

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009)

Baseline Monitoring Report (Part 10)

Verified by: 
Position: Independent Environmental Checker
Date: 27 July 2010

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU -
SHENZHEN - HONG KONG EXPRESS RAIL LINK
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EXECUTIVE SUMMARY

The environmental baseline monitoring for the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link, hereinafter referred to “the XRL” was conducted at 1 noise and 2 air quality monitoring locations in the vicinity of Works Area J and L (Figure 1). Noise measurements were taken in terms of Leq with L10 and L90 as reference. Air quality was measured in terms of 1-hour and 24-hour average Total Suspended Particulates (TSP).

Monitoring of 1-hour and 24-hr TSP level were conducted between 15/5/2010 and 29/5/2010 at Chung Shun Knitting Centre (AM 11) and Po Leung Kuk Tong Nai Kan College (AM12). The average 1-hour TSP levels were $77.8 \mu\text{g}/\text{m}^3$ and $83.7 \mu\text{g}/\text{m}^3$ at AM 11 and AM 12 respectively. The average 24-hour TSP levels were $46.6 \mu\text{g}/\text{m}^3$ and $50.1 \mu\text{g}/\text{m}^3$ at AM 11 and AM 12 respectively.

The Action Levels at the monitoring locations were derived based on the baseline monitoring results. The Action Level of 1-hour TSP levels were $300.6 \mu\text{g}/\text{m}^3$, and $304.4 \mu\text{g}/\text{m}^3$ at AM 11 and AM 12 respectively while the Action Level of 24-hour TSP levels were $160.3 \mu\text{g}/\text{m}^3$ and $162.5 \mu\text{g}/\text{m}^3$ at AM 11 and AM 12 respectively.

Baseline noise monitoring was conducted between 28/5/2010 and 10/6/2010 at Po Leung Kuk Tong Nai Kan College (CN 21). Baseline noise monitoring was conducted during daytime (0700-1900 hours), evening time (1900-2300 hours) and night-time (2300-0700 hours) on all day during the above-mentioned period. In this report, the measured noise levels on weekdays were presented separately from general holidays and Sundays for easy of reference. The monitoring result reveals that the daytime baseline noise level of CN 21, 70 dB(A), exceeded the Limit Level of 65 dB(A) for examination period and reached the Limit Level of 70 dB(A) for normal school days. In consideration of this situation, the baseline noise level at CN 21 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 21 would be covered in the EM&A Report.

1. INTRODUCTION

1.1 Background

Further to the Government's decision made in April 2008, MTR Corporation (MTR) commenced to plan and design the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (hereinafter referred to "the XRL" or "the Project"), which is a committed cross boundary transport infrastructure project.

The XRL will provide high speed rail services between Hong Kong and Guangzhou, and a connection to the national high-speed passenger rail network serving major mainland cities outside of Guangdong province. The Hong Kong section of the XRL is about 26km from new terminus located in West Kowloon (i.e. West Kowloon Terminus (WKT)) to the boundary at Huang gang. Along the railway corridor, there will be a total of eight ventilation buildings/ emergency access point (EAP), stabling sidings and a maintenance facility at Shek Kong (SSS) and an Emergency Rescue Station (ERS) next to SSS serving the operation of the XRL.

1.2 Purpose of the report

In accordance with the Environmental Monitoring and Audit (EM&A) Manual, environmental baseline monitoring was carried out for dust and noise. This Baseline Monitoring Report (Part 10) contains baseline monitoring findings in the vicinity of Works Areas J and L (Figure 1). The purpose of this report is to summarize the findings of this baseline monitoring and to establish the compliance levels for the subsequent environmental impact monitoring during construction stage.

2. AIR QUALITY

2.1 Monitoring Methodology

Monitoring was undertaken to establish baseline levels for both 1-hour and 24-hour Total Suspended Particulates (TSP) at AM 11 and AM 12 located in the vicinity of the works areas J and L. This provides data against which any environmental impacts due to construction activities can be compared.

During the construction period impact monitoring will only be conducted for 24-hour TSP, although 1-hour TSP monitoring may also be conducted and used in following up on complaints or exceedances, in order to provide a more rapid indication of the source of the problem at hand.

Baseline monitoring was conducted for both 1-hour and 24-hour TSP using a direct reading meter (MIE Data-RAM Portable Real Time Aerosol Monitor) and a high volume sampler (HVS) according to Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

2.2 Monitoring Frequency

Three separate 1-hour TSP measurements daily for a period of at least 14 days were made at the monitoring station to establish the ambient 1-hour TSP levels. For 24-hour TSP, monitoring was carried out continuously over a period of at least 14 days at the monitoring stations to establish the ambient 24-hour TSP levels. The monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP is summarized in the table below:

Sampling Parameter	Frequency	Duration
1 hour TSP	• 3 times per day	Consecutive days of at least 2 weeks before commencement of construction works
Continuous 24-hour TSP	• Daily	

Table 2.1: Monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP

2.3 Monitoring location

Base on the site visit observation, it was revealed that the exterior and the roof-top of the original location of AM 11 in the EM&A Manual (Wah Wing Industrial Building) was under renovation which would affect the baseline monitoring data. As such, the monitoring location was re-located to Chung Shun Knitting Centre which is located close to the original AM 11 and Works Area J.

According to the EM&A Manual, baseline air quality monitoring was carried out during 15/5/2010 – 29/5/2010 at AM 11 and AM 12 to determine the ambient levels of both 1-hour and 24-hour TSP levels respectively at Chung Shun Knitting Centre and Po Leung Kuk Tong Nai Kan College in the vicinity of Works Area J and L. Monitoring of 1-hour and 24-hour at AM 11 and AM 12 on 19/5/2010 was interrupted due to adverse weather condition. The locations of the works area and the respective ASR are shown in Figures 1 and 2 respectively. The information of the ASR where baseline air monitoring had been conducted is summarized in the table below:

Monitoring Station ID	Air Quality Monitoring Location	Monitoring period
AM 11	Chung Shun Knitting Centre	15/5/2010 – 29/5/2010 ¹ (1hr and 24-hr)
AM 12	Po Leung Kuk Tong Nai Kan College	15/5/2010 – 29/5/2010 ¹ (1-hr and 24-hr)

Table 2.2: Information of Air Sensitive Receiver where dust monitoring was conducted

¹ Monitoring on 19 May 2010 was interrupted due to adverse weather condition.

2.4 Calibration requirements

The flow rate of the high volume sampler with mass flow controller was calibrated using an orifice calibrator. Initial calibration (five points) was conducted upon

installation and prior to commissioning. Calibration was carried out every six months. Calibration certificate is attached in Appendix C. Calibration of the MIE by certified laboratory or manufacturer was carried out every two years and properly documented. Calibration certificates at AM 11 and AM 12 are attached in Appendix C.

The samplers shall be properly maintained. Prior to dust monitoring commencing, appropriate checks shall be made to ensure that all equipment and necessary power supply are in good working condition.

2.5 Monitoring Procedures

1-Hour TSP Levels Monitoring

TSP is sampled by drawing air into the MIE where particulate concentrations are measured instantaneously with an in-built detector sensing light scattered by the particles in the sampled air (optical sensing stage). Continuous TSP levels are indicated on the MIE along with a 'Time Weighted Average' value.

24-Hour TSP Levels Monitoring

The sampling procedure follows to that described Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA. TSP is sampled by drawing air through a conditioned, pre-weighed filter paper inside the high volume sampler at a controlled rate. After 24-hour sampling the filter paper with retained particles shall be collected and returned to HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd) for drying in a desiccators followed by accurate weighing. TSP levels are calculated from the ratio of the mass of particulate retained on the filter paper to the total volume of air sampled.

2.6 Monitoring Results

During the monitoring period, the weather was mostly fine with occasional rainy days. The major source of dust in the vicinity was observed to originate mainly from the traffic on nearby road.

Monitoring results of 1-hour and 24-hour TSP at AM 11 and AM 12 are summarised in Table 2.3 and 2.4. The detailed monitoring data of 1-hour and 24-hour of AM 11 and AM 12 is shown in Appendix A.

Monitoring Location	Average 1-hr TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Chung Shun Knitting Centre (AM 11)	77.8 (40.0-205.8)
Po Leung Kuk Tong Nai Kan College (AM 12)	83.7 (33.4-166.2)

Table 2.3: Summary of baseline 1-hour TSP level

Monitoring Location	Average 24-TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Chung Shun Knitting Centre (AM 11)	46.6 (19.0-88.5)
Po Leung Kuk Tong Nai Kan College (AM 12)	50.1 (28.3-84.0)

Table 2.4: Summary of baseline 24-hour TSP level

2.7 Action and Limit Levels

In accordance with the EM&A Manual, the baseline TSP levels form the basis for derivation of the Action Levels for subsequent impact monitoring, which is summarised in the table below:

Parameter	Action Level ⁽¹⁾	Limit Level
TSP (24 hour average)	• $\text{BL} \leq 200\mu\text{g m}^{-3}$, $\text{AL} = (\text{BL} * 1.3 + \text{LL})/2$ • $\text{BL} > 200\mu\text{g m}^{-3}$, $\text{AL} = \text{LL}$	$260\mu\text{g m}^{-3}$
TSP (1 hour average)	• $\text{BL} \leq 384\mu\text{g m}^{-3}$, $\text{AL} = (\text{BL} * 1.3 + \text{LL})/2$ • $\text{BL} > 384\mu\text{g m}^{-3}$, $\text{AL} = \text{LL}$	$500\mu\text{g m}^{-3}$

(1) BL = Baseline level, AL = Action level, LL = Limit Level.

Table 2.5: Basis for establishing the Action and Limit Levels for Air Quality

In accordance with Table 2.3 and 2.4 regarding results from baseline monitoring, the Action Level for air quality impact monitoring are calculated and presented below:

Location	Parameter	Action Level	Limit Level
Chung Shun Knitting Centre (AM 11)	TSP (24-hour average)	160.3 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$
	TSP (1-hour average)	300.6 $\mu\text{g m}^{-3}$	500 $\mu\text{g m}^{-3}$
Po Leung Kuk Tong Nai Kan College (AM 12)	TSP (24-hour average)	162.5 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$
	TSP (1-hour average)	304.4 $\mu\text{g m}^{-3}$	500 $\mu\text{g m}^{-3}$

Table 2.6: Action and Limit Levels for Air Quality Impact Monitoring

3. AIRBORNE CONSTRUCTION NOISE

3.1 Monitoring Methodology

Consecutive noise measurements were undertaken over a period of at least 14 days to establish the ambient noise levels at representative nearest sensitive receivers. Continuous 5 minute A-weighted noise levels were recorded throughout the daytime, evening and night-time on weekdays (Monday to Saturday) and also on Sundays.

As referred to the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. In this baseline monitoring, B&K 2250 sound level meter, which complies with the above-mentioned specifications, was used.

There should not be any construction activities in the vicinity of the monitoring stations during the baseline monitoring. Any non-project related construction activities in the vicinity of the monitoring stations during the baseline monitoring should be noted and the source and location of such activities should be recorded.

3.2 Monitoring Frequency

The baseline monitoring was measured daily for a continuous period of at least 14 consecutive days at a minimum logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays) and 15 minutes (as three consecutive Leq, (5 minutes) readings) for evening time (between 1900 and 2300 hours of normal weekdays), general holidays including Sundays (between 0700 and 2300 hours) and night-time (between 2300 and 0700 of all days). The Leq, L10 and L90 were recorded at the specified interval.

3.3 Monitoring location

Baseline noise monitoring was carried out at CN 21 located in the vicinity of Works Area L. The location of the NSR is shown in Figure 3. Monitoring was carried out at the following stations in accordance with the EM&A Manual:

Monitoring Station ID	Noise Monitoring Location	Monitoring period
CN 21	Po Leung Kuk Tong Nai Kan College	28/5/2010 to 10/6/2010

Table 3.1: Information of Noise Monitoring Stations

3.4 Calibration Requirements

B&K 2250 sound level meters which complied with the International Electrotechnical Commission Publication 651:1979 (Type 1) and 804:1985 (Type 1), specification as referred to in the Technical Memoranda to the NCO were used for the baseline monitoring at CN 21. The sound level meters and calibrator are verified by the certified laboratory or manufacturer once every year to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. Calibration certificates of the sound level meters and calibrator at CN 21 are attached in Appendix C.

Immediately prior to and following each noise measurement the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement is less than 1.0 dB.

3.5 Action and Limit Levels

The Action and Limit Levels defined in the EM&A Manual for airborne construction noise is presented below for reference.

Time Period	Action	Limit
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) for residential premises
		70 dB(A) for school and 65 dB(A) during examination period

Table 3.2: Action and Limit Levels for Airborne Construction Noise

3.6 Monitoring Results

Baseline noise monitoring was conducted between 28/5/2010 and 10/6/2010 at Po Leung Kuk Tong Nai Kan College (CN 21). The weather condition was generally fine with occasional rainfall events during the monitoring period. The major noise sources at respective monitoring locations are summarized at the table below:

Monitoring location ID	Monitoring location	Major noise source
CN 21	Po Leung Kuk Tong Nai Kan College	Traffic noise

Table 3.3: Major noise source at noise monitoring locations

Baseline noise monitoring results at CN 21 are summarised in Table 3.3 over the monitoring periods. Detailed monitoring data at CN 21 is contained in Appendix B. Graphical presentations of the monitoring results at CN 21 are shown in Appendix B.

Period	Monitoring Station	L_{eq}(30min) – dB(A) (Range)	L₁₀(30min) – dB(A) (Range)	L₉₀(30min) – dB(A) (Range)
0700 – 1900 (Daytime, Normal weekday)	CN 21	70 (69-71)	73 (72-73)	66 (64-67)
0700 – 2300 (General Holiday including Sunday)	CN 21	66 (63-70)	69 (66-71)	61 (57-63)
1900 – 2300 (Evening, Normal weekday)	CN 21	69 (67-71)	72 (70-74)	63 (61-66)
2300 – 0700 (Night-time, all days)	CN 21	64 (60-68)	67 (63-71)	58 (53-63)

Table 3.4: Baseline noise monitoring results

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the CN21 range from 69-71 dB(A). It was noted from the monitoring results that the daytime baseline noise level of CN 21, 70 dB(A), exceeded the Limit Level of 65 dB(A) for examination periods and reached the Limit Level of 70 dB(A) for normal school days.

In consideration of this situation, the baseline noise level at CN 21 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 21 would be covered in the EM&A Report.

During impact monitoring, observations of project-related construction activities and/or non-project related noise sources in the vicinity of CN 21 would be recorded. In case exceedance is recorded, the dominant noise source would be determined based on site observations. The monitoring results and observations would be verified by the IEC and reported in the monthly EM&A Report.

4. CONCLUSION

4.1 Air

1-hour TSP

Baseline 1-hour TSP monitoring was conducted at AM 11 and AM 12 between the period 15/5/2010 and 29/5/2010. Monitoring was interrupted on 19/5/2010 due to adverse weather condition. The weather condition was mostly fine with occasional rainy days. From site observation, it was noted that the major source of dust was originated mainly from traffic on nearby road.

Baseline 1-hour TSP monitoring at AM 11 and AM 12 were found in the range of 40.0 to 205.8 $\mu\text{g}/\text{m}^3$ and 33.4 to 166.2 respectively. The average 1-hour TSP level at AM 11 and AM 12 were recorded to be 77.8 $\mu\text{g}/\text{m}^3$ and 83.7 $\mu\text{g}/\text{m}^3$ respectively.

24-hour TSP

Baseline 24-hour TSP monitoring was conducted at AM 11 and AM 12 between the period 15/5/2010 and 29/5/2010. Monitoring was interrupted on 19/5/2010 due to adverse weather condition. Baseline 24-hour TSP monitoring at AM 11 and AM 12 were found in the range of 19.0 to 88.5 $\mu\text{g}/\text{m}^3$ and 28.3 to 84.0 $\mu\text{g}/\text{m}^3$ respectively. The average 24-hour TSP level at AM 11 and AM 12 were recorded to be 46.6 $\mu\text{g}/\text{m}^3$ and 50.1 $\mu\text{g}/\text{m}^3$ respectively.

The Action Levels at the monitoring locations were derived based on the baseline monitoring results. The Action Level of 1-hour and 24-hour average TSP levels at AM 11 was 300.6 $\mu\text{g}/\text{m}^3$ and 160.3 $\mu\text{g}/\text{m}^3$ respectively. The Action Level of 1-hour and 24-hour average TSP levels at AM 12 was 304.4 $\mu\text{g}/\text{m}^3$ and 162.5 $\mu\text{g}/\text{m}^3$ respectively.

4.2 Airborne Construction Noise

Baseline noise monitoring was carried at the monitoring station from 28/5/2010 to 10/6/2010. The weather during the baseline monitoring period was generally fine with occasional rainfall events.

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the CN21 range from 69-71 dB(A). It was noted from the monitoring results that the daytime baseline noise level of CN 21, 70 dB(A), exceeded the Limit Level of 65 dB(A) for examination periods and reached the Limit Level of

70 dB(A) for normal school days.

In consideration of this situation, the baseline noise level at CN 21 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 21 would be covered in the EM&A Report.

Appendix A

Baseline air quality (1-hr and 24-hr TSP) monitoring data

Details of 1-hour TSP Level monitoring at AM 11

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
May-10	15-May-10	AM11	1	9:40	10:40	Fine	Normal	24.0	758.0	72.3	
May-10	15-May-10	AM11	2	10:40	11:40	Fine	Normal	24.0	758.0	83.3	
May-10	15-May-10	AM11	3	11:40	12:40	Fine	Normal	24.0	758.0	82.9	
May-10	16-May-10	AM11	1	8:52	9:52	Fine	Normal	24.0	758.0	125.3	
May-10	16-May-10	AM11	2	9:52	10:52	Fine	Normal	24.0	758.0	108.9	
May-10	16-May-10	AM11	3	10:52	11:52	Fine	Normal	24.0	758.0	105.0	
May-10	17-May-10	AM11	1	8:56	9:56	Fine	Normal	25.0	759.0	117.2	
May-10	17-May-10	AM11	2	9:56	10:56	Fine	Normal	25.0	759.0	205.8	
May-10	17-May-10	AM11	3	10:56	11:56	Fine	Normal	25.0	759.0	97.4	
May-10	18-May-10	AM11	1	9:05	10:05	Rainy	Normal	27.0	758.0	103.5	
May-10	18-May-10	AM11	2	10:05	11:05	Rainy	Normal	27.0	758.0	79.9	
May-10	18-May-10	AM11	3	11:05	12:05	Rainy	Normal	27.0	758.0	69	
May-10	20-May-10	AM11	1	9:16	10:16	Fine	Normal	26.0	758.0	40.0	
May-10	20-May-10	AM11	2	10:16	11:16	Fine	Normal	26.0	758.0	42.8	
May-10	20-May-10	AM11	3	11:16	12:16	Fine	Normal	26.0	758.0	83.7	
May-10	21-May-10	AM11	1	9:16	10:16	Cloudy	Normal	29.0	757.0	80.2	
May-10	21-May-10	AM11	2	10:16	11:16	Cloudy	Normal	29.0	757.0	73.2	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m ³)	Remarks
				Start	Finish						
May-10	21-May-10	AM11	3	11:16	12:16	Cloudy	Normal	29.0	757.0	51.4	
May-10	22-May-10	AM11	1	13:47	14:47	Rainy	Normal	29.0	754.0	70.5	
May-10	22-May-10	AM11	2	14:47	15:47	Rainy	Normal	29.0	754.0	64.7	
May-10	22-May-10	AM11	3	15:47	16:47	Rainy	Normal	29.0	754.0	42.8	
May-10	23-May-10	AM11	1	15:10	16:10	Fine	Normal	26.0	752.0	53.3	
May-10	23-May-10	AM11	2	16:10	17:10	Fine	Normal	26.0	752.0	49.9	
May-10	23-May-10	AM11	3	17:10	18:10	Fine	Normal	26.0	752.0	51.4	
May-10	24-May-10	AM11	1	13:11	14:11	Fine	Normal	26.0	755.0	74.1	
May-10	24-May-10	AM11	2	14:11	15:11	Fine	Normal	26.0	755.0	66.2	
May-10	24-May-10	AM11	3	15:11	16:11	Fine	Normal	26.0	755.0	103.1	
May-10	25-May-10	AM11	1	13:11	14:11	Fine	Normal	26.0	756.0	50.8	
May-10	25-May-10	AM11	2	14:11	15:11	Fine	Normal	26.0	756.0	46.5	
May-10	25-May-10	AM11	3	15:11	16:11	Fine	Normal	26.0	756.0	48.1	
May-10	26-May-10	AM11	1	12:04	13:04	Fine	Normal	27.0	756.0	60.6	
May-10	26-May-10	AM11	2	13:04	14:04	Fine	Normal	27.0	756.0	66.3	
May-10	26-May-10	AM11	3	14:04	15:04	Fine	Normal	27.0	756.0	76.3	
May-10	27-May-10	AM11	1	13:39	14:39	Cloudy	Normal	26.0	756.0	103.4	
May-10	27-May-10	AM11	2	14:39	15:39	Cloudy	Normal	26.0	756.0	63.1	
May-10	27-May-10	AM11	3	15:39	16:39	Cloudy	Normal	26.0	756.0	79.3	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
May-10	28-May-10	AM11	1	13:14	14:14	Fine	Normal	26.0	755.0	92.5	
May-10	28-May-10	AM11	2	14:14	15:14	Fine	Normal	26.0	755.0	63.6	
May-10	28-May-10	AM11	3	15:14	16:14	Fine	Normal	26.0	755.0	72.8	
May-10	29-May-10	AM11	1	13:37	14:37	Cloudy	Normal	27.0	756.0	76.4	
May-10	29-May-10	AM11	2	14:37	15:37	Cloudy	Normal	27.0	756.0	91.4	
May-10	29-May-10	AM11	3	15:37	16:37	Cloudy	Normal	27.0	756.0	80.3	
									Average	77.8	
									Max	205.8	
									Min	40.0	
									Action Level	300.6	
									Limit Level	500	

Details of 1-hour TSP Level monitoring at AM 12

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m ³)	Remarks
				Start	Finish						
May-10	15-May-10	AM12	1	14:13	15:13	Fine	Normal	24.0	758.0	102.9	
May-10	15-May-10	AM12	2	15:13	16:13	Fine	Normal	24.0	758.0	108.4	
May-10	15-May-10	AM12	3	16:13	17:13	Fine	Normal	24.0	758.0	101.5	
May-10	16-May-10	AM12	1	13:35	14:35	Fine	Normal	24.0	758.0	84.5	
May-10	16-May-10	AM12	2	14:35	15:35	Fine	Normal	24.0	758.0	166.2	
May-10	16-May-10	AM12	3	15:35	16:35	Fine	Normal	24.0	758.0	61.7	
May-10	17-May-10	AM12	1	13:40	14:40	Fine	Normal	25.0	759.0	83.8	
May-10	17-May-10	AM12	2	14:40	15:40	Fine	Normal	25.0	759.0	48.5	
May-10	17-May-10	AM12	3	15:40	16:40	Fine	Normal	25.0	759.0	42.9	
May-10	18-May-10	AM12	1	13:56	14:56	Rainy	Normal	27.0	758.0	84.2	
May-10	18-May-10	AM12	2	14:56	15:56	Rainy	Normal	27.0	758.0	51.1	
May-10	18-May-10	AM12	3	15:56	16:56	Rainy	Normal	27.0	758.0	47.3	
May-10	20-May-10	AM12	1	13:29	14:29	Fine	Normal	26.0	758.0	103.8	
May-10	20-May-10	AM12	2	14:29	15:29	Fine	Normal	26.0	758.0	98.8	
May-10	20-May-10	AM12	3	15:29	16:29	Fine	Normal	26.0	758.0	99.8	
May-10	21-May-10	AM12	1	13:35	14:35	Cloudy	Normal	29.0	757.0	43.8	
May-10	21-May-10	AM12	2	14:35	15:35	Cloudy	Normal	29.0	757.0	33.4	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
May-10	21-May-10	AM12	3	15:35	16:35	Cloudy	Normal	29.0	757.0	52.4	
May-10	22-May-10	AM12	1	8:57	9:57	Rainy	Normal	29.0	754.0	50.1	
May-10	22-May-10	AM12	2	9:57	10:57	Rainy	Normal	29.0	754.0	47.6	
May-10	22-May-10	AM12	3	10:57	11:57	Rainy	Normal	29.0	754.0	49.0	
May-10	23-May-10	AM12	1	9:09	10:09	Fine	Normal	26.0	752.0	108.9	
May-10	23-May-10	AM12	2	10:09	11:09	Fine	Normal	26.0	752.0	98.2	
May-10	23-May-10	AM12	3	11:09	12:09	Fine	Normal	26.0	752.0	79.3	
May-10	24-May-10	AM12	1	8:43	9:43	Fine	Normal	26.0	755.0	84.3	
May-10	24-May-10	AM12	2	9:43	10:43	Fine	Normal	26.0	755.0	78.3	
May-10	24-May-10	AM12	3	10:43	11:43	Fine	Normal	26.0	755.0	80.1	
May-10	25-May-10	AM12	1	8:33	9:33	Fine	Normal	26.0	756.0	114.3	
May-10	25-May-10	AM12	2	9:33	10:33	Fine	Normal	26.0	756.0	101.8	
May-10	25-May-10	AM12	3	10:33	11:33	Fine	Normal	26.0	756.0	137.2	
May-10	26-May-10	AM12	1	8:33	9:33	Fine	Normal	27.0	756.0	86.7	
May-10	26-May-10	AM12	2	9:33	10:33	Fine	Normal	27.0	756.0	77.9	
May-10	26-May-10	AM12	3	10:33	11:33	Fine	Normal	27.0	756.0	77.0	
May-10	27-May-10	AM12	1	8:57	9:57	Cloudy	Normal	26.0	756.0	84.8	
May-10	27-May-10	AM12	2	9:57	10:57	Cloudy	Normal	26.0	756.0	89.8	
May-10	27-May-10	AM12	3	10:57	11:57	Cloudy	Normal	26.0	756.0	138.1	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m ³)	Remarks
				Start	Finish						
May-10	28-May-10	AM12	1	9:02	10:02	Fine	Normal	26.0	755.0	62.1	
May-10	28-May-10	AM12	2	10:02	11:02	Fine	Normal	26.0	755.0	59.8	
May-10	28-May-10	AM12	3	11:02	12:02	Fine	Normal	26.0	755.0	59.4	
May-10	29-May-10	AM12	1	8:46	9:46	Cloudy	Normal	27.0	756.0	122.3	
May-10	29-May-10	AM12	2	9:46	10:46	Cloudy	Normal	27.0	756.0	98.3	
May-10	29-May-10	AM12	3	10:46	11:46	Cloudy	Normal	27.0	756.0	113.3	
									Average	83.7	
									Max	166.2	
									Min	33.4	
									Action Level	304.4	
									Limit Level	500	

Details of 24-hour TSP Level monitoring at AM 11

Filter No.	Date	Time periods		Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m3/min)		Average Flow Rate (m³/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m³)	24-hour TSP Level (µg/m³)
		Start	Finish			Initial	Final		Initial	Final		Start	Finish			
100951	15-May-10	12:00	12:00	Fine	Normal Operation	2.8271	2.9467	0.1196	1.2147	1.2464	1.2306	8637.27	8661.27	1440	1771.99	67.5
120002	16-May-10	12:04	12:04	Fine	Normal Operation	2.7676	2.9224	0.1548	1.2147	1.2134	1.2141	8661.27	8685.27	1440	1748.23	88.5
120004	17-May-10	12:08	12:08	Fine	Normal Operation	2.7628	2.828	0.0652	1.2134	1.208	1.2107	8685.27	8709.27	1440	1743.41	37.4
120008	18-May-10	12:14	12:14	Rainy	Normal Operation	2.7481	2.8091	0.0610	1.2080	1.2094	1.2087	8709.27	8733.27	1440	1740.53	35.0
120010	20-May-10	12:20	12:20	Fine	Normal Operation	2.7386	2.8107	0.0721	1.2441	1.2028	1.2235	8757.27	8781.27	1440	1761.77	40.9
120018	21-May-10	12:25	12:25	Cloudy	Normal Operation	2.762	2.7958	0.0338	1.2342	1.2315	1.2329	8781.27	8805.27	1440	1775.3	19
120020	22-May-10	14:00	14:00	Rainy	Normal Operation	2.7591	2.8572	0.0981	1.2002	1.205	1.2026	8805.27	8829.27	1440	1731.74	56.6
120022	23-May-10	14:06	14:06	Fine	Normal Operation	2.772	2.8916	0.1196	1.205	1.2391	1.2221	8829.27	8853.27	1440	1759.75	68
120024	24-May-10	14:10	14:10	Fine	Normal Operation	2.7632	2.853	0.0898	1.2076	1.2085	1.2081	8853.27	8877.27	1440	1739.59	51.6
120032	25-May-10	14:15	14:15	Fine	Normal Operation	2.7433	2.8331	0.0898	1.24	1.2062	1.2231	8877.27	8901.27	1440	1761.26	51
120034	26-May-10	14:18	14:18	Fine	Normal Operation	2.7384	2.7728	0.0344	1.2062	1.2107	1.2085	8901.27	8925.27	1440	1740.17	19.8
120036	27-May-10	14:20	14:20	Cloudy	Normal Operation	2.7451	2.8261	0.081	1.2107	1.2098	1.2103	8925.27	8949.27	1440	1742.76	46.5
120038	28-May-10	14:25	14:25	Fine	Normal Operation	2.7481	2.8292	0.0811	1.2098	1.2107	1.2103	8949.27	8973.27	1440	1742.76	46.5
120040	29-May-10	14:29	14:29	Cloudy	Normal Operation	2.7486	2.7893	0.0407	1.2107	1.2054	1.2081	8973.27	8997.27	1440	1739.59	23.4
															Average	46.6
															Max	88.5

Min	19.0
Action Level	160.3
Limit Level	260

Details of 24-hour TSP Level monitoring at AM 12

Filter No.	Date	Time periods		Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m³/min)		Average Flow Rate (m³/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m³)	24-hour TSP Level (µg/m³)	
		Start	Finish			Initial	Final		Initial	Final		Start	Finish				
120001	15-May-10	12:50	12:50	Fine	Normal Operation	2.7639	2.9075	0.1436	1.1871	1.1871	1.1871	9406.13	9430.13	1440	1709.42	84	
120003	16-May-10	12:52	12:52	Fine	Normal Operation	2.7514	2.8391	0.0877	1.1871	1.1856	1.1864	9430.13	9454.13	1440	1708.34	51.3	
120005	17-May-10	12:55	12:55	Fine	Normal Operation	2.7554	2.8252	0.0698	1.1856	1.18	1.1828	9454.13	9478.13	1440	1703.23	41	
120009	18-May-10	12:58	12:58	Rainy	Normal Operation	2.7454	2.8067	0.0613	1.1465	1.1480	1.1473	9478.13	9502.13	1440	1652.01	37.1	
120017	20-May-10	13:05	13:05	Fine	Normal Operation	2.7573	2.8053	0.048	1.1847	1.1745	1.1796	9526.13	9550.13	1440	1698.62	28.3	
120019	21-May-10	13:09	13:09	Cloudy	Normal Operation	2.7601	2.8528	0.0927	1.1745	1.1716	1.1731	9550.13	9574.13	1440	1689.19	54.9	
120021	22-May-10	13:15	13:15	Rainy	Normal Operation	2.7611	2.859	0.0979	1.1716	1.1768	1.1742	9574.13	9598.13	1440	1690.85	57.9	
120023	23-May-10	13:18	13:18	Fine	Normal Operation	2.7506	2.8503	0.0997	1.1768	1.1796	1.1782	9598.13	9622.13	1440	1696.61	58.8	
120025	24-May-10	13:20	13:20	Fine	Normal Operation	2.7563	2.8478	0.0915	1.1796	1.1805	1.1801	9622.13	9646.13	1440	1699.27	53.8	
120033	25-May-10	13:25	13:25	Fine	Normal Operation	2.7544	2.8293	0.0749	1.1805	1.1781	1.1793	9646.13	9670.13	1440	1698.19	44.1	
120035	26-May-10	13:28	13:28	Fine	Normal Operation	2.729	2.815	0.086	1.1781	1.2163	1.1972	9670.13	9694.13	1440	1723.97	49.9	
120037	27-May-10	13:34	13:34	Cloudy	Normal Operation	2.7457	2.8319	0.0862	1.1828	1.2154	1.1991	9694.13	9718.13	1440	1726.7	49.9	
120039	28-May-10	13:38	13:38	Fine	Normal Operation	2.7465	2.8137	0.0672	1.1819	1.1828	1.1824	9718.13	9742.13	1440	1702.58	39.5	
120041	29-May-10	13:42	13:42	Cloudy	Normal Operation	2.7623	2.849	0.0867	1.1828	1.2105	1.1967	9742.13	9766.13	1440	1723.18	50.3	
																Average	50.1
																Max	84.0

Min	28.3
Action Level	162.5
Limit Level	260

Appendix B

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CN 21 Po Leung Kuk Tong Nai Kan College

Baseline monitoring period: 28/5/2010-10/6/2010

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	69.3	72.2	64.5
07:30-08:00	69.9	72.6	65.8
08:00-08:30	70.0	72.7	66.1
08:30-09:00	70.5	73.1	66.6
09:00-09:30	70.6	73.3	66.9
09:30-10:00	70.9	73.4	66.9
10:00-10:30	70.6	73.0	66.9
10:30-11:00	70.5	72.8	67.1
11:00-11:30	70.1	72.5	66.5
11:30-12:00	70.3	72.9	65.8
12:00-12:30	69.5	72.2	64.7
12:30-13:00	68.9	71.6	64.5
13:00-13:30	69.8	72.5	65.6
13:30-14:00	70.7	73.2	67.0
14:00-14:30	70.8	73.3	66.8
14:30-15:00	70.6	73.1	66.8
15:00-15:30	70.2	72.9	65.9
15:30-16:00	70.2	72.9	65.7
16:00-16:30	69.8	72.4	65.6
16:30-17:00	69.9	72.6	65.5
17:00-17:30	70.0	72.8	65.5
17:30-18:00	69.5	72.2	64.9
18:00-18:30	69.4	72.3	64.8
18:30-19:00	69.0	72.0	63.9
Average	70.1	72.7	65.9
Max	70.9	73.4	67.1
Min	68.9	71.6	63.9

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	69.6	72.7	64.3
	70.0	72.9	65.5
	70.3	73.0	64.7
19:15-19:30	70.3	73.0	64.6
	69.2	72.1	64.1
	70.4	73.4	64.8
19:30-19:45	68.8	72.0	63.1
	68.6	71.7	62.9
	71.2	74.1	65.8
19:45-20:00	69.5	72.8	63.6
	68.1	71.2	62.5
	68.2	71.4	62.5
20:00-20:15	68.6	71.6	63.2
	68.4	71.7	62.0
	68.5	71.5	62.8
20:15-20:30	68.1	71.3	62.3
	68.3	71.5	62.7
	68.2	71.2	62.0
20:30-20:45	67.9	70.9	62.0
	69.1	72.1	63.5
	68.9	71.8	63.5
20:45-21:00	68.4	71.5	62.7
	68.8	71.9	63.3
	68.1	70.7	62.0
21:00-21:15	67.9	71.1	62.1
	67.0	70.2	61.4
	67.9	70.9	61.8
21:15-21:30	68.7	71.9	63.0
	69.1	72.1	63.8
	67.6	70.5	62.0
21:30-21:45	67.0	70.0	61.8

Time Slot	Leq, 5min	L10	L90
	68.0	71.1	62.0
	68.1	71.3	62.3
21:45-22:00	67.4	70.4	61.8
	68.3	71.5	62.9
	69.3	72.2	64.0
22:00-22:15	68.4	71.5	62.2
	67.6	70.6	61.7
	68.2	71.1	62.5
22:15-22:30	67.6	70.8	62.4
	68.5	71.7	62.5
	67.1	70.4	60.9
22:30-22:45	67.8	70.7	62.2
	68.1	71.2	62.2
	68.7	71.9	62.8
22:45-23:00	67.2	70.8	60.7
	68.4	71.8	62.1
	67.7	70.9	61.7
Average	68.6	71.6	62.9
Max	71.2	74.1	65.8
Min	67.0	70.0	60.7

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	65.1	68.4	59.8
	64.2	66.8	59.6
	64.5	67.7	59.2
07:15-07:30	63.2	66.0	58.6
	64.6	67.9	59.9
	65.1	68.2	60.0
07:30-07:45	65.1	68.7	58.8
	67.0	70.6	60.5
	64.2	67.2	60.3
07:45-08:00	64.9	67.9	60.4
	65.7	68.5	60.9

Time Slot	Leq, 5min	L10	L90
	66.7	69.9	60.9
08:00-08:15	65.4	68.1	60.7
	65.4	67.9	60.6
	66.1	69.3	61.1
08:15-08:30	65.7	69.0	60.5
	64.6	66.9	60.9
	66.3	69.3	61.3
08:30-08:45	66.6	69.2	62.6
	65.3	68.4	61.2
	65.5	68.4	61.5
08:45-09:00	66.0	68.9	61.8
	65.0	68.0	60.3
	68.2	70.7	61.0
09:00-09:15	65.5	68.3	61.3
	65.9	68.9	61.0
	66.7	69.9	61.3
09:15-09:30	66.9	70.0	61.6
	65.2	67.8	61.2
	66.1	68.9	61.3
09:30-09:45	64.8	67.7	60.3
	65.4	68.4	60.7
	66.5	69.9	61.0
09:45-10:00	66.0	68.9	61.3
	66.0	68.9	61.8
	65.6	68.7	61.2
10:00-10:15	67.3	70.3	62.3
	66.1	69.3	61.4
	65.9	69.0	61.2
10:15-10:30	65.7	68.5	61.4
	66.2	69.1	61.1
	65.8	68.9	60.0
10:30-10:45	65.4	68.1	60.8
	66.9	69.8	61.4
	66.5	69.6	62.1
10:45-11:00	65.6	68.7	60.2
	65.7	68.7	60.4

Time Slot	Leq, 5min	L10	L90
	66.0	69.0	60.8
11:00-11:15	66.3	69.9	60.5
	65.0	67.7	60.2
	66.7	69.7	60.9
11:15-11:30	65.6	68.5	60.6
	65.8	68.8	60.7
	66.2	69.2	61.5
11:30-11:45	66.0	68.6	61.1
	66.2	68.6	61.3
	66.5	69.9	60.6
11:45-12:00	65.6	68.7	60.5
	65.1	67.7	61.1
	67.3	70.4	61.2
12:00-12:15	65.6	68.7	60.0
	66.9	69.5	60.8
	66.2	69.0	61.2
12:15-12:30	65.7	69.0	59.0
	64.2	66.7	59.7
	66.7	70.0	60.3
12:30-12:45	66.0	69.0	61.7
	65.6	68.8	60.8
	66.1	69.1	60.6
12:45-13:00	66.3	69.4	61.2
	66.1	69.1	60.9
	65.7	68.8	60.3
13:00-13:15	65.4	68.6	61.1
	66.5	69.4	61.0
	67.1	70.4	61.1
13:15-13:30	66.5	69.4	61.5
	66.5	69.3	61.5
	66.8	69.9	62.3
13:30-13:45	65.7	68.5	61.2
	66.4	69.5	60.9
	66.8	70.1	61.9
13:45-14:00	66.7	69.6	61.1
	65.4	68.2	61.6

Time Slot	Leq, 5min	L10	L90
	66.9	69.9	62.1
14:00-14:15	65.4	68.2	60.5
	66.5	69.6	61.8
	65.8	69.0	60.9
14:15-14:30	68.2	70.2	61.9
	66.4	69.5	61.4
	65.6	68.5	61.2
14:30-14:45	65.6	68.4	60.4
	66.5	69.2	61.7
	64.5	67.5	60.2
14:45-15:00	66.0	68.6	61.3
	65.7	68.3	60.2
	66.7	69.6	61.9
15:00-15:15	65.2	68.2	60.6
	65.2	68.5	60.3
	66.9	70.0	60.7
15:15-15:30	65.8	68.6	60.8
	65.5	68.4	60.3
	66.0	68.9	61.1
15:30-15:45	66.5	69.2	61.7
	65.8	68.7	61.7
	66.1	69.4	60.5
15:45-16:00	64.5	68.1	59.2
	67.2	70.3	60.2
	66.4	69.1	60.2
16:00-16:15	66.4	69.3	61.5
	66.0	69.1	60.2
	66.6	69.5	61.6
16:15-16:30	66.1	69.0	61.4
	65.3	68.4	60.1
	65.4	68.1	61.2
16:30-16:45	65.5	68.5	60.6
	66.1	69.1	61.3
	65.3	68.0	60.3
16:45-17:00	66.3	69.1	61.9
	66.3	68.6	62.2

Time Slot	Leq, 5min	L10	L90
	69.6	70.7	61.3
17:00-17:15	64.7	68.1	59.9
	65.5	68.5	60.4
	66.4	69.6	60.9
17:15-17:30	67.7	70.4	61.7
	67.9	70.1	61.9
	65.5	68.6	60.8
17:30-17:45	66.3	68.7	60.8
	66.3	69.4	60.9
	66.5	69.8	61.3
17:45-18:00	66.6	69.4	61.5
	65.8	68.7	60.9
	66.3	69.0	61.1
18:00-18:15	66.4	69.7	61.0
	66.7	69.4	62.1
	66.7	69.6	61.3
18:15-18:30	66.2	68.9	61.0
	66.4	69.7	60.0
	66.1	69.5	59.9
18:30-18:45	66.1	69.2	60.4
	65.9	69.2	60.1
	65.7	68.6	61.1
18:45-19:00	66.6	69.9	60.1
	66.3	69.0	61.3
	66.6	70.3	61.0
19:00-19:15	66.0	68.7	60.5
	65.9	68.7	61.4
	66.0	69.7	59.3
19:15-19:30	66.3	69.7	60.8
	65.5	68.2	59.6
	66.2	69.3	61.6
19:30-19:45	65.1	68.4	59.2
	65.5	68.6	59.1
	65.8	68.7	59.6
19:45-20:00	64.1	67.1	59.0
	63.3	66.4	56.9

Time Slot	Leq, 5min	L10	L90
	64.6	67.8	58.9
20:00-20:15	63.4	66.4	58.1
	63.8	66.3	57.9
	64.1	66.6	59.6
20:15-20:30	64.5	66.7	58.6
	64.9	68.3	58.7
	62.9	65.7	58.0
20:30-20:45	64.8	67.9	59.8
	63.2	66.6	57.5
	64.2	67.8	58.2
20:45-21:00	63.6	66.3	58.1
	63.4	66.5	58.4
	65.2	67.9	57.9
21:00-21:15	63.9	66.9	59.1
	64.3	67.2	58.2
	64.6	67.1	59.1
21:15-21:30	64.5	67.0	58.9
	64.8	67.7	59.6
	63.7	66.6	58.2
21:30-21:45	63.5	66.4	59.0
	65.5	68.2	60.5
	64.0	67.1	58.4
21:45-22:00	63.8	67.1	58.0
	64.2	67.7	58.2
	65.7	68.6	60.4
22:00-22:15	65.4	68.6	59.3
	65.5	68.1	61.1
	66.3	69.5	60.0
22:15-22:30	65.5	68.8	59.4
	65.0	68.1	58.4
	65.1	68.3	58.6
22:30-22:45	65.1	67.9	60.2
	64.9	68.3	59.7
	65.7	68.6	60.2
22:45-23:00	64.5	67.6	58.4
	64.9	68.5	59.2

Time Slot	Leq, 5min	L10	L90
	64.9	68.4	58.7
Average	65.8	68.8	60.6
Max	69.6	70.7	62.6
Min	62.9	65.7	56.9

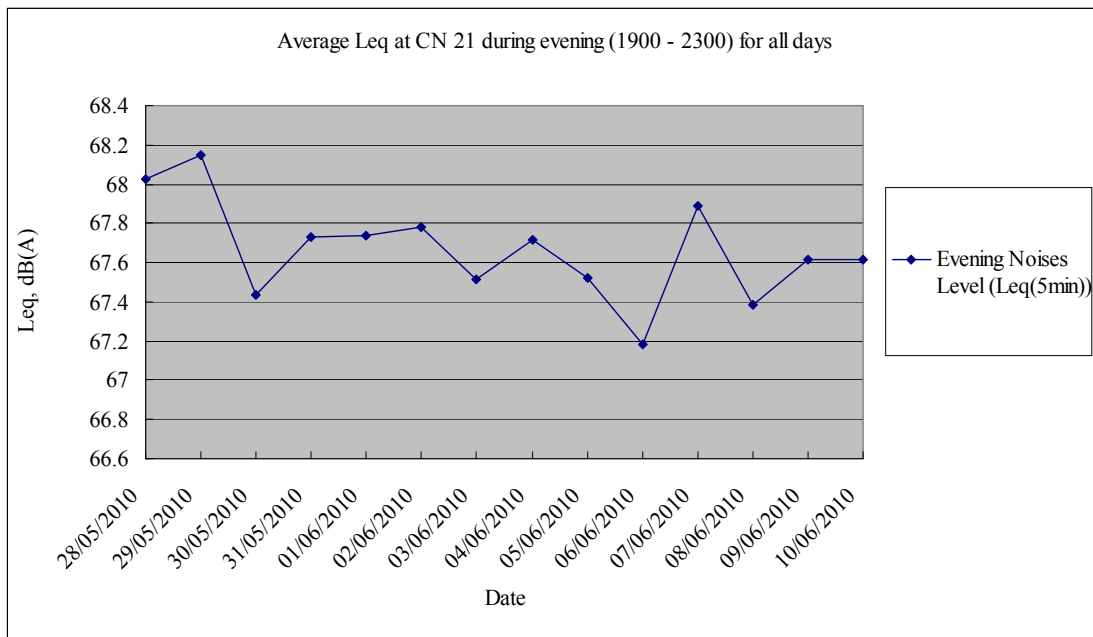
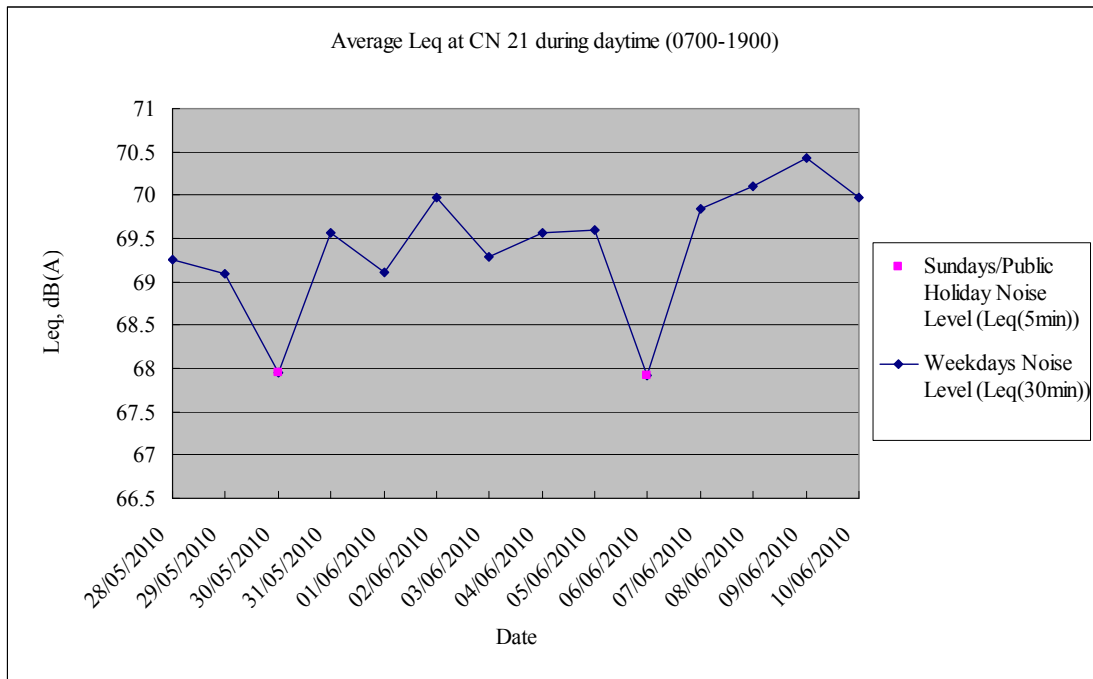
4) Night-time (for all days) Noise Level, dB(A)

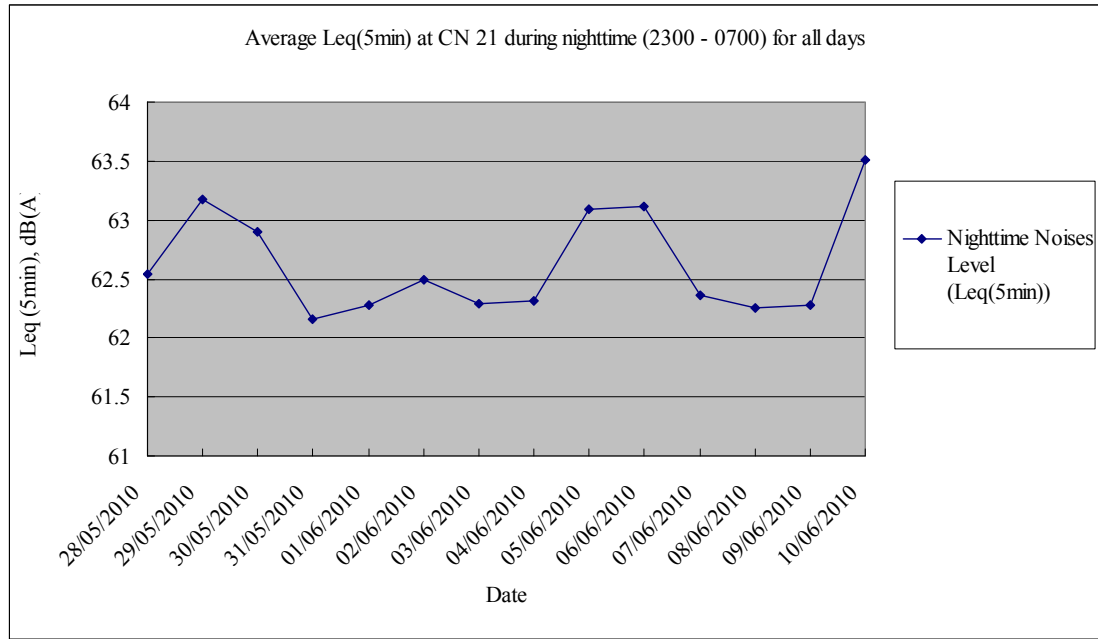
Time Slot	Leq, 5min	L10	L90
23:00-23:15	67.3	70.6	61.0
	66.8	69.9	60.9
	66.9	70.0	60.4
23:15-23:30	66.4	69.8	60.0
	67.1	70.5	60.7
	66.3	69.5	59.6
23:30-23:45	66.2	69.6	59.6
	66.5	69.9	60.2
	66.7	70.5	59.6
23:45-00:00	66.4	69.8	59.4
	66.1	69.7	59.2
	66.5	70.1	59.3
00:00-00:15	65.6	69.1	58.8
	65.4	68.8	58.9
	65.8	69.6	58.2
00:15-00:30	65.5	69.2	58.3
	65.4	69.2	58.2
	64.5	68.1	57.4
00:30-00:45	64.7	68.4	57.7
	64.3	67.9	56.9
	64.3	67.9	56.8
00:45:01:00	63.9	67.1	56.9
	62.8	66.1	56.4
	62.4	65.4	56.3
01:00-01:15	62.9	66.2	56.7
	62.0	65.4	55.5
	62.2	65.5	55.7
01:15-01:30	61.4	64.5	55.2

Time Slot	Leq, 5min	L10	L90
	62.0	65.4	55.2
	61.6	65.0	55.3
01:30-01:45	61.8	64.9	55.7
	61.0	64.3	54.9
	61.6	64.8	55.2
01:45-02:00	60.9	64.0	55.2
	61.3	64.3	54.7
	61.3	64.6	54.8
02:00-02:15	60.6	63.8	54.5
	60.5	64.0	54.0
	61.7	64.9	54.7
02:15-02:30	59.8	63.4	54.0
	60.4	63.8	54.1
	60.6	63.7	54.4
02:30-02:45	60.9	64.2	54.2
	60.4	63.5	53.9
	60.9	64.1	54.1
02:45-03:00	60.6	63.8	54.1
	59.7	63.0	53.8
	61.9	65.0	54.1
03:00-03:15	59.7	62.8	53.6
	59.5	62.9	53.4
	60.7	64.0	53.9
03:15-03:30	59.9	63.1	53.4
	60.2	63.7	53.6
	61.1	64.5	53.8
03:30-03:45	60.0	63.6	53.9
	59.9	63.1	53.5
	60.8	64.1	54.1
03:45-04:00	59.9	63.2	53.7
	60.8	63.7	55.5
	62.4	64.7	59.4
04:00-04:15	62.5	64.8	57.1
	60.5	63.5	55.0
	60.8	63.9	55.1
04:15-04:30	60.2	63.1	54.6

Time Slot	Leq, 5min	L10	L90
	59.9	62.7	54.5
	61.7	64.9	55.1
04:30-04:45	60.4	63.5	54.8
	61.0	63.9	54.3
	61.0	63.9	54.9
04:45-05:00	61.2	64.2	55.0
	60.9	63.8	55.1
	61.3	64.3	55.2
05:00-05:15	62.4	65.5	55.1
	61.8	64.8	56.3
	61.8	65.1	56.0
05:15-05:30	62.9	66.5	56.2
	62.5	66.0	55.9
	63.2	66.6	56.4
05:30-05:45	64.1	67.5	56.4
	64.0	67.9	56.3
	63.7	67.2	56.5
05:45-06:00	63.7	67.3	57.0
	65.1	68.8	57.4
	64.8	68.3	57.5
06:00-06:15	66.2	69.6	58.6
	66.2	69.7	58.4
	67.0	70.8	59.1
06:15-06:30	66.2	69.7	59.3
	67.4	71.0	60.3
	66.8	69.8	61.5
06:30-06:45	68.3	70.9	61.6
	67.8	70.9	62.5
	68.0	71.0	62.5
06:45-07:00	68.1	71.4	62.3
	67.7	70.7	62.5
	68.1	71.1	62.7
Average	64.0	67.4	57.6
Max	68.3	71.4	62.7
Min	59.5	62.7	53.4

Log average was used.





Appendix C

Calibration Certificates for Monitoring Equipments



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C101749

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : ---

Model No. : ND9

Serial No. : N435849

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C101749.*

The equipment is supplied by

Co. Name : EDMS Tech Ltd.

*Address : Room 1009, 10/F., World Wide House,
19 Des Voeux Road Central, Hong Kong*

Date of Issue : 30 March 2010

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C101749

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : ---
MODEL NO. : ND9
SERIAL NO. : N435849

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$

TEST SPECIFICATIONS

Calibration

DATE OF TEST : 30 March 2010

JOB NO. : IC10-0777

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested by :


L L Cheung

Date : 30 March 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C093122
CL281	Multifunction Acoustic Calibrator	DC090052
TST150A	Measuring Amplifier	C101008

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)		Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
	Before Adj.	After Adj.		
94 dB, 1 kHz	* 95.1	94.0	± 0.3	± 0.2
114 dB, 1 kHz	* 115.3	114.1		± 0.3

* Out of Mfr's Spec.

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)		Mfr's Spec.	Uncertainty of Measured Value (Hz)
	Before Adj.	After Adj.		
1	1.000	1.000	1 kHz ± 0.1 %	± 0.1

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

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



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100208-12

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2701820		2678778

Client :

EDMS Tech Ltd
 1009, 10/F World Wide House
 19 Des Douex Road, Central
 Hong Kong

Calibration Conditions :

Air Temperature :	23	°C
Air Pressure :	101.9	kPa
Relative Humidity :	62	%

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 : 15 April, 2010
 Calibrated By :

Certificate issued : 15 April, 2010
 Approved signatory :

Dai Bin

Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100208-12
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 & Kjær'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	30 Sept, 2009	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	13 May 2009	NPL via B&K (DANAK)

 Calibrated By: 
 Date : 15 April, 2010

 Checked By: 
 Date : 15 April, 2010

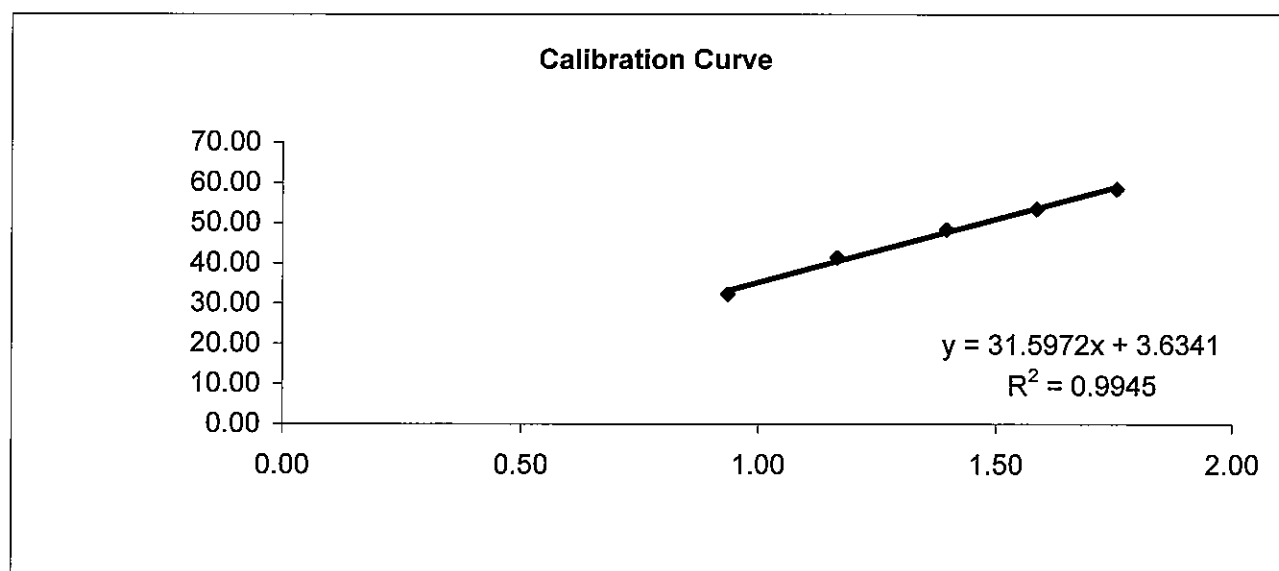
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	9-Apr-10	Barometric pressure	764 mm Hg
Next Calibration date	6-Oct-10	Temperature (°C)	21 °C
Sampler location	AM11 Chung Shun Knitting Centre, Rooftop	Temperature (K)	294 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	1707	T _{std}	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m _s	2.00078
Intercept of the standard curve, b _s	-0.01075

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	3.40	32.00	0.94	32.30
7	5.30	41.00	1.17	41.39
10	7.60	48.00	1.40	48.45
13	9.80	53.00	1.58	53.50
18	12.00	58.00	1.75	58.55



Linear Regression

Sampler slope (m) : **31.5972**
 Sampler intercept (b) : **3.6341**
 Correlation coefficient (R²) : **0.9945**

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

Performed by: _____

Date: 9.4.2010

Checked by: Ceh?

Date: 9/4/2010

Approved by: [Signature]

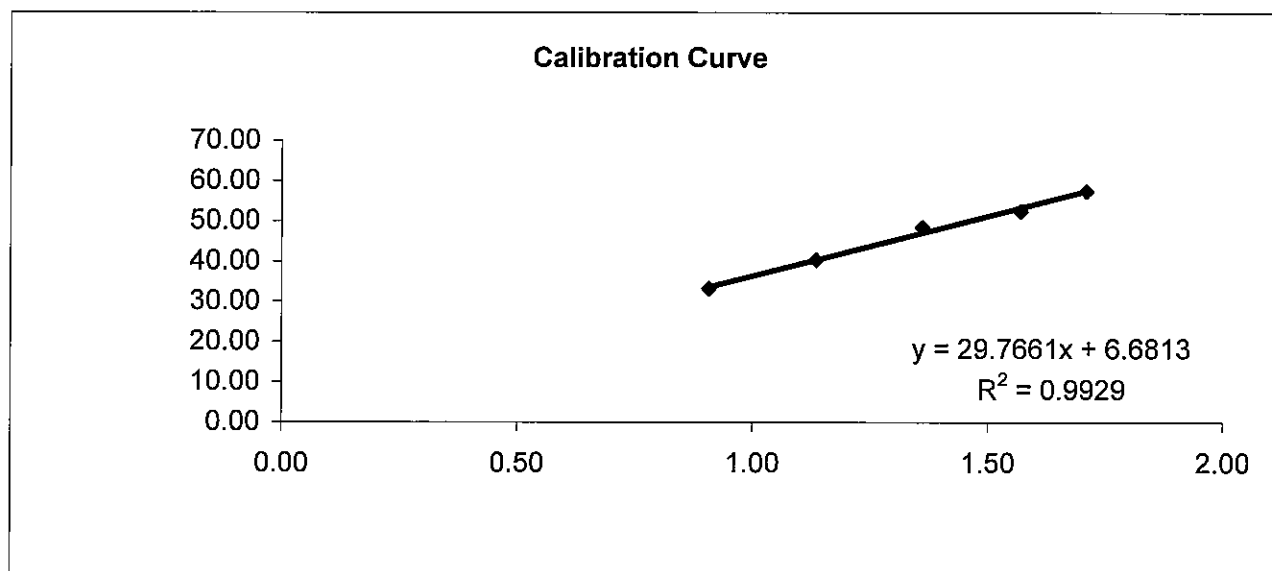
Date: 12/04/2010

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	9-Apr-10	Barometric pressure	762 mm Hg
Next Calibration date	6-Oct-10	Temperature (°C)	20 °C
Sampler location	AM12 Po Leung Kuk Tong Nai Kan College, Rooftop	Temperature (K)	293 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	520	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	1378		
Slope of the standard curve, m _s	2.00078		
Intercept of the standard curve, b _s	-0.01075		

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	3.20	33.00	0.91	33.32
7	5.00	40.00	1.13	40.39
10	7.20	48.00	1.36	48.47
13	9.60	52.00	1.57	52.51
18	11.40	57.00	1.71	57.56



Linear Regression

Sampler slope (m) : 29.7661
Sampler intercept (b) : 6.6813
Correlation coefficient (R²) : 0.9929

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

Performed by: [Signature]

Date: 9.4.2010

Checked by: [Signature]

Date: 9/4/2010

Approved by: [Signature]

Date: 12/04/2010

ThermoFisher
SCIENTIFIC
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
www.thermofisher.com

PDR1000 CALIBRATION CERTIFICATE

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

<u>SERIAL NUMBER:</u>	<u>3893</u>	
<u>CALIBRATION RATIO:</u>	<u>1.007</u>	
<u>AVG. PDR CONCENTRATION:</u>	<u>2.25</u>	<u>mg/m3</u>
<u>MASTER AVG CONCENTRATION:</u>	<u>2.05</u>	<u>mg/m3</u>
<u>PDR BACKGROUND CONCENTRATION:</u>	<u>0.172</u>	<u>mg/m3</u>
<u>PDR BKGRND PRIOR TO CLEANING:</u>	<u>0.379</u>	<u>mg/m3</u>

<u>TEMPERATURE:</u>	69	F
<u>RH:</u>	15	%

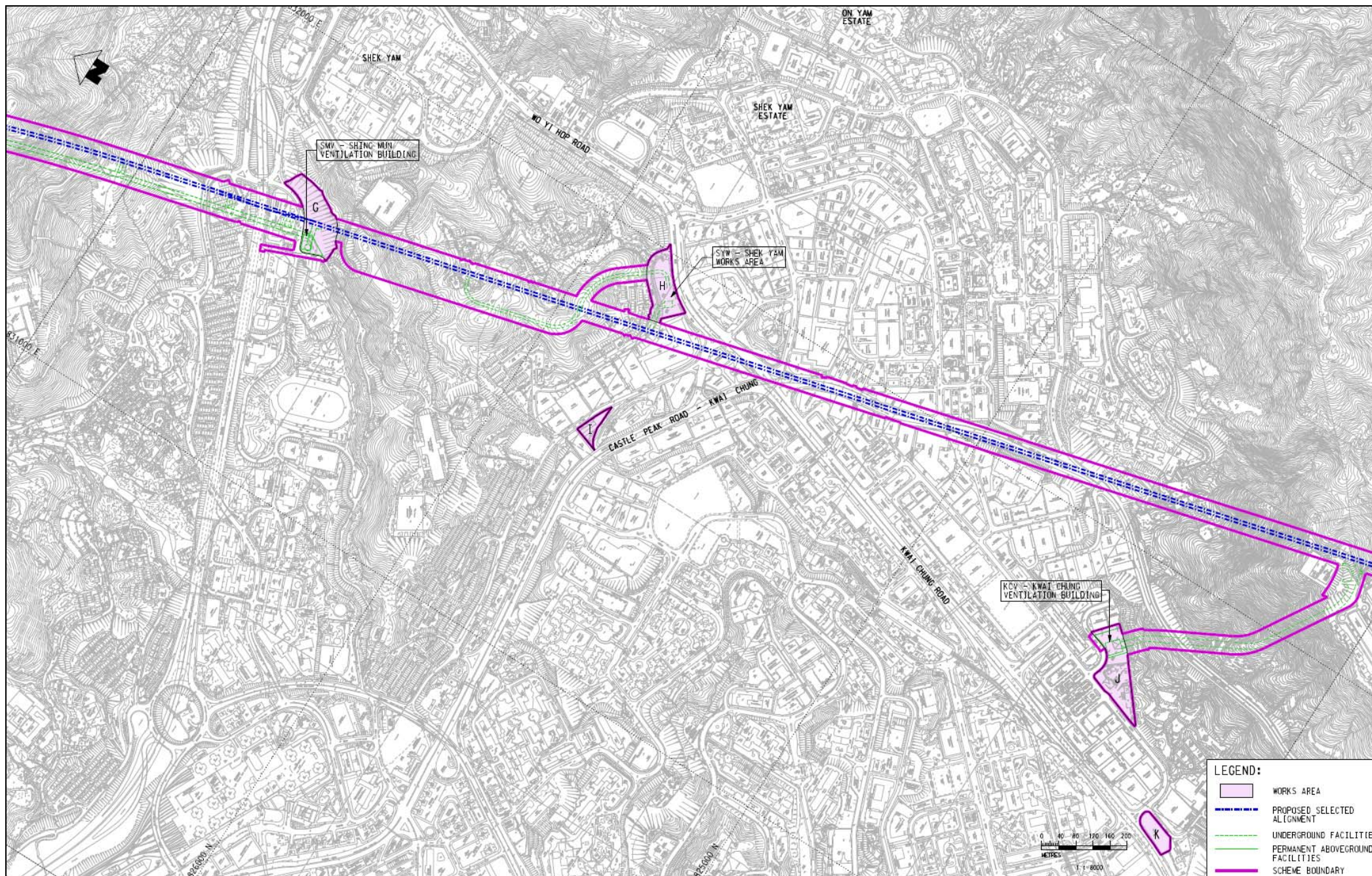
CALIBRATION MASTER:	D325
LAST CALIBRATED:	12/8/2009

TECHNICIAN: DMC

DATE: 12/18/2009

Appendix D

Figures



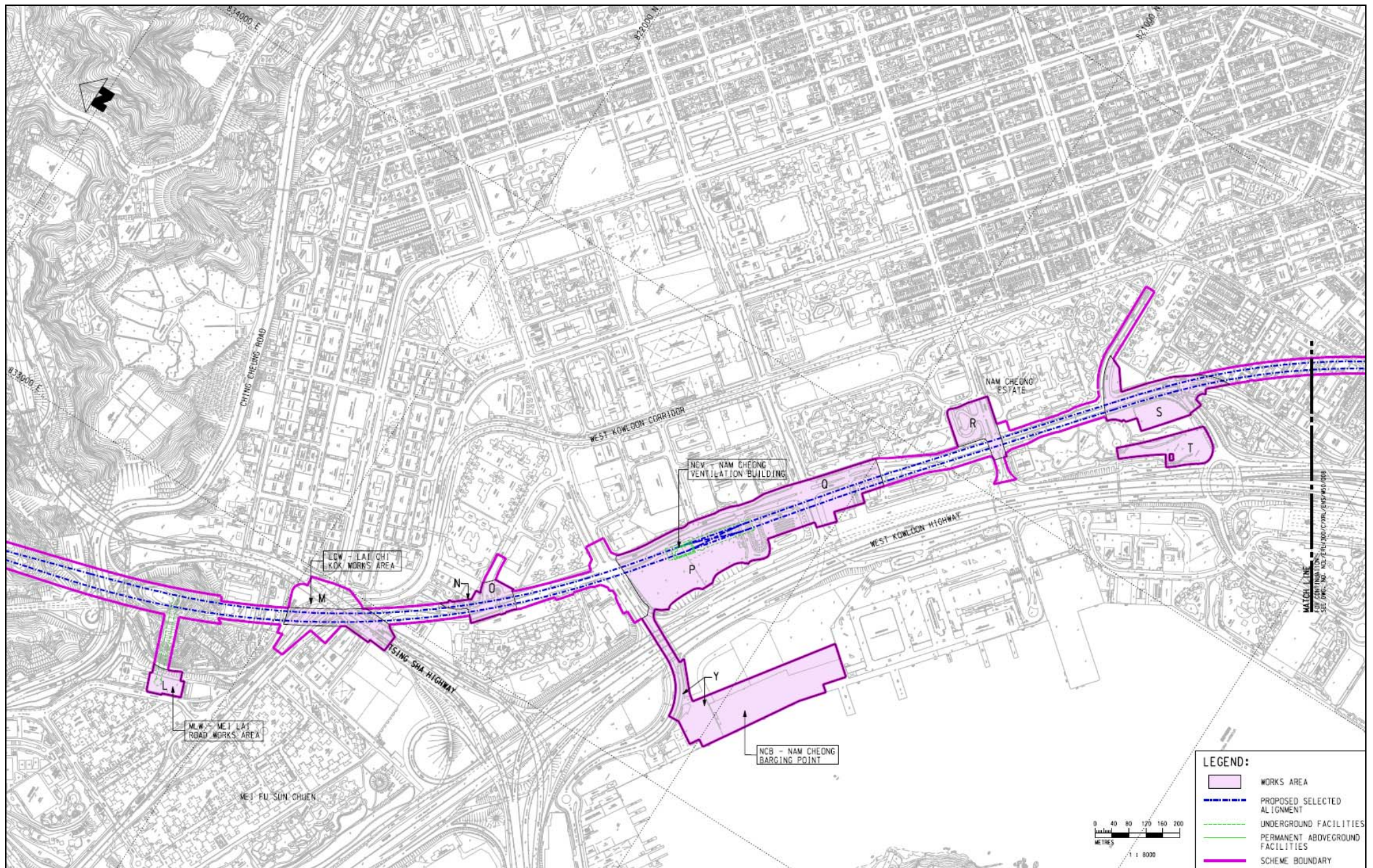
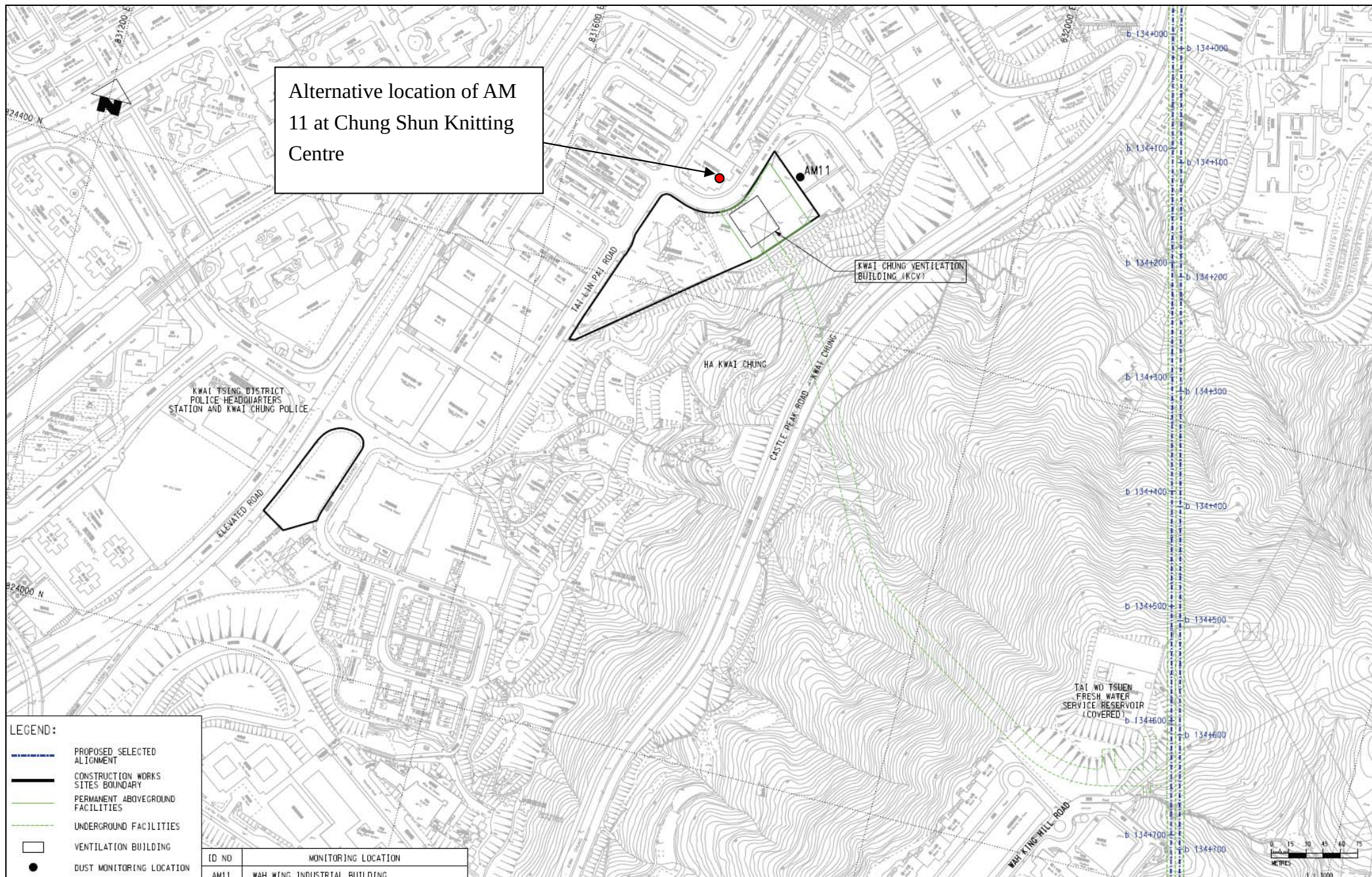


Figure 1 – Works Area L



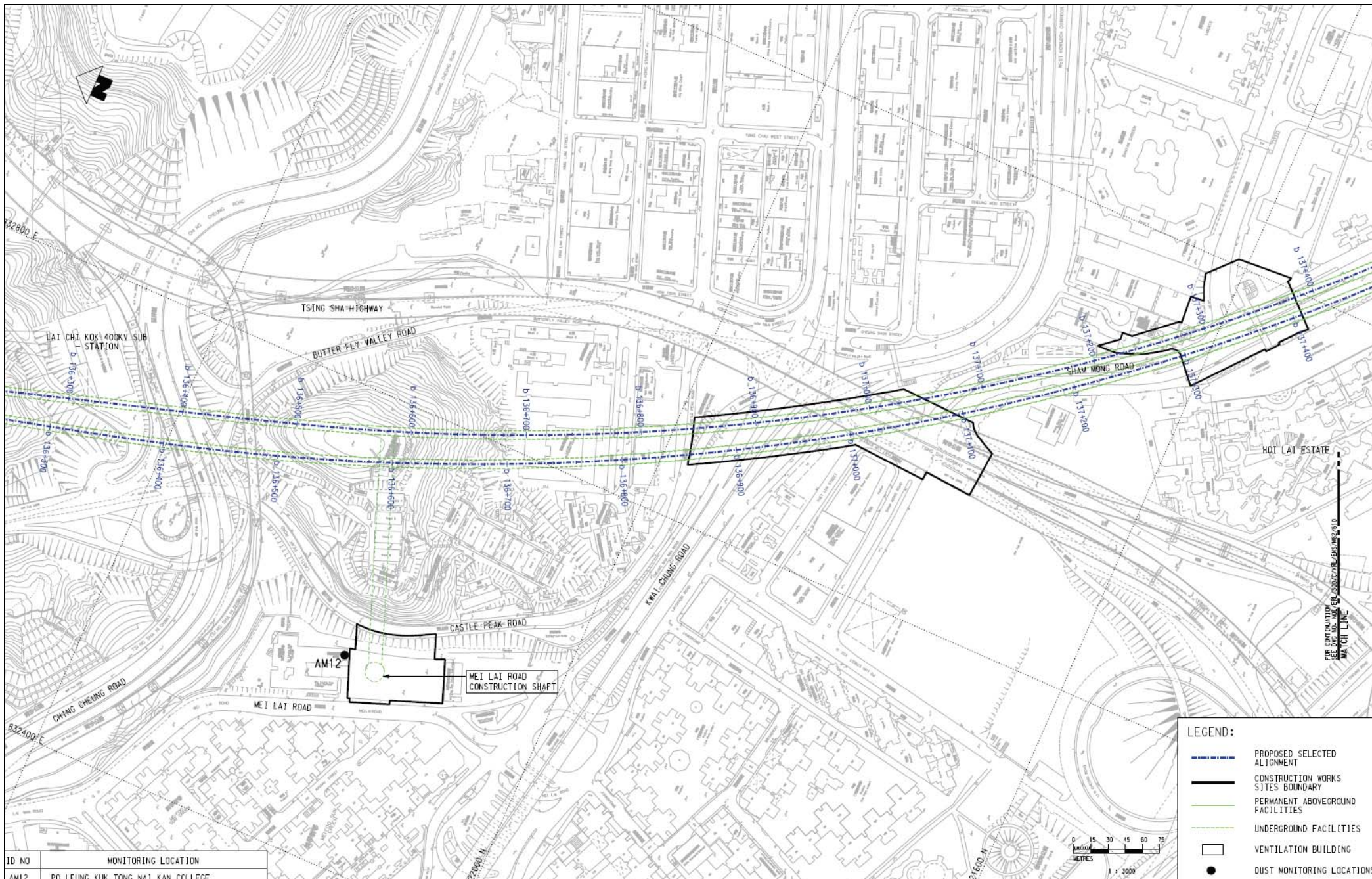


Figure 2 – Dust Monitoring Locations

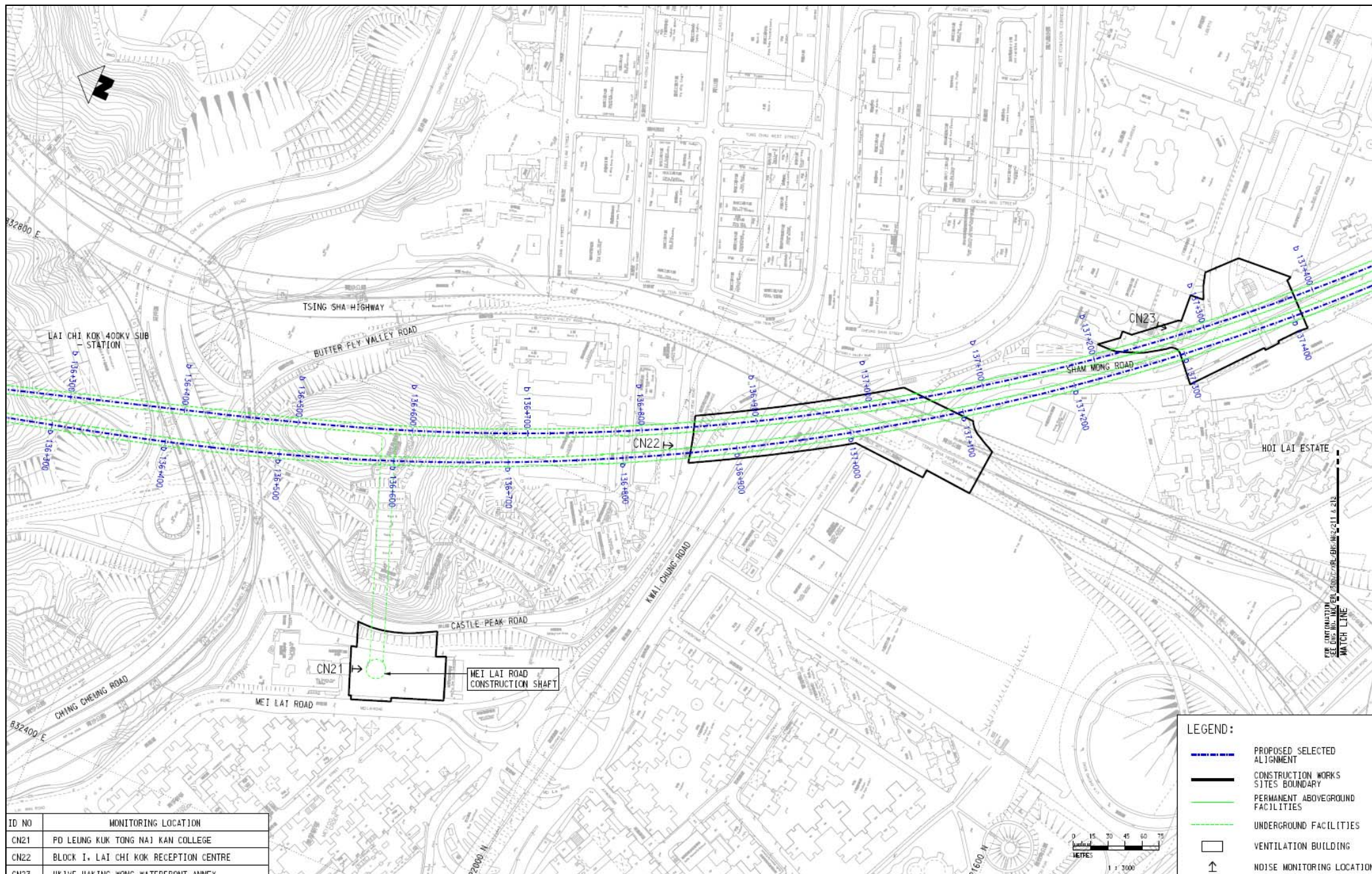


Figure 3 – Noise Monitoring Location