

Maeda Corporation

**Castle Peak Road
Improvement Between
Sham Tseng and Ka
Loon Tsuen,
Tsuen Wan
West Contract No.
HY/99/18**

Monthly Environmental
Monitoring and Audit
Report
December 2004

Second Issue

Maeda Corporation

**West Contract No. HY/99/18
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan**

Environmental Monitoring and Audit

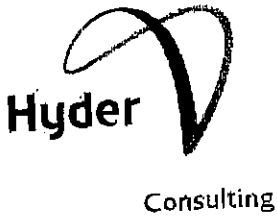
Monthly Environmental Monitoring and Audit Report – December 2004

January 2005

Ove Arup & Partners Hong Kong Ltd

Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong
Tel +852 2528 3031 Fax +852 2268 3950
www.arup.com

Job number 23437



安誠工程顧問有限公司
香港灣仔
皇后大道東183號
合和中心47樓

Hyder Consulting Limited
47/F Hopewell Centre,
183 Queen's Road East,
Wan Chai, Hong Kong

電話: (852) 2911 2233
圖文傳真: (852) 2805 5028
電子郵件: hyder@hyder.com.hk
網址: www.hyderconsulting.com

Tel : (852) 2911 2233
Fax : (852) 2805 5028
Email: hyder@hyder.com.hk
Website: www.hyderconsulting.com

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COI Number 126012*

14 January 2005

BY POST & FAX (2268-3950)

Ove Arup & Partners Hong Kong Ltd.
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon

Your
Ref:

Our 910-06/E05-3841
Ref:

For attention of: Mr. Sam Tsoi

Dear Mr. Tsoi

**Contract HY/99/18 West Contract
Castle Peak Road Improvement between Sham Tseng and Ka Loon Tsuen, Tsuen Wan
Monthly EM&A Report (December 2004)**

We refer to the electronic version of the captioned report submitted by your Mr. Angus Choi via e-mail on 10 January 2005 and 12 January 2005. We do not have comment and endorsed the report.

Yours sincerely

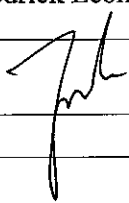
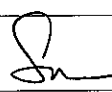

**Coleman Ng
Independent Checker (Environmental)
HYDER CONSULTING LIMITED**

cc MHJV Attention: Mr. Jeff Yu (Fax: 2417-0134)
Maeda Attention: Mr. Derek Elliott (Fax: 2491-9678)

CN/LKY/yys



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ABBREVIATIONS AND ACTONYMS

A/L	Action or Limit Levels
AQO	Air Quality Objectives
Arup	Ove Arup & Partners Hong Kong Limited
ASR	Area Sensitive Rating
BOD	Biochemical Oxygen Demand
B&K	Brüel & Kjør
CFM	Cubic Feet per Minute
CNP	Construction Noise Permit
CT	Contractor
C&D	Construction & Demolition
DO	Dissolved Oxygen
DGPS	Differential Global Positioning System
EA	Environmental Auditor
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EP	Environmental Permit
EPD	Environmental Protection Department
ER	Engineer / Engineer's Representative
ET	Environmental Team
HKPSG	Hong Kong Planning Standards and Guidelines
HKSAR	Hong Kong Special Administrative Region
HOKLAS	The Hong Kong Laboratory accreditation Scheme
HVS	High Volume Sampler
IC(E)	Independent Checker (Environment)
IEC	International Electrotechnical Commission Publications
K	Degrees Kelvin
MC	Maeda Corporation
MHJV	Mouchel Halcrow Joint Venture
NAMAS	National Measurement accreditation Service
NTU	Nephelometric Turbidity Unit
NSR	Noise Sensitive Receiver
SCFM	Standard Cubic Feet per Minute
SS	Suspended Solids
TSP	Total Suspended Particulates
Tby	Turbidity

EXECUTIVE SUMMARY

This is the thirty-fifth monthly environmental monitoring and audit (EM&A) report presenting the progress of environmental monitoring and audit works for the period between 1 December 2004 and 31 December 2004. Monitoring works included air quality monitoring and noise monitoring. Air quality was recorded in terms of 1-hour Total Suspended Particulates (TSP) and 24-hour TSP. Noise was measured in terms of $L_{eq(30min)}$ with L_{10} and L_{90} measurements as references. Audit works included the weekly environmental audit and the bi-weekly landscape and visual monitoring and audit.

Air Quality

A total of 5 sets of 3 consecutive 1-hour TSP measurements had been taken during the reporting month. The highest 1-hour TSP level was $289.6\mu\text{g}/\text{m}^3$ recorded at Podium of Block 1, Phase 1 of Sea Crest Villa (WA10) on 15 December 2004 while the lowest 1-hour TSP level was $166.2\mu\text{g}/\text{m}^3$ recorded at Podium of Block 1, Phase 1 of Sea Crest Villa (WA4) on 21 December 2004. There was no exceedance of the Action and Limit (A/L) Levels during the monitoring period.

A total of 5 sets of 24-hours TSP measurement had been taken during the reporting month. The highest 24-hour TSP level was $187.4\mu\text{g}/\text{m}^3$ recorded at Podium of Block 6, Sea Crest Villa Phase 2 (WA8) on 28 December 2004 while the lowest 24-hour TSP level was $37.6\mu\text{g}/\text{m}^3$ recorded at G/F, Regent Heights, Hong Kong Garden (WA3) on 21 December 2004. There was no exceedance of the Action and Limit (A/L) Levels during the monitoring period.

Noise

A total of 5 sets of daytime (0700 – 1900 hours) noise monitoring had been taken during the reporting month. The highest noise level was 73dB(A) recorded at Tsing Lung Tau Village House 1 (WN9) on 9 December 2004 while the lowest noise level was 61dB(A) recorded at Sea Crest Villa (Phase 3) (WN13) on 9 December 2004. There was no exceedance of the A/L Levels during the monitoring period.

Marine Water Quality

The sand placement activities at Seawall B were ceased in August 2004. No marine water quality was conducted in December 2004.

Environmental Auditing

A total of 5 environmental site audits had been carried out on a weekly basis in December 2004. The major environmental concerns included the following issues:

- **Water quality:** cleaning of mud trails, implement wheel wash and stagnant water.
- **Air quality:** watering the haul roads and during rock breaking, and exposed slope and stockpiles covering.
- **Construction Noise:** noise label for plants.
- **Handling of waste and chemicals:** cleaning up oil leakage/ oil stain; and provision of drip trays for oil/chemical drums.

Landscape and Visual

A total of 2 landscape and visual monitoring and audits had been carried out on a biweekly basis in December 2004. The Registered Landscape Architect had recommended as follows:

- The Contractor was reminded to urgently carry out root pruning and proper tree protection to ensure existing trees retained are not damaged.
- The Contractor was reminded to clear away all scattered litter, garbage, etc. as found on site, and keep the site in a tidy condition at all times.
- The Contractor was reminded to carry out more frequent watering of the site during dry periods to prevent dust nuisance.

Waste Disposal

A total of 17 loads of Construction & Demolition (C&D) waste materials and a total of 1126 loads of C&D fill materials (Public Fill) had been disposed of at WENT Landfills and at Public Filling Area in Tuen Mun respectively in December 2004. No chemical waste was disposed of in December 2004.

Complaint Records

There was no environmental complaint received in December 2004.

Non-compliances

There were no non-compliances for TSP air quality and noise monitoring during the monitoring period in December 2004. Additional monitoring for exceedance recorded on 27 November 2004 were conducted on 6, 7 and 8 December 2004. No further exceedance was found in these monitoring days

Notification of Summons and Successful Prosecution

There was neither notification of summons nor prosecution received during the reporting month.

Environmental Licenses

There was no new CNP granted in the reporting month.

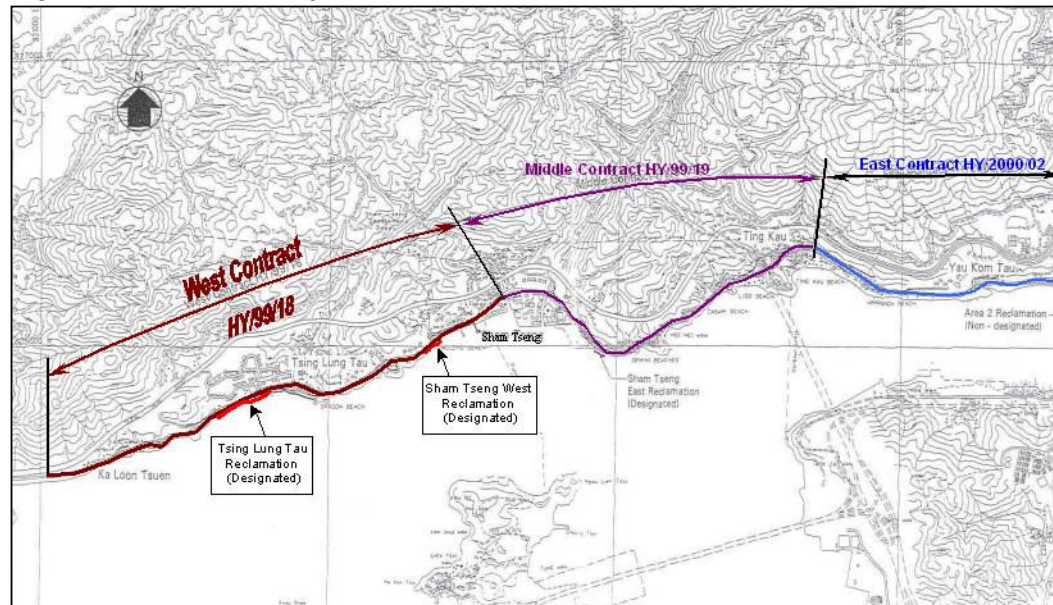
1. INTRODUCTION

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by the Contractor - Maeda Corporation (MC) as the Environmental Team (ET) for *Contract No. HY/99/18 Castle Peak Road Improvements between Sham Tseng and Ka Loon Tsuen, Tsuen Wan* (hereafter called the “Project”). Environmental parameters including air quality, construction noise, water quality and landscape & visual issues were selected for impact monitoring for the Project. The major construction period of the Project are anticipated as 43 months from December 2001 to June 2005.

1.1 Project Background

The Castle Peak Road improvements works consists of upgrading the existing Castle Peak Road to provide a dual two-lane carriageway of “Rural Road A” classification between Area 2, Tsuen Wan and Ka Loon Tsuen, and all associated utility, junction and pedestrian facilities. The Castle Peak Improvement project is divided into three contracts. This Environmental Monitoring and Audit (EM&A) exercise only concerns the West Contract No. HY/99/18 between Sham Tseng and Ka Loon Tsuen, Tsuen Wan. Figure 1-1 shows the site location plan and the detailed site layout plans are provided in Appendix A.

Figure 1-1 Site location plan



The scope of the construction work includes:

- Improvement to Castle Peak Road between Area 2 and Ka Loon Tsuen, Tsuen Wan to a dual two-lane carriageway;
- Provision of pedestrian facilities in the form of footpaths, subways, footbridges and Crossings;
- Road junction and signal design and the re-provision of access roads and connections to existing road networks;
- Construction of associated drainage and landscaping works;
- Environmental mitigation measures;
- Design and construction of watermains;
- Construction of entrusted sewerage works; and
- Dredging and reclamation (designated project – see also Section 1.2)

1.2 Designated Project

The marine reclamation and the construction of the associated seawall at Tsing Lung Tau and Sham Tseng West within Contract No. HY/99/18 had been classified as designated projects under the Environmental Permits No. EP-093/2001 and EP-094/2001 respectively.

1.3 Impact EM&A Requirements

The impact environmental monitoring and audit included air quality monitoring (both 1-hour and 24-hour TSP), noise, water quality, landscape and visual monitoring, and environmental audit.

1.4 Purpose of the Report

The purpose of the monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions.

This is the thirty-fifth monthly EM&A report prepared by Arup for the submission to Maeda Corporation summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, marine water quality, and landscape and visual monitoring and audit from 1 December to 31 December 2004.

2. ENVIRONMENTAL STATUS

2.1 Construction Programme

The construction work was commenced in February 2002. An up-to-date construction programme is given in Appendix B.

2.2 Construction Activities of the Month

The major construction activities carried out by the Contractor (CT) in December 2004 included:

- Construction of footbridges FB01, FB02, FB12;
- Construction of noise barriers NM01, NM02, NM03 and NM04;
- Construction of culverts and outfalls;
- Construction of retaining wall RW01 and
- Construction of utility and water mains works.

The major sea works at level below +2.5mPD had been completed in July 2003 and sand placement activities at Seawall B completed on 13 August 2004.

3. SUMMARY OF EM&A REQUIREMENTS

Air quality, construction noise, marine water quality and landscape issues are significant environmental impacts identified for the construction period of the project. In accordance with the Project specific EM&A Manual^[1], air quality, noise, water quality, landscape and visual monitoring and audit shall be performed by an ET at all specified monitoring locations during the construction and operational stages. As instructed by the Contractor, the marine monitoring was suspended since 10 October 2003 as the major sea works at level below +2.5mPD had been completed in July 2003. Marine monitoring was resumed in August from 2 August to 27 August 2004 during and after beach reinstatement activity took place in August 2004.

The monitoring schedule for December 2004 and the tentative schedule for January 2005 are attached in Appendix C.

3.1 Air Quality Monitoring

3.1.1 Monitoring Parameters

Air monitoring was measured in terms of the TSP levels for both 24-hour and 1-hour periods.

3.1.2 Monitoring Frequency

24-hour TSP and 1-hour TSP levels were monitored during the course of construction in accordance with the EM&A Manual. The monitoring parameters and frequency are specified in Table 3-1.

Table 3-1 TSP monitoring parameters and frequency

Parameters	Monitoring Frequency	Time Period	No. of measurement for each monitoring
24-hour TSP	Once every six days	0000 – 2400	1
1-hour TSP	Three times per every six days	0700 – 1900	1

3.1.3 Monitoring Locations

A total of eleven locations had been specified for the air quality monitoring and they are given in Table 3-2 and presented in Figures 3-1a to 3-1d.

Table 3-2 Air quality monitoring locations

Air Monitoring Station No.	Location	Location description
WA1	Bayside Villas	G/F, Bayside Villas (Temporary Suspended)
WA2	Grand Bay Villas	G/F, Grand Bay Villas (Temporary Suspended)
WA3	Hong Kong Garden	G/F, Hong Kong Garden (Regent Heights)
WA4	Hong Kong Garden	G/F, Hong Kong Garden (Between Blk 1 & 2)

Air Monitoring Station No.	Location	Location description
WA5	Hong Kong Garden	G/F, Hong Kong Garden (Block 4)
WA6	Tsing Lung Tau Tin Hau Temple	G/F, Tsing Lung Tau Tin Hau Temple
WA7	Sea Crest Villa	Podium, Sea Crest Villa (Phase 4 Block 12)
WA8	Sea Crest Villa	Podium, Sea Crest Villa (Phase 3 Block 8)
WA9	Sea Crest Villa	Car Park (L3), Sea Crest Villa (Phase 2 Block 6)
WA10	Sea Crest Villa	Podium, Sea Crest Villa (Phase 1 Block 1)
WA11	Lido Garden	G/F, Carpark, Lido Garden Tower 1

Note: Bayside Villas (WA1) and Grand Bay Villas (WA2) are no longer the air sensitive receivers as all residents of Bayside Villas and Grand Bay Villas were moved out since September 2002. Therefore, the air quality monitoring at Bayside Villas and Grand Bay Villas were temporary suspended since October 2002 after approval from IC(E) and EPD.

3.1.4 Wind Monitoring

Wind monitoring data, which included the wind speed and wind directions are extracted from Hong Kong Observatory – Tsing Yi Wind Monitoring Station.

3.2 Construction Noise Monitoring

3.2.1 Monitoring Parameters

Construction noise monitoring was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} will also be recorded as supplementary reference information for data auditing.

3.2.2 Monitoring Frequency

Construction noise measurements were required to be taken on a weekly basis in accordance with the EM&A Manual. The monitoring time periods, monitoring parameters and frequency are specified in Table 3-3.

Table 3-3 Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}^*$		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

Remarks: * The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

3.2.3 Monitoring Locations

A total of sixteen noise monitoring locations had been specified. They are given in Table 3-4 and presented in Figures 3-1a to 3-1d. The measurements were taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

Table 3-4 Construction noise monitoring locations

Noise Monitoring Station No.	Location	Monitoring Point
WN1	Ka Loon Tsuen	House No.3, Ka Loon Tsuen
WN2	Ka Loon Tsuen	House No.15, Ka Loon Tsuen
WN3	Bayside Villas	Upper G/F, Bayside Villas (Temporary Suspended)
WN4	Bayside Villas	Lower G/F, Bayside Villas (Temporary Suspended)
WN5	Grand Bay Villas	G/F, Grand Bay Villas (Temporary Suspended)
WN6	Hong Kong Garden	G/F, Hong Kong Garden (Regent Heights)
WN7	Hong Kong Garden	G/F, Hong Kong Garden (Between Blk 1 & 2)
WN8	Hong Kong Garden	G/F, Hong Kong Garden (Block 4)
WN9	Tsing Lung Tau Village	House 1, Tsing Lung Tau Village
WN10	Tsing Lung Tau Village	House 60-64, Tsing Lung Tau Village
WN11	Villa Alfavista	G/F, Villa Alfavista
WN12	Sea Crest Villa	Podium, Sea Crest Villa (Phase 4 Block 12)
WN13	Sea Crest Villa	Podium, Sea Crest Villa (Phase 3 Block 8)
WN14	Sea Crest Villa	Car Park (L3), Sea Crest Villa (Phase 2 Block 6)
WN15	Sea Crest Villa	Podium, Sea Crest Villa (Phase 1 Block 1)
WN16	Lido Garden	G/F, Carpark, Lido Garden Tower 1

Note: Bayside Villas (WN3 and WN4) and Grand Bay Villas (WN5) are no longer the noise sensitive receivers as all residents of Bayside Villas and Grand Bay Villas were moved out since September 2002. Therefore, the noise monitoring at Bayside Villas and Grand Bay Villas were temporary suspended since October 2002 after approval from IC(E) and EPD.

3.3 Water Quality (Designated Project)

3.3.1 Monitoring Parameters

Water quality monitoring includes Turbidity (Tby) in the unit of NTU, Dissolved Oxygen (DO) in the unit of mg/L and Suspended Solids (SS) in the unit of mg/L. In addition to the water quality parameters, other relevant data, such as monitoring location/position, time, water depth, water temperature, salinity, DO saturation, weather conditions, sea conditions, tidal stage will be recorded including any special phenomena, work underway at the construction site, etc.

3.3.2 Monitoring Frequency

Water quality monitoring during the impact stage was conducted three times per week, during mid-flood and mid-ebb tides and at sixteen designated sampling. The interval between two sets of monitoring will not be less than 36 hours except where exceedances above the Action Level or Limit Level were detected (see also Section 3.5). In these cases, the monitoring frequency will be increased.

3.3.3 Monitoring Locations

A total of sixteen locations, 9 for impact and 7 for control were originally selected for marine water quality monitoring and the locations are given in Table 3-5a and presented in Figure 3-1b to 3-1e.

The new marine water quality monitoring programme, was commenced on 12 February 2003 and suspended on 10 October 2003, as agreed by the IC(E) and EPD. A total of twelve locations, 8 for impact and 4 for control were selected for the new marine water quality monitoring programme and the locations are given in Table 3-5b and presented in Figure 3-1b to Figure 3-1e.

Table 3-5a Water quality monitoring locations (Original)

Water Monitoring Station No.		Location	
		Eastings	Northings
Tsing Lung Tau	WW1 (Impact Station)	822260	824491
	WR1 (Control Station)	822278	824459
Tsing Lung Tau	WW2 (Impact Station)	822352	824538
	WR2 (Control Station)	822363	824505
Tsing Lung Tau	WW3 (Impact Station)	822506	824609
	WR3 (Control Station)	822518	824578
Tsing Lung Tau	WW4 (Impact Station)	822820	824640
	WR4 (Control Station)	822800	824603
Angler's Beach: Sham Tseung	WW5 (Impact Station)	823697	824937
	WR5 (Control Station)	823700	824905
Angler's Beach: Sham Tseung	WW6 (Impact Station)	823775	824991
	WW7 (Impact Station)	823797	825042
	WR6/WR7 (Control Station)	823797	824964
Angler's Beach	WW8 (Impact station)	823994	825141
	WR8 (Control Station)	824006	825107
Ma Wan Fish Culture Zone	FCZ1 (Impact Station)	823500	823870

Table 3-5b Water quality monitoring locations (New)

Water Monitoring Station No.		Location	
		Eastings	Northings
Tsing Lung Tau	WW1 (Impact Station)	822306	824405
	WW2 (Impact Station)	822377	824462
	WW3 (Impact Station)	822529	824500
	WW4 (Impact Station)	822775	824560
	WR-E-1234 (Control Station for Mid-Ebb Tide)	822204	824312
	WR-F-1234 (Control Station for Mid-Flood Tide)	822850	824519
Angler's Beach: Sham Tseung West	WW5 (Impact Station)	823700	824905
	WW6/7 (Impact Station)	823797	824964
	WW8 (Impact Station)	823900	825023
	WR-E-5678 (Control Station for Mid-Ebb Tide)	823590	824830
	WR-F-5678 (Control Station for Mid-Flood Tide)	823994	825034
Ma Wan Fish Culture Zone	FCZ1 (Impact Station)	823500	823870

Figure 3-1a Monitoring locations



Figure 3-1b Monitoring locations

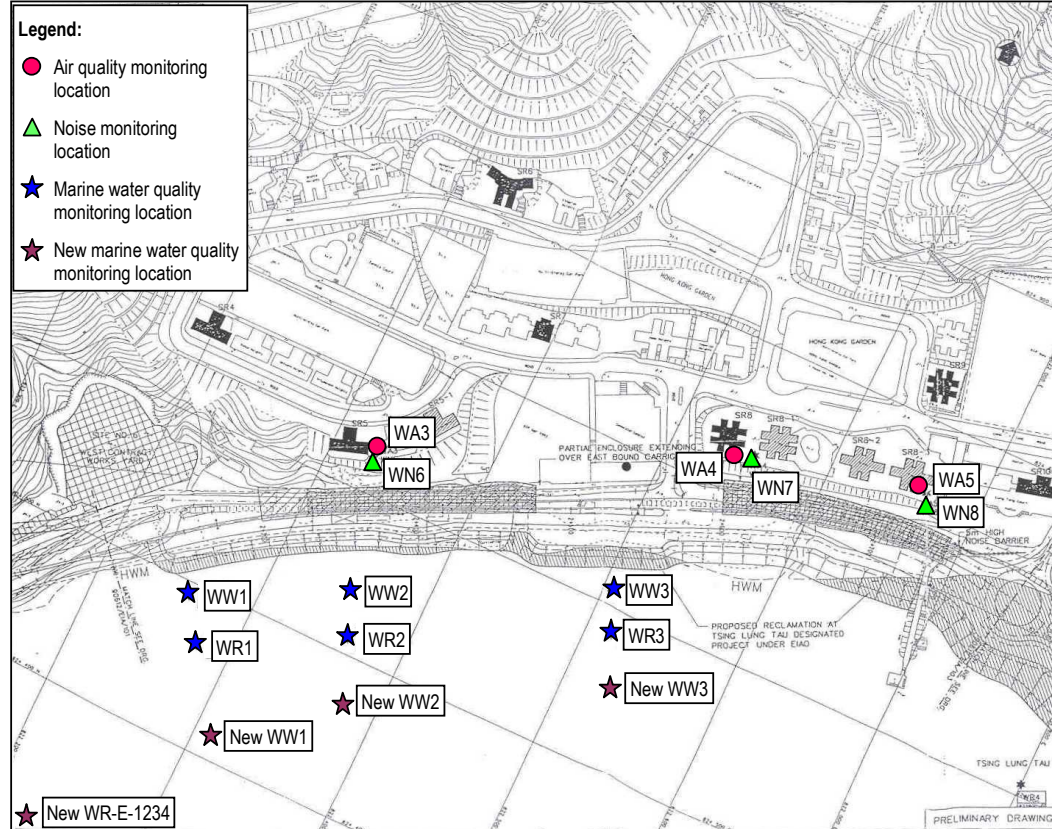


Figure 3-1c Monitoring locations

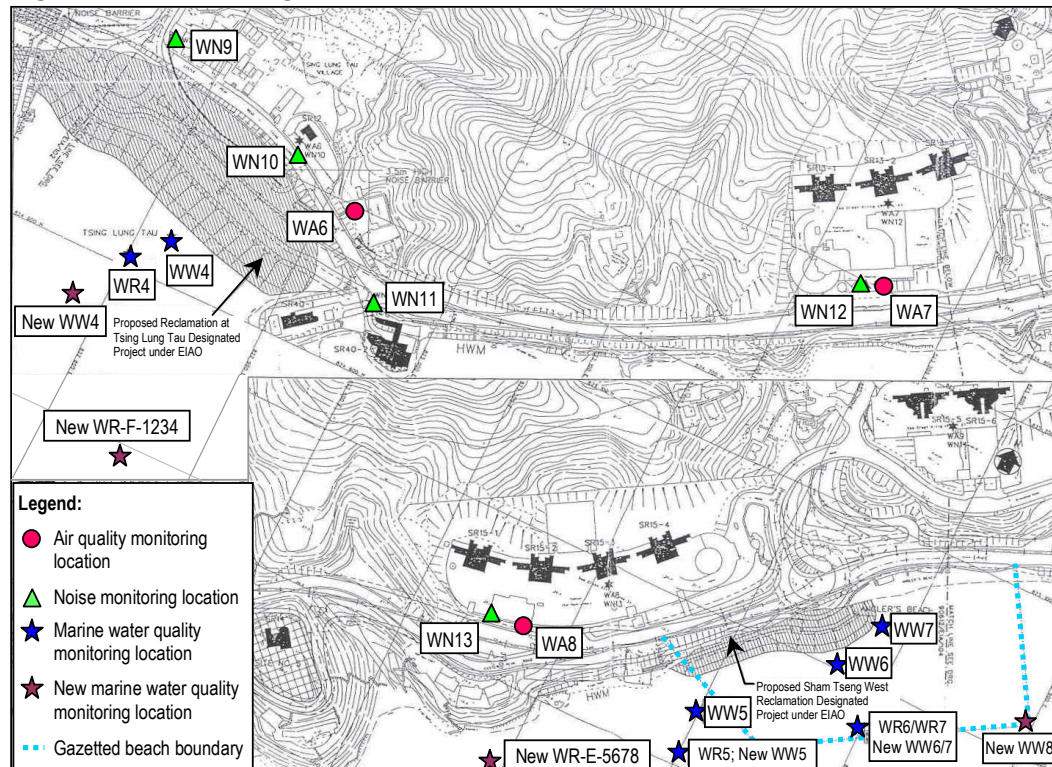


Figure 3-1d Monitoring locations

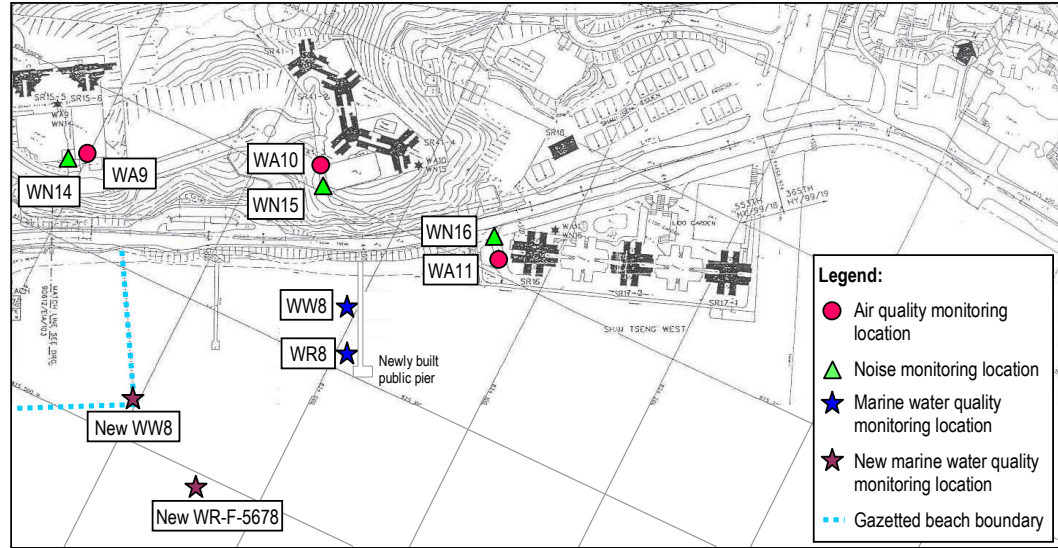
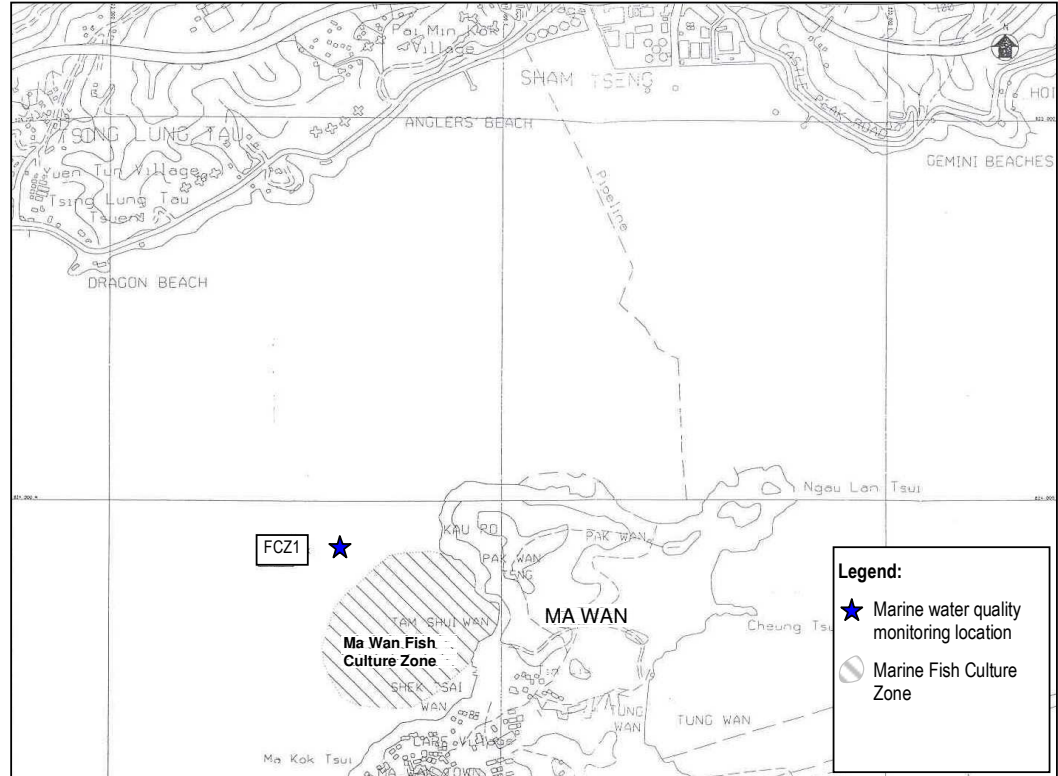


Figure 3-1e Monitoring locations



3.4 Landscape and Visual Monitoring and Audit

3.4.1 Audit Parameters

All landscape and visual mitigation measures undertaken by both the CT and the Landscape Contractor during the construction phase and during the first year of the operational phase shall be audited by a Registered Landscape Architect, to ensure compliance with the intended aims of the mitigation measures.

3.4.2 Audit Frequency

The landscape and visual monitoring and audit shall be undertaken at least once every two weeks throughout the construction period and once every two months during the operational phase.

3.4.3 Audit Location

The landscape and visual monitoring and audit shall be conducted throughout the entire site area.

3.5 Performance Limits and Event-Action Plans

The monitoring results shall be checked against appropriate standards and requirements. A two-tier system performance limits have been established in the Project specific EM&A Manual. The “Action Level” and the “Limit Level” (A/L) are established according to the EPD requirements. ET, ER, IC(E), and CT will take corresponding actions in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

3.5.1 Air Quality

The action and limit levels for air quality have been established during the baseline monitoring and are provided in Table 3-6.

Table 3-6 Action and Limit Level for air quality

Air Monitoring Station No.	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
WA1	350	500	187	260
WA2	362		192	
WA3	353		190	
WA4	362		187	
WA5	346		185	
WA6	362		204	
WA7	351		187	
WA8	347		188	
WA9	345		182	
WA10	352		183	
WA11	357		195	

Table 3-7 details the actions required to be carried out by different parties in case of an exceedance of performance limits being detected.

Table 3-7 Event/Action plan for air quality

Event	Action			
	ET Leader	IC(E)	ER	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify the source. Inform the IC(E) and the ER. Repeat measurement to confirm finding. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> Check monitoring data submitted by the ET Leader. Check Contractor's working method. 	<ol style="list-style-type: none"> Notify the Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify the source. Inform the IC(E) and the ER. Repeat measurements to confirm findings. Increase monitoring frequency to daily. Discuss with the IC(E) and the Contractor on remedial actions required. If exceedance continues, arrange meeting with the IC(E) and the ER. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Check monitoring data submitted by the ET Leader. Check the Contractor's working method. Discuss with the ET Leader and the Contractor on possible remedial measures. Advise the ER on the effectiveness of the proposed remedial measures. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing. Notify the Contractor. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Submit proposals for remedial actions to IC(E) within 3 working days of notification. Implement the agreed proposals. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify the source. Inform the ER and the EPD. Repeat measurement to confirm finding. Increase monitoring frequency to daily. Assess effectiveness of Contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results. 	<ol style="list-style-type: none"> Check monitoring data submitted by the ET Leader. Check the Contractor's working method. Discuss with the ET Leader and the Contractor on possible remedial measures. Advise the ER on the effectiveness of the proposed remedial measures. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing. Notify the Contractor. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance. Submit proposals for remedial actions to IC(E) within 3 working days of notification. Implement the agreed proposals. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify the IC(E), the ER, the EPD and the Contractor. Identify the source. Repeat measurements to confirm findings. Increase monitoring frequency to daily. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. Arrange meeting the IC(E) and the ER to discuss the remedial actions to be taken. Assess effectiveness of the Contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions. Review the Contractor's remedial actions whenever necessary and advise the ER accordingly. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing. Notify the Contractor. In consultation with the IC(E), agree with the remedial measures to be implemented. Ensure remedial measures are properly implemented. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance. Submit proposals for remedial actions to IC(E) within 3 working days of notification. Implement the agreed proposals. Resubmit proposals if problem still not under control. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

3.5.2 Construction Noise Impact

The action and limit levels for the construction noise extracted from the Baseline Monitoring Report^[2] are tabulated in Table 3-8.

Table 3-8 Action and Limit Levels for construction noise

Time Period	Action	Limit
0700 – 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	75dB(A) ⁽¹⁾
19:00 – 23:00 hours on all days and 07:00 – 23:00 on general holidays (including Sundays)		55 ⁽²⁾ / 70 ⁽³⁾
23:00 – 07:00 hours on all days		40 ⁽²⁾ / 55 ⁽³⁾

Remarks:

- (1) For educational establishments the limit level shall be 70dB(A) and reduced to 65dB(A) during examination periods.
- (2) Refers to the types of Plant regulated under the Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM).
- (3) Refers to the types of Plant regulated under the Technical Memorandum on Noise Other than Percussive Piling (GW-TM).
- (4) Owing to the high background noise level recorded at WN5, WN9, and WN10, the noise impact monitoring results at these 3 locations will be corrected by its background using the following background correction equation: $L_{eq(30min)} = 10 \log (10^{m/10} - 10^{b/10})$ as $m = \text{Measured } L_{eq(30min)}$, $b = \text{Average Baseline } L_{eq(30min)}$. Only up to the maximum of 3dB(A) is allowed to be deducted after the background correction.

Table 3-9 details the actions required to be carried out by different parties in the case of an exceedance of performance limits being detected.

Table 3-9 Event/Action plan for construction noise

Event	Action			
	ET Leader	IC(E)	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify the IC(E) and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IC(E) and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation measures. 	<ol style="list-style-type: none"> 1. Review with analysed results submitted by the ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implement of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IC(E). 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify the IC(E), the ER, the EPD and the Contractor. 2. Identify the 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 the IC(E), the ER, and the EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results. 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

3.5.3 Water Quality (Designated Project)

The action and limit levels for the water quality have been established in accordance with the EM&A Manual and approved by EPD on 15 October 2002. EPD and IC(E) had agreed on 10 April 2003 to apply the “Direct Comparison” method for evaluation of the marine water quality exceedance. The A/L levels had been revised in April 2003 and are presented in Table 3-10.

Table 3-10 Action and Limit Levels of water quality

Parameters		Monitoring Location			
		WW1 to WW8		FCZ1	
		Action Level	Limit Level	Action Level	Limit Level
Mid-Ebb					
DO (mg/L)	Surface & Middle	4.9	4.8	4.7	4.6
	Bottom	4.8	4.8	4.0	4.0
SS (mg/L) (Depth-averaged)		17.0	23.4	For EPD: 12.9 For AFCD: 12.9 and 120% of upstream control station's SS at the same tide of the same day	For EPD: 14.0 For AFCD: 14.0 and 130% of upstream control station's SS at the same tide of the same day
Tby (NTU) (Depth-averaged)		12.0	13.6	For EPD: 9.1 For AFCD: 9.1 and 120% of upstream control station's Tby at the same tide of the same day	For EPD: 10.3 For AFCD: 10.3 and 130% of upstream control station's Tby at the same tide of the same day.
Mid-Flood					
DO (mg/L)	Surface & Middle	4.3	4.2	4.5	4.4
	Bottom	4.3	4.1	4.1	4.1
SS (mg/L) (Depth-averaged)		25.3	28.7	For EPD: 23.3 For AFCD: 23.3 and 120% of upstream control station's SS at the same tide of the same day	For EPD: 25.9 For AFCD: 25.9 and 130% of upstream control station's SS at the same tide of the same day
Tby (NTU) (Depth-averaged)		25.2	31.5	For EPD: 18.7 For AFCD: 18.7 and 120% of upstream control station's Tby at the same tide of the same day	For EPD: 22.3 For AFCD: 22.3 and 130% of upstream control station's Tby at the same tide of the same day.

Notes: “Depth-averaged” is calculated by taking the arithmetic means of reading of all three depths.
For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

In order to better differentiate between exceedance caused by the contract works and elevated readings arising from causes unrelated to contract works, all parties had agreed to introduce a term “Reaching of Trigger Value” to represent the scenario where the A/L levels were exceeded by the “Direct Comparison” evaluation method. Upon the detection of “Reaching of Trigger Value”, an initial analysis would be

carried out to determine whether it was caused by contract works. Exceedance and non-compliance should only be recorded in case where the “Reaching of Trigger Value” was caused by the contract works.

Table 3-11 details the actions required to be carried out by different parties in the case of water quality exceedance of performance limits being detected. The revised Event/Action Plan for water quality has been endorsed by IC(E) in May 2003, and will be finalised subject to agreement with EPD.

Table 3-11 Event/Action plan for water quality

Event	Action			
	ET Leader	IC(E)	ER	Contractor
Trigger Value				
1. Trigger Value being surpassed for one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings. Conduct investigation to identify the source(s) of impact. Check monitoring data, all plant, equipment, mitigation measures and the Contractor's working methods. Inform the IC(E), ER, EPD, HyD, Contractor and AFCD (if required) the investigation results. If exceedance is confirmed as caused by the construction works, take relevant actions as detailed in "Action Level" and "Limit Level" 	<ol style="list-style-type: none"> If exceedance is confirmed as caused by the construction works, take relevant actions as detailed in "Action Level" and "Limit Level" 	<ol style="list-style-type: none"> If exceedance is confirmed as caused by the construction works, take relevant actions as detailed in "Action Level" and "Limit Level" 	<ol style="list-style-type: none"> If exceedance is confirmed as caused by the construction works, take relevant actions as detailed in "Action Level" and "Limit Level"
Action Level				
1. Action level being exceeded by one sampling day and is caused by the construction works	<ol style="list-style-type: none"> Discuss the current mitigation measures with the IC(E) and the Contractor. Pay attention on the monitoring results collected on the subsequent scheduled monitoring date to see if an exceedance, caused by the same or related construction works, is recurring. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the current mitigation measures. Assess the effectiveness of the current mitigation measures and advised the ER accordingly. 	<ol style="list-style-type: none"> Discuss with the IC(E) on the current mitigation measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the exceedance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader and the IC(E) on the current mitigation measures.
2. Action level being exceeded by more than one consecutive days and is cause by the construction works	<ol style="list-style-type: none"> Discuss mitigation measures with the IC(E) and the Contractor. Ensure the proposed mitigation measures are implemented. Further evaluation of the monitoring results on the next scheduled monitoring day and report to all concerned parties, if the affected monitoring stations are still being affected (or are no longer affected) by the construction works. Prepare to increase the monitoring frequency to daily, if the Limit Level is exceeded as below. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the proposed mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IC(E), the ET Leader and the Contractor on the proposed mitigation measures. Make agreement on the proposed mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the consecutive exceedance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader and the IC(E) and propose mitigation measures to the IC(E) and the ER within 3 working day. Implement the agreed mitigation measures.
Limit Level				
1. Limit level being exceeded by one sampling day and is cause by the construction works	<ol style="list-style-type: none"> Discuss mitigation measures with the IC(E), the ER and the Contractor. Ensure the proposed mitigation measures are implemented. Prepare to increase the monitoring frequency to daily if further exceedances of the Limit Level are detected on the next sampling day. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the proposed mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IC(E), the ET Leader and the Contractor on the proposed mitigation measures. Request the Contractor to Critically review the working methods. Make agreement on the proposed mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the exceedance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader, the IC(E) and the ER, and propose mitigation measures to the IC(E) and the ER within 3 working days. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IC(E)	ER	Contractor
2. Limit level being exceeded by more than one consecutive days and is cause by the construction works	<ol style="list-style-type: none"> 1. Discuss further mitigation measures with the IC(E), the ER and the Contractor. 2. Ensure the proposed further mitigation measures are implemented. 3. Increase the monitoring frequency to daily until no exceedance of the Limit Level. 	<ol style="list-style-type: none"> 1. Discuss with the ET Leader and the Contractor on the proposed further mitigation measures. 2. Review proposals on further mitigation measures submitted by the Contractor and advised the ER accordingly. 3. Assess the effectiveness of the implemented further mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IC(E), the ET Leader and the Contractor on the proposed further mitigation measures. 2. Request the Contractor to Critically review the working methods. 3. Make agreement on the further mitigation measures to be implemented. 4. Assess the effectiveness of the implemented further mitigation measures. 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the consecutive exceedance in writing. 2. Rectify unacceptable practice. 3. Check all plants and equipment. 4. Consider changes of working methods. 5. Discuss with the ET Leader, the IC(E) and the ER, and propose further mitigation measures to the IC(E) and the ER within 3 working days. 6. Implement the agreed further mitigation measures. 7. As directed by the ER, slow down or stop all or part of the construction activities.

3.5.4 Landscape and Visual

The Final Tree Survey Report^[3] approved in April 2001 was adopted as the framework of the baseline landscape condition of this road section. In addition, a supplementary tree survey has been carried out in December 2001. The Supplementary Tree Survey Report (Revision A)^[4] completed in March 2002 is also adopted to provide supplementary information of the baseline landscape condition of this road section.

If any non-conformity on landscape and visual issue is observed, the actions in accordance with Event/Action Plan shown in Table 3-12 shall be carried out.

Table 3-12 Event/Action plan for landscape and visual impact

Event	Action			
	ET Leader	IC(E)	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source(s). 2. Inform the IC(E) and the ER. 3. Discuss mitigation actions with the IC(E), the ER and the Contractor. 4. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check report. 2. Check the Contractor's working method. 3. Discuss with the ET Leader and the Contractor on possible remedial measures. 4. Advise the ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working method. 2. Rectify damage and undertaken any necessary replacement.
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source(s). 2. Inform the IC(E) and the ER. 3. Increase monitoring frequency 4. Discuss mitigation actions with the IC(E), the ER and the Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET Leader and the Contractor on possible remedial measures. 4. Advise the ER on effectiveness of proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working method. 2. Rectify damage and undertaken any necessary replacement.

3.6 Site Inspection and Environmental Complaint Handling

3.6.1 Site Inspection Frequency and Areas Covered

Regular site inspections shall be carried out on a weekly basis. The areas of inspection cover the different environmental impacts, such as air, noise, water and waste, and their pollution controls and mitigation measures for both within and outside the site area. Site inspection for landscape and visual impact shall be carried out on a bi-weekly basis.

Ad hoc site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event-Action Plans.

3.6.2 Site Inspection Procedures

- a) The CT and/or ER will advise the Environmental Auditor (EA) for all information on any environmental related aspects.
- b) The EA will conduct discussion with the CT and/or ER to sort out and forecast any potential environmental impact.
- c) The EA will conduct a site walk with the CT and/or ER, particularly the areas with extensive construction works.
- d) The EA will conduct inspection for the main environmental facilities and measures such as the wheel washing facilities located at the site exits, water spraying truck, temporary noise barrier, and the internal noise-reducing measures of the heavy equipment etc, to ensure that these environmental facilities operate normally and effectively.
- e) The EA will fill up a site inspection checklist during the site inspection for recording of any special observations.
- f) The EA will conduct post-discussion with the CT and/or ER for the establishment of additional/special measures if any non-conformance is found. The completion date for such additional measures will be confirmed during the post-discussion.
- g) The EA will propose a reasonable timeframe together with the CT and/or ER, for the preparation of the proposal for the remediation of environmental non-compliance.

- h) The completed site inspection checklist will be signed by the EA, the CT and/or ER, for reference and for taking actions in accordance with the agreed procedures, reporting systems and time frame.

3.6.3 Environmental Complaints

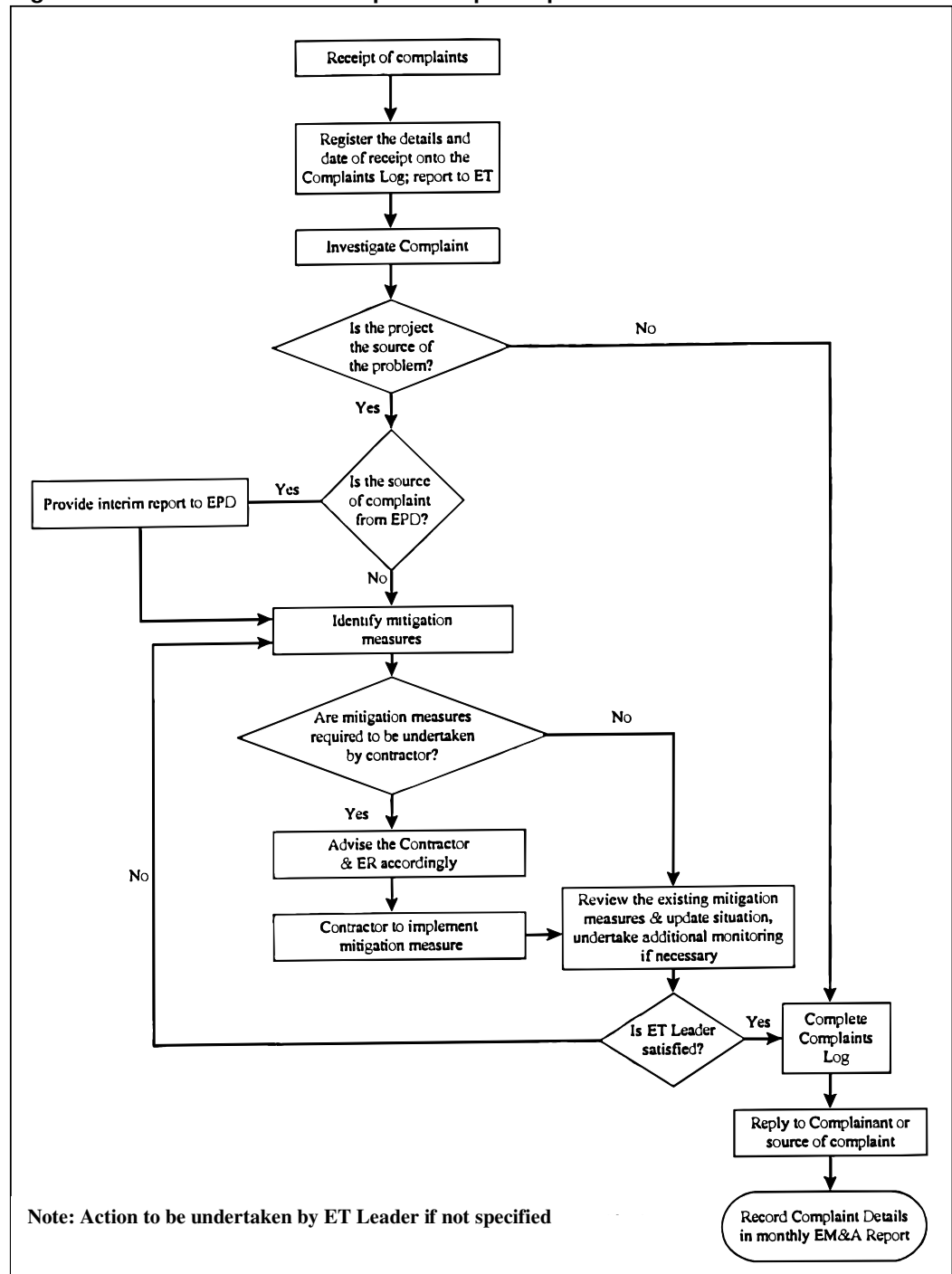
In accordance with the EM&A Manual, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of the complaints:

- a) The ET will record the details of the complaint and the date of receipt onto the complaint database, and inform ER immediately.
- b) The ET will perform compliant investigation to determine its validity, and to assess whether the source of the problem is due to work activities.
- c) The ER will instruct the CT to identify mitigation measures in consultation with the ET, if the complaint is valid and due to works.
- d) The ET will liaise with the CT on their mitigation measure proposals and implementation, if required.
- e) The ET will conduct review of the CT's response on the identified mitigation measures, and of the updated situation.
- f) The ET will submit interim report to EPD if the complaint is received via EPD. The interim report will clearly state the status of the complaint investigation and the follow-up action within the time frame assigned by EPD.
- g) The ET will undertake additional monitoring and audit to verify the situation if necessary, and ensure that any valid reason for complaint does not recur.
- h) The ET will report on the investigation results and the subsequent actions to the source of complaint for responding to the complainant (If the source of complaint is via EPD, the results will be reported within the time frame assigned by EPD).
- i) The ET will record the details of the complaint, investigation, subsequent actions and results in the monthly EM&A reports.

During the complaint investigation work undertaken by the ET, the CT and ER shall cooperate with the ET on providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary after the investigation, the CT shall promptly carry out the required mitigation to the satisfaction of ET. The ER shall ensure that the CT has carried out such identified measures.

A flow chart of the complaint response procedures is shown in Figure 3-2 for reference.

Figure 3-2 Flow chart of the complaint response procedure



4. AIR QUALITY

4.1 Monitoring Parameters and Equipment

Impact air quality monitoring was conducted in terms of both 1-hour and 24-hour TSP using a direct reading meter, MIE Data-RAM Portable Real Time Aerosol Monitor (MIE) and High Volume Sampler (HVS) respectively. Table 4-1 shows the equipment list for air quality monitoring.

Table 4-1 Equipment list for air quality monitoring

Equipment	Manufacturer & Model No.	Measurement Parameter	Qty.
High Volume Sampler	GS-2310105 & TE-5170	24-hour TSP	11
Fibreglass Filter	G810		--
HVS Calibration Kit	GMW-2535		1
Photometric Aerosol Monitor	MIE <i>personal</i> /DataRAM	1-hour TSP	10
Hand Held Barometer	Cole-Parmer EB833	Pa, Temperature	2

4.2 Methodology

4.2.1 1-hour TSP Monitoring

The procedure for 1-hour TSP monitoring is described as follows:

The MIE monitor was switched on by pressing the ON/OFF button. The NEXT button was pressed to select Run or Ready mode.

The NEXT button was pressed subsequently to check the following settings:

- i. data logging function: on
- ii. log period: 5 minutes
- iii. tag number: storage
- iv. analogue output: 0-4.000mg/m³

- v. calibration factor: 1.0
- vi. averaging time: 10s
- vii. battery charge: $\geq 50\%$
- viii. remaining memory: $\geq 10\%$

The monitoring was started by pressing ENTER. The real-time concentration would display “CONC” and the time-averaged concentration would display “TWA”.

The monitoring was stopped by pressing EXIT and ENTER buttons.

The date and start time, weather, site condition and the downloaded monitoring results were recorded on specified field record sheet.

4.2.2 24-hour TSP Monitoring

24-hour TSP by using a High Volume Sampler (HVS). The HVS should be in compliance with the following specifications:

- 0.6 – 1.7 m³/min (20 – 60SCFM);
- equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- installed with elapsed time meter with +/- 2 minutes accuracy for 24 hours operation;
- capable of providing a minimum exposed area of 406 cm²(63in²);
- flow control accuracy: +/-2.5% deviation over 24-hr sampling period;
- equipped with a shelter to protect the filter and sampler;
- incorporated with an electronic mass flow rate controller or other equivalent devices;
- equipped with a flow recorder for continuous monitoring;
- provided with a peaked roof inlet;
- incorporated with a manometer;
- able to hold and seal the filter paper to the sampler housing at horizontal position;
- easy to change the filter; and
- capable of operating continuously for a 24-hour period.

4.2.3 Maintenance and Calibration

The HVS and their accessories were frequently checked and maintained in accordance with the manufacturer’s operation & maintenance manual. Maintenance includes the checking of the supporting screen and the gasket, and routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVS are calibrated at 2-month intervals using GMW-2535 Calibration Kit. The calibration kit will be re-calibrated by the manufacturer after one year of use. The calibration certificates of the HVS and the calibration kit are provided in Appendix D. The next calibration will be conducted on or before 1 February 2005 for the HVS and 1 February 2005 for the GMW-2535.

The MIE monitor and its accessories were frequently checked and maintained in accordance with the manufacturer's operation & maintenance manual to ensure proper operation. Maintenance includes the checking of batteries, zero and sensitive adjustment and filter replacement.

The MIE monitor is returned to the manufacturer for calibration bi-annually. The calibration certificates are provided in Appendix E. The next calibration dates for the MIE monitors are given in Table 4-2.

Table 4-2 Calibration dates of 1-hour TSP monitoring equipment

1-hour TPS monitoring equipment	Serial number	Last calibration date	Next calibration date (on or before)
MIE Data-RAM Portable Real Time Aerosol Monitor	4496	25-Sep-03	25-Sep-05
	4715	21-Nov-03	21-Nov-05
	4615	15-Jan-04	15-Jan-05
	4705	15-Jan-04	15-Jan-05
	4492	27-Jul-04	27-Jul-06
	4736	27-Jul-04	27-Jul-06
	3809	06-Oct-04	06-Oct-06
	3893	06-Oct-04	06-Oct-06
	4243	06-Oct-04	06-Oct-06

4.3 Results and Observations

4.3.1 Weather conditions and other factors

The weather condition varied from sunny to fine during the air quality monitoring period in November 2004.

The construction site had been under normal operation during the air quality monitoring period and no unusual operation or dust from other source was observed.

4.3.2 Summary Results

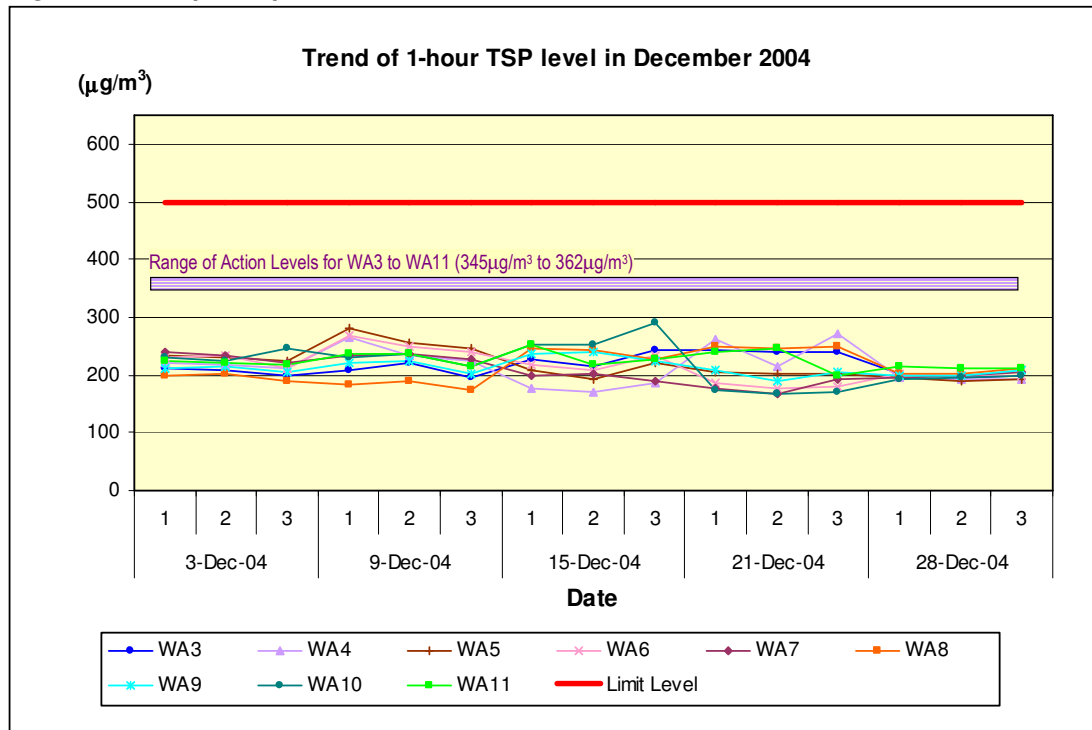
1-hour TSP

A total of 5 sets of 3 consecutive 1-hour TSP measurements had been taken on 3, 9, 15, 21 and 28 December 2004.

The highest 1-hour TSP level was 289.6 $\mu\text{g}/\text{m}^3$ recorded at Podium of Block 1, Phase 1 of Sea Crest Villa (WA10) on 15 December 2004 while the lowest 1-hour TSP level was 166.2 $\mu\text{g}/\text{m}^3$ recorded at Podium of Block 1, Phase 1 of Sea Crest Villa (WA4) on 21 December 2004. There was no exceedance of the Action and Limit (A/L) Levels during the monitoring period. There was no exceedance of the A/L Levels during the monitoring period.

The detailed monitoring results of 1-hour TSP are given in Appendix F and the 1-hour TSP level at each monitoring location are plotted and presented in Figure 4-1.

Figure 4-1 Graphical presentation of 1-hour TSP levels for December 2004



24-hour TSP

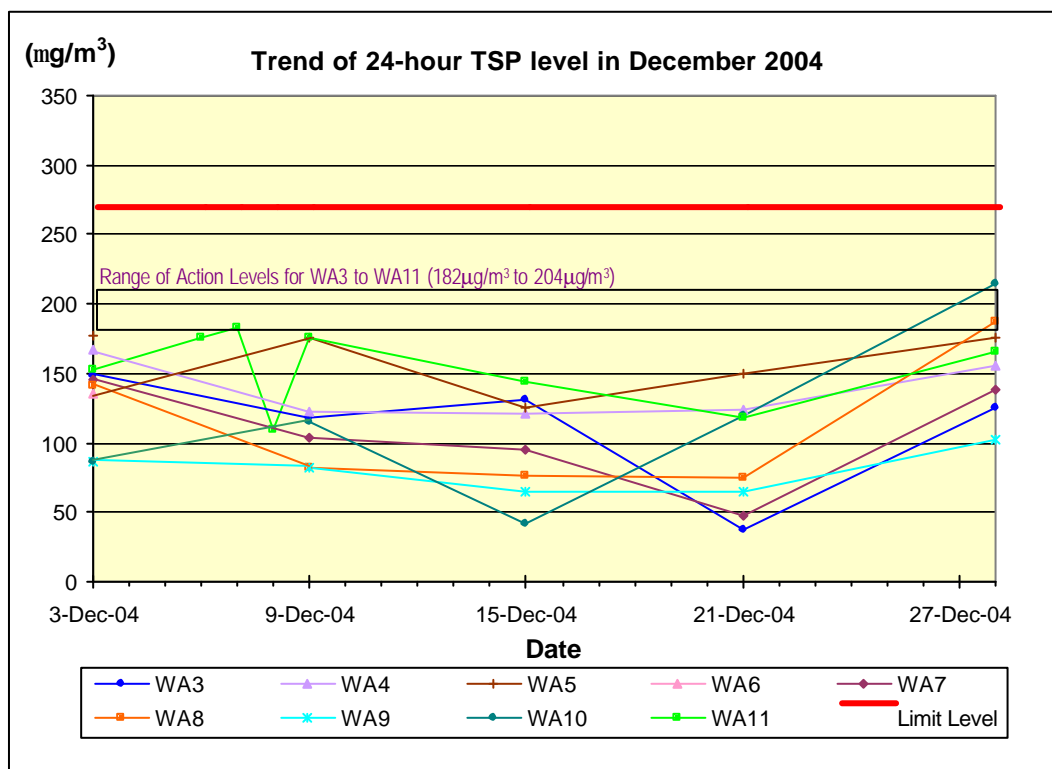
A total of 5 sets of 24-hour TSP measurement had been taken on 3, 9, 15, 21 and 28 December 2004.

The highest 24-hour TSP level was 187.4µg/m³ recorded at Podium of Block 6, Sea Crest Villa Phase 2 (WA8) on 28 December 2004 while the lowest 24-hour TSP level was 37.6µg/m³ recorded at G/F, Regent Heights, Hong Kong Garden (WA3) on 21 December 2004. Owing to the problem of damage of integral parts and power supply, the HVS at WA6 was broken down since 20 December 2004. It will be resumed after repairing as soon as possible.

There was no exceedance of the A/L Levels during the monitoring period.

The detailed monitoring results of 24-hour TSP are given in Appendix G and the 24-hour TSP level at each monitoring location are plotted and presented in Figure 4-2.

Figure 4-2 Graphical presentation of 24-hour TSP levels for December 2004



4.3.3 Wind Monitoring Data

The detailed wind monitoring data for the air quality monitoring period in December 2004 extracted from Hong Kong Observatory – Tsing Yi Wind Monitoring Station is attached in Appendix H.

5. NOISE

5.1 Monitoring Equipment

An integrating sound level meter was used for the noise monitoring. The sound level meter equipment are listed in Table 5-1.

Table 5-1 Equipment list for construction noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrating sound level meter	Brüel & Kjær 2231	IEC 651 Type 1	2
Integrating sound level meter	Brüel & Kjær 2238		3
Windshield	Brüel & Kjær UA0237	IEC 804 Type 1	6
Acoustical calibrator	Brüel & Kjær 4230	IEC 942 Type 1	2
Acoustical calibrator	Brüel & Kjær 4226		1
LCD wind speed indicator	Kestrel Vane Anemometer	--	2

5.2 Methodology

5.2.1 Field Measurement

- The sound level meter and the battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.
- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

5.2.2 Equipment Maintenance and Calibration

The sound level meter complies with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions). The acoustical calibrator model no. 4230 is in compliance with IEC 942. Both equipment are calibrated annually in-house using Brüel & Kjær (B&K) calibrator model no. 4226.

The National Physical Laboratory in Teddington, London, which is accredited by National Measurement accreditation Service (NAMAS), annually calibrates the B&K calibrator model no. 4226. All in-house calibrations that are undertaken can be traced back to the National Physical Laboratory. The calibration certificates of the noise monitoring equipment are given Appendix I. The next calibration will be conducted on or before 15 July 2005 for the sound level meters and the acoustical calibrators.

5.3 Results and Observations

5.3.1 Weather Conditions and Other Factors

The weather condition varied from sunny to fine during the noise monitoring period in December 2004.

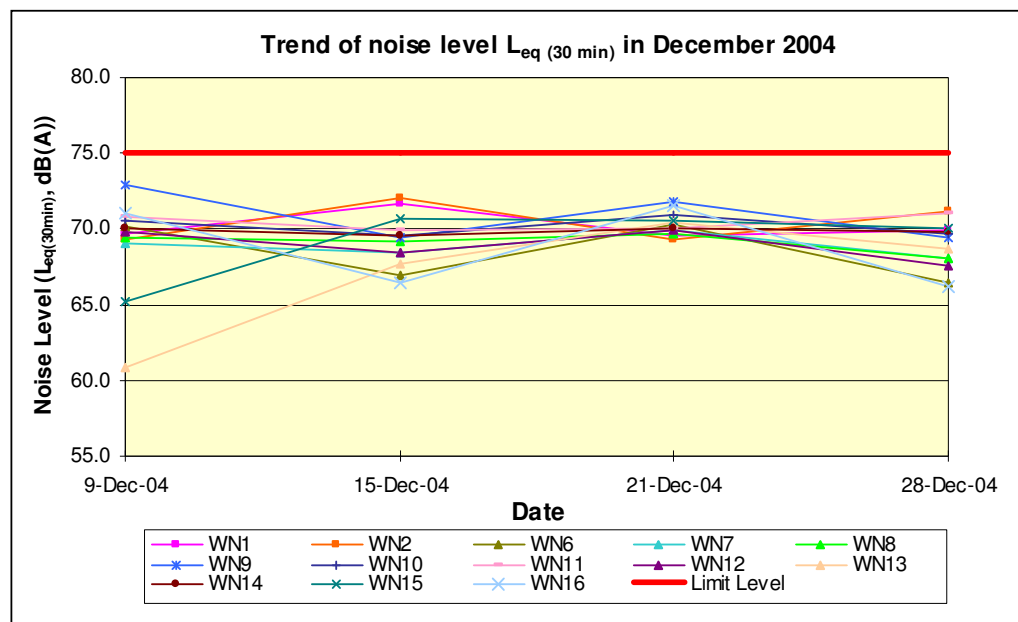
The construction site had been under normal operation during the noise monitoring period and no unusual operation was observed. Traffic noise had been noticed at some noise monitoring locations during the noise monitoring period.

5.3.2 Summary Results

A total of 4 set of noise measurement had been conducted between 0700-1900 hours on 9, 15, 21 and 28 December 2004. The detailed construction noise monitoring results are given in Appendix J.

The highest noise level was 73dB(A) recorded at Tsing Lung Tau Village House 1 (WN9) on 9 December 2004 while the lowest noise level was 61dB(A) recorded at Sea Crest Villa (Phase 3) (WN13) on 9 December 2004. There was no exceedance of the A/L Levels during the monitoring period. The noise levels at each monitoring location are plotted and presented in Figure 5-1.

Figure 5-1 Graphical presentation of daytime noise levels for December 2004



6. WATER QUALITY (DESIGNATED PROJECT)

6.1 Water Quality Equipment

Monitoring of Turbidity (Tby) in NTU, Dissolved Oxygen (DO) in mg/L and Suspended Solids (SS) in mg/L were carried out by the ET to ensure that any deteriorating water quality could be readily detected and timely action be taken to rectify the situation. The Tby and DO were measured in-situ while the SS was determined in the laboratory. A summary of the water quality monitoring equipment is provided in Table 6-1.

Table 6-1 Water quality monitoring equipment

Equipment	Manufacturer & Model No.	Qty
Handheld Salinity, Conductivity & Temperature System	YSI Model 30	1
Dissolved Oxygen Meter	YSI Model 52	1
pH meter	Hanna	1
Turbidimeter	HACH 2100P	1
Nephelometer	Analite Model 156	1

6.2 Methodology

Dissolved Oxygen and Temperature Measuring Equipment

The equipment to measure DO and temperature complies with the following:

- i. The instrument shall be a portable, weatherproof dissolved oxygen measuring instrument complete with cable and use a DC power source. It shall be capable of measuring:
 - A dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
 - A temperature of 0-45°C.
- ii. It shall have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables shall be available for replacement where necessary (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).
- iii. Should salinity compensation not be integrated in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measurement Instrument

The instrument is a portable, weatherproof turbidity-measuring instrument complete with comprehensive operations manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000

NTU and be completed with a cable (e.g. Hach model 2100P or an approved similar instrument).

Suspended Solids

The following equipment is required to monitor the SS:

- i. A water sampler comprising a transparent PVC cylinder, with a capacity of not less than 2 litres and which can be effectively sealed with latex cups at both ends. The sampler shall have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (e.g. Kahlsico Water Sampler or an approved similar instrument).
- ii. Water samples for SS measurement of both the marine and freshwater environment shall be collected in high density polythene bottles, packed in ice (cooled at 4°C without being frozen) and delivered to the laboratory as soon as possible after collection.

Water Depth Detector

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring. This unit can either be handheld or affixed to the bottom of the monitoring boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

A portable salinometer capable of measuring salinity in the range of 0-40 ppt shall be provided for measuring salinity of the water at each monitoring location and setting salinity compensation on the DO Meter.

Location of the Monitoring Site

A hand-held or boat-fixed type Differential Global Positioning System (DGPS) or other equivalent instrument of similar accuracy shall be provided and used during monitoring to ensure the monitoring vessel is at the correct location before taking measurements. For the monitoring locations in the water courses a hand-held DGPS, together with a suitably scaled map shall be used.

6.2.1 Calibration and Accuracy of Instrumentation

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

For the on site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" shall be followed.

6.3 Marine Monitoring

As reported by the Contractor, major sea works at level below +2.5mPD had been completed in July 2003. The proposal on suspension of marine monitoring was submitted to IC(E), HyD, EPD and AFCD for comments on 25 September 2003. It was confirmed with IC(E) and AFCD that suspension of marine monitoring was acceptable if there is no “active” marine work being carried out. In future, if there is any marine work on or below +2.5mPD, the Contractor shall notify the relevant parties one month in advance and resume the marine monitoring. Subsequently, as instructed by the Contractor/ HyD, the marine monitoring was suspended since during the period from October 2003 to 31 July 2004. However, as instructed by the Contractor, the planned sand placement activities were conducted at Seawall B. Marine impact monitoring near Seawall B (i.e. WW1, WW2, WW3, WW4, WR-E-1234, WR-F-1234 and FCZ1) was resumed from 2 August to 27 August 2004. Since sand placement activities at Seawall B were ceased in August 2004, marine water monitoring was again suspended since September 2004.

7. LANDSCAPE AND VISUAL MONITORING AND AUDIT

The landscape and visual monitoring and audits were carried out on 9 and 23 December 2004 by a Registered Landscape Architect.

The audit findings and recommendations are summarised in the following paragraphs.

7.1 Summary of Inspection – 9 December 2004

7.1.1 Matters Arising from Previous Inspections

- The Contractor had cleared away the garbage pile at Slope 6 area.
- The Contractor had cleared away the large garbage pile at the slope area behind noise enclosure NM-02 area. However, new scrap wood and construction waste piles were found, the Contractor was requested to clear it away as soon as possible.
- The Contractor had cleared away the scrap-wood piles at Seawall 'C' area.
- The Contractor had cleared away the construction waste pile at the construction area opposite to Lido Garden.
- Dry surface conditions were observed throughout many parts of the site. The Contractor was reminded to carry out more frequent watering of the site to prevent dust nuisance.

7.1.2 Site Clearance and Formation Works

- Scattered scrap-wood and litter piles were found at retaining wall RW-01 area. The Contractor was requested to clear it away as soon as possible.

7.1.3 Tree Felling and Transplanting Works

- No tree transplanting work was carried out during the inspection period.

7.1.4 Recommendations

- The Contractor was reminded to clear away all scattered litter, garbage, etc. as found on site, and keep the site in a tidy condition at all times.
- The Contractor was reminded to carry out more frequent watering of the site during dry periods to prevent dust nuisance.

7.2 Summary of Inspection – 23 December 2004

7.2.1 Matters Arising from Previous Inspections

- The Contractor had cleared away the scattered scrap-wood and litter piles at retaining wall RW-01 area. However, a new crate full of scrap-wood and new garbage piles was found, and the Contractor was requested to clear it away as soon as possible.

- The Contractor had cleared away the scrap wood and construction waste piles at noise enclosure NM-02 area. However, new garbage pile was found, and the Contractor was requested to clear it away as soon as possible.
- Dry surface conditions were observed throughout many parts of the Site, including areas at retaining walls RW-01 and RW13, Seawall 'C', Noise Enclosure NM-02, and Man Wan Pier. The Contractor was reminded to carry out more frequent watering of the site to prevent dust nuisance.

7.2.2 Site Clearance and Formation Works

- The temporary garbage collection area at Slope 6 was found to be full. The Contractor was requested to clear it away as soon as possible.
- Construction waste pile was found at the ramp entrance of footbridge FB-01 (seaside). The Contractor was requested to clear it away as soon as possible.
- Untidy site condition and scrap-wood piles were found at Seawall 'C' area. The Contractor was requested to tidy up the area and to clear away the scrap-wood piles as soon as possible.
- The root of the existing retained tree (T44) at Angler's Beach was found damaged during excavation works. The Contractor was requested to properly pruned back the root and carry out tree protection urgently. The Contractor was reminded not to further damage the tree root, and to carry out excavation works by hand.

7.2.3 Tree Felling and Transplanting Works

- No tree transplanting work was carried out during the inspection period.

7.2.4 Recommendations

- The Contractor was reminded to urgently carry out root pruning and proper tree protection to ensure existing trees retained are not damaged.
- The Contractor was reminded to clear away all scattered litter, garbage, etc. as found on site, and keep the site in a tidy condition at all times.
- The Contractor was reminded to carry out more frequent watering of the site during dry periods to prevent dust nuisance.

7.3 Tree Transplanting Survival Rate

7.3.1 Tree Transplanting Survival Rate

- The tree transplanting survival rate as reported by the Contractor for the period up to the end of December is 100%.

7.4 Audit Schedule

7.4.1 Audit Schedule for January 2005

- The next audits are schedule to be conducted on 6th and 20th January 2005.

The Landscape and Visual Monitoring & Audit Report for December 2004 prepared by the Registered Landscape Architect is attached in Appendix K.

8. SITE INSPECTION, WASTE DISPOSAL, ENVIRONMENTAL COMPLAINTS, ENVIRONMENTAL LICENSES AND NON-COMPLIANCE RECORDS

8.1 Site Audit Results

Weekly environmental site audits were carried out on 2, 9, 16, 23 and 30 December 2004. The environmental concerns identified in the site audits are summarised in Table 8-1.

Table 8-1 Summary of environmental concerns identified in site audits in December 2004

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
Water Quality				
02-Dec-04	Effluent was directly discharged into the nullah near Lido Garden.	Contractor was reminded to provide sedimentation before discharge	No direct discharge of effluent was observed.	16-Dec-04
02-Dec-04	Mud trails were found at site entrance of W33, Mui Yuen and W15.	To implement wheel wash at site entrance.	No mud trail was found.	16-Dec-04
09-Dec-04	Mud trails were found at site entrance near Alfavista Villa, W19 and W15.	To implement wheel wash at site entrance.	No mud trail was found.	16-Dec-04
16-Dec-04	Mud trails were found at site entrance at Slope 8 and W29.	To implement wheel wash at site entrance.	No mud trail was found.	23-Dec-04
16-Dec-04	No wheel washing facilities was found in site entrance at Seawall B east end.	To provide wheel wash facilities.	-	Outstanding
16-Dec-04	Stagnant water accumulated at trench of Sham Tseng.	To drain the stagnant water.	No stagnant water was found.	23-Dec-04
23-Dec-04	Mud trail was found outside site entrance W9	To implement wheel wash at site entrance.	No mud trail was found.	30-Dec-04
23-Dec-04	Stagnant water accumulated at trench of RW01.	To drain the stagnant water.	No stagnant water was found.	30-Dec-04
Air Quality				
02-Dec-04	Exposed slope at FB03 was uncovered.	To cover the slope with tarpaulin sheet.	-	Outstanding
02-Dec-04	Haul roads at RW01, Seawall B and FB03 were dry and dusty.	To water the haul roads.	No mud trail was found.	16-Dec-04
09-Dec-04	Earth moving operation at RW01, Seawall B and Slope 9 were not sprayed with water.	To spray water during operations.	The operation was sprayed with water.	23-Dec-04
16-Dec-04	Dark smoke emitted from excavator at RW01 and air compressor at RERW03.	To check the dusk filter of the plants	No dark smoke emission was found.	23-Dec-04
16-Dec-04	Exposed slope behind NM02 was uncovered.	To cover the slope with tarpaulin sheet.	-	Outstanding

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
23-Dec-04	Open stockpile at Seawall B was not covered.	To cover the slope with tarpaulin sheet.	-	Outstanding
23-Dec-04	Haul roads and unpaved areas near site entrance W9 were dry and dusty.	To water the haul roads.	Haul roads were watered/	30-Dec-04
23-Dec-04	Rock drilling at slope behind NM02 was not sprayed by enough water. Dust cloud was observed.	To spray water during rock drilling.	No dust cloud was observed.	30-Dec-04
Construction Noise				
09-Dec-04	No noise label found on air compressor at FB01.	To provide the noise label.	Noise label was provided.	16-Dec-04
30-Dec-04	No noise label found on air compressor at RW01 east end and slope near FB02	To provide the noise label.	-	Outstanding
Handling of Wastes and Chemicals				
09-Dec-04	Waste was found in trench of RW01.	To clean up the waste.	Waste was removed from site.	16-Dec-04
09-Dec-04	Chemicals were found not placed in oil tray at RW01.	To provide drip tray.	Drip tray was provided.	16-Dec-04
16-Dec-04	C&D waste and general refuse accumulated at RW01, RERW60 and Seawall B.	To clean up the waste.	Waste was removed from site.	23-Dec-04
16-Dec-04	Oil leakage was found from excavator at NM03.	To collect the leakage for chemical waste disposal.	The Contractor stop the leakage and collect the chemical waste for disposal.	23-Dec-04
30-Dec-04	Waste accumulated at RW01 east end.	To clean up the waste.	Waste was removed from site.	06-Jan-05
30-Dec-04	Oil leakage was found from the crawler crane at FB02.	To collect the leakage for chemical waste disposal.	The Contractor stop the leakage and collect the chemical waste for disposal.	60-Jan-05

8.2 Waste Disposal

The Contractor had properly disposed of the waste material in the reporting month, and the disposal quantity in the reporting month is summarised in Table 8-2.

Table 8-2 Waste disposal quantity in December 2004

Type of waste or material		Disposal at	No. of loads or quantities	Remarks
C&D waste		WENT Landfill	17 loads	--
C&D material		Public Filling Area in Tuen Mun	1126 loads	--
Grease trap waste		Interim Grease Trap Waste Treatment Facility at WENT Landfill	0	--
Chemical waste	Spent lube oil	Collected by licensed collector	0	--

8.3 Complaint Record

There was no environmental complaint received in December 2004. A log record on the environmental complaints is given in Appendix L and a cumulative statistics on environmental complaints is given in Table 8-3.

Table 8-3 Cumulative statistics on environmental complaints

No. of complaints received in the reporting month	No. of outstanding complaints	Cumulative no. of complaints received since the commencement of project
0	0	31

8.4 Non-compliances

There were no non-compliances for both the air quality and noise monitoring during the reporting period. Additional monitoring for exceedance recorded on 27 November 2004 were conducted on 6, 7 and 8 December 2004. No further exceedance was found in these monitoring days. Details of investigation reports were attached in Appendix M.

Table 8-4 Summary of exceedances

	Monitoring			Action Level	Limit Level	Investigation Findings	Non-compliance
	Date	Location	Result				
24-hr TSP	27-Nov-04	WA11	220.1	195.0	260.0	Rock breaking and dust generating activities were conducted during the monitoring period.	The case was due to the construction activities.

8.5 Notification of Summons and Successful Prosecution

There was neither notification of summons nor prosecution received during the reporting month.

8.6 Environmental Licenses

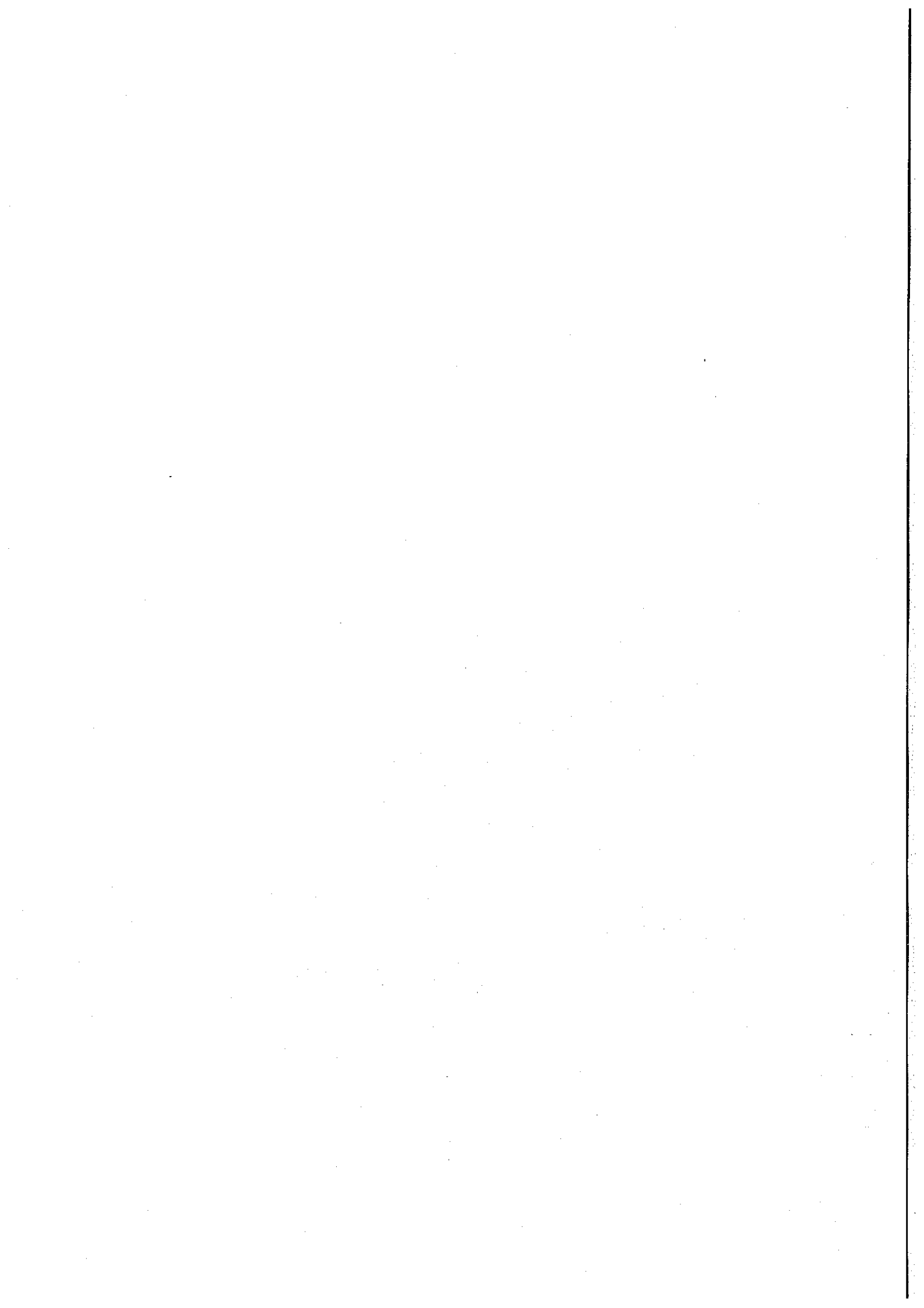
There was no new environmental license granted during the reporting period.

9. REFERENCES

- [1] Mouchel Halcrow Joint Venture. 2001. Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan West Contract No. HY/99/18, Environmental Monitoring & Audit Manual.
- [2] Ove Arup & Partners Hong Kong Limited. July 2002. Contract No. HY/99/18 Castle Peak Road Improvement between Shem Tseng and Ka Lung Tsuen, Tsuen Wan, Environmental Baseline Monitoring Report (Second Issue).
- [3] Mouchel Halcrow Joint Venture. 2001. D&C Consultancy Agreement No. CE 1/96 Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan, Tree Survey Report & Tree Felling Application Revision D.
- [4] Mouchel Halcrow Joint Venture. Contract No. HY/99/18 March 2002. D&C Consultancy Agreement No. CE 1/96 Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan, Supplementary Tree Survey Report & Tree Felling Application Revision A.

APPENDIX A

**Detailed site layout
plans**

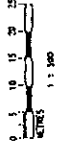
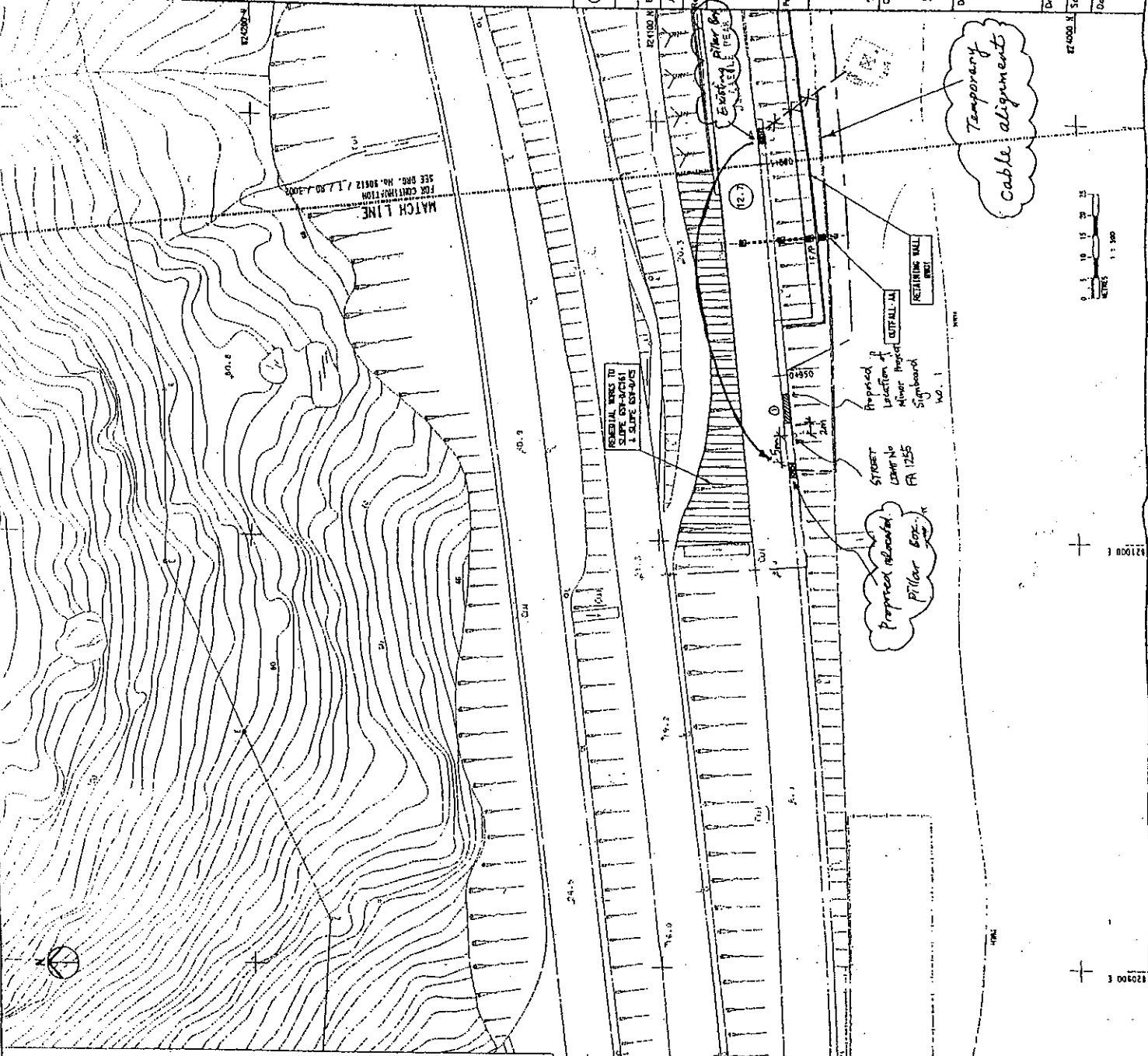


NOTES:
 1. ALL DIMENSIONS ARE IN ACCORDANCE WITH THE 1980 HONG KONG METRIC ORDINANCE.
 2. ALL LEVELS ARE IN METRES ABOVE THE PRINCIPAL DATUM (APD) AND RELATE TO THE SETTING OUT LINES.

Legend:

Minor signboard
 (size: 7.2m (L) X 1.5m (width))

- DENOTES PRINCIPAL SETTING OUT LINE
- DENOTES FOOTPATH
- DENOTES EDGE OF CARRIAGEWAY
- DENOTES KEY SOIL CUT SLOPE
- DENOTES KEY ROCK CUT SLOPE
- DENOTES KEY SOIL OR ROCK FILL SLOPE
- DENOTES SLOPE REINFORCEMENTS STAIRWAY OR ACCESS STAIRWAY TO BEACH
- DENOTES RETAINING WALL
- DENOTES MOVED PILE RETAINING WALL
- DENOTES WORKS LIMIT
- DENOTES PROPOSED CARRIAGEWAY LEVEL (APD)
- DENOTES SLOPE TO BE STABILISED
- DENOTES ROAD DRIVE
- DENOTES VIADUCT
- DENOTES NOISE ENCLOSURE
- DENOTES 5m HIGH NOISE BARRIER
- DENOTES 3.5m HIGH NOISE BARRIER
- DENOTES GRASSY GARDEN ACCOMMODATION WORK



CONTRACT DRAWING

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1st Issue	Final Issue	SP	DC	PS	JAN 01
Issue Started	Amendment	By	Doc/APP	Date	

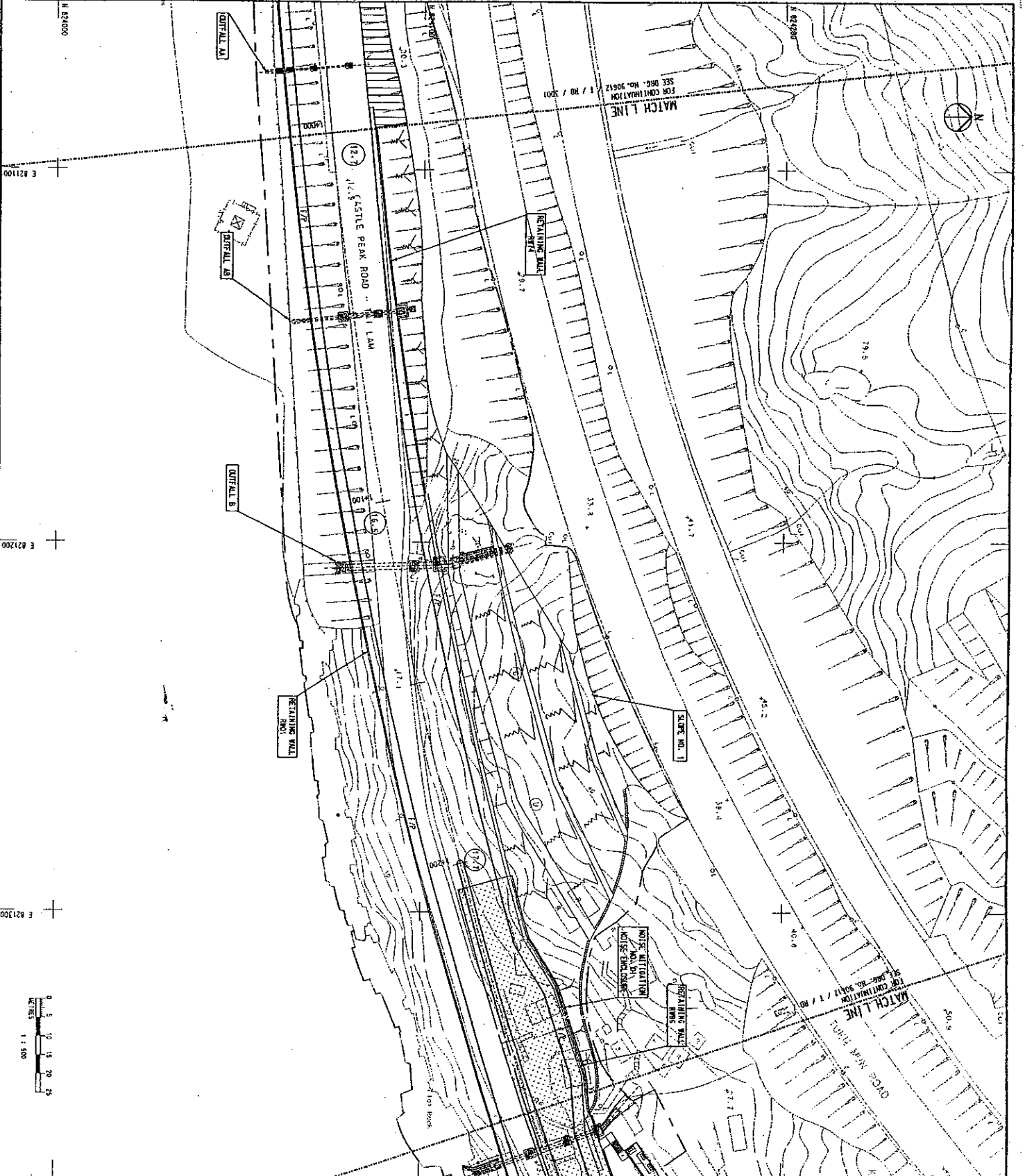
M&I Major Works Project Management Office,
 Highways Department,
 Hong Kong

Contract No. 6553TH Contract No. HY/99/18
Mouchel Halcrow JV
 Sub-Consultants
 AEC, Asia, XVA Asia Ltd.
 Townland Consultants Ltd, Chesterton Petty Ltd.

Contract Title
 Castle Peak Road Improvement Between
 Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
 SCHEME GENERAL ARRANGEMENT
 CHAINAGE 960 TO 1000

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Date Issued	JUNE 2001	Drawing No.	90612/T/RD/3001	Rev.	B



NOTES:
 1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 90612/T/RD/3001.

CONTRACT DRAWING

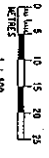
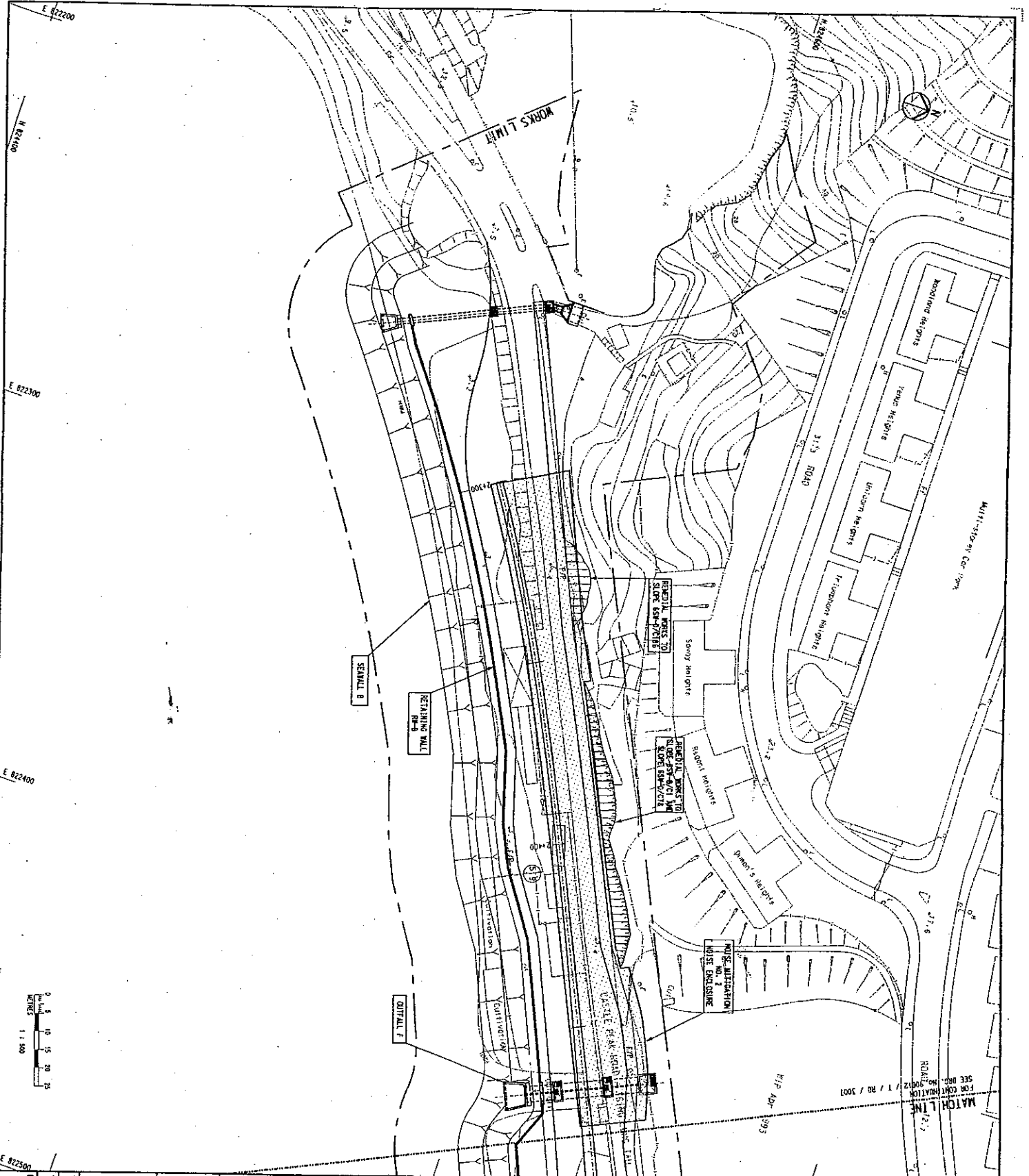
MW Major Works Project Management Office,
 Highways Department,
 Hong Kong

Project No. 6553TH Contract No. HY/99/18
Mouchel Halcrow JV
 Sub-Consultants
 Townland Consultants Ltd, Chesterton Petty Ltd.

Contract Title
 Castle Peak Road Improvement Between
 Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
 SCHEME GENERAL ARRANGEMENT
 CHAINAGE 1000 TO 1270

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Date Issued	JUNE 2001	Drawing No.	90612/T/RD/3002	Rev.	B



SEE REF. NO. 90612/T/RD/3006 FOR CONTRACT DRAWING ROAD NO. 90612/T/RD/3006

NOTES
1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 90612/T/RD/3006.

CONTRACT DRAWING

B	2nd	Contract Issue	SP	BC	1	3/1/18
A	1st	Tender Issue	SP	OC	PS	JUN 21
Rev	Issue	Amendment	By	CHK	APP	Date
Rev	Issue	Amendment	By	CHK	APP	Date



Major Works Project Management Office,
Highways Department,
Hong Kong

Project No. 6553TH Contract No. HY/99/18

Mouchel Halcrow JV

ACL Asia, MVA Asia Ltd,
Sub-Consultants
Townland Consultants Ltd, Chesterton Palty Ltd

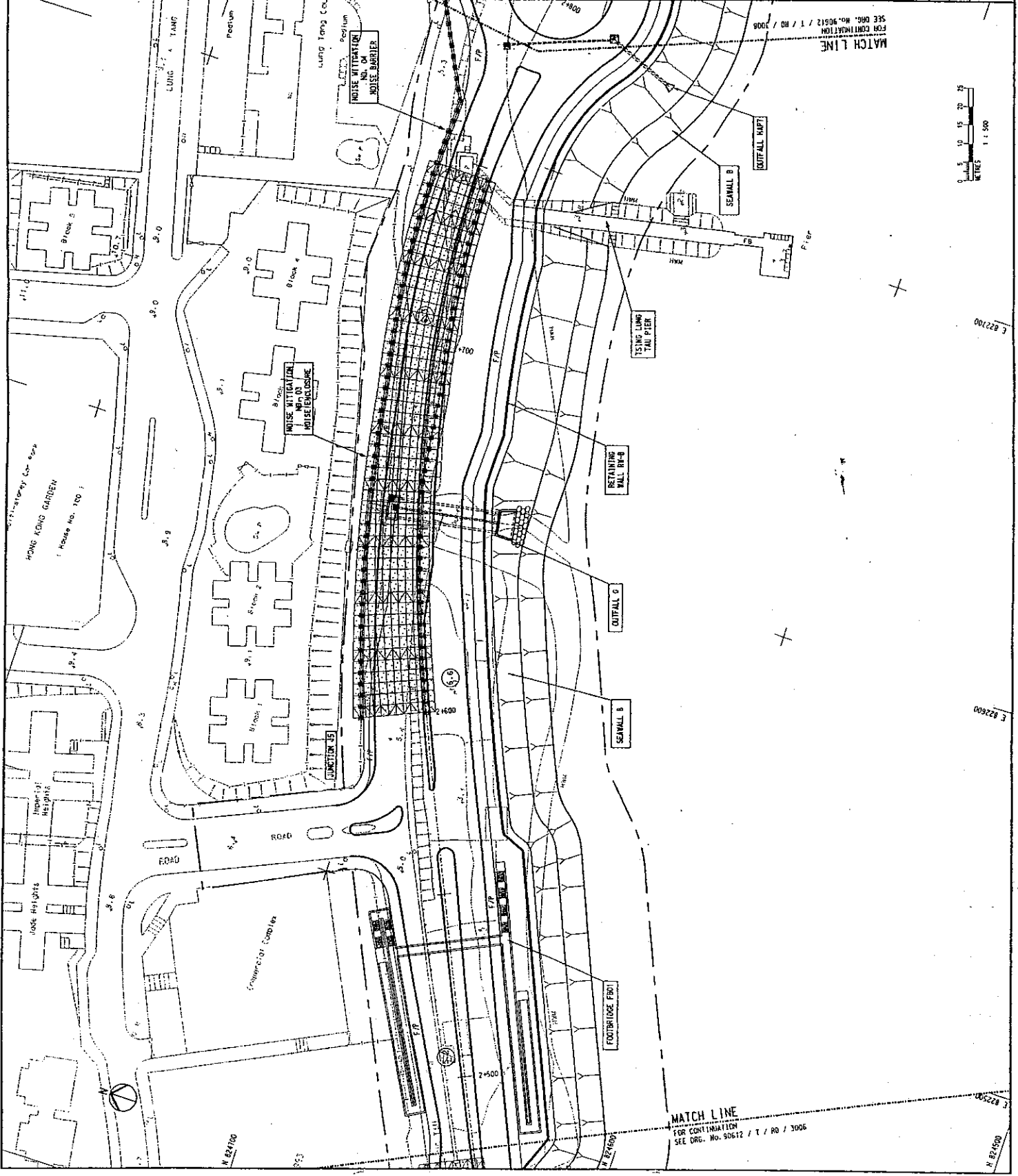
Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
SCHEME GENERAL ARRANGEMENT
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1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 90612/T/RO/3001.



CONTRACT DRAWING

2nd Issue	Contract Issue	SP 10	9/1/01
1st Issue	Tender Issue	SP 09	PS JUN 01
A Issue	Amendment	By	Em. App. Date
Rev. Status			

MW Major Works Project Management Office,
Highways Department,
Hong Kong

Project No. 6553TH Contract No. HY / 99 / 18

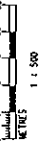
Mouchel Halcrow JV
Sub-Consultants
ACI Asia, MVA Asia Ltd.,
Townland Consultants Ltd., Chesterton, Petty Ltd.

Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title

SCHEME GENERAL ARRANGEMENT
CHAINAGE 2480 TO 2785

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Date Issued	JUNE 2001	Drawing No.	90612/T/RO/3007	Rev.	B



MATCH LINE
FOR CONTINUATION
SEE ORG. NO. 90612 / T / RO / 3008

MATCH LINE
FOR CONTINUATION
SEE ORG. NO. 90612 / T / RO / 3006

NOTES

1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 90612 / T / RD / 3001.

CONTRACT DRAWING

B	2nd Issue	Contract Issue	SP/02	2/6/02
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Rev	Issue	Amendment	By	Chk. App. Date
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MW Major Works Project Management Office,
Highways Department,
Hong Kong

Project No. 6553TH Contract No. HY / 99 / 18

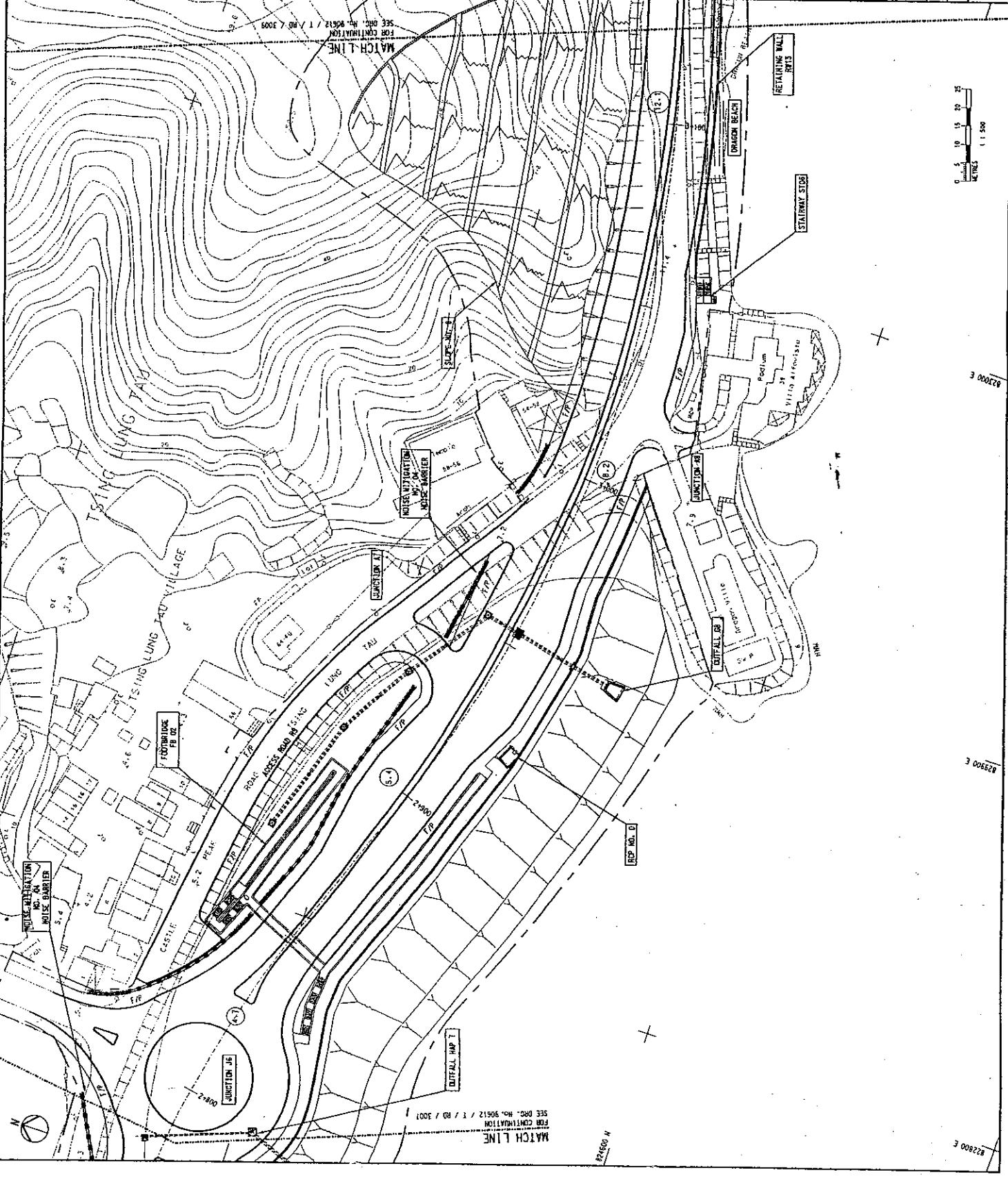
Mouchel Halcrow JV
Sub-Consultants
ACL Asia, MVA Asia Ltd.,
Townland Consultants Ltd., Chesterton Petty Ltd.

Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
SCHEME GENERAL ARRANGEMENT
CHAINAGE 2785 TO 3130

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Date Issued	JUNE 2001	Drawing No.	90612/T/RD/3008	Rev	B

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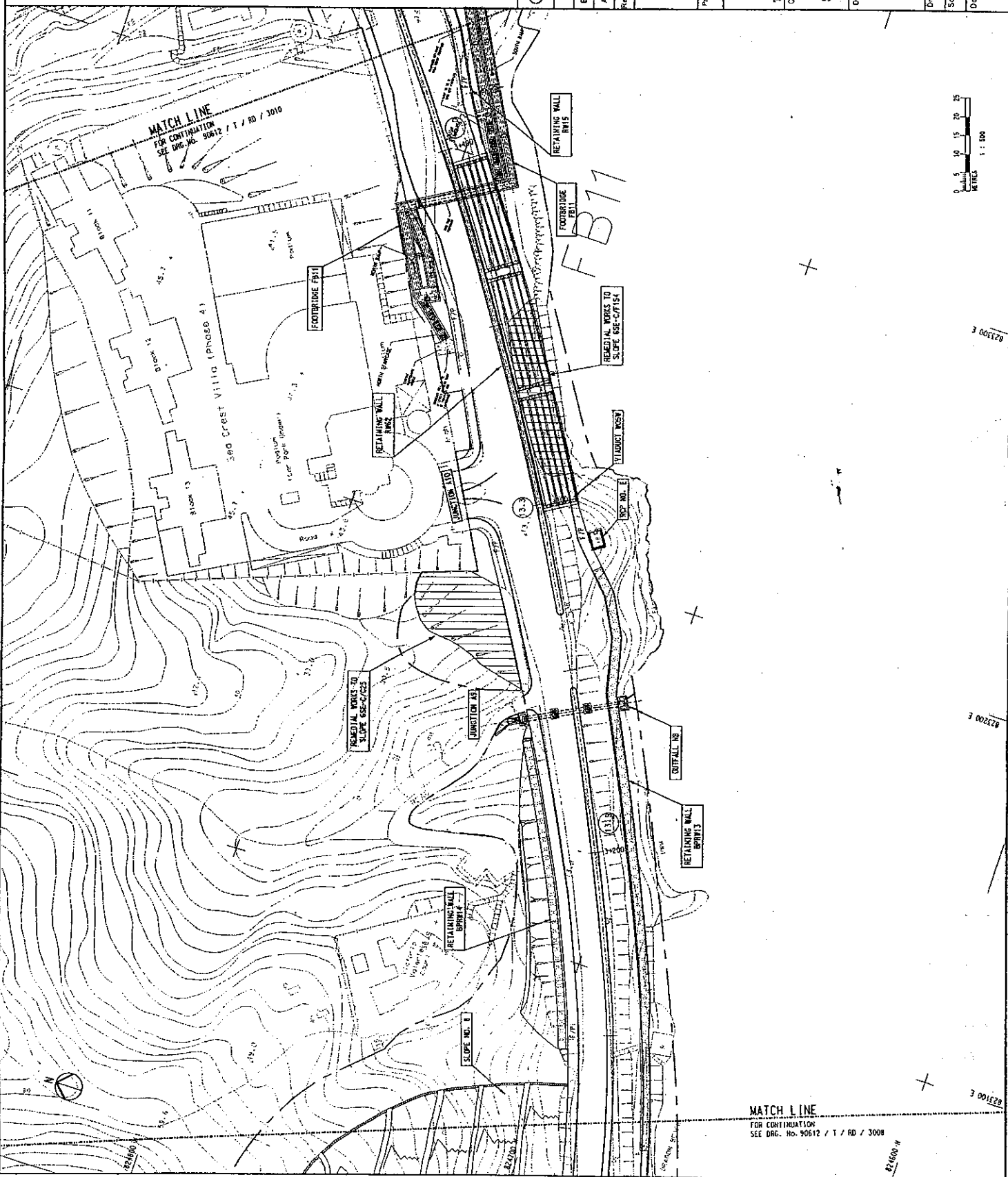
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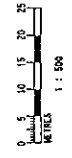
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1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 90612 / T / RD / 3001.



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CONTRACT DRAWING

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A	1st Issue	Tender Issue	SP	DC	PS JUN 01
Rev	1	Issue	By	Chk.	Appr.
		Amendment			Date

Major Works Project Management Office,
Highways Department,
Hong Kong

Project No. 6553TH Contract No. HY / 99 / 18

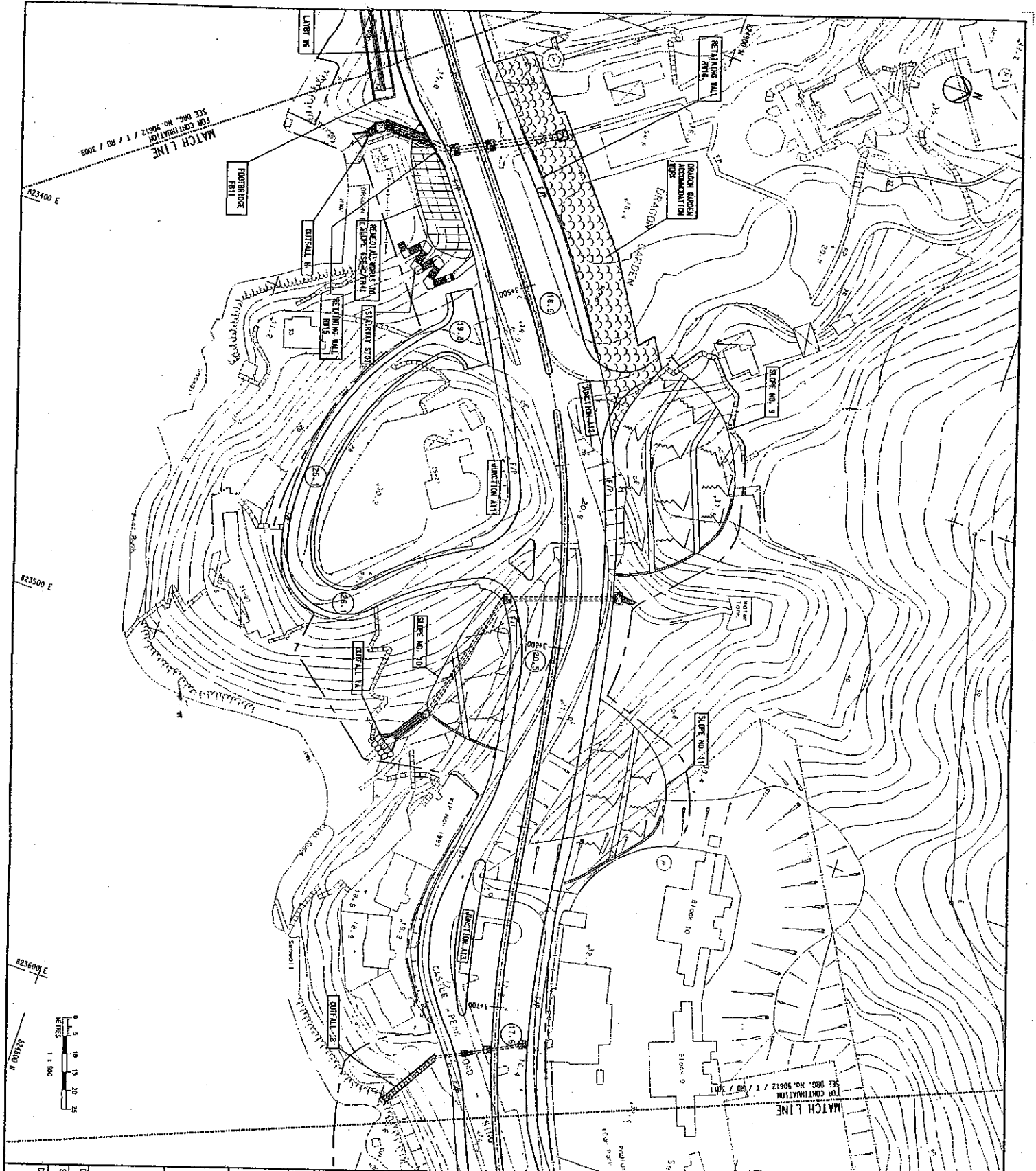
Mouchel Halcrow - JV
Sub-Consultants

ACL Asia, NYA Asia Ltd.,
Townland Consultants Ltd., Chesterton Petty Ltd.

Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
SCHEME GENERAL ARRANGEMENT
CHAINAGE 3130 TO 3430

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Date issued	JUNE 2001	Drawing No.	90612/T/RD/3009	Rev	B



NOTES
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CONTRACT DRAWING

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1st Issue	Final Issue	SP	OC	PS	1/1/01
Revised	Amendment	By	Chk./App.	Date	

Project No. 6553TH Contract No. HY / 99 / 18

Mouchel Halcrow - JV
Sub-Consultants
ACL Asia, KYA Asia Ltd,
Townland Consultants Ltd, Chesterton Pelly Ltd.

Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title
SCHEME GENERAL ARRANGEMENT
CHAINAGE 3430 TO 3730

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CONTRACT DRAWING

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Rev. 1	Issue	Amendment			
Rev. 2	Issue				
Rev. 3	Issue				

MW Major Works Project Management Office,
Highways Department,
Hong Kong

Project No. 6553TH Contract No. HY / 99 / 18

Mouchel Halcrow JV

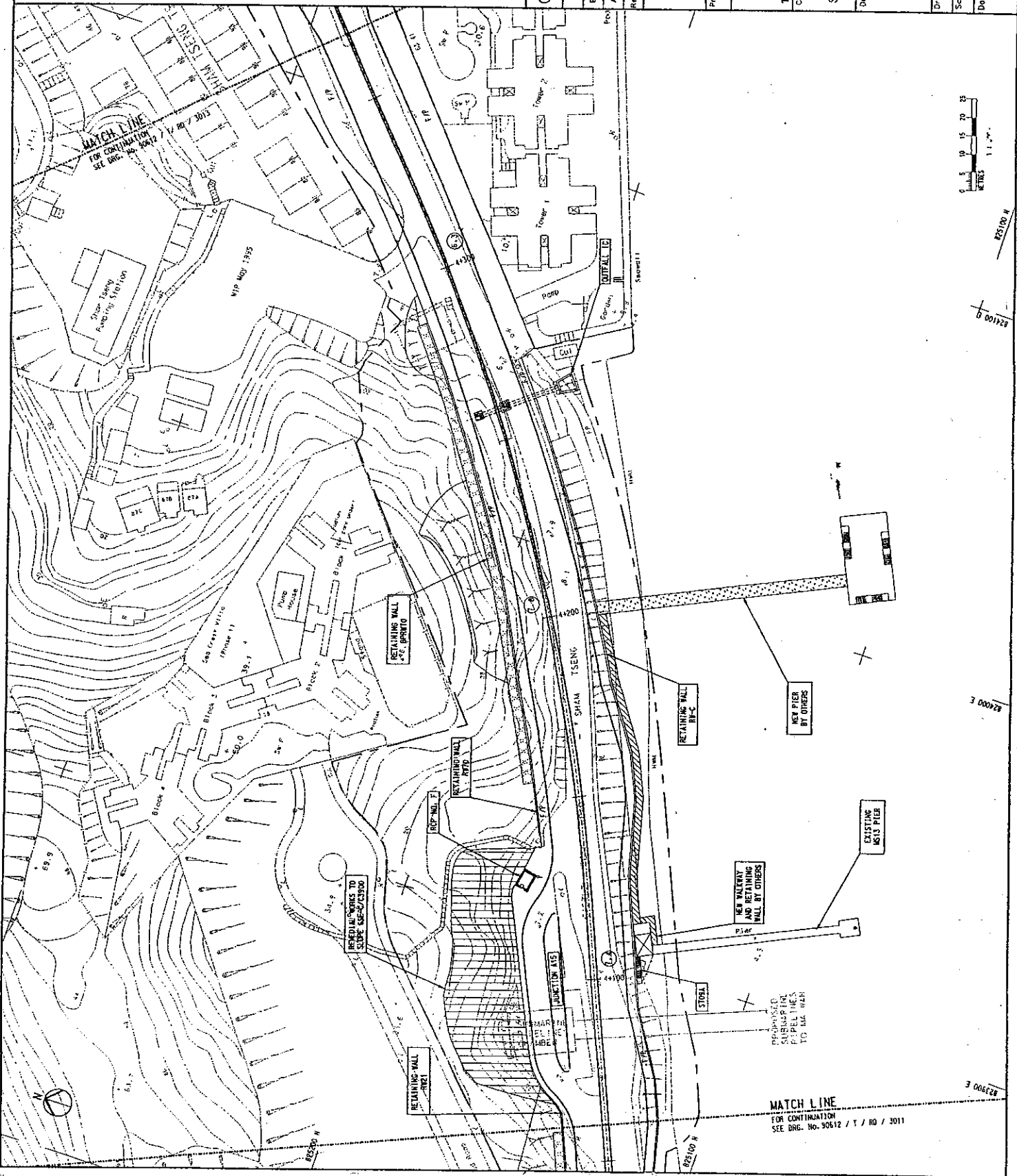
Sub-Consultants
ACL Asia, MVA Asia Ltd,
Townland Consultants Ltd, Chesterion Petty Ltd.

Contract Title
Castle Peak Road Improvement Between
Sham Tseng and Ka Loon Tsuen, Tsuen Wan

Drawing Title

**SCHEME GENERAL ARRANGEMENT
CHAINAGE 4050 TO 4370**

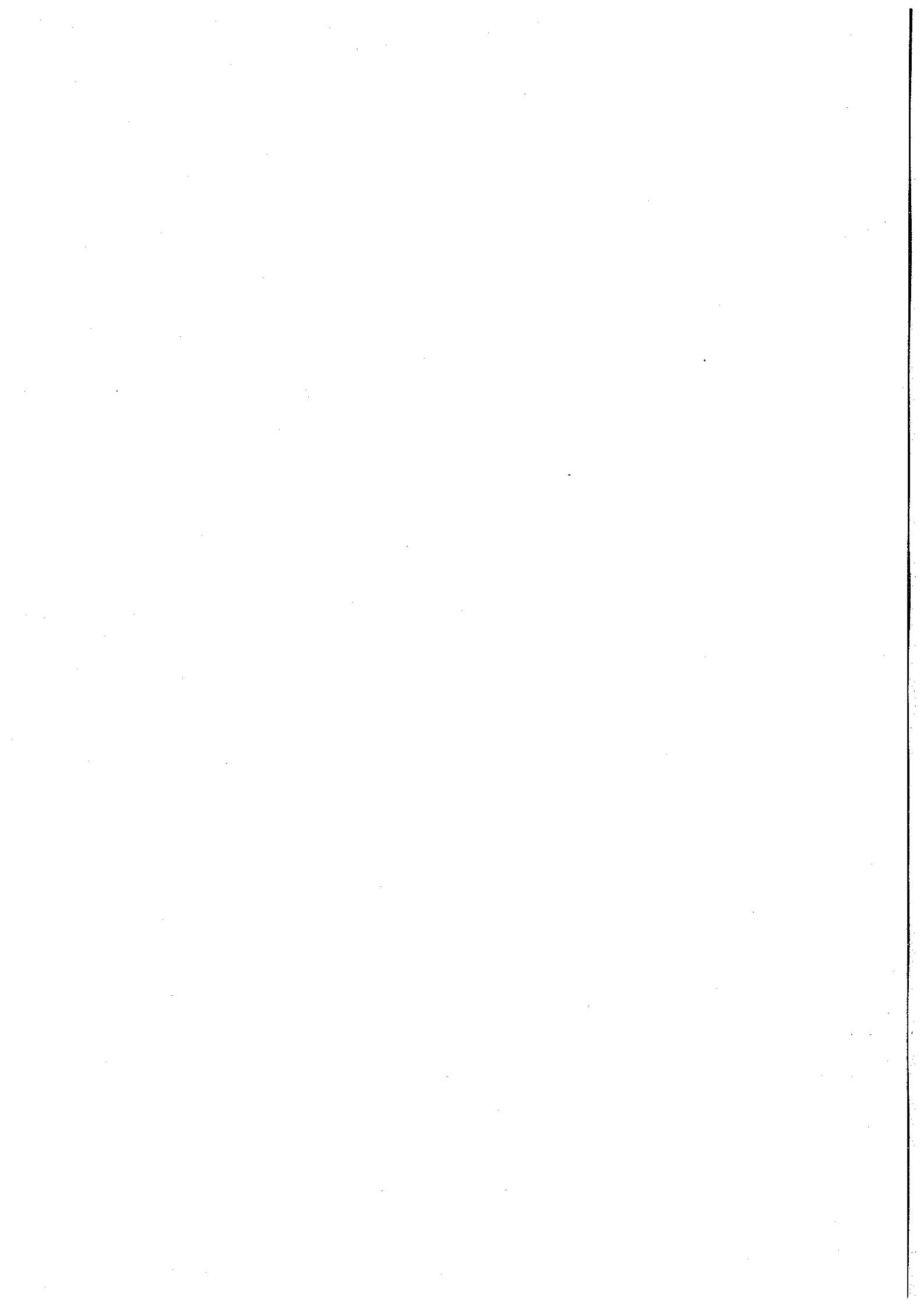
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APPENDIX B

**Construction
programme**



Activity ID	Activity Description	Orig. Est.	Early Start	Early Finish	Total Float
00-SEC01	KDF - All Works except Landscape bet CH0900-1205	0	24FEB05*		-195
00-AD00W2	Possession of Portion No. W2	0	03JAN05*		0
00-VD08D	Handover Portion No. 6D to Employer	0	28DEC04*		0
00-VD06	Handover Portion No. 6 to Employer	0	28FEB05*		0
00-VD07	Handover Portion No. 7 to Employer	0	28FEB05*		0

CPR Improvement bet Sham Tseng & Ka Loon Tsuen

Important Dates

Key Dates	Activity Description	Orig. Est.	Early Start	Early Finish	Total Float
00-SEC01	KDF - All Works except Landscape bet CH0900-1205	0	24FEB05*		-195
00-AD00W2	Possession of Portion No. W2	0	03JAN05*		0
00-VD08D	Handover Portion No. 6D to Employer	0	28DEC04*		0
00-VD06	Handover Portion No. 6 to Employer	0	28FEB05*		0
00-VD07	Handover Portion No. 7 to Employer	0	28FEB05*		0

1. Preliminaries

Planning & Programming	Activity Description	Orig. Est.	Early Start	Early Finish	Total Float
01-0109	Maintain, Programming & Submit Progress Reports	1,236	24NOV01A	28JUL05	0
Waste Management	Implement & Monitor WMP	1,171	21DEC01A	29MAY05	0
Maintenance of Traffic Flow	Maintain Traffic Flow	1,171	24NOV01A	29MAY05	0
Environmental Monitoring & Audit	Implement & Maintain Impact Monitor & Audit	1,601	08MAR02A	28JUL06	0
Interfacing and Coordination	Coordinate/integration with Interfacing Works	1,171	01DEC01A	29MAY05	0
01-1174	Provide Reasonable Access to Other Contractors	1,171	01DEC01A	29MAY05	0

16. Site Safety

Safety Management System	Activity Description	Orig. Est.	Early Start	Early Finish	Total Float
16-1612	Implement & Maintain Safety Management System	1,161	14DEC01A	29MAY05	0

CPR from Chainage 0+900 to Chainage 1+870

1. Preliminaries

Proposed Utility Works	Activity Description	Orig. Est.	Early Start	Early Finish	Total Float
01-120256	Proposed CATV on E/B C.way CH1800-1860	8	05AUG04A	20DEC04	126
01-12033	Proposed HKT on WB C.way CH960-1075	6	07DEC04A	17DEC04	-143
01-12062	Proposed HKBN on WB C.way CH960-1075	6	07DEC04A	17DEC04	-143
01-120852	CLP Cross Rd. Ducts at WB CH1110	4	10DEC04A	11DEC04A	
01-12063	Proposed CLP on WB C.way CH960-1075	6	14DEC04A	28DEC04	-141
01-1205	Proposed Gasmain on E/B C.way CH1350-1480	30	16DEC04	22JAN05	-101
01-1206	Proposed CATV on WB C.way CH960-1075	6	17DEC04	23DEC04	-141

Start Date	24NOV01
Finish Date	07JAN07
Date Date	16DEC04
Run Date	30DEC04 08:23

Early Bar	█
Progress Bar	█
Critical Activity	█

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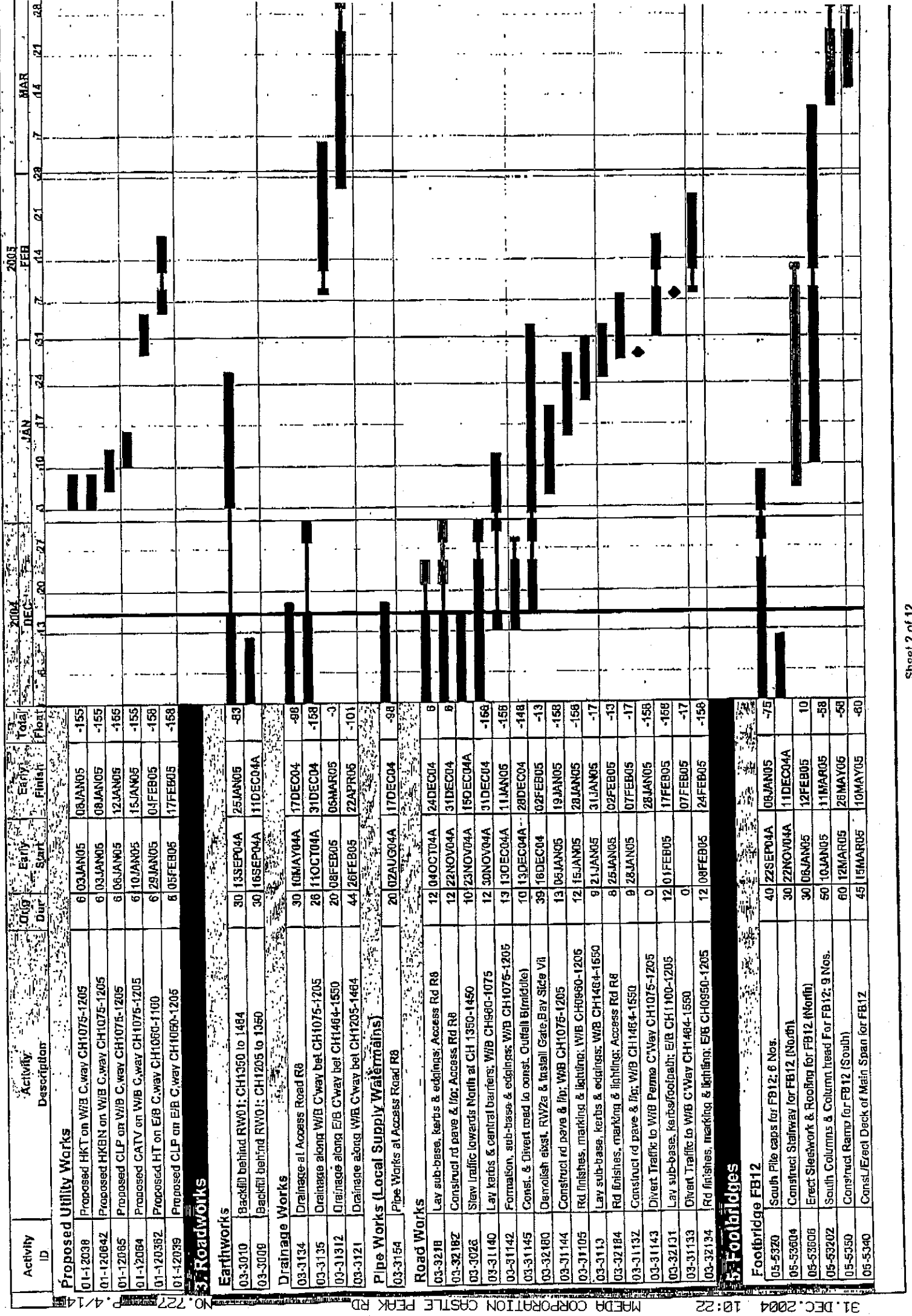
Sheet 1 of 12

Maeda Corporation
 HY/99/18 - Castle Peak Road Improvement
 3 - Month Rolling Programme

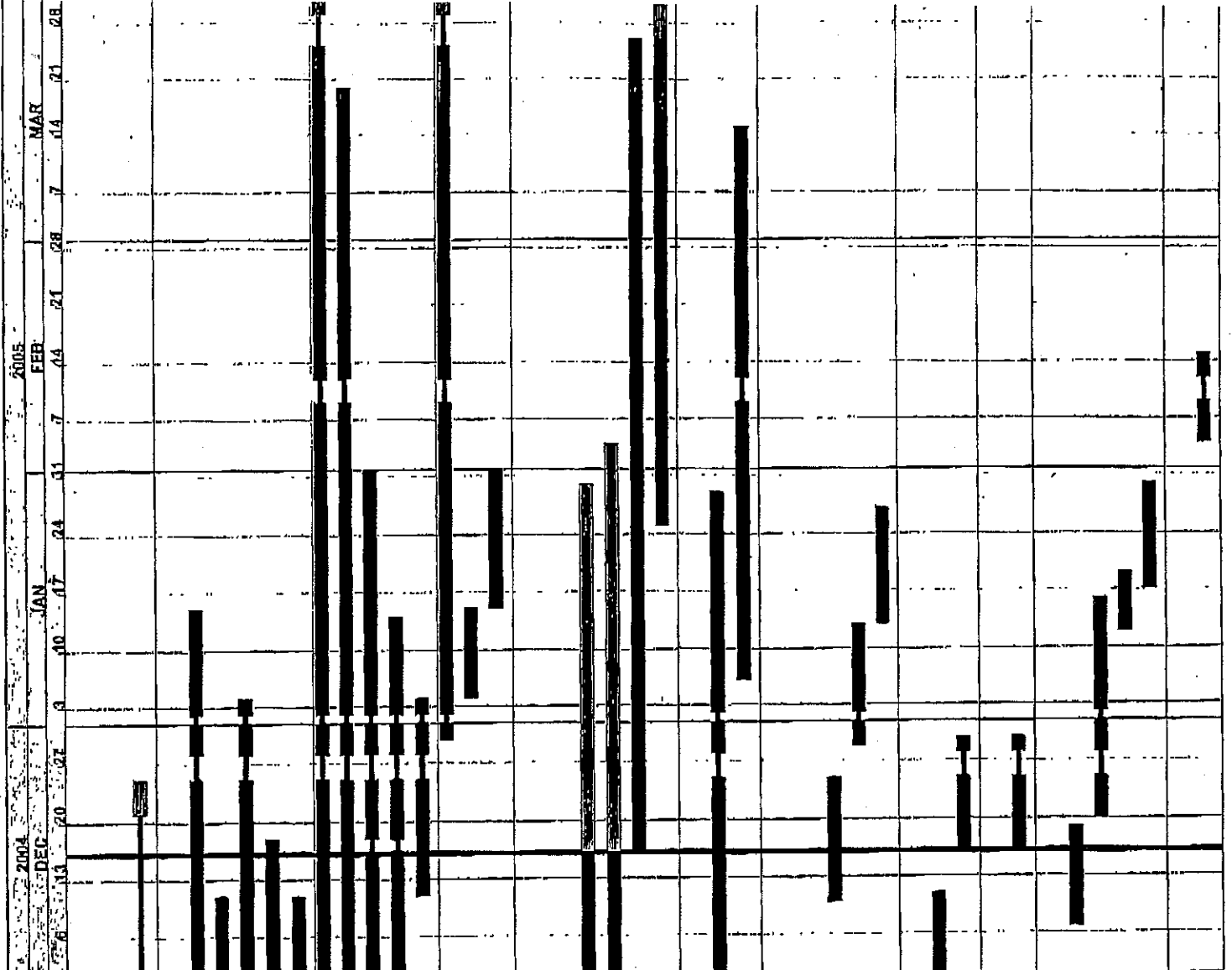


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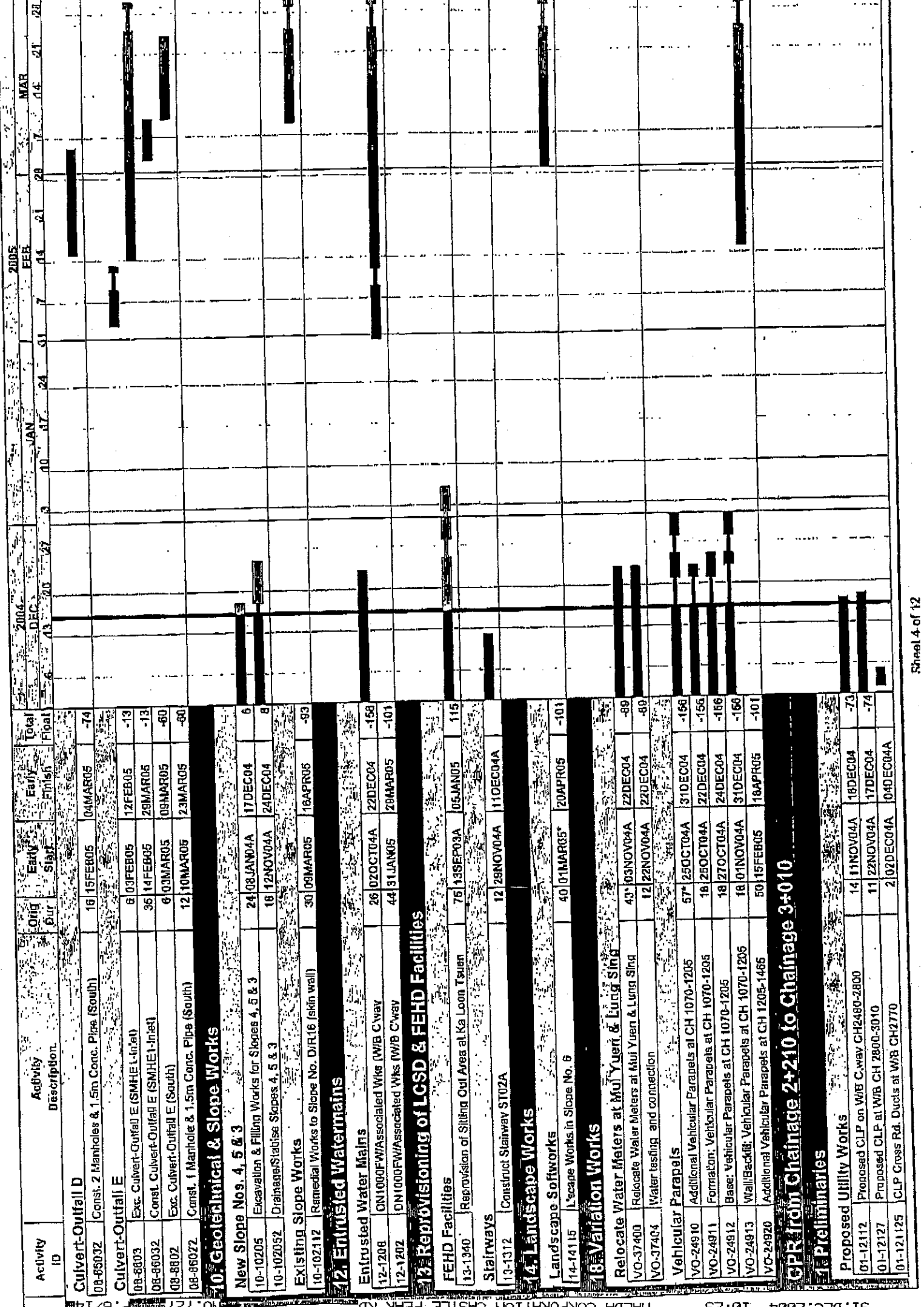
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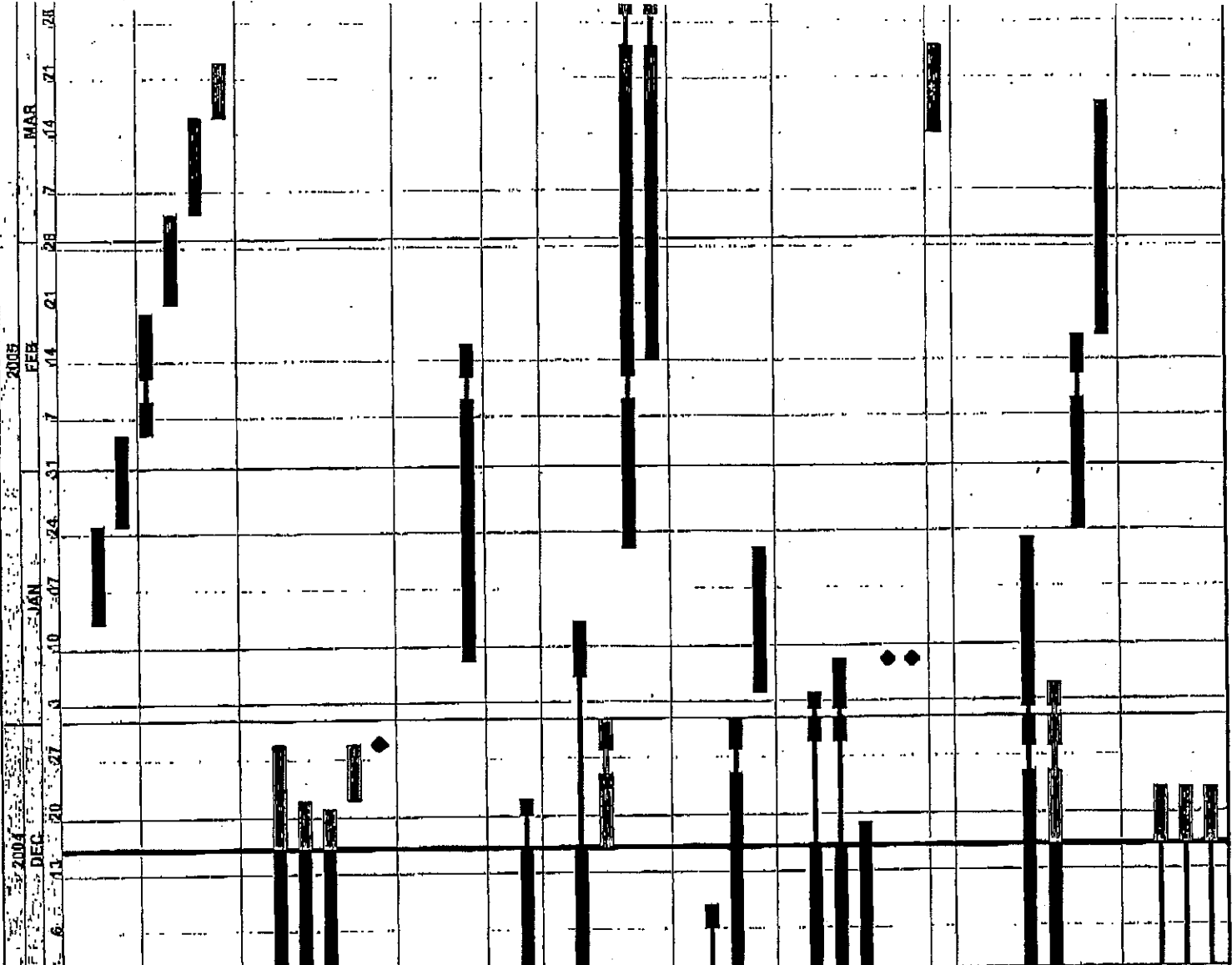
Activity ID	Description	Orig Dur	Early Start	Early Finish	Total Float
Proposed Utility Works					
01-12038	Proposed HKT on WB C-way CH1075-1205	6	03JAN05	08JAN05	-155
01-120642	Proposed HKEN on WB C-way CH1075-1205	6	03JAN05	08JAN05	-155
01-12065	Proposed CLP on WB C-way CH1075-1205	6	06JAN05	12JAN05	-165
01-12064	Proposed CATV on WB C-way CH1075-1205	6	10JAN05	15JAN05	-155
01-120382	Proposed HT on E/B C-way CH1060-1100	6	29JAN05	04FEB05	-158
01-12039	Proposed CLP on E/B C-way CH1050-1205	8	05FEB05	17FEB05	-158
Earthworks					
03-3010	Backfill behind RW01: CH1350 to 1484	30	13SEP04A	25JAN05	-83
03-3009	Backfill behind RW01: CH1205 to 1350	30	16SEP04A	11DEC04A	-83
Drainage Works					
03-3134	Drainage at Access Road R8	30	10MAY04A	17DEC04	-88
03-3135	Drainage along WB C-way bet CH1075-1205	28	11OCT04A	31DEC04	-158
03-31312	Drainage along E/B C-way bet CH1464-1550	20	08FEB05	08MAR05	-3
03-3121	Drainage along WB C-way bet CH1205-1484	44	26FEB05	22APR05	-101
Pipe Works (Local Supply Watermains)					
03-3154	Pipe Works at Access Road R8	20	02AUG04A	17DEC04	-88
Road Works					
03-3218	Lay sub-base, kerbs & edgings; Access Rd R8	12	04OCT04A	24DEC04	8
03-32182	Construct rd pave & fit; Access Rd R8	12	22NOV04A	31DEC04	8
03-3026	Slow traffic towards North at CH 1350-1450	10	23NOV04A	18DEC04A	-168
03-31140	Lay kerbs & central barriers; WB CH900-1075	12	30NOV04A	31DEC04	-158
03-31142	Formation, sub-base & edgings; WB CH1075-1205	13	13DEC04A	11JAN05	-148
03-31145	Const. & Divert road to const. Outfall Briddie	10	13DEC04A	28DEC04	-13
03-32180	Demolish exist. RW2a & install Gate Bay Side Vii	39	18DEC04	02FEB05	-158
03-31144	Construct rd pave & fit; WB CH1075-1205	13	06JAN05	19JAN05	-158
03-31105	Rd finishes, marking & lighting; WB CH0950-1205	12	15JAN05	28JAN05	-158
03-3113	Lay sub-base, kerbs & edgings; WB CH1464-1550	9	21JAN05	31JAN05	-17
03-32184	Rd finishes, marking & lighting; Access Rd R8	8	25JAN05	02FEB05	-13
03-31132	Construct rd pave & fit; WB CH1464-1550	9	28JAN05	07FEB05	-17
03-31143	Divert Traffic to WB Penne C'Way CH1075-1205	0	28JAN05	28JAN05	-158
03-32131	Lay sub-base, kerbs/footpath; E/B CH1100-1205	12	01FEB05	17FEB05	-158
03-31133	Divert Traffic to WB C'Way CH1464-1550	0	07FEB05	07FEB05	-17
03-32194	Rd finishes, marking & lighting; E/B CH0950-1205	12	08FEB05	24FEB05	-158
Footbridges					
Footbridge FB12					
05-5320	South Pile caps for FB12; 6 Nos.	40	22SEP04A	08JAN05	-75
05-53604	Construct Slabway for FB12 (North)	30	22NOV04A	11DEC04A	10
05-53608	Erect Slewwork & Roofing for FB12 (North)	50	10JAN05	11MAR05	-58
05-53202	South Columns & Column head For FB12; 9 Nos.	60	12MAR05	28MAY05	-58
05-5350	Construct Ramps for FB12 (South)	45	15MAR05	10MAY05	-60
05-5340	Const./Erect Deck of Main Span for FB12				



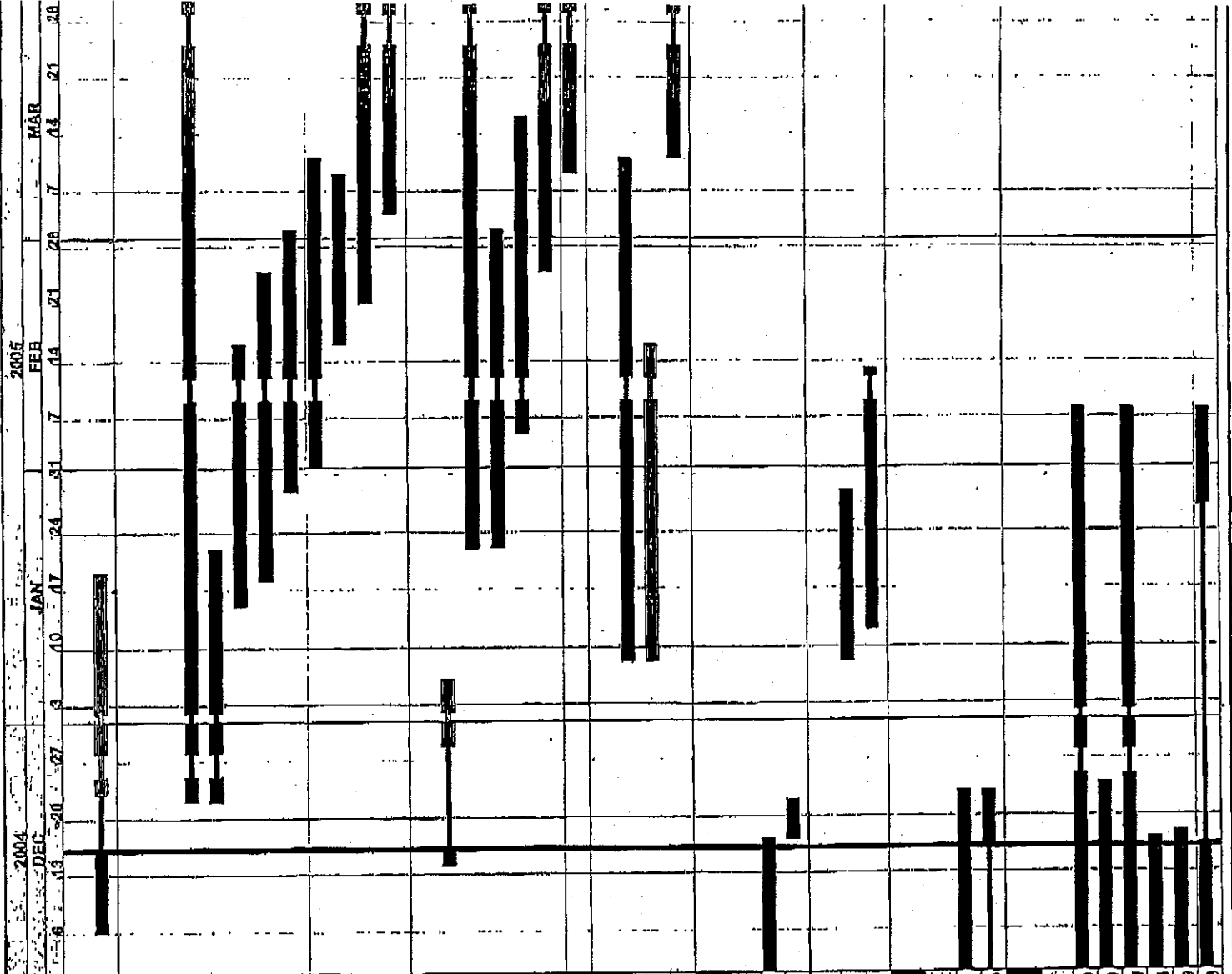
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6: Retaining Walls					
Bored Pile Wall BPRW03					
06-62235	Fill & Trim Stone/Construct U-Channel; 1 to 30	30	02MAR04A	24DEC04	6
L-Shaped Walls					
06-6106	Retaining Wall RW01 (CH1340-1390); 5 bays	287	29JAN04A	14JAN05	-78
06-6101	Retaining Wall RW01 (CH1075-1205); 13 bays	178	08MAY04A	10DEC04A	
06-6102	Retaining Wall RW01 (CH1205-1340); 14 bays	186	08MAY04A	03JAN05	-78
06-6103	Excavate/temp soil nailing for bays 46-52	30	22SEF04A	17DEC04	-80
06-61014	Construct plinth for bays 13-32	30	08OCT04A	10DEC04A	
06-6105	Retaining Wall RW01 (CH1554-1660); 13 bays	137	17NOV04A	06MAY05	-98
06-61051	Excavate/temp soil nailing for bays 53-65	100	17NOV04A	19MAR05	-98
06-6103	Retaining Wall RW01 (CH1390-1463); 7 bays	55	25NOV04A	31JAN05	-78
06-61032	Construct base/wall for bays 46-52	90	25NOV04A	13JAN05	-81
06-61024	Construct plinth for bays 33-40	18	11DEC04A	03JAN05	-78
06-61052	Construct base/wall for bays 53-65	90	30DEC04	22APR05	-88
06-61064	Construct plinth for bays 41-45	10	04JAN05	14JAN05	-78
06-61034	Construct plinth for bays 46-52	14	15JAN05	31JAN05	-78
7: Noise Structures					
Procurement of Noise Barrier					
07-7060	Fabrication of Steel Members for Noise Barrier	120	17MAY04A	29JAN05	11
07-7080	Delivery of Steel Members for Noise Barrier	90	19JUL04A	03FEB05	11
07-7070	Fabrication of Panels for Noise Barrier	100	16DEC04	25MAR05	-55
07-7090	Delivery of Panels for Noise Barrier	90	25JAN05	24APR05	-55
Noise Mitigation No. 01					
07-7122	Foundation of NM01 (S); CH1205-1320 (bays 15-22)	50	29NOV04A	28JAN05	-152
07-7121	Foundation of NM01 (S); CH1320-1405 (bays 23-28)	55	05JAN05	14MAR05	-101
8: Culverts and Outfalls					
Culvert-Outfall B					
08-82024	1.5m Cascade at Outfall B outside RW01	12	10DEC04A	24DEC04	-147
08-8203	Excavate Culvert-Outfall B (Within Exist CPR)	12	29DEC04	12JAN05	-148
08-82032	Const. Culvert-Outfall B (Within Exist CPR)	12	13JAN05	26JAN05	-148
Culvert-Outfall CA					
08-83022	Construct manhole SMHCA3 at Outfall CA	6	25NOV04A	10DEC04A	
08-83024	1.2m Concrete & DI pipes with concrete surround	10	16DEC04	29DEC04	-96
Culvert-Outfall C					
08-84024	1.5m Concrete with concrete surround	10	16DEC04	29DEC04	-96
Culvert-Outfall CB					
08-81602	Exc. Culvert-Outfall CB (South of RW01)	6	07DEC04A	18DEC04	-75
08-816022	Const. Culvert-Outfall CB (South of RW01)	21	20DEC04	15JAN05	-75
08-81603	Exc. Culvert-Outfall CB (Middle Portion)	6	12JAN05	18JAN05	-77
08-816032	Const. Culvert-Outfall CB (Middle Portion)	12	17JAN05	26JAN05	-77
Culvert-Outfall D					
08-8503	Exc. Culvert-Outfall D (South)	6	04FEB05	14FEB05	-74



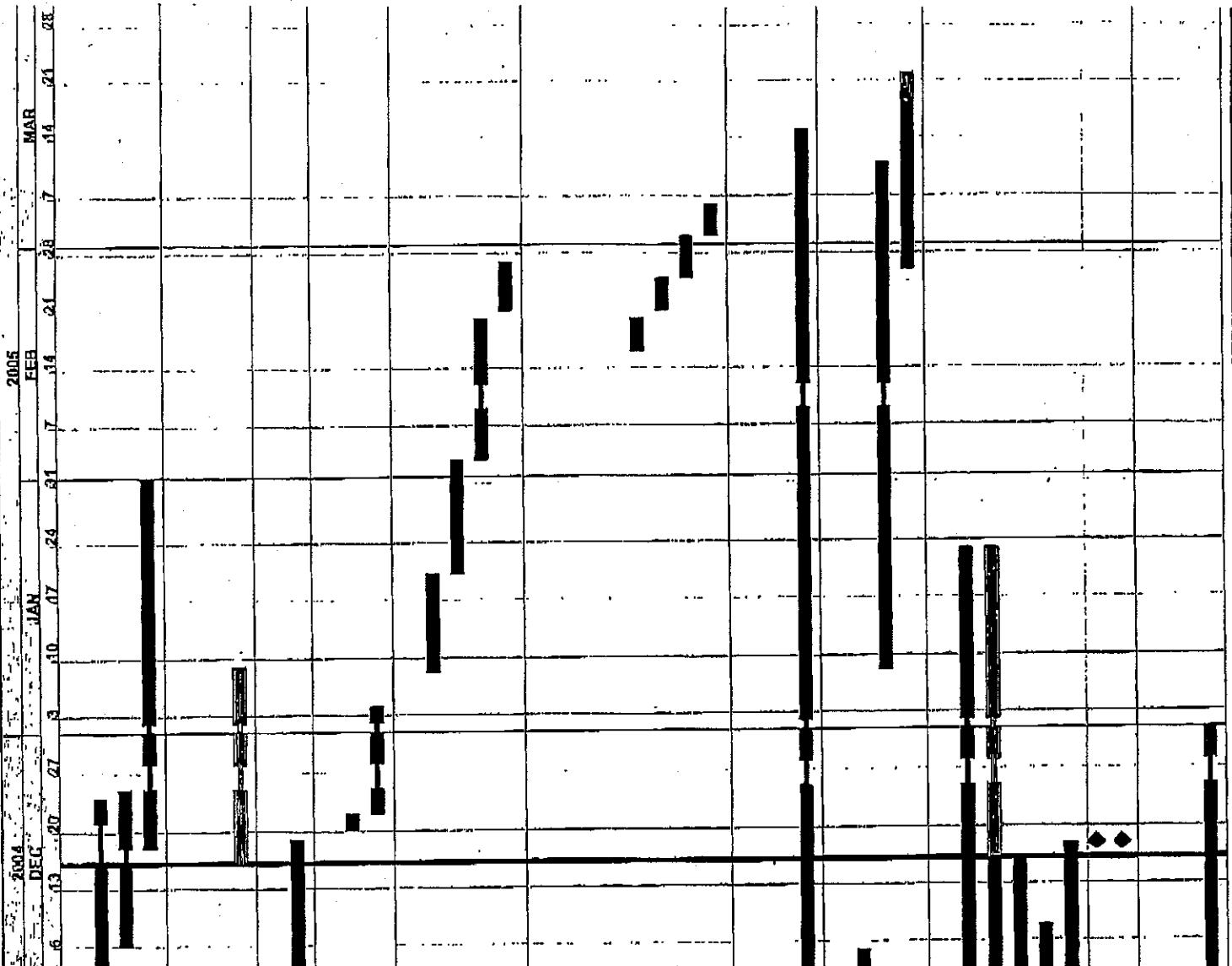
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Culvert-Outfall D					
08-8803Z	Const. 2 Manholes & 1.5m Conc. Pipe (South)	16	15FEB05	04MAR05	-74
Culvert-Outfall E					
08-8803	Exc. Culvert-Outfall E (SMHE1-Outlet)	6	10FEB05	12FEB05	-13
08-8803Z	Const. Culvert-Outfall E (SMHE1-Outlet)	36	14FEB05	29MAR05	-13
08-8802	Exc. Culvert-Outfall E (South)	6	03MAR05	09MAR05	-60
08-8802Z	Const. 1 Manhole & 1.5m Conc. Pipe (South)	12	10MAR05	23MAR05	-80
10. Geotechnical & Slope Works					
New Slope Nos. 4, 5 & 3					
10-10205	Excavation & Filling Works for Slopes 4, 5 & 3	24	08JAN04A	17DEC04	6
10-10205Z	Drainage/Stabilise Slopes 4, 5 & 3	18	12NOV04A	24DEC04	8
Existing Slope Works					
10-10212	Remedial Works to Slope No. DIR16 (skin wall)	30	09MAR05	18APR05	-93
12. Entrusted Watermains					
Entrusted Water Mains					
12-1208	DN1000FW/Associated Wks (WB C-way)	26	02OCT04A	22DEC04	-158
12-1202	DN1000FW/Associated Wks (WB C-way)	44	31JAN05	29MAR05	-101
13. Reprovisioning of LCSD & FEHD Facilities					
FEHD Facilities					
13-1340	Reprovision of Siting Out Area at Ka Loon Tseun	76	19SEP03A	05JAN05	115
Stairways					
13-1312	Construct Stairway ST02A	12	29NOV04A	11DEC04A	
14. Landscape Works					
Landscape Softworks					
14-1415	Landscape Works in Slope No. 6	40	01MAR05*	20APR05	-101
16. Valuation Works					
Relocate Water Meters at Muji Yuen & Lung Sing					
VO-37400	Relocate Water Meters at Muji Yuen & Lung Sing	43	03NOV04A	22DEC04	-89
VO-37404	Water testing and connection	12	22NOV04A	22DEC04	-80
Vehicular Parapets					
VO-24910	Additional Vehicular Parapets at CH 1070-1205	57	25OCT04A	31DEC04	-158
VO-24911	Formation: Vehicular Parapets at CH 1070-1205	18	25OCT04A	22DEC04	-155
VO-24912	Base: Vehicular Parapets at CH 1070-1205	18	27OCT04A	24DEC04	-166
VO-24913	Wall/Backfill: Vehicular Parapets at CH 1070-1205	18	01NOV04A	31DEC04	-166
VO-24920	Additional Vehicular Parapets at CH 1205-1485	50	15FEB05	18APR05	-101
GPR from Chainage 2+210 to Chainage 3+010					
17. Preliminaries					
Proposed Utility Works					
01-12112	Proposed CLP on WB C-way CH2480-2800	14	11NOV04A	18DEC04	-73
01-12127	Proposed CLP at WB CH 2800-3010	11	22NOV04A	17DEC04	-74
01-12125	CLP Cross Rd. Ducts at WB CH2770	2	02DEC04A	04DEC04A	



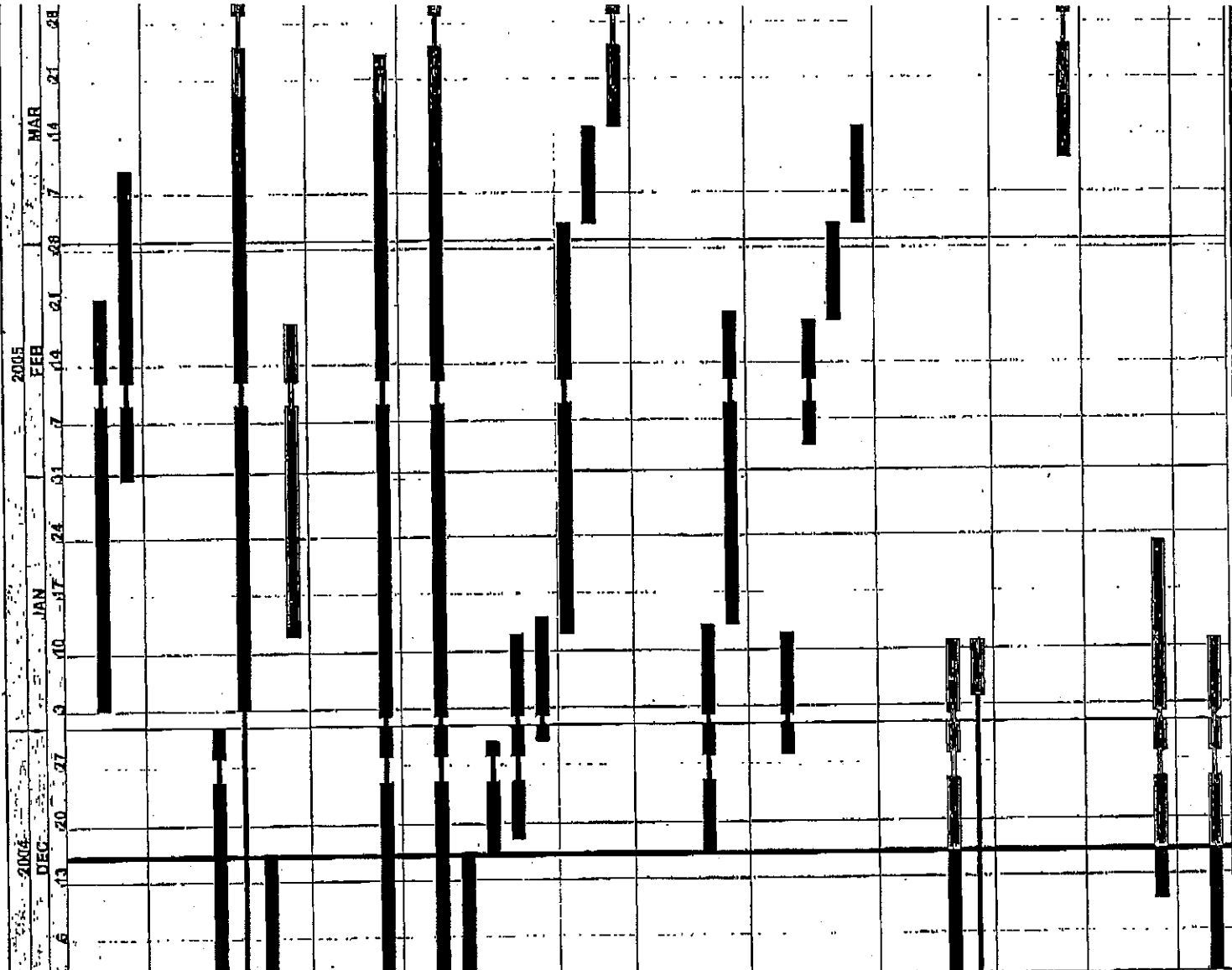
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Proposed Utility Works					
01-121224	CATV at E/B CH2780-2830 incl. Cross Rd. Ducts	10	13JAN05	24JAN05	-27
01-121225	HKGN at E/B CH2780-2830 incl. Cross Rd. Ducts	10	25JAN05	04FEB05	-27
01-121226	HKT at E/B CH2780-2830 incl. Cross Rd. Ducts	10	05FEB05	18FEB05	-27
01-121227	HT at E/B CH2780-2830 incl. Cross Rd. Ducts	10	21FEB05	03MAR05	-27
01-121228	CLP at E/B CH2780-2830 incl. Cross Rd. Ducts	10	04MAR05	16MAR05	-27
01-12122	Proposed NWT cross road ducts at CH2800	6	16MAR05	22MAR05	-27
Programme for SA No. 3					
01-0110	Programme for SA No. 3	457	28SEP03A	28DEC04	37
01-0116	Prepare final SA	12	25NOV03A	21DEC04	37
01-0114	Review & endorse detailed design by ICE/IMH/VOS	12	28NOV03A	20DEC04	37
01-0119	Prepare formal copies of SA for execution SA	7	22DEC04	28DEC04	37
01-01110	Execute SA	0		28DEC04	37
3. Roadworks					
Utility Diversion					
03-3212	Project/Divert. Exist. UUs at E/B CH 2599-2700	30	08JAN05	15FEB05	-71
Earthworks					
03-3203	Road formation at CPR CH2800 & 3010	30	07JUN04A	21DEC04	-85
Drainage Works					
03-3228	Drainage Works at E/B CH2800-2850	12	22NOV04A	12JAN05	-27
03-3242	Drainage Works at E/B C'way bel CH2450-2480	12	16DEC04	31DEC04	26
03-3225	Drainage Works at E/B C'way bel CH2480-2800	80	22JAN05	03MAY05	-71
03-3226	Drainage Works at Access Road R9	50	14FEB05	16APR05	-89
Pipe Works (Local Supply Watermains)					
03-3232	Pipe Works at CPR CH2900-3010	21	30JUN04A	08DEC04A	
03-3234	Pipe Works on E/B C'way bel CH2300-2570	30	04OCT04A	31DEC04	-80
03-3235	Pipe Works on E/B C'way bel CH2610-2720	18	04JAN05	21JAN05	-51
Road Works					
03-3146	Lay sub-base, kerbs & edgings; W/B CH2800-3010	10	11OCT04A	03JAN05	-59
03-31482	Construct rd pave & tip; W/B CH2800-3010	10	08NOV04A	07JAN05	-69
03-31452	Construct rd pave & tip; W/B CH2480-2800	12	24NOV04A	18DEC04	-75
03-31471	Divert Traffic to W/B Perma C'way CH2450 to 2800	0		07JAN05	-71
03-31472	Divert Traffic to W/B Perma C'way CH2800 to 3010	0		07JAN05	-69
03-3156	Lay sub-base, kerbs & edgings; E/B CH2800-3010	10	14MAR05	24MAR05	0
5. Footbridges					
Footbridge FB01					
05-51112	Piling Works at North Supports for FB01: 12 Nos.	72	03SEP04A	22JAN05	-66
05-51508	Erect Steelwork & Roofing for FB01 (South)	30	22NOV04A	04JAN05	71
05-51113	Demobilize Piling Rig & Pile Test; FB01 (N)	18	24JAN05	18FEB05	-68
05-5130	North Pile caps for FB01: 5 Nos.	25	17FEB05	17MAR05	-88
Footbridge FB02					
05-52706	Erect Steelwork & Roofing for FB02 (North)	30	14JUL04A	22DEC04	104
05-52606	Erect Steelwork & Roofing for FB02 (South)	30	21SEP04A	22DEC04	104
05-52502	Erect Steelwork & Roofing of Main Span for FB02	30	25SEP04A	22DEC04	104



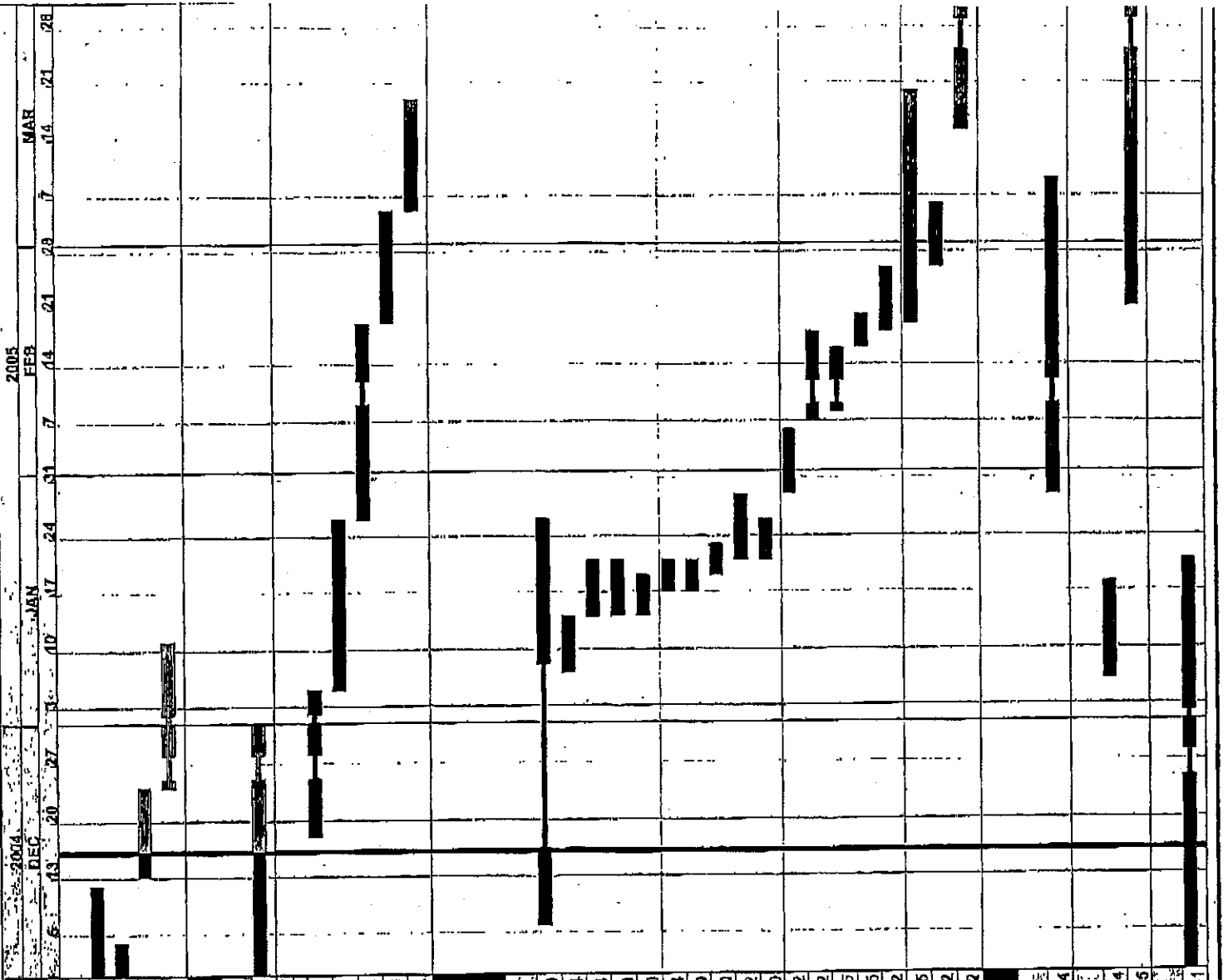
Activity ID	Activity Description	Orig. Dur	Early Start	Early Finish	Total Float
Footbridge FB02					
05-5280	E&M and Finishing Works for Footbridge FB02	30	06DEC04A	18JAN05	104
7. Noise Structures					
Noise Mitigation No. 02					
07-7221	Foundation of NM02 (North)	80'	22DEC04	04APR05	-39
07-72211	Excavation/formation for NM02 (Bays 1-6)	24	22DEC04	21JAN05	-19
07-72213	Construct base for NM02 (Bays 1-6)	24	16JAN05	16FEB05	-19
07-72212	Excavation/formation for NM02 (7-13)	30	18JAN05	24FEB05	-39
07-72215	Construct wall stem for NM02 (Bays 1-6)	24	29JAN05	01MAR05	-19
07-72214	Construct base for NM02 (Bays 7-13)	30	01FEB05	10MAR05	-39
07-72217	Const. R.C. barriers/columns; NM02 (Bays 1-6)	18	16FEB05	08MAR05	-19
07-72216	Construct wall stem for NM02 (Bays 7-13)	30	21FEB05	30MAR05	-39
07-72218	Const. R.C. barriers/columns; NM02 (Bays 7-13)	24	04MAR05	04APR05	-39
Noise Mitigation No. 03					
07-7322	Erect Steel Members at South Supports for NM03	30	14DEC04A	05JAN05	31
07-7321	Foundation of NM03 (North)	60'	22JAN05	08APR05	-51
07-73212	Excavation/formation for NM03 (North)	30	22JAN05	01MAR05	-51
07-73214	Construct base for NM03 (North)	30	05FEB05	16MAR05	-51
07-73216	Construct wall stem for NM03 (North)	30	25FEB05	04APR05	-51
07-73218	Const. R.C. barriers/columns; NM03 (North)	24	09MAR05	09APR05	-51
Noise Mitigation No. 04					
07-7404	Foundation of NM04 (bays 1-4)	50	08JAN05	10MAR05	-29
07-740412	Foundation of NM04 (bays 12-13)	30	08JAN05	15FEB05	8
07-74082	Erect Frame/Panels for NM04 (bays 5 & 12-13)	30	11MAR05	19APR05	-12
8. Culverts and Outfalls					
Culvert-Outfall F					
08-87204	Const. SMH/F1 & 1.8m conc. pipe (stage 2)	18	04NOV04A	16DEC04	-19
08-87205	Backfill Outfall F	4	17DEC04	21DEC04	-19
Culvert-Outfall GB					
08-8920	Excavate Culvert-Outfall GB (remain); VO 165	18	08JAN05	28JAN05	-88
08-89202	Const. Culvert-Outfall GB (remaining); VO 165	25	12JAN05	12FEB05	-89
9. Seawalls and Marine Works					
L-Shaped Walls					
09-91331	Reprovision of Pavillion at Sea Wall B	45'	16JUN03A	22DEC04	-60
09-91333	Roofing/staircase/flooring & finishings	40	07JUN04A	22DEC04	-60
10. Geotechnical & Slope Works					
Existing Slope Works					
09-9212	Remedial Works to Slope No. C186 & C1C78	172'	14JUL04A	07FEB05	-39
09-92122	Remedial Works to Slope 6SW-D/C186	136'	14JUL04A	23DEC04	-18
09-92124	Remedial Works to Slopes 6SW-D/C1 & C78	172'	14JUL04A	07FEB05	-39
09-921222	Cut slope at Slope 6SW-D/C186	12	06SEP04A	16DEC04	-18
09-921242	Cut slope at Slope 6SW-D/C1 & C78; VO386	40	16OCT04A	17DEC04	-39
09-921245	Drainage/Stair at 6SW-D/C186 & C78; VO386	12	08NOV04A	07FEB05	-33



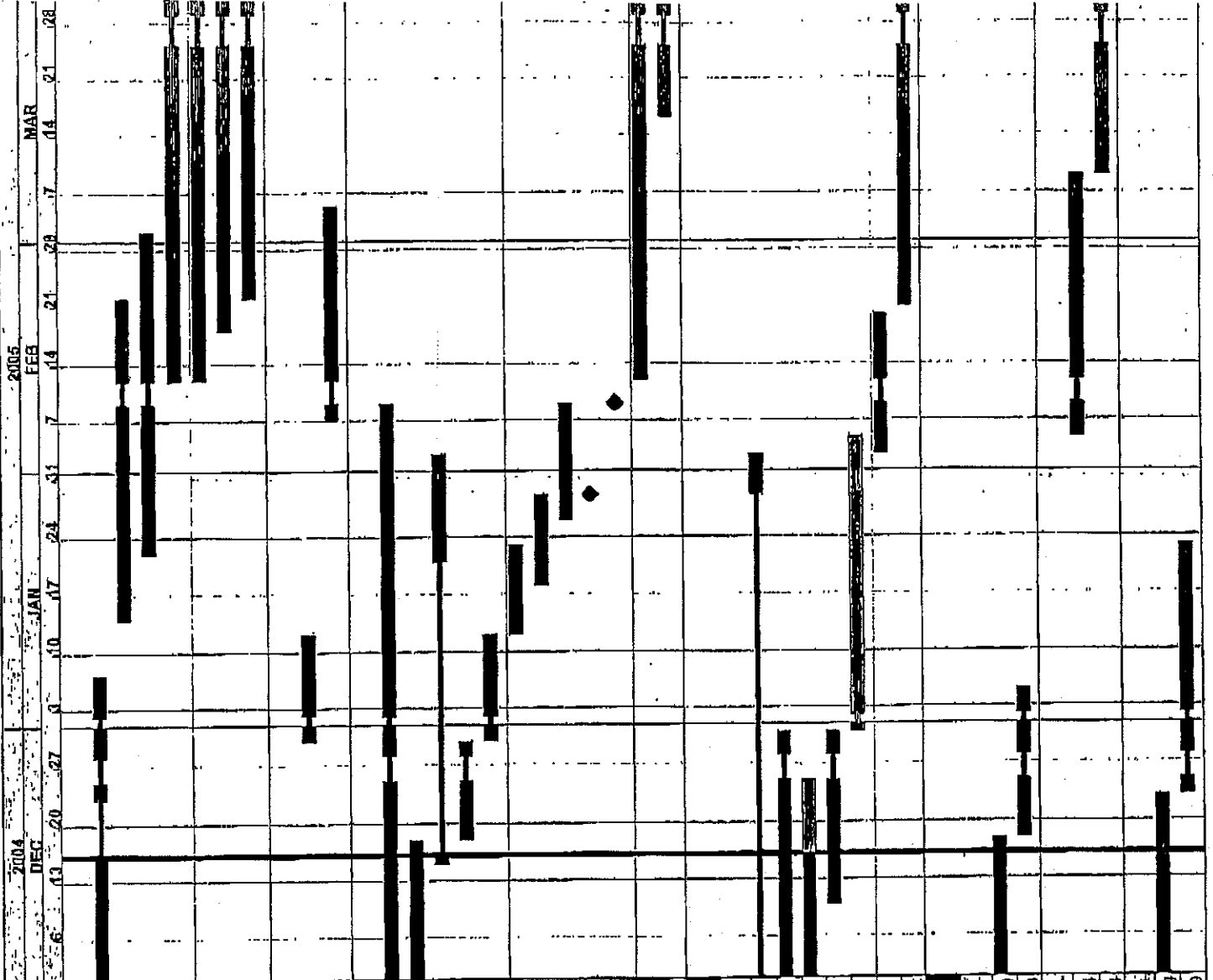
Activity ID	Activity Description	Orig Due	Early Start	Early Finish	Total Float
Existing Slope Works					
09-921223	U-channel & slope protection at Slope 6SW-D/C186	27 08NOV04A	23DEC04		-18
09-921243	Test Nails at Slope 6SW-D/C18C78; VO386	20 06DEC04A	24DEC04		-39
09-921244	Soil nails 5 rows at 6SW-D/C18C78; VO386	35 18DEC04	31JAN05		-39
6-Variation Works					
Add. Fishermen's Access Staircase at Sewall B					
VO-35600	Construct Fishermen's Access Staircase; VO366	18 16DEC04	08JAN05		112
Additional Foul Sewers					
VO-41502	Add. Foul Sewers in front of Dragon Villa; VO416	16 01DEC04A	18DEC04		-89
Additional Mass Wall at East End of RW-B					
AMW02	Formation for Additional Mass Wall at RW-B	2 20DEC04	21DEC04		-89
AMW04	Construct Additional Mass Wall at RW-B; 2 bays	8 22DEC04	03JAN05		-89
Additional Works at Western Toe of Slope 8					
VO-30302	Site Clearance/Excavate for L-shape wall; VO303	10 08JAN05	19JAN05		-51
VO-30304	Construct L-shape wall; VO303	12 20JAN05	02FEB05		-51
VO-30306	Backfill & Slope Toe Formation; VO303	12 03FEB05	19FEB05		-51
VO-30308	Drainage Works; VO303	8 21FEB05	26FEB05		-51
GPR from Chainage 3+010 to Chainage 3+730					
1- Preliminaries					
Proposed Utility Works					
01-121284	HKT Cross Rd. Ducts at E/B CH2895	4 16FEB05	19FEB05		-1
01-124022	CATV Cross Rd. Ducts at E/B CH3030	4 21FEB05	24FEB05		-1
01-124023	HT Cross Rd. Ducts at E/B CH3035	4 25FEB05	01MAR05		-1
01-124002	CLP Cross Rd. Ducts at E/B CH3080	4 02MAR05	05MAR05		-1
3- Roadworks					
Earthworks					
03-3242	Earthworks at W/B C'way CH3400-3530	178 09AUG04A	14MAR05		-72
Drainage Works					
03-33252	Re-construct 7 nos. gullies at E/B CH3460-3670	12 17NOV04A	04DEC04A		-89
03-3323	Drainage Works on E/B C'way bet CH3000-3130	50 09JAN05	10MAR05		-89
03-33202	Drainage Works on W/B C'way bet CH3000-3400	20 26FEB05	21MAR05		-88
Road Works					
03-3340	Dragon Garden Accommodation	826 12APR02A	22JAN05		-134
03-33400B	Remove Temporary Hoarding & Reinstatement	35 29APR04A	22JAN05		100
03-33182	Construct rd pave & f/s; E/B CH3540-3670	12 09OCT04A	15DEC04A		
03-3328	Formation, sub-base, kerbs; E/B CH3460-3540	12 01NOV04A	07DEC04A		
03-33282	Construct rd pave & f/s; E/B CH3460-3540	12 01DEC04A	17DEC04		-123
03-33162	Divert Traffic on E/B Parua C'way CH3540-3670	0	17DEC04		-123
03-33283	Divert Traffic on E/B Parua C'way CH3460-3540	0	17DEC04		-67
RE- Wall REV05					
REV01Z	Reinforced Earth Wall REV05 Mass concrete/Install panel & mesh/Backfill	60 04NOV04A	31DEC04		-88



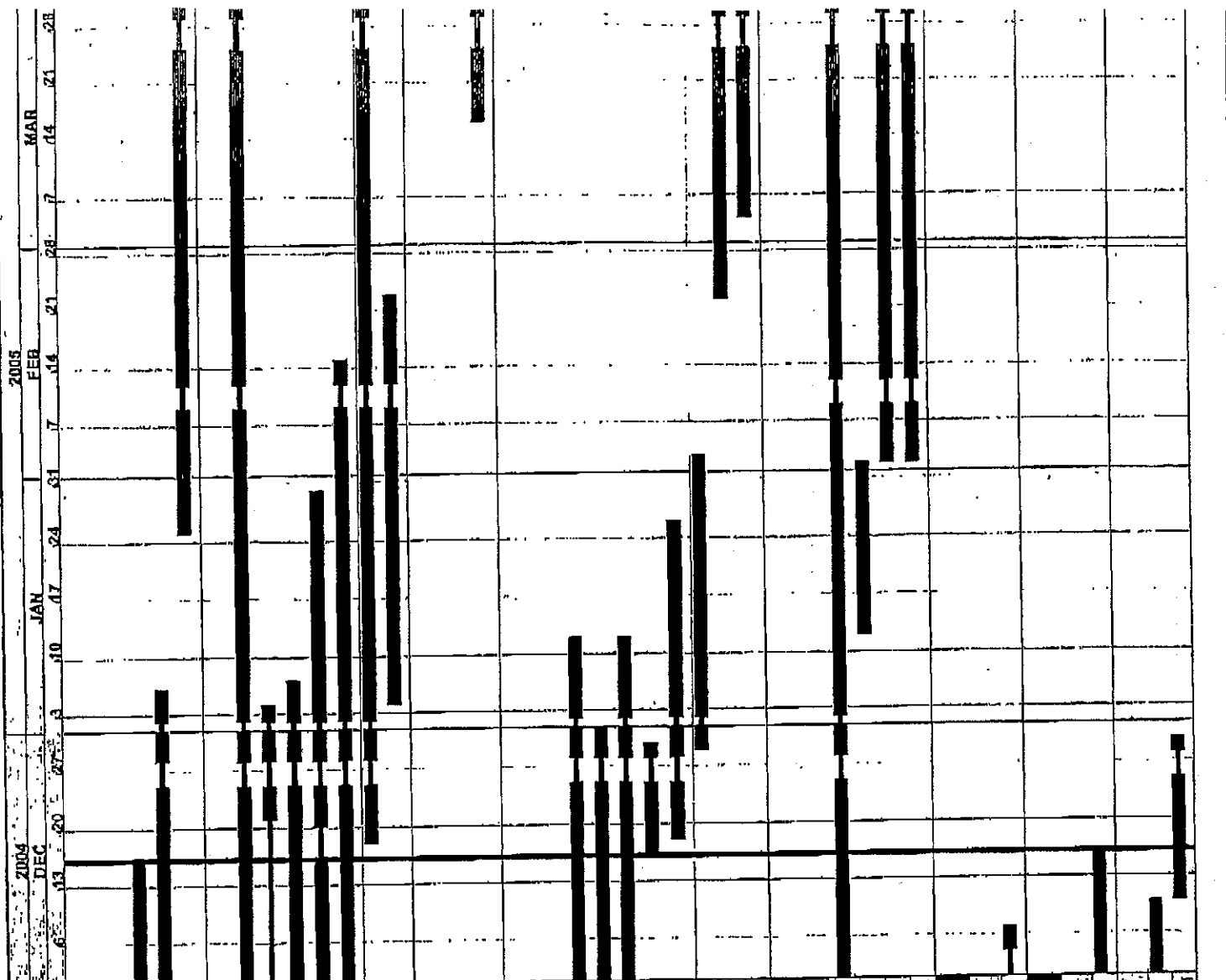
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
Reinforced Earth Wall REV05					
REV014	L-shaped wall & Plinth	40	03JAN05	21FEB05	-88
REV016	P1 Parapets	30	31JAN05	09MAR05	-88
5. Footbridges					
Footbridge FB11					
05-5520	South Pile caps for FB11; 7 Nos.	35	10OCT03A	31DEC04	-72
05-5520Z	South Columns & column head for FB11; 9 Nos.	40	09DEC03A	31MAR05	-72
05-55804	Construct Ramp/Stair for FB11 (North)	48	12OCT04A	15DEC04A	
05-55606	Erect Steelwork & Roofing for FB11 (North)	30	12JAN05	18FEB05	50
6. Retaining Walls					
Reinforced Earth Wall 14					
RE1410	Excavation/Temp. soil mat/Cleaning the base	85	01DEC04A	23MAR05	-120
L-Shaped Walls					
06-6580	Construct Retaining Wall RW15	194*	09AUG04A	06APR05	-72
06-6580Z	Basewall for RW15; bays 1-3	40	06SEP04A	15DEC04A	
06-65803	Backfill for RW15; bays 1-3	10	18DEC04	29DEC04	-5
06-65805	Excavation for RW15; bays 4-6	18	18DEC04	11JAN05	-57
06-65804	Plinth for RW15; bays 1-3	12	30DEC04	13JAN05	-5
06-65806	Basewall for RW15; bays 4-6	40	12JAN05	02MAR05	-57
06-65807	Backfill for RW15; bays 4-6	10	03MAR05	14MAR05	-57
06-65808	Plinth for RW15; bays 4-6	16	16MAR05	06APR05	-57
8. Culverts and Outfalls					
Culvert - Outfall HB					
08-81020	Temp. Works & Exc. Culvert-Outfall HB (N)	21	18DEC04	12JAN05	-93
08-81020Z	Const. Culvert-Outfall HB (Remaining Portion)	30	13JAN05	19FEB05	-93
Culvert-Outfall H					
08-81130	Exc. Culvert-Outfall H (Remaining Portion)	12	28DEC04	11JAN05	-23
08-81130Z	Const. SMH2; Outfall H	10	04FEB05	18FEB05	-43
08-811303	Const. 1.65m pipe with conc. surround; Outfall H	10	19FEB05	02MAR05	-43
08-811304	Const. 1.65m cascade; Outfall H	10	03MAR05	14MAR05	-43
10. Geotechnical & Slope Works					
Existing Slope Works					
10-1092	Remedial Works to Slope No. FR41	434*	28JUL03A	10JAN05	6
10-1092B	Fill behind RW104 & Finishing Work	16	07JAN04A	10JAN05	8
12. Entrusted Water Mains					
Entrusted Water Mains					
12-1230	10N1000FWMA-associated Wks EB CH2970-3130	50	11MAR05	12MAY05	-89
13. Reprovisioning of LCSD & FEHD Facilities					
FEHD Facilities					
13-1321	Construct RCP E	35	10DEC04A	22JAN05	90
Stairways					
13-1332	Construct Stairway ST07	64*	25OCT04A	10JAN05	8



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
Stairways					
13-13324	Falsework/Construct columns/Stair: ST07	20	16NOV04A	11DEC04A	
13-13319	Finishing & raising: ST06	12	22NOV04A	04DEC04A	
13-13326	Concrete curing/remove form & falsework: ST07	10	13DEC04A	23DEC04	8
13-13328	Finishing & raising: ST07	12	24DEC04	10JAN05	8
8-Variaion Works					
New Slope No. 11					
10-10757	Reprovision of B. Fence: V.O. No. 133	45	07FEB04A	31DEC04	118
Culvert-Outfall IA					
08-81230	Form Access & Remove Vegetation: VQ 195	12	18DEC04*	04JAN05	-25
08-81231	Exc. Incl. Sheet piler/Break Cont. Pipe: L. Part	16	05JAN05	25JAN05	-25
08-81232	Const. Cascade/M. Slatway/Backfill: L. Part	18	26JAN05	18FEB05	-25
08-81233	Exc. Incl. Sheet pile: U. Part of Cascade	12	19FEB05	04MAR05	-25
08-81234	Const. Cascade/M. Slatway/Backfill: U. Part	12	05MAR05	18MAR05	-25
CFR Iron Chainage 3+730 to Chainage 4+470					
Preliminaries					
Proposed Utility Works					
01-12471	Additional Gasmain on E/B C.way CH4330-4470	21	07DEC04A	25JAN05	-80
01-12442	Proposed CLP on W/B C.way CH3850-3910	6	07JAN05	13JAN05	-134
01-12443	Proposed HKT on W/B C.way CH3850-3910	6	14JAN05	20JAN05	-134
01-124434	Proposed HKB/N on W/B C.way CH3850-3910	6	14JAN05	20JAN05	-134
01-124842	HKT Cross Rd. Ducts at E/B Slow Lane CH4385	4	14JAN05	18JAN05	-90
01-124431	HKBN Cross Rd. Ducts at W/B CH3870	4	17JAN05	20JAN05	-134
01-1247352	HT Cross Rd. Ducts at E/B Slow Lane CH4361	4	17JAN05	20JAN05	-90
01-1247381	CATV Cross Rd. Ducts at Slow Lane E/B CH4374	4	19JAN05	22JAN05	-80
01-124733	Proposed CATV on E/B C.way CH4330-4470	7	21JAN05	28JAN05	-22
01-1247383	CLP C. Rd. Ducts at E/B Slow Lane CH4320	4	21JAN05	25JAN05	-90
01-124734	Proposed NWT on E/B C.way CH4450	7	29JAN05	05FEB05	-22
01-124735	Proposed HT on E/B C.way CH4330-4470	7	07FEB05	17FEB05	-22
01-124554	HKT Cross Rd. Ducts at W/B CH3670	4	08FEB05	15FEB05	-125
01-124441	CLP Cross Rd. Ducts at W/B CH3810	4	16FEB05	19FEB05	-125
01-124736	Proposed HKT on E/B C.way CH4330-4470	7	18FEB05	26FEB05	-22
01-1244	Proposed Gasmain on W/B C.way CH3670-3850	25	19FEB05	19MAR05	-125
01-124738	Proposed CLP on E/B C.way CH4330-4470	7	26FEB05	05MAR05	-22
01-12444	Proposed CLP on W/B C.way CH3630-3850	11	15MAR05	30MAR05	-122
3- Roadworks					
Utility Diversion					
03-34505	Exposure/protect UUs at E/B CH 3850-3880	30	29JAN05	08MAR05	-134
Earthworks					
03-3403	Road formation at W/B C.way CH3850-3910	10	06JAN05	17JAN05	-134
03-3401	Road formation at W/B C.way CH3630-3850	30	21FEB05	30MAR05	-125
Drainage Works					
03-3465	Construct drainage/backfill at E/B CH4300-4400	50	25AUG04A	20JAN05	-91



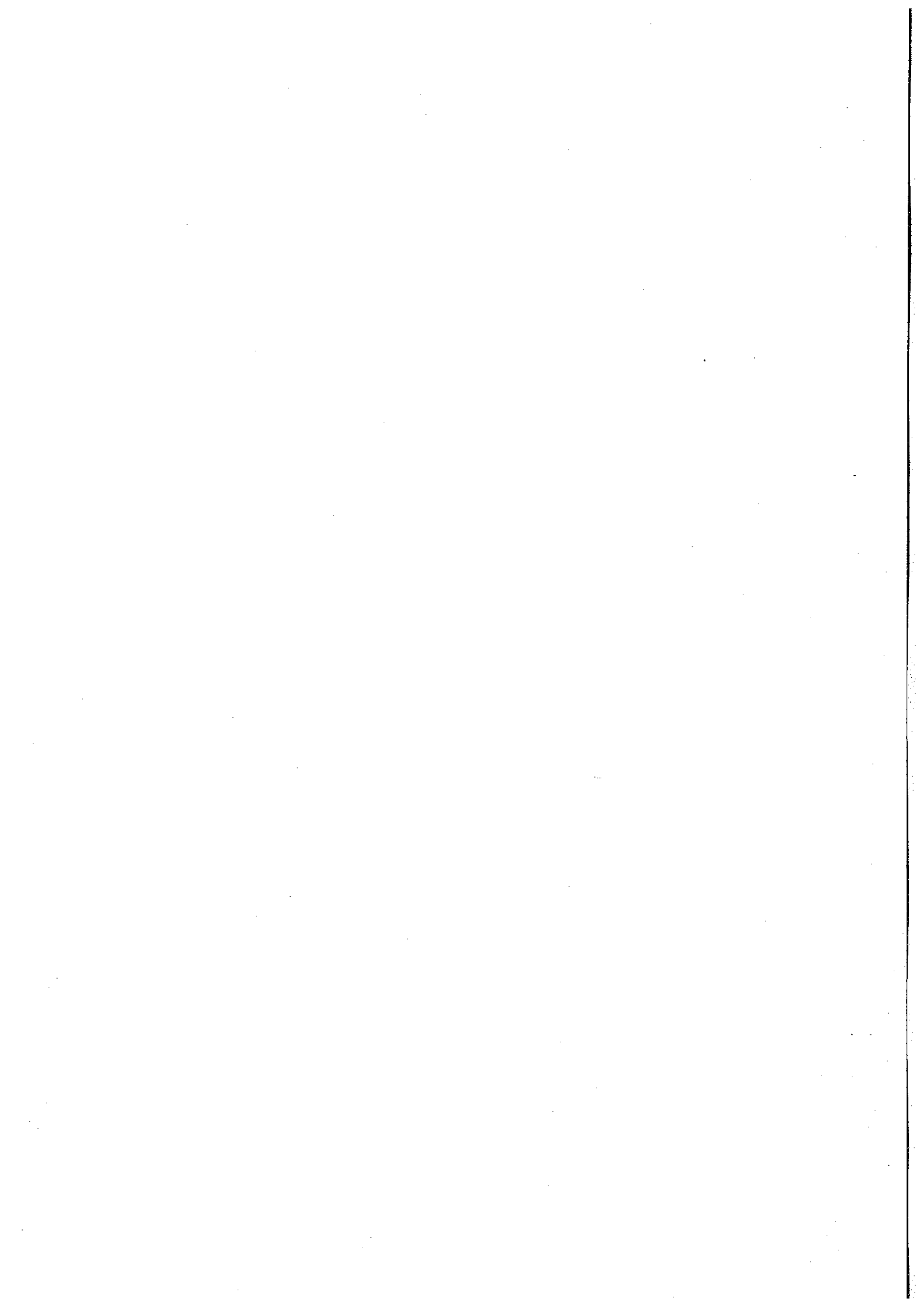
Activity ID	Activity Description	Ordg Dur	Early Start	Early Finish	Total Float
Drainage Works					
03-34202	Drainage Works at WB C'way CH3850-3910	20	25DEC04A	06JAN05	-134
03-34201	Drainage Works at WB C'way CH3810-3700	30	14JAN05	21FEB05	-123
03-3420	Drainage Works at WB C'way CH3700-3850	80	22JAN05	01MAR05	-125
03-3425	Drainage Works at WB C'way CH4330-4470	58*	12FEB05	25APR05	-91
03-34252	Trial pits/Sheet piling/excavate for drainage	50	12FEB05	15APR05	-91
03-3421	Drainage Works at WB C'way CH3950-4330	76	18FEB05	23MAY05	-128
03-34254	Construct drainage backfill at WB CH4330-4470	50	22FEB05	25APR05	-91
Pipe Works (Local Supply Watermain)					
03-3431	Pipe Works at WB C'way bet CH3890-3910	10	30DEC04	11JAN05	-134
03-34310	Pipe Works at WB C'way bet CH3800-3700	20	07FEB05	04MAR05	-123
Road Works					
03-34534	Stage 3 TTA works at EB slow lane	165*	23JUL04A	08FEB05	-91
03-34554	Lay sub-base, kerbs & edgings; R10	6	01DEC04A	17DEC04	-34
03-34561	Lay sub-base, kerbs & edgings; EB CH4330-4470	12	15DEC04A	02FEB05	-91
03-34556	Construct rd pave; R10	8	18DEC04	29DEC04	-34
03-34558	Rd finishes, marking & lighting; R10	10	30DEC04	11JAN05	-34
03-345022	Lay sub-base, kerbs & edgings; WB CH3850-3910	10	12JAN05	22JAN05	-134
03-345024	Construct rd pave & f/p; WB CH3850-3910	10	18JAN05	28JAN05	-134
03-345423	Construct rd pave & f/p; EB CH4330-4470	12	26JAN05	08FEB05	-91
03-3509	Divert Road at WB CH3850-3910/East of Outfall I	0		28JAN05	-134
03-3412	Divert Traffic to EB C'way CH4330-4470	0		08FEB05	-91
03-34635	Stage 4 TTA works at WB carriage way	136*	12FEB05	28JUL05	-91
03-3450	Lay sub-base, kerbs & edgings; WB CH3630-3850	20	16MAR05	17APR05	-125
5. Footbridges					
Footbridge FB03					
05-5412	G1 Works for Middle Supports at FB03	8	07DEC02A	02FEB05	-82
05-5450	Construct Walkway for FB03 (South)	379*	20SEP03A	30DEC04	-125
05-54606	Erect Steelwork & Roofing for FB03 (North)	30	08NOV04A	24DEC04	77
05-545052	Const. Walkway; FB03(South); bay 16	16	10DEC04A	30DEC04	-125
05-54508	Erect Steelwork & Roofing for FB03 (South)	30	31DEC04	04FEB05	44
05-54121	G1 Report/Receive Founding Levels; FB03(M)	12	03FEB05	19FEB05	-92
05-54122	Piling and Pile Testing (2 Nos.); FB03 (Middle)	30	21FEB05	30MAR05	-92
6. Culverts and Outfalls					
Culvert-Outfall IB					
08-81520	Exc. Culvert-Outfall IB (South Portion)	141*	02JUL04A	17DEC04	-103
08-815204	SMHIB2.1/1050 Conc. Pipe	17	18DEC04	17DEC04	-103
Culvert-Outfall I					
08-81390	Excavate Culvert bays 6-7; Outfall I	24	05FEB05	08MAR05	-134
08-813302	Const. Culvert bays 6-7; Outfall I	30	09MAR05	16APR05	-134
Culvert-Outfall IC					
08-81430	Exc. Culvert-Outfall IC (at Exist CPR)	18	15NOV04A	22DEC04	-109
08-814302	Const. Culvert-Outfall IC (at Exist CPR)	24	23DEC04	22JAN05	-109



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
3. Seawalls and Marine Works					
Seawall C (460 m Length)					
09-9242	Granular Fill at FB03, W. way bays 1-12	30	02FEB04A	15DEC04A	
09-9244	Granular Fill at FB03 Walkway (Bays 13-21)	40	15SEP04A	05JAN05	-125
09-9260	Granular Fill along Retaining Wall RW-C	60	25JAN05	12APR05	-128
L-Shaped Walls					
09-9250	Construct Retaining Wall RW-C	351	29JAN04A	07APR05	-128
09-92505	Protect slope/excavate for RW-C; Bays 1-4	18	06MAY04A	03JAN05	-120
09-92507	Protect slope/excavate for RW-C; Bays 5-12	60	25AUG04A	05JAN05	-113
09-92508	Construct Retaining Wall RW-C; bays 5-12	60	16OCT04A	29JAN05	-113
09-925072	Protect slope/excavate for RW-C; Bays 13-21/25-33	80	13NOV04A	14FEB05	-128
09-92509	Construct Retaining Wall RW-C; bay 13-21/25-33	85	18DEC04	07APR05	-128
09-92506	Construct Retaining Wall RW-C; bays 1-4	40	04JAN05	22FEB05	-120
11. Entrusted Sewerage Works					
Entrusted Sewers/Drains					
11-1123	Sewer Works at EB C-way bet CH3850-3900	30	16MAR05	23APR05	-134
12. Entrusted Watermains					
Entrusted Water Mains					
12-1225	DN1000FW/Associated Wks E/B bet CH4320-4470	141	23JUL04A	11JAN05	-91
12-12252	Trial pit/Sheet piling/excavate at CH4320-4470	65	23JUL04A	31DEC04	-91
12-12254	DN1000FW/Associated E/B Wks bet CH 4320-4470	65	13AUG04A	11JAN05	-91
12-12222	DN1000FW/Associated Wks W/B bet CH3850-3910	10	16DEC04	29DEC04	-134
12-12221	DN1000FW/Associated Wks W/B bet CH3610-3700	30	16DEC04	26JAN05	-123
12-1222	DN1000FW/Associated Wks W/B bet CH3700-3850	30	29DEC04	02FEB05	-125
12-1224	DN1000FW/Associated Wks W/B bet CH4300-4320	30	22FEB05	31MAR05	-71
12-1223	DN1000FW/Associated Wks W/B bet CH3910-4300	76	04MAR05	06JUN05	-128
13. Reprovisioning of LCSD & FEHD Facilities					
FEHD Facilities					
13-1350	Reprovision Pavilion & Pal Lau	371	22DEC03A	29MAR05	-34
13-1353	Substructure of Pavilion	18	12JAN05	01FEB05	-24
13-1352	Superstructure of Pal Lau	42	02FEB05	29MAR05	-34
13-1354	Superstructure of Pavilion	42	02FEB05	29MAR05	-34
4. Landscape Works					
Tree Felling and Transplanting					
14-21606	Transplant Trees South of exist. CPRCH200-4300	65	09MAY02A	06DEC04A	
16. Variation Works					
L-Shaped Walls					
09-925061	Public facilities & temp. hoarding; V.O. 267	30	19AUG04A	15DEC04A	
Footbridge FB03					
03-340028	Reprovision of L.A. No. 12 & Remove soil	12	22NOV04A	09DEC04A	
03-340027	Reprovision of L.A. No. 12 & Capping Layer	12	10DEC04A	28DEC04	-54

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	2005								
						DEC	JAN	FEB	MAR					
Stairways														
13-1336	Const. New Pavilion/ret. web/stair, VO 211	87	16NOV04A	02MAR05	-121									
13-1336A	Const. RW-C1, VO 211	24	03JAN05	29JAN05	-121									
13-1336B	Const. New Pavilion/stair, VO 211	24	31JAN05	02MAR05	-121									
Additional Outfall MI; VO 244														
08-81826	Excavation for 675mm twin pipes at exstl. CPR	12	18DEC04	04JAN05	-101									
08-81827	Construct 675mm twin pipes at exstl. CPR	8	05JAN05	13JAN05	-101									
Additional Works at RW-C; Bays 2-4														
VO-39502	ICE certified Temp. Design/Method for VO395 work	18	10NOV04A	03DEC04A										
VO-39504	Consent for Temp. Design/Method for VO395 work	12	04DEC04A	16DEC04	-120									
VO-39505	Temp. works/Excavation/Mass concrete; VO395	12	17DEC04	03JAN05	-120									
Remedial Works to Existing Feature No. 6SE-CICZZ														
VO-30902	Erect scaffolding platform	6	30DEC04	06JAN05	26									
VO-30904	Remove existing stormcrete	12	07JAN05	20JAN05	26									
VO-30905	Construct 12 nos. test nails	18	21JAN05	14FEB05	26									
VO-30908	Construct 202 nos. soft nails	40	15FEB05	08APR05	26									
Vehicular Parapets														
VO-29970	Additional Vehicular Parapets at CH 3735-3850	30	03FEB05	12MAR05	-125									

APPENDIX C
Monitoring schedule for
December 2004 and
January 2005



Environmental Monitoring and Audit Schedule - December 2004

- Note 1: L30 denotes $L_{eq(30 \text{ min})}$ monitoring
- Note 2: TSP denotes Total Suspended Particulate monitoring
- Note 3: MW denotes Marine Water Quality monitoring
- Note 4: L&V denotes Landscape and Visual audit and monitoring

Dec-2004						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Site Inpsection	3 24-hour TSP 3 x 1-hour TSP	4
5	6	7	8	9 L30 + 3 x 1-hour TSP 24-hour TSP Site Inpsection + L&V	10	11
12	13	14	15 L30 3 x 1-hour TSP 24-hour TSP	16 Site Inpsection	17	18
19	20	21 L30 3 x 1-hour TSP 24-hour TSP	22	23 Site Inpsection + L&V	24	25
26	27	28 L30 3 x 1-hour TSP 24-hour TSP	29	30 Site Inpsection	31	

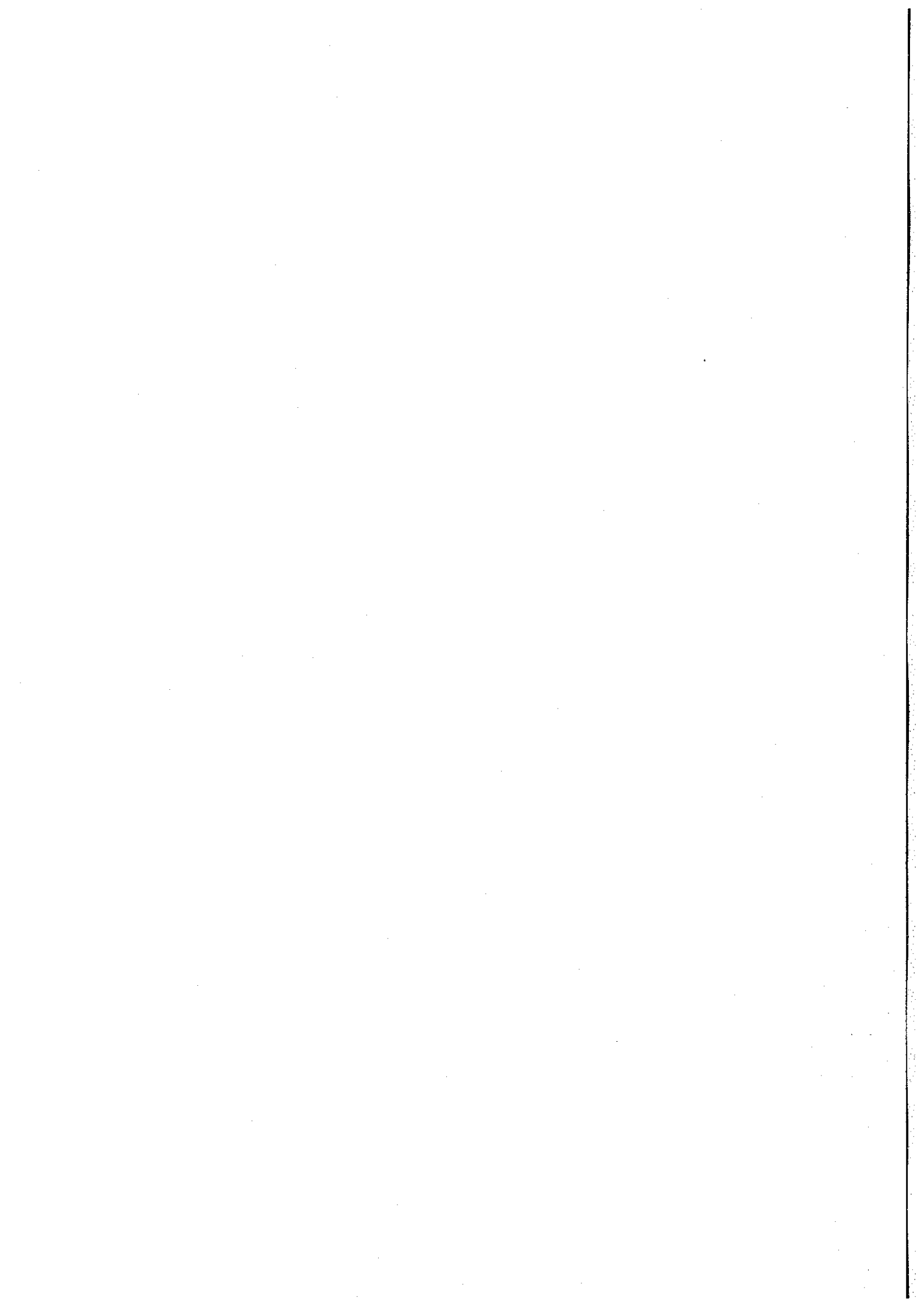
Tentative Environmental Monitoring and Audit Schedule - January 2005

- Note 1: L30 denotes Leq(30 min) monitoring
 Note 2: TSP denotes Total Suspended Particulate monitoring
 Note 3: MW denotes Marine Water Quality monitoring
 Note 4: L&V denotes Landscape and Visual audit and monitoring

Jan-2005						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
	2					8
	3	4	5	6	7	15
	24-hour TSP L30 3 x 1-hour TSP			Site Inspection + L&V		24-hour TSP
	9	10	11	12	13	14
				L30 3 x 1-hour TSP	Site Inspection	24-hour TSP
	16	17	18	19	20	21
			L30 3 x 1-hour TSP		24-hour TSP Site Inspection + L&V	22
	23	24	25	26	27	28
			L30 3 x 1-hour TSP	24-hour TSP	Site Inspection	29
	30	31				
		L30 3 x 1-hour TSP				

APPENDIX D

**Calibration certificates
of 24-hour TSP
monitoring equipment**



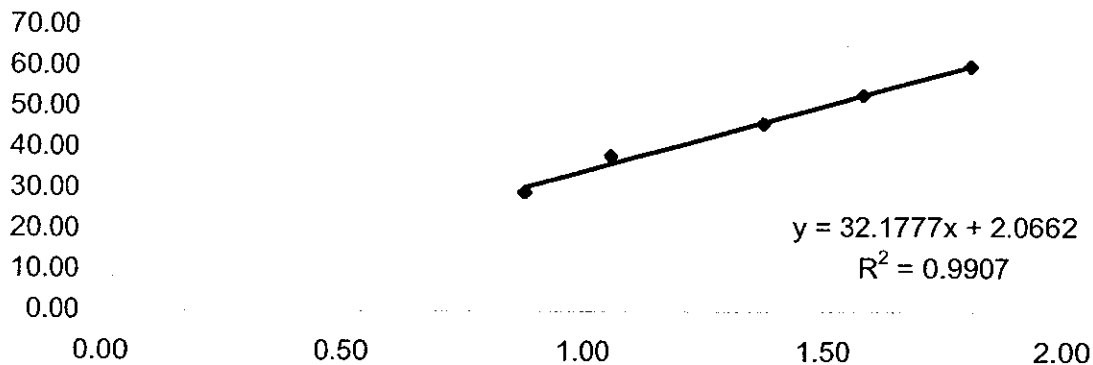
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	03-Dec-04	Barometric pressure	760 mm Hg
Calibration due date	01-Feb-05	Temperature (°C)	24 °C
Sampler location	WA3 - Hong Kong Garden (Regent Heights)	Temperature (K)	297 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0505	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	1201		
Slope of the standard curve, m _s	1.93285		
Intercept of the standard curve, b _s	0.00398		

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	2.90	29.00	0.88	29.05
7	4.20	38.00	1.06	38.06
10	7.10	46.00	1.38	46.08
13	9.40	53.00	1.59	53.09
18	12.20	60.00	1.81	60.10

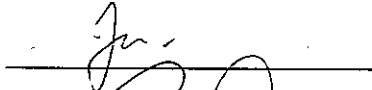
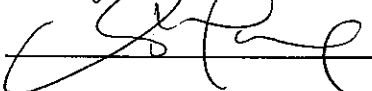
Calibration Curve



Linear Regression

Sampler slope (m): **32.1777**
 Sampler intercept (b): **2.0662**
 Correlation coefficient (R²): **0.9907**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 
 Checked by: 

Date: 3-12-04
 Date: 6-12-04

Ove Arup Partners (Hong Kong) Limited

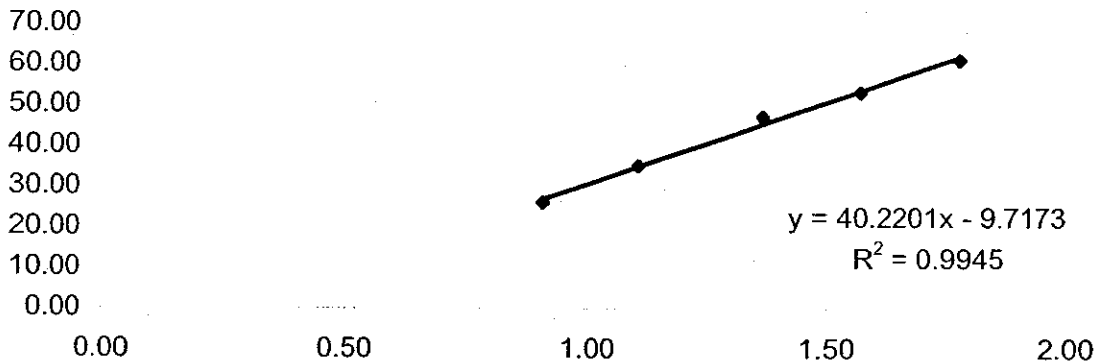
High Volume Air Sampler Calibration Worksheet

Calibration date	03-Dec-04	Barometric pressure	760 mm Hg
Calibration due date	01-Feb-05	Temperature (°C)	24 °C
Sampler location	WA6 - Tsing Lung Tau Temple	Temperature (K)	297 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0529	T _{std}	298 K

Calibrator model	GMW-2535
Calibrator serial number	1201
Slope of the standard curve, m _s	1.93285
Intercept of the standard curve, b _s	0.00398

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.10	26.00	0.91	26.04
7	4.60	35.00	1.11	35.06
10	7.00	47.00	1.37	47.08
13	9.20	53.00	1.57	53.09
18	11.80	61.00	1.78	61.10

Calibration Curve



Linear Regression

Sampler slope (m): **40.2201**
 Sampler intercept (b): **-9.7173**
 Correlation coefficient (R²): **0.9945**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 

Date: 3-12-04

Checked by: 

Date: 6-12-04

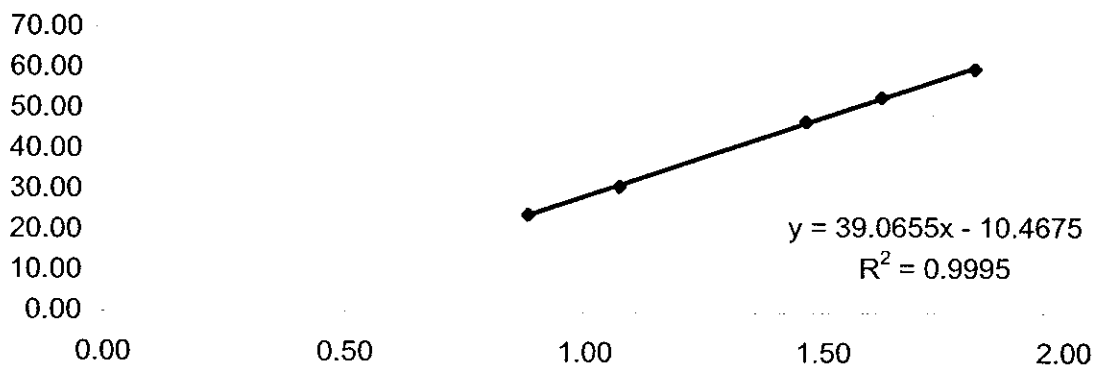
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	03-Dec-04	Barometric pressure	760 mm Hg
Calibration due date	01-Feb-05	Temperature (°C)	24 °C
Sampler location	WA7 - Sea Crest Villa (Phase 4 Blk 12)	Temperature (K)	297 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0517	T _{std}	298 K
Calibrator model		GMW-2540	
Calibrator serial number		1201	
Slope of the standard curve, m _s		1.93285	
Intercept of the standard curve, b _s		0.00398	

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	2.90	24.00	0.88	24.04
7	4.30	31.00	1.07	31.05
10	8.00	47.00	1.46	47.08
13	9.80	53.00	1.62	53.09
18	12.30	60.00	1.82	60.10

Calibration Curve



Linear Regression

Sampler slope (m) : **39.0655**
 Sampler intercept (b) : **-10.4675**
 Correlation coefficient (R²) : **0.9995**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: *Jr.*

Date: 3-12-04

Checked by: *[Signature]*

Date: 6-12-04

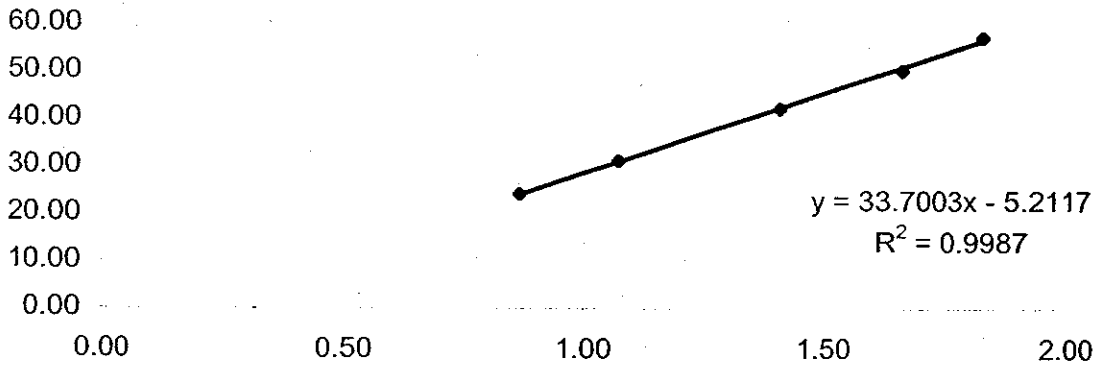
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	03-Dec-04	Barometric pressure	760 mm Hg
Calibration due date	01-Feb-05	Temperature (°C)	24 °C
Sampler location	WA8 - Sea Crest Villa (Phase 3 Block 8)	Temperature (K)	297 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0526	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	1201		
Slope of the standard curve, m _s	1.93285		
Intercept of the standard curve, b _s	0.00398		

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	2.80	24.00	0.87	24.04
7	4.30	31.00	1.07	31.05
10	7.40	42.00	1.41	42.07
13	10.30	50.00	1.66	50.08
18	12.50	57.00	1.83	57.10

Calibration Curve



Linear Regression

Sampler slope (m) : **33.7003**
 Sampler intercept (b) : **-5.2117**
 Correlation coefficient (R²) : **0.9987**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: *Jr.*

Date: 3-12-04

Checked by: *[Signature]*

Date: 6-12-04

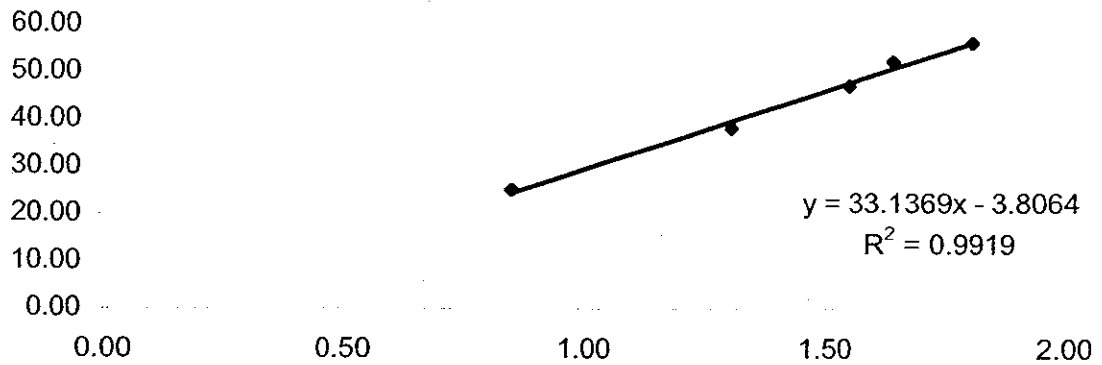
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	03-Dec-04	Barometric pressure	760 mm Hg
Calibration due date	01-Feb-05	Temperature (°C)	24 °C
Sampler location	WA10 - Sea Crest Villa (Phase 1 Blk 1)	Temperature (K)	297 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0507	T _{std}	298 K
Calibrator model		GMW-2535	
Calibrator serial number		1201	
Slope of the standard curve, m _s		1.93285	
Intercept of the standard curve, b _s		0.00398	

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	2.70	25.00	0.85	25.04
7	6.40	38.00	1.31	38.06
10	9.00	47.00	1.55	47.08
13	10.10	52.00	1.64	52.09
18	12.20	56.00	1.81	56.09

Calibration Curve



Linear Regression

Sampler slope (m) : **33.1369**
 Sampler intercept (b) : **-3.8064**
 Correlation coefficient (R²) : **0.9919**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

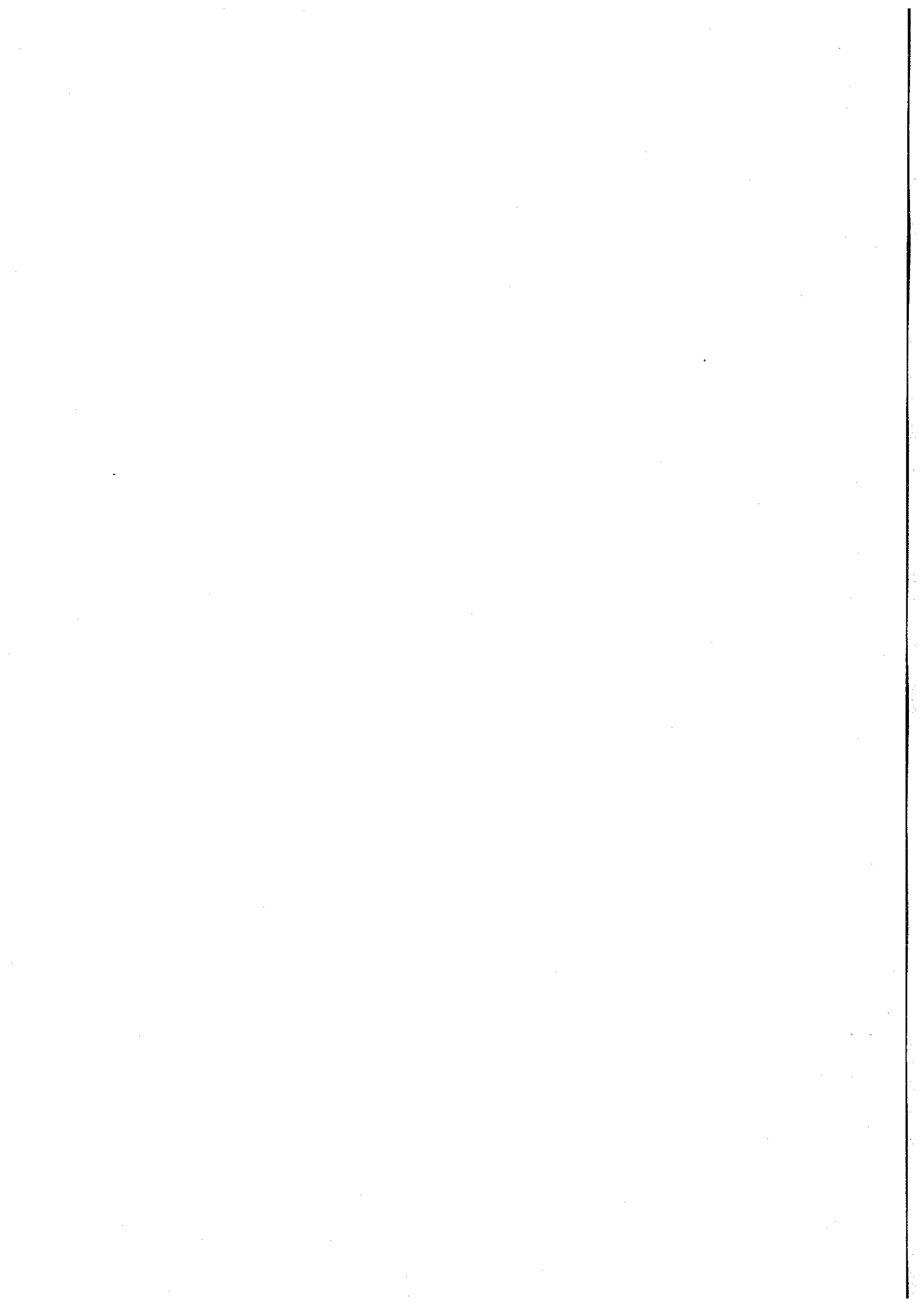
Performed by: *Jm.*

Date: 3-12-04

Checked by: *[Signature]*

Date: 6-12-04

APPENDIX E
**Calibration certificates
of 1-hour TSP
monitoring equipment**





Thermo Andersen
500 Technology Ct., Smyrna, GA 30082
Toll-Free: 1-800-241-6898 Tel: 770-319-9999
Fax: 770-319-0336 www.Thermoandersen.com

Personal Data RAM Calibration Certificate

Record the serial number	S/N 4496
Record the calibration ratio:	0.998
Record the average pDR concentration:	1249 $\mu\text{g}/\text{m}^3$
Record the calibration Master average concentration:	1070 $\mu\text{g}/\text{m}^3$
Record the pDR background concentration:	189 $\mu\text{g}/\text{m}^3$
Temperature	75 °F
Humidity	45 %
Technician: <i>Ramon</i>	Date: 9-25-03



Thermo Andersen
500 Technology Ct., Smyrna, GA 30082
Toll-Free: 1-800-241-6898 Tel: 770-319-9999
Fax: 770-319-0336 www.thermoandersen.com

PersonalDataRAM Calibration Certificate

Record the serial number	
Record the calibration ratio:	S/N 4715
Record the average pDR concentration:	0.994
Record the calibration Master average concentration:	382 $\mu\text{g}/\text{m}^3$
Record the pDR background concentration:	326 $\mu\text{g}/\text{m}^3$
Temperature	124 $\mu\text{g}/\text{m}^3$
Humidity	72 °F
Technician:	33 %
	Date: 11-21-03

MASTER # 2026

THERMO ELECTRON
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER:	<u>4615</u>
CALIBRATION RATIO:	<u>1.008</u>
AVG. PDR-1000 CONCENTRATION:	151 <u>ug/m3</u>
CALIBRATION MASTER AVG. CONCENTRATION:	140 <u>ug/m3</u>
DR BACKGROUND CONCENTRATION:	<u>123 ug/m3</u>
TEMPERATURE:	<u>69F</u>
HUMIDITY:	<u>18%</u>
TECHNICIAN: <u>J. Rochepelle</u>	DATE: <u>1/15/04</u>

MASTER # 2026

THERMO ELECTRON
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER:	<u>4705</u>
CALIBRATION RATIO:	<u>.991</u>
AVG. PDR-1000 CONCENTRATION:	176 <u>ug/m3</u>
CALIBRATION MASTER AVG. CONCENTRATION:	174 <u>ug/m3</u>
DR BACKGROUND CONCENTRATION:	<u>141 ug/m3</u>
TEMPERATURE:	<u>69F</u>
HUMIDITY:	<u>18%</u>

TECHNICIAN: *J. Lapelle*

DATE: 1/15/04

MASTER # D320

THERMO ELECTRON
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER:	<u>4492</u>
CALIBRATION RATIO:	<u>1.013</u>
AVG. PDR-1000 CONCENTRATION:	3.04 <u>mg/m3</u>
CALIBRATION MASTER AVG. CONCENTRATION:	2.69 <u>mg/m3</u>
DR BACKGROUND CONCENTRATION:	<u>.291 mg/m3</u>
TEMPERATURE:	<u>75F</u>
HUMIDITY:	<u>52%</u>
TECHNICIAN <u>K. Lachapelle</u>	DATE: <u>7/27/04</u>

THERMO ELECTRON

27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

MASTER # D320

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER: 4736

CALIBRATION RATIO: 1.004

AVG. PDR-1000 CONCENTRATION: 2.75 mg/m3

CALIBRATION MASTER AVG. CONCENTRATION: 2.44 mg/m3

DR BACKGROUND CONCENTRATION: .271 mg/m3

TEMPERATURE: 74F

HUMIDITY: 44%

TECHNICIAN K. Lachapelle

DATE: 7/27/04

THERMO ELECTRON

27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

MASTER # D320 LAST CALIBRATED 10/1/04

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER: 3809
CALIBRATION RATIO: 1.009
AVG. PDR-1000 CONCENTRATION: 2.91 mg/m3
CALIBRATION MASTER AVG. CONCENTRATION: 2.45 mg/m3
DR BACKGROUND CONCENTRATION: .448 mg/m3
TEMPERATURE: 78F
HUMIDITY: 22%

TECHNICIAN K. Lachapelle

DATE: 10/6/04

THERMO ELECTRON
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
WWW.THERMO.COM

MASTER # D320 LAST CALIBRATED 10/1/04

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER: 3893
CALIBRATION RATIO: .994
AVG. PDR-1000 CONCENTRATION: 2.74 mg/m3
CALIBRATION MASTER AVG. CONCENTRATION: 2.42 mg/m3
DR BACKGROUND CONCENTRATION: .262 mg/m3
TEMPERATURE: 78F
HUMIDITY: 22%

TECHNICIAN K. Lachapelle

DATE: 10/6/04

THERMO ELECTRON

27 FORGE PARKWAY

FRANKLIN MA 02038

TOLL-FREE: 866-282-0430

TEL: 508-553-6949

FAX: 508-541-8366

WWW.THERMO.COM

MASTER # D320 LAST CALIBRATED 10/1/04

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER: 4243

CALIBRATION RATIO: .999

AVG. PDR-1000 CONCENTRATION: 2.72 mg/m3

CALIBRATION MASTER AVG. CONCENTRATION: 2.45 mg/m3

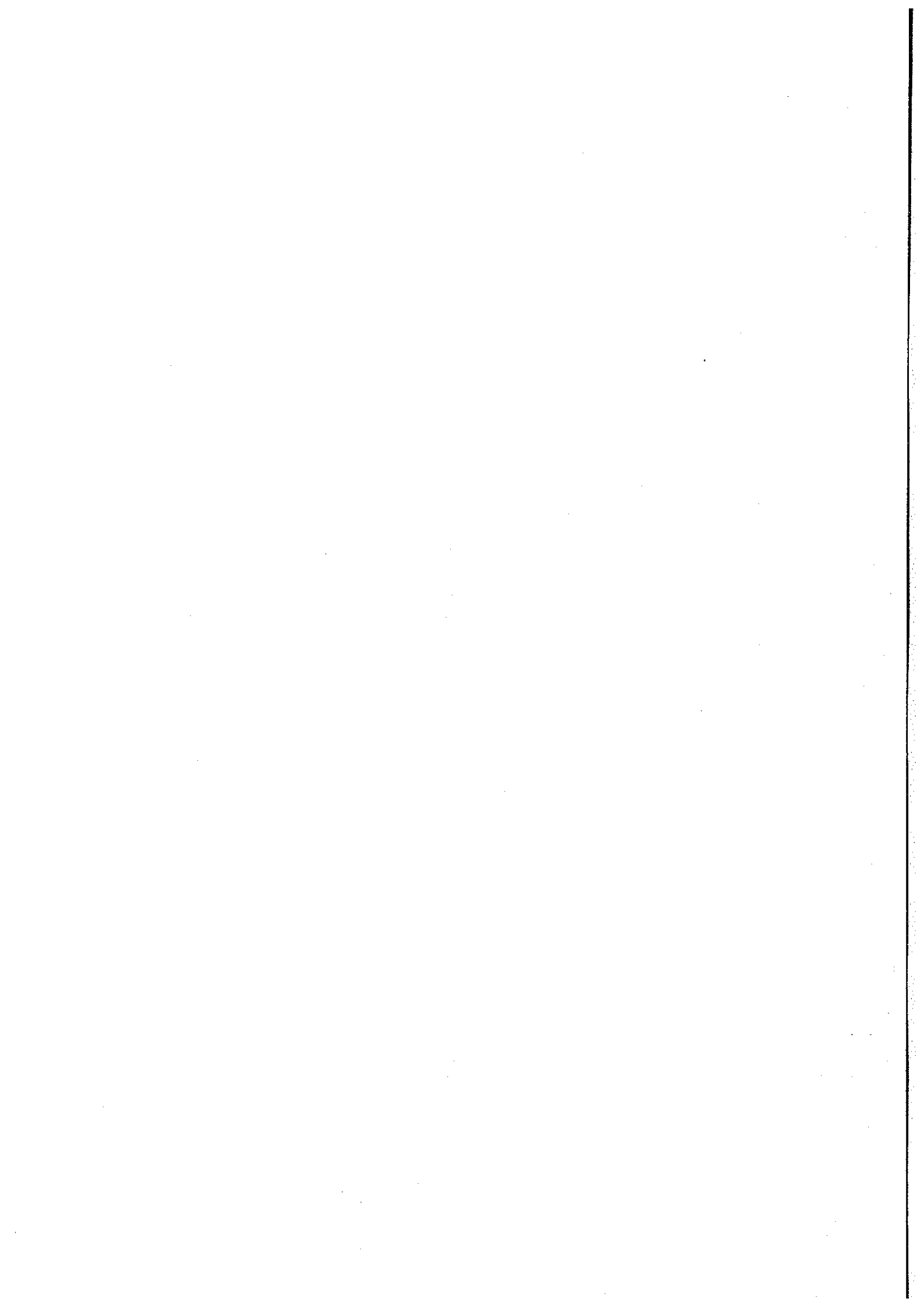
DR BACKGROUND CONCENTRATION: .268 mg/m3

TEMPERATURE: 78F

HUMIDITY: 22%

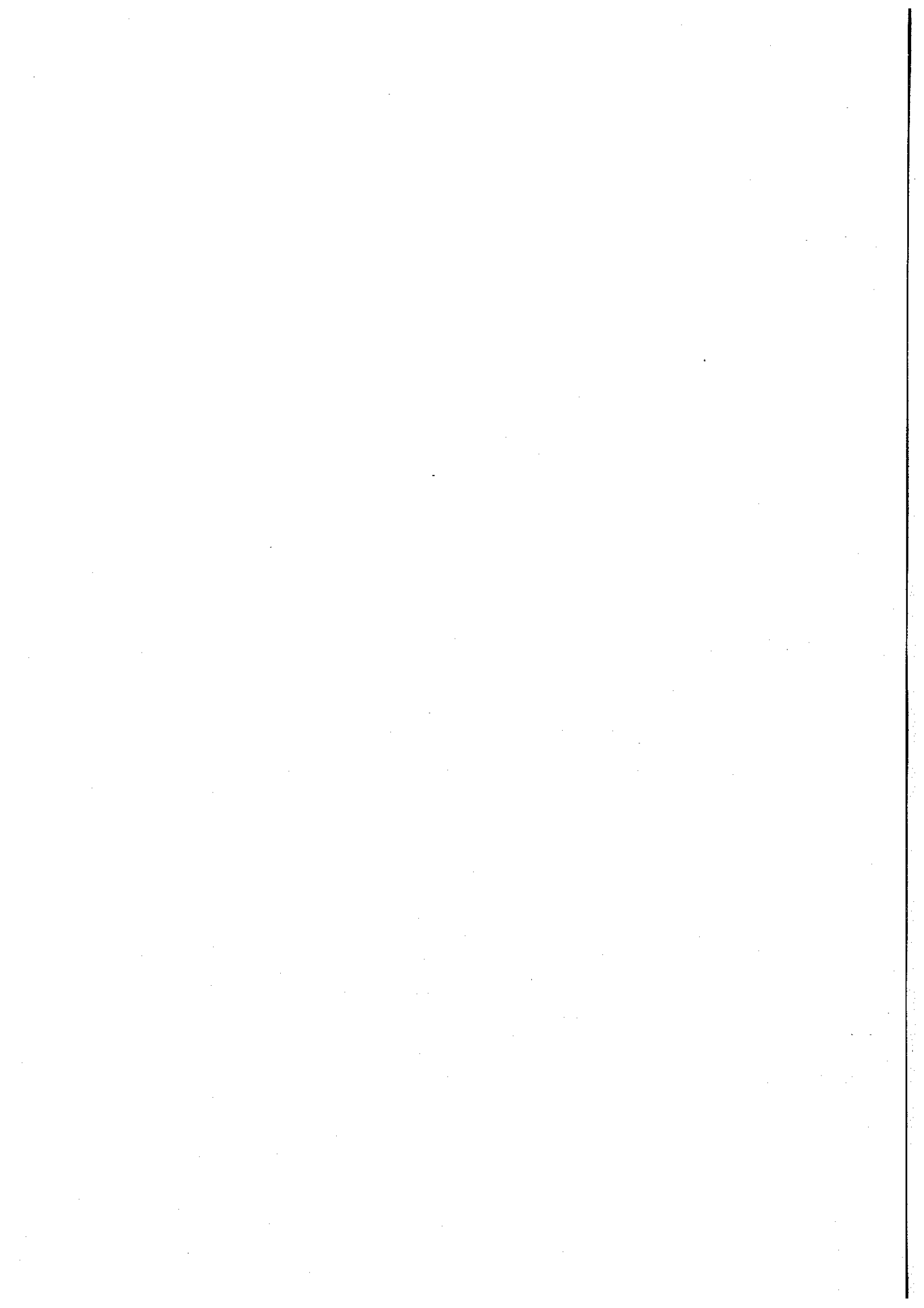
TECHNICIAN K. Lachapelle

DATE: 10/6/04



APPENDIX F

**Detailed air quality (1-
hour TSP) monitoring
results**



Details of 1-Hour TSP Monitoring

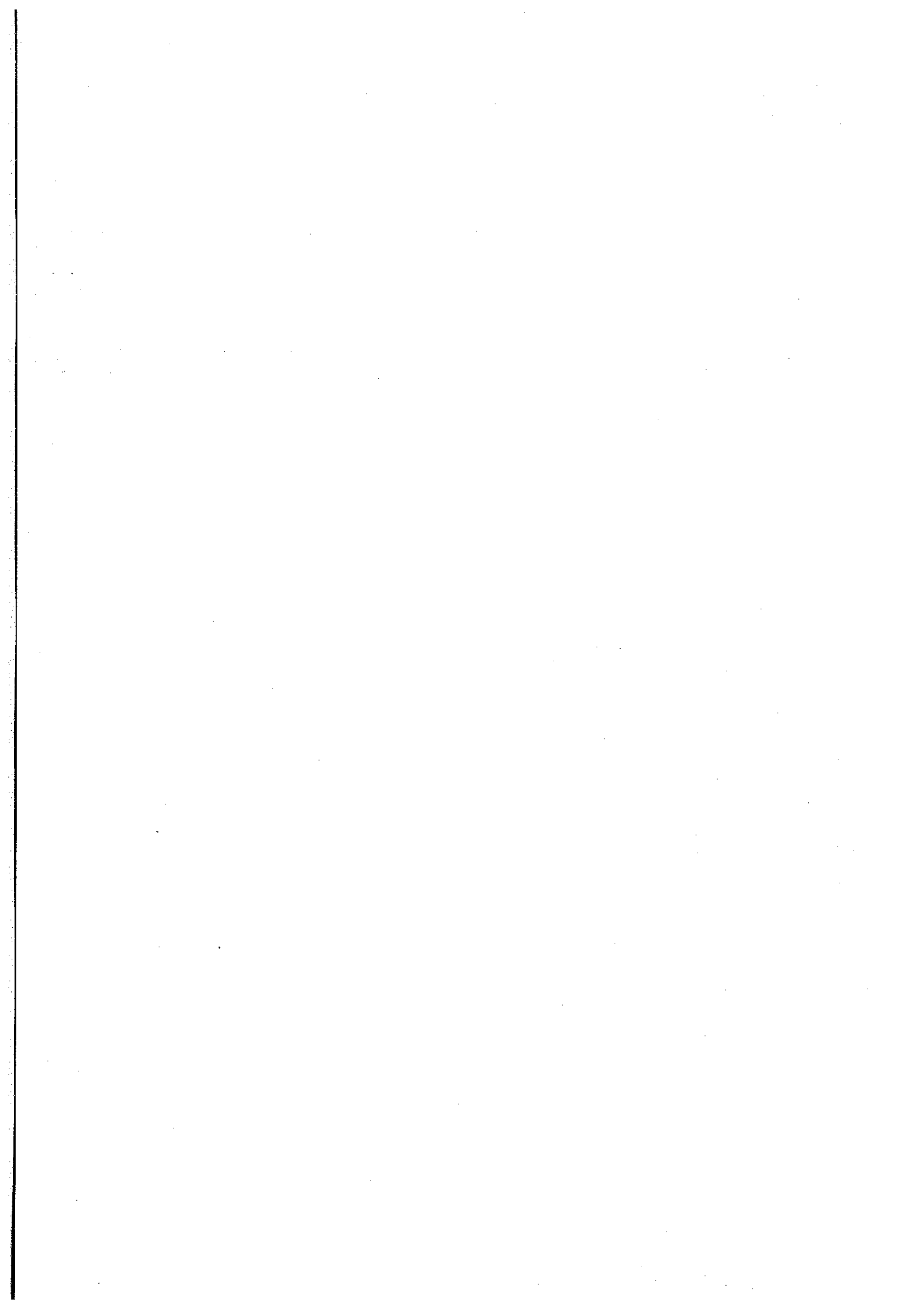
Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
			Start	Finish						
3-Dec-04	WA3	1	7:00	8:00	Fine	Normal Operation	23.0	761.0	211.3	
3-Dec-04	WA3	2	8:00	9:00	Fine	Normal Operation	23.0	761.0	207.8	
3-Dec-04	WA3	3	9:00	10:00	Fine	Normal Operation	23.0	761.0	199.0	
3-Dec-04	WA4	1	7:00	8:00	Fine	Normal Operation	23.0	761.0	222.1	
3-Dec-04	WA4	2	8:00	9:00	Fine	Normal Operation	23.0	761.0	218.7	
3-Dec-04	WA4	3	9:00	10:00	Fine	Normal Operation	23.0	761.0	211.5	
3-Dec-04	WA5	1	7:00	8:00	Fine	Normal Operation	23.0	761.0	234.6	
3-Dec-04	WA5	2	8:00	9:00	Fine	Normal Operation	23.0	761.0	229.2	
3-Dec-04	WA5	3	9:00	10:00	Fine	Normal Operation	23.0	761.0	225.5	
3-Dec-04	WA6	1	13:00	14:00	Fine	Normal Operation	23.0	761.0	230.1	
3-Dec-04	WA6	2	14:00	15:00	Fine	Normal Operation	23.0	761.0	232.0	
3-Dec-04	WA6	3	15:00	16:00	Fine	Normal Operation	23.0	761.0	212.7	
3-Dec-04	WA7	1	7:00	8:00	Fine	Normal Operation	23.0	761.0	239.0	
3-Dec-04	WA7	2	8:00	9:00	Fine	Normal Operation	23.0	761.0	233.5	
3-Dec-04	WA7	3	9:00	10:00	Fine	Normal Operation	23.0	761.0	221.4	
3-Dec-04	WA8	1	11:00	12:00	Fine	Normal Operation	23.0	761.0	199.0	
3-Dec-04	WA8	2	13:00	14:00	Fine	Normal Operation	23.0	761.0	201.2	
3-Dec-04	WA8	3	14:00	15:00	Fine	Normal Operation	23.0	761.0	189.8	
3-Dec-04	WA9	1	11:00	12:00	Fine	Normal Operation	23.0	761.0	211.5	
3-Dec-04	WA9	2	13:00	14:00	Fine	Normal Operation	23.0	761.0	213.3	
3-Dec-04	WA9	3	14:00	15:00	Fine	Normal Operation	23.0	761.0	204.4	
3-Dec-04	WA10	1	11:00	12:00	Fine	Normal Operation	23.0	761.0	231.1	
3-Dec-04	WA10	2	13:00	14:00	Fine	Normal Operation	23.0	761.0	224.9	
3-Dec-04	WA10	3	14:00	15:00	Fine	Normal Operation	23.0	761.0	247.1	
3-Dec-04	WA11	1	11:00	12:00	Fine	Normal Operation	23.0	761.0	225.1	
3-Dec-04	WA11	2	13:00	14:00	Fine	Normal Operation	23.0	761.0	220.3	
3-Dec-04	WA11	3	14:00	15:00	Fine	Normal Operation	23.0	761.0	217.7	
9-Dec-04	WA3	1	13:00	14:00	Fine	Normal Operation	23.0	761.0	209.4	
9-Dec-04	WA3	2	14:00	15:00	Fine	Normal Operation	23.0	761.0	220.6	
9-Dec-04	WA3	3	15:00	16:00	Fine	Normal Operation	23.0	761.0	194.4	
9-Dec-04	WA4	1	8:54	9:54	Fine	Normal Operation	23.0	761.0	264.0	
9-Dec-04	WA4	2	9:54	10:54	Fine	Normal Operation	23.0	761.0	232.1	
9-Dec-04	WA4	3	10:54	11:54	Fine	Normal Operation	23.0	761.0	224.1	
9-Dec-04	WA5	1	8:57	9:57	Fine	Normal Operation	23.0	761.0	281.2	
9-Dec-04	WA5	2	9:57	10:57	Fine	Normal Operation	23.0	761.0	254.2	
9-Dec-04	WA5	3	10:57	11:57	Fine	Normal Operation	23.0	761.0	246.7	
9-Dec-04	WA6	1	8:58	9:58	Fine	Normal Operation	23.0	761.0	268.1	
9-Dec-04	WA6	2	9:58	10:58	Fine	Normal Operation	23.0	761.0	248.9	
9-Dec-04	WA6	3	10:58	11:58	Fine	Normal Operation	23.0	761.0	239.9	
9-Dec-04	WA7	1	13:00	14:00	Fine	Normal Operation	23.0	761.0	234.2	
9-Dec-04	WA7	2	14:00	15:00	Fine	Normal Operation	23.0	761.0	236.5	
9-Dec-04	WA7	3	15:00	16:00	Fine	Normal Operation	23.0	761.0	226.9	
9-Dec-04	WA8	1	8:55	9:55	Fine	Normal Operation	23.0	761.0	184.4	
9-Dec-04	WA8	2	9:55	10:55	Fine	Normal Operation	23.0	761.0	188.8	
9-Dec-04	WA8	3	10:55	11:55	Fine	Normal Operation	23.0	761.0	172.5	
9-Dec-04	WA9	1	8:55	9:55	Fine	Normal Operation	23.0	761.0	221.2	
9-Dec-04	WA9	2	9:55	10:55	Fine	Normal Operation	23.0	761.0	225.0	
9-Dec-04	WA9	3	10:55	11:55	Fine	Normal Operation	23.0	761.0	201.7	
9-Dec-04	WA10	1	8:47	9:47	Fine	Normal Operation	23.0	761.0	229.7	
9-Dec-04	WA10	2	9:47	10:47	Fine	Normal Operation	23.0	761.0	236.6	
9-Dec-04	WA10	3	10:47	11:47	Fine	Normal Operation	23.0	761.0	215.0	
9-Dec-04	WA11	1	8:55	9:55	Fine	Normal Operation	23.0	761.0	236.7	
9-Dec-04	WA11	2	9:55	10:55	Fine	Normal Operation	23.0	761.0	238.1	
9-Dec-04	WA11	3	10:55	11:55	Fine	Normal Operation	23.0	761.0	213.8	
15-Dec-04	WA3	1	8:44	9:44	Sunny	Normal Operation	25.0	763.0	227.9	
15-Dec-04	WA3	2	9:44	10:44	Sunny	Normal Operation	25.0	763.0	215.9	
15-Dec-04	WA3	3	10:44	11:44	Sunny	Normal Operation	25.0	763.0	242.0	
15-Dec-04	WA4	1	8:41	9:41	Sunny	Normal Operation	25.0	763.0	177.0	
15-Dec-04	WA4	2	9:41	10:41	Sunny	Normal Operation	25.0	763.0	170.1	
15-Dec-04	WA4	3	10:41	11:41	Sunny	Normal Operation	25.0	763.0	187.6	
15-Dec-04	WA5	1	8:41	9:41	Sunny	Normal Operation	25.0	763.0	206.9	
15-Dec-04	WA5	2	9:41	10:41	Sunny	Normal Operation	25.0	763.0	193.1	
15-Dec-04	WA5	3	10:41	11:41	Sunny	Normal Operation	25.0	763.0	222.3	
15-Dec-04	WA6	1	8:31	9:31	Sunny	Normal Operation	25.0	763.0	217.8	
15-Dec-04	WA6	2	9:31	10:31	Sunny	Normal Operation	25.0	763.0	208.0	
15-Dec-04	WA6	3	10:31	11:31	Sunny	Normal Operation	25.0	763.0	233.5	
15-Dec-04	WA7	1	14:20	15:20	Sunny	Normal Operation	25.0	763.0	200.4	
15-Dec-04	WA7	2	15:20	16:20	Sunny	Normal Operation	25.0	763.0	201.7	
15-Dec-04	WA7	3	16:20	17:20	Sunny	Normal Operation	25.0	763.0	189.7	
15-Dec-04	WA8	1	14:12	15:12	Sunny	Normal Operation	25.0	763.0	247.6	
15-Dec-04	WA8	2	15:12	16:12	Sunny	Normal Operation	25.0	763.0	242.5	
15-Dec-04	WA8	3	16:12	17:12	Sunny	Normal Operation	25.0	763.0	226.1	
15-Dec-04	WA9	1	14:20	15:20	Sunny	Normal Operation	25.0	763.0	238.1	
15-Dec-04	WA9	2	15:20	16:20	Sunny	Normal Operation	25.0	763.0	238.8	
15-Dec-04	WA9	3	16:20	17:20	Sunny	Normal Operation	25.0	763.0	222.6	
15-Dec-04	WA10	1	14:22	15:22	Sunny	Normal Operation	25.0	763.0	251.0	
15-Dec-04	WA10	2	15:22	16:22	Sunny	Normal Operation	25.0	763.0	251.5	
15-Dec-04	WA10	3	16:22	17:22	Sunny	Normal Operation	25.0	763.0	289.6	
15-Dec-04	WA11	1	13:45	14:45	Sunny	Normal Operation	25.0	763.0	251.7	
15-Dec-04	WA11	2	14:45	15:45	Sunny	Normal Operation	25.0	763.0	218.1	
15-Dec-04	WA11	3	15:45	16:45	Sunny	Normal Operation	25.0	763.0	226.1	

Details of 1-Hour TSP Monitoring

Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
			Start	Finish						
21-Dec-04	WA3	1	9:00	10:00	Fine	Normal Operation	22.0	762.0	242.5	
21-Dec-04	WA3	2	10:00	11:00	Fine	Normal Operation	22.0	762.0	240.8	
21-Dec-04	WA3	3	11:00	12:00	Fine	Normal Operation	22.0	762.0	239.8	
21-Dec-04	WA4	1	9:00	10:00	Fine	Normal Operation	22.0	762.0	262.9	
21-Dec-04	WA4	2	10:00	11:00	Fine	Normal Operation	22.0	762.0	214.5	
21-Dec-04	WA4	3	11:00	12:00	Fine	Normal Operation	22.0	762.0	271.0	
21-Dec-04	WA5	1	9:00	10:00	Fine	Normal Operation	22.0	762.0	204.1	
21-Dec-04	WA5	2	10:00	11:00	Fine	Normal Operation	22.0	762.0	203.1	
21-Dec-04	WA5	3	11:00	12:00	Fine	Normal Operation	22.0	762.0	202.7	
21-Dec-04	WA6	1	13:00	14:00	Fine	Normal Operation	22.0	762.0	185.2	
21-Dec-04	WA6	2	14:00	15:00	Fine	Normal Operation	22.0	762.0	176.2	
21-Dec-04	WA6	3	15:00	16:00	Fine	Normal Operation	22.0	762.0	181.4	
21-Dec-04	WA7	1	8:45	9:45	Fine	Normal Operation	22.0	762.0	175.4	
21-Dec-04	WA7	2	9:45	10:45	Fine	Normal Operation	22.0	762.0	167.9	
21-Dec-04	WA7	3	10:45	11:45	Fine	Normal Operation	22.0	762.0	191.6	
21-Dec-04	WA8	1	13:11	14:11	Fine	Normal Operation	22.0	762.0	248.3	
21-Dec-04	WA8	2	14:11	15:11	Fine	Normal Operation	22.0	762.0	246.1	
21-Dec-04	WA8	3	15:11	16:11	Fine	Normal Operation	22.0	762.0	249.8	
21-Dec-04	WA9	1	13:06	14:06	Fine	Normal Operation	22.0	762.0	207.1	
21-Dec-04	WA9	2	14:06	15:06	Fine	Normal Operation	22.0	762.0	189.3	
21-Dec-04	WA9	3	15:06	16:06	Fine	Normal Operation	22.0	762.0	205.3	
21-Dec-04	WA10	1	13:00	14:00	Fine	Normal Operation	22.0	762.0	174.3	
21-Dec-04	WA10	2	14:00	15:00	Fine	Normal Operation	22.0	762.0	166.2	
21-Dec-04	WA10	3	15:00	16:00	Fine	Normal Operation	22.0	762.0	169.7	
21-Dec-04	WA11	1	13:02	14:02	Fine	Normal Operation	22.0	762.0	240.0	
21-Dec-04	WA11	2	14:02	15:02	Fine	Normal Operation	22.0	762.0	244.6	
21-Dec-04	WA11	3	15:02	16:02	Fine	Normal Operation	22.0	762.0	197.6	
28-Dec-04	WA3	1	9:00	10:00	Fine	Normal Operation	12.0	766.0	200.5	
28-Dec-04	WA3	2	10:00	11:00	Fine	Normal Operation	12.0	766.0	196.1	
28-Dec-04	WA3	3	11:00	12:00	Fine	Normal Operation	12.0	766.0	197.4	
28-Dec-04	WA4	1	9:00	10:00	Fine	Normal Operation	12.0	766.0	195.6	
28-Dec-04	WA4	2	10:00	11:00	Fine	Normal Operation	12.0	766.0	192.2	
28-Dec-04	WA4	3	11:00	12:00	Fine	Normal Operation	12.0	766.0	193.4	
28-Dec-04	WA5	1	9:00	10:00	Fine	Normal Operation	12.0	766.0	194.9	
28-Dec-04	WA5	2	10:00	11:00	Fine	Normal Operation	12.0	766.0	190.3	
28-Dec-04	WA5	3	11:00	12:00	Fine	Normal Operation	12.0	766.0	191.4	
28-Dec-04	WA6	1	9:00	10:00	Fine	Normal Operation	12.0	766.0	201.9	
28-Dec-04	WA6	2	10:00	11:00	Fine	Normal Operation	12.0	766.0	197.8	
28-Dec-04	WA6	3	11:00	12:00	Fine	Normal Operation	12.0	766.0	198.0	
28-Dec-04	WA7	1	13:29	14:29	Fine	Normal Operation	12.0	766.0	195.4	
28-Dec-04	WA7	2	14:29	15:29	Fine	Normal Operation	12.0	766.0	197.5	
28-Dec-04	WA7	3	15:29	16:29	Fine	Normal Operation	12.0	766.0	205.4	
28-Dec-04	WA8	1	13:25	14:25	Fine	Normal Operation	12.0	766.0	201.2	
28-Dec-04	WA8	2	14:25	15:25	Fine	Normal Operation	12.0	766.0	203.1	
28-Dec-04	WA8	3	15:25	16:25	Fine	Normal Operation	12.0	766.0	211.9	
28-Dec-04	WA9	1	13:18	14:18	Fine	Normal Operation	12.0	766.0	199.3	
28-Dec-04	WA9	2	14:18	15:18	Fine	Normal Operation	12.0	766.0	200.3	
28-Dec-04	WA9	3	15:18	16:18	Fine	Normal Operation	12.0	766.0	207.2	
28-Dec-04	WA10	1	13:24	14:24	Fine	Normal Operation	12.0	766.0	193.8	
28-Dec-04	WA10	2	14:24	15:24	Fine	Normal Operation	12.0	766.0	195.6	
28-Dec-04	WA10	3	15:24	16:24	Fine	Normal Operation	12.0	766.0	198.8	
28-Dec-04	WA11	1	9:00	10:00	Fine	Normal Operation	12.0	766.0	215.9	
28-Dec-04	WA11	2	10:00	11:00	Fine	Normal Operation	12.0	766.0	210.3	
28-Dec-04	WA11	3	11:00	12:00	Fine	Normal Operation	12.0	766.0	210.5	

APPENDIX G

Detailed air quality (24-hour TSP) monitoring results

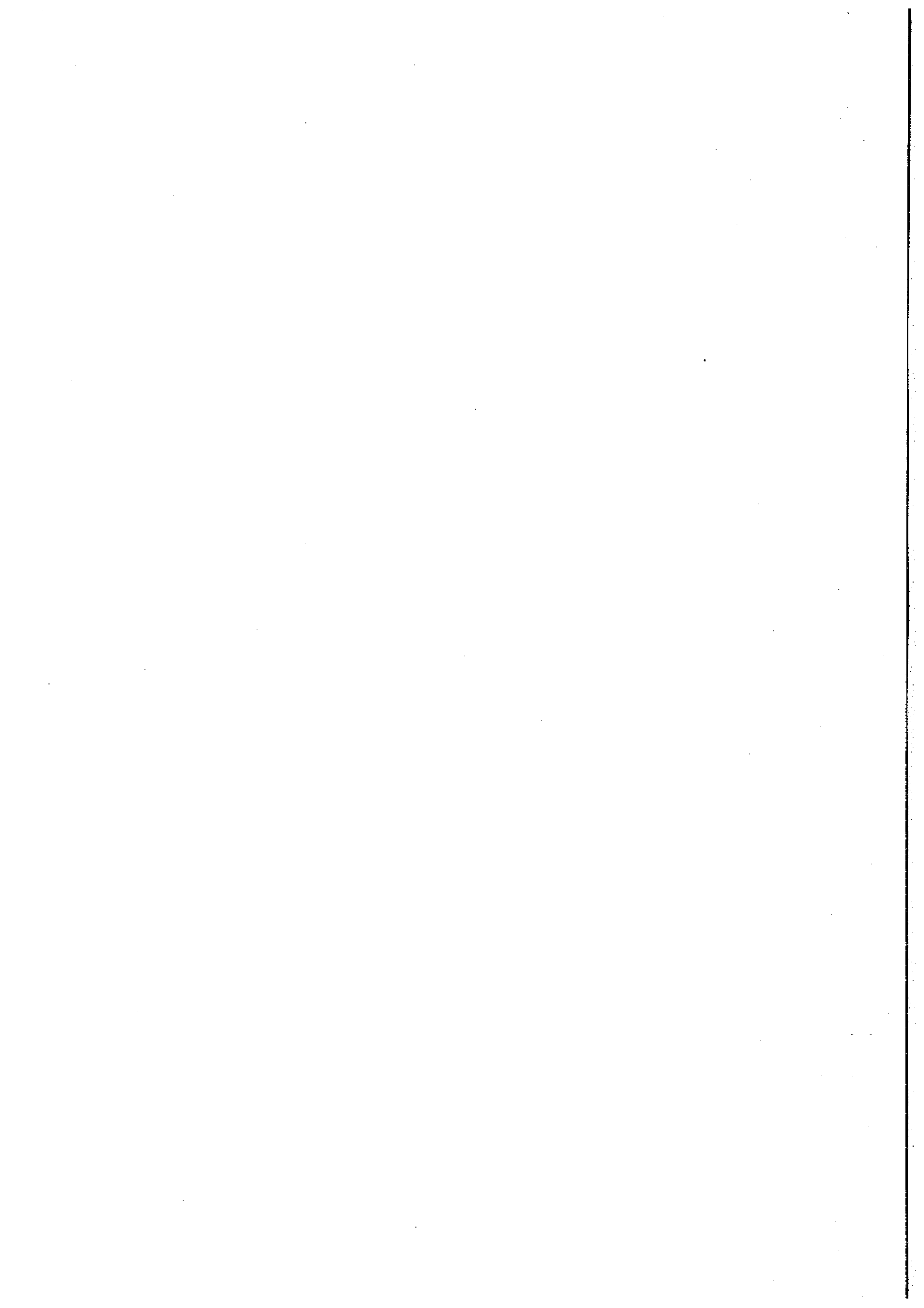


Details of 24-Hour TSP Monitoring

Date	Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Remarks	
				Initial	Final		Initial	Final		Start	Finish					
3-Dec-04	WA3	Fine	Normal Operation	2.8427	3.0575	0.2148	1.0072	0.9982	1.0027	4:46:26	4:48:26	1440.00	1443.89	148.8		
3-Dec-04	WA4	Fine	Normal Operation	2.8570	3.1183	0.2613	1.0678	1.0766	1.0822	4:55:34	4:57:34	1440.00	1558.37	167.7		
3-Dec-04	WA5	Fine	Normal Operation	2.8498	3.2370	0.3872	1.5205	1.5079	1.5142	4:55:32	4:57:32	1440.00	2180.45	177.6		
3-Dec-04	WA6	Fine	Normal Operation	2.8695	3.1128	0.2433	1.2533	1.2520	1.2527	4:45:38	4:47:38	1440.00	1803.82	134.9		
3-Dec-04	WA7	Fine	Normal Operation	2.8797	3.1417	0.2620	1.2542	1.2460	1.2501	4:55:32	4:57:32	1440.00	1800.14	145.5		
3-Dec-04	WA8	Fine	Normal Operation	2.8795	3.1724	0.2929	1.4484	1.4376	1.4430	4:56:51	4:58:51	1440.00	2077.92	141.0		
3-Dec-04	WA9	Fine	Normal Operation	2.8688	3.0314	0.1626	1.3072	1.2948	1.3010	4:42:05	4:46:05	1440.00	1873.44	86.8		
3-Dec-04	WA10	Fine	Normal Operation	2.8678	3.0030	0.1352	1.0940	1.0858	1.0899	4:48:00	4:51:30	1440.00	1569.46	86.1		
3-Dec-04	WA11	Fine	Normal Operation	2.8554	3.0891	0.2337	1.0749	1.0553	1.0651	4:46:08	4:48:08	1440.00	1533.74	152.4		
6-Dec-04	WA11	Fine	Normal Operation	2.8625	3.1596	0.2971	1.1736	1.1678	1.1707	4:46:08	4:48:08	1440.00	1685.81	176.2		
7-Dec-04	WA11	Fine	Normal Operation	2.8628	3.1610	0.2782	1.0734	1.0454	1.0594	4:46:08	4:49:08	1440.00	1525.54	182.4		
8-Dec-04	WA11	Fine	Normal Operation	2.8720	3.0560	0.1840	1.1787	1.1704	1.1746	4:49:08	4:53:08	1440.00	1691.35	108.8		
9-Dec-04	WA3	Sunny	Normal Operation	2.8592	3.0316	0.1724	1.0148	1.0081	1.0115	4:48:26	4:50:26	1440.00	1456.49	118.4		
9-Dec-04	WA4	Sunny	Normal Operation	2.8585	3.0142	0.1557	0.8842	0.8770	0.8806	4:57:34	4:58:34	1440.00	1288.06	122.8		
9-Dec-04	WA5	Sunny	Normal Operation	2.8498	3.2370	0.3872	1.5313	1.5218	1.5266	4:47:38	4:49:38	1440.00	2198.23	176.1		
9-Dec-04	WA6	Sunny	Normal Operation	2.8725	3.0415	0.1690	1.2572	1.2509	1.2541	4:47:38	4:49:38	1440.00	1805.83	93.6		
9-Dec-04	WA7	Sunny	Normal Operation	2.8639	3.0452	0.1813	1.2090	1.2291	1.2191	4:57:32	4:60:32	1440.00	1755.43	103.3		
9-Dec-04	WA8	Sunny	Normal Operation	2.8659	2.9848	0.1189	1.0922	1.0905	1.0914	4:46:05	4:48:05	1440.00	1571.54	75.7		
9-Dec-04	WA9	Sunny	Normal Operation	2.8372	2.9672	0.1300	1.3852	1.3825	1.3839	4:46:05	4:48:05	1440.00	1982.74	65.2		
9-Dec-04	WA10	Sunny	Normal Operation	2.8667	2.9284	0.0617	1.0376	1.0360	1.0368	4:56:18	4:58:18	1440.00	1492.99	41.3		
9-Dec-04	WA11	Sunny	Normal Operation	2.8625	3.1596	0.2971	1.1769	1.1724	1.1747	4:47:08	4:51:08	1440.00	1691.50	175.6		
15-Dec-04	WA3	Sunny	Normal Operation	2.8824	3.0550	0.1726	0.9493	0.8843	0.9168	4:50:26	4:53:26	1440.00	1320.19	130.7		
15-Dec-04	WA4	Sunny	Normal Operation	2.8816	3.0592	0.1776	1.0238	1.0216	1.0227	4:58:34	4:62:34	1440.00	1472.69	120.6		
15-Dec-04	WA5	Sunny	Normal Operation	2.8651	3.1098	0.2447	1.3596	1.3572	1.3584	4:46:26	4:48:26	1440.00	1956.10	125.1		
15-Dec-04	WA6	Sunny	Normal Operation	2.9126	3.3161	0.4035	1.6341	1.6329	1.6341	4:48:38	4:52:38	1440.00	2353.10	171.5		
15-Dec-04	WA7	Sunny	Normal Operation	2.8647	3.0445	0.1798	1.3115	1.3097	1.3106	4:46:05	4:48:05	1440.00	1887.26	95.3		
15-Dec-04	WA8	Sunny	Normal Operation	2.8659	2.9848	0.1189	1.0922	1.0905	1.0914	4:46:05	4:48:05	1440.00	1571.54	75.7		
15-Dec-04	WA9	Sunny	Normal Operation	2.8372	2.9672	0.1300	1.3852	1.3825	1.3839	4:46:05	4:48:05	1440.00	1982.74	65.2		
15-Dec-04	WA10	Sunny	Normal Operation	2.8667	2.9284	0.0617	1.0376	1.0360	1.0368	4:56:18	4:58:18	1440.00	1492.99	41.3		
15-Dec-04	WA11	Sunny	Normal Operation	2.8520	3.1237	0.2717	1.3147	1.3122	1.3135	4:47:08	4:51:08	1440.00	1891.37	143.7		
21-Dec-04	WA3	Sunny	Normal Operation	2.8719	2.9184	0.0475	0.8779	0.8773	0.8776	4:53:26	4:55:26	1440.00	1283.74	37.6		
21-Dec-04	WA4	Sunny	Normal Operation	2.8696	3.0615	0.1919	1.0832	1.0824	1.0828	4:62:34	4:64:26	1437.00	1555.98	123.3		
21-Dec-04	WA5	Sunny	Normal Operation	2.8640	3.1510	0.2870	1.3480	1.3472	1.3476	4:46:26	4:48:26	1416.00	1908.20	150.4		
21-Dec-04	WA6	Sunny	Normal Operation	#N/A	#N/A	#N/A	0.2416	0.2416	0.2416		0.00	0.00	0.00	#N/A		
21-Dec-04	WA7	Sunny	Normal Operation	2.8905	2.9792	0.0887	1.3026	1.3019	1.3023	4:46:26	4:48:26	1440.00	1875.24	47.3		
21-Dec-04	WA8	Sunny	Normal Operation	2.8974	3.0557	0.1583	1.4740	1.4731	1.4736	4:46:26	4:48:26	1440.00	2121.91	74.6		
21-Dec-04	WA9	Sunny	Normal Operation	2.8445	2.9520	0.1075	1.0926	1.0965	1.1446	4:46:05	4:48:05	1440.00	1648.15	65.2		
21-Dec-04	WA10	Sunny	Normal Operation	2.8544	3.1052	0.2508	1.4566	1.4557	1.4562	4:48:05	4:49:05	1440.00	2096.86	119.6		
21-Dec-04	WA11	Sunny	Normal Operation	2.8684	3.0903	0.2219	1.3027	1.3018	1.3023	4:47:08	4:48:08	1440.00	1875.24	118.3		
28-Dec-04	WA3	Fine	Normal Operation	2.8686	3.0532	0.1846	1.0236	1.0236	1.0236	4:58:27	4:58:27	1440.00	1473.98	125.2		
28-Dec-04	WA4	Fine	Normal Operation	2.8560	3.0885	0.2325	1.0368	1.0368	1.0368	4:46:26	4:47:30	1440.60	1493.61	155.7		
28-Dec-04	WA5	Fine	Normal Operation	2.8605	3.2512	0.3907	1.5437	1.5437	1.5437	4:46:26	4:47:27	1440.00	2222.93	175.8		
28-Dec-04	WA6	Fine	Normal Operation	#N/A	#N/A	#N/A	0.2416	0.2416	0.2416		0.00	0.00	0.00	#N/A		
28-Dec-04	WA7	Fine	Normal Operation	2.8808	3.1329	0.2521	1.2694	1.2694	1.2694	4:46:26	4:47:22	1434.00	1820.32	138.5		
28-Dec-04	WA8	Fine	Normal Operation	2.8242	3.2700	0.4458	1.6516	1.6516	1.6516	4:46:26	4:47:25	1440.00	2378.30	187.4		
28-Dec-04	WA9	Fine	Normal Operation	2.8424	3.0380	0.1956	1.3298	1.3298	1.3298	4:46:26	4:47:25	1440.00	1915.71	102.1		
28-Dec-04	WA10	Fine	Normal Operation	2.8972	3.3170	0.4198	1.6683	1.6683	1.6683	4:46:26	4:47:25	1440.00	2402.35	174.7		
28-Dec-04	WA11	Fine	Normal Operation	2.8327	3.1058	0.2731	1.1265	1.1603	1.1434	4:48:08	4:48:29	1441.20	1647.87	165.7		

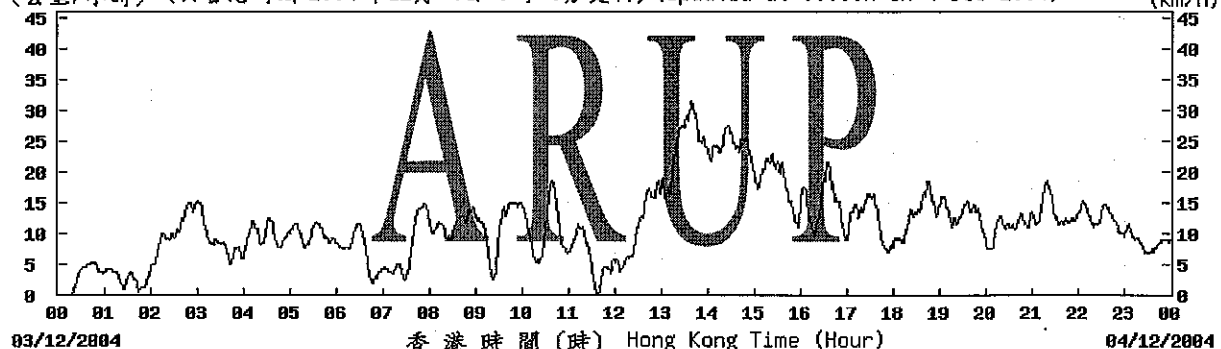
APPENDIX H

**Detailed wind
monitoring data for the
air quality monitoring
period**



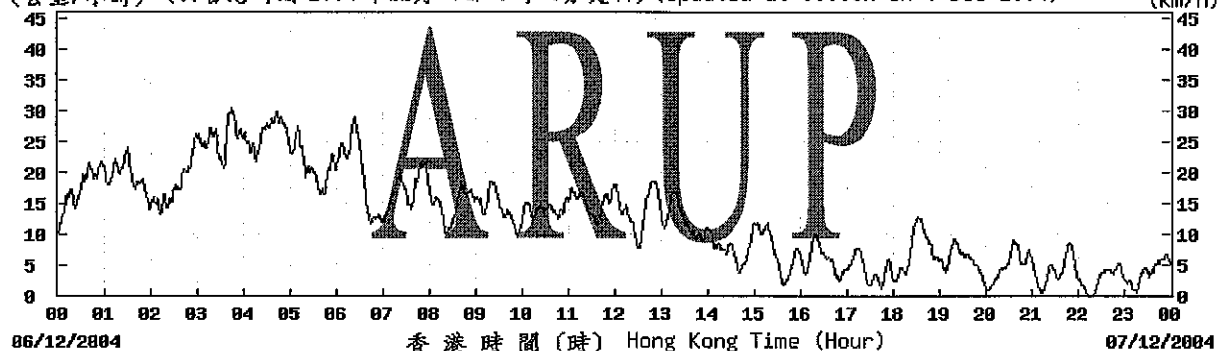
Wind Monitoring Data – Wind Speed during air quality monitoring in December 2004

(公里/小時) (於香港時間 2004 年 12 月 4 日 0 時 0 分更新) (Updated at 00:00H on 4 Dec 2004) (km/h)



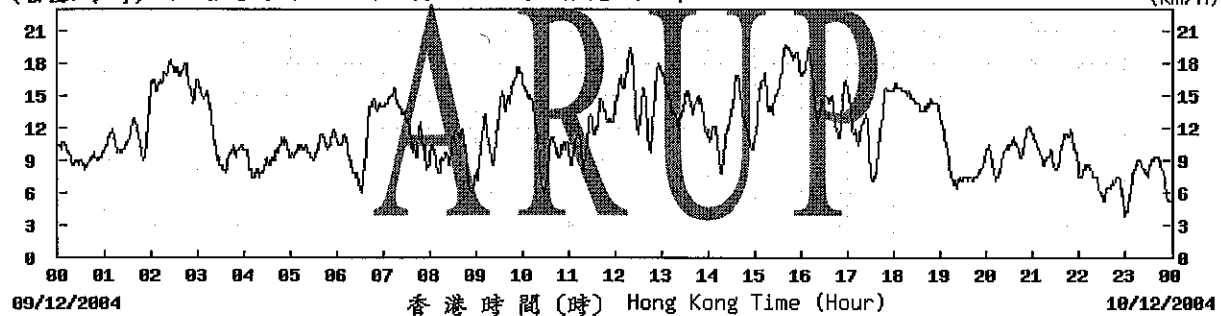
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(公里/小時) (於香港時間 2004 年 12 月 7 日 0 時 0 分更新) (Updated at 00:00H on 7 Dec 2004) (km/h)



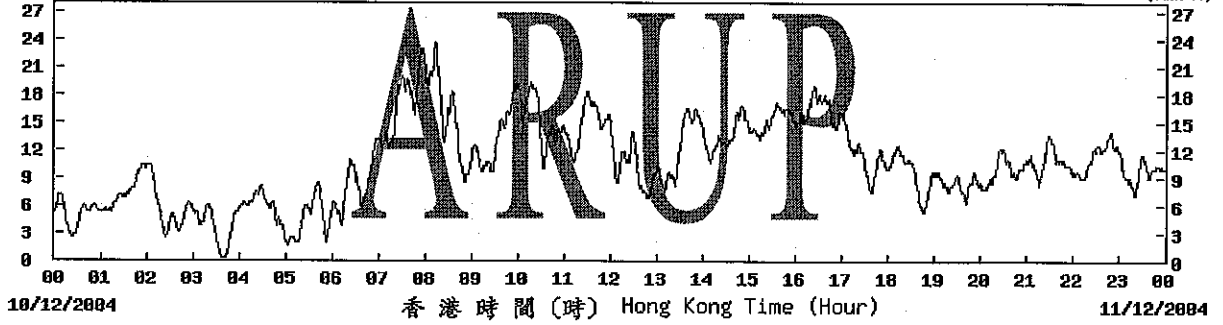
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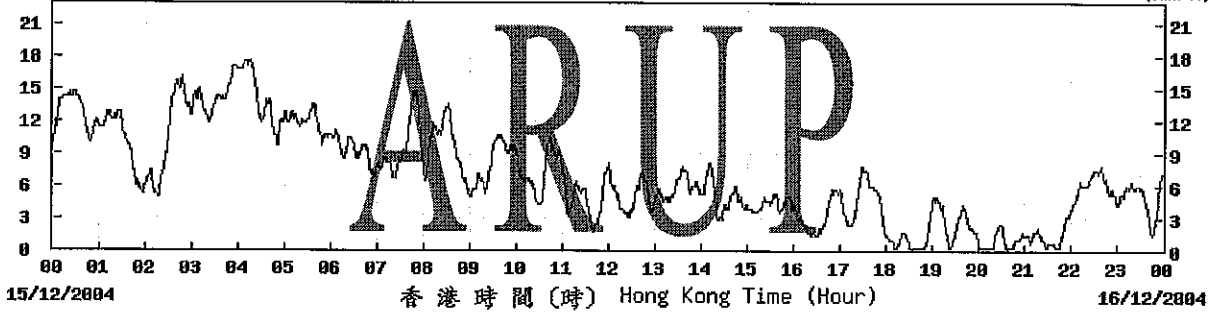
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(公里/小時) (於香港時間 2004 年12月11日 0時 0分更新) (Updated at 00:00H on 11 Dec 2004) (km/h)



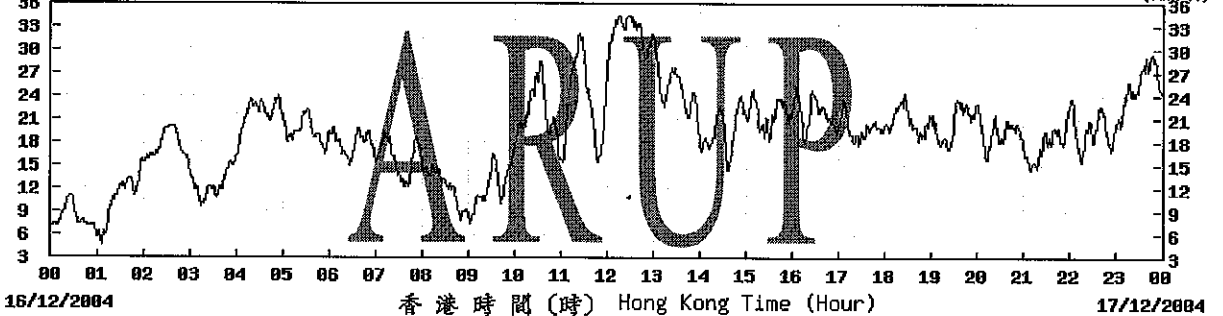
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(公里/小時) (於香港時間 2004 年12月16日 0時 0分更新) (Updated at 00:00H on 16 Dec 2004) (km/h)



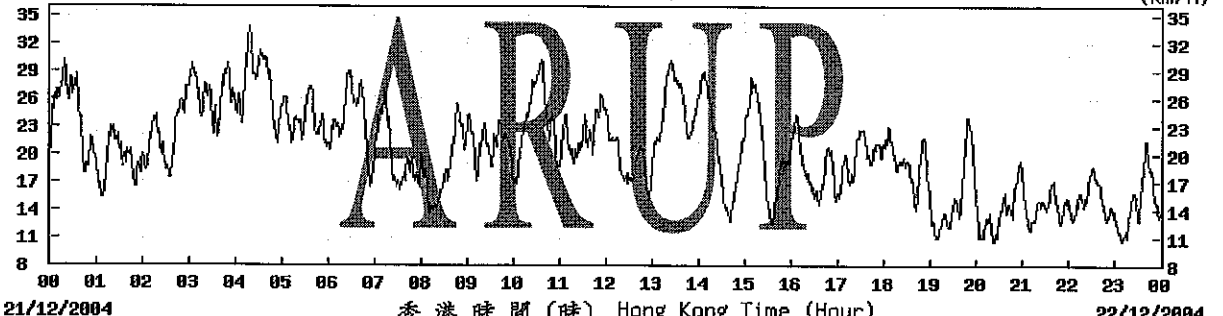
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(公里/小時) (於香港時間 2004 年12月17日 0時 0分更新) (Updated at 00:00H on 17 Dec 2004) (km/h)



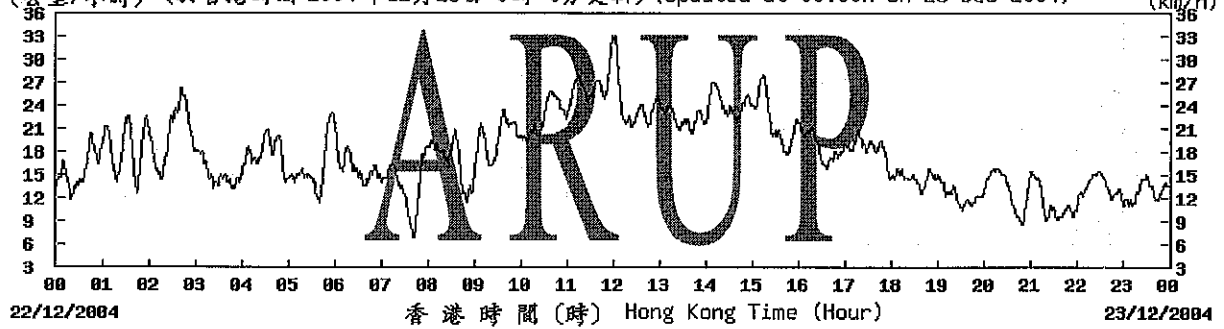
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(公里/小時) (於香港時間 2004 年12月22日 0時 0分更新) (Updated at 00:00H on 22 Dec 2004) (km/h)



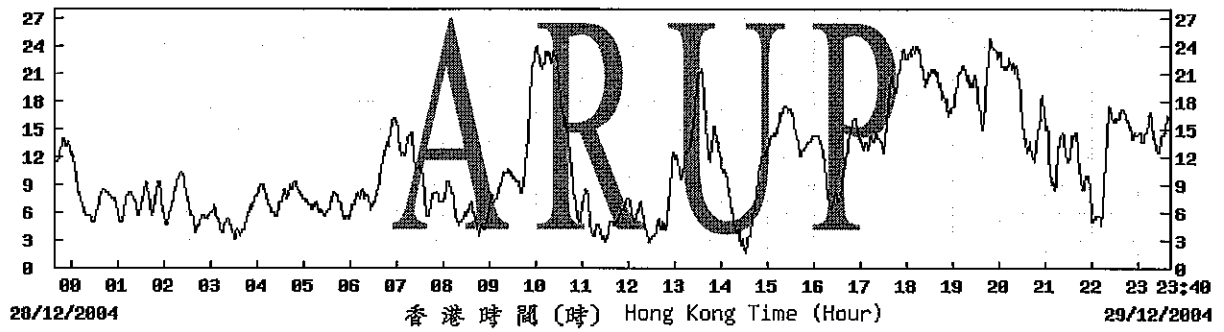
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(公里/小時) (於香港時間 2004 年 12 月 23 日 0 時 0 分更新) (Updated at 00:00H on 23 Dec 2004)

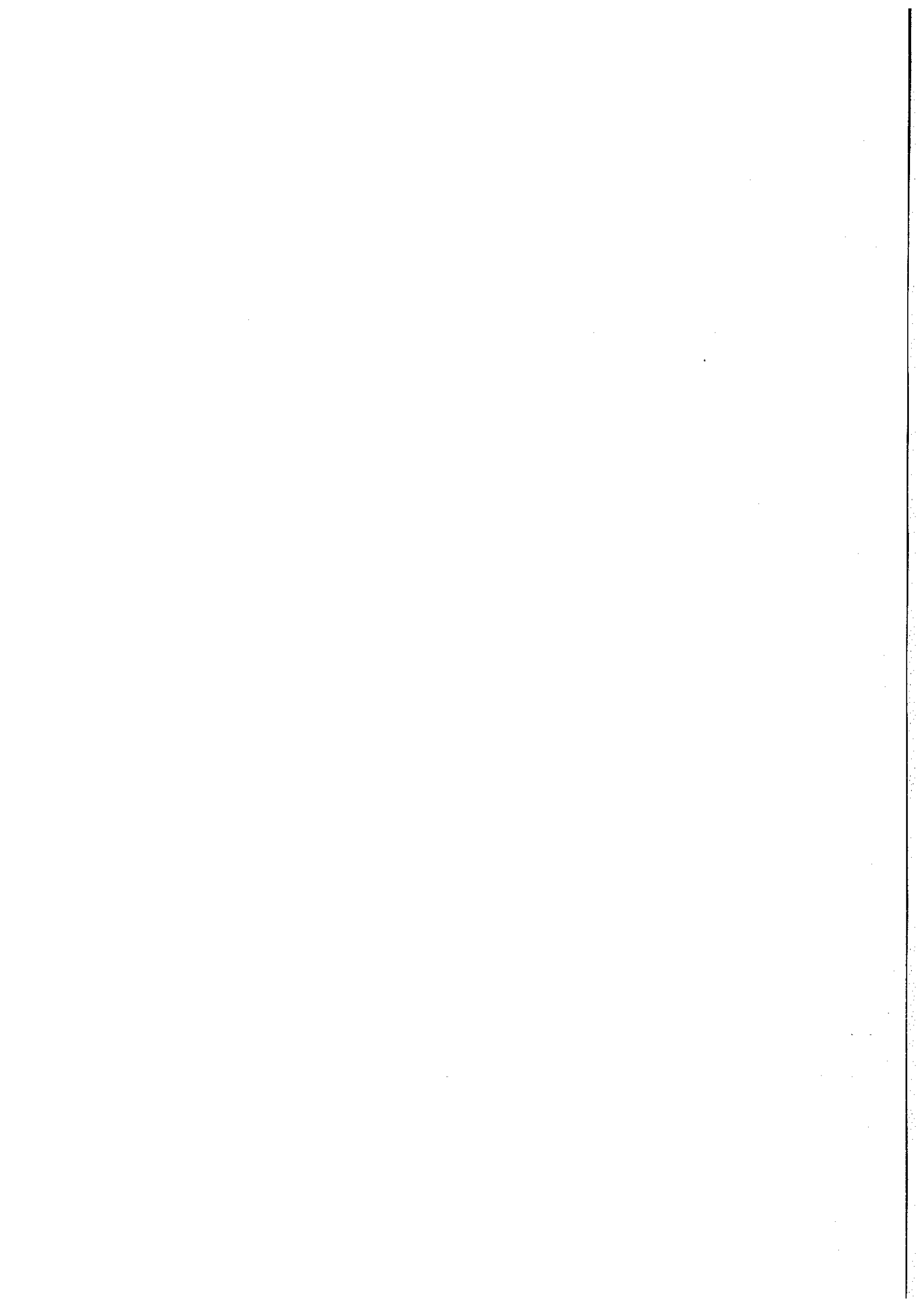


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(公里/小時) (於香港時間 2004 年 12 月 29 日 23 時 40 分更新) (Updated at 23:40H on 29 Dec 2004)

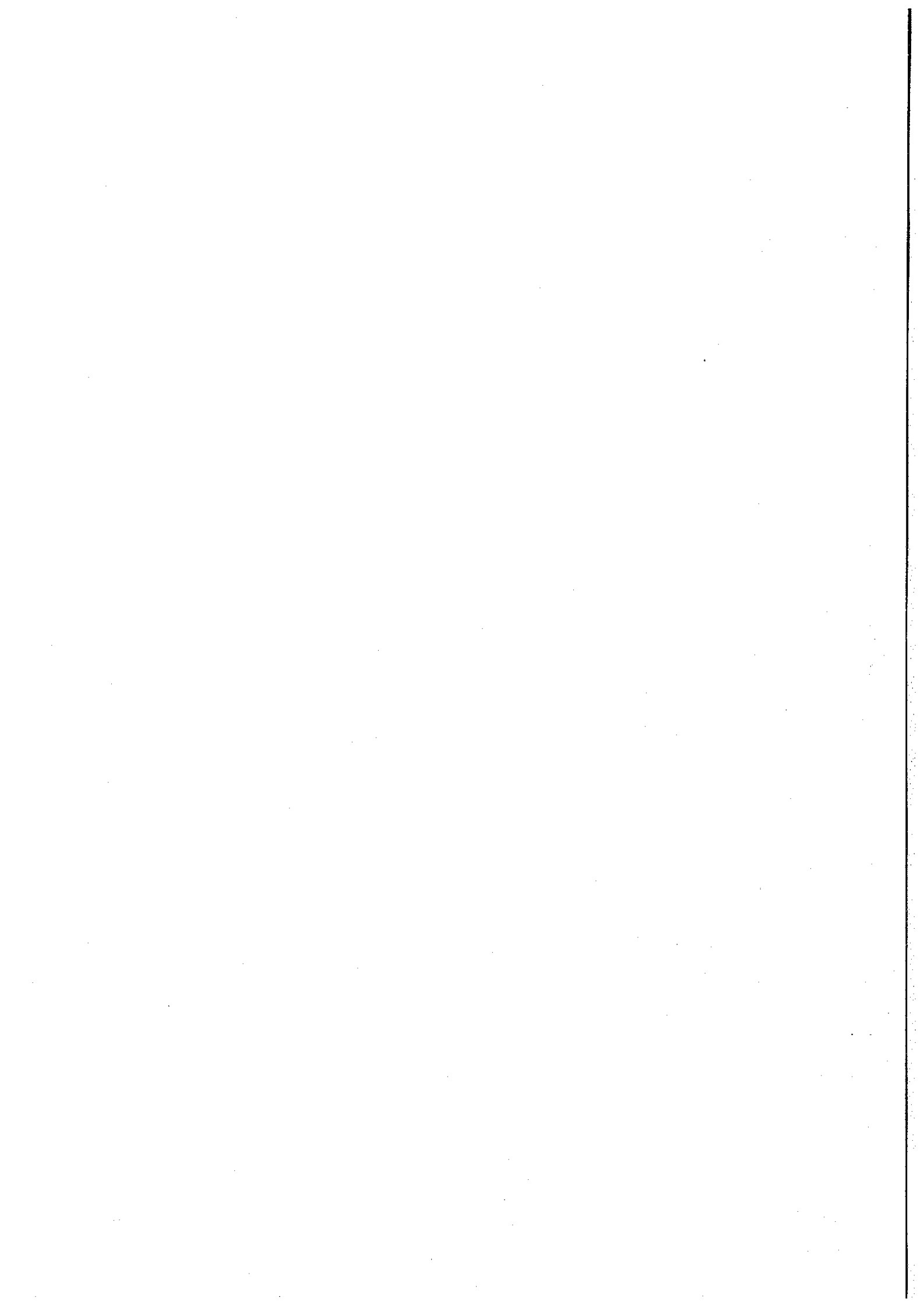


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APPENDIX I

**Calibration certificates
of noise monitoring
equipment**



Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

AAc Certificate No. 2004001

Tel: +852 2268 3216

Fax: +852 2268 3950

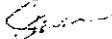
CERTIFICATE OF CONFORMITY

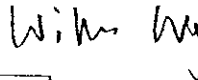
<u>Description of Test Instrument</u>	<u>Type No</u>	<u>Serial No</u>
Bruel & Kjaer Acoustic Calibrator	4230	1233887

Date of Test: 16 July 2004

Carried out by: Steven Wong

Approved by: William Ng

Signature: 

Signature: 

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	28°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

<u>Description of Reference Calibrator</u>	<u>Type No</u>	<u>Serial No</u>
Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372
Certificate of Calibration Serial No.	12701	
By Brüel & Kjær (UK) Ltd Calibration Date:	20 April 2004	
NAMAS Accredited Calibration Laboratory No.	0174	

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

Arup Acoustics is not a registered NAMAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics development and commitment to QC and QA procedures.

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

AAC Certificate No. 2004002

Tel: +852 2268 3216

Fax: +852 2268 3950


CERTIFICATE OF CONFORMITY

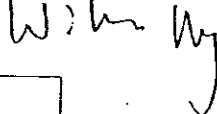
<u>Description of Test Instrument</u>	<u>Type No</u>	<u>Serial No</u>
Bruel & Kjaer Acoustic Calibrator	4231	2314016

Date of Test: 16 July 2004

Carried out by: Steven Wong

Approved by: William Ng

Signature: 

Signature: 

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	28°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

<u>Description of Reference Calibrator</u>	<u>Type No</u>	<u>Serial No</u>
Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372
Certificate of Calibration Serial No.	12701	
By Brüel & Kjær (UK) Ltd Calibration Date:	20 April 2004	
NAMAS Accredited Calibration Laboratory No.	0174	

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

Arup Acoustics is not a registered NAMAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics development and commitment to QC and QA procedures.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-5

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær	,	
Type No. :	2238	,	4188
Serial No. :	2320707	,	2179479

Client :
Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong.

Calibration Conditions :

Air Temperature :	23.1	°C
Air Pressure :	101.4	kPa
Relative Humidity :	58	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

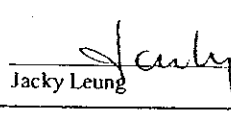
The measurements has been performed with the assistance of:
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 09 September, 2004
Calibrated By :

Certificate issued : 10 September, 2004
Approved signatory :


Fox Ng
Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-5

Page 2 of 2

Results :

List of performed (sub) test with test status:

“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

“ - ” Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjaer's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	08 Oct, 2003	HKSC (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By : *Rox Ng*
Date : 09 September, 2004

Checked By : *Andy*
Date : 10 September, 2004

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-4

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2238	,	4188
Serial No. :	2320696	,	2274286

Client : Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong.

Calibration Conditions :

Air Temperature : 23.2 °C
Air Pressure : 101.2 kPa
Relative Humidity : 59 %

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 10 September, 2004

Certificate issued : 10 September, 2004

Calibrated By :

Approved signatory :

Fox Ng

Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-4

Page 2 of 2

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjør's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	08 Oct, 2003	HKSL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By : *Box Ng*
Date : 10 September, 2004

Checked By : *July*
Date : 10 September, 2004

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-3

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2238	,	4188
Serial No. :	2320694	,	2274284

Client :
Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong.

Calibration Conditions :

Air Temperature :	23.2	°C
Air Pressure :	101.2	kPa
Relative Humidity :	59	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

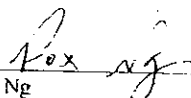
The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

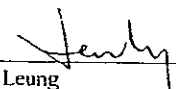
Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 10 September, 2004
Calibrated By :

Certificate issued : 10 September, 2004
Approved signatory :


Fox Ng


Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-3

Page 2 of 2

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Brüel & Kjør's Sound Level Meter Calibration System	B&K 9600 CAL2238A,	Ver.25.10.1999		
Digital Multi-meter	Datron 1281	27361	08 Oct, 2003	HKSL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By : *Bob Ng*
Date : 10 September, 2004

Checked By : *Janey*
Date : 10 September, 2004



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-1

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2231	,	4188
Serial No. :	1294630	,	2179478

Client : Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong.

Calibration Conditions :

Air Temperature :	23.2	°C
Air Pressure :	101.2	kPa
Relative Humidity :	59	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 C2231_10, Ver.03.11.1995
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

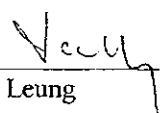
Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration: 10 September, 2004
Calibrated By :

Certificate issued: 10 September, 2004
Approved Signatory :


Fox Ng


Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-1

Page 2 of 2

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Noise	Lin Lim	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Frequency Weighting	Lin Lim	OK
Frequency Weighting	Random	OK
Level Range Control	4000 Hz	OK
Linearity Range	SPL 10dB 1000 Hz	OK
Linearity Range	SPL 1dB 4000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging	Leq-SEL	OK
Pulse Range	SEL-Leq	OK
Overload	SPL	OK
Overload	SEL	OK
Internal Reference		OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 C2231_10, Ver.03.11.1995				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable To
Digital Multi-meter	Datron 1281	27361	08 Oct 2003	HKSC(L)(HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

 Calibrated By : *Paul Ng*
 Date : 10 September, 2004

 Checked By : *July*
 Date : 10 September, 2004



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-2

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2231	,	4188
Serial No. :	1709184	,	2179476

Client : Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong.

Calibration Conditions :

Air Temperature :	23.2	°C
Air Pressure :	101.2	kPa
Relative Humidity :	59	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 C2231_10, Ver.03.11.1995
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

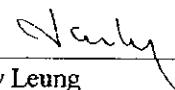
Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration: 10 September, 2004
Calibrated By :

Certificate issued: 10 September, 2004
Approved Signatory :


Fox Ng


Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS040905-2

Page 2 of 2

Results :

List of performed (sub) test with test status:

“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

“-” Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Noise	Lin Lim	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Frequency Weighting	Lin Lim	OK
Frequency Weighting	Random	OK
Level Range Control	4000 Hz	OK
Linearity Range	SPL 10dB 1000 Hz	OK
Linearity Range	SPL 1dB 4000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging	Leq-SEL	OK
Pulse Range	SEL-Ieq	OK
Overload	SPL	OK
Overload	SEL	OK
Internal Reference		OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

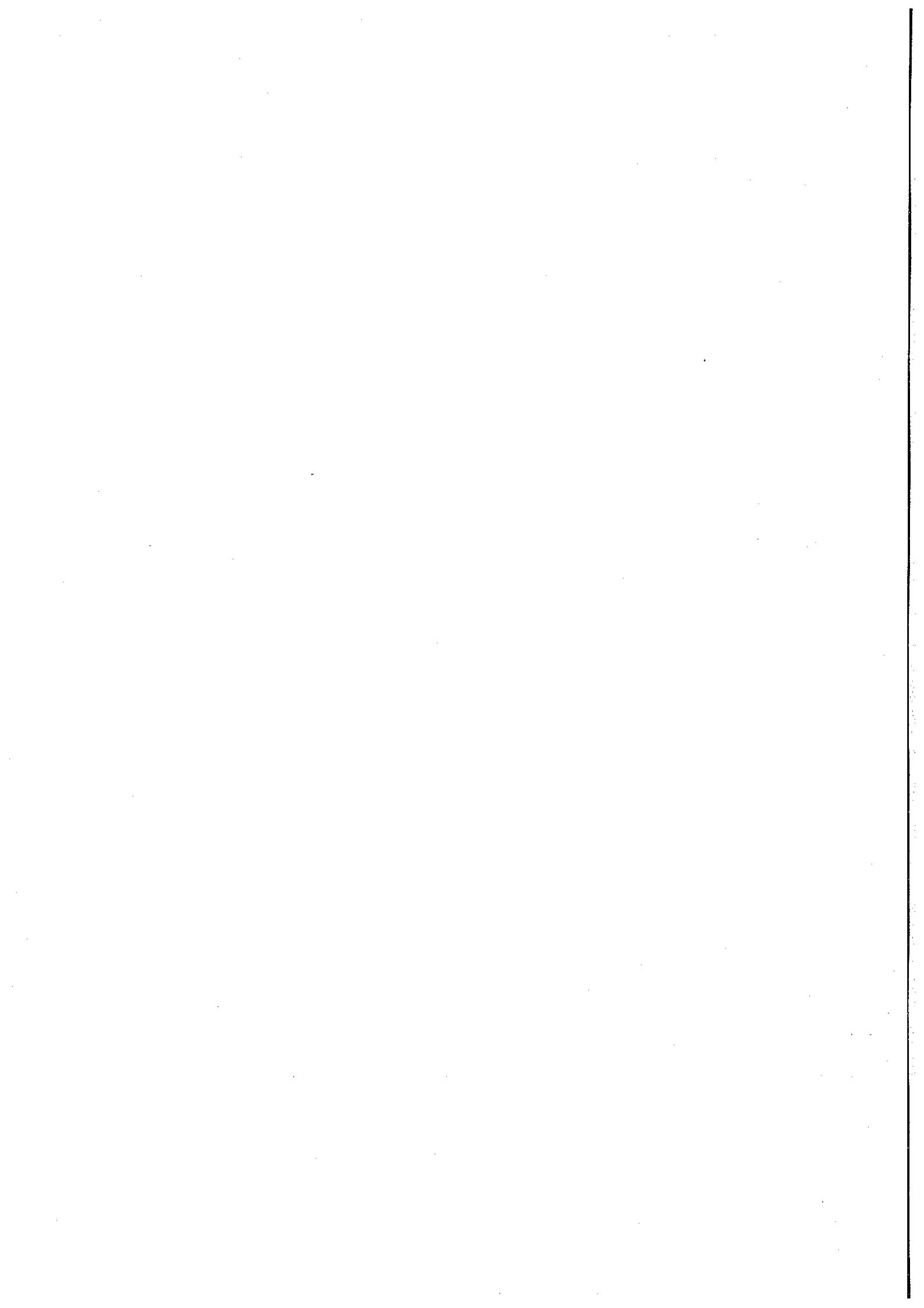
Brüel & Kjør's Sound Level Meter Calibration System B&K 9600 C2231_10, Ver.03.11.1995				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable To
Digital Multi-meter	Datron 1281	27361	08 Oct 2003	HKSCS(HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By: *Rox Ng*
Date : 10 September, 2004

Checked By: *Wendy*
Date : 10 September, 2004

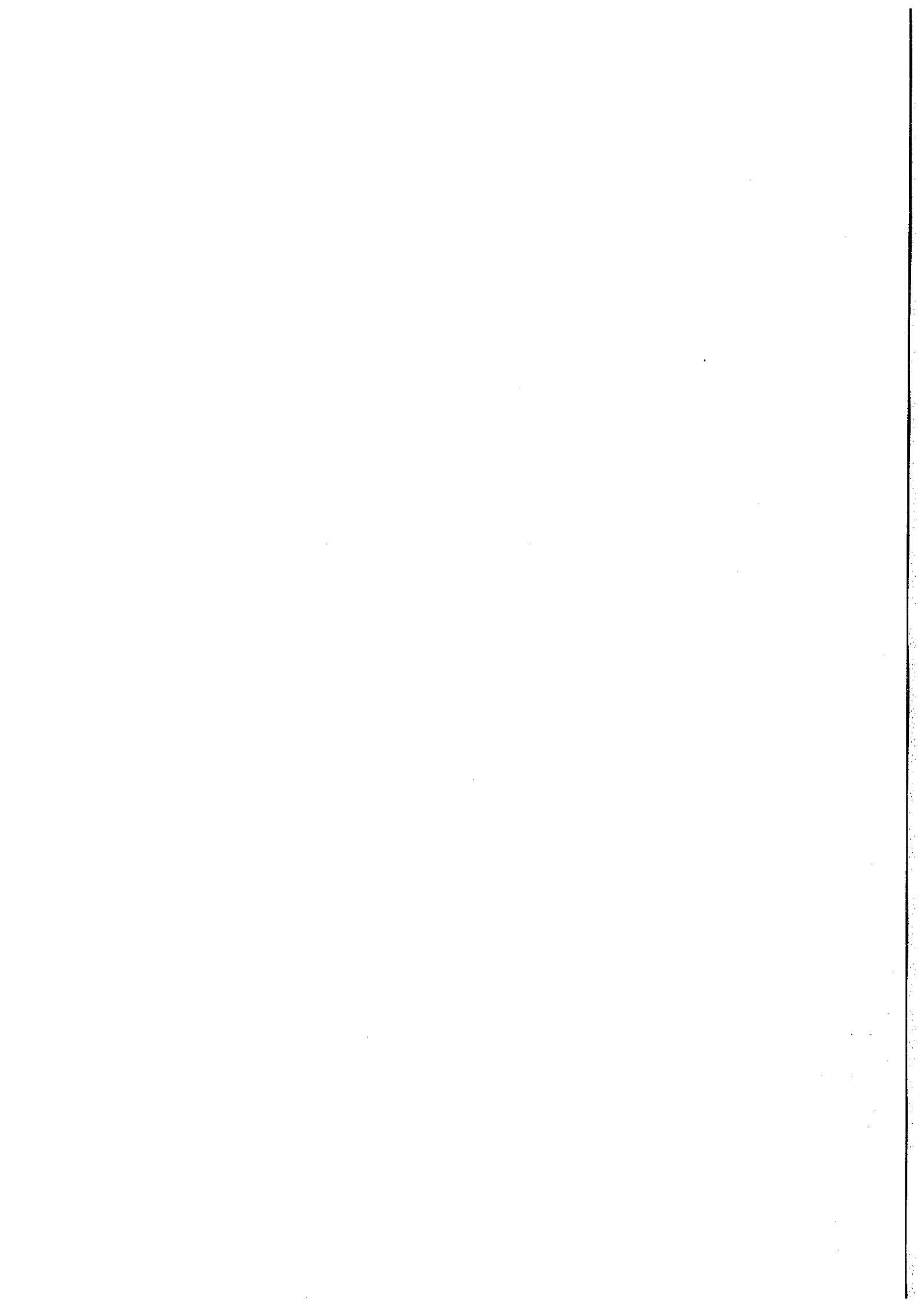
APPENDIX J

**Detailed noise
monitoring results**



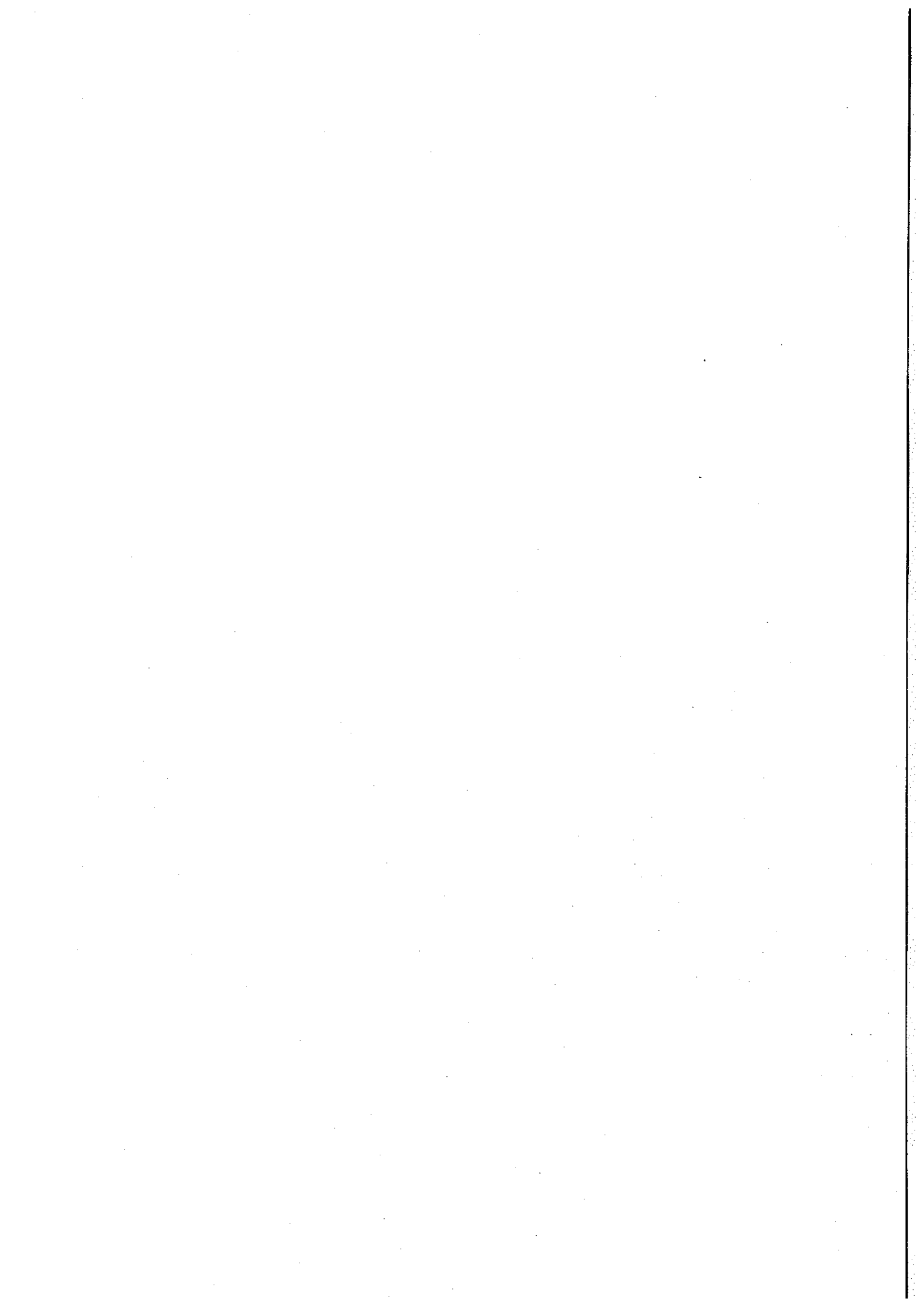
Details of Noise Impact Monitoring

Date	NSR No.	Time periods		Weather condition	Avg. wind speed (m/s)	Noise Level dB(A)			Influencing factors/ Site condition
		Start	Finish			L _{eq}	L ₁₀	L ₉₀	
9-Dec-04	WN1	10:00	10:30	Sunny	1.2	69.7	72.0	67.5	Normal Operation
9-Dec-04	WN2	10:45	11:15	Sunny	1.5	69.3	72.0	68.0	Normal Operation
9-Dec-04	WN6	13:00	13:30	Sunny	2.4	70.2	72.5	68.5	Normal Operation
9-Dec-04	WN7	11:00	11:30	Sunny	1.8	69.1	71.5	68.0	Normal Operation
9-Dec-04	WN8	10:15	10:45	Sunny	1.7	69.4	71.5	68.0	Normal Operation
9-Dec-04	WN9	13:45	14:15	Sunny	1.8	72.9	74.5	71.0	Normal Operation
9-Dec-04	WN10	9:30	10:00	Sunny	2.1	70.6	73.0	69.0	Normal Operation
9-Dec-04	WN11	14:30	15:00	Sunny	1.5	70.8	73.0	69.5	Normal Operation
9-Dec-04	WN12	15:15	15:45	Sunny	1.2	69.8	72.5	68.5	Normal Operation
9-Dec-04	WN13	11:20	11:50	Sunny	1.5	60.8	63.5	55.0	Normal Operation
9-Dec-04	WN14	10:45	11:15	Sunny	1.1	70.0	72.5	64.5	Normal Operation
9-Dec-04	WN15	10:10	10:40	Sunny	2.1	65.2	67.5	60.5	Normal Operation
9-Dec-04	WN16	9:30	10:00	Sunny	2.3	71.1	73.0	68.0	Normal Operation
15-Dec-04	WN1	17:20	17:50	Fine	0.4	71.7	73.5	70.0	Normal Operation
15-Dec-04	WN2	16:45	17:15	Fine	0.3	72.1	74.0	70.5	Normal Operation
15-Dec-04	WN6	11:00	11:30	Fine	2.1	67.0	68.0	65.5	Normal Operation
15-Dec-04	WN7	10:00	10:30	Fine	1.4	68.4	69.5	67.0	Normal Operation
15-Dec-04	WN8	9:00	9:30	Fine	1.1	69.2	70.5	68.0	Normal Operation
15-Dec-04	WN9	16:00	16:30	Fine	0.3	69.4	71.0	68.0	Normal Operation
15-Dec-04	WN10	16:00	16:30	Fine	0.3	69.5	71.0	68.0	Normal Operation
15-Dec-04	WN11	15:00	15:30	Fine	0.5	69.9	72.0	68.5	Normal Operation
15-Dec-04	WN12	14:00	14:30	Fine	0.8	68.4	70.5	66.5	Normal Operation
15-Dec-04	WN13	13:00	13:30	Fine	0.7	67.7	69.5	65.5	Normal Operation
15-Dec-04	WN14	11:00	11:30	Fine	0.9	69.5	71.5	68.0	Normal Operation
15-Dec-04	WN15	10:00	10:30	Fine	0.5	70.7	72.5	69.0	Normal Operation
15-Dec-04	WN16	9:00	9:30	Fine	0.2	66.4	68.0	65.0	Normal Operation
21-Dec-04	WN1	16:20	16:50	Fine	1.6	69.6	71.5	67.5	Normal Operation
21-Dec-04	WN2	17:00	17:30	Fine	1.3	69.3	71.0	68.0	Normal Operation
21-Dec-04	WN6	9:15	9:45	Fine	2.6	70.3	72.0	68.0	Normal Operation
21-Dec-04	WN7	10:00	10:30	Fine	2.0	69.9	72.0	67.5	Normal Operation
21-Dec-04	WN8	10:45	11:15	Fine	1.8	69.7	72.0	68.0	Normal Operation
21-Dec-04	WN9	11:30	12:00	Fine	1.5	71.8	73.5	69.5	Normal Operation
21-Dec-04	WN10	13:30	14:00	Fine	1.7	70.9	73.0	69.5	Normal Operation
21-Dec-04	WN11	14:30	15:00	Fine	1.7	70.0	72.5	69.0	Normal Operation
21-Dec-04	WN12	14:00	14:30	Fine	1.9	69.9	73.0	68.5	Normal Operation
21-Dec-04	WN13	13:00	13:30	Fine	1.8	70.4	73.0	69.0	Normal Operation
21-Dec-04	WN14	11:00	11:30	Fine	1.3	70.0	73.0	69.0	Normal Operation
21-Dec-04	WN15	10:15	10:45	Fine	2.0	70.5	72.5	69.5	Normal Operation
21-Dec-04	WN16	9:30	10:00	Fine	2.2	71.6	74.0	70.5	Normal Operation
28-Dec-04	WN1	17:15	17:45	Fine	0.8	69.9	71.5	67.5	Normal Operation
28-Dec-04	WN2	16:30	17:00	Fine	0.5	71.2	73.0	69.5	Normal Operation
28-Dec-04	WN6	15:45	16:15	Fine	3.0	66.4	68.0	65.0	Normal Operation
28-Dec-04	WN7	14:45	15:15	Fine	2.8	68.0	69.0	66.5	Normal Operation
28-Dec-04	WN8	13:45	14:15	Fine	1.1	68.1	69.5	67.0	Normal Operation
28-Dec-04	WN9	13:00	13:30	Fine	0.6	69.4	71.0	68.0	Normal Operation
28-Dec-04	WN10	11:30	12:00	Fine	0.4	69.7	71.5	68.0	Normal Operation
28-Dec-04	WN11	15:40	16:10	Fine	0.5	71.1	73.0	69.5	Normal Operation
28-Dec-04	WN12	15:00	15:30	Fine	1.4	67.6	69.5	65.5	Normal Operation
28-Dec-04	WN13	14:00	14:30	Fine	2.2	68.7	70.0	67.0	Normal Operation
28-Dec-04	WN14	11:00	11:30	Fine	2.4	69.8	71.5	68.0	Normal Operation
28-Dec-04	WN15	10:30	11:00	Fine	0.8	70.0	71.5	68.5	Normal Operation
28-Dec-04	WN16	9:30	10:00	Fine	0.5	66.2	67.5	65.0	Normal Operation



APPENDIX K

**Landscape and visual
monitoring and audit
report**



Contract No. HY/99/18
Castle Peak Road Improvements between
Sham Tseng and Ka Loon Tsuen

Landscape & Visual Audit and Monitoring

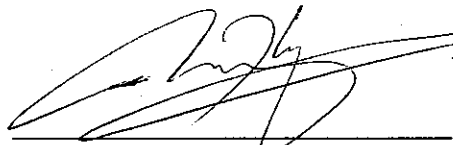
Monthly Inspection Report No. 34

(December 2004)

Prepared by

URBIS LIMITED

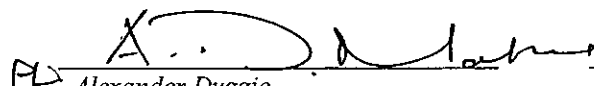
Prepared by :



Tran Tuan Huy

31st December 2004

Approved by :



Alexander Duggie

31st December 2004

1.0 INTRODUCTION

This is a Landscape and Visual Audit conducted to fulfill the requirements of the EIA during the Construction and Operational Phases of the project, and is based on the procedures and requirements as set out in the Castle Peak Road Improvements between Area 2 and Ka Loon Tsuen, Tsuen Wan - Environmental Monitoring and Audit Manual – West Contract.

Under the EIA, the proposed mitigation measures include both the planting works and treatment to structures. As stated in 6.4.2 of the EM & A, all measures undertaken by both the Contractor and the Landscape Contractor during the construction phase and the first 12 months of the operational phase shall be audited on a bi-weekly and bi-monthly basis respectively to ensure compliance with the intended aims of the mitigation measures.

2.0 SCOPE OF AUDIT

The broad scope of the audit on mitigation measures is as detailed below:

2.1 Planting Proposals

- Regular inspection of the agreed works areas to ensure no unnecessary intrusion by the Contractor outside the limit of the works;
- Regular review of the progress of engineering works to identify the earliest practical opportunity for the landscape works;
- Monitoring of tree transplanting and planting operations;
- Monitoring of works around the area of existing trees to be retained and protected;
- Monitoring of protection works for existing trees;
- Ensure planting works are carried out in accordance with the Specification and within the right planting season;
- Monitoring of the maintenance operations during the Establishment Period to ensure all plants are well watered and nutrients applied.

2.2 Standard Treatment to Structures

- Monitoring and review to ensure the proposed architectural treatments to retaining walls, viaducts, bridges, and noise barriers are implemented in accordance with the approved design, and where appropriate, to soften the hard edges to structures with planting works.

3.0 INSPECTIONS

3.1 Summary of Inspection – 9th December 2004

3.1.1 Matters Arising from Previous Inspections

- The Contractor had cleared away the garbage pile at Slope 6 area.
- The Contractor had cleared away the large garbage pile at the slope area behind noise enclosure NM-02 area. However, new scrap wood and construction waste piles were found, the Contractor was requested to clear it away as soon as possible.
- The Contractor had cleared away the scrap-wood piles at Seawall 'C' area.
- The Contractor had cleared away the construction waste pile at the construction area opposite to Lido Garden.
- Dry surface conditions were observed throughout many parts of the site. The Contractor was reminded to carry out more frequent watering of the site to prevent dust nuisance.

3.1.2 Site Clearance and Formation Works

- Scattered scrap-wood and litter piles were found at retaining wall RW-01 area. The Contractor was requested to clear it away as soon as possible.

3.1.3 Tree Felling and Transplanting Works

- No tree transplanting works was carried out during the inspection period.

3.1.4 Recommendations

- The Contractor was reminded to clear away all scattered litter, garbage, etc. as found on site, and keep the site in a tidy condition at all times.
- The Contractor was reminded to carry out more frequent watering of the site during dry periods to prevent dust nuisance.

3.2 Summary of Inspection – 23rd December 2004

3.2.1 Matters Arising from Previous Inspections

- The Contractor had cleared away the scattered scrap-wood and litter piles at retaining wall RW-01 area. However, a new crate full of scrap-wood and new garbage piles was found, and the Contractor was requested to clear it away as soon as possible.
- The Contractor had cleared away the scrap wood and construction waste piles at noise enclosure NM-02 area. However, new garbage pile was found, and the Contractor was requested to clear it away as soon as possible.
- Dry surface conditions were observed throughout many parts of the Site, including areas at retaining walls RW-01 and RW13, Seawall 'C', Noise Enclosure NM-02, and Man Wan Pier. The Contractor was reminded to carry out more frequent watering of the site to prevent dust nuisance.

3.2.2 Site Clearance and Formation Works

- The temporary garbage collection area at Slope 6 was found to be full. The Contractor was requested to clear it away as soon as possible.
- Construction waste pile was found at the ramp entrance of footbridge FB-01 (seaside). The Contractor was requested to clear it away as soon as possible.
- Untidy site condition and scrap-wood piles were found at Seawall 'C' area. The Contractor was requested to tidy up the area and to clear away the scrap-wood piles as soon as possible.
- The root of the existing retained tree (T44) at Angler's Beach was found damaged during excavation works. The Contractor was requested to properly pruned back the root and carry out tree protection urgently. The Contractor was reminded not to further damage the tree root, and to carry out excavation works by hand.

3.2.3 Tree Felling and Transplanting Works

- No tree transplanting work was carried out during the inspection period.

3.2.4 Recommendations

- The Contractor was reminded to urgently carry out root pruning and proper tree protection to ensure existing trees retained are not damaged.
- The Contractor was reminded to clear away all scattered litter, garbage, etc. as found on site, and keep the site in a tidy condition at all times.
- The Contractor was reminded to carry out more frequent watering of the site during dry periods to prevent dust nuisance.

4.0 TREE TRANSPLANTING SURVIVAL RATE

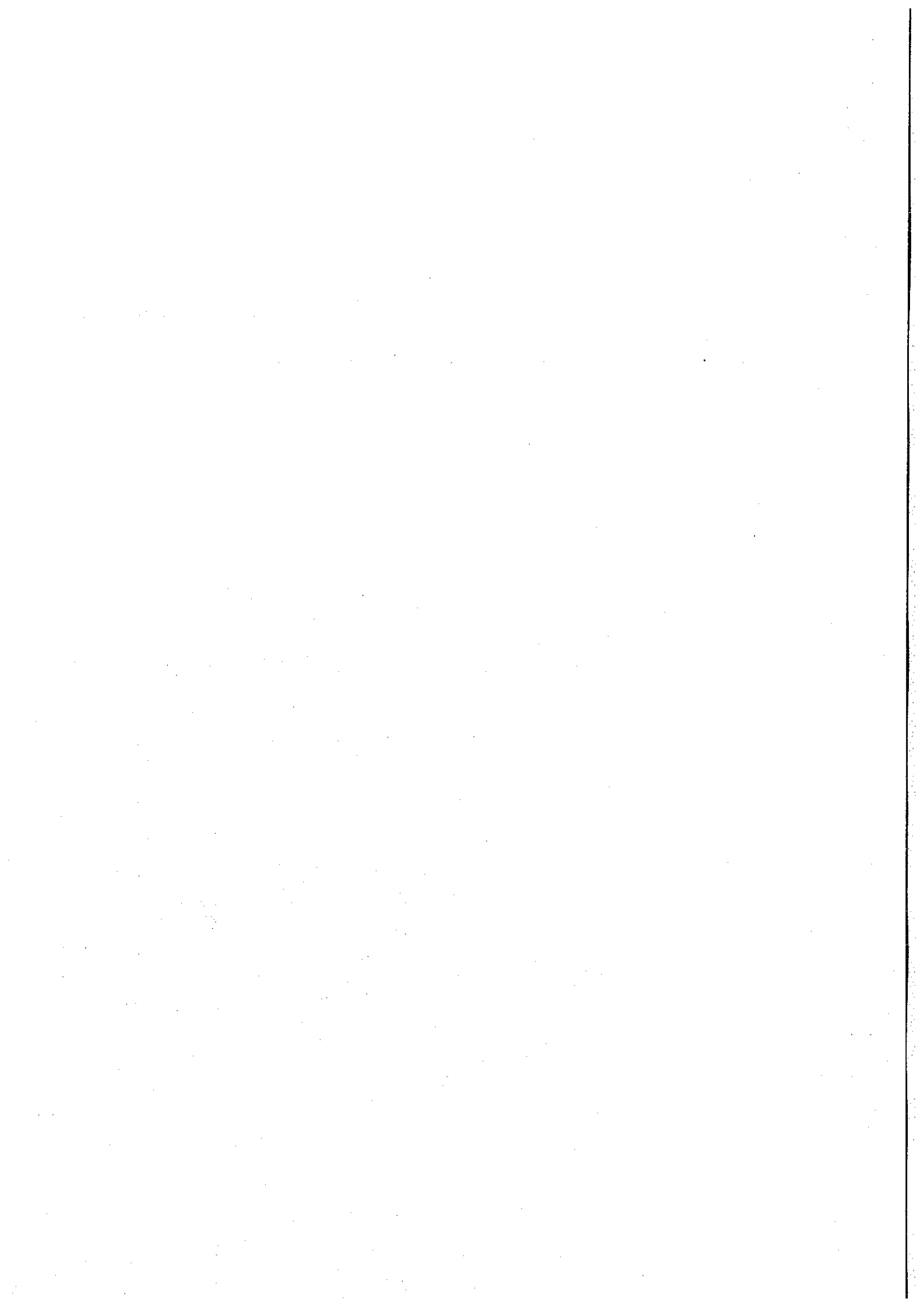
4.1 Tree Transplanting Survival Rate

The tree transplanting survival rate as reported by the Contractor for the period up to the end of December is 100%.

5.0 AUDIT SCHEULE

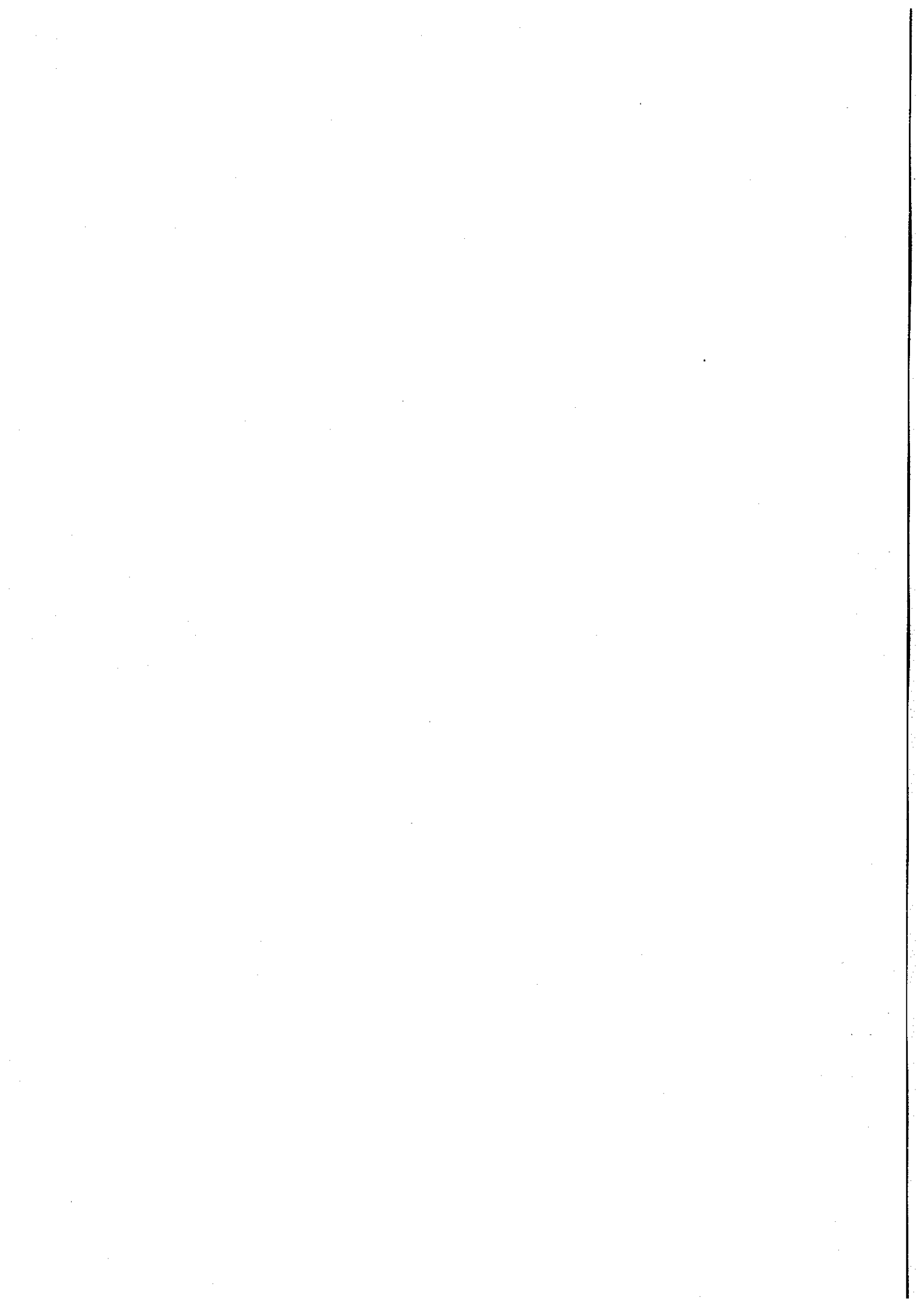
5.1 Audit Schedule for January 2005

The next audits are schedule to be conducted on 6th and 20th January 2005.



APPENDIX L

**Log record on
environmental
complaints**



Log Record on Environmental Complaints

No.	Date of Complaint Received	Description	Proposed Actions	Completion Date	Remarks
029	12-Aug-02	Complaint from Mr. Au regarding muddy water washing out from Kowloon Bound Lane from the construction site	Enlarge concrete paving at site entrance; further improvement to the existing temporary drainage system to minimise wash-off of waste water to the adjacent road; and make sure temporary water supply points are properly turned off during lunch break or other times when they are not in use.	16-Aug-02	
036	31-Aug-02	Complaint from Mrs. Chung regarding the generation of fugitive dust from the construction site in front of Tsing Lung Tau Village	Frequent watering of the related works area with the aid of water browser	31-Aug-02	
054	07-Dec-02	Complaint from Mr. Lo regarding the stagnant water ponding in front of the construction site at Sham Tseng	Explained to the complainant that the water ponding was a wheel washing bay	07-Dec-02	
067	03-Mar-03	Complaint from Hong Kong Garden Management Office regarding the noise from vehicular movement over the temporary road cover at Castle Peak Road provided by the Contractor	The Contractor has added extra welding to improve the rigidity of the temporary steel deck. The work was completed during the off-peak hours in the period between 12-Mar-03 to 17-Mar-03.	17-Mar-03	The Contractor has taken noise readings and found that the noise level was within the baseline levels.
068	11-Mar-03	Complaint from Mr. Leung at Hong Kong Garden regarding the noise from evening road traffic, travelling over the steel decking plate on the adjacent temporary road diversion.	The Contractor has added extra welding to improve the rigidity of the temporary steel deck. The work was completed during the off-peak hours in the period between 12-Mar-03 to 17-Mar-03.	17-Mar-03	The Contractor has taken noise readings and found that the noise level was within the baseline levels.
070	06-Mar-03	Complaint from EPD regarding the reclamation works at Seawall B opposite to Hong Kong Garden on Sunday	The Contractor has previously informed the subcontractor of the statutory requirements as noise, dust emission, water discharge, and waste management. The Contractor agreed to keep vigilant in monitoring and surveillance of the site and continue to remind the subcontractors of the statutory requirements.	10-Mar-03	The Contractor has formally closed all site area for the Chinese New Year. Entrances of all site area were barricaded before the Contractor's staff vacated the sites on 30 January 2003.
070	06-Mar-03	Complaint from EPD regarding dust emission from the reclamation works at Seawall B opposite to Hong Kong Garden.	The Contractor has previously informed the subcontractor of the statutory requirements as noise, dust emission, water discharge, and waste management. The Contractor agreed to keep vigilant in monitoring and surveillance of the site and continue to remind the subcontractors of the statutory requirements.	10-Mar-03	The Contractor has investigated and confirmed that the marine works towards the eastern end of Seawall B was wet and the concreting works at the west end of the Seawall B were not dusty and no dust was emitted. Ground surface was also covered with crushed rock. The Contractor was also further reminded to spray water before and during unloading and moving of rock boulders and onto the haul road.
070	24-Mar-03	Complaint from EPD regarding daytime construction noise at Seawall B opposite to Hong Kong Garden.	The Contractor agreed to continuously monitor and review the operation in the vicinity opposite to Lung tang Court, in order to minimize the noise impact caused to the public. In addition the Contractor will respond to the complaints received on the 24- hours Contract Complaint Hotline 2496 2555 in the first instant.	31-Mar-03	No exceedance was recorded at the noise monitoring station WN6, WN7 and WN8 from January 2003 to March 2003. It was suspected that the noise was due to traffic noise together with operational noise of plant equipment at Seawall B. The Contractor was also reminded if reorganization of working arrangement is necessary, mitigation proposal should be submitted to IC(E) for review. Additional noise monitoring shall also be conducted at the noise monitoring station WN8 once the mitigation proposal is implemented.
076	15-Apr-03	Complaint from Mr. Wong of TL 60 Management Limited regarding the noise nuisance generated from the vehicle movement over the temporary steel decking in front of Hong Kong Garden at Castle Peak Road provided by the Contractor.	The Contractor has replaced the isolated decking plate by 17 April 2003 and agreed to frequently inspect the condition of the steel decking. Further improvement works were completed on 25 April 2003.	25-Apr-03	

Log Record on Environmental Complaints

No.	Date of Complaint Received	Description	Proposed Actions	Completion Date	Remarks
078	15-Apr-03	Complaint from Mr. Chau of Hong Kong Garden regarding the noise nuisance generated from vehicle movement over the temporary steel plate in front of the premises.	The Contractor has explained to Mr. Chau that the improvement works were completed on 25 April 2003 and agreed to carry out daily inspection to check the condition of the steel plate.	29-Apr-03	The complainant agreed that the noise nuisance has abated.
080	05-May-03	Complaint from Mr. Tsao / Mr. Chan of Mui Yuen, opposite to Bayside Villas regarding water leakage from the rocky slope behind his house and the damage of water pipes by cleaning works.	The water pipe was repaired on 9 May 2003. The Contractor has explained that the rocky slope was outside the site boundary.	09-May-03	
082	07-May-03	Complaint from Ms. Chan regarding water ponding on existing footpath along Castle Peak Road near the Contractor's site office.	The Contractor has formed holes at existing upstand wall to drain off water trapped in the adjacent footpath and to patch up local depression at the affected footway with plain concrete.	19-May-03	
084	21-May-03	Complaint from Ms. Lam of Sea Crest Villa Phase regarding construction noise from the slope works outside Sea Crest Villa Phase I.	The Contractor has observed low-noise emission construction equipment were being used at the time of inspection and proposed to speed up the works to limit the duration of daytime construction noise impact. The Contractor has provided additional information in their letter ref. HY/99/18/M45/300/40/10229 dated 25 June 2003. Additional noise monitoring had been taken by the Contractor on 22 May 2003 at WN15 obtaining the result of 66.6dB(A), which was below the limit level of 75dB(A). After reviewing the findings and investigation details, the Contractor confirmed that no further remedial actions was required.	25-Jun-03	The Contractor was requested to submit mitigation proposal to IC(E) for review and to implement the mitigation proposal. Additional noise monitoring is required to be conducted at the noise monitoring station WN15 once the mitigation proposal is implemented. The IC(E) had no comment on the Contractor's findings. Since no mitigation measures were implemented, additional noise monitoring was not conducted.
086	23-May-03	Complaint from Mr. So regarding stagnant water in the drainage and wheel washing bay near the entrance of Sea Crest Villa Phase IV and the damage of road surface near L1 main gate and CLP electricity supply room.	Explained to the complainant that the stagnant water inside the wheel washing bay was for cleaning of vehicle. The leakage found the temporary water pipe was repaired. The water and silt trapped in the U-channel near the main entrance of the estate was removed and the kerb on west side of the run-in to Gate L1 was reinstated.	29-May-03	The Contractor will properly maintain the wheel washing facility, regularly inspect and clean the drainage channel and the gully pots near the main entrance of the estate. The damaged paving slab and cable pit near the power supply room will be restored to original condition after completion of the adjacent substructure works around mid August 2003.
088	03-Jun-03	Complaint from EPD regarding construction dust from Seawall B.	The Contractor proposed to place the concerned area under higher priority and endeavor to water the concerned haul road more frequently during dry days.	06-Jun-03	No rock breaking activity has been observed in site audits since 5 June 2003. The haul road at Seawall B was observed wetted in the site audits. The Contractor was reminded to provide water spraying if there is rock breaking activity in this vicinity.
088	03-Jun-03	Complaint from EPD regarding construction noise from Seawall B.	The Contractor reported that there may be occasional crashing noise for the piling works when rock level is reached. The Contractor has been providing mitigation measures, such as barrier and restriction of the rate of concerned works. The Contractor will also endeavor to expedite the works to reduce the duration of perceived daytime impact. The Contractor proposed to perform additional ad hoc inspections on Mondays, Wednesday and Fridays at the concerned area to confirm continual implementation of measures and to conduct additional noise monitoring where appropriate.	06-Jun-03	No rock breaking activity has been observed in site audits since 5 June 2003. Contractor has been reminded to submit mitigation proposal to IC(E) for review and to implement the mitigation proposal if provision of additional mitigation measures is required. The Contractor was also advised to provide portable noise barrier if there is rock breaking activity. Additional noise monitoring is also required to be conducted at the noise monitoring station WN8 once the mitigation proposal is implemented. The IC(E) had no comment on the Contractor's findings. Since no mitigation measures were implemented, additional noise monitoring was not conducted.

Log Record on Environmental Complaints

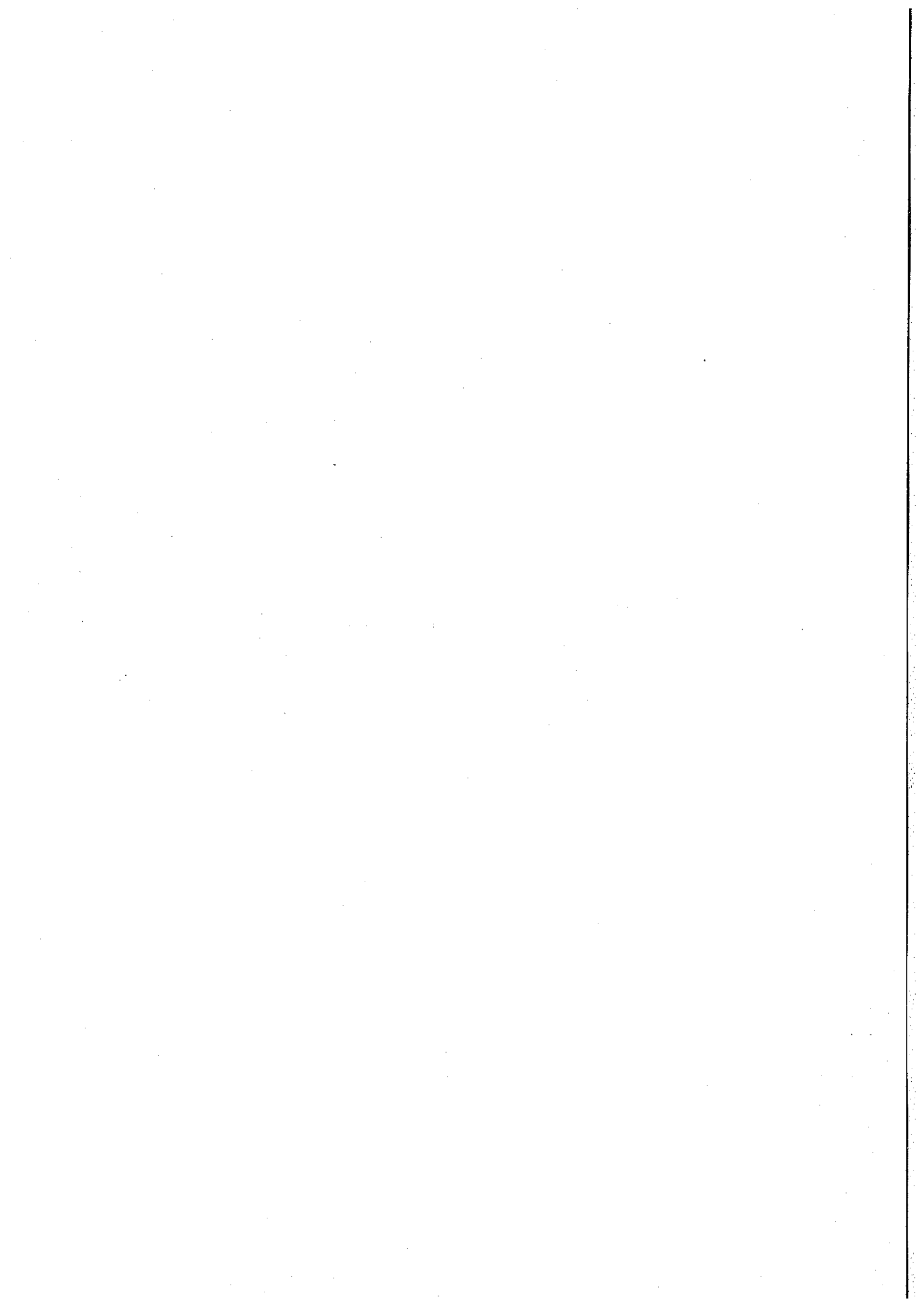
No.	Date of Complaint Received	Description	Proposed Actions	Completion Date	Remarks
091	16-Jun-03	Complaint from Ms. Chan of Sea Crest Villa Phase 1 regarding noise from drilling works carried out at BPRW70 outside Sea Crest Villa Phase 1 before 07:00.	Upon investigation, the Contractor confirmed that there has been no construction work being conducted before 07:00. Nevertheless, the Contractor has scheduled the concerned work to be commenced at 08:00 as on 17 July 2003.	17-Jun-03	
092	16-Jun-03	Complaint from Mrs. Chung of Lido Garden regarding noise from drilling works carried out at BPRW70 opposite to Lido Garden before 07:00.	Upon investigation, the Contractor confirmed that there has been no construction work being conducted before 07:00. Nevertheless, the Contractor has scheduled the concerned work to be commenced at 08:00 as on 17 July 2003.	17-Jun-03	
097	27-Jun-03	Complaint from Mr Fok of Kai Shing Management Services regarding noise nuisance and the ponding of stagnant water arising from the construction activities outside Sea Crest Villa Phase III.	Upon investigation, the condition of water pumps installed separately at east end of the slope close to SCV Phase III and Pai Min Kok Stream Course has been checked. Noise generated from the ongoing construction works in these areas has been monitored. The rock breaking with jackhammer at PMK had been completed on 26 June 2003.	04-Jul-03	After further enquiry into the nature of the complaint, it appears that the complaint refers to the extended duration of construction works in the concerned area (i.e. inconvenience caused due to lengthy works program). The Contractor's Mr Peter Ip has explained the nature of the works to the Management Office. There have been no further complaints from SCV Phase III since the briefing.
103	31-Jul-03	Complaint from Hong Kong Management Office regarding the noise generated by vehicles running over the steel decking plate on the Castle Peak Road close to Hong Kong Garden.	The existing steel decking plate had been repaired during off peak hours and regular inspection on the condition of steel plate and adjacent road surface was agreed to be conducted.	05-Aug-03	There had been no further complaints after the repair.
105	13-Aug-03	Complaint from Mr Chow of Sham Tseng regarding fell of all old trees along section of Castle Peak Road near Ma Wan Pier.	After investigation on the matter, it had been confirmed that the felling and the transplanting of group of trees along the Castle Peak Road near Ma Wan Pier had been carried out in compliance with approved plans and schedules. No follow up is required.	16-Aug-03	
108	11-Sep-03	Complaint from Mr Edith Lee of Sea Crest Villa Phase I complained that it was very dusty at her house and she found that there was no water spraying at the construction site of the slope near Ma Wan Pier.	After investigation on the matter, water browser was arranged for spraying through the haul road. Rock breaking location would be sprayed directly connected from water supply point. To follow up the case, water browser would be arranged every 2 to 3 hours depends on drying up condition. A worker would be arranged for spraying water through out the rock breaking process.	11-Sep-03	
112	10-Oct-03	Complaint from Mr Cheung of FEHD that regarding the general refuse being accumulating on the pedestrian walkway between Sea Crest Villa Phase III and Phase II and the drainage channel at Pai Min Kok Village.	Investigation was conducted immediately on 11 October 2003. It was observed that the pedestrian walkway and Outfall I had been tidied up except at the corner of Sea Crest Villa Phase III where a broken umbrella and some broken traffic light was lying on the ground. Immediate action was taken to remove the broken umbrella and signal lights. The site area would be maintained regularly. It was noted that wooden formwork and construction materials might possibly been mistaken to be rubbish.	13-Oct-03	

Log Record on Environmental Complaints

No.	Date of Complaint Received	Description	Proposed Actions	Completion Date	Remarks
114	25-Nov-03	Complaint log no. 114 was received on 25 November 2003 regarding the muddy water found on the beach opposite to Sea Crest Villa Phase III.	An inspection for the concerned site area at the interface between the beach and the construction site revealed that there was no evidence of active construction works adjacent to the beach or the presence of muddy water. There was also no evidence of muddy water discharge from Outfall I. The work programme for the following days leading up to the complaint was inspection and found that the bored piling activity had been completed and removed since 15 November 2003. The contractor would regularly monitor the area for muddy water. If potential discharge sources were identified, the Contractor would take action to rectify the situation.	26-Nov-03	
115	30-Nov-03	Complaint from Miss Chan of Sham Tseng Latrine was received on 30 November 2003 regarding the pond of foul water at the footway in front of Sham Tseng Latrine.	An inspection for the concerned site area was carried out. The water ponding was confirmed to be overflow from the terminal manhole, which was a part of public latrine system. The maintenance of the public latrine and the associated systems were the responsibility of FEHD. The Contractor had contacted FEHD to follow up the issue.	01-Dec-03	
116	06-Dec-03	Complaint from Mr Paul Wong of Hong Kong Garden Management Office was received on 6 December 2003 regarding construction noise during early hours of 8:00am.	Inspection of concern area and no abnormal construction activities was found. The Contractor had explained to the Complainer that no statutory permit was required for construction work other than percussive piling at 8:00am and the nature of works conducted at the area was well within permitted limits. ET was reminded the Contractor to implement noise mitigation proposal in accordance with EM&A Manual.	08-Dec-03	Noise generated from the ongoing construction works in these areas was monitored and no exceedance was found. As the Contractor had responded to the complainant and no further complaint was recorded, the Contractor proposed that no further remedial/preventative measures were necessary.
123	20-Feb-04	Complaint from Mr Ho of TL60 Management Ltd was received on 20 February 2004 regarding noise arising from the temporary steel plates on road pavement near Blocks 1 & 2 of Hong Kong Garden	Condition of the decking plat was checked on 23 February 2004 and was repaired on 24 February 2004 during off peak hours.	24-Feb-04	Regular inspection will be conducted and adjacent works was expedited to allow early road diversion for permanent removal of the steel plates.
139	09-Jul-04	Complaint from EPD was received on 9 July 2004 regarding noise arising from prescribed construction works or works using power mechanical equipment at night near Seawall-B area opposite to Hong Kong Garden	After investigation on the matter, there was no evidence of carrying out the prescribed construction works or using power mechanical equipment between 1900 and 2300 on 3 July 2004.	23-Jul-04	
140	10-Jul-04	Complaint from Highway Department was received on 10 July 2004 regarding noise arising from rock breaking near Sea Crest Villa Phase 3	After investigation on the matter, there was no evidence of rock breaking activities undertaken in the vicinity of Sea Crest Villa Phase 3.	23-Jul-04	
149	11-Aug-04	Complaint from EPD regarding the sandy wake of a marine vessel carrying sand to the beach reinstatement area of Seawall B	After investigation on the matter, the following action was proposed. The vessel and water depth should be thoroughly checked prior to sand placing. If shallow water need to be approached, another shallower vessel should be used. The land co-ordinator should cease the sand placing operation if muddy plumes were noticeable.	31-Aug-04	
154	25-Aug-04	Complaint from Ms Tang regarding littering on the slope close to the Sea Crest Villa Phase 2.	After investigation on the matter, there was no evidence that the problem was caused by any construction activities.	27-Aug-04	

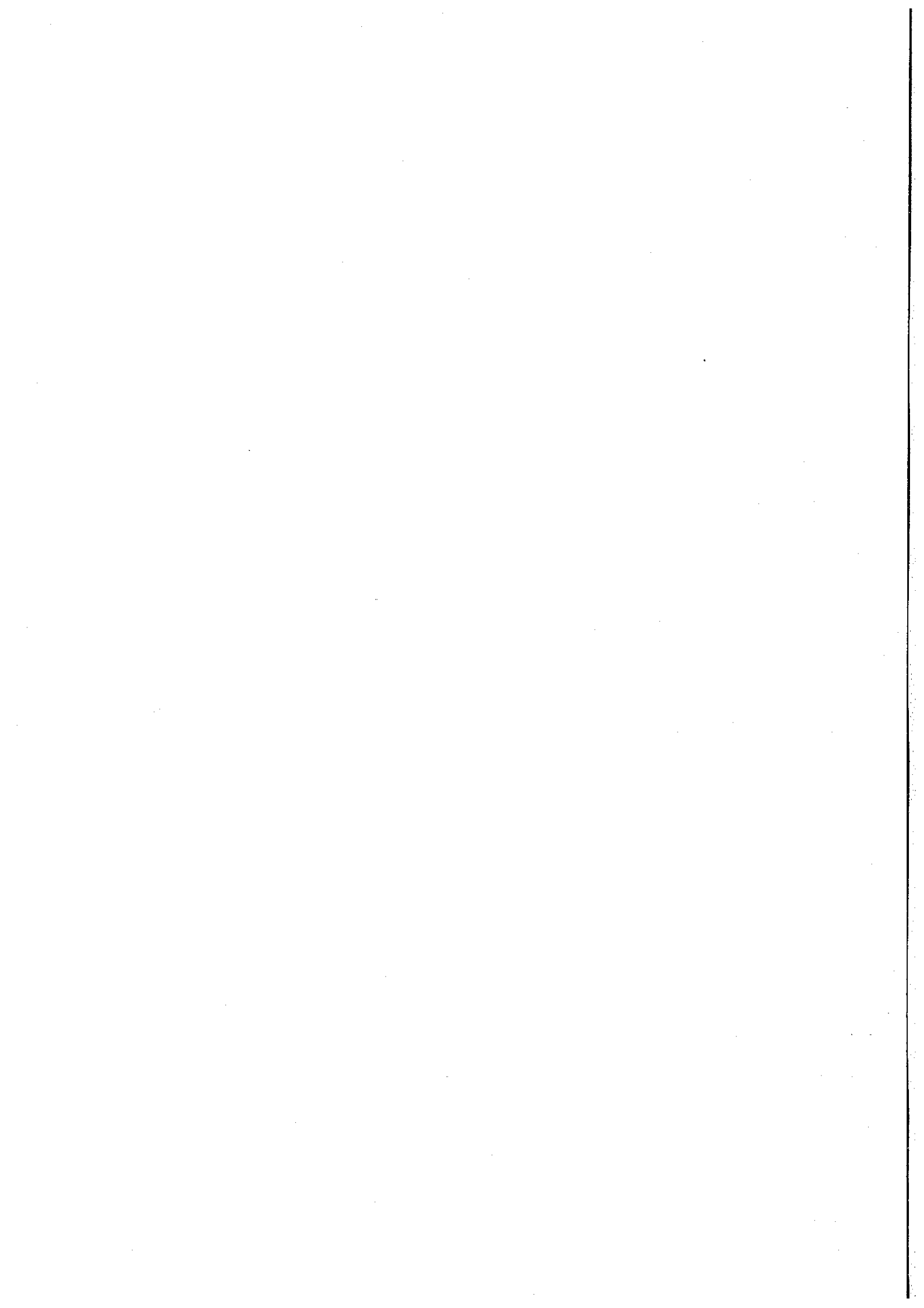
Log Record on Environmental Complaints

No.	Date of Complaint Received	Description	Proposed Actions	Completion Date	Remarks
156	18-Sep-04	Complaint from Mr Chu regarding excessive garbage trapped along the adjacent shore of Seawall B west end.	It was out of control over the accumulation of floating rubbish drifting toward the shore. However, the contractor would remove them as soon as possible.	20-Sep-04	
166	04-Nov-04	Complaint from Mr Wong regarding the accumulation of foul ground and sewage waters in the trench in front of the strip of restaurants at Sham Tseng.	Contractor placed a sludge separation plant to treat the accumulated water prior to discharge and pumped away the accumulated water as regularly as possible. An CNP has been attained for the pumping of concerned areas.	11-Nov-04	



APPENDIX M

**Investigation Report of
Exceedance**



Maeda Corporation, Hong Kong Branch
Rms 1601-5 New East Ocean Centre
9 Science Museum Road
TST East, Kowloon

ARUP

Attention: Mr Derek Elliott

Dear Mr Elliott,

West Contract No HY/99/18
Castle Peak Road Improvement
Between Sham Tseng And Ka Loon Tsuen
Additional 24-hour TSP Monitoring at WA11

Please be informed that additional 24-hour TSP monitoring were conducted from 6 to 8 December 2004 at the monitoring station WA11 (Carpark, Lido Garden Tower 1) due to the exceedance on 27 November 2004. A summary of the measurement results, together with the scheduled 6-day cycle monitoring results on 3 and 9 December 2004, is given in Table 1 for your information.

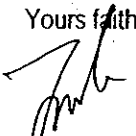
Table 1 Additional 24-hour TSP monitoring at WA11

Date	24-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance occurred
3 Dec 04 (Fri)	152.4	195.0	260	No
6 Dec 04 (Mon)	176.2			No
7 Dec 04 (Tue)	182.3			No
8 Dec 04 (Wed)	108.8			No
9 Dec 04 (Thu)	175.6			No

There was no further exceedance recorded in the monitoring period. However, the Contractor was advised to continue the dust suppression measures, including proper wheel washing of vehicle at site exit, and watering the haul road, unpaved area and other dusty activities, such as rock breaking, rock drilling, loading/unloading of rock boulders and earth moving.

If you require any further information, please do not hesitate to contact our Mr Fredrick Leong at 2268-3639.

Yours faithfully


Sam Tsoi
Associate Director

cc MHJV - Mr Jeff Yu
EPD - Mr Andy Chan
EPD - Ms Fiona Cheung
Hyder - Mr Coleman Ng

(By Fax Only: 2417-0134)
(By Fax Only: 2417-3073)
(By Fax Only: 2591-0558)
(By Fax Only: 2827 2891)

Our ref 23437/L364/ST/FL/ac
Date 6 December 2004

www.arup.com

Maeda Corporation, Hong Kong Branch
Rms 1601-5 New East Ocean Centre
9 Science Museum Road
TST East, Kowloon

ARUP

Attention: Mr Derek Elliott

Dear Mr Elliott,

West Contract No HY/99/18
Castle Peak Road Improvement
Between Sham Tseng And Ka Loon Tsuen
Exceedance of 24-hour TSP Air Monitoring on 27 November 2004

Please be informed that there was an exceedance on Action Level of 24-hour TSP monitoring at the monitoring station WA11 (Carpark, Lido Garden Tower 1) on 27 November 2004. A summary of the measurement results is given in Table 1 for your information.

Table 1 The 24-hour TSP results recorded at WA11 on 27 November 2004

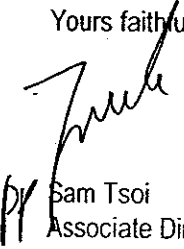
Receptor No.	24-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level	Limit Level
WA11	220.1	195.0	260.0

The site staff's has checked the works schedule and found that there was some rock breaking and earth moving activities being carried out close to WA11 during that period. As the 24-hr TSP level at WA11 was comparatively higher than the other monitoring stations, additional (daily) 24-hour TSP monitoring at WA11 will be conducted to verify the findings and sources.

The Contractor was advised to enhance the dust suppression measures, including proper wheel washing of vehicle at site exit, and watering the haul road, unpaved area and other dusty activities, such as rock breaking; rock drilling; loading/unloading of rock boulders; and earth moving.

If you require any further information, please do not hesitate to contact our Mr Fredrick Leong at 2268-3639.

Yours faithfully


Sam Tsoi
Associate Director

cc MHJV - Mr Jeff Yu (By Fax Only: 2417-0134)
EPD - Mr Andy Chan (By Fax Only: 2417-3073)
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