Appendix B

MVA

APPENDIX B
附件 B
Environmental Impact Assessment of Road Widening Works at Hing Wah Street Affecting Haking Wong Technical Institute
Draft Final Report, July 1998
興華街道路擴闊工程對黃克競工業學院的環境影響評估草擬最終報告，98年7月

HONG KONG HOUSING AUTHORITY

Environmental Impact Assessment of Road Widening Works at Hing Wah Street Affecting Haking Wong Technical Institute

Draft Final

July 1998

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1 INTRODUCTION

1 INTRODUCTION

1.1 Purpose and Structure of this Report

This report is the Environmental Impact Assessment for the widening of Hing Wah Street affecting Haking Wong Technical Institute. The purpose of this report is to quantify potential impacts on the Institute arising from construction works and from increased traffic on the widened road. Noise and air quality are the key potential impacts which have been identified and assessed.

The background to the study and the requirement to improve Hing Wah Street are explained below. In Sections 2 to 7 are the technical assessment methodologies and guideline criteria, prediction of potential impacts on receivers, proposals for mitigation and reassessment of the benefits of the mitigation measures. Section 8 summarises the findings of the EIA. Technical information is contained in the Appendices.

1.2 Background to the Study

Hing Wah Street provides access to Cheung Sha Wan Road, Lai Chi Kok Road and Tung Chau Street. In recent years, the continuing development in the road networks has resulted in considerable peak hour overloading of Hing Wah Street. The improvement study area is shown in Figure 1.1.

In this project, the following two scenarios are assessed:

i) Widening Works at Hing Wah Street between Cheung Sha Wan Road and Lai Chi Kok Road
ii) Widening Works at Hing Wah Street between Cheung Sha Wan Road and Tung Chau Street

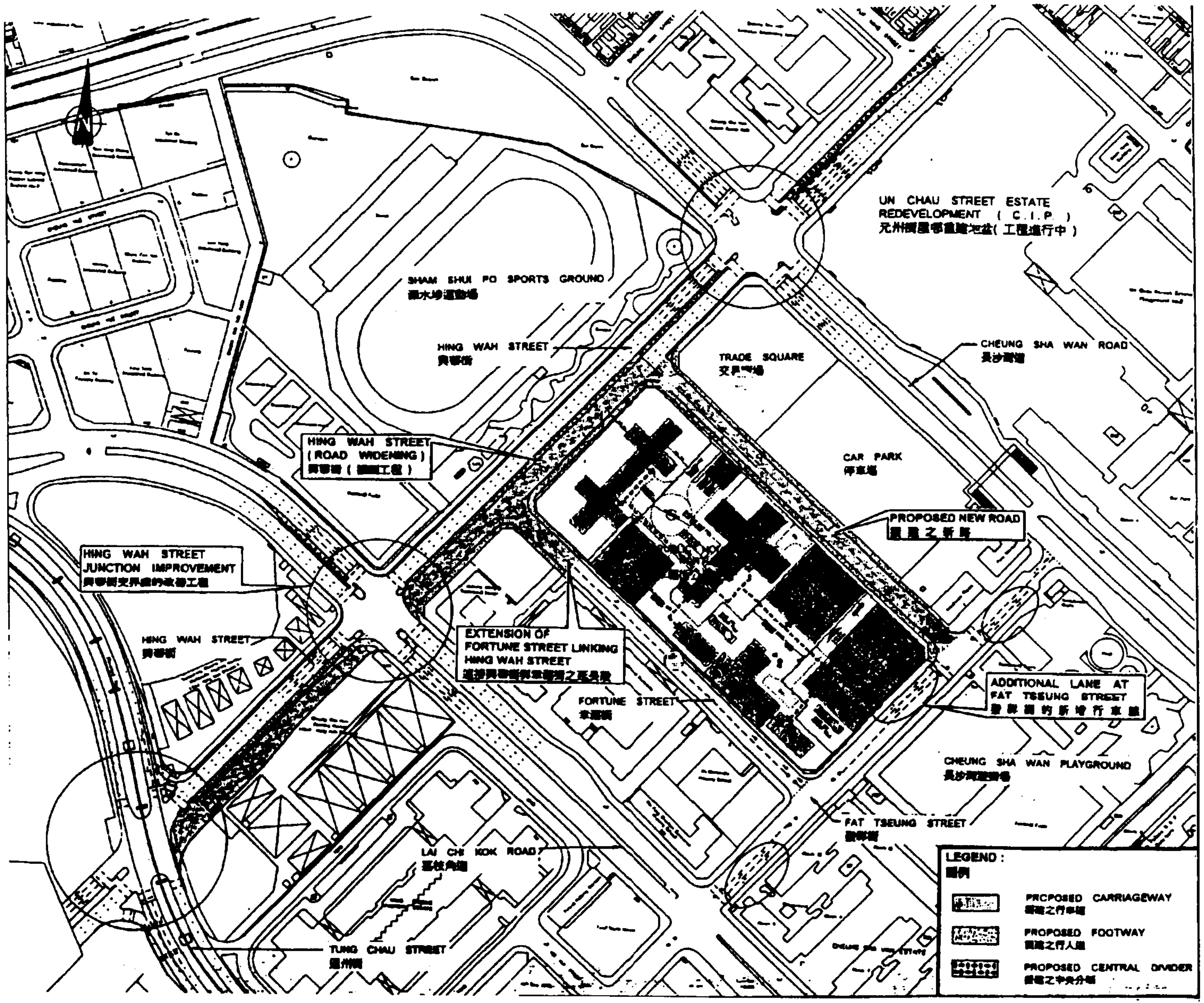
The necessary land reserve at the frontage of Haking Wong Technical Institute for the proposed footbridge is not considered for either scenario. Also, it should be noted that both scenarios without footbridge reserve are the worst scenarios from traffic noise point of view.

For the EIA, the prime objective of the assignment is *to assess the short and long term environmental impacts affecting Haking Wong Technical Institute by carrying out an Environmental Impact Assessment study for the proposed works and recommend any necessary mitigation measures including those at the construction stage.*

1.3 Haking Wong Technical Institute

Haking Wong Technical Institute is located in Cheung Sha Wan, between Hing Wah Street and Lai Chi Kok Road. The Institute comprises the following:

- two school buildings (ground floor and four upper floors)
- one basketball court
- one garden layout



環科 CES	TITLE General Layout of Study Area	CES (ASIA) LIMITED			
		PROJECT NO	C660	DATE	June 1998
		DESIGNED	Becky Yan	DRAWING NO	Figure 1.1

2 TRAFFIC FLOWS

2 TRAFFIC FLOWS

This section consists of two parts: existing traffic flows and future traffic flows. The existing traffic noise levels and future traffic noise levels were assessed based on year 1998 and year 2011 AM peak hour traffic flow projections respectively. Both sets of traffic flow data were provided by the traffic consultant, MVA Asia Limited.

2.1 Existing Traffic Flows

Traffic data predicted for 1998 (representative of existing conditions prior to the widening) are tabulated in Table 2.1 below, including the percentage of heavy vehicles.

Table 2.1 Peak Hour Traffic Flows for 1998

Road	Flow		%HGV	
	W-bound	E-bound	W-bound	E-bound
Cheung Sha Wan Road (between Wing Lung St and Fat Tseung St)	880	1040	41	38
Cheung Sha Wan Road (between Fat Tseung St and Hing Wah St)	880	1040	42	38
Cheung Sha Wan Road (between Hing Wah St and Cheung Wan St)	1160	1180	44	37
Tung Chau St (between Hing Wah St and Lai Chi Kok Rd)	100	670	67	31
Tung Chau St (between Hing Wah St and Fortune St)	170	860	57	37
Fortune Street (Pedestrian)	-	-	-	-
Lai Chi Kok Road (between Tonkin St and Fat Tseung St)	1040	470	39	34
Lai Chi Kok Road (between Fat Tseung St and Hing Wah St)	900	540	34	47
Lai Chi Kok Road (between Hing Wah St and Cheung Sha Wan Path)	1590	360	65	51
Western Kowloon Corridor	1760	1800	31	35

Road	Flow		%HGV	
	N-bound	S-bound	N-bound	S-bound
Hing Wah Street (between Un Chau St and Cheung Sha Wan Rd)	140	440	25	41
Hing Wah Street (between Cheung Sha Wan Rd and Fortune St)	-	160	20	20
Hing Wah Street (between Fortune St and Lai Chi Kok Rd)	-	380	36	36
Hing Wah Street (between Lai Chi Kok Rd and Tung Chau St)	110	190	45	40
Fat Tseung Street (between Cheung Sha Wan Rd and Fortune St)	40	50	22	12
Fat Tseung Street (between Fortune St and Lai Chi Kok Rd)	60	60	23	21

2.2 Future Traffic Flows

Traffic data in the year 2011 for the two scenarios are shown in Tables 2.2 and 2.3.

Table 2.2 Peak Hour Traffic Flows for 2011 - Scenario I

Road	Flow		%HGV	
	W-bound	E-bound	W-bound	E-bound
Cheung Sha Wan Road (between Wing Lung St and Fat Tseung St)	1600	2180	41	38
Cheung Sha Wan Road (between Fat Tseung St and Hing Wah St)	1650	2180	42	38
Cheung Sha Wan Road (between Hing Wah St and Cheung Wan St)	2030	2100	44	37
Tung Chau St (between Hing Wah St and Lai Chi Kok Rd)	170	400	67	31
Tung Chau St (between Hing Wah St and Fortune St)	520	790	57	37
New Road (between Hing Wah St and Junction)	40	50	10	10
New Road (between Junction and Fat Tseung St)	60	110	10	10
Fortune Street (between Hing Wah St and Junction)	50	30	10	10
Fortune Street (between Junction and Fat Tseung St)	60	80	10	10
Lai Chi Kok Road (between Tonkin St and Fat Tseung St)	990	820	39	34
Lai Chi Kok Road (between Fat Tseung St and Hing Wah St)	760	850	34	47
Lai Chi Kok Road (between Hing Wah St and Cheung Sha Wan Path)	950	520	65	51
Western Kowloon Corridor	3100	3900	31	35

Road	Flow		%HGV	
	N-bound	S-bound	N-bound	S-bound
Hing Wah Street (between Un Chau St and Cheung Sha Wan Rd)	370	1170	25	41
Hing Wah Street (between Cheung Sha Wan Rd and New Rd)	560	880	20	20
Hing Wah Street (between New Road and Fortune St)	590	920	28	28
Hing Wah Street (between Fortune St and Lai Chi Kok Rd)	620	980	36	36
Hing Wah Street (between Lai Chi Kok Rd and Tung Chau St)	820	480	45	40
Fat Tseung Street (between Cheung Sha Wan Rd and Purposed New Rd)	260	200	22	12
Fat Tseung Street (between New Road and Fortune St)	250	240	23	16
Fat Tseung Street (between Fortune St and Lai Chi Kok Rd)	250	280	23	21

Table 2.3 Peak Hour Traffic Flows for 2011 - Scenario II

Road	Flow		%HGV	
	W-bound	E-bound	W-bound	E-bound
Cheung Sha Wan Road (between Wing Lung St and Fat Tseung St)	1590	2180	41	38
Cheung Sha Wan Road (between Fat Tseung St and Hing Wah St)	1680	2180	42	38
Cheung Sha Wan Road (between Hing Wah St and Cheung Wan St)	2090	2080	44	37
Tung Chau St (between Hing Wah St and Lai Chi Kok Rd)	180	390	67	31
Tung Chau St (between Hing Wah St and Fortune St)	400	960	57	37
New Road (between Hing Wah St and Junction)	40	50	10	10
New Road (between Junction and Fat Tseung St)	60	120	10	10
Fortune Street (between Hing Wah St and Junction)	50	30	10	10
Fortune Street (between Junction and Fat Tseung St)	50	90	10	10
Lai Chi Kok Road (between Tonkin St and Fat Tseung St)	1170	830	39	34
Lai Chi Kok Road (between Fat Tseung St and Hing Wah St)	1010	790	34	47
Lai Chi Kok Road (between Hing Wah St and Cheung Sha Wan Path)	900	580	65	51
Western Kowloon Corridor	3100	3900	31	35

Road	Flow		%HGV	
	N-bound	S-bound	N-bound	S-bound
Hing Wah Street (between Un Chau St and Cheung Sha Wan Rd)	410	1220	25	41
Hing Wah Street (between Cheung Sha Wan Rd and New Rd)	680	990	20	20
Hing Wah Street (between New Road and Fortune St)	640	960	28	28
Hing Wah Street (between Fortune St and Lai Chi Kok Rd)	610	900	36	36
Hing Wah Street (between Lai Chi Kok Rd and Tung Chau St)	850	890	45	40
Fat Tseung Street (between Cheung Sha Wan Rd and New Rd)	270	190	22	12
Fat Tseung Street (between New Road and Fortune St)	270	220	23	16
Fat Tseung Street (between Fortune St and Lai Chi Kok Rd)	270	260	23	21

3 CONSTRUCTION NOISE ASSESSMENT

3 CONSTRUCTION NOISE ASSESSMENT

3.1 Assessment Criteria

The Noise Control Ordinance (NCO) provides for the control of construction noise. Assessment procedures and standards relevant to the current study are set out in three Technical Memoranda associated with the NCO:

- *Technical Memorandum on Noise from Construction Work other than Percussive Piling*
- *Technical Memorandum on Noise from Construction Work in Designated Areas*
- *Technical Memorandum on Noise from Percussive Piling.*

Further, the *Technical Memorandum on Environmental Impact Assessment Process* sets out requirements for environmental assessments to be conducted in compliance with the Environmental Impact Assessment Ordinance (EIAO).

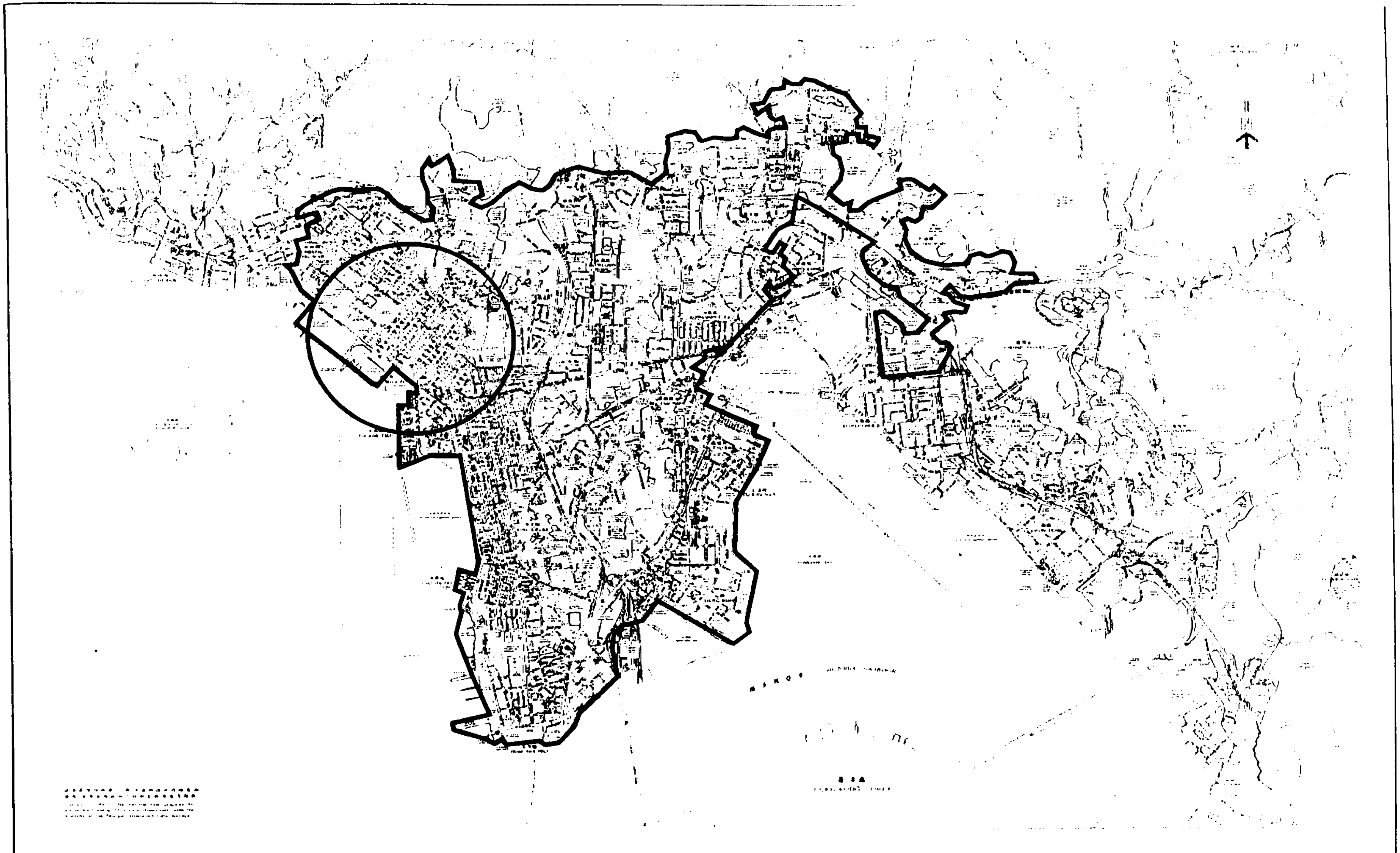
Under the existing provisions, there is no legal restriction on noise generated by construction activities (other than percussive piling) between the hours of 07.00 and 19.00 on normal weekdays. However, as set out in Annex 5 of the *Technical Memorandum on Environmental Impact Assessment Process,* noise levels should not generally exceed 75 dB(A) at noise sensitive receivers (NSRs), or 70 dB(A) at the facades of schools (65 dB(A) during examinations).

Outside the hours of 07.00 to 19.00 or at any time on a public holiday, the NCO applies, and contractors are required to obtain a Construction Noise Permit (CNP) to carry out works involving powered mechanical equipment. However, it is currently understood that no works would be programmed during restricted hours.

The NCO requires that hand-held percussive breakers over 10 kg and air compressors bear Noise Emission Labels, certifying that they comply with noise emission standards.

The *Technical Memorandum on Noise from Percussive Piling* is used to control noise from percussive piling during construction. However, the tentative construction programme indicates that percussive piling work would not be required for the road widening works at Hing Wah Street. Therefore, this TM would not be applicable to the current assessment.

The *Technical Memorandum on Noise from Construction Work in Designated Areas* serves to control noise from construction works conducted inside the boundary of indicated designated areas. The project site is within a designated area as shown in Figure 3.1. The TM regulates noise levels caused by Specified Powered Mechanical Equipment (SPME) and/or Prescribed Construction Work (PCW). SPME includes particularly noisy items of plant, such as *inter alia* hand held breakers, bulldozers, dump trucks and vibratory pokers. PCW includes activities such as *inter alia* erection or dismantling of formwork or scaffolding, handling rubble and hammering. The TM applies to such activities conducted outside the hours of 07:00 to 19:00, and contractors are required to obtain a CNP from the Noise Control Authority for all SPME and PCW. However, since it is currently understood that no works would be programmed during restricted hour, this TM would not be applicable to the current assessment.



環科 CES	TITLE: Noise Control Designated Areas -- Kowloon (Plan No.: EPD/NP/KLN-01)	CES (ASIA) LIMITED
		PROJECT NO: C660 / DATE: June 1998
		DESIGNED: Maggie Wong / DRAWING NO: Figure 3.1

3.2 Assessment Methodology

The methodology outlined in the *Technical Memorandum on Noise from Construction Works other than Percussive Piling* was used for the assessment of construction noise. Notional noise sources were assumed in accordance with the *Technical Memorandum*. All items of powered mechanical equipment (PME) were assumed to be located at these notional source positions unless otherwise stated. Sound power levels (SWLs) of PME were taken from Table 3 of the *Technical Memorandum*.

3.3 Construction Methodology and Plant

Assessment was carried out on the basis of cumulative SWLs of PME likely to be used for each location and construction phase in the vicinity of a given NSR. In order to predict noise levels as realistically as possible, PME was divided into groups required for each discrete construction task. The objective was to identify a worst case scenario representing those items of PME which would be in use concurrently at any given time. Estimated task durations have also been included.

PME required for the different tasks for the widening works are presented in Tables 3.1 and 3.2 below. It is assumed that the tasks for the widening works would take place separately. Noise sensitive receivers (NSRs) facing Hing Wah Street were considered to be potentially directly affected by these works.

Table 3.1 Powered Mechanical Equipment Required for Site Preparation : Unmitigated

Powered Mechanical Equipment	TM Ref.	No. of Items	SWL/Item dB(A)
Excavator	CNP 081	2	112
Air Compressor, air flow < $10m^3$/min	CNP 001	1	100
Breaker, hand-held, mass≤ 10kg	CNP 023	1	108
Dump Truck	CNP 067	1	117
		Total SWL	**119.5**

Note: estimated duration is 160 days.

Table 3.2 Powered Mechanical Equipment Required for Road Surfacing : Unmitigated

Powered Mechanical Equipment	TM Ref.	No. of Items	SWL/Item dB(A)
Excavator	CNP 081	2	112
Roller, vibratory	CNP 186	1	108
Lorry	CNP 141	1	112
Asphalt Paver	CNP 004	1	109
		Total SWL	**117.9**

Note: estimated duration is 164 days.

3.4 Sensitive Receivers

Haking Wong Technical Institute is defined as a construction noise sensitive receiver under the *Technical Memorandum on Noise from Construction Work Other than Percussive Piling*, as defined under the Noise Control Ordinance (NCO). In this assessment, the rooms of the Institute facing Hing Wah Street (rooms on each floor represented by NSR-A4 on Figure 3.2) would be the closest to the construction noise source and would be most affected by the construction activities. An existing 2m (above local ground level) concrete boundary wall of the Institute facing Hing Wah Street and Lai Chi Kok Road has been included in this assessment.

3.5 Impacts on Receivers

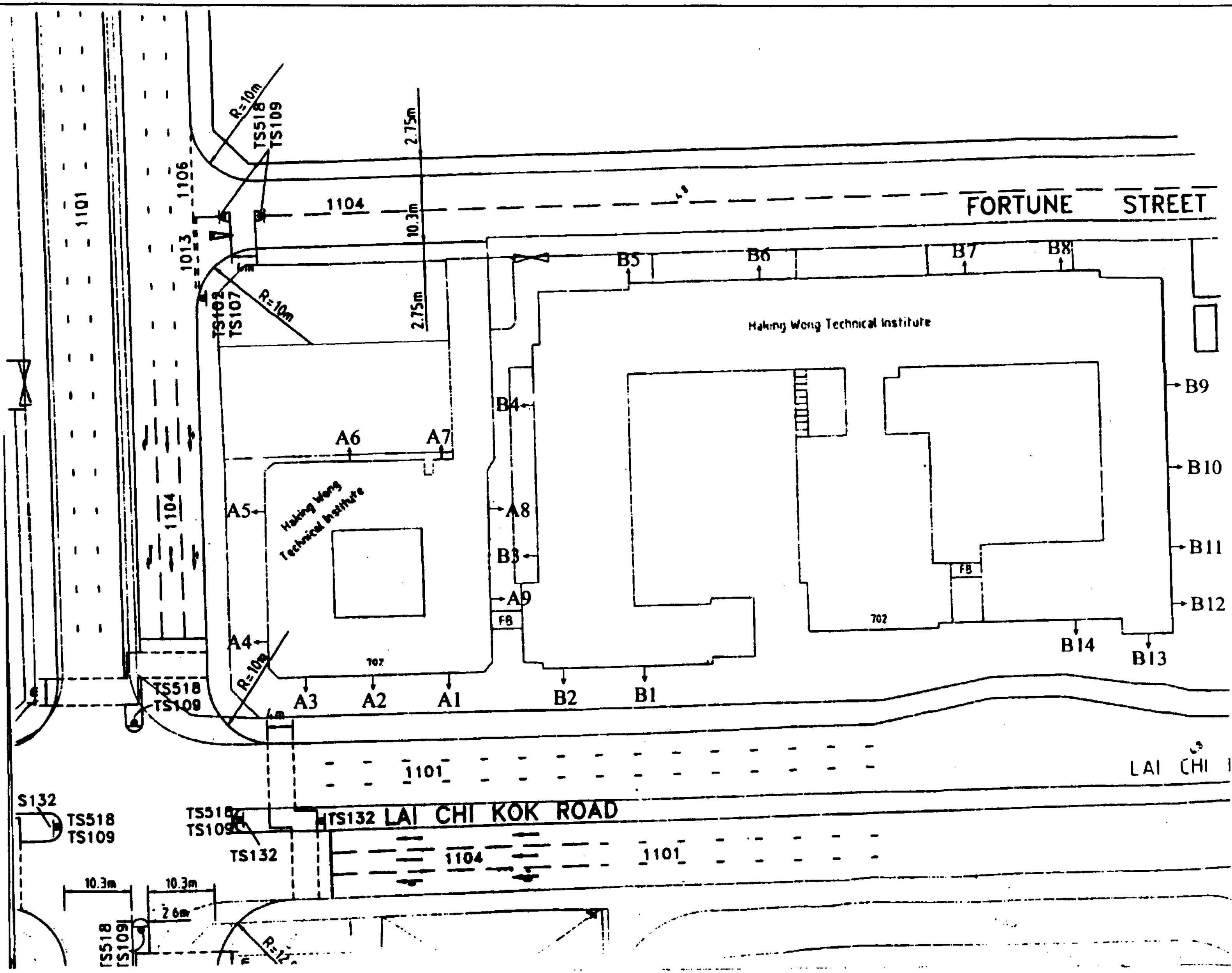
It is understood that all construction works would be confined to normal daytime hours (07:00 - 19:00), and would therefore fall outside statutory control by CNP under the NCO. As such, the criteria adopted for the current assessment was EPD's non-statutory guideline for normal daytime hours of 70 dB(A) for schools as set out in the *Technical Memorandum on Environmental Impact Assessment Process.*

Table 3.3 presents worst-case noise levels, without mitigation, predicted to occur at the Institute as a result of construction activity. All results include a positive correction of 3 dB(A) to allow for facade effect.

Table 3.3 **Construction Noise Impacts at Affected NSR-A4[1] Due to Widening of Hing Wah Street between Cheung Sha Wan Road and Lai Chi Kok Road or Tung Chau Street : Unmitigated**

No. of Floor	Distance[2] (m)	Height (above ground level) (m)	Noise Level by Task, dB(A)	
			Site Preparation	Roadworks
G/F	14.7	1.2	81.2[3]	79.6[3]
1/F	15.8	5.8	90.5	88.9
2/F	17.3	9.2	89.7	88.1
3/F	19.3	12.6	88.8	87.2
4/F	21.7	16.0	87.8	86.2

1. Refer to Figure 3.2 for NSR location
2. Distance to notional noise source
3. Take account of effect of existing barrier



環科 CES	TITLE	CES (ASIA) LIMITED	
	Noise and Air Quality Sensitive Receiver	PROJECT NO C660	DATE July 1998
		DESIGNED Becky Yan	DRAWING NO Figure 3.2

As the NSR at G/F is screened by a concrete boundary wall near Haking Wong Technical Institute, a negative correction of 10 dB(A) was applied to the predicted noise levels at this floor in accordance with the *Technical Memorandum on Construction Noise other than Percussive Piling*. As can be seen in Table 3.3, predicted noise levels caused by the widening of Hing Wah Street would cause exceedance of the daytime guideline limit of 70 dB(A) for each of the construction tasks required for this work without provision of mitigation measures. Maximum noise levels at receivers would result from tasks associated with site preparation work.

3.6 Proposed Mitigation Measures and Recommendations

An effective approach to noise reduction would be to employ quieter plant. For each item of PME already identified, corresponding SWLs of quieter alternative plant have been identified from BS5228: Part 1: 1984, where these exist (Tables 3.4 and 3.5). With the use of quieter equipment, lower noise levels would be experienced, as shown in Table 3.6, and it is therefore recommended that quieter equipment is employed.

Table 3.4 Powered Mechanical Equipment Required for Site Preparation : Quieter Alternative Plant

Powered Mechanical Equipment	TM Ref.	No. of Items	SWL/Item dB(A)
Excavator loader, wheeled/tracked	Table 7, Item 59	2	105
Air Compressor, air flow < $10m^3$/min	CNP 001	1	100
Breaker, hand-held, mass≤ 10kg	CNP 023	1	108
Lorry	Table 7, Item 59	1	105
		Total SWL	**112.3**

Note: estimated duration is 160 days.

Table 3.5 Powered Mechanical Equipment Required for Road Surfacing : Quieter Alternative Plant

Powered Mechanical Equipment	TM Ref.	No. of Items	SWL/Item dB(A)
Excavator loader, wheeled/tracked	Table 7, Item 59	2	105
Road Roller	Table 11, Item 25	1	96
Lorry	Table 7, Item 59	1	105
Asphalt Paver	CNP 004	1	109
		Total SWL	**112.5**

Note: estimated duration is 164 days.

Table 3.6 Construction Noise Impacts at Affected NSR-A4[1] Due to Widening of Hing Wah Street between Cheung Sha Wan Road and Lai Chi Kok Road or Tung Chau Street : Mitigated

No. of Floor	Distance[2] (m)	Height (above ground level) (m)	Noise Level by Task, dB(A)	
			Site Preparation	Roadworks
G/F	14.7	1.2	73.9[3]	74.2[3]
1/F	15.8	5.8	83.3	83.5
2/F	17.3	9.2	82.5	82.8
3/F	19.3	12.6	81.5	81.8
4/F	21.7	16.0	80.5	80.8

1. Refer to Figure 3.2 for NSR location
2. Distance to notional noise source
3. Take account of effect of existing barrier

As shown in Table 3.6, mitigation through the use of quieter plant would result in a reduction of predicted noise levels of approximately 7 dB(A). However, despite such mitigation, exceedances of the non-statutory limit are still expected. This is primarily due to the extremely close proximity of the works to the NSRs.

It should be noted that through our communication with Haking Wong Technical Institute, we have established that all the teaching rooms of Haking Wong Technical Institute facing Hing Wah Street and Lai Chi Kok Road have air-conditioning and are fitted with normal windows, which are generally closed in summer and opened in winter.

With regard to the construction of the road widening, it is therefore recommended that the windows of the Institute facing Hing Wah Street and Lai Chi Kok Road should be closed and the teaching rooms should be air-conditioned during the construction phase of the widening works.

In order to reduce noise levels still further, it is recommended the contractor observes the following good site practices :

- Noisy equipment and activities should be sited by the contractor as far from sensitive receivers as is practical. Also, temporary site offices (and other similar structures) should be located, as far as is possible, such that sensitive receivers are screened from the line of sight of the construction areas.

- Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise. For example, noisy activities could be scheduled at times coinciding with periods when the Institute is likely to be unoccupied. Prolonged operation of noisy equipment close to the Institute should be avoided.

- Idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more often than is necessary.

- Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided.

- Where possible, the numbers of concurrently operating items of plant should be reduced through sensitive programming.

- Construction plant should be properly maintained and operated. Construction equipment often has silencing measures built in or added on, e.g., compressor panels, and mufflers. Silencing measures should be properly maintained and utilized.

4 OPERATIONAL TRAFFIC NOISE ASSESSMENT

4 OPERATIONAL TRAFFIC NOISE ASSESSMENT

4.1 Assessment Criteria

The Hong Kong Planning Standards and Guidelines (HKPSG) recommend that road traffic noise does not result in noise levels above 65 dB(A) at educational institutions (in terms of L_{10} (peak hour). This standard applies to uses which rely on opened windows for ventilation.

After exhaustion of all practicable direct measures, eligibility for indirect mitigation of road traffic noise under this Project has been determined for each NSR that still exceeds the assessment criteria after other mitigation methods have been adopted using the following criteria:

a) the predicted overall noise level from the new road, together with other traffic noise in the vicinity, must be above 65 dB(A) L_{10} (1 hr) for educational facilities

b) the predicted overall noise level is at least 1.0 dB(A) more than the prevailing noise level, ie the total traffic noise level existing before the works to construct the road were commenced

c) the contribution to the increase in the predicted overall noise level from the new road must be at least 1.0 dB(A).

For planned noise sensitive development, suitable mitigation measures to be incorporated in the project have been identified for further development in the detailed design.

4.2 Assessment Methodology

Traffic noise was predicted using the methodology provided in the UK DOT *Calculation of Road Traffic Noise (CRTN)*, 1988, and is based on projected morning peak hour flows for the worst year within 15 years of the road widening becoming operational.

Traffic flows on which the assessment is based are provided in Section 2. The speed limit of Western Kowloon Corridor is 70 kmh^{-1} while other roads is 50 kmh^{-1}.

4.3 Sensitive Receivers

Traffic noise sensitive receivers (NSRs) are defined in the HKPSG. Haking Wong Technical Institute is the NSR in accordance with the HKPSG. The HKPSG standards apply to receivers which rely on openable windows for ventilation. The proposed Student Centre inside the Institute will be used mainly for holding recreational club/group activities such as chess club and dancing classes etc. There will be no teaching purpose room in the Centre. Hence, the Centre would not be considered as a NSR in the assessment.

4.4 Impacts on Receivers

Results of modelling of both existing (1998) and future (2011) traffic noise levels for both scenarios I and II with and without mitigation are presented in Appendix A, Tables A.1 and A.2 respectively. Furthermore, the contribution of future unmitigated traffic noise levels from 3 major roads (Hing Wah Street, Lai Chi Kok Road and Western Kowloon Corridor) is presented in Appendix A, Tables A.3 and A.4.

The unmitigated future traffic noise levels of each of 23 representative receiver locations are discussed in this section. For both scenarios, the noise levels at receiver positions A7-A9 and B3-B11 (inclusive) are predicted to meet the HKPSG criteria, because A7-A9 and B3-B4 are shielded by the buildings of the Institute and B5-B8 are far away from Hing Wah Street and protected by Fortune Street Housing Blocks. Also, B9-B11 are protected from Lai Chi Kok Road by the schools near the Institute. Hence, those receiver positions will not be considered further.

From tables A.1 and A.2, it can been seen that all other receivers of the Institute would potentially be exposed to noise levels in excess of 65 dB(A) as a result of the road widening and the increase in future traffic flow. Receiver locations B1, B2, B12 to B14 and A1-A3, are close to Lai Chi Kok Road. Tables A.3 and A.4 show that the traffic noise from Lai Chi Kok Road dominates the noise levels at these NSR locations and would exceed the HKPSG criteria.

The locations of NSRs A4 & A5 are facing Hing Wah Street and NSR A6 is also close to the Street (Figure 3.2). Hence, the noise levels at these locations would be dominated by Hing Wah Street and would also exceed the HKPSG criteria. (Tables A.3 and A.4).

4.5 Proposed Mitigation Measures

Comparing the noise levels contribution at receiver locations B1, B2, B12-B14 and A1-A3 in both scenarios, the noise levels arising from Hing Wah Street Widening would not be significant (Tables A.3 and A.4). Although the noise levels at these positions would exceed the HKPSG criteria, mitigation would not be incorporated under the project of Hing Wah Street.

In this section, we will consider the receiver positions A4-A6 by the following mitigation options.

Option 1 : *Noise canopy (3m high vertical barrier with 2.1m cantilevered top portion) on Fortune Street, Hing Wah Street and Lai Chi Kok Road* (Figure 4.1)

<u>Scenario I</u>

Results are shown in Appendix A, Tables A.1 and A.2. When compared with the unmitigated scenario, receivers positions A4-A5 at lower floors would experience noise level reductions up to 9.4 dB(A). However, the receivers situated at 3/F and 4/F would only gain noise reductions up to 4.0 dB(A). Noise levels at NSRs A4 and A5 are thus still expected to exceed the HKPSG 65 dB(A) criteria but noise levels at NSR A6 (all floors) would be reduced effectively and achieve the HKPSG criteria. Thus with this option, it is likely that indirect mitigation measures would be required (6 of the tested location points) under the project of Hing Wah Street Widening.

<u>Scenario II</u>

From Tables A.1 and A.2, it can be seen that most of the receivers facing Hing Wah Street are predicted not to achieve the HKPSG 65 dB(A) criteria. When compared with the unmitigated scenario, noise levels at NSR A6 (all floors) would be greatly reduced and achieve HKPSG criteria. At the NSR positions A4-A5, the future traffic noise levels would be reduced up to 10.2 dB(A) and 3.1 dB at lower floor (G/F, 1/F) and upper floor (2/F-4/F) respectively. Thus with this option, it is likely that indirect mitigation measures would be required (6 of the tested location points) under the project of Hing Wah Street. A recommended package of mitigation measures for the NSRs that would require indirect mitigation at the affected facades is presented in Table 4.1.

Table 4.1 Indirect Mitigation Required at Haking Wong Technical Institute (Option 1)

Location	Recommended Mitigation
Scenario I	
A5 (2/F-4/F)	Type I windows (openable well-gasketted, 6mm pane)
A4 (2/F-4/F)	Type II windows (openable well-gasketted, 8mm pane)
Scenario II	
A4-A5 (2/F-4/F)	Type II windows (openable well-gasketted, 8mm pane)

Option 2 : *Noise canopy (5m high vertical barrier with a 3.5m cantilevered portion on top) near the Institute on Fortune Road, Hing Wah Street and Lai Chi Kok Road* (Figure 4.1)

Scenarios I & II

From Tables A.1 and A.2, all the receivers facing Hing Wah Street (A4 and A5) from 1/F to 4/F are predicted to experience greater noise level reductions when compared with Option 1. The results show that option 2 is more effective than option 1 for both scenarios. However, noise levels at NSRs A4 & A5 (1/F-4/F) are still expected to exceed the HKPSG. When compared with the existing traffic noise levels, noise levels at NSRs A4-A5 (3/F-4/F) are predicted to be more than 1 dB(A) higher. Hence, with this option it is likely that four of the tested NSRs would require indirect noise mitigation measures under the project. The recommended mitigation package in accordance to the HKPSG is shown in Table 4.2.

Table 4.2 Indirect Mitigation Required at Haking Wong Technical Institute (Option 2)

Location	Recommended Mitigation
Scenario I	
A4-A5 (3/F-4/F)	Type I windows (openable well-gasketted, 6mm pane)
Scenario II	
A4-A5 (3/F-4/F)	Type II windows (openable well-gasketted, 8mm pane)

Option 3 : *Noise canopy (7m high vertical barrier with a 3.5m cantilevered top portion) near the Institute on Fortune Road, Hing Wah Street and Lai Chi Kok Road* (Figure 4.1)

Scenarios I & II

The results (Tables A.1 and A.2) show that most of the NSRs facing Hing Wah Street from 2/F to 4/F are predicted to exceed the HKPSG 65 dB(A) criteria. Compared with Options 1 and 2, Option 3 is the most effective mitigation method.

At locations A4 and A5 (4/F), the noise levels are predicted to be more than 1 dB(A) higher than the existing (1998) traffic noise levels. Hence with this option it is likely that two of the tested NSRs would require indirect noise mitigation measures under the project, as shown in Table 4.3.

Table 4.3 Indirect Mitigation Required at Haking Wong Technical Institute (Option 3)

Location	Recommended Mitigation
Scenario I	
A4-A5 (4/F)	Type I windows (openable well-gasketted, 6mm pane)
Scenario II	
A5 (4/F)	Type I windows (openable well-gasketted, 6mm pane)
A4 (4/F)	Type II windows (openable well-gasketted, 8mm pane)

Option 4 : *NO direct mitigation measures*

The results (Tables A.1 and A.2) show that all the NSRs facing Hing Wah Street are predicted to exceed the HKPSG 65 dB(A) criteria. The NSRs A4-A5 and A6 would experience noise levels exceedance up to 14.8 dB(A) and 2.0 dB(A) respectively.

When compared with the existing traffic noise levels, noise levels at the NSRs facing Hing Wah Street (A4 & A5) and near the Street (A6) are predicted to be more than 1 dB(A) higher. Therefore, with this option it is likely that fifteen of the tested NSRs would require indirect noise mitigation measures under the project. The indirect mitigation measures that would be necessary in that case are shown in Table 4.4.

Table 4.4 Indirect Mitigation Required at Haking Wong Technical Institute (Option 4)

Location	Recommended Mitigation
Scenarios I & II	
A4-A5 (G/F), A6 (all floors)	Type I windows (openable well-gasketted, 6mm pane)
A4-A5 (1/F-4/F)	Type II windows (openable well-gasketted, 8mm pane)

4.6 Recommendations

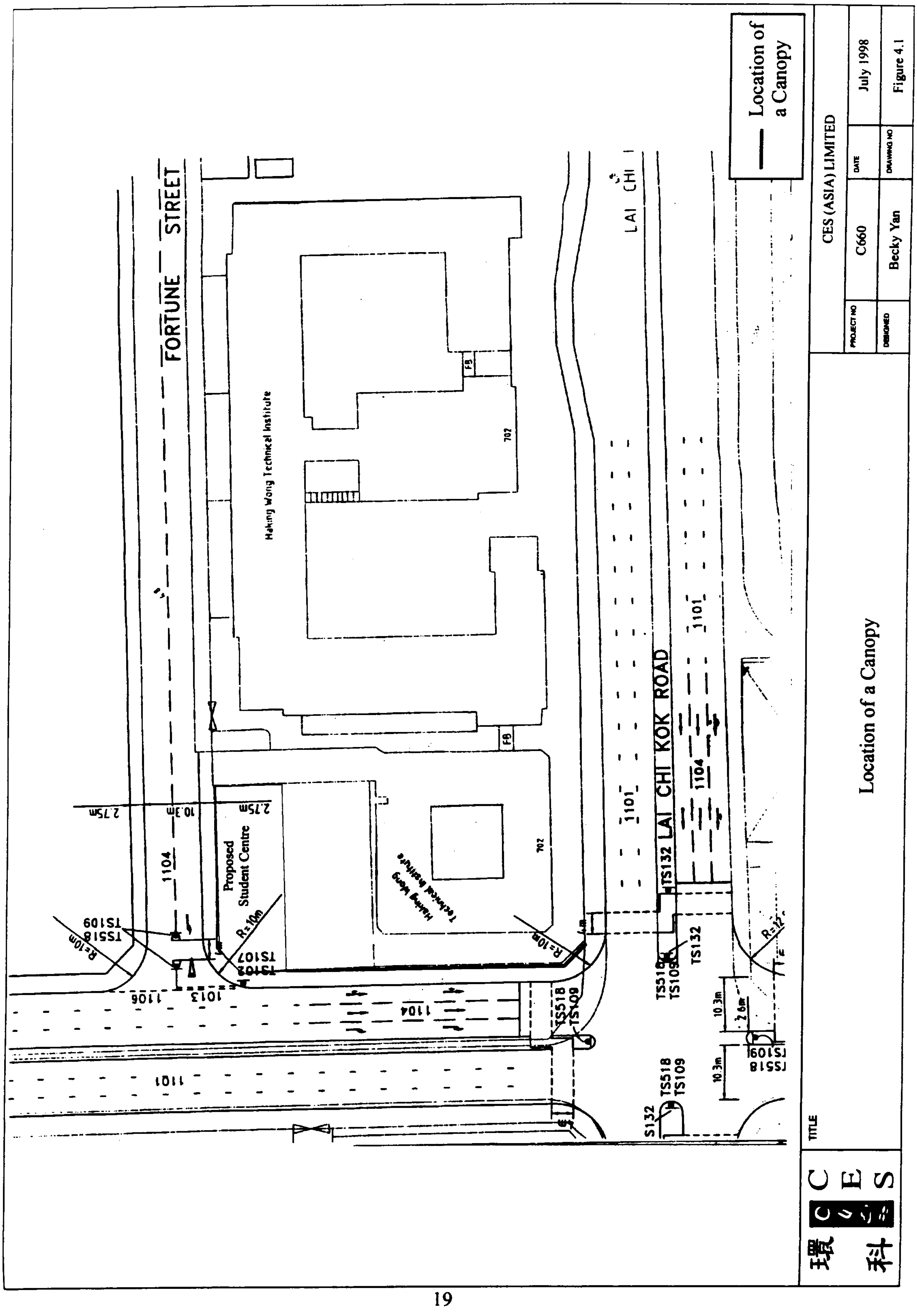
Model Results indicate that unmitigated noise levels would exceed the HKPSG limit. Mitigation measures are therefore required. Comparing the Mitigation Options 1 to 3, mitigation Option 1 is less effective then Options 2 and 3. However, Option 3 does not provide extensive benefit compared with Option 2.

Since Hing Wah Street had to be widened to a dual three-lane carriageway as discussed in the meeting dated 25 June 1998, it was purposed that the lot boundary of the Institute would have to be set back 5m approximately to accommodate the purposed noise canopies. Hence, there would likely be land problem and horizontal clearance problem arising out of the foundation and cantilevered top portion of the proposed noise canopies respectively. Since land resumption would be required, it was agreed (in the meeting) that noise canopy along Hing Wah Street would not be a cost-effective solution. Therefore, Option 4 (No direct mitigation measure) is the preferred option. Table 4.4 shows the recommended mitigation package of the recommended option in accordance to the HKPSG.

Table 4.5 Summary of Number of Rooms which may Require Indirect Mitigation Measures Under the Project of Hing Wah Street Widening

Mitigation Measure Option	Number of Rooms Require Indirect Mitigation Measures		% of Rooms Require Indirect Mitigation Measures	
	Scenario I	Scenario II	Scenario I	Scenario II
1	6	6	5.3	5.3
2	4	4	3.5	3.5
3	2	2	1.8	1.8
4	15	15	13.2	13.2

The total number of NSRs of each scenario is 114.



Location of a Canopy
Location of
a Canopy
CES (ASIA) LIMITED
PROJECT NO
C660
DATE
July 1998
DESIGNED
Becky Yan
DRAWING NO
Figure 4.1
TITLE
FORTUNE STREET
LAI CHI KOK ROAD
Hoking Wong Technical Institute
Proposed
Student Centre
702
FB
1104
1101
1106
1013
TS109
TS518
TS107
TS132
S132
R=10m
2.75m
10.3m

5 CONSTRUCTION AIR QUALITY ASSESSMENT

5 CONSTRUCTION AIR QUALITY ASSESSMENT

5.1 Assessment Criteria

For assessment of impacts due to dust from construction works, it is standard practice to use a Total Suspended Particulate (TSP) limit in air measured over a 1-hour period of 500 μgm^{-3} . The maximum acceptable TSP concentration averaged over a 24-hour period is 260 μgm^{-3}, which is the Air Quality Objective (AQO) as defined by the Air Pollution Control Ordinance (APCO). AQOs are defined as ambient standards, so apply regardless of landuse.

5.2 Sensitive Receivers

All the classrooms of the Institute will be sensitive to air quality impact during construction period. The HKPSG standards apply to receivers of the above types which rely on openable windows for ventilation

5.3 Impacts on Receivers

Site Preparation and Roadworks within Study Area will involve dust emission. In particular, the construction works will involve breaking of the existing road surface, widening of road alignment and resurfacing works.

However, a typical open cut dimension is likely to be only 100m long by 10.3m wide, with a depth of approximately 0.3m. Thus the quantity of the excavated material is unlikely to be large enough to cause a dust nuisance. Nevertheless, watering of exposed dirt should be undertaken regularly throughout the construction phase and any materials dropped on sealed roads will need to be cleaned up immediately.

5.4 Proposed Mitigation Measures

To ensure dust emission is minimised, the Air Pollution Control (Construction Dust) Regulation requires the site agent to adopt dust reduction measures while carrying out construction works. Therefore, the following mitigation measures should be adopted where applicable:

- use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads. Up to 75% reduction in dust emission can be achieved by watering once every 1.5 hours with complete coverage
- use of frequent watering for particularly dusty static construction areas and areas where construction operations are taking place
- side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be employed to aggregate fines
- tarpaulin covering of all dusty vehicle loads transported to, from and between site locations
- imposition of speed controls for vehicles on unpaved site roads. The recommended limit is 20 kmh^{-1}
- establishment and use of vehicle wheel and body washing stations at the exit points of the

site, combined with cleaning of public roads where necessary

- instigation of a control program to monitor the construction process in order to enforce controls and modify methods of work if dusty conditions arise.

5.5 Recommendations

Good site working practices should be incorporated as conditions in contract documents. This will ensure that all construction impacts are kept within relevant standards and guidelines.

In addition to appropriate dust suppression measures, a dust monitoring and audit plan should be implemented so that dust impacts are monitored and to ensure necessary action is taken to prevent excessive impacts.

6 OPERATIONAL AIR QUALITY ASSESSMENT

6 OPERATIONAL AIR QUALITY ASSESSMENT

6.1 Assessment Criteria

The APCO (Cap. 311) provides powers for controlling air pollutants from a variety of stationary and mobile sources and encompasses a number of AQOs. Currently AQOs stipulate concentrations for a range of pollutants, of which carbon monoxide (CO), nitrogen dioxide (NO_2), respirable suspended particulates (RSP) and total suspended particulates (TSP) are relevant to this Study. The AQOs are listed in Table 6.1.

Table 6.1 Hong Kong Air Quality Objectives

Parameter	Maximum Average Concentration (μgm^{-3})[1]			
	1-Hour[2]	8-Hour[3]	24-Hour[3]	Annual[4]
CO	30000	10000	-----	-----
NO_2	300	-----	150	80
RSP	-----	-----	180	55
TSP	500[5]	-----	260	80

1 Measured at 298 K and 101.325 kPa.
2 Not to be exceeded more than three times per year.
3 Not to be exceeded more than once per year.
4 Arithmetic mean.
5 Not an AQO. However, in addition to the established legislative controls, it is generally accepted that an hourly average TSP concentration of 500 μgm^{-3} should not be exceeded.

6.2 Assessment Methodology

For each scenario, air quality impacts during the operational phase of the project may result from vehicle emissions arising from increased traffic flow on the widened road as well as from traffic on existing roads. To assess the potential impact, the long term situation was modelled using the highest predicted traffic flows within 15 years of the development. Therefore year 2011 AM peak hour traffic flow and vehicle mix predicted by the traffic consultant were used for the assessment. The future traffic flow for the year 2011 is presented in Section 2.2.

Emission Calculations

The composition of the vehicle fleet of the proposed road for year 2011 provided by the traffic consultants was used. The composition was broken down into light vehicle and heavy vehicle only. Emission factors for CO, NO_x and RSP were taken from the *Fleet Average Emission Factors - EURO2 Model* provided by EPD for year 2011. The assessment assumed that the air pollutants emission rates of heavy vehicles were the same as for medium goods vehicles and emissions from light vehicles were the same as for private cars (petrol cars for CO and NO_x, diesel cars for RSP). 20% of NO_x was assumed to be NO_2, as normally adopted for such assessment.

Petrol vehicles contribute more CO, while diesel-powered vehicles (particularly the heavy goods vehicles) emit more nitrogen oxides and particulates. Current emission controls will reduce emissions from petrol vehicles as more vehicles will be fitted with catalytic convertors. Compared to NO_2 (20% of NO_x), RSP has considerably lower composite emission rates and CO has considerably higher statutory limits. NO_2 is therefore the key parameter of concern. If NO_2 levels comply with the AQO, it is likely that both RSP and CO would also comply with their respective AQO. The majority of air quality studies undertaken in Hong Kong, and the monitoring as undertaken by EPD, indicate this to be the case. This assessment therefore focused on predicting future NO_2 concentrations arising from the road network.

Dispersion Modelling

Dispersion modelling was undertaken using the USEPA approved CALINE4 dispersion model. Worst-case meteorological condition of atmospheric stability class D and wind speed of 1 ms^{-1} was used in the analysis together with the worst-case wind angle option of the CALINE4 model. A wind direction standard deviation of 21° was employed in this assessment. Modelling was undertaken to establish worst-case 1-hour average NO_2 concentrations at the selected air quality sensitive receptors at G/F and 1/F.

For the purpose of this assessment, future background NO_2 concentration of 62 μgm^{-3} was estimated based on annual average NO_2 concentration recorded at EPD's Sham Shui Po Monitoring Station for the year 1996. The estimated future background NO_2 concentration was added to the modelling results to predict the cumulative impacts at the air quality sensitive receptors.

Details of the dispersion modelling, including a schematic location plan of the selected sensitive receptors and the modelled road links are included in Appendix B. Sample input and output files of the CALINE4 model are also included.

6.3 Sensitive Receivers

Operational air sensitive receivers (ASRs) are the same as those adopted for the operational noise assessment, and are shown in Figure 3.2.

6.4 Impacts on Receivers

Predicted maximum 1-hour average NO_2 concentrations for the worst affected ASRs at different receptor heights are given in Table 6.2. Detailed results for each selected air quality sensitive receptor are provided in Appendix B.

Table 6.2 Predicted Maximum 1-hour Average NO_2 Concentrations (Background Concentration Included)

Floors	Max 1-hour average NO_2 concentration (worst affected location)	
	Scenario I	Scenario II
G/F	227.5 (at A4)	212.6 (at A4)
1/F	180.1 (at A4)	176.9 (at A4)

Note: The highest maximum 1-hour average NO_2 concentration due to the widening works at Hing Wah Street was at the A4 receptor for the both scenarios.

6.5 Proposed Mitigation Measures

Preliminary assessment indicated that there would be no exceedance of the statutory AQOs from vehicular emissions due to road widening. Mitigation measures are therefore not required.

7 CONCLUSIONS AND RECOMMENDATIONS

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Construction Phase Noise

Use of quietened equipment is recommended, together with standard good site practice measures, in order to control construction noise impacts to within acceptable levels. It is also recommended that a noise monitoring and audit plan should be implemented to ensure that excessive impacts are avoided. As the Institute is very close to the road, construction phase impacts are likely. However, as the teaching rooms in the Institute are already provided with air conditioning, it is recommended that the windows are shut during the construction work. The impacts are anticipated to be of limited duration.

7.2 Operation Phase Noise

As the Institute is close to the road, noise impacts are likely and therefore mitigation measures have been recommended. Provision of a noise canopy along Hing Wah Street is not a cost-effective solution because of the land problem and horizontal clearance problem arising out of the foundation and cantilevered top portion of the proposed noise canopies respectively. Hence, indirect mitigation measure alone would be recommended and to comply with the 65 dB(A) HKPSG limit. It should be noted that the Institute is already provided with air conditioning in the affected teaching rooms.

7.3 Construction Phase Air Quality

The scale of the construction activity is small and is therefore unlikely to result in excessive dust impacts at nearby sensitive receivers. Nevertheless, standard conditions for good site practice, as stated in this report, should be incorporated into contract documents and implemented to abate dust impact. This will ensure that all construction impacts are kept within relevant standards and guidelines.

In addition to appropriate dust suppression measures, a dust monitoring and audit plan should be implemented so that dust impacts are monitored and to ensure necessary action is taken to prevent excessive impacts.

7.4 Operation Phase Air Quality

Modelling predictions indicate that the widening of Hing Wah Street is unlikely to cause exceedance of AQOs from traffic emissions at sensitive receivers. Mitigation measures are therefore not necessary.

APPENDIX A
TRAFFIC NOISE PREDICTED NOISE LEVELS

Traffic Noise

Table A.1
Scenario I - Widening works at Hing Wah Street between Cheung Sha Wan Road and Lai Chi Kok Road without consideration of the necessary land reserve at the frontage of Haking Wong Technical Institute for the purposed footbridge

Floors – G/F

NSR ID	Existing Traffic Noise	Future Traffic Noise: No mitigation	Mitigation Measures: Option 1	Option 2	Option 3
A1	69.2	70.7	64.3	59.5	57.0
A2	69.3	70.9	64.4	59.5	56.9
A3	69.3	71.2	64.5	59.6	57.0
A4	66.5	71.0	64.5	59.8	57.3
A5	65.5	72.7	64.6	60.2	57.8
A6	59.3	70.1	59.4	55.4	53.3
A7	57.9	67.4	58.6	54.7	52.7
A8	41.7	44.2	43.0	42.9	42.9
A9	43.0	44.7	44.2	44.2	44.1
B1	68.9	70.2	63.8	58.4	55.9
B2	69.0	70.3	63.9	58.5	56.0
B3	45.3	48.5	48.5	48.5	48.5
B4	55.9	65.7	57.5	54.1	52.5
B5	58.2	66.0	56.4	52.6	50.1
B6	58.0	65.7	56.0	52.5	50.3
B7	57.8	65.2	55.6	52.6	50.6
B8	57.9	65.0	56.2	53.3	51.6
B9	55.2	57.2	55.8	55.1	54.8
B10	56.5	57.8	57.1	56.6	56.4
B11	56.4	57.5	57.4	57.8	57.7
B12	61.6	64.4	63.6	63.7	63.9
B13	68.2	69.1	66.6	65.3	65.0
B14	68.1	69.1	64.8	62.3	61.5

1/F

NSR ID	Existing Traffic Noise	Future Traffic Noise: No mitigation	Mitigation Measures: Option 1	Option 2	Option 3
A1	76.0	77.3	70.5	64.7	61.3
A2	76.2	77.7	71.4	64.8	61.3
A3	76.4	78.4	72.5	64.9	61.4
A4	72.3	79.2	71.6	64.6	61.4
A5	69.9	79.2	70.1	64.6	61.7
A6	59.3	70.1	63.0	59.2	56.7
A7	57.9	67.4	62.0	58.5	56.0
A8	42.8	45.1	44.4	44.2	44.2
A9	43.5	45.2	44.9	44.8	44.8
B1	76.6	77.7	70.1	64.2	60.6
B2	76.7	77.9	71.2	64.4	60.7
B3	47.2	50.2	50.2	50.2	50.2
B4	56.1	65.8	60.7	57.2	55.2
B5	58.2	65.9	63.6	58.9	55.2
B6	58.0	65.5	63.1	58.7	55.1
B7	57.8	65.0	62.4	58.6	55.1
B8	57.9	64.9	62.3	58.8	55.5
B9	57.0	58.5	57.1	56.3	55.5
B10	59.0	59.9	58.3	57.5	56.8
B11	59.6	60.3	58.8	58.3	58.0
B12	67.1	67.9	66.0	64.3	64.0
B13	74.9	75.7	70.5	66.6	65.5
B14	74.0	74.8	68.5	64.7	62.9

2/F

NSR ID	Existing Traffic Noise	Future Traffic Noise: No mitigation	Mitigation Measures: Option 1	Option 2	Option 3
A1	75.7	77.0	74.2	69.0	66.0
A2	75.8	77.4	74.9	69.8	66.1
A3	76.1	78.1	76.7	70.8	66.3
A4	72.2	78.7	75.3	69.9	65.6
A5	69.8	78.6	74.0	68.4	65.4
A6	59.3	69.9	65.1	61.4	59.5
A7	57.9	67.4	63.6	60.4	58.9
A8	44.9	46.9	46.4	46.4	46.3
A9	45.4	47.0	46.8	46.8	46.7
B1	76.2	77.3	75.6	68.6	65.8
B2	76.4	77.5	76.7	68.9	66.0
B3	49.6	52.5	52.5	52.5	52.4
B4	56.4	65.8	62.5	59.0	57.6
B5	58.2	65.8	64.3	63.2	61.0
B6	58.0	65.4	63.9	62.8	61.0
B7	57.8	64.9	63.3	62.2	60.9
B8	57.9	64.7	63.1	62.1	60.9
B9	57.3	58.7	58.0	56.9	56.7
B10	59.6	60.6	59.3	57.9	57.7
B11	60.2	61.1	59.9	58.6	58.4
B12	66.9	67.7	67.6	64.7	64.1
B13	74.6	75.5	73.9	69.5	67.2
B14	73.8	74.7	72.1	67.3	65.1

3/F

NSR ID	Existing Traffic Noise	Future Traffic Noise: No mitigation	Mitigation Measures: Option 1	Option 2	Option 3
A1	75.4	76.7	76.6	73.5	69.2
A2	75.5	77.0	76.9	74.0	70.1
A3	75.7	77.7	77.5	74.8	71.6
A4	72.0	78.2	75.5	74.4	70.6
A5	69.7	78.1	74.3	73.5	68.7
A6	59.3	69.8	66.9	63.7	61.8
A7	57.9	67.3	64.3	62.6	60.9
A8	47.8	49.6	49.3	49.3	49.3
A9	48.5	49.9	49.8	49.8	49.8
B1	75.8	76.8	76.8	73.9	73.2
B2	75.9	77.0	77.0	74.1	73.3
B3	52.7	55.6	55.6	55.6	55.6
B4	57.1	65.9	63.3	61.7	60.1
B5	58.2	65.6	64.3	63.6	63.3
B6	58.0	65.2	64.0	63.0	62.8
B7	57.8	64.7	63.5	62.3	62.2
B8	57.9	64.5	63.1	62.2	62.1
B9	57.6	59.1	58.2	57.1	56.9
B10	59.6	60.7	59.6	58.3	57.9
B11	60.2	61.1	60.2	59.0	58.6
B12	66.8	67.6	67.5	66.3	64.5
B13	74.3	75.2	75.1	73.7	71.1
B14	73.6	74.4	74.0	71.6	66.8

4/F

NSR ID	Existing Traffic Noise	Future Traffic Noise: No mitigation	Mitigation Measures: Option 1	Option 2	Option 3
A1	75.0	76.3	76.3	73.5	73.3
A2	75.1	76.7	76.6	74.0	73.7
A3	75.3	77.3	77.2	74.8	74.5
A4	71.8	77.7	76.2	74.4	74.1
A5	69.6	77.5	75.7	73.5	73.2
A6	59.2	69.6	67.0	63.7	63.4
A7	58.0	67.2	65.3	62.6	62.5
A8	51.8	53.6	53.5	49.3	53.5
A9	53.1	54.4	54.4	49.8	54.4
B1	75.4	76.4	76.4	73.9	73.6
B2	75.5	76.5	76.5	74.1	73.8
B3	57.1	60.2	60.2	55.6	60.2
B4	58.7	66.4	64.4	61.7	62.7
B5	58.2	65.5	65.3	63.6	63.5
B6	58.0	65.0	64.9	63.0	63.0
B7	57.8	64.5	64.4	62.3	62.3
B8	57.8	64.4	64.2	62.2	62.1
B9	57.7	59.2	58.6	57.1	57.2
B10	59.7	60.8	59.9	58.3	58.3
B11	60.2	61.2	61.1	59.0	59.1
B12	66.6	67.4	67.3	66.3	66.1
B13	74.0	74.8	74.8	73.7	73.4
B14	-	-	-	-	-

Mitigation Measures :

Option 1 : A combination of Canopy (3m high with 2.5m cantilever barrier) near the Institute on Fortune Street, Hing Wah Street and Lai Chi Kok Road

Option 2 : A combination of Canopy (5m high with 3.5m cantilever barrier) near the Institute on Fortune Street, Hing Wah Street and Lai Chi Kok Road

Option 3 : A combination of Canopy (7m high with 3.5m cantilever barrier) near the Institute on Fortune Street

Table A.2

Scenario II - **Widening works at Hing Wah Street between Cheung Sha Wan Road and Tung Chau Street without consideration of the necessary land reserve at the frontage of Haking Wong Technical Institute for the purposed footbridge**

NSR ID	Floors: G/F Existing Traffic Noise	G/F Future Traffic Noise: No mitigation	G/F Mitigation Measures: Option 1	G/F Option 2	G/F Option 3	1/F Existing Traffic Noise	1/F Future: No mitigation	1/F Option 1	1/F Option 2	1/F Option 3	2/F Existing Traffic Noise	2/F Future: No mitigation	2/F Option 1	2/F Option 2	2/F Option 3	3/F Existing Traffic Noise	3/F Future: No mitigation	3/F Option 1	3/F Option 2	3/F Option 3	4/F Existing Traffic Noise	4/F Future: No mitigation	4/F Option 1	4/F Option 2	4/F Option 3
A1	69.2	71.1	64.7	59.8	57.2	76.0	77.9	70.7	64.9	61.5	75.7	77.6	74.8	69.1	66.2	75.4	77.3	77.2	74.1	69.1	75.0	76.9	76.9	74.9	73.8
A2	69.3	71.3	64.7	59.8	57.2	76.2	78.3	71.4	65.1	61.6	75.8	78.0	75.5	69.8	66.3	75.5	77.6	77.5	74.4	70.0	75.1	77.2	77.2	75.3	74.2
A3	69.3	71.5	64.8	59.9	57.3	76.4	78.9	72.5	65.2	61.7	76.1	78.5	77.2	70.9	66.5	75.7	78.1	78.0	75.3	71.5	75.3	77.7	77.6	76.1	75.0
A4	66.5	71.3	64.9	60.2	57.6	72.3	79.6	71.8	64.9	61.7	72.2	79.1	77.0	70.2	65.8	72.0	78.6	77.2	76.1	70.9	71.8	78.1	78.1	76.1	75.7
A5	65.5	72.9	64.7	60.4	58.0	69.9	79.9	70.0	64.6	61.7	69.8	79.2	76.3	68.3	65.3	69.7	78.6	76.5	75.4	68.7	69.6	78.0	77.0	75.1	74.9
A6	59.3	70.3	59.5	55.4	53.4	59.3	70.2	63.2	59.3	56.7	59.3	70.1	65.3	61.5	59.5	59.3	69.9	67.0	63.9	62.0	59.2	69.7	67.1	64.7	63.6
A7	57.9	67.6	58.7	54.8	52.7	57.9	67.5	62.1	58.6	56.0	57.9	67.5	63.8	60.5	58.9	57.9	67.4	64.5	62.8	61.1	58.0	67.4	65.4	63.5	62.7
A8	41.7	44.4	43.4	43.3	43.3	42.8	45.3	44.7	44.6	44.6	44.9	47.2	46.8	46.7	46.7	47.8	49.8	49.6	49.6	49.6	51.8	53.8	53.7	53.7	53.7
A9	43.0	45.0	44.7	44.6	44.6	43.5	45.6	45.3	45.2	45.2	45.4	47.3	47.2	47.1	47.1	48.5	50.3	50.2	50.2	50.2	53.1	54.8	54.8	54.8	54.8
B1	68.9	70.6	64.2	58.8	56.3	76.6	78.2	70.4	64.5	60.9	76.2	77.8	76.2	68.8	65.9	75.8	77.4	77.4	74.5	73.7	75.4	76.9	76.9	76.9	74.2
B2	69.0	70.8	64.2	58.8	56.3	76.7	78.4	71.6	64.7	61.0	76.4	78.0	77.2	69.1	66.2	75.9	77.6	77.5	74.7	73.9	75.5	77.1	77.1	77.1	74.4
B3	45.3	48.8	48.8	48.8	48.8	47.2	50.4	50.4	50.4	50.4	49.6	52.6	52.6	52.6	52.6	52.7	55.7	55.7	55.7	55.7	57.1	60.3	60.3	60.3	60.3
B4	55.9	66.0	57.6	54.2	52.6	56.1	66.0	60.9	57.3	55.3	56.4	66.2	62.7	59.1	57.7	57.1	66.2	63.4	61.9	60.3	58.7	66.6	64.5	63.5	62.9
B5	58.2	65.7	56.4	52.6	50.2	58.2	65.7	63.7	58.9	55.3	58.2	65.6	64.4	63.4	61.1	58.2	65.5	64.4	63.7	63.4	58.2	65.4	65.1	64.2	63.0
B6	58.0	65.3	56.0	52.6	50.2	58.0	65.2	63.2	58.8	55.2	58.0	65.1	64.0	62.9	61.0	58.0	65.0	64.1	63.1	63.0	58.0	64.9	64.8	63.7	63.[illegible]
B7	57.8	64.7	55.6	52.6	50.5	57.8	64.7	62.5	58.6	55.1	57.8	64.5	63.3	62.3	60.9	57.8	64.4	63.5	62.4	62.3	57.8	64.3	64.2	63.1	62.[illegible]
B8	57.9	64.6	56.2	53.2	51.4	57.9	64.5	62.3	58.8	55.5	57.9	64.4	63.2	62.2	61.0	57.9	64.2	63.1	62.3	62.2	57.8	64.1	64.0	62.8	62.[illegible]
B9	55.2	57.4	56.0	55.4	55.1	57.0	58.8	57.4	56.5	55.8	57.3	59.1	58.3	57.1	56.9	57.6	59.4	58.6	57.4	57.1	57.7	59.6	59.0	57.9	57.[illegible]
B10	56.5	58.2	57.5	57.1	56.8	59.0	60.4	58.8	57.8	57.3	59.6	61.1	59.8	58.3	58.0	59.6	61.1	60.1	58.7	58.3	59.7	61.2	60.4	59.2	58.[illegible]
B11	56.4	57.9	57.9	58.3	58.2	59.6	60.9	59.3	58.8	58.5	60.2	61.6	60.4	59.1	58.8	60.2	61.6	60.7	59.5	59.1	60.2	61.7	61.6	59.9	59.[illegible]
B12	61.6	64.9	64.1	64.6	64.5	67.1	68.4	66.6	64.8	64.6	66.9	68.3	68.2	65.3	64.7	66.8	68.1	68.0	66.9	65.1	66.6	68.0	67.9	66.8	66.[illegible]
B13	68.2	69.6	67.1	65.9	65.5	74.9	76.3	71.1	67.1	66.1	74.6	76.1	74.5	70.0	67.7	74.3	75.7	75.7	74.3	71.7	74.0	75.4	75.4	75.3	74.[illegible]
B14	68.1	69.6	65.2	62.8	62.0	74.0	75.4	69.0	65.2	63.4	73.8	75.2	72.7	67.7	65.4	73.6	75.0	74.5	72.3	67.3	-	-	-	-	-

Mitigation Measures :

Option 1 : A combination of Canopy (3m high with 2.5m cantilever barrier) near the Institute on Fortune Street, Hing Wah Street and Lai Chi Kok Road

Option 2 : A combination of Canopy (5m high with 3.5m cantilever barrier) near the Institute on Fortune Street, Hing Wah Street and Lai Chi Kok Road

Option 3 : A combination of Canopy (7m high with 3.5m cantilever barrier) near the Institute on Fortune Street, Hing Wah Street and Lai Chi Kok Road

Future Traffic Noise (Unmitigated) Contribution

Table A.3
Scenario I - **Widening works at Hing Wah Street between Cheung Sha Wan Road and Lai Chi Kok Road without consideration of the necessary land reserve at the frontage of Haking Wong Technical Institute for the purposed footbridge**

NSR ID	G/F Hing Wah St	G/F Lai Chi Kok Rd	G/F Western Kowloon Corridor	1/F Hing Wah St	1/F Lai Chi Kok Rd	1/F Western Kowloon Corridor	2/F Hing Wah St	2/F Lai Chi Kok Rd	2/F Western Kowloon Corridor	3/F Hing Wah St	3/F Lai Chi Kok Rd	3/F Western Kowloon Corridor	4/F Hing Wah St	4/F Lai Chi Kok Rd	4/F Western Kowloon Corridor
A1	62.6	69.1	62.2	67.0	76.7	64.2	67.1	76.3	64.3	67.1	75.9	64.1	67.1	75.5	64.2
A2	63.6	69.1	62.4	69.1	76.8	64.5	69.3	76.4	64.6	69.2	76.0	64.4	69.1	75.5	64.5
A3	64.9	69.1	62.6	72.2	76.9	64.7	72.1	76.5	64.8	71.8	76.1	64.7	71.5	75.6	64.7
A4	69.0	64.4	61.9	78.3	71.1	63.8	77.7	70.9	63.8	77.2	70.7	63.7	76.6	70.4	63.7
A5	71.8	62.0	61.7	78.8	66.6	63.0	78.2	66.7	63.0	77.6	66.7	63.0	77.0	66.6	63.0
A6	69.7	2.5	2.5	69.6	2.5	2.5	69.5	2.5	2.5	69.3	2.5	2.5	69.1	2.5	2.5
A7	66.8	2.5	2.5	66.7	2.5	2.5	66.7	2.5	2.5	66.6	2.5	2.5	66.5	2.5	2.5
A8	2.5	41.3	2.5	2.5	42.0	2.5	2.5	43.9	2.5	2.5	46.4	2.5	2.5	49.6	2.5
A9	2.5	43.1	2.5	2.5	43.1	2.5	2.5	44.7	2.5	2.5	47.7	2.5	2.5	52.0	2.5
B1	59.7	69.1	60.7	62.4	77.4	63.2	62.5	76.9	63.3	62.5	76.4	63.1	62.4	76.0	63.2
B2	60.4	69.2	61.1	63.7	77.5	63.6	63.7	77.1	63.7	63.7	76.6	63.6	63.7	76.1	63.7
B3	43.9	42.6	43.4	44.6	43.8	46.2	46.6	45.7	49.0	49.5	48.0	52.6	53.7	50.8	57.8
B4	65.2	41.7	43.6	65.2	42.9	46.4	65.2	44.7	49.0	65.2	46.8	52.4	65.2	49.5	57.2
B5	61.3	2.5	2.5	61.3	2.5	2.5	61.3	2.5	2.5	61.2	2.5	2.5	61.2	2.5	2.5
B6	59.7	2.5	2.5	59.7	2.5	2.5	59.7	2.5	2.5	59.7	2.5	2.5	59.6	2.5	2.5
B7	57.2	2.5	2.5	57.2	2.5	2.5	57.2	2.5	2.5	57.2	2.5	2.5	57.1	2.5	2.5
B8	56.5	2.5	2.5	56.5	2.5	2.5	56.5	2.5	2.5	56.5	2.5	2.5	56.4	2.5	2.5
B9	2.5	53.2	2.5	2.5	55.9	2.5	2.5	56.4	2.5	2.5	56.9	2.5	2.5	56.9	2.5
B10	2.5	55.5	2.5	2.5	58.6	2.5	2.5	59.6	2.5	2.5	59.6	2.5	2.5	59.6	2.5
B11	2.5	56.0	2.5	2.5	59.6	2.5	2.5	60.5	2.5	2.5	60.4	2.5	2.5	60.4	2.5
B12	2.5	63.2	2.5	2.5	67.7	2.5	2.5	67.6	2.5	2.5	67.4	2.5	2.5	67.2	2.5
B13	56.1	68.6	56.2	56.5	75.6	57.9	56.5	75.3	58.2	56.5	75.0	57.8	56.5	74.7	58.0
B14	57.4	68.3	58.3	57.9	74.6	59.4	57.9	74.4	59.6	57.9	74.2	59.3	-	-	-

Table A.4

Scenario II - **Widening works at Hing Wah Street between Cheung Sha Wan Road and Tung Chau Street without consideration of t necessary land reserve at the frontage of Haking Wong Technical Institute for the purposed footbridge**

NSR ID	G/F Hing Wah St	G/F Lai Chi Kok Rd	G/F Western Kowloon Corridor	1/F Hing Wah St	1/F Lai Chi Kok Rd	1/F Western Kowloon Corridor	2/F Hing Wah St	2/F Lai Chi Kok Rd	2/F Western Kowloon Corridor	3/F Hing Wah St	3/F Lai Chi Kok Rd	3/F Western Kowloon Corridor	4/F Hing Wah St	4/F Lai Chi Kok Rd	4/F Western Kowloon Corridor
A1	62.7	69.7	62.2	68.2	77.2	64.2	68.1	76.9	64.3	68.0	76.5	64.1	67.8	76.0	64.2
A2	63.6	69.7	62.4	70.3	77.3	64.5	70.1	77.0	64.6	69.8	76.5	64.4	69.5	76.1	64.5
A3	64.8	69.7	62.6	72.6	77.5	64.7	72.1	77.1	64.8	71.7	76.7	64.7	71.3	76.2	64.7
A4	69.4	65.1	61.9	78.7	71.7	63.8	78.1	71.6	63.8	77.5	71.3	63.7	76.9	71.0	63.7
A5	72.0	62.7	61.7	79.5	67.3	63.0	78.8	67.4	63.0	78.1	67.3	63.0	77.4	67.2	63.0
A6	69.9	2.5	2.5	69.8	2.5	2.5	69.7	2.5	2.5	69.5	2.5	2.5	69.3	2.5	2.5
A7	66.9	2.5	2.5	66.9	2.5	2.5	66.8	2.5	2.5	66.7	2.5	2.5	66.6	2.5	2.5
A8	2.5	41.9	2.5	2.5	42.6	2.5	2.5	44.5	2.5	2.5	47.0	2.5	2.5	50.2	2.5
A9	2.5	43.6	2.5	2.5	43.7	2.5	2.5	45.3	2.5	2.5	48.3	2.5	2.5	52.6	2.5
B1	59.6	69.7	60.7	63.2	77.9	63.2	63.3	77.5	63.3	63.2	77.0	63.1	63.1	76.5	63.2
B2	60.3	69.8	61.1	64.4	78.1	63.6	64.5	77.6	63.7	64.4	77.1	63.6	64.3	76.7	63.7
B3	44.3	43.2	43.4	44.9	44.4	46.2	46.5	46.3	49.0	49.4	48.7	52.6	53.8	51.5	57.8
B4	65.5	42.4	43.6	65.5	43.6	46.4	65.6	45.4	49.0	65.6	47.5	52.4	65.5	50.2	57.2
B5	61.5	2.5	2.5	61.5	2.5	2.5	61.5	2.5	2.5	61.5	2.5	2.5	61.4	2.5	2.5
B6	59.9	2.5	2.5	59.9	2.5	2.5	59.9	2.5	2.5	59.9	2.5	2.5	59.9	2.5	2.5
B7	57.4	2.5	2.5	57.4	2.5	2.5	57.4	2.5	2.5	57.4	2.5	2.5	57.4	2.5	2.5
B8	56.7	2.5	2.5	56.7	2.5	2.5	56.7	2.5	2.5	56.7	2.5	2.5	56.7	2.5	2.5
B9	2.5	53.8	2.5	2.5	56.5	2.5	2.5	57.0	2.5	2.5	57.5	2.5	2.5	57.5	2.5
B10	2.5	56.2	2.5	2.5	59.3	2.5	2.5	60.2	2.5	2.5	60.2	2.5	2.5	60.2	2.5
B11	2.5	56.6	2.5	2.5	60.2	2.5	2.5	61.1	2.5	2.5	61.0	2.5	2.5	61.0	2.5
B12	2.5	62.4	2.5	2.5	68.3	2.5	2.5	68.2	2.5	2.5	68.0	2.5	2.5	67.8	2.5
B13	56.1	69.2	56.2	57.2	76.2	57.9	57.2	75.9	58.2	57.2	75.6	57.8	57.2	75.3	58.0
B14	57.4	68.9	58.3	58.7	75.2	59.4	58.7	75.0	59.6	59.6	74.8	59.3	-	-	-

APPENDIX B
AIR QUALITY MODELLING DATA

Predicted Worst Case 1-hour Average NO_2 Concentrations Based on 2011 AM

Peak Hour Traffic Flows and 2006 Emissions ($\mu g/m^3$)

ASR ID	Floors	
	G/F (1.5m above ground level)	1/F (6.1m above ground level)
A1	192.9	163.3
A2	203.6	168.6
A3	225.6	176.5
A4	227.5	180.1
A5	204.4	177.3
A6	176.1	162.7
A7	157.8	150.6
A8	158.1	150.6
A9	164.2	154.4
B1	185.3	155.9
B2	188.9	157.4
B3	158.7	150.7
B4	152.0	146.2
B5	134.6	131.8
B6	131.7	129.2
B7	127.4	125.3
B8	125.8	123.9
B9	130.9	128.1
B10	134.7	131.1
B11	139.2	134.7
B12	154.5	144.3
B13	165.9	149.8
B14	161.4	148.3
B15	165.5	150.1
B16	168.6	151.5

* NO_2 background concentration of 62 $\mu g/m^3$ was included.

This figure was the annual average NO_2 concentration recorded at

EPD's Sham Shui Po Station for the year 1996.

Predicted Worst Case 1-hour Average NO_2 Concentrations Based on 2011 AM

Peak Hour Traffic Flows and 2006 Emissions ($\mu g/m^3$)

ASR ID	Floors	
	G/F (1.5m above ground level	1/F (6.1m above ground level)
A1	192.5	162.7
A2	199.5	167.2
A3	214.2	173.9
A4	212.6	176.9
A5	192.8	172.1
A6	169.5	159.2
A7	154.1	148.0
A8	155.4	148.9
A9	161.9	153.3
B1	187.0	158.3
B2	190.3	159.6
B3	156.8	149.8
B4	149.4	144.4
B5	133.7	131.3
B6	131.4	129.2
B7	127.9	126.0
B8	126.8	124.9
B9	132.7	129.9
B10	136.8	133.1
B11	141.4	136.8
B12	157.3	147.2
B13	169.0	152.7
B14	164.1	151.0
B15	168.0	152.6
B16	170.9	154.0

* NO_2 background concentration of 62 $\mu g/m^3$ was included.

This figure was the annual average NO_2 concentration recorded at

EPD's Sham Shui Po Station for the year 1996.

Scenario I - G/F (1.5m above Ground Level)
Sample CALINE4 Input File

```
Hing Wah St (Scenario I) - above 1.5m ground level, G/F
4Nitrogen Dioxide
 200.0000  1.0000   .0000   .0000 25 51  1.0000 0 0 0
833729.7 821803.1 1.5
833719.9 821811.5 1.5
833709.7 821820.1 1.5
833709.0 821827.8 1.5
833725.8 821847.2 1.5
833737.8 821843.8 1.5
833753.0 821830.9 1.5
833752.8 821822.0 1.5
833746.8 821815.2 1.5
833756.5 821777.5 1.5
833746.5 821785.9 1.5
833752.9 821816.0 1.5
833761.5 821827.2 1.5
833800.9 821826.5 1.5
833811.8 821817.0 1.5
833834.1 821796.9 1.5
833845.1 821786.5 1.5
833844.3 821755.9 1.5
833838.7 821749.7 1.5
833833.8 821742.8 1.5
833823.1 821732.2 1.5
833814.4 821731.5 1.5
833801.9 821747.0 1.5
833787.5 821758.3 1.5
833779.2 821764.5 1.5
 1 834033.0 822189.3 833891.6 822041.9 0.0 10.3 0.00 0.00 0
 1 833891.6 822041.9 833828.0 821973.6 0.0 10.3 0.00 0.00 0
 1 833828.0 821973.6 833748.5 821888.4 0.0 10.3 0.00 0.00 0
 1 833748.5 821888.4 833681.7 821818.2 0.0 10.3 0.00 0.00 0
 1 833681.7 821818.2 833562.6 821686.4 0.0 10.3 0.00 0.00 0
 1 833555.7 821697.9 833670.5 821825.5 0.0 10.3 0.00 0.00 0
 1 833670.5 821825.5 833738.9 821898.0 0.0 10.3 0.00 0.00 0
 1 833738.9 821898.0 833818.1 821982.1 0.0 10.3 0.00 0.00 0
 1 833818.1 821982.1 833880.0 822052.0 0.0 10.3 0.00 0.00 0
 1 833880.0 822052.0 833899.2 822072.9 0.0  6.9 0.00 0.00 0
 1 833899.2 822072.9 834018.5 822201.1 0.0  9.5 0.00 0.00 0
 1 833831.4 821976.9 833972.9 821852.1 0.0  5.2 0.00 0.00 0
 1 833972.9 821852.1 834014.8 821814.3 0.0  5.2 0.00 0.00 0
 1 834013.6 821808.4 833965.9 821850.1 0.0  5.2 0.00 0.00 0
 1 833965.9 821850.1 833827.7 821973.6 0.0  5.2 0.00 0.00 0
 1 833751.3 821891.3 833789.9 821857.0 0.0  5.2 0.00 0.00 0
 1 833789.9 821857.0 833933.2 821726.7 0.0  5.2 0.00 0.00 0
 1 833930.4 821722.7 833785.3 821852.2 0.0  5.2 0.00 0.00 0
 1 833785.3 821852.2 833746.3 821886.8 0.0  5.2 0.00 0.00 0
 1 833571.1 821907.7 833681.8 821827.6 0.0 10.0 0.00 0.00 0
 1 833681.8 821827.6 833870.9 821657.8 0.0 10.0 0.00 0.00 0
 1 833870.9 821657.8 833925.4 821610.5 0.0 10.0 0.00 0.00 0
 1 833908.3 821608.4 833863.3 821648.4 0.0 10.0 0.00 0.00 0
 1 833863.3 821648.4 833672.1 821816.8 0.0 10.0 0.00 0.00 0
 1 833672.1 821816.8 833567.3 821891.9 0.0 10.0 0.00 0.00 0
 1 833799.7 822132.4 833891.0 822052.7 0.0 13.0 0.00 0.00 0
 1 833891.0 822052.7 834143.1 821830.8 0.0 13.0 0.00 0.00 0
 1 834132.3 821819.1 834068.8 821874.1 0.0 13.0 0.00 0.00 0
 1 834068.8 821874.1 833881.0 822041.8 0.0 13.0 0.00 0.00 0
 1 833881.0 822041.8 833790.2 822123.1 0.0 13.0 0.00 0.00 0
 1 834070.8 821873.9 834055.7 821855.5 0.0  3.8 0.00 0.00 0
 1 834055.7 821855.5 834016.4 821810.2 0.0  9.0 0.00 0.00 0
 1 834016.4 821810.2 833934.6 821722.6 0.0  9.0 0.00 0.00 0
 1 833934.6 821722.6 833868.8 821650.3 0.0  9.0 0.00 0.00 0
 1 833864.1 821654.8 833929.4 821726.4 0.0  9.0 0.00 0.00 0
 1 833929.4 821726.4 834051.1 821858.9 0.0  9.0 0.00 0.00 0
 1 834051.1 821858.9 834067.7 821876.0 0.0  3.8 0.00 0.00 0
 1 833460.8 821860.2 833528.8 821778.0 0.0 10.3 0.00 0.00 0
 1 833528.8 821778.0 833564.9 821650.5 0.0 10.3 0.00 0.00 0
 1 833564.9 821650.5 833601.4 821595.1 0.0 10.3 0.00 0.00 0
 1 833588.3 821594.3 833553.8 821648.6 0.0 10.3 0.00 0.00 0
 1 833553.8 821648.6 833528.0 821737.2 0.0 10.3 0.00 0.00 0
 1 833528.0 821737.2 833504.2 821800.8 0.0 10.3 0.00 0.00 0
 1 833504.2 821800.8 833461.1 821845.7 0.0 10.3 0.00 0.00 0
 1 833471.9 821860.4 833542.5 821754.6 0.0  7.0 0.00 0.00 0
 1 833542.5 821754.6 833557.3 821690.1 0.0 10.0 0.00 0.00 0
```

1	833557.3	821690.1	833610.7	821591.0	0.0	6.3	0.00	0.00	0
1	833608.6	821587.6	833568.0	821610.9	0.0	10.0	0.00	0.00	0
1	833568.0	821610.9	833551.3	821643.6	0.0	13.0	0.00	0.00	0
1	833551.3	821643.6	833541.1	821672.9	0.0	9.0	0.00	0.00	0
1	833541.1	821672.9	833461.3	821842.7	0.0	9.0	0.00	0.00	0

311111NO2
1170
880
920
980
480
820
620
590
560
370
370
50
110
60
40
30
80
60
50
520
850
820
990
760
950
2100
2180
1600
1650
2030
200
200
240
280
250
260
260
3900
3900
3900
3100
3100
3100
3100
400
400
790
520
520
520
170
1.2205
0.8527
0.9928
1.1329
1.203
1.2906
1.1329
0.9928
0.8527
0.9402
0.9402
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
1.3957
1.3256

1.0979
1.1855
1.0979
1.6409
1.1504
1.168
1.2205
1.238
1.2731
0.7125
0.7125
0.7826
0.8702
0.9052
0.8877
0.8877
1.1154
1.1154
1.1154
1.0453
1.0453
1.0453
1.0453
1.0418
1.0418
1.1504
1.4938
1.4938
1.4938
1.6759
0.00 1.00 4 500.00 18.00 0.00 25.000

Scenario I - G/F (1.5m above Ground Level)
Sample CALINE4 Output File

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Hing Wah St (Scenario I) - above 1.5m ground level
RUN: 1NO2 (WORST CASE ANGLE)
POLLUTANT: Nitrogen Dioxide
(NOTE: OUTPUT IN MICRO-GRAMS/METER**3. IGNORE PPM LABEL)

I. SITE VARIABLES

U= 1.0 M/S Z0= 200. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 4 (D) VS= 0.0 CM/S
MIXH= 500. M AMB= 0.0 PPM
SIGTH= 18. DEGREES TEMP= 25.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) * X1 Y1 X2 Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
AA. LINK AA	* ***** ***** ***** ***** *	AG	1170	1.2	0.0	10.3
AB. LINK AB	* ***** ***** ***** ***** *	AG	880	0.9	0.0	10.3
AC. LINK AC	* ***** ***** ***** ***** *	AG	920	1.0	0.0	10.3
AD. LINK AD	* ***** ***** ***** ***** *	AG	980	1.1	0.0	10.3
AE. LINK AE	* ***** ***** ***** ***** *	AG	480	1.2	0.0	10.3
AF. LINK AF	* ***** ***** ***** ***** *	AG	820	1.3	0.0	10.3
AG. LINK AG	* ***** ***** ***** ***** *	AG	620	1.1	0.0	10.3
AH. LINK AH	* ***** ***** ***** ***** *	AG	590	1.0	0.0	10.3
AI. LINK AI	* ***** ***** ***** ***** *	AG	560	0.9	0.0	10.3
AJ. LINK AJ	* ***** ***** ***** ***** *	AG	370	0.9	0.0	6.9
AK. LINK AK	* ***** ***** ***** ***** *	AG	370	0.9	0.0	9.5
AL. LINK AL	* ***** ***** ***** ***** *	AG	50	0.7	0.0	5.2
AM. LINK AM	* ***** ***** ***** ***** *	AG	110	0.7	0.0	5.2
AN. LINK AN	* ***** ***** ***** ***** *	AG	60	0.7	0.0	5.2
AO. LINK AO	* ***** ***** ***** ***** *	AG	40	0.7	0.0	5.2
AP. LINK AP	* ***** ***** ***** ***** *	AG	30	0.7	0.0	5.2
AQ. LINK AQ	* ***** ***** ***** ***** *	AG	80	0.7	0.0	5.2
AR. LINK AR	* ***** ***** ***** ***** *	AG	60	0.7	0.0	5.2
AS. LINK AS	* ***** ***** ***** ***** *	AG	50	0.7	0.0	5.2
AT. LINK AT	* ***** ***** ***** ***** *	AG	520	1.4	0.0	10.0
AU. LINK AU	* ***** ***** ***** ***** *	AG	850	1.3	0.0	10.0
AV. LINK AV	* ***** ***** ***** ***** *	AG	820	1.1	0.0	10.0
AW. LINK AW	* ***** ***** ***** ***** *	AG	990	1.2	0.0	10.0
AX. LINK AX	* ***** ***** ***** ***** *	AG	760	1.1	0.0	10.0
AY. LINK AY	* ***** ***** ***** ***** *	AG	950	1.6	0.0	10.0
AZ. LINK AZ	* ***** ***** ***** ***** *	AG	2100	1.2	0.0	13.0
BA. LINK BA	* ***** ***** ***** ***** *	AG	2180	1.2	0.0	13.0
BB. LINK BB	* ***** ***** ***** ***** *	AG	1600	1.2	0.0	13.0
BC. LINK BC	* ***** ***** ***** ***** *	AG	1650	1.2	0.0	13.0
BD. LINK BD	* ***** ***** ***** ***** *	AG	2030	1.3	0.0	13.0
BE. LINK BE	* ***** ***** ***** ***** *	AG	200	0.7	0.0	3.8
BF. LINK BF	* ***** ***** ***** ***** *	AG	200	0.7	0.0	9.0
BG. LINK BG	* ***** ***** ***** ***** *	AG	240	0.8	0.0	9.0
BH. LINK BH	* ***** ***** ***** ***** *	AG	280	0.9	0.0	9.0
BI. LINK BI	* ***** ***** ***** ***** *	AG	250	0.9	0.0	9.0
BJ. LINK BJ	* ***** ***** ***** ***** *	AG	260	0.9	0.0	9.0
BK. LINK BK	* ***** ***** ***** ***** *	AG	260	0.9	0.0	3.8
BL. LINK BL	* ***** ***** ***** ***** *	AG	3900	1.1	0.0	10.3
BM. LINK BM	* ***** ***** ***** ***** *	AG	3900	1.1	0.0	10.3
BN. LINK BN	* ***** ***** ***** ***** *	AG	3900	1.1	0.0	10.3
BO. LINK BO	* ***** ***** ***** ***** *	AG	3100	1.0	0.0	10.3
BP. LINK BP	* ***** ***** ***** ***** *	AG	3100	1.0	0.0	10.3
BQ. LINK BQ	* ***** ***** ***** ***** *	AG	3100	1.0	0.0	10.3
BR. LINK BR	* ***** ***** ***** ***** *	AG	3100	1.0	0.0	10.3
BS. LINK BS	* ***** ***** ***** ***** *	AG	400	1.0	0.0	7.0
BT. LINK BT	* ***** ***** ***** ***** *	AG	400	1.0	0.0	10.0
BU. LINK BU	* ***** ***** ***** ***** *	AG	790	1.2	0.0	6.3
BV. LINK BV	* ***** ***** ***** ***** *	AG	520	1.5	0.0	10.0
BW. LINK BW	* ***** ***** ***** ***** *	AG	520	1.5	0.0	13.0
BX. LINK BX	* ***** ***** ***** ***** *	AG	520	1.5	0.0	9.0
BY. LINK BY	* ***** ***** ***** ***** *	AG	170	1.7	0.0	9.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. RECPT 1	833730	821803	1.5
2. RECPT 2	833720	821812	1.5
3. RECPT 3	833710	821820	1.5
4. RECPT 4	833709	821828	1.5
5. RECPT 5	833726	821847	1.5
6. RECPT 6	833738	821844	1.5
7. RECPT 7	833753	821831	1.5
8. RECPT 8	833753	821822	1.5
9. RECPT 9	833747	821815	1.5
10. RECPT 10	833757	821778	1.5
11. RECPT 11	833747	821786	1.5
12. RECPT 12	833753	821816	1.5
13. RECPT 13	833762	821827	1.5
14. RECPT 14	833801	821827	1.5
15. RECPT 15	833812	821817	1.5
16. RECPT 16	833834	821797	1.5
17. RECPT 17	833845	821787	1.5
18. RECPT 18	833844	821756	1.5
19. RECPT 19	833839	821750	1.5
20. RECPT 20	833834	821743	1.5
21. RECPT 21	833823	821732	1.5
22. RECPT 22	833814	821732	1.5
23. RECPT 23	833802	821747	1.5
24. RECPT 24	833788	821758	1.5
25. RECPT 25	833779	821765	1.5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) AA	AB	AC	AD	AE	AF	AG	AH
1. RECPT 1	267.	130.9	0.0	0.0	0.0	1.0	9.7	14.8	0.3	0.0
2. RECPT 2	271.	141.6	0.0	0.0	0.0	6.1	9.3	15.4	1.6	0.0
3. RECPT 3	267.	163.6	0.0	0.0	0.0	18.7	8.8	18.1	3.4	0.0
4. RECPT 4	266.	165.5	0.0	0.0	0.0	38.9	3.8	13.9	8.4	0.0
5. RECPT 5	248.	142.4	0.0	0.0	0.0	44.4	5.3	14.9	10.0	0.0
6. RECPT 6	256.	114.1	0.0	0.0	0.0	25.7	3.6	10.3	8.3	0.0
7. RECPT 7	263.	95.8	0.0	0.0	0.0	11.8	4.5	9.6	4.4	0.0
8. RECPT 8	265.	96.1	0.0	0.0	0.0	8.1	5.6	10.6	2.6	0.0
9. RECPT 9	267.	102.2	0.0	0.0	0.0	5.9	6.5	11.8	1.8	0.0
10. RECPT 10	276.	123.3	0.0	0.0	0.0	0.3	6.2	10.0	0.1	0.0
11. RECPT 11	272.	126.9	0.0	0.0	0.0	0.3	7.2	11.5	0.1	0.0
12. RECPT 12	266.	96.7	0.0	0.0	0.0	5.4	6.3	11.2	1.7	0.0
13. RECPT 13	263.	90.0	0.0	0.0	0.0	8.6	5.0	9.9	3.0	0.0
14. RECPT 14	263.	72.6	0.0	0.0	0.0	5.0	4.3	7.9	2.2	0.0
15. RECPT 15	265.	69.7	0.0	0.0	0.0	3.6	4.3	7.6	1.5	0.0
16. RECPT 16	268.	65.4	0.0	0.0	0.0	1.6	4.1	7.1	0.8	0.0
17. RECPT 17	268.	63.8	0.0	0.0	0.0	1.0	4.1	6.8	0.4	0.0
18. RECPT 18	273.	68.9	0.0	0.0	0.0	0.3	3.8	6.2	0.1	0.0
19. RECPT 19	273.	72.7	0.0	0.0	0.0	0.1	3.9	6.3	0.1	0.0
20. RECPT 20	275.	77.2	0.0	0.0	0.0	0.1	3.9	6.2	0.1	0.0
21. RECPT 21	278.	92.5	0.0	0.0	0.0	0.1	3.9	6.2	0.0	0.0
22. RECPT 22	278.	103.9	0.0	0.0	0.0	0.0	4.0	6.4	0.0	0.0
23. RECPT 23	278.	99.4	0.0	0.0	0.0	0.1	4.5	7.2	0.1	0.0
24. RECPT 24	276.	103.5	0.0	0.0	0.0	0.1	5.0	8.0	0.1	0.0
25. RECPT 25	275.	106.6	0.0	0.0	0.0	0.1	5.4	8.6	0.1	0.0

```
      *
      *      ------------------------------------CONC/LINK
      *
      *      ------------------------------------(PPM)
RECEPTOR * AI AJ AK AL AM AN AO AP AQ AR AS AT
AU AV AW AX AY AZ BA BB BC BD BE BF
BG BH BI BJ BK BL BM BN BO BP BQ BR
BS BT BU BV BW BX BY
------------*------------------------------------------------------------
------------*-----------------S
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@>...¨i@т+8};SW@ŠP
F$]@т™ý E9X@Û8‡Æú3f@YWòÌcu
------------•e@Ù *Ø àX@ ÀoÝlä\@Ê äRNUW@Òß—„Z<@²1gYåe@–äT»u˝g@úØ˝˝Ë;L@;•ÖÈÎ
------------•¶O@ Ûþ•¡˝g@Ý±øe Ì@ëVÒ'i6h

1. RECPT 1 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.4
43.9 0.0 0.0 18.1 5.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.8 6.5 0.0 0.0 0.9 7.2 5.5
2.0 0.3 0.0 0.0 0.0 0.0 1.4
2. RECPT 2 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.4
42.8 0.0 0.0 13.0 15.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 16.7 2.8 0.0 0.0 0.2 4.9 7.5
2.1 0.1 0.0 0.0 0.0 0.0 1.2
3. RECPT 3 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.3
40.9 0.0 0.0 8.9 23.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 17.2 3.2 0.0 0.0 0.2 5.7 7.5
2.1 0.1 0.0 0.0 0.0 0.0 1.3
4. RECPT 4 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 11.0
21.3 0.0 0.0 3.4 28.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 17.1 2.6 0.0 0.0 0.1 5.1 7.7
2.1 0.1 0.0 0.0 0.0 0.0 1.2
5. RECPT 5 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.0
7.6 0.0 0.0 3.0 15.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 7.6 10.9 0.0 0.0 3.1 7.8 2.1
1.4 0.7 0.1 0.0 0.0 0.0 1.4
6. RECPT 6 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.0
7.4 0.0 0.0 2.5 15.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.6 6.4 0.0 0.0 1.2 6.8 4.4
1.7 0.3 0.0 0.0 0.0 0.0 1.3
7. RECPT 7 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.0
10.9 0.0 0.0 4.3 13.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 12.9 4.5 0.0 0.0 0.6 5.6 5.4
1.7 0.2 0.0 0.0 0.0 0.0 1.2
8. RECPT 8 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.6
15.2 0.0 0.0 6.3 11.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.1 4.7 0.0 0.0 0.7 5.6 5.5
1.8 0.2 0.0 0.0 0.0 0.0 1.2
9. RECPT 9 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.7
20.7 0.0 0.0 8.5 10.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.7 4.5 0.0 0.0 0.6 5.6 5.9
1.8 0.2 0.0 0.0 0.0 0.0 1.2
10. RECPT 10 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.4
48.2 0.0 0.0 20.9 2.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.9 5.1 0.0 0.0 0.7 5.6 5.8
1.9 0.3 0.0 0.0 0.0 0.0 1.2
11. RECPT 11 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
48.3 0.0 0.0 20.4 2.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.5 6.4 0.0 0.0 0.9 6.5 5.6
1.9 0.3 0.0 0.0 0.0 0.0 1.3
12. RECPT 12 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.6
18.5 0.0 0.0 8.0 9.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.0 5.0 0.0 0.0 0.7 5.8 5.5
1.8 0.2 0.0 0.0 0.0 0.0 1.2
13. RECPT 13 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.7
11.8 0.0 0.0 5.4 10.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 12.1 5.2 0.0 0.0 0.9 5.7 5.0
1.7 0.3 0.0 0.0 0.0 0.0 1.2
14. RECPT 14 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.6
9.5 0.0 0.0 5.2 7.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.8 5.7 0.0 0.0 1.3 5.2 4.0
1.4 0.3 0.0 0.0 0.0 0.0 1.1
15. RECPT 15 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0
10.5 0.0 0.0 5.8 5.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.5 5.7 0.0 0.0 1.4 5.0 3.9
1.4 0.4 0.0 0.0 0.0 0.0 1.1
16. RECPT 16 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.2
11.9 0.0 0.0 7.1 3.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 8.6 6.3 0.0 0.0 1.7 4.8 3.5
1.3 0.4 0.1 0.0 0.0 0.0 1.1
17. RECPT 17 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.7
12.5 0.0 0.0 7.8 2.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 7.5 7.4 0.0 0.0 2.4 4.8 3.0
1.1 0.5 0.1 0.0 0.0 0.1 1.1
18. RECPT 18 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3
17.0 0.0 0.0 10.4 1.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 7.6 8.0 0.0 0.0 2.6 4.9 3.0
1.2 0.6 0.1 0.0 0.0 0.1 1.1
19. RECPT 19 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
19.3 0.0 0.0 11.9 0.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 7.1 8.8 0.1 0.1 3.1 5.0 2.8
1.1 0.7 0.2 0.0 0.0 0.1 1.2
20. RECPT 20 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
22.0 0.0 0.0 13.3 0.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 7.6 8.6 0.1 0.0 2.8 5.1 3.0
1.2 0.6 0.2 0.0 0.0 0.1 1.2
21. RECPT 21 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
32.3 0.0 0.0 17.5 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 8.4 8.5 0.0 0.0 2.6 5.3 3.4
1.3 0.6 0.1 0.0 0.0 0.0 1.2
22. RECPT 22 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
40.2 0.0 0.0 20.1 0.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 8.4 8.9 0.0 0.0 2.7 5.6 3.4
1.3 0.7 0.1 0.0 0.0 0.0 1.3
23. RECPT 23 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
35.6 0.0 0.0 18.4 1.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 10.2 7.2 0.0 0.0 1.8 5.6 4.1
1.5 0.5 0.0 0.0 0.0 0.0 1.2
24. RECPT 24 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
36.8 0.0 0.0 18.6 1.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 10.8 7.3 0.0 0.0 1.7 5.9 4.3
1.6 0.5 0.0 0.0 0.0 0.0 1.2
25. RECPT 25 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
37.9 0.0 0.0 18.8 1.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.2 7.3 0.0 0.0 1.6 6.1 4.5
1.6 0.5 0.0 0.0 0.0 0.0 1.3

1
RUN ENDED ON ' AT ð nx

Scenario I - 1/F (6.1m above Ground Level)
Sample CALINE4 Input File

```
Hing Wah St (Scenario I) - above 6.1m ground level, 1/F
4Nitrogen Dioxide
 200.0000  1.0000   .0000   .0000 25 51  1.0000 0 0 0
833729.7 821803.1 6.1
833719.9 821811.5 6.1
833709.7 821820.1 6.1
833709.0 821827.8 6.1
833725.8 821847.2 6.1
833737.8 821843.8 6.1
833753.0 821830.9 6.1
833752.8 821822.0 6.1
833746.8 821815.2 6.1
833756.5 821777.5 6.1
833746.5 821785.9 6.1
833752.9 821816.0 6.1
833761.5 821827.2 6.1
833800.9 821826.5 6.1
833811.8 821817.0 6.1
833834.1 821796.9 6.1
833845.1 821786.5 6.1
833844.3 821755.9 6.1
833838.7 821749.7 6.1
833833.8 821742.8 6.1
833823.1 821732.2 6.1
833814.4 821731.5 6.1
833801.9 821747.0 6.1
833787.5 821758.3 6.1
833779.2 821764.5 6.1
 1 834033.0 822189.3 833891.6 822041.9 0.0 10.3 0.00 0.00 0
 1 833891.6 822041.9 833828.0 821973.6 0.0 10.3 0.00 0.00 0
 1 833828.0 821973.6 833748.5 821888.4 0.0 10.3 0.00 0.00 0
 1 833748.5 821888.4 833681.7 821818.2 0.0 10.3 0.00 0.00 0
 1 833681.7 821818.2 833562.6 821686.4 0.0 10.3 0.00 0.00 0
 1 833555.7 821697.9 833670.5 821825.5 0.0 10.3 0.00 0.00 0
 1 833670.5 821825.5 833738.9 821898.0 0.0 10.3 0.00 0.00 0
 1 833738.9 821898.0 833818.1 821982.1 0.0 10.3 0.00 0.00 0
 1 833818.1 821982.1 833880.0 822052.0 0.0 10.3 0.00 0.00 0
 1 833880.0 822052.0 833899.2 822072.9 0.0  6.9 0.00 0.00 0
 1 833899.2 822072.9 834018.5 822201.1 0.0  9.5 0.00 0.00 0
 1 833831.4 821976.9 833972.9 821852.1 0.0  5.2 0.00 0.00 0
 1 833972.9 821852.1 834014.8 821814.3 0.0  5.2 0.00 0.00 0
 1 834013.6 821808.4 833965.9 821850.1 0.0  5.2 0.00 0.00 0
 1 833965.9 821850.1 833827.7 821973.6 0.0  5.2 0.00 0.00 0
 1 833751.3 821891.3 833789.9 821857.0 0.0  5.2 0.00 0.00 0
 1 833789.9 821857.0 833933.2 821726.7 0.0  5.2 0.00 0.00 0
 1 833930.4 821722.7 833785.3 821852.2 0.0  5.2 0.00 0.00 0
 1 833785.3 821852.2 833746.3 821886.8 0.0  5.2 0.00 0.00 0
 1 833571.1 821907.7 833681.8 821827.6 0.0 10.0 0.00 0.00 0
 1 833681.8 821827.6 833870.9 821657.8 0.0 10.0 0.00 0.00 0
 1 833870.9 821657.8 833925.4 821610.5 0.0 10.0 0.00 0.00 0
 1 833908.3 821608.4 833863.3 821648.4 0.0 10.0 0.00 0.00 0
 1 833863.3 821648.4 833672.1 821816.8 0.0 10.0 0.00 0.00 0
 1 833672.1 821816.8 833567.3 821891.9 0.0 10.0 0.00 0.00 0
 1 833799.7 822132.4 833891.0 822052.7 0.0 13.0 0.00 0.00 0
 1 833891.0 822052.7 834143.1 821830.8 0.0 13.0 0.00 0.00 0
 1 834132.3 821819.1 834068.8 821874.1 0.0 13.0 0.00 0.00 0
 1 834068.8 821874.1 833881.0 822041.8 0.0 13.0 0.00 0.00 0
 1 833881.0 822041.8 833790.2 822123.1 0.0 13.0 0.00 0.00 0
 1 834070.8 821873.9 834055.7 821855.5 0.0  3.8 0.00 0.00 0
 1 834055.7 821855.5 834016.4 821810.2 0.0  9.0 0.00 0.00 0
 1 834016.4 821810.2 833934.6 821722.6 0.0  9.0 0.00 0.00 0
 1 833934.6 821722.6 833868.8 821650.3 0.0  9.0 0.00 0.00 0
 1 833864.1 821654.8 833929.4 821726.4 0.0  9.0 0.00 0.00 0
 1 833929.4 821726.4 834051.1 821858.9 0.0  9.0 0.00 0.00 0
 1 834051.1 821858.9 834067.7 821876.0 0.0  3.8 0.00 0.00 0
 1 833460.8 821860.2 833528.8 821778.0 0.0 10.3 0.00 0.00 0
 1 833528.8 821778.0 833564.9 821650.5 0.0 10.3 0.00 0.00 0
 1 833564.9 821650.5 833601.4 821595.1 0.0 10.3 0.00 0.00 0
 1 833588.3 821594.3 833553.8 821648.6 0.0 10.3 0.00 0.00 0
 1 833553.8 821648.6 833528.0 821737.2 0.0 10.3 0.00 0.00 0
 1 833528.0 821737.2 833504.2 821800.8 0.0 10.3 0.00 0.00 0
 1 833504.2 821800.8 833461.1 821845.7 0.0 10.3 0.00 0.00 0
 1 833471.9 821860.4 833542.5 821754.6 0.0  7.0 0.00 0.00 0
 1 833542.5 821754.6 833557.3 821690.1 0.0 10.0 0.00 0.00 0
```

1 833557.3 821690.1 833610.7 821591.0 0.0 6.3 0.00 0.00 0
1 833608.6 821587.6 833568.0 821610.9 0.0 10.0 0.00 0.00 0
1 833568.0 821610.9 833551.3 821643.6 0.0 13.0 0.00 0.00 0
1 833551.3 821643.6 833541.1 821672.9 0.0 9.0 0.00 0.00 0
1 833541.1 821672.9 833461.3 821842.7 0.0 9.0 0.00 0.00 0
311111NO2
1170
880
920
980
480
820
620
590
560
370
370
50
110
60
40
30
80
60
50
520
850
820
990
760
950
2100
2180
1600
1650
2030
200
200
240
280
250
260
260
3900
3900
3900
3100
3100
3100
3100
400
400
790
520
520
520
170
1.2205
0.8527
0.9928
1.1329
1.203
1.2906
1.1329
0.9928
0.8527
0.9402
0.9402
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
1.3957
1.3256

1.0979
1.1855
1.0979
1.6409
1.1504
1.168
1.2205
1.238
1.2731
0.7125
0.7125
0.7826
0.8702
0.9052
0.8877
0.8877
1.1154
1.1154
1.1154
1.0453
1.0453
1.0453
1.0453
1.0418
1.0418
1.1504
1.4938
1.4938
1.4938
1.6759
0.00 1.00 4 500.00 18.00 0.00 25.000

Scenario I - 1/F (6.1m above Ground Level)
Sample CALINE4 Output File

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
    JUNE 1989 VERSION
    PAGE 1

  JOB: Hing Wah St (Scenario I) - above 6.1m ground level
  RUN: 1NO2          (WORST CASE ANGLE)
POLLUTANT: Nitrogen Dioxide
(NOTE: OUTPUT IN MICRO-GRAMS/METER**3. IGNORE PPM LABEL)

I. SITE VARIABLES

  U= 1.0 M/S        Z0= 200. CM       ALT=   0. (M)
 BRG= WORST CASE       VD= 0.0 CM/S
 CLAS=  4 (D)       VS= 0.0 CM/S
 MIXH= 500. M        AMB= 0.0 PPM
SIGTH= 18. DEGREES    TEMP= 25.0 DEGREE (C)

II. LINK VARIABLES

  LINK   * LINK COORDINATES (M) *       EF   H   W
DESCRIPTION * X1  Y1  X2  Y2 * TYPE VPH (G/MI) (M) (M)
----------------*-----------------------*-----------------------------
AA. LINK AA  * ***** ***** ***** ***** * AG 1170 1.2  0.0 10.3
AB. LINK AB  * ***** ***** ***** ***** * AG  880 0.9  0.0 10.3
AC. LINK AC  * ***** ***** ***** ***** * AG  920 1.0  0.0 10.3
AD. LINK AD  * ***** ***** ***** ***** * AG  980 1.1  0.0 10.3
AE. LINK AE  * ***** ***** ***** ***** * AG  480 1.2  0.0 10.3
AF. LINK AF  * ***** ***** ***** ***** * AG  820 1.3  0.0 10.3
AG. LINK AG  * ***** ***** ***** ***** * AG  620 1.1  0.0 10.3
AH. LINK AH  * ***** ***** ***** ***** * AG  590 1.0  0.0 10.3
AI. LINK AI  * ***** ***** ***** ***** * AG  560 0.9  0.0 10.3
AJ. LINK AJ  * ***** ***** ***** ***** * AG  370 0.9  0.0  6.9
AK. LINK AK  * ***** ***** ***** ***** * AG  370 0.9  0.0  9.5
AL. LINK AL  * ***** ***** ***** ***** * AG   50 0.7  0.0  5.2
AM. LINK AM  * ***** ***** ***** ***** * AG  110 0.7  0.0  5.2
AN. LINK AN  * ***** ***** ***** ***** * AG   60 0.7  0.0  5.2
AO. LINK AO  * ***** ***** ***** ***** * AG   40 0.7  0.0  5.2
AP. LINK AP  * ***** ***** ***** ***** * AG   30 0.7  0.0  5.2
AQ. LINK AQ  * ***** ***** ***** ***** * AG   80 0.7  0.0  5.2
AR. LINK AR  * ***** ***** ***** ***** * AG   60 0.7  0.0  5.2
AS. LINK AS  * ***** ***** ***** ***** * AG   50 0.7  0.0  5.2
AT. LINK AT  * ***** ***** ***** ***** * AG  520 1.4  0.0 10.0
AU. LINK AU  * ***** ***** ***** ***** * AG  850 1.3  0.0 10.0
AV. LINK AV  * ***** ***** ***** ***** * AG  820 1.1  0.0 10.0
AW. LINK AW  * ***** ***** ***** ***** * AG  990 1.2  0.0 10.0
AX. LINK AX  * ***** ***** ***** ***** * AG  760 1.1  0.0 10.0
AY. LINK AY  * ***** ***** ***** ***** * AG  950 1.6  0.0 10.0
AZ. LINK AZ  * ***** ***** ***** ***** * AG 2100 1.2  0.0 13.0
BA. LINK BA  * ***** ***** ***** ***** * AG 2180 1.2  0.0 13.0
BB. LINK BB  * ***** ***** ***** ***** * AG 1600 1.2  0.0 13.0
BC. LINK BC  * ***** ***** ***** ***** * AG 1650 1.2  0.0 13.0
BD. LINK BD  * ***** ***** ***** ***** * AG 2030 1.3  0.0 13.0
BE. LINK BE  * ***** ***** ***** ***** * AG  200 0.7  0.0  3.8
BF. LINK BF  * ***** ***** ***** ***** * AG  200 0.7  0.0  9.0
BG. LINK BG  * ***** ***** ***** ***** * AG  240 0.8  0.0  9.0
BH. LINK BH  * ***** ***** ***** ***** * AG  280 0.9  0.0  9.0
BI. LINK BI  * ***** ***** ***** ***** * AG  250 0.9  0.0  9.0
BJ. LINK BJ  * ***** ***** ***** ***** * AG  260 0.9  0.0  9.0
BK. LINK BK  * ***** ***** ***** ***** * AG  260 0.9  0.0  3.8
BL. LINK BL  * ***** ***** ***** ***** * AG 3900 1.1  0.0 10.3
BM. LINK BM  * ***** ***** ***** ***** * AG 3900 1.1  0.0 10.3
BN. LINK BN  * ***** ***** ***** ***** * AG 3900 1.1  0.0 10.3
BO. LINK BO  * ***** ***** ***** ***** * AG 3100 1.0  0.0 10.3
BP. LINK BP  * ***** ***** ***** ***** * AG 3100 1.0  0.0 10.3
BQ. LINK BQ  * ***** ***** ***** ***** * AG 3100 1.0  0.0 10.3
BR. LINK BR  * ***** ***** ***** ***** * AG 3100 1.0  0.0 10.3
BS. LINK BS  * ***** ***** ***** ***** * AG  400 1.0  0.0  7.0
BT. LINK BT  * ***** ***** ***** ***** * AG  400 1.0  0.0 10.0
BU. LINK BU  * ***** ***** ***** ***** * AG  790 1.2  0.0  6.3
BV. LINK BV  * ***** ***** ***** ***** * AG  520 1.5  0.0 10.0
BW. LINK BW  * ***** ***** ***** ***** * AG  520 1.5  0.0 13.0
BX. LINK BX  * ***** ***** ***** ***** * AG  520 1.5  0.0  9.0
BY. LINK BY  * ***** ***** ***** ***** * AG  170 1.7  0.0  9.0
```

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. RECPT 1	833730	821803	6.1
2. RECPT 2	833720	821812	6.1
3. RECPT 3	833710	821820	6.1
4. RECPT 4	833709	821828	6.1
5. RECPT 5	833726	821847	6.1
6. RECPT 6	833738	821844	6.1
7. RECPT 7	833753	821831	6.1
8. RECPT 8	833753	821822	6.1
9. RECPT 9	833747	821815	6.1
10. RECPT 10	833757	821778	6.1
11. RECPT 11	833747	821786	6.1
12. RECPT 12	833753	821816	6.1
13. RECPT 13	833762	821827	6.1
14. RECPT 14	833801	821827	6.1
15. RECPT 15	833812	821817	6.1
16. RECPT 16	833834	821797	6.1
17. RECPT 17	833845	821787	6.1
18. RECPT 18	833844	821756	6.1
19. RECPT 19	833839	821750	6.1
20. RECPT 20	833834	821743	6.1
21. RECPT 21	833823	821732	6.1
22. RECPT 22	833814	821732	6.1
23. RECPT 23	833802	821747	6.1
24. RECPT 24	833788	821758	6.1
25. RECPT 25	833779	821765	6.1

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) AA	AB	AC	AD	AE	AF	AG	AH
1. RECPT 1	276.	101.3	0.0	0.0	0.0	2.9	6.7	11.3	1.1	0.0
2. RECPT 2	273.	106.6	0.0	0.0	0.0	5.0	6.8	12.7	1.6	0.0
3. RECPT 3	271.	114.5	0.0	0.0	0.0	11.3	4.8	12.5	3.4	0.0
4. RECPT 4	260.	118.1	0.0	0.0	0.0	15.1	4.9	15.1	4.1	0.0
5. RECPT 5	243.	115.3	0.0	0.0	0.0	23.7	7.5	17.1	5.7	0.0
6. RECPT 6	256.	100.7	0.0	0.0	0.0	19.1	3.2	9.4	6.8	0.0
7. RECPT 7	263.	88.6	0.0	0.0	0.0	10.0	4.0	8.9	3.9	0.0
8. RECPT 8	264.	88.6	0.0	0.0	0.0	6.6	5.3	10.3	2.1	0.0
9. RECPT 9	267.	92.4	0.0	0.0	0.0	5.0	5.9	10.9	1.6	0.0
10. RECPT 10	280.	93.9	0.0	0.0	0.0	0.5	5.4	8.9	0.3	0.0
11. RECPT 11	278.	95.4	0.0	0.0	0.0	0.7	6.0	9.7	0.3	0.0
12. RECPT 12	266.	88.7	0.0	0.0	0.0	4.7	5.7	10.5	1.5	0.0
13. RECPT 13	263.	84.2	0.0	0.0	0.0	7.6	4.6	9.3	2.7	0.0
14. RECPT 14	263.	69.8	0.0	0.0	0.0	4.7	4.0	7.6	2.0	0.0
15. RECPT 15	265.	67.2	0.0	0.0	0.0	3.4	4.1	7.4	1.4	0.0
16. RECPT 16	268.	63.3	0.0	0.0	0.0	1.6	4.0	6.8	0.7	0.0
17. RECPT 17	268.	61.9	0.0	0.0	0.0	1.0	4.0	6.6	0.4	0.0
18. RECPT 18	274.	66.1	0.0	0.0	0.0	0.4	3.7	6.1	0.2	0.0
19. RECPT 19	273.	69.1	0.0	0.0	0.0	0.1	3.8	6.1	0.1	0.0
20. RECPT 20	278.	72.7	0.0	0.0	0.0	0.2	3.7	6.1	0.1	0.0
21. RECPT 21	280.	82.3	0.0	0.0	0.0	0.1	3.7	6.1	0.1	0.0
22. RECPT 22	284.	87.8	0.0	0.0	0.0	0.2	3.7	6.1	0.1	0.0
23. RECPT 23	279.	86.3	0.0	0.0	0.0	0.1	4.2	6.9	0.1	0.0
24. RECPT 24	278.	88.1	0.0	0.0	0.0	0.2	4.6	7.6	0.1	0.0
25. RECPT 25	276.	89.5	0.0	0.0	0.0	0.1	5.0	8.2	0.1	0.0

```
*
*          ----------------------------------CONC/LINK
*
*          ----------------------------------(PPM)
RECEPTOR * AI AJ AK AL AM AN AO AP AQ AR AS AT
AU AV AW AX AY AZ BA BB BC BD BE BF
BG BH BI BJ BK BL BM BN BO BP BQ BR
BS BT BU BV BW BX BY
------------*------------------------------------------------------------
------------*-----------------S
```

@>...˜i@т+ß}¦SW@ŠP
F$|@т™ý E9X@Ū8‡ÆÚ3f@YWòÌcu
------------*e@Ū *Ø èX@ ÅoŸlä\@Ê äRNUW@Òß—„Z<@²1gYåe@–äT»u˝g@úØ˜Ê;L@;•ÕEÌ
------------*¶O@ Ūþ•¡*g@Ý±øe Ǐ@ëVÕ'i6h
1. RECPT 1 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.1
23.1 0.0 0.0 11.6 12.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 15.4 1.9 0.0 0.0 0.1 3.5 6.9
1.8 0.0 0.0 0.0 0.0 0.0 1.0
2. RECPT 2 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.7
20.3 0.0 0.0 9.0 15.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 16.3 2.0 0.0 0.0 0.1 3.9 7.4
1.9 0.0 0.0 0.0 0.0 0.0 1.0
3. RECPT 3 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.0
16.1 0.0 0.0 4.6 23.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 16.9 1.7 0.0 0.0 0.1 3.8 7.9
2.0 0.0 0.0 0.0 0.0 0.0 1.1
4. RECPT 4 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.9
13.1 0.0 0.0 3.8 19.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 14.4 5.7 0.0 0.0 0.7 7.4 5.7
2.0 0.2 0.0 0.0 0.0 0.0 1.4
5. RECPT 5 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.2
8.0 0.0 0.0 3.9 10.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 4.2 13.7 0.1 0.1 5.3 6.6 0.9
1.0 1.0 0.2 0.0 0.0 0.1 1.4
6. RECPT 6 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 6.2
6.2 0.0 0.0 2.2 14.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.5 6.3 0.0 0.0 1.2 6.7 4.4
1.7 0.3 0.0 0.0 0.0 0.0 1.3
7. RECPT 7 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.5
9.3 0.0 0.0 3.9 12.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 12.7 4.4 0.0 0.0 0.6 5.5 5.4
1.7 0.2 0.0 0.0 0.0 0.0 1.2
8. RECPT 8 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.9
13.1 0.0 0.0 5.8 9.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 12.5 5.2 0.0 0.0 0.8 5.9 5.1
1.7 0.3 0.0 0.0 0.0 0.0 1.2
9. RECPT 9 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.5
16.5 0.0 0.0 7.3 9.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.6 4.4 0.0 0.0 0.5 5.5 5.8
1.8 0.2 0.0 0.0 0.0 0.0 1.2
10. RECPT 10 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.8
27.3 0.0 0.0 16.1 5.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 13.7 2.9 0.0 0.0 0.2 4.0 5.9
1.8 0.1 0.0 0.0 0.0 0.0 1.0
11. RECPT 11 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.8
25.6 0.0 0.0 15.6 5.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 14.5 2.9 0.0 0.0 0.2 4.2 6.3
1.8 0.1 0.0 0.0 0.0 0.0 1.0
12. RECPT 12 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.3
15.3 0.0 0.0 7.0 8.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 12.8 4.9 0.0 0.0 0.7 5.7 5.4
1.7 0.2 0.0 0.0 0.0 0.0 1.2
13. RECPT 13 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.4
10.3 0.0 0.0 4.8 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.9 5.1 0.0 0.0 0.9 5.7 4.9
1.6 0.3 0.0 0.0 0.0 0.0 1.2
14. RECPT 14 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.4
8.8 0.0 0.0 4.8 6.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.7 5.6 0.0 0.0 1.3 5.1 4.0
1.4 0.3 0.0 0.0 0.0 0.0 1.1
15. RECPT 15 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.9
9.8 0.0 0.0 5.4 5.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.4 5.7 0.0 0.0 1.4 5.0 3.9
1.3 0.4 0.0 0.0 0.0 0.0 1.1
16. RECPT 16 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.1
11.1 0.0 0.0 6.7 3.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 8.5 6.3 0.0 0.0 1.7 4.8 3.5
1.2 0.4 0.1 0.0 0.0 0.0 1.1
17. RECPT 17 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.7
11.7 0.0 0.0 7.4 2.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 7.4 7.3 0.0 0.0 2.3 4.8 3.0
1.1 0.5 0.1 0.0 0.0 0.1 1.1
18. RECPT 18 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.4
15.5 0.0 0.0 9.7 1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 8.0 7.3 0.0 0.0 2.2 4.8 3.3
1.2 0.5 0.1 0.0 0.0 0.0 1.1
19. RECPT 19 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2
17.2 0.0 0.0 10.9 0.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 7.0 8.7 0.1 0.1 3.0 5.0 2.8
1.1 0.7 0.2 0.0 0.0 0.1 1.1
20. RECPT 20 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.4
19.6 0.0 0.0 12.0 1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.0 6.7 0.0 0.0 1.8 4.8 3.7
1.3 0.5 0.1 0.0 0.0 0.0 1.1
21. RECPT 21 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3
25.4 0.0 0.0 15.4 1.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 9.2 7.1 0.0 0.0 1.9 5.1 3.8
1.4 0.5 0.1 0.0 0.0 0.0 1.1
22. RECPT 22 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.5
29.8 0.0 0.0 17.2 2.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 10.4 5.1 0.0 0.0 1.0 4.4 4.3
1.5 0.3 0.0 0.0 0.0 0.0 1.0
23. RECPT 23 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3
26.2 0.0 0.0 15.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 10.5 6.5 0.0 0.0 1.5 5.3 4.3
1.5 0.4 0.0 0.0 0.0 0.0 1.1
24. RECPT 24 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3
26.0 0.0 0.0 15.6 1.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.5 6.0 0.0 0.0 1.1 5.4 4.7
1.6 0.4 0.0 0.0 0.0 0.0 1.1
25. RECPT 25 * 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3
25.4 0.0 0.0 15.6 1.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 11.6 6.5 0.0 0.0 1.3 5.8 4.7
1.6 0.4 0.0 0.0 0.0 0.0 1.2

1
RUN ENDED ON ' AT ò hx

Scenario II - G/F (1.5m above Ground Level)
Sample CALINE4 Input File

```
Hing Wah St (Scenario II) - above 1.5m ground level, G/F
4Nitrogen Dioxide
 200.0000  1.0000   .0000   .0000  25 59  1.0000 0 0 0
833729.7 821803.1 1.5
833719.9 821811.5 1.5
833709.7 821820.1 1.5
833709.0 821827.8 1.5
833725.8 821847.2 1.5
833737.8 821843.8 1.5
833753.0 821830.9 1.5
833752.8 821822.0 1.5
833746.8 821815.2 1.5
833756.5 821777.5 1.5
833746.5 821785.9 1.5
833752.9 821816.0 1.5
833761.5 821827.2 1.5
833800.9 821826.5 1.5
833811.8 821817.0 1.5
833834.1 821796.9 1.5
833845.1 821786.5 1.5
833844.3 821755.9 1.5
833838.7 821749.7 1.5
833833.8 821742.8 1.5
833823.1 821732.2 1.5
833814.4 821731.5 1.5
833801.9 821747.0 1.5
833787.5 821758.3 1.5
833779.2 821764.5 1.5
 1 833471.9 821860.4 833522.0 821801.6 0.0  7.0 0.00 0.00 0
 1 833522.0 821801.6 833542.5 821754.6 0.0  7.0 0.00 0.00 0
 1 833542.5 821754.6 833557.3 821690.1 0.0 10.0 0.00 0.00 0
 1 833557.3 821690.1 833586.0 821619.9 0.0  6.3 0.00 0.00 0
 1 833586.0 821619.9 833610.7 821591.0 0.0  6.3 0.00 0.00 0
 1 833608.6 821587.6 833568.0 821610.9 0.0 10.0 0.00 0.00 0
 1 833568.0 821610.9 833551.3 821643.6 0.0 13.0 0.00 0.00 0
 1 833551.3 821643.6 833541.1 821672.9 0.0  9.0 0.00 0.00 0
 1 833541.1 821672.9 833516.7 821766.0 0.0  9.0 0.00 0.00 0
 1 833516.7 821766.0 833489.6 821819.0 0.0  9.0 0.00 0.00 0
 1 833489.6 821819.0 833461.3 821842.7 0.0  9.0 0.00 0.00 0
 1 833460.8 821860.2 833528.8 821778.0 0.0 10.3 0.00 0.00 0
 1 833528.8 821778.0 833559.0 821664.2 0.0 10.3 0.00 0.00 0
 1 833559.0 821664.2 833582.0 821619.1 0.0 10.3 0.00 0.00 0
 1 833582.0 821619.1 833601.4 821595.1 0.0 10.3 0.00 0.00 0
 1 833588.3 821594.3 833553.8 821648.6 0.0 10.3 0.00 0.00 0
 1 833553.8 821648.6 833528.0 821737.2 0.0 10.3 0.00 0.00 0
 1 833528.0 821737.2 833504.2 821800.8 0.0 10.3 0.00 0.00 0
 1 833504.2 821800.8 833461.1 821845.7 0.0 10.3 0.00 0.00 0
 1 834070.8 821873.9 834055.7 821855.5 0.0  3.8 0.00 0.00 0
 1 834055.7 821855.5 834016.4 821810.2 0.0  9.0 0.00 0.00 0
 1 834016.4 821810.2 833934.6 821722.6 0.0  9.0 0.00 0.00 0
 1 833934.6 821722.6 833868.8 821650.3 0.0  9.0 0.00 0.00 0
 1 833864.1 821654.8 833929.4 821726.4 0.0  9.0 0.00 0.00 0
 1 833929.4 821726.4 834051.1 821858.9 0.0  9.0 0.00 0.00 0
 1 834051.1 821858.9 834067.7 821876.0 0.0  3.8 0.00 0.00 0
 1 833799.7 822132.4 833891.0 822052.7 0.0 13.0 0.00 0.00 0
 1 833891.0 822052.7 834143.1 821830.8 0.0 13.0 0.00 0.00 0
 1 834132.3 821819.1 834068.8 821874.1 0.0 13.0 0.00 0.00 0
 1 834068.8 821874.1 833881.0 822041.8 0.0 13.0 0.00 0.00 0
 1 833881.0 822041.8 833790.2 822123.1 0.0 13.0 0.00 0.00 0
 1 833571.1 821907.7 833611.6 821888.5 0.0 10.0 0.00 0.00 0
 1 833611.6 821888.5 833681.8 821827.6 0.0 10.0 0.00 0.00 0
 1 833681.8 821827.6 833870.9 821657.8 0.0 10.0 0.00 0.00 0
 1 833870.9 821657.8 833925.4 821610.5 0.0 10.0 0.00 0.00 0
 1 833908.3 821608.4 833863.3 821648.4 0.0 10.0 0.00 0.00 0
 1 833863.3 821648.4 833672.1 821816.8 0.0 10.0 0.00 0.00 0
 1 833672.1 821816.8 833601.4 821878.0 0.0 10.0 0.00 0.00 0
 1 833601.4 821878.0 833567.3 821891.9 0.0 10.0 0.00 0.00 0
 1 833751.3 821891.3 833789.9 821857.0 0.0  5.2 0.00 0.00 0
 1 833789.9 821857.0 833933.2 821726.7 0.0  5.2 0.00 0.00 0
 1 833930.4 821722.7 833785.3 821852.2 0.0  5.2 0.00 0.00 0
 1 833785.3 821852.2 833746.3 821886.8 0.0  5.2 0.00 0.00 0
 1 833831.4 821976.9 833972.9 821852.1 0.0  5.2 0.00 0.00 0
 1 833972.9 821852.1 834014.8 821814.3 0.0  5.2 0.00 0.00 0
 1 834013.6 821808.4 833965.9 821850.1 0.0  5.2 0.00 0.00 0
```

1	833965.9	821850.1	833827.7	821973.6	0.0	5.2	0.00	0.00	0
1	834033.0	822189.3	833969.0	822124.5	0.0	10.3	0.00	0.00	0
1	833969.0	822124.5	833891.6	822041.9	0.0	15.0	0.00	0.00	0
1	833891.6	822041.9	833828.0	821973.6	0.0	10.3	0.00	0.00	0
1	833828.0	821973.6	833748.5	821888.4	0.0	10.3	0.00	0.00	0
1	833748.5	821888.4	833682.0	821822.8	0.0	10.3	0.00	0.00	0
1	833682.0	821822.8	833549.8	821690.9	0.0	3.5	0.00	0.00	0
1	833548.4	821696.1	833665.2	821827.0	0.0	7.0	0.00	0.00	0
1	833665.2	821827.0	833738.9	821898.0	0.0	10.3	0.00	0.00	0
1	833738.9	821898.0	833818.1	821982.1	0.0	10.3	0.00	0.00	0
1	833818.1	821982.1	833880.0	822052.0	0.0	10.3	0.00	0.00	0
1	833880.0	822052.0	833899.2	822072.9	0.0	6.9	0.00	0.00	0
1	833899.2	822072.9	834018.5	822201.1	0.0	9.5	0.00	0.00	0

311111NO2
390
390
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960
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3100
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220
260
270
270
270
2080
2180
1590
1680
2090
580
580
790
830
1170
1010
900
900
30
90
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50
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120
60
40
1220
1220
990
960
900
890
850
610
640
680
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1.1855
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0.6775
0.6775
1.2205
1.2205
0.8527
0.9928
1.1329
1.203
1.2906
1.1329
0.9928
0.8527
0.9402
0.9402
0.00 1.00 4 500.00 18.00 0.00 25.000

Scenario II - G/F (1.5m above Ground Level)
Sample CALINE4 Output File

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Hing Wah St (Scenario II) - above 1.5m ground level
RUN: 1NO2 (WORST CASE ANGLE)
POLLUTANT: Nitrogen Dioxide
(NOTE: OUTPUT IN MICRO-GRAMS/METER**3. IGNORE PPM LABEL)

I. SITE VARIABLES

U= 1.0 M/S Z0= 200. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 4 (D) VS= 0.0 CM/S
MIXH= 500. M AMB= 0.0 PPM
SIGTH= 18. DEGREES TEMP= 25.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
AA. LINK AA	*****	*****	*****	*****	AG	390	1.0	0.0	7.0
AB. LINK AB	*****	*****	*****	*****	AG	390	1.0	0.0	7.0
AC. LINK AC	*****	*****	*****	*****	AG	390	1.0	0.0	10.0
AD. LINK AD	*****	*****	*****	*****	AG	960	1.2	0.0	6.3
AE. LINK AE	*****	*****	*****	*****	AG	960	1.2	0.0	6.3
AF. LINK AF	*****	*****	*****	*****	AG	400	1.5	0.0	10.0
AG. LINK AG	*****	*****	*****	*****	AG	400	1.5	0.0	13.0
AH. LINK AH	*****	*****	*****	*****	AG	400	1.5	0.0	9.0
AI. LINK AI	*****	*****	*****	*****	AG	180	1.7	0.0	9.0
AJ. LINK AJ	*****	*****	*****	*****	AG	180	1.7	0.0	9.0
AK. LINK AK	*****	*****	*****	*****	AG	180	1.7	0.0	9.0
AL. LINK AL	*****	*****	*****	*****	AG	3900	1.1	0.0	10.3
AM. LINK AM	*****	*****	*****	*****	AG	3900	1.1	0.0	10.3
AN. LINK AN	*****	*****	*****	*****	AG	3900	1.1	0.0	10.3
AO. LINK AO	*****	*****	*****	*****	AG	3900	1.1	0.0	10.3
AP. LINK AP	*****	*****	*****	*****	AG	3100	1.0	0.0	10.3
AQ. LINK AQ	*****	*****	*****	*****	AG	3100	1.0	0.0	10.3
AR. LINK AR	*****	*****	*****	*****	AG	3100	1.0	0.0	10.3
AS. LINK AS	*****	*****	*****	*****	AG	3100	1.0	0.0	10.3
AT. LINK AT	*****	*****	*****	*****	AG	190	0.7	0.0	3.8
AU. LINK AU	*****	*****	*****	*****	AG	190	0.7	0.0	9.0
AV. LINK AV	*****	*****	*****	*****	AG	220	0.8	0.0	9.0
AW. LINK AW	*****	*****	*****	*****	AG	260	0.9	0.0	9.0
AX. LINK AX	*****	*****	*****	*****	AG	270	0.9	0.0	9.0
AY. LINK AY	*****	*****	*****	*****	AG	270	0.9	0.0	9.0
AZ. LINK AZ	*****	*****	*****	*****	AG	270	0.9	0.0	3.8
BA. LINK BA	*****	*****	*****	*****	AG	2080	1.2	0.0	13.0
BB. LINK BB	*****	*****	*****	*****	AG	2180	1.2	0.0	13.0
BC. LINK BC	*****	*****	*****	*****	AG	1590	1.2	0.0	13.0
BD. LINK BD	*****	*****	*****	*****	AG	1680	1.2	0.0	13.0
BE. LINK BE	*****	*****	*****	*****	AG	2090	1.3	0.0	13.0
BF. LINK BF	*****	*****	*****	*****	AG	580	1.4	0.0	10.0
BG. LINK BG	*****	*****	*****	*****	AG	580	1.4	0.0	10.0
BH. LINK BH	*****	*****	*****	*****	AG	790	1.3	0.0	10.0
BI. LINK BI	*****	*****	*****	*****	AG	830	1.1	0.0	10.0
BJ. LINK BJ	*****	*****	*****	*****	AG	1170	1.2	0.0	10.0
BK. LINK BK	*****	*****	*****	*****	AG	1010	1.1	0.0	10.0
BL. LINK BL	*****	*****	*****	*****	AG	900	1.6	0.0	10.0
BM. LINK BM	*****	*****	*****	*****	AG	900	1.6	0.0	10.0
BN. LINK BN	*****	*****	*****	*****	AG	30	0.7	0.0	5.2
BO. LINK BO	*****	*****	*****	*****	AG	90	0.7	0.0	5.2
BP. LINK BP	*****	*****	*****	*****	AG	50	0.7	0.0	5.2
BQ. LINK BQ	*****	*****	*****	*****	AG	50	0.7	0.0	5.2
BR. LINK BR	*****	*****	*****	*****	AG	50	0.7	0.0	5.2
BS. LINK BS	*****	*****	*****	*****	AG	120	0.7	0.0	5.2
BT. LINK BT	*****	*****	*****	*****	AG	60	0.7	0.0	5.2
BU. LINK BU	*****	*****	*****	*****	AG	40	0.7	0.0	5.2
BV. LINK BV	*****	*****	*****	*****	AG	1220	1.2	0.0	10.3
BW. LINK BW	*****	*****	*****	*****	AG	1220	1.2	0.0	15.0
BX. LINK BX	*****	*****	*****	*****	AG	990	0.9	0.0	10.3
BY. LINK BY	*****	*****	*****	*****	AG	960	1.0	0.0	10.3

BZ. LINK BZ	• ••••• ••••• ••••• ••••• •	AG	900	1.1	0.0	10.3
CA. LINK CA	• ••••• ••••• ••••• ••••• •	AG	890	1.2	0.0	3.5
CB. LINK CB	• ••••• ••••• ••••• ••••• •	AG	850	1.3	0.0	7.0
CC. LINK CC	• ••••• ••••• ••••• ••••• •	AG	610	1.1	0.0	10.3
CD. LINK CD	• ••••• ••••• ••••• ••••• •	AG	640	1.0	0.0	10.3
CE. LINK CE	• ••••• ••••• ••••• ••••• •	AG	680	0.9	0.0	10.3
CF. LINK CF	• ••••• ••••• ••••• ••••• •	AG	410	0.9	0.0	6.9
CG. LINK CG	• ••••• ••••• ••••• ••••• •	AG	410	0.9	0.0	9.5

III. RECEPTOR LOCATIONS

RECEPTOR	•	COORDINATES (M) X	Y	Z
1. RECPT 1	•	833730	821803	1.5
2. RECPT 2	•	833720	821812	1.5
3. RECPT 3	•	833710	821820	1.5
4. RECPT 4	•	833709	821828	1.5
5. RECPT 5	•	833726	821847	1.5
6. RECPT 6	•	833738	821844	1.5
7. RECPT 7	•	833753	821831	1.5
8. RECPT 8	•	833753	821822	1.5
9. RECPT 9	•	833747	821815	1.5
10. RECPT 10	•	833757	821778	1.5
11. RECPT 11	•	833747	821786	1.5
12. RECPT 12	•	833753	821816	1.5
13. RECPT 13	•	833762	821827	1.5
14. RECPT 14	•	833801	821827	1.5
15. RECPT 15	•	833812	821817	1.5
16. RECPT 16	•	833834	821797	1.5
17. RECPT 17	•	833845	821787	1.5
18. RECPT 18	•	833844	821756	1.5
19. RECPT 19	•	833839	821750	1.5
20. RECPT 20	•	833834	821743	1.5
21. RECPT 21	•	833823	821732	1.5
22. RECPT 22	•	833814	821732	1.5
23. RECPT 23	•	833802	821747	1.5
24. RECPT 24	•	833788	821758	1.5
25. RECPT 25	•	833779	821765	1.5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) AA	AB	AC	AD	AE	AF	AG	AH
1. RECPT 1	267.	130.5	0.9	1.0	0.3	0.0	0.0	0.0	0.0	0.0
2. RECPT 2	267.	137.5	1.2	0.9	0.2	0.0	0.0	0.0	0.0	0.0
3. RECPT 3	267.	152.2	1.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0
4. RECPT 4	265.	150.6	1.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0
5. RECPT 5	251.	130.8	0.6	1.0	0.5	0.0	0.0	0.0	0.0	0.0
6. RECPT 6	257.	107.5	0.9	0.9	0.3	0.0	0.0	0.0	0.0	0.0
7. RECPT 7	264.	92.1	1.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0
8. RECPT 8	265.	93.4	1.0	0.8	0.2	0.0	0.0	0.0	0.0	0.0
9. RECPT 9	265.	99.9	0.9	0.9	0.3	0.0	0.0	0.0	0.0	0.0
10. RECPT 10	274.	125.0	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.0
11. RECPT 11	272.	128.3	1.0	0.9	0.3	0.0	0.0	0.0	0.0	0.0
12. RECPT 12	265.	94.8	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
13. RECPT 13	264.	87.4	0.9	0.7	0.2	0.0	0.0	0.0	0.0	0.0
14. RECPT 14	263.	71.7	0.7	0.7	0.3	0.0	0.0	0.0	0.0	0.0
15. RECPT 15	264.	69.4	0.6	0.7	0.4	0.0	0.0	0.0	0.0	0.0
16. RECPT 16	267.	65.9	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0
17. RECPT 17	268.	64.8	0.5	0.6	0.5	0.1	0.0	0.0	0.0	0.0
18. RECPT 18	273.	70.7	0.5	0.6	0.6	0.2	0.0	0.0	0.0	0.0
19. RECPT 19	273.	74.8	0.5	0.6	0.7	0.2	0.0	0.0	0.0	0.1
20. RECPT 20	275.	79.4	0.5	0.6	0.6	0.2	0.0	0.0	0.0	0.0
21. RECPT 21	278.	95.3	0.6	0.7	0.6	0.1	0.0	0.0	0.0	0.0
22. RECPT 22	278.	107.0	0.6	0.7	0.7	0.1	0.0	0.0	0.0	0.0
23. RECPT 23	278.	102.1	0.7	0.7	0.5	0.0	0.0	0.0	0.0	0.0
24. RECPT 24	275.	106.0	0.7	0.8	0.5	0.0	0.0	0.0	0.0	0.0
25. RECPT 25	275.	108.9	0.8	0.8	0.5	0.0	0.0	0.0	0.0	0.0

*------CONC/LINK
*
* ---
*--------(PPM)
RECEPTOR * AI AJ AK AL AM AN AO AP AQ AR AS AT
AU AV AW AX AY AZ BA BB BC BD BE BF
BG BH BI BJ BK BL BM BN BO BP BQ BR
BS BT BU BV BW BX BY BZ CA CB CC CD
CE CF CG
------------*---
------------*------------------ Æq•NS@¯üùõZ£I@fs Àt‹P@œ ' nøR@i¶ ‰-þB@öNÌ`g
------------*G@:5á³Ò`B@ ,þ",ù>@U³" Ê X@8ç Ô6ÁM@éN™þ uB@ëN ø"Z@#ÞõÁŸo]@6Û à
------------*KI@¯• 9Ø>@
Û¬cý P@¯Ê3 × W@" ûnØûP@ •Dfã O@wA U•Ì7@éêw³þM@þ«Ý
------------*¹ð]
1. RECPT 1 * 0.4 0.9 0.3 13.8 6.4 0.0 0.0 0.0 0.9 7.2 5.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.4 41.0 0.0 0.0 23.5 4.1 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.3 10.8 12.4 0.3 0.0
0.0 0.0 0.0
2. RECPT 2 * 0.3 0.9 0.4 15.6 4.8 0.0 0.0 0.0 0.5 6.6 6.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
1.0 40.6 0.0 0.0 19.7 9.1 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.6 12.6 14.1 0.8 0.0
0.0 0.0 0.0
3. RECPT 3 * 0.2 0.9 0.5 17.2 3.2 0.0 0.0 0.0 0.2 5.7 7.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
4.3 38.1 0.0 0.0 11.6 20.3 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 8.6 13.7 15.1 2.7 0.0
0.0 0.0 0.0
4. RECPT 4 * 0.2 0.9 0.5 17.0 3.0 0.0 0.0 0.0 0.2 5.5 7.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
10.3 20.5 0.0 0.0 4.8 25.2 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 24.7 8.7 12.9 6.3 0.0
0.0 0.0 0.0
5. RECPT 5 * 0.7 0.8 0.2 9.8 8.8 0.0 0.0 0.0 2.0 7.8 3.2 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
8.4 6.0 0.0 0.0 2.9 15.1 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 35.8 6.3 11.8 9.3 0.0
0.0 0.0 0.0
6. RECPT 6 * 0.4 0.8 0.3 12.2 5.7 0.0 0.0 0.0 1.0 6.6 4.8 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
7.6 6.5 0.0 0.0 2.9 14.2 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 20.6 5.3 9.0 7.4 0.0
0.0 0.0 0.0
7. RECPT 7 * 0.3 0.7 0.4 13.2 4.0 0.0 0.0 0.0 0.5 5.2 5.7 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
5.3 9.7 0.0 0.0 5.3 12.0 0.3 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 9.3 5.9 8.2 4.2 0.0
0.0 0.0 0.0
8. RECPT 8 * 0.3 0.8 0.4 13.1 4.7 0.0 0.0 0.0 0.7 5.6 5.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
3.3 14.2 0.0 0.0 8.2 9.7 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.6 7.4 9.4 2.4 0.0
0.0 0.0 0.0
9. RECPT 9 * 0.4 0.8 0.3 12.9 5.7 0.0 0.0 0.0 0.9 6.3 5.2 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
2.1 19.7 0.0 0.0 11.9 7.5 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.1 8.8 10.7 1.3 0.0
0.0 0.0 0.0
10. RECPT 10 * 0.4 0.8 0.4 13.1 6.4 0.0 0.0 0.0 1.0 6.3 5.3 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 44.4 0.0 0.0 27.0 1.5 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.2 8.8 0.1 0.0
0.0 0.0 0.0
11. RECPT 11 * 0.4 0.8 0.4 13.5 6.4 0.0 0.0 0.0 0.9 6.5 5.6 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 45.0 0.0 0.0 26.4 1.9 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 8.1 9.7 0.1 0.0
0.0 0.0 0.0
12. RECPT 12 * 0.4 0.8 0.3 12.6 5.6 0.0 0.0 0.0 0.9 6.1 5.1 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
2.1 17.6 0.0 0.0 10.7 7.4 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.3 8.2 10.1 1.4 0.0
0.0 0.0 0.0
13. RECPT 13 * 0.3 0.7 0.4 12.5 4.6 0.0 0.0 0.0 0.7 5.4 5.3 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
3.9 10.6 0.0 0.0 6.6 9.8 0.3 0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0 0.0 0.0 0.0 6.7 6.3 8.4 3.0 0.0
0.0 0.0 0.0
14. RECPT 14 * 0.4 0.6 0.3 9.8 5.7 0.0 0.0 0.0 1.3 5.2 4.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
2.5 8.9 0.0 0.0 6.7 6.0 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 3.8 5.4 7.1 2.0 0.0
0.0 0.0 0.0
15. RECPT 15 * 0.5 0.6 0.2 9.0 6.3 0.0 0.0 0.0 1.7 5.2 3.7 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
1.7 10.0 0.0 0.0 7.8 4.4 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.4 5.6 7.0 1.3 0.0
0.0 0.0 0.0
16. RECPT 16 * 0.5 0.5 0.2 8.1 6.8 0.1 0.0 0.0 2.0 4.9 3.3 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.9 11.4 0.0 0.0 9.3 2.7 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.0 5.1 6.4 0.6 0.0
0.0 0.0 0.0
17. RECPT 17 * 0.5 0.5 0.2 7.5 7.3 0.1 0.0 0.0 2.4 4.8 3.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.7 11.7 0.0 0.0 10.0 2.0 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.7 4.9 6.0 0.4 0.0
0.0 0.0 0.0
18. RECPT 18 * 0.6 0.5 0.2 7.6 7.8 0.2 0.0 0.0 2.6 4.9 3.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.3 16.0 0.0 0.0 13.5 1.1 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 4.6 5.6 0.2 0.0
0.0 0.0 0.0
19. RECPT 19 * 0.6 0.5 0.2 7.1 8.6 0.2 0.0 0.1 3.1 5.0 2.8 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 18.0 0.0 0.0 15.3 0.7 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 4.6 5.6 0.1 0.0
0.0 0.0 0.0
20. RECPT 20 * 0.6 0.5 0.2 7.6 8.5 0.2 0.0 0.0 2.8 5.1 3.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 20.6 0.0 0.0 17.2 0.7 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 4.5 5.6 0.1 0.0
0.0 0.0 0.0
21. RECPT 21 * 0.6 0.6 0.2 8.4 8.3 0.1 0.0 0.0 2.6 5.3 3.4 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.1 30.2 0.0 0.0 22.6 0.5 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 4.5 5.6 0.0 0.0
0.0 0.0 0.0
22. RECPT 22 * 0.6 0.6 0.2 8.4 8.8 0.1 0.0 0.0 2.7 5.6 3.4 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.1 37.6 0.0 0.0 25.9 0.4 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.6 5.8 0.0 0.0
0.0 0.0 0.0
23. RECPT 23 * 0.5 0.6 0.3 10.2 7.2 0.0 0.0 0.0 1.8 5.6 4.1 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 33.3 0.0 0.0 23.8 0.9 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 5.1 6.4 0.1 0.0
0.0 0.0 0.0
24. RECPT 24 * 0.5 0.7 0.3 10.3 7.9 0.0 0.0 0.0 2.0 6.1 4.1 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.1 34.3 0.0 0.0 24.0 0.8 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.7 7.1 0.1 0.0
0.0 0.0 0.0
25. RECPT 25 * 0.5 0.7 0.3 11.2 7.2 0.0 0.0 0.0 1.6 6.1 4.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.2 35.4 0.0 0.0 24.3 1.0 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 6.0 7.5 0.1 0.0
0.0 0.0 0.0

1
RUN ENDED ON ' AT ò hx

Scenario II - 1/F (6.1m above Ground Level)
Sample CALINE4 Input File

```
Hing Wah St (Scenario II) - above 6.1m ground level, 1/F
4Nitrogen Dioxide
 200.0000  1.0000   .0000   .0000 25 59  1.0000 0 0 0
833729.7 821803.1 6.1
833719.9 821811.5 6.1
833709.7 821820.1 6.1
833709.0 821827.8 6.1
833725.8 821847.2 6.1
833737.8 821843.8 6.1
833753.0 821830.9 6.1
833752.8 821822.0 6.1
833746.8 821815.2 6.1
833756.5 821777.5 6.1
833746.5 821785.9 6.1
833752.9 821816.0 6.1
833761.5 821827.2 6.1
833800.9 821826.5 6.1
833811.8 821817.0 6.1
833834.1 821796.9 6.1
833845.1 821786.5 6.1
833844.3 821755.9 6.1
833838.7 821749.7 6.1
833833.8 821742.8 6.1
833823.1 821732.2 6.1
833814.4 821731.5 6.1
833801.9 821747.0 6.1
833787.5 821758.3 6.1
833779.2 821764.5 6.1
 1 833471.9 821860.4 833522.0 821801.6 0.0  7.0 0.00 0.00 0
 1 833522.0 821801.6 833542.5 821754.6 0.0  7.0 0.00 0.00 0
 1 833542.5 821754.6 833557.3 821690.1 0.0 10.0 0.00 0.00 0
 1 833557.3 821690.1 833586.0 821619.9 0.0  6.3 0.00 0.00 0
 1 833586.0 821619.9 833610.7 821591.0 0.0  6.3 0.00 0.00 0
 1 833608.6 821587.6 833568.0 821610.9 0.0 10.0 0.00 0.00 0
 1 833568.0 821610.9 833551.3 821643.6 0.0 13.0 0.00 0.00 0
 1 833551.3 821643.6 833541.1 821672.9 0.0  9.0 0.00 0.00 0
 1 833541.1 821672.9 833516.7 821766.0 0.0  9.0 0.00 0.00 0
 1 833516.7 821766.0 833489.6 821819.0 0.0  9.0 0.00 0.00 0
 1 833489.6 821819.0 833461.3 821842.7 0.0  9.0 0.00 0.00 0
 1 833460.8 821860.2 833528.8 821778.0 0.0 10.3 0.00 0.00 0
 1 833528.8 821778.0 833559.0 821664.2 0.0 10.3 0.00 0.00 0
 1 833559.0 821664.2 833582.0 821619.1 0.0 10.3 0.00 0.00 0
 1 833582.0 821619.1 833601.4 821595.1 0.0 10.3 0.00 0.00 0
 1 833588.3 821594.3 833553.8 821648.6 0.0 10.3 0.00 0.00 0
 1 833553.8 821648.6 833528.0 821737.2 0.0 10.3 0.00 0.00 0
 1 833528.0 821737.2 833504.2 821800.8 0.0 10.3 0.00 0.00 0
 1 833504.2 821800.8 833461.1 821845.7 0.0 10.3 0.00 0.00 0
 1 834070.8 821873.9 834055.7 821855.5 0.0  3.8 0.00 0.00 0
 1 834055.7 821855.5 834016.4 821810.2 0.0  9.0 0.00 0.00 0
 1 834016.4 821810.2 833934.6 821722.6 0.0  9.0 0.00 0.00 0
 1 833934.6 821722.6 833868.8 821650.3 0.0  9.0 0.00 0.00 0
 1 833864.1 821654.8 833929.4 821726.4 0.0  9.0 0.00 0.00 0
 1 833929.4 821726.4 834051.1 821858.9 0.0  9.0 0.00 0.00 0
 1 834051.1 821858.9 834067.7 821876.0 0.0  3.8 0.00 0.00 0
 1 833799.7 822132.4 833891.0 822052.7 0.0 13.0 0.00 0.00 0
 1 833891.0 822052.7 834143.1 821830.8 0.0 13.0 0.00 0.00 0
 1 834132.3 821819.1 834068.8 821874.1 0.0 13.0 0.00 0.00 0
 1 834068.8 821874.1 833881.0 822041.8 0.0 13.0 0.00 0.00 0
 1 833881.0 822041.8 833790.2 822123.1 0.0 13.0 0.00 0.00 0
 1 833571.1 821907.7 833611.6 821888.5 0.0 10.0 0.00 0.00 0
 1 833611.6 821888.5 833681.8 821827.6 0.0 10.0 0.00 0.00 0
 1 833681.8 821827.6 833870.9 821657.8 0.0 10.0 0.00 0.00 0
 1 833870.9 821657.8 833925.4 821610.5 0.0 10.0 0.00 0.00 0
 1 833908.3 821608.4 833863.3 821648.4 0.0 10.0 0.00 0.00 0
 1 833863.3 821648.4 833672.1 821816.8 0.0 10.0 0.00 0.00 0
 1 833672.1 821816.8 833601.4 821878.0 0.0 10.0 0.00 0.00 0
 1 833601.4 821878.0 833567.3 821891.9 0.0 10.0 0.00 0.00 0
 1 833751.3 821891.3 833789.9 821857.0 0.0  5.2 0.00 0.00 0
 1 833789.9 821857.0 833933.2 821726.7 0.0  5.2 0.00 0.00 0
 1 833930.4 821722.7 833785.3 821852.2 0.0  5.2 0.00 0.00 0
 1 833785.3 821852.2 833746.3 821886.8 0.0  5.2 0.00 0.00 0
 1 833831.4 821976.9 833972.9 821852.1 0.0  5.2 0.00 0.00 0
 1 833972.9 821852.1 834014.8 821814.3 0.0  5.2 0.00 0.00 0
 1 834013.6 821808.4 833965.9 821850.1 0.0  5.2 0.00 0.00 0
```

```
 1 833965.9 821850.1 833827.7 821973.6 0.0  5.2 0.00 0.00 0
 1 834033.0 822189.3 833969.0 822124.5 0.0 10.3 0.00 0.00 0
 1 833969.0 822124.5 833891.6 822041.9 0.0 15.0 0.00 0.00 0
 1 833891.6 822041.9 833828.0 821973.6 0.0 10.3 0.00 0.00 0
 1 833828.0 821973.6 833748.5 821888.4 0.0 10.3 0.00 0.00 0
 1 833748.5 821888.4 833682.0 821822.8 0.0 10.3 0.00 0.00 0
 1 833682.0 821822.8 833549.8 821690.9 0.0  3.5 0.00 0.00 0
 1 833548.4 821696.1 833665.2 821827.0 0.0  7.0 0.00 0.00 0
 1 833665.2 821827.0 833738.9 821898.0 0.0 10.3 0.00 0.00 0
 1 833738.9 821898.0 833818.1 821982.1 0.0 10.3 0.00 0.00 0
 1 833818.1 821982.1 833880.0 822052.0 0.0 10.3 0.00 0.00 0
 1 833880.0 822052.0 833899.2 822072.9 0.0  6.9 0.00 0.00 0
 1 833899.2 822072.9 834018.5 822201.1 0.0  9.5 0.00 0.00 0
311111NO2
390
390
390
960
960
400
400
400
180
180
180
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3900
3900
3900
3100
3100
3100
3100
190
190
220
260
270
270
270
2080
2180
1590
1680
2090
580
580
790
830
1170
1010
900
900
30
90
50
50
50
120
60
40
1220
1220
990
960
900
890
850
610
640
680
410
410
1.0418
1.0418
1.0418
1.1504
1.1504
```

1.4938
1.4938
1.4938
1.6759
1.6759
1.6759
1.1154
1.1154
1.1154
1.1154
1.0453
1.0453
1.0453
1.0453
0.7125
0.7125
0.7826
0.8702
0.9052
0.8877
0.8877
1.1504
1.168
1.2205
1.2205
1.2731
1.3957
1.3957
1.3256
1.0979
1.1855
1.0979
1.6409
1.6409
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
0.6775
1.2205
1.2205
0.8527
0.9928
1.1329
1.203
1.2906
1.1329
0.9928
0.8527
0.9402
0.9402
0.00 1.00 4 500.00 18.00 0.00 25.000

Scenario II - 1/F (6.1m above Ground Level)
Sample CALINE4 Output File

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
    JUNE 1989 VERSION
    PAGE  1

  JOB: Hing Wah St (Scenario II) - above 6.1m ground level
  RUN: 1NO2          (WORST CASE ANGLE)
 POLLUTANT: Nitrogen Dioxide
 (NOTE: OUTPUT IN MICRO-GRAMS/METER**3. IGNORE PPM LABEL)

I. SITE VARIABLES

  U=  1.0 M/S        Z0= 200. CM        ALT=    0. (M)
  BRG= WORST CASE        VD=  0.0 CM/S
 CLAS=   4 (D)       VS=  0.0 CM/S
 MIXH=  500. M        AMB=  0.0 PPM
SIGTH=  18. DEGREES    TEMP= 25.0 DEGREE (C)


II. LINK VARIABLES

  LINK     * LINK COORDINATES (M)  *          EF    H    W
 DESCRIPTION *  X1   Y1   X2   Y2  * TYPE  VPH  (G/MI)  (M)  (M)
----------------*----------------------*---------------------------
AA. LINK AA  * ***** ***** ***** ***** * AG   390  1.0  0.0  7.0
AB. LINK AB  * ***** ***** ***** ***** * AG   390  1.0  0.0  7.0
AC. LINK AC  * ***** ***** ***** ***** * AG   390  1.0  0.0  10.0
AD. LINK AD  * ***** ***** ***** ***** * AG   960  1.2  0.0  6.3
AE. LINK AE  * ***** ***** ***** ***** * AG   960  1.2  0.0  6.3
AF. LINK AF  * ***** ***** ***** ***** * AG   400  1.5  0.0  10.0
AG. LINK AG  * ***** ***** ***** ***** * AG   400  1.5  0.0  13.0
AH. LINK AH  * ***** ***** ***** ***** * AG   400  1.5  0.0  9.0
AI. LINK AI  * ***** ***** ***** ***** * AG   180  1.7  0.0  9.0
AJ. LINK AJ  * ***** ***** ***** ***** * AG   180  1.7  0.0  9.0
AK. LINK AK  * ***** ***** ***** ***** * AG   180  1.7  0.0  9.0
AL. LINK AL  * ***** ***** ***** ***** * AG  3900  1.1  0.0  10.3
AM. LINK AM  * ***** ***** ***** ***** * AG  3900  1.1  0.0  10.3
AN. LINK AN  * ***** ***** ***** ***** * AG  3900  1.1  0.0  10.3
AO. LINK AO  * ***** ***** ***** ***** * AG  3900  1.1  0.0  10.3
AP. LINK AP  * ***** ***** ***** ***** * AG  3100  1.0  0.0  10.3
AQ. LINK AQ  * ***** ***** ***** ***** * AG  3100  1.0  0.0  10.3
AR. LINK AR  * ***** ***** ***** ***** * AG  3100  1.0  0.0  10.3
AS. LINK AS  * ***** ***** ***** ***** * AG  3100  1.0  0.0  10.3
AT. LINK AT  * ***** ***** ***** ***** * AG   190  0.7  0.0  3.8
AU. LINK AU  * ***** ***** ***** ***** * AG   190  0.7  0.0  9.0
AV. LINK AV  * ***** ***** ***** ***** * AG   220  0.8  0.0  9.0
AW. LINK AW  * ***** ***** ***** ***** * AG   260  0.9  0.0  9.0
AX. LINK AX  * ***** ***** ***** ***** * AG   270  0.9  0.0  9.0
AY. LINK AY  * ***** ***** ***** ***** * AG   270  0.9  0.0  9.0
AZ. LINK AZ  * ***** ***** ***** ***** * AG   270  0.9  0.0  3.8
BA. LINK BA  * ***** ***** ***** ***** * AG  2080  1.2  0.0  13.0
BB. LINK BB  * ***** ***** ***** ***** * AG  2180  1.2  0.0  13.0
BC. LINK BC  * ***** ***** ***** ***** * AG  1590  1.2  0.0  13.0
BD. LINK BD  * ***** ***** ***** ***** * AG  1680  1.2  0.0  13.0
BE. LINK BE  * ***** ***** ***** ***** * AG  2090  1.3  0.0  13.0
BF. LINK BF  * ***** ***** ***** ***** * AG   580  1.4  0.0  10.0
BG. LINK BG  * ***** ***** ***** ***** * AG   580  1.4  0.0  10.0
BH. LINK BH  * ***** ***** ***** ***** * AG   790  1.3  0.0  10.0
BI. LINK BI  * ***** ***** ***** ***** * AG   830  1.1  0.0  10.0
BJ. LINK BJ  * ***** ***** ***** ***** * AG  1170  1.2  0.0  10.0
BK. LINK BK  * ***** ***** ***** ***** * AG  1010  1.1  0.0  10.0
BL. LINK BL  * ***** ***** ***** ***** * AG   900  1.6  0.0  10.0
BM. LINK BM  * ***** ***** ***** ***** * AG   900  1.6  0.0  10.0
BN. LINK BN  * ***** ***** ***** ***** * AG    30  0.7  0.0  5.2
BO. LINK BO  * ***** ***** ***** ***** * AG    90  0.7  0.0  5.2
BP. LINK BP  * ***** ***** ***** ***** * AG    50  0.7  0.0  5.2
BQ. LINK BQ  * ***** ***** ***** ***** * AG    50  0.7  0.0  5.2
BR. LINK BR  * ***** ***** ***** ***** * AG    50  0.7  0.0  5.2
BS. LINK BS  * ***** ***** ***** ***** * AG   120  0.7  0.0  5.2
BT. LINK BT  * ***** ***** ***** ***** * AG    60  0.7  0.0  5.2
BU. LINK BU  * ***** ***** ***** ***** * AG    40  0.7  0.0  5.2
BV. LINK BV  * ***** ***** ***** ***** * AG  1220  1.2  0.0  10.3
BW. LINK BW  * ***** ***** ***** ***** * AG  1220  1.2  0.0  15.0
BX. LINK BX  * ***** ***** ***** ***** * AG   990  0.9  0.0  10.3
BY. LINK BY  * ***** ***** ***** ***** * AG   960  1.0  0.0  10.3
```

BZ. LINK BZ	• ••••• ••••• ••••• ••••• •	AG	900	1.1	0.0	10.3
CA. LINK CA	• ••••• ••••• ••••• ••••• •	AG	890	1.2	0.0	3.5
CB. LINK CB	• ••••• ••••• ••••• ••••• •	AG	850	1.3	0.0	7.0
CC. LINK CC	• ••••• ••••• ••••• ••••• •	AG	610	1.1	0.0	10.3
CD. LINK CD	• ••••• ••••• ••••• ••••• •	AG	640	1.0	0.0	10.3
CE. LINK CE	• ••••• ••••• ••••• ••••• •	AG	680	0.9	0.0	10.3
CF. LINK CF	• ••••• ••••• ••••• ••••• •	AG	410	0.9	0.0	6.9
CG. LINK CG	• ••••• ••••• ••••• ••••• •	AG	410	0.9	0.0	9.5

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. RECPT 1	833730	821803	6.1
2. RECPT 2	833720	821812	6.1
3. RECPT 3	833710	821820	6.1
4. RECPT 4	833709	821828	6.1
5. RECPT 5	833726	821847	6.1
6. RECPT 6	833738	821844	6.1
7. RECPT 7	833753	821831	6.1
8. RECPT 8	833753	821822	6.1
9. RECPT 9	833747	821815	6.1
10. RECPT 10	833757	821778	6.1
11. RECPT 11	833747	821786	6.1
12. RECPT 12	833753	821816	6.1
13. RECPT 13	833762	821827	6.1
14. RECPT 14	833801	821827	6.1
15. RECPT 15	833812	821817	6.1
16. RECPT 16	833834	821797	6.1
17. RECPT 17	833845	821787	6.1
18. RECPT 18	833844	821756	6.1
19. RECPT 19	833839	821750	6.1
20. RECPT 20	833834	821743	6.1
21. RECPT 21	833823	821732	6.1
22. RECPT 22	833814	821732	6.1
23. RECPT 23	833802	821747	6.1
24. RECPT 24	833788	821758	6.1
25. RECPT 25	833779	821765	6.1

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) AA	AB	AC	AD	AE	AF	AG	AH
1. RECPT 1	272.	100.7	1.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0
2. RECPT 2	271.	105.2	1.4	0.7	0.1	0.0	0.0	0.0	0.0	0.0
3. RECPT 3	266.	111.9	1.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0
4. RECPT 4	258.	114.9	0.8	1.1	0.3	0.0	0.0	0.0	0.0	0.0
5. RECPT 5	245.	110.1	0.2	0.9	0.9	0.1	0.0	0.0	0.0	0.1
6. RECPT 6	251.	97.2	0.5	0.9	0.6	0.1	0.0	0.0	0.0	0.0
7. RECPT 7	260.	86.0	0.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0
8. RECPT 8	265.	86.9	1.0	0.8	0.2	0.0	0.0	0.0	0.0	0.0
9. RECPT 9	265.	91.3	0.9	0.9	0.3	0.0	0.0	0.0	0.0	0.0
10. RECPT 10	277.	96.3	1.1	0.8	0.2	0.0	0.0	0.0	0.0	0.0
11. RECPT 11	276.	97.6	1.2	0.8	0.2	0.0	0.0	0.0	0.0	0.0
12. RECPT 12	265.	87.8	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
13. RECPT 13	263.	82.4	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
14. RECPT 14	262.	69.3	0.7	0.7	0.4	0.0	0.0	0.0	0.0	0.0
15. RECPT 15	264.	67.2	0.6	0.7	0.4	0.0	0.0	0.0	0.0	0.0
16. RECPT 16	267.	64.0	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0
17. RECPT 17	268.	62.9	0.5	0.6	0.5	0.1	0.0	0.0	0.0	0.0
18. RECPT 18	273.	67.9	0.5	0.6	0.6	0.2	0.0	0.0	0.0	0.0
19. RECPT 19	273.	71.1	0.5	0.6	0.6	0.2	0.0	0.0	0.0	0.1
20. RECPT 20	277.	74.8	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0
21. RECPT 21	279.	85.2	0.6	0.7	0.6	0.1	0.0	0.0	0.0	0.0
22. RECPT 22	284.	90.7	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.0
23. RECPT 23	279.	89.0	0.8	0.7	0.4	0.0	0.0	0.0	0.0	0.0
24. RECPT 24	277.	90.6	0.8	0.8	0.4	0.0	0.0	0.0	0.0	0.0
25. RECPT 25	276.	92.0	0.8	0.8	0.4	0.0	0.0	0.0	0.0	0.0

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•------CONC/LINK
•
•   --
•--------(PPM)
RECEPTOR • AI AJ AK AL AM AN AO AP AQ AR AS AT
AU AV AW AX AY AZ BA BB BC BD BE BF
BG BH BI BJ BK BL BM BN BO BP BQ BR
BS BT BU BV BW BX BY BZ CA CB CC CD
CE CF CG
------------•---
------------•------------------ Æq•NS@üùõZ£I@fs Àt‹P@œ ' nøR@ï¶ ‰-þB@öNÎ `g
------------•G@:5á³Õ˙B@ ,þ²,ù>@U³˙ Ë X@8ç Ö6ÁM@éN™þ uB@ëN ø˙Z@#ÞõÁÝo]@6Û à
------------•KI@˜• 9Ø>@
Û-cý P@˙Ê3 × W@˙ ûnØûP@ •Dñ O@wA U•Ì7@éêw¾þM@þ«Ý
------------•¹ò]
1. RECPT 1 • 0.2 0.8 0.5 15.7 3.5 0.0 0.0 0.0 0.3 5.1 6.9 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
0.8 20.2 0.0 0.0 16.2 6.5 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.7 9.7 10.9 0.5 0.0
0.0 0.0 0.0
2. RECPT 2 • 0.1 0.8 0.5 16.5 2.8 0.0 0.0 0.0 0.2 4.8 7.4 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
1.7 18.5 0.0 0.0 12.5 11.2 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0 10.9 11.7 1.1 0.0
0.0 0.0 0.0
3. RECPT 3 • 0.2 0.9 0.5 16.6 3.6 0.0 0.0 0.0 0.3 6.0 7.1 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
2.7 14.9 0.0 0.0 8.5 15.7 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.4 12.8 13.8 1.7 0.0
0.0 0.0 0.0
4. RECPT 4 • 0.5 0.9 0.3 13.1 7.0 0.0 0.0 0.0 1.0 8.1 4.8 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
3.9 12.7 0.0 0.0 5.8 15.2 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 8.9 12.4 15.4 2.7 0.0
0.0 0.0 0.0
5. RECPT 5 • 1.0 0.5 0.1 5.4 12.5 0.1 0.0 0.0 4.3 7.2 1.3 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
5.1 6.8 0.0 0.0 4.4 10.5 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 19.0 10.1 14.7 4.9 0.0
0.0 0.0 0.0
6. RECPT 6 • 0.7 0.7 0.1 8.1 9.6 0.0 0.0 0.0 2.6 7.3 2.5 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
4.5 7.6 0.0 0.0 4.5 9.9 0.0 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 12.7 8.3 11.8 4.1 0.0
0.0 0.0 0.0
7. RECPT 7 • 0.4 0.7 0.3 11.3 6.2 0.0 0.0 0.0 1.2 6.4 4.4 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
3.4 9.8 0.0 0.0 6.0 8.6 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 6.0 7.2 9.4 2.5 0.0
0.0 0.0 0.0
8. RECPT 8 • 0.3 0.7 0.4 12.9 4.6 0.0 0.0 0.0 0.6 5.6 5.4 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
3.0 11.9 0.0 0.0 7.2 9.0 0.2 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.8 7.1 9.0 2.1 0.0
0.0 0.0 0.0
9. RECPT 9 • 0.4 0.8 0.3 12.7 5.6 0.0 0.0 0.0 0.8 6.3 5.2 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
1.8 15.6 0.0 0.0 10.3 6.9 0.1 0.0 0.0 0.0 0.0 0.0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.6 8.6 10.2 1.1 0.0
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10. RECPT 10 • 0.3 0.7 0.4 13.8 4.4 0.0 0.0 0.0 0.5 5.1 5.8 0.0
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11. RECPT 11 • 0.2 0.7 0.4 14.6 3.9 0.0 0.0 0.0 0.3 5.0 6.2 0.0
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12. RECPT 12 • 0.4 0.8 0.3 12.4 5.5 0.0 0.0 0.0 0.9 6.1 5.1 0.0
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13. RECPT 13 • 0.3 0.7 0.3 11.9 5.1 0.0 0.0 0.0 0.9 5.7 4.9 0.0
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14. RECPT 14 * 0.4 0.6 0.2 9.3 6.2 0.0 0.0 0.0 1.6 5.3 3.7 0.0
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15. RECPT 15 * 0.4 0.6 0.2 8.9 6.2 0.0 0.0 0.0 1.6 5.1 3.6 0.0
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16. RECPT 16 * 0.5 0.5 0.2 8.0 6.7 0.1 0.0 0.0 2.0 4.9 3.2 0.0
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17. RECPT 17 * 0.5 0.5 0.2 7.4 7.2 0.1 0.0 0.0 2.3 4.8 3.0 0.0
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18. RECPT 18 * 0.6 0.5 0.2 7.5 7.7 0.2 0.0 0.0 2.6 4.9 3.0 0.0
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19. RECPT 19 * 0.6 0.5 0.2 7.0 8.5 0.2 0.0 0.1 3.0 5.0 2.8 0.0
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20. RECPT 20 * 0.5 0.5 0.2 8.6 7.2 0.1 0.0 0.0 2.1 5.0 3.5 0.0
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21. RECPT 21 * 0.5 0.6 0.2 8.8 7.6 0.1 0.0 0.0 2.2 5.2 3.6 0.0
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22. RECPT 22 * 0.3 0.6 0.3 10.4 5.0 0.0 0.0 0.0 1.0 4.4 4.3 0.0
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23. RECPT 23 * 0.4 0.6 0.3 10.5 6.4 0.0 0.0 0.0 1.5 5.3 4.3 0.0
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24. RECPT 24 * 0.4 0.7 0.3 11.1 6.6 0.0 0.0 0.0 1.4 5.6 4.5 0.0
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25. RECPT 25 * 0.4 0.7 0.3 11.6 6.5 0.0 0.0 0.0 1.3 5.8 4.7 0.0
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APPENDIX C
EXAMPLE POLLUTION CONTROL CLAUSES

RECOMMENDED POLLUTION CONTROL CLAUSES FOR CONSTRUCTION CONTRACTS

The following Recommended Pollution Control Clauses are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby sensitive receivers. Some modifications may be necessary to suit specific site conditions.

1. AVOIDANCE OF NUISANCE & POLLUTION

(a) The Contractor shall take all reasonable precautions to avoid any nuisance arising from its operations. This should be accomplished where at all possible by suppression of the nuisance at source rather than abatement of the nuisance once generated.

(b) All works are to be carried out in such a manner as to cause as little inconvenience as possible to the Institute, and the Contractor shall be held responsible for any claims which may arise from such inconvenience.

(c) Water shall be used to prevent dust rising and the Contractor shall take every precaution to prevent the excavated materials from entering into the public drainage system.

(d) The Contractor shall carry out the Works in such a manner as to minimise adverse impacts on the environment during execution of the Works.

(f) The Contractor shall comply with all current legislation and regulations including:

a) Noise Control Ordinance (Cap 400)

b) Air Pollution Control Ordinance (Cap 311)

c) Environmental Impact Assessment Ordinance (Cap 499)

EXAMPLE MITIGATION MEASURES

Effective mitigation measures should be implemented to minimise noise and air quality impacts to the sensitive receivers throughout the construction phase.

The need for mitigation measures would be greatly reduced if the construction phase can be carried out in the dry season, to minimise exposure of top soil. Also, the impact will be reduced if construction is carried out section by section such that exposed soil surface can be covered as quickly as possible. Provided that implementation of the necessary mitigation measures are carried out, there should be minimal impact on the surroundings.