(GroundtoRoof)	12	16SEP04	27SEP04	0
Part 11.4 Electrical & Mechanical Equipment					
BS-124090	Link Application	0	29JUN04 *		0
BS-125020	Water Certification WW046 Part II	0	14JUL04 *		0
BS-125050	FS 314 Submission	0	14JUL04 *		0
BS-125020	Electrical Installation-Concealed Conduit	60	09AUG04	07OCT04	0
BS-124070	Valves and Pipeworks	40	23AUG04	06OCT04	0
Section 13- Works of Sewage Pumping Station No.2					
Part 11.3 Pumping Station 2 Piling+Struct.Work					
BS-130300	Pile Testing Platform Preparation Works	27	31MAY04 A	28JUN04	90
BS-130350	Excavation & Strutting	18	08JUN04 A	01JUL04	65
BS-130370	Pile Testing 1 no. additional	6	29JUN04	04JUL04	0
BS-130400	Construction and concreting of Base Slab	11	02JUL04	12JUL04	0
BS-130410	Base Slab waterproofing	4	13JUL04	16JUL04	0
BS-130500	Construct Lowerpart of G.L.4 Wall	6	17JUL04	24JUL04	0
BS-130520	Construct Upperpart of G.L. 4 Wall	6	25JUL04	30JUL04	0
BS-130550	Waterproofing of Wall @ G.L. 4	4	31JUL04	03AUG04	0
BS-130560	Backfilling @ G.L. 4 Wall	2	04AUG04	05AUG04	0
BS-130533	Construct Footing of Transformer Room	7	06AUG04	12AUG04	0
BS-130540	Construct walls & 1st floor slab of Transf. Room	7	13AUG04	19AUG04	0
BS-130620	Finishing Works @ Transformer room	30	20AUG04	18SEP04	0
BS-130510	Construct Lowerpart of walls @ other cells	8	17JUL04	24JUL04	0
BS-130600	Construct UpperpartofWalls&Grnd.flr.slabs	8	25JUL04	01AUG04	0
BS-130670	Scaffoldingremoval&Shut.prop.syst.for water test	10	02AUG04	11AUG04	0



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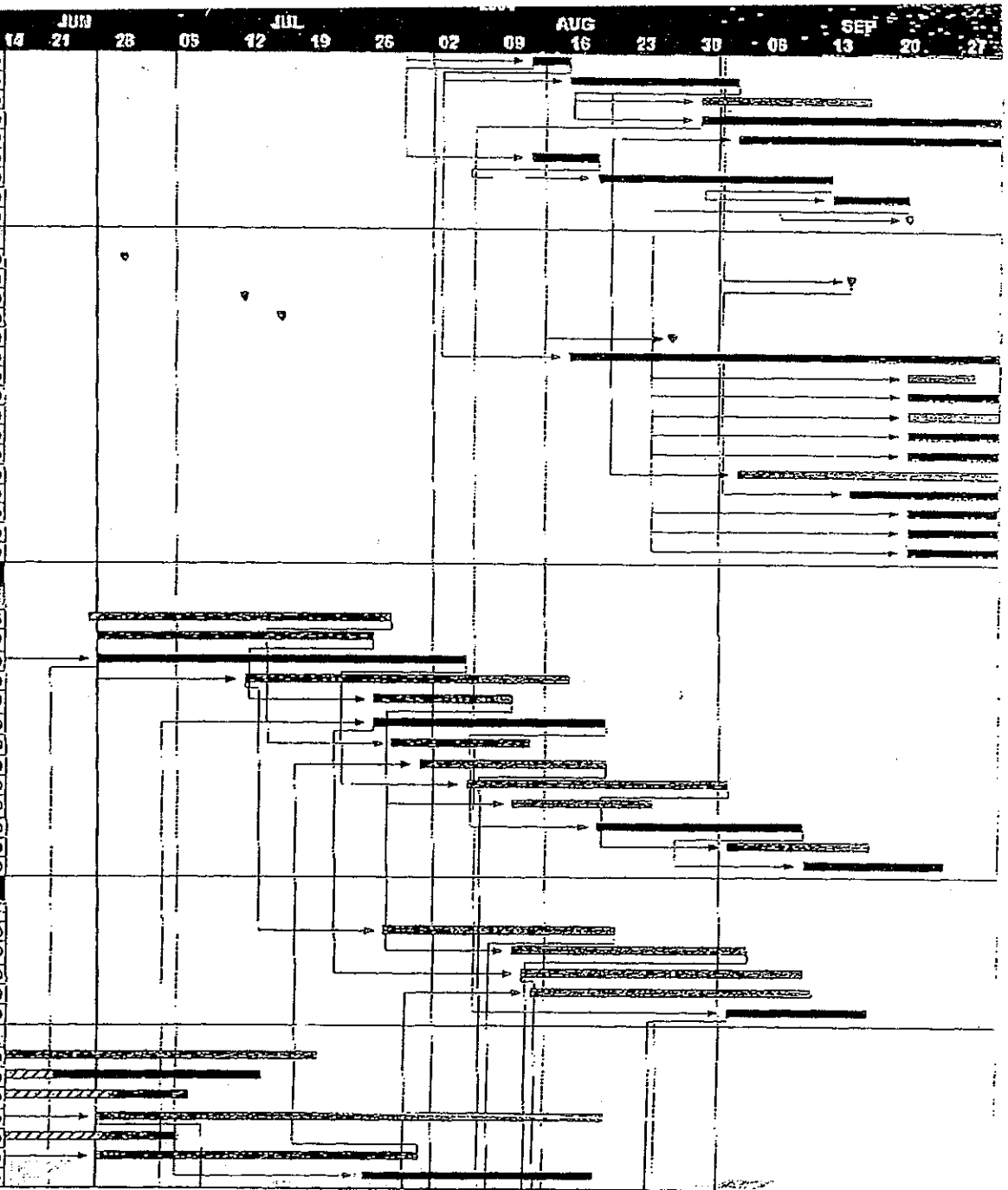
▲ Finish milestone point

Contract No.TP35/02

Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1

3MONTHS ROLLING PROGRAM

ID	Description	Orig Dur	Early Start	Early Finish	Percent Complete
BS-130650	Waterproofing Walls & slab soffit	4	12AUG04	15AUG04	0
BS-130660	Water Tightness Test of Group A	15	16AUG04	02SEP04	0
BS-130670	Water Tightness Test of Group B	18	30AUG04	16SEP04	0
BS-130700	Drainage & Backfill	35	30AUG04	03OCT04	0
BS-130800	Finishing & Furniture	60	03SEP04	01NOV04	0
BS-130690	Walls and Ground Slab Curing Period	7	12AUG04	18AUG04	0
BS-130540	Walls, Beams & Roof Construction	25	19AUG04	12SEP04	0
BS-130610	Curing and formworks removal	6	13SEP04	20SEP04	0
BS-130690	D&D Inspection for Building Works	0	21SEP04		0
Part 11.4 Electrical & Mechanical Equipment					
BS-134030	Direct Link Application	0	29JUN04*		0
BS-134110	CLP Inspection of Transformer Room	0	15SEP04		0
BS-135110	WWO48 Part II Submission	0	12JUL04*		0
BS-135050	FS 914 Submission	0	16JUL04*		0
BS-135100	Expected availability of power supply	0	27AUG04		0
BS-136040	Electrical Installation-Concealed Conduit	60	16AUG04	14OCT04	0
BS-136030	Survey of CWS As-built	7	21SEP04	27SEP04	0
BS-136060	Electrical Installation	47	21SEP04	09NOV04	0
BS-136080	SCADA and PLC Works	35	21SEP04	25OCT04	0
BS-136100	P & D Installation	45	21SEP04	04NOV04	0
BS-136110	F.S. Sensors Installation	45	21SEP04	04NOV04	0
BS-134070	Valves & Pipeworks	40	03SEP04	21OCT04	0
BS-136010	CLP Installation	42	15SEP04	05NOV04	0
BS-134060	Penstock	40	21SEP04	30OCT04	0
BS-134080	Lifting Appliance	14	21SEP04	04OCT04	0
BS-134100	LV Switchboard and Control Panels	30	21SEP04	28OCT04	0
Section 15- Waterworks in Area 15					
Part 6.10 Waterworks - Section 15					
BS-1595D14	Replace Existing Watermain, D1/Ch.1690-1880	34	25JUN04 A	27JUL04	5
BS-1595D1	Waterworks, D1/Ch.920-1020	30	26JUN04	25JUL04	0
BS-1595D6	Waterworks, D1/Ch.1880-2180	40	26JUN04	04AUG04	0
BS-1595D61	Waterworks, D1/Ch.1020-1360 remaining	35	12JUL04	18AUG04	0
BS-1595D11	Replace Existing Watermain, D1/Ch.620-960	15	26JUL04	09AUG04	0
BS-1595D3	Waterworks, D1/Ch.1360-1503	25	26JUL04	18AUG04	0
BS-1595D24	Watermain Connection by WSD, D1/Ch.1880-1880	15	26JUL04	11AUG04	0
BS-1595D7	Waterworks, L4/Ch.317-437	20	31JUL04	18AUG04	0
BS-1595D18	Replace Existing Watermain, D1/Ch.2080-2180	28	05AUG04	01SEP04	0
BS-1595D21	Watermain Connection by WSD, D1/Ch.620-960	15	10AUG04	24AUG04	0
BS-1595D13	Replace Existing Watermain, D1/Ch.1383-1480	22	18AUG04	09SEP04	0
BS-1595D26	Watermain Connection by WSD, D1/Ch.2080-2180	15	02SEP04	16SEP04	0
BS-1595D23	Watermain Connection by WSD, D1/Ch.1380-1480	15	10SEP04	24SEP04	0
Section 16- Remainder of Works, except LS+EW					
Part 3.11 Earthworks - Section 16					
BS-1622N2	Excavate, D1/Ch.1020-1360	25	21JUL04	25AUG04	0
BS-1622N1	Excavate, D1/Ch.920-1020	25	10AUG04	03SEP04	0
BS-1622N3	Deposit/ Compact, D1/Ch.1360-1503	33	11AUG04	09SEP04	0
BS-1622N9	Deposit/ Compact, N.end, Promenade	30	12AUG04	10SEP04	0
BS-1622N7	Deposit/ Compact, L4/Ch.337-437	15	02SEP04	16SEP04	0
Part 4.11 Drainage & Sewerage - Section 16					
BS-1683B6	Sewerage, D1, FS8 to Existing	30	25MAY04 A	18JUL04	20
BS-1683B48	Drainage,D1/Ch.1880-2180 Gully works	30	06JUN04 A	19JUL04	40
BS-1685B21	Sewerage, D1, (Ch.1020-1360)FD34-FD38 remaining	51	25MAY04 A	02JUL04	80
BS-1683B21	Drainage, D1, S0043-S0068 remaining	55	26JUN04	19AUG04	0
BS-1685B26	Sewerage Rising mains,L4 remaining	45	25MAY04 A	04JUL04	60
BS-1685B59	Drainage, L4 remaining	35	26JUN04	30JUL04	0
BS-1685B18	Sewerage, L4,F402 to PS2	25	25JUL04	18AUG04	0



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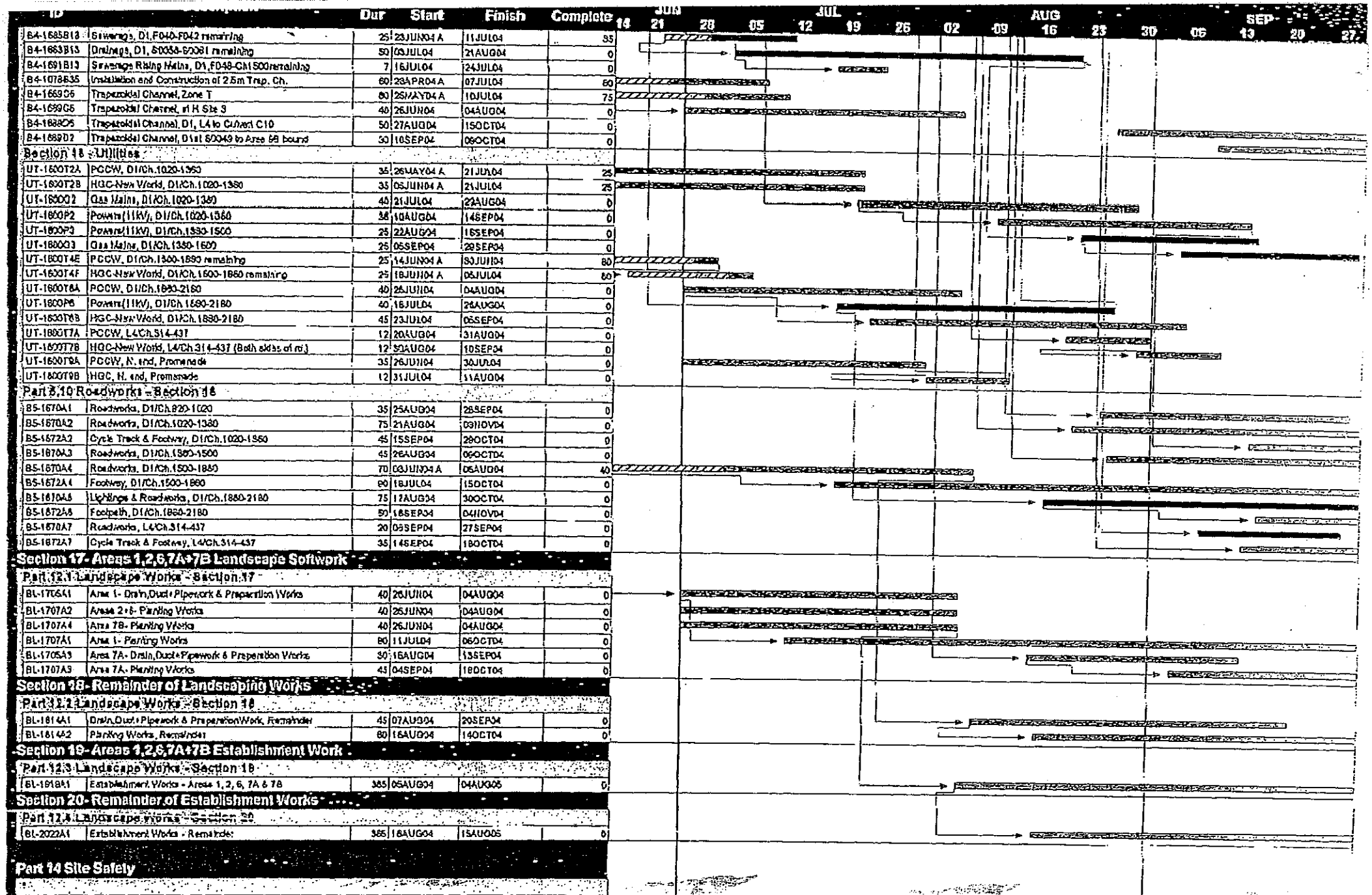
Contract No.TP35/02
Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1
3MONTHS ROLLING PROGRAM



ID		Dur	Start	Finish	Complete
B4-1685B13	Sewerage, D1,F040-F042 remaining	25	23JUN04 A	11JUL04	35
B4-1683B13	Drainage, D1, S0058-S0061 remaining	50	09JUL04	21AUG04	0
B4-1691B13	Sewerage Rising Mains, D1,F048-CH1500remaining	7	16JUL04	24JUL04	0
B4-1078B35	Installation and Construction of 2.5m Trap. Ch.	60	28APR04 A	07JUL04	60
B4-1669C6	Trapezoidal Channel, Zone T	80	25MAY04 A	16JUL04	75
B4-1669C5	Trapezoidal Channel, at H Site 3	40	26JUN04	04AUG04	0
B4-1668C5	Trapezoidal Channel, D1, L4 to Culvert C10	50	27AUG04	15OCT04	0
B4-1669D2	Trapezoidal Channel, D1at S0049 to Area 86 bound	30	10SEP04	09OCT04	0
Section 16 - Utilities					
UT-1600T2A	PCCW, D1/Ch.1020-1360	35	26MAY04 A	21JUL04	25
UT-1600T2B	HGC-New World, D1/Ch.1020-1360	35	05JUN04 A	21JUL04	25
UT-1600D2	Gas Mains, D1/Ch.1020-1360	45	21JUL04	22AUG04	0
UT-1600P2	Powers(11KV), D1/Ch.1020-1360	38	10AUG04	14SEP04	0
UT-1600P3	Powers(11KV), D1/Ch.1360-1500	25	22AUG04	16SEP04	0
UT-1600D3	Gas Mains, D1/Ch.1360-1500	25	05SEP04	29SEP04	0
UT-1600T4E	PCCW, D1/Ch.1500-1680 remaining	25	14JUN04 A	23JUL04	80
UT-1600T4F	HGC-New World, D1/Ch.1500-1860 remaining	25	18JUN04 A	05JUL04	60
UT-1600T6A	PCCW, D1/Ch.1860-2180	40	26JUL04	04AUG04	0
UT-1600P6	Powers(11KV), D1/Ch.1680-2180	40	16JUL04	26AUG04	0
UT-1600T6B	HGC-New World, D1/Ch.1860-2180	45	23JUL04	05SEP04	0
UT-1600T7A	PCCW, L4/Ch.314-437	12	20AUG04	31AUG04	0
UT-1600T7B	HGC-New World, L4/Ch.314-437 (Both sides of rd.)	12	30AUG04	10SEP04	0
UT-1600T9A	PCCW, N. end, Promenade	35	26JUN04	30JUL04	0
UT-1600T9B	HGC, N. end, Promenade	12	31JUL04	11AUG04	0
Part 8,10 Roadworks - Section 16					
BS-1670A1	Roadworks, D1/Ch.820-1020	35	25AUG04	28SEP04	0
BS-1670A2	Roadworks, D1/Ch.1020-1360	75	21AUG04	03NOV04	0
BS-1672A2	Cycle Track & Footway, D1/Ch.1020-1360	45	15SEP04	28OCT04	0
BS-1670A3	Roadworks, D1/Ch.1360-1500	45	26AUG04	06OCT04	0
BS-1670A4	Roadworks, D1/Ch.1500-1860	70	03JUN04 A	06AUG04	40
BS-1672A4	Footway, D1/Ch.1500-1860	60	16JUL04	15OCT04	0
BS-1670A5	Lighting & Roadworks, D1/Ch.1860-2180	75	12AUG04	30OCT04	0
BS-1672A5	Footpath, D1/Ch.1860-2180	50	16SEP04	04NOV04	0
BS-1670A7	Roadworks, L4/Ch.314-437	20	03SEP04	27SEP04	0
BS-1672A7	Cycle Track & Footway, L4/Ch.314-437	35	14SEP04	18OCT04	0
Section 17- Areas 1,2,6,7A+7B Landscape Softwork					
Part 12.1 Landscape Works - Section 17					
BL-1705A1	Area 1- Drain,Duct+Pipework & Preparation Works	40	26JUN04	04AUG04	0
BL-1707A2	Areas 2+6- Planting Works	40	26JUN04	04AUG04	0
BL-1707A4	Area 7B- Planting Works	40	26JUN04	04AUG04	0
BL-1707A1	Area 1- Planting Works	80	11JUL04	06OCT04	0
BL-1705A3	Area 7A- Drain,Duct+Pipework & Preparation Works	30	16AUG04	13SEP04	0
BL-1707A3	Area 7A- Planting Works	45	04SEP04	18OCT04	0
Section 18- Remainder of Landscaping Works					
Part 12.2 Landscape Works - Section 18					
BL-1814A1	Drain,Duct+Pipework & PreparationWork, Remainder	45	07AUG04	20SEP04	0
BL-1814A2	Planting Works, Remainder	60	16AUG04	14OCT04	0
Section 19- Areas 1,2,6,7A+7B Establishment Work					
Part 12.3 Landscape Works - Section 19					
BL-1918A1	Establishment Works - Areas 1, 2, 6, 7A & 7B	365	05AUG04	04AUG05	0
Section 20- Remainder of Establishment Works					
Part 12.4 Landscape Works - Section 20					
BL-2022A1	Establishment Works - Remainder	365	16AUG04	15AUG05	0
Part 14 Site Safety					

Data date	3JUN04
Page number	6A
Page count	6A
Number/Version	TP1502/3MON/022
Company name	Penta-Ocean Construction Co. Ltd.

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

Contract No.TP35/02
Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1
3MONTHS ROLLING PROGRAM

ID	Description	Dur	Start	Finish	Complete
BT-1401D0	Provide Safety Officer, 2n/.	810	27AUG02 A	26NOV04	81
BT-1401C0	Update Safety Plan	810	31AUG02 A	26NOV04	81
BT-1401G0	Arrange & Attend Weekly Safety Walk	805	03SEP02 A	17NOV04	62
BT-1401H0	Provide Safety Training	810	10SEP02 A	04DEC04	80
BT-1401E0	Attend Site Safety Committee & Mgmt.Committee	810	26OCT02 A	14JAN05	75
BT-1401K0	Participate in safety promotional campaign	684	28NOV02 A	04NOV04	81

JUN 14 21 | JUL 28 05 12 19 26 | AUG 02 09 16 23 30 | SEP 06 13 20 27

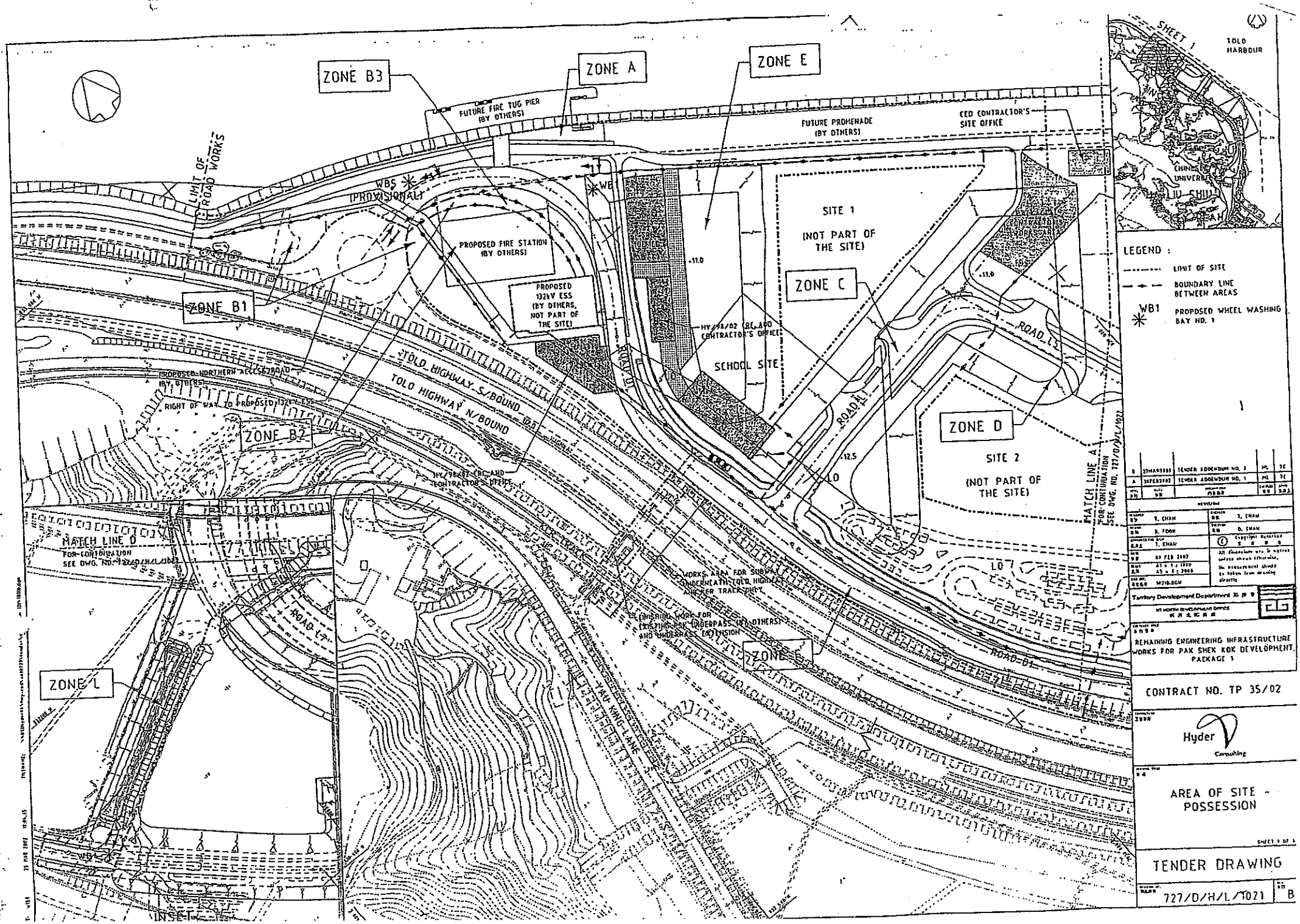
Data date	26JUN04
Page number	6A
Page count	6A
Number/Version	TP3602(JUNE04)(R1)
Company name	Penta-Ocean Construction Co. Ltd.

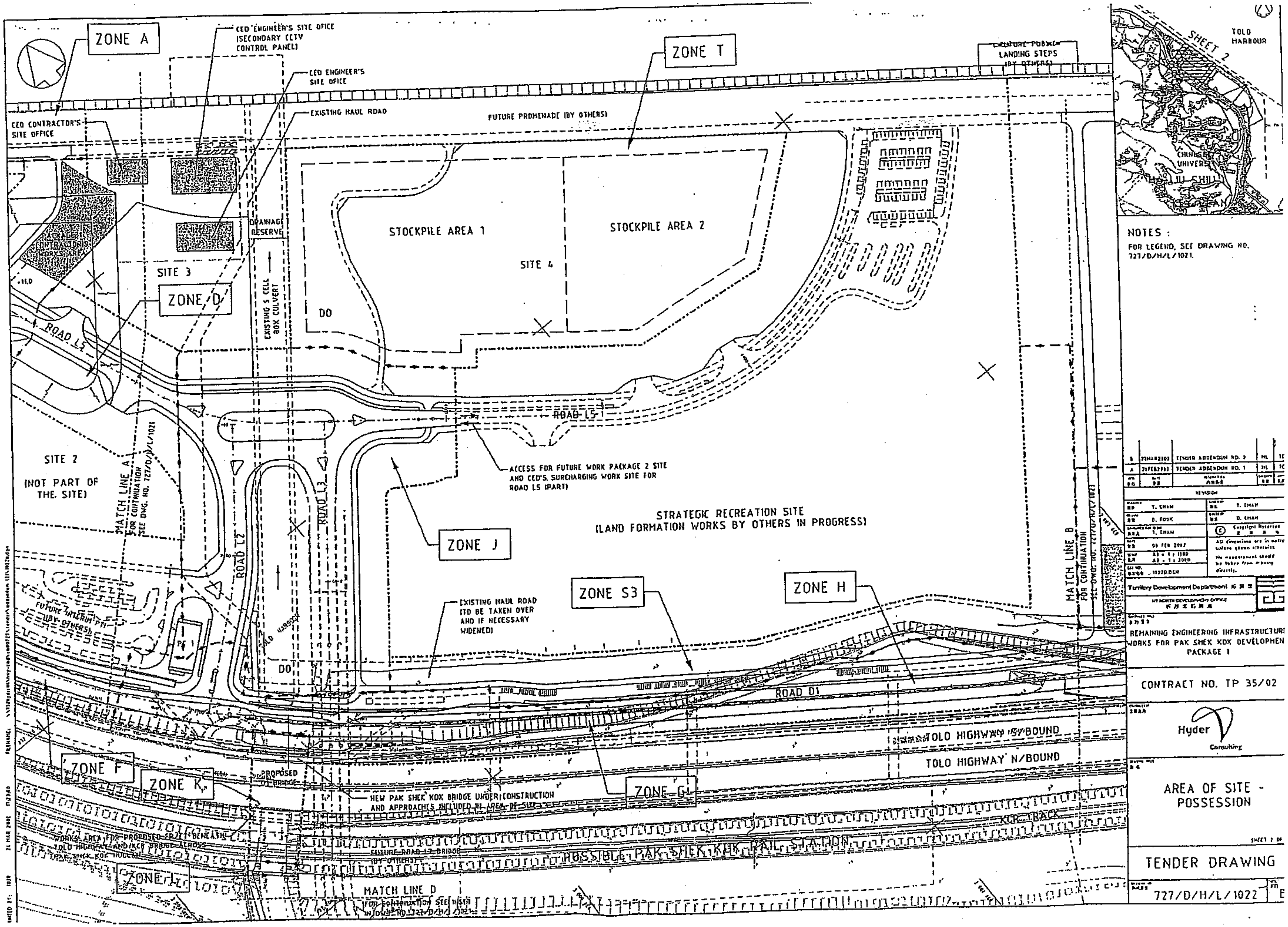
Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Contract No.TP36/02
Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1
3MONTHS ROLLING PROGRAM

Appendix G

Construction Site Area


ZONE B3
ZONE A
ZONE E
ZONE B1
ZONE B2
ZONE C
ZONE D
ZONE L
ZONE F
FUTURE FIRE TUG PIER (BY OTHERS)
FUTURE PROMENADE (BY OTHERS)
CED CONTRACTOR'S SITE OFFICE
LIMIT OF ROAD WORKS
WB5 (PROVISIONAL)
WB1
PROPOSED FIRE STATION (BY OTHERS)
PROPOSED 132kV ESS (BY OTHERS, NOT PART OF THE SITE)
SITE 1
(NOT PART OF THE SITE)
SCHOOL SITE
HY/98/02 (RE-AP) CONTRACTOR'S OFFICE
SITE 2
(NOT PART OF THE SITE)
PROPOSED NORTHERN ACCESS ROAD (BY OTHERS)
RIGHT OF WAY TO PROPOSED ROAD L1
TOLO HIGHWAY S/BOUND
TOLO HIGHWAY N/BOUND
HY/98/02 (RE-AP) CONTRACTOR'S OFFICE
ROAD L1
ROAD L2
ROAD D1
ROAD L7
MATCH LINE D
FOR CONTINUATION SEE DWG. NO. 727/D/H/L/1022
MATCH LINE A
FOR CONTINUATION SEE DWG. NO. 727/D/H/L/1021
WORKS AREA FOR SUBWAY UNDERNEATH TOLO HIGHWAY AFTER TRAFFIC DIVERSION
(THIS ROAD WORK FOR (EXISTING PAK (UNDERPASS (BY OTHERS) AND UNDERPASS (EXTENSION
MT KING LANE
INSET
SHEET 1
TOLO HARBOUR
CHINESE UNIVERSITY
LIU SHING
LEGEND :
LIMIT OF SITE
BOUNDARY LINE BETWEEN AREAS
WB1 PROPOSED WHEEL WASHING BAY NO. 1
REVISIONS
TENDER ADDENDUM NO. 2
TENDER ADDENDUM NO. 1
Territory Development Department
REMAINING ENGINEERING INFRASTRUCTURE WORKS FOR PAK SHEK KOK DEVELOPMENT, PACKAGE 1
CONTRACT NO. TP 35/02
Hyder Consulting
AREA OF SITE - POSSESSION
TENDER DRAWING
727/D/H/L/1021
B


ZONE A
CED ENGINEER'S SITE OFFICE (SECONDARY CCTV CONTROL PANEL)
CED ENGINEER'S SITE OFFICE
EXISTING HAUL ROAD
ZONE T
FUTURE PUBLIC LANDING STEPS (BY OTHERS)
TOLO HARBOUR
SHEET 2
CED CONTRACTOR'S SITE OFFICE
FUTURE PROMENADE (BY OTHERS)
STOCKPILE AREA 1
STOCKPILE AREA 2
SITE 4
DRAINAGE RESERVE
EXISTING 5 CELL BOX CULVERT
SITE 3
ZONE D
DO
ROAD L5
SITE 2
(NOT PART OF THE SITE)
MATCH LINE A
FOR CONTINUATION SEE DWG. NO. 727/D/H/L/1021
ROAD L2
ROAD L3
ACCESS FOR FUTURE WORK PACKAGE 2 SITE AND CED'S SURCHARGING WORK SITE FOR ROAD L5 (PART)
STRATEGIC RECREATION SITE
(LAND FORMATION WORKS BY OTHERS IN PROGRESS)
ZONE J
MATCH LINE B
FOR CONTINUATION SEE DWG. NO. 727/D/H/L/1023
ZONE S3
ZONE H
EXISTING HAUL ROAD (TO BE TAKEN OVER AND IF NECESSARY WIDENED)
ROAD D1
TOLO HIGHWAY S/BOUND
TOLO HIGHWAY N/BOUND
ZONE F
ZONE K
PROPOSED D1 BRIDGE
NEW PAK SHEK KOK BRIDGE UNDER CONSTRUCTION AND APPROACHES INCLUDED IN AREA OF SITE
ZONE G
KCR TRACK
POSSIBLE PAK SHEK KOK RAIL STATION
FUTURE ROAD L2 BRIDGE (BY OTHERS)
ZONE L
MATCH LINE D
NOTES :
FOR LEGEND, SEE DRAWING NO. 727/D/H/L/1021.
B TENDER ADDENDUM NO. 2
A TENDER ADDENDUM NO. 1
T. CHAN
D. FOOK
D. CHAN
T. CHAN
06 FEB 2002
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All dimensions are in metre unless shown otherwise.
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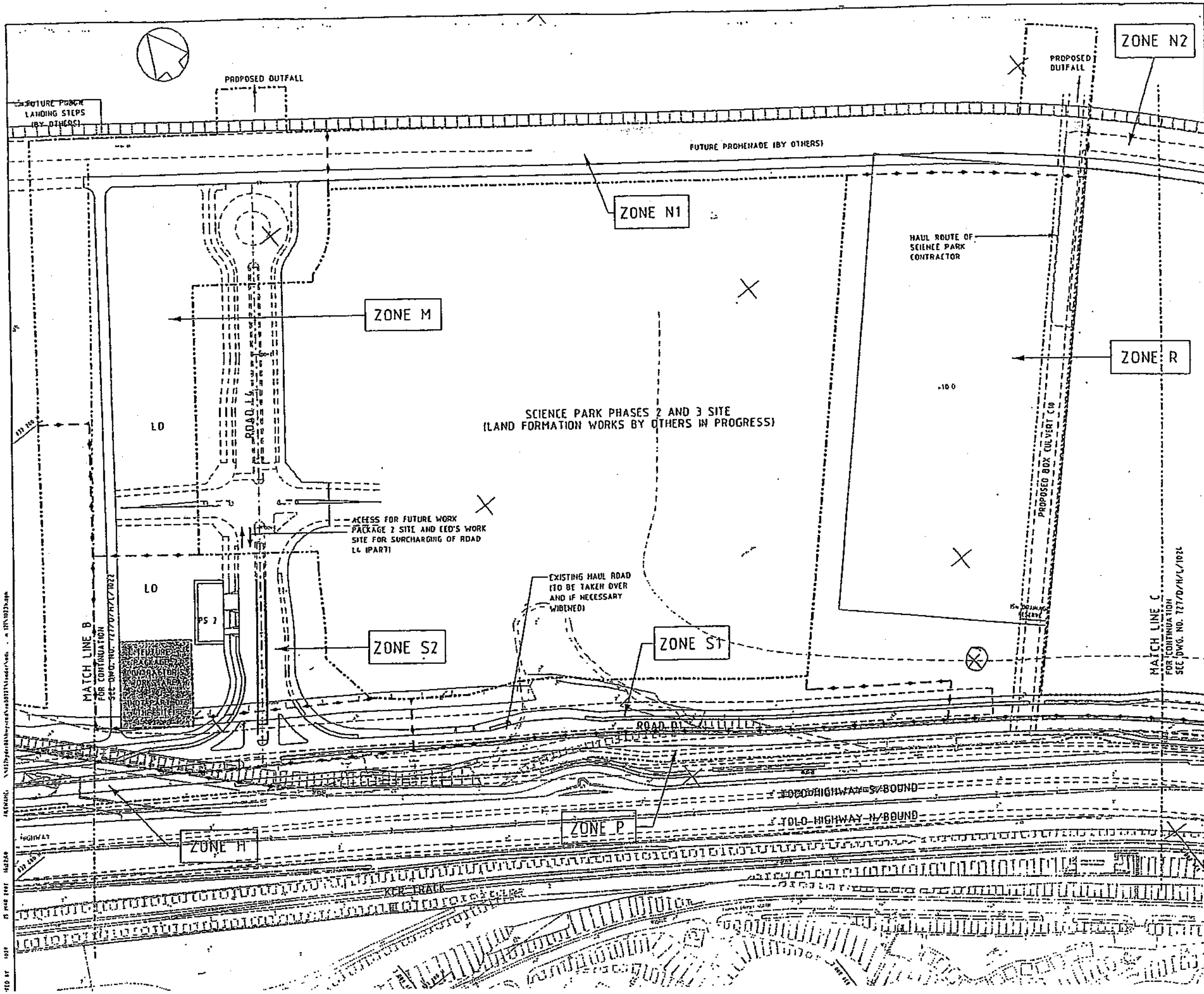
Territory Development Department
REMAINING ENGINEERING INFRASTRUCTURE WORKS FOR PAK SHEK KOK DEVELOPMENT PACKAGE 1
CONTRACT NO. TP 35/02
Hyder Consulting
AREA OF SITE - POSSESSION
TENDER DRAWING
727/D/H/L/1022
E



NOTES :

FOR LEGEND, SEE DRAWING NO. 727/D/H/L/1021.

B	27MAR2002	TENDER ADDENDUM NO. 2	
A	21FEB2002	TENDER ADDENDUM NO. 1	
REV.	DATE	DESCRIPTION	

REVISION

DESIGNED	T. CHAN	CHECKED	T. CHAN
DRAWN	B. FOOK	CHECKED	D. CHAN
APPROVED	T. CHAN		
DATE	01 FEB 2002		
SCALE	A1 = 1 : 1000 A3 = 1 : 2000		
CAD REF.	1023.DGN		

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Territory Development Department

NT NORTH DEVELOPMENT OFFICE

REMAINING ENGINEERING INFRASTRUCTURE WORKS FOR PAK SHEK KOK DEVELOPMENT PACKAGE 1

CONTRACT NO. TP 35/02

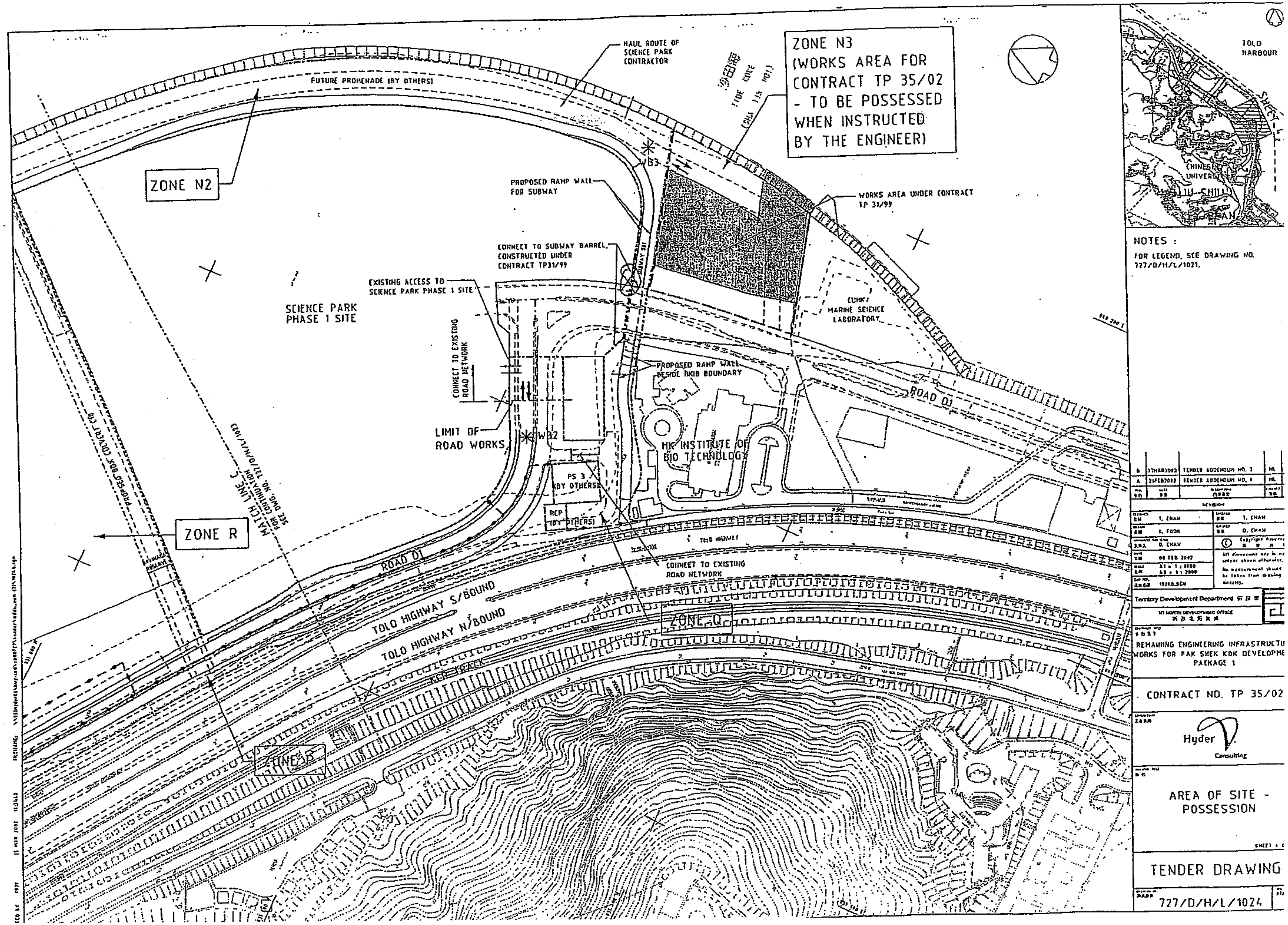
Hyder Consulting

AREA OF SITE - POSSESSION

SHEET 3 OF 4

TENDER DRAWING

727/D/H/L/1023 | B


ZONE N3
(WORKS AREA FOR
CONTRACT TP 35/02
- TO BE POSSESSED
WHEN INSTRUCTED
BY THE ENGINEER)
HAUL ROUTE OF SCIENCE PARK CONTRACTOR
FUTURE PROMENADE (BY OTHERS)
ZONE N2
PROPOSED RAMP WALL FOR SUBWAY
WORKS AREA UNDER CONTRACT TP 31/99
CONNECT TO SUBWAY BARREL, CONSTRUCTED UNDER CONTRACT TP31/99
EXISTING ACCESS TO SCIENCE PARK PHASE 1 SITE
SCIENCE PARK PHASE 1 SITE
CUHK MARINE SCIENCE LABORATORY
CONNECT TO EXISTING ROAD NETWORK
PROPOSED RAMP WALL BESIDE HKIB BOUNDARY
ROAD D1
LIMIT OF ROAD WORKS
WB2
WB3
HK INSTITUTE OF BIO TECHNOLOGY
PS 3 (BY OTHERS)
RCP (BY OTHERS)
MATCH LINE C
FOR CONTINUATION SEE DWG. NO. 727/D/H/L/1023
ZONE R
CONNECT TO EXISTING ROAD NETWORK
TOLO HIGHWAY S/BOUND
TOLO HIGHWAY N/BOUND
ZONE Q
ZONE B
PROPOSED BOX CULVERT C10
TOLO HARBOUR
CHINESE UNIVERSITY
NOTES :
FOR LEGEND, SEE DRAWING NO. 727/D/H/L/1021.
B 27MAR2002 TENDER ADDENDUM NO. 2
A 21FEB2002 TENDER ADDENDUM NO. 1
Territory Development Department
REMAINING ENGINEERING INFRASTRUCTURE WORKS FOR PAK SHEK KOK DEVELOPMENT PACKAGE 1
CONTRACT NO. TP 35/02
Hyder Consulting
AREA OF SITE - POSSESSION
TENDER DRAWING
727/D/H/L/1024

Appendix H

The Summary of Implementation Status of Mitigation Measures during Weekly Site Inspections

The Summary of Implementation status of Mitigation Measures

Aspect	Mitigation Measures	Implementation Status		
		Y	N	N/A
Air	- The height from which fill materials were dropped was controlled to a practical height to minimize the fugitive dust arising form unloading.	√		
	- During transportation by truck, material was loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	√		
	- All stockpile of aggregate or spoil were enclosed or covered and water applied in dry or windy condition.		√	
	- Effective water sprays were used on the site at potential dust emission sources such as unpaved area.		√	
	- The haul road was either paved or regular watering.	√		
	- Vehicle speed was limited to 20 km/hr.	√		
	- Adequately designed wheel washing facilities including a high pressure water jet were provided at all main entrance of work site.	√		
Noise	- Only well maintained plant was operated on-site and plant should be serviced regularly during the construction works.	√		
	- Machines and plants that were in intermittent use were shut down between work periods or throttled down to a minimum.	√		
	- Plant known to emit noise strongly in on direction, where possible, were orientated so that the noise is directed away from nearby NSRs.	√		
	- Silencers or mufflers on construction equipment were considered.	√		
Water	- Recirculation system was used to reduce SS from the vehicle wheel washing facility.	√		
	- Fuel tanks on site were housed within drainable trays and regularly drained of rainwater.	√		
	- Washing area and road exiting were paved from washing facility.	√		
	- Permanent / Temporary ditches were provided to facilities run-off discharge into the appropriate watercourses, via a sediment trap/sediment retention basin, prior to discharge.	√		
	- Sedimentation tanks with adequate capacity to settle the sand and silt out were provided.			√
	- Sedimentation tanks were regularly cleaned and maintained in order to control their efficiency and to prevent the recycled water overflow to drains.			√
	- All drainage facilities were adequate for the controlled release of storm flows.	√		
	- Exposed soil areas were minimized to reduce the potential for increased siltation and contamination of run-off.	√		
	- All chemical stores were contained (bunded) such that spills are not slowed to gain access to water bodies.		√	
	- Chemical toilets were provided to handle the sewage from the on-site construction workforce.	√		

The Summary of Implementation status of Mitigation Measures

Aspect	Mitigation Measures	Implementation Status		
		Y	N	N/A
Waste	- Wastes were handle and store in a manner, which ensure that they were held securely without loss or leakage, thereby minimizing the potential for pollution.		√	
	- Authorized or licensed waste hauliers were use to collect the specific category of waste.	√		
	- Wastes were removed in a timely manner.	√		
	- The waste storage areas were maintained and cleaned regularly.	√		
	- Windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers were minimized.	√		
	- Waste disposal permits were obtained form the appropriate authorities.	√		
	- Wastes were disposed at licensed sites.	√		
	- Procedures such as a ticketing system were developed to facilitate tracing of loads, particularly for chemical waste, and to ensure that illegal disposal of wastes does not occur.	√		
	- Records of the quantities of wastes generated, recycled and disposal were maintained.	√		
Chemical Waste	- Under the Waste Disposal (Chemical Waste) (General) Regulation, chemical waste producers were registered with EPD.	√		
	- Chemical wastes were transported by a registered chemical waste collector to a facility licensed to receive chemical waste.	√		
	- Containers used for the storage of chemical wastes were:			
	1.Suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;	√		
	2.Enclosed on at least 3 sides;	√		
	3.Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;	√		
	4.-Have adequate ventilation;	√		
	5.Covered to prevent rainfall entering (water collected within the bund must be tested and disposal as chemical waste if necessary);	√		
	6.Arranged so that incompatible materials are adequately separated.	√		

Appendix I

IEC and RE Comments on Monthly EM&A Report
–
July 2004

IEC and RE Comments on Monthly Environmental Monitoring and Audit Report – July 2004

Item No.	Document Reference	Comment	ET Response
---	---	No RE / IEC Comments on Monthly Environmental Monitoring and Audit Report – July 2004 were received.	No ET responses were required

Appendix J

Wastewater Monitoring
–
Test Report of Wastewater Samples from Discharge Points

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
Fax : 2695 3944
E-mail : etl@ets-testconsult.com
Web site : www.ets-testconsult.com

HOKLAS 022

TEST REPORT

Form : E/EN/R/01/Issue 4 (1/1) [08/02]

Environmental Testing of Water & Wastewater

Report No. : ENA40277
Date of issue : 11 June 2004

Information provided by client

Client name : Penta - Ocean Construction Co Ltd.
Client address : 30/F MLC Tower 248 Queen's Road East Wan Chai HK
Sample Source : Remaing Engineering Infrastructure Works for Pak Shek Kok Development. Package 1 (Contract No. TP35/02)
Sample Type : Wastewater
ate of sampling : 05 June 2004
Sample Description : The sample were collected in 500ml plastic bottles and chilled when received.

Laboratory information

Date Received : 05 June 2004

Result

Client Sample ID	Lab Ref No	Test	Method Used	Result	Expanded Uncertainty*	Date Tested
Sample 1 (Discharge Point at D1 Bridge)	W16970 (01)	Total Suspended Soilds	In house method TPE/006/W	29mg/L	N/A	07 June 2004

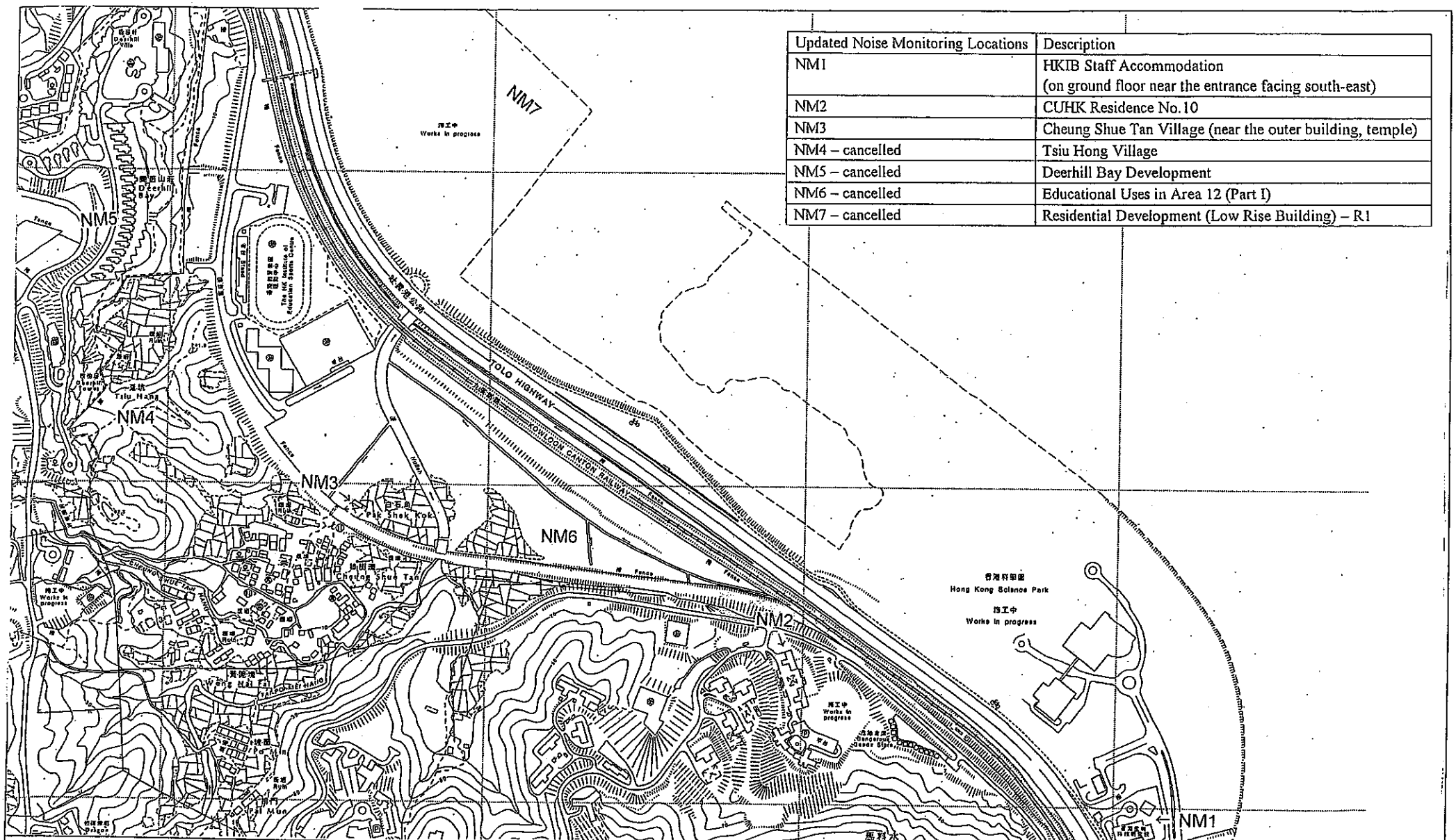
Remark (if any : * All uncertainty was calculated at 95% confidence level and sampling uncertainty is not included. Coverage factor is 2.0 (assume that effective degree of freedom is infinity).

Checked by : Linda Law
Linda Law
Chemist

Approved by :
C L Lau
Chief Chemist

TPE/001/W

Figures



Updated Noise Monitoring Locations	Description
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, temple)
NM4 – cancelled	Tsiu Hong Village
NM5 – cancelled	Deerhill Bay Development
NM6 – cancelled	Educational Uses in Area 12 (Part I)
NM7 – cancelled	Residential Development (Low Rise Building) – R1

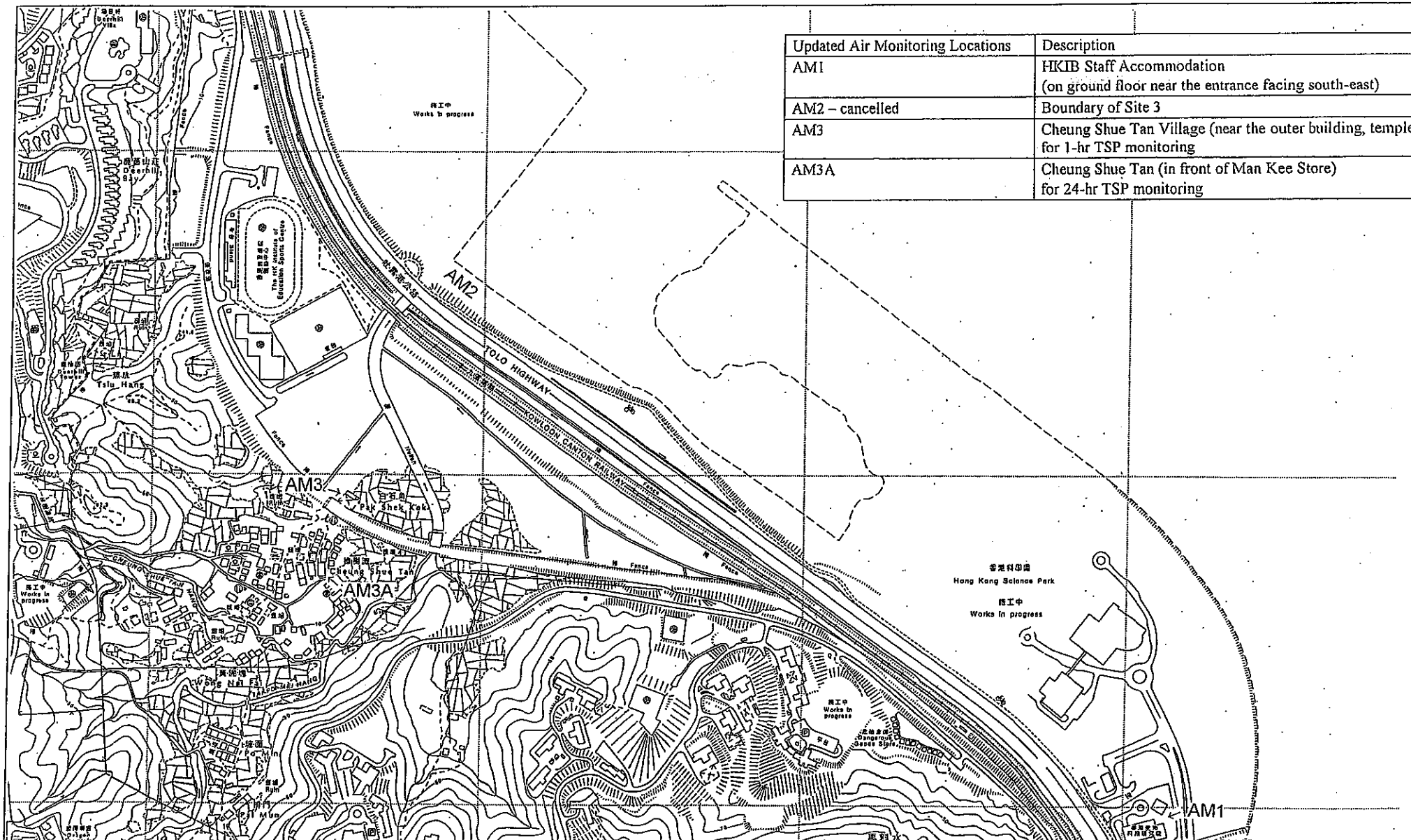
Remaining Engineering Works for Pak Shek Kok Development, Package 1
Contract No. TP35/02

Figure 1 Location of Noise Monitoring Stations

Scale : ---

Revised Date:
15/11/2002

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



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

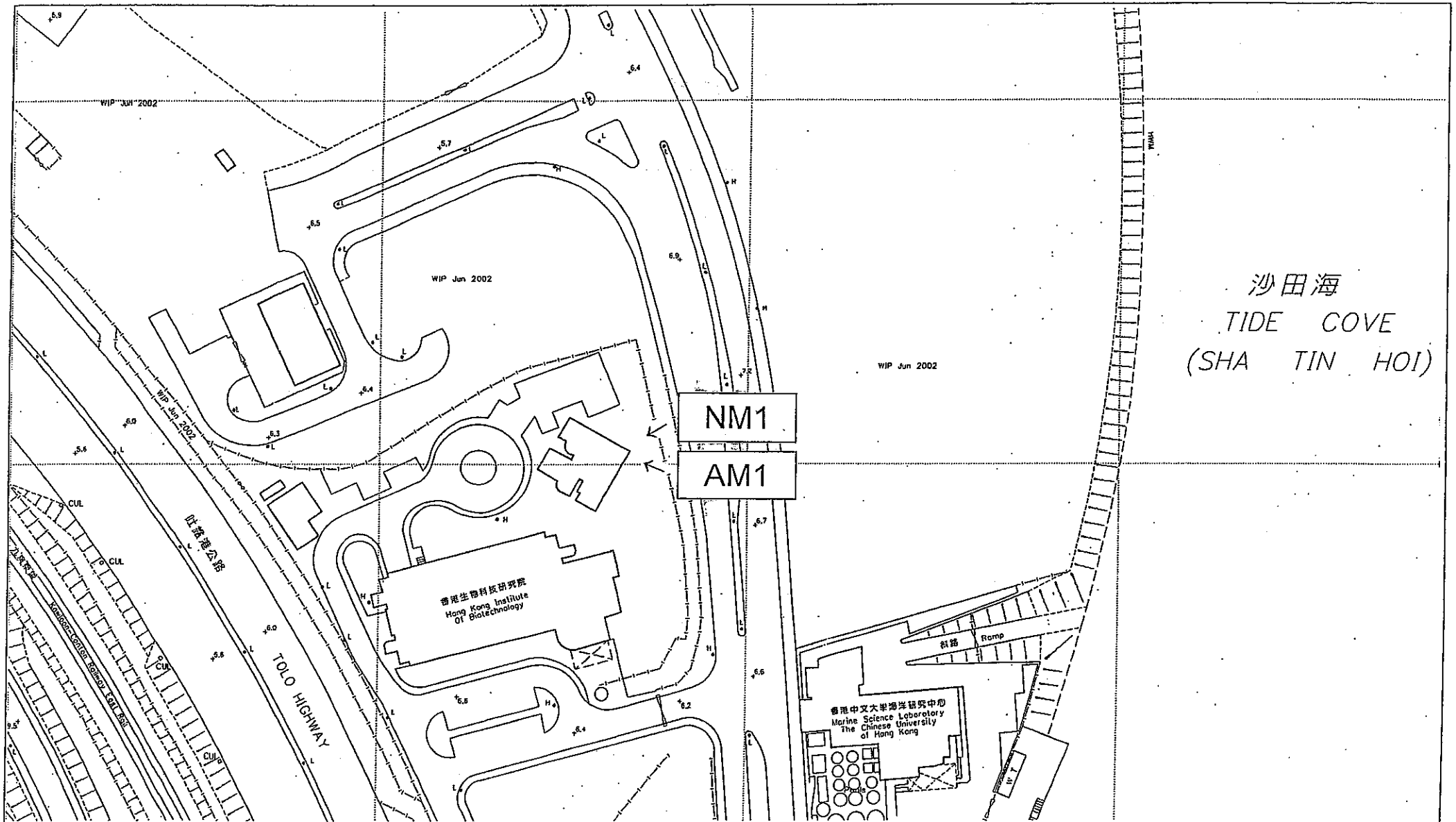
Remaining Engineering Works for Pak Shek Kok Development, Package 1
Contract No. TP35/02

Figure 2 Location of Air Monitoring Stations

Scale : ---

Revised Date:
15/11/2002

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



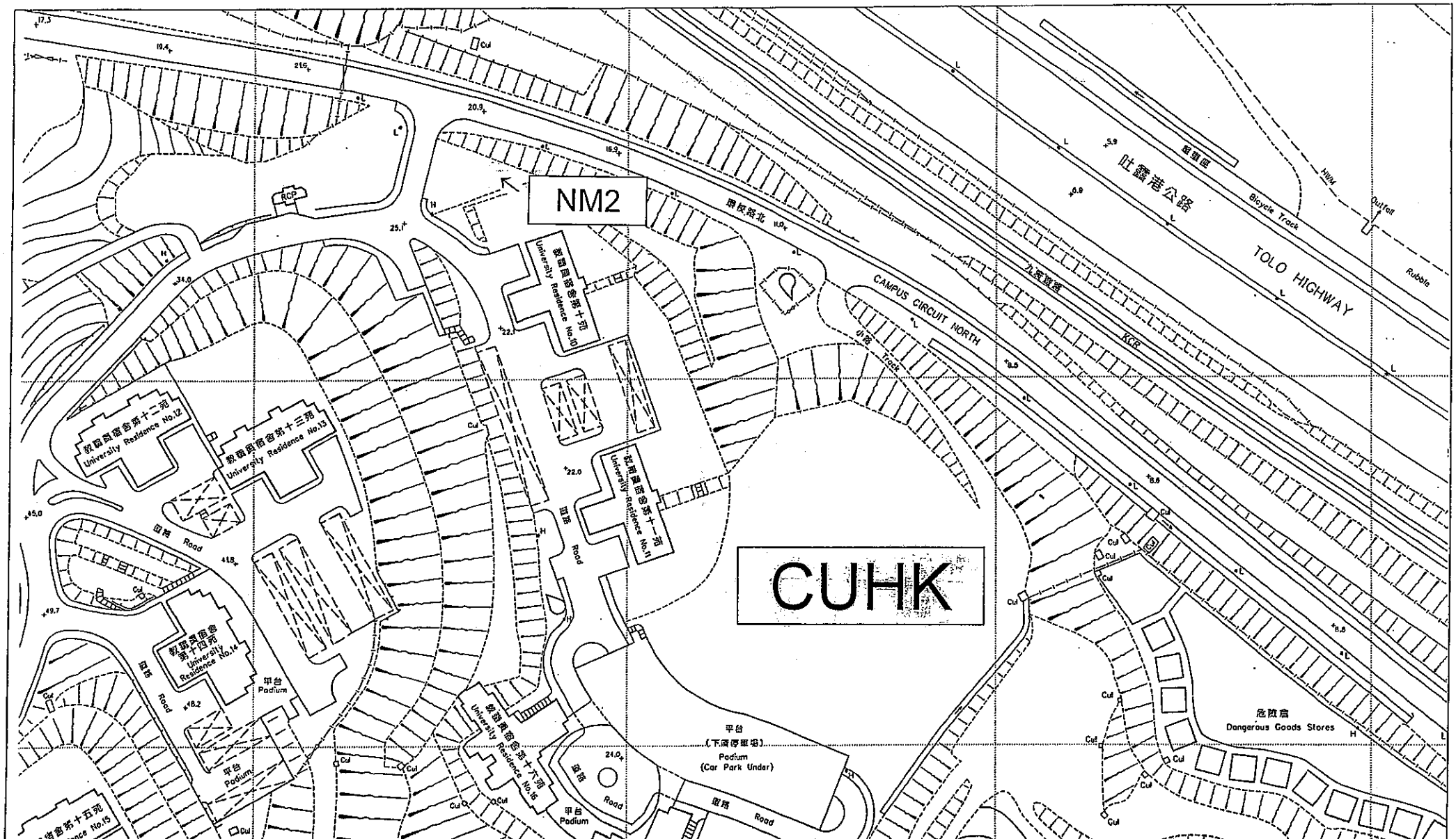
Remaining Engineering Works for Pak Shek Kok Development, Package 1
Contract No. TP35/02

Figure 3 Location of Air and Noise Monitoring Stations at HKIB Staff Accommodation

Scale : ---

Revised Date: 15/11/2002

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



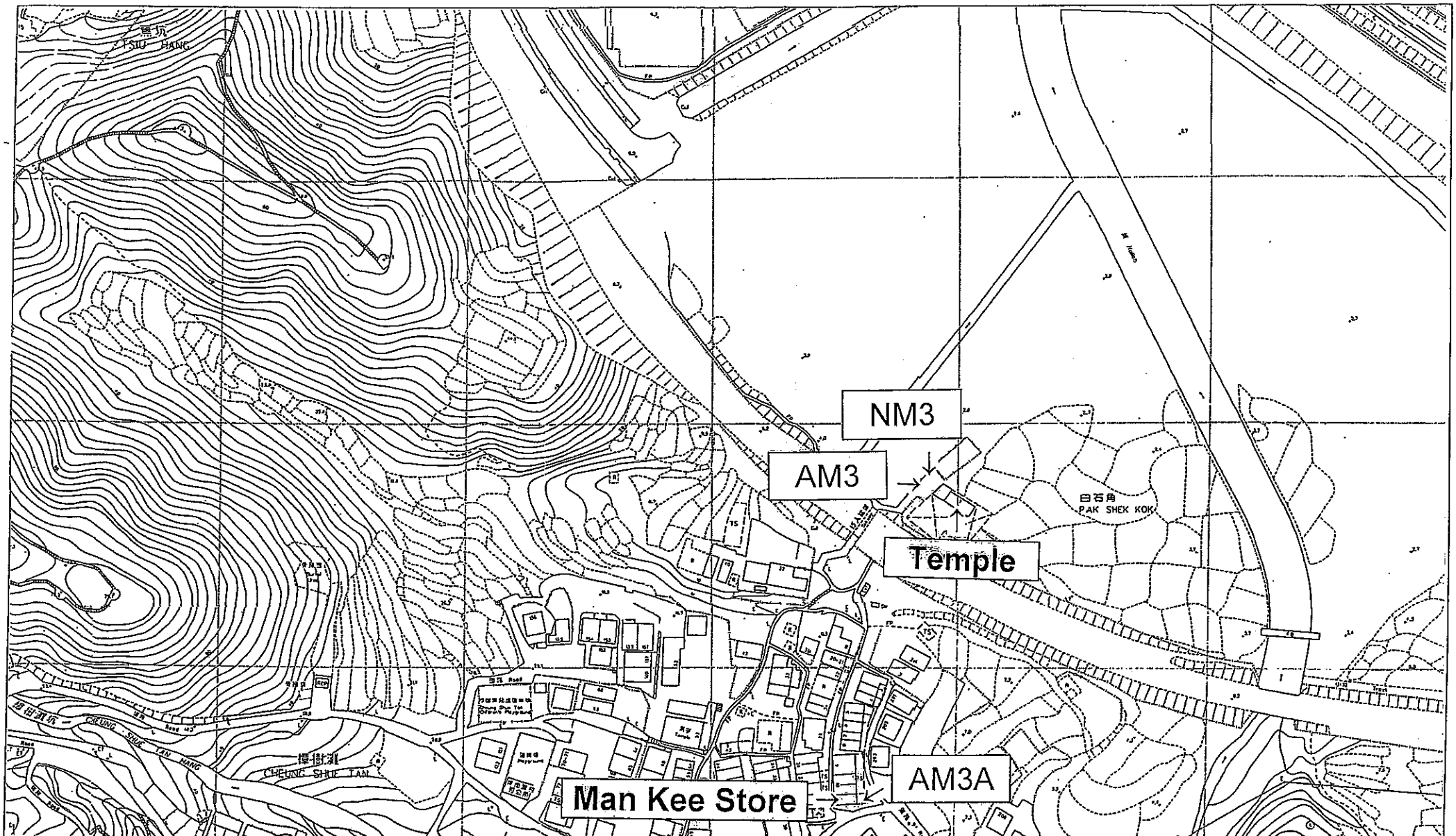
Remaining Engineering Works for Pak Shek Kok Development, Package 1
Contract No. TP35/02

Figure 4 Location of Noise Monitoring Station at CUHK Residence No.10

Scale : ---

Revised Date:
15/11/2002

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



Remaining Engineering Works for Pak Shek Kok Development, Package 1
Contract No. TP35/02

Figure 5 Location of Air and Noise Monitoring Stations
at Cheung Shue Tan Village

Scale : ---

Revised Date:
15/11/2002

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED