

**ANNEX D**

**AIR QUALITY IMPACT ASSESSMENT**

## **ANNEX D1**

### **Traffic Emission Assessment**

**Table D1 : Detail Traffic Data and Associated Traffic Emission Calculation**

**Whitehead & Lee On Development ENVIRONMENTAL ASSESSMENT (Year 2023 Traffic Flow)**

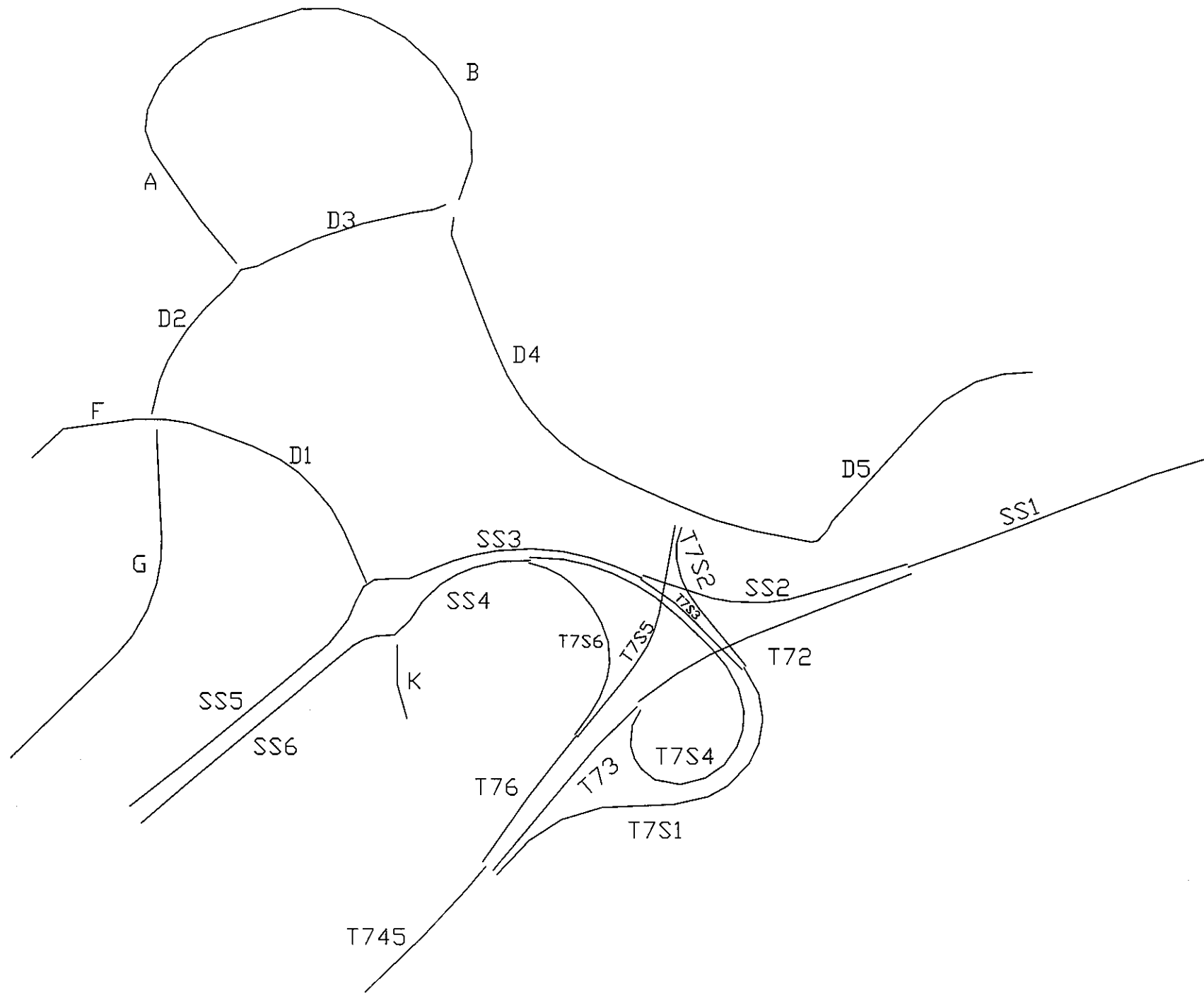
**Calculation of Emission Rates of all types of vehicles for CALINE4 Tony Cheng**

Based on EPD traffic control, MOBILE4 model's emission factor

Fleet Average Particulates Emission Factors, gm/km									
Year	Pc-p	Taxi	PuBus	PrBus	PuLB	LGV-dil	MGV	HGV	
2011	0.03	0.01	0.69	0.5	0.12	0.11	0.53	0.53	

Fleet Average NOx Emission Factors, gm/km									
Year	Pc-p	Taxi	PuBus	PrBus	PuLB	LGV-dil	MGV	HGV	
2011	0.71	0.73	6.8	5.54	1.54	1.23	3.84	3.84	

Road	% P.Car	% Taxi	% PuBus	% PrBus	% PuLB	% LGV	% Medium	% Heavy	RSP * gm/v-km	NOx * gm/v-km	Total Veh / hr
A	55.6	16.7	0.0	5.6	0.0	11.1	5.6	5.6	1.1722	13.8722	180
B	50.0	14.3	0.0	7.1	0.0	14.3	7.1	7.1	1.4357	15.7929	140
D3	60.9	13.0	4.3	2.2	2.2	10.9	2.2	4.3	1.0957	13.6109	460
D2	59.0	12.8	5.1	2.6	2.6	10.3	2.6	5.1	1.2231	14.6410	390
D4	64.3	16.3	0.0	2.3	0.0	10.1	2.3	4.7	0.8062	10.9636	1290
F	68.8	12.5	0.0	6.3	0.0	6.3	0.0	6.3	0.9313	12.4250	160
G	63.2	10.5	10.5	5.3	0.0	5.3	0.0	5.3	1.5263	17.9947	190
D1	55.6	13.3	6.7	2.2	6.7	8.9	2.2	4.4	1.2822	15.3622	450
D5	66.7	16.7	0.0	0.0	0.0	16.7	0.0	0.0	0.4000	8.0000	60
SS5	54.9	13.7	7.8	3.9	3.9	8.8	2.0	4.9	1.4235	16.7304	1020
SS6	55.9	14.0	8.6	3.2	3.2	8.6	2.2	4.3	1.4118	16.6591	930
K	56.6	10.9	11.6	2.3	3.9	7.8	2.3	4.7	1.6008	18.2349	1290
SS3	63.8	14.5	2.6	2.6	1.3	9.2	2.0	3.9	0.9500	12.4441	1520
SS4	63.2	13.6	3.2	2.4	1.6	9.6	2.4	4.0	1.0080	12.8704	1250
SS2	64.5	13.2	2.6	2.6	2.6	9.2	1.3	3.9	0.9316	12.3447	760
SS1	66.5	11.7	0.8	2.9	0.6	10.5	2.3	4.6	0.9040	11.8046	4780
T7S6	65.1	11.6	4.7	2.3	0.0	9.3	2.3	4.7	1.1163	13.7465	430
T7S5	60.9	13.0	0.0	6.5	0.0	6.5	6.5	6.5	1.2848	14.6978	460
T7S2	69.9	12.9	0.0	2.2	0.0	8.6	2.2	4.3	0.7667	10.6312	930
T7S1	66.7	13.8	1.1	2.3	0.6	9.2	2.3	4.0	0.8511	11.4425	1740
T73	68.1	10.6	0.0	3.0	0.0	10.9	2.4	4.9	0.8739	11.4416	3290
T7S4	61.6	15.1	2.7	2.7	1.4	9.6	2.7	4.1	1.0110	12.8781	730
T7S3	63.0	14.8	2.5	2.5	1.2	9.9	2.5	3.7	0.9481	12.3741	810
T76	62.9	12.4	2.2	4.5	0.0	7.9	4.5	5.6	1.2034	14.2382	890
T72	66.9	11.4	0.5	3.0	0.2	10.7	2.5	4.7	0.8988	11.7025	4020
T745	67.6	11.2	0.7	2.9	0.4	10.0	2.9	4.5	0.9071	11.7704	5610



**Table D2 : Predicted Air Pollutants Conc. at rASRs within Study Area from Traffic Emission**

ASR	Floor	NO <sub>2</sub> <sup>1</sup>		RSP <sup>2</sup>
		1hr	24hr	24hr
1	1	90.0	75.0	63.3
	6	82.5	70.4	61.8
	12	75.0	65.9	60.1
2	1	101.3	81.7	66.3
	3	101.3	81.7	66.7
3	1	93.8	77.2	64.6
	3	97.5	79.5	65.4
4	1	108.8	86.2	68.2
	4	112.6	88.5	68.7
	7	108.8	86.2	67.4
5	1	82.5	70.4	62.4
	3	82.5	70.4	61.9
6	1	86.2	72.7	62.8
	5	82.5	70.4	61.8
	10	75.0	65.9	60.1
	20	63.7	59.2	57.4
7	1	82.5	70.4	61.6
	5	75.0	65.9	60.6
	10	67.4	61.4	59.5
	20	63.7	59.2	57.4
	30	59.9	56.9	56.1
8	1	86.2	72.7	62.5
	5	78.7	68.2	61.4
	10	71.2	63.7	60.0
	20	63.7	59.2	57.5
9	1	93.8	77.2	64.6
	5	90.0	75.0	63.4
	10	75.0	65.9	60.7
	20	63.7	59.2	57.5
10	1	78.7	68.2	61.3
	5	71.2	63.7	59.9
	10	71.2	63.7	58.7
	20	63.7	59.2	57.2
11	1	82.5	70.4	62.0
	5	75.0	65.9	60.6
	10	71.2	63.7	59.3
	20	63.7	59.2	57.7
	30	59.9	56.9	56.6

ASR	Floor	NO <sub>2</sub> <sup>1</sup>		RSP <sup>2</sup>
		1hr	24hr	24hr
12	1	78.7	68.2	61.5
	5	75.0	65.9	60.5
	10	71.2	63.7	59.4
	20	63.7	59.2	57.6
	30	56.2	54.7	56.5
	37	56.2	54.7	56.0
13	1	78.7	68.2	61.8
	3	78.7	68.2	61.5
14	1	75.0	65.9	60.1
	3	71.2	63.7	59.9
15	1	78.7	68.2	61.5
	3	78.7	68.2	61.2
16	1	71.2	63.7	59.7
	3	71.2	63.7	59.7
17	1	75.0	65.9	60.2
	3	75.0	65.9	60.1
18	1	78.7	68.2	61.5
	5	78.7	68.2	60.4
	10	67.4	61.4	59.1
	20	63.7	59.2	57.2
	30	59.9	56.9	56.3
19	1	67.4	61.4	58.4
	5	67.4	61.4	58.0
	10	63.7	59.2	57.5
	20	59.9	56.9	56.8
20	1	67.4	61.4	57.9
	5	67.4	61.4	57.8
	10	63.7	59.2	57.5
21	1	63.7	59.2	58.2
22	1	63.7	59.2	58.2
23	1	63.7	59.2	58.2
	3	63.7	59.2	57.8
	7	59.9	56.9	57.5
24	1	63.7	59.2	58.2
	4	63.7	59.2	57.9
25	1	67.4	61.4	58.9
	3	67.4	61.4	58.5
26	1	78.7	68.2	60.6
	3	75.0	65.9	60.1
	6	71.2	63.7	59.1
27	1	67.4	61.4	58.6
	3	67.4	61.4	58.5
	6	67.4	61.4	58.3
28	1	75.0	65.9	59.7
	5	71.2	63.7	58.8
	10	67.4	61.4	58.0

ASR	Floor	NO <sub>2</sub> <sup>1</sup>		RSP <sup>2</sup>
		1hr	24hr	24hr
29	1	75.0	65.9	59.8
	5	82.5	70.4	61.6
	10	82.5	70.4	61.4
	20	75.0	65.9	60.0
	22	82.5	70.4	62.4
30	1	90.0	75.0	64.3
	3	86.2	72.7	63.3
31	1	120.1	93.0	71.4
	5	116.3	90.8	70.0
	10	108.8	86.2	68.3
	20	97.5	79.5	65.3
32	1	108.8	86.2	67.7
	5	97.5	79.5	65.0
	10	86.2	72.7	62.9

Note :

1 - NO<sub>2</sub> Background 52.4 µg/m<sup>3</sup> is included; 1 hr AQO is 300 µg/m<sup>3</sup>, 24hr AQO is 150 µg/m<sup>3</sup>

2 - RSP Background 55.0 µg/m<sup>3</sup> is included; 24 hr AQO is 180 µg/m<sup>3</sup>

**Annex D1 : Calculation of the Portal Emission Factors - Sunking Road at Road L1**

Traffic flow of the Road A - B

Veh	% P.Car	% Taxi	% PuBus	% PrBus	% PuLB	% LGV	% Medium	% Heavy
180	55.6	16.7	0	5.6	0	11.1	5.6	5.6

Emission Factors in 2011 (gm/km) supplied by the Vehicle Emission Control Section of EPD

	P.Car	Taxi	PuBus	PrBus	PuLB	LGV	Medium	Heavy
NOx	0.71	0.73	6.8	5.54	1.54	1.23	3.84	3.84
RSP	0.03	0.01	0.69	0.5	0.12	0.11	0.53	0.53

Emission Factor for NOx

Road g/km/veh  
A-B 1.39352

Emission Factor for RSP

g/km/veh  
0.11792

Portal Effect along Southern Decking

Length of the tunnel (km) = 0.08  
Half length of the tunnel (km) = 0.04  
Traffic flow (veh/hr) = 180

Emission Rate of NOx in tunnel = E.F. of the road \* traffic flow \* length of the tunnel  
= 1.39 \* 180 \* 0.04  
= 10.033344 g/hr  
= 0.00278704 g/s  
Emission Rate of RSP in tunnel = E.F. of the road \* traffic flow \* length of the tunnel  
= 0.11792 \* 180 \* 0.04  
= 0.849024 g/hr  
= 0.00023584 g/s

According to PIARC 91, pollutant is assumed to emit completely out of the tunnel and each portal emit half of the total mass. For each portal, 2/3 and 1/3 of the emitted mass are assumed to accumulate in the first and second 50m respectively

Therefore,

Emission Rate of NOx in the 1st 50m = Emission Rate of NOx \* 2/3  
6.688896 g/hr

Emission Rate of NOx in the 2nd 50m = Emission Rate of NOx \* 1/3  
3.344448 g/hr

Assume 20% of NOx will be converted to NO2

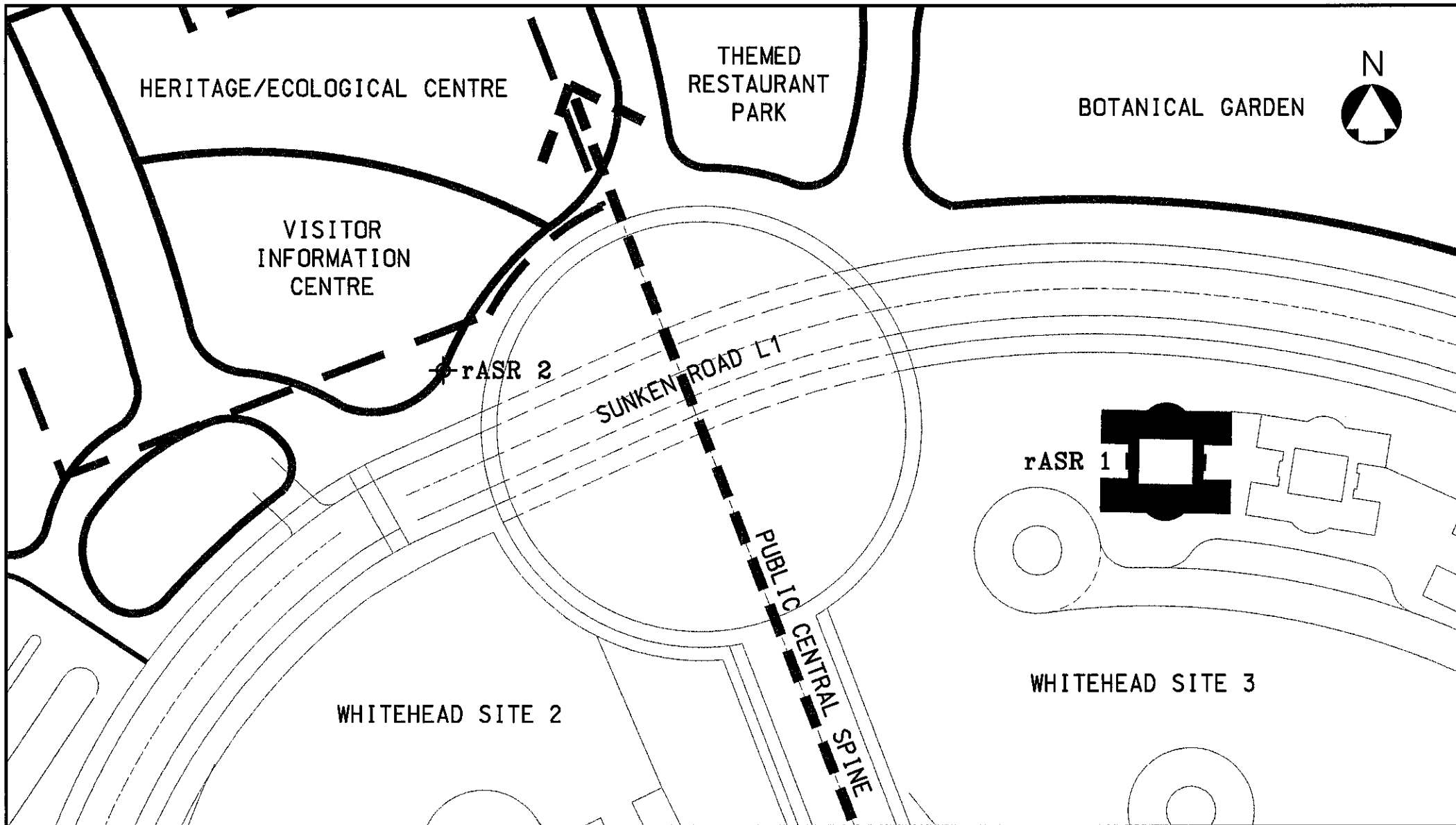
NOx emission rate of the 1st 50m = 0.001858027 g/s  
NO2 emission rate of the 1st 50m 0.00037161 g/s

NOx emission rate of the 2nd 50m = 0.000929013 g/s  
NO2 emission rate of the 2nd 50m 0.00018580 g/s

Emission Rate of RSP in the 1st 50m = Emission Rate of RSP \* 2/3  
0.566016 g/hr

Emission Rate of RSP in the 2nd 50m = Emission Rate of RSP \* 1/3  
0.283008 g/hr

RSP emission rate of the 1st 50m = 0.000157227 g/s  
RSP emission rate of the 2nd 50m = 7.86133E-05 g/s



AGREEMENT NO. CE 16/99  
 FEASIBILITY STUDY FOR HOUSING  
 DEVELOPMENT AT WHITEHEAD AND  
 LEE ON IN MA ON SHAN, SHATIN

Title :

LOCATIONS OF PORTAL EMISSION rASR

Figure No. D1	Revision -
Reference -	File Name 3820950206-80.DGN
Prepared MC	Checked YWL
Date JUN. 2002	Scale N.T.S.



Binnie Black & Veatch Hong Kong Limited  
 博威工程顧問有限公司  
 Engineers and Scientists

**ANNEX D2**  
**Industrial Emission Assessment**



**Table D3**

**Predicted Cumulative Pollutant Conc. at rASR within the Study Area from Portal Emission, Traffic Emission and Industrial Emission**

rASR	Floor	NO <sub>2</sub> <sup>1</sup>								RSP <sup>2</sup>		
		1 Hour				Daily				Daily		
		Traffic	Portal	Industrial	Total	Traffic	Portal	Industrial	Total	Traffic	Portal	Total
1	1	7.52	3.04	21.07	84.03	4.51	0.54	1.77	59.22	1.86	0.23	57.09
	3	22.56	0.69	22.10	97.75	13.54	0.05	1.85	67.84	5.08	0.02	60.10
2	1	18.80	4.37	21.60	97.17	11.28	1.38	1.83	66.88	4.75	0.58	60.33

Note :  
 1 - NO<sub>2</sub> Background 52.4 µg/m<sup>3</sup> is included; 1 hr AQO is 300 µg/m<sup>3</sup>, 24hr AQO is 150 µg/m<sup>3</sup>  
 2 - RSP Background 55.0 µg/m<sup>3</sup> is included; 24 hr AQO is 180 µg/m<sup>3</sup>

Table D4 Chimney Data for Study Area

NUM	CHIM_GX	CHIM_GY	HEIGHT_TAG	TOPD_IA	GTEMP_EXIT	GO_MRATE	PG_MRATE	TG_MRATE	MAX_NA	REMARKS
1	835050	834750	25	200		39				
2	835120	835160	67.1	370	194.6	178				
3	835140	834390	79	406		N.A.				
4	835170	834070		150			68			
5	835170	834070		150		N.A.				
6	835230	835210	77.8	175		39				
7	836100	835460	76.8	600		818				
8	836100	835460	76.8	600		818				
9	836610	835490	44	660		508				
10	836785	835003	25.9	1220					960	
11	836800	835035	41.4	1700					6642	
12	836820	835003	25.9	1220					1043	
13	836834	834995	13.4	880			45166			
14	836840	835500	16.5	356		178				
15	836840	835500	18.4	356		178				
16	836845	834970	5.3	100		35				
17	836845	834986	5.3	100		35				
18	836853	834970	5.3	100		35				
19	836853	834986	5.3	100		35				
20	836882	835003	25.9	1220					960	
21	836900	835035	41.4	1700					6642	
22	836902	835112	40.8	1020					1680	
23	836916	835003	25.9	1220					1043	
24	836922	835067	25.3	712					236	
25	836922	835100	25.3	712					244	
26	836935	835112	40.8	1020					1680	
27	836953	835067	25.3	712					236	
28	836953	835100	25.3	762					244	
29	836970	835260	27.1	313		69				
30	836984	835067	3.1	125		62				
31	836992	835067	3.1	125		62				
32	837000	835230	26.9	290	188	N.A.				
33	837011	835112	40.8	1020					1680	
34	837015	834995	4.6	100		100				
35	837026	835067	25.3	712					236	
36	837026	835100	25.3	712					244	
37	837040	835260	27	560	182	558				
38	837043	835112	40.8	1020					1680	
39	837060	835067	25.3	712					236	
40	837060	835100	25.3	762					244	
41	837140	835690	41	950	151	420				
42	837150	835660	43.3	470		162				NOC
43	837180	835610	45.7	545		676				
44	837180	835625	12	200			N.A.			
45	837240	835670	33.7	300		110				
46	837240	835670	33.7	700		83				
47	837270	835830	33.5	370		178				
48	837320	835600	51.2	660		818				
49	837390	835030	41.4	640	175	558				
50	837410	835200	17	454	204	287				
51	837520	835830	30.9	950		899				NOC
52	837530	835480	27	500		315				
53	837620	835480	39.3	650	205	614				
54	837620	835690	37.8	1000		1448				ALA
55	837630	835680	37.8	1000		989				ALA
56	837630	835690	37.8	820		743				ALA
57	837640	835640	33	500		196				ALA
58	837640	835640	33	500			VSM			ALA
59	837820	835090	25.2	660		818				
60	839350	830510	9.2	360			32			
61	839350	830510	8	200			VSM			
62	845620	826810	19	254		62				
63	845990	827270	13.83	310	160	134				
64	846000	826970	3	243			VSM			
65	846000	826970	3	243		52				

**Table D5 Emission Rate for Chimneys with Diesel Combustion**

Chimney No.	Easting	Northing	Height (m)	Diameter (mm)	Temperature (K)	Efflux Velocity (m/s)	SO2 g/s	NO2 g/s
1	835050	834750	25	200	413	6.0118	0.0888	0.0052
2	835120	835160	67.1	370	468	9.0769	0.4054	0.0237
6	835230	835210	77.8	175	413	7.8521	0.0888	0.0052
7	836100	835460	76.8	600	413	14.0103	1.8632	0.1091
8	836100	835460	76.8	600	413	14.0103	1.8632	0.1091
9	836610	835490	44	660	413	7.1907	1.1571	0.0677
14	836840	835500	16.5	356	413	8.6600	0.4054	0.0237
15	836840	835500	18.4	356	413	8.6600	0.4054	0.0237
16	836845	834970	5.3	100	413	21.5807	0.0797	0.0047
17	836845	834986	5.3	100	413	21.5807	0.0797	0.0047
18	836853	834970	5.3	100	413	21.5807	0.0797	0.0047
19	836853	834986	5.3	100	413	21.5807	0.0797	0.0047
29	836970	835260	27.1	313	413	4.3427	0.1572	0.0092
30	836984	835067	3.1	125	413	24.4664	0.1412	0.0083
31	836992	835067	3.1	125	413	24.4664	0.1412	0.0083
34	837015	834995	4.6	100	413	61.6592	0.2278	0.0133
37	837040	835260	27	560	455	12.0870	1.2710	0.0744
41	837140	835690	41	950	424	2.9459	0.9567	0.0560
42	837150	835660	43.3	470	413	4.5219	0.3690	0.0216
43	837180	835610	45.7	545	413	14.0330	1.5398	0.0901
45	837240	835670	33.7	300	413	7.5361	0.2506	0.0147
46	837240	835670	33.7	700	413	1.0444	0.1891	0.0111
47	837270	835830	33.5	370	413	8.0170	0.4054	0.0237
48	837320	835600	51.2	660	413	11.5788	1.8632	0.1091
49	837390	835030	41.4	640	448	9.1117	1.2710	0.0744
50	837410	835200	17	454	477	9.9160	0.6537	0.0383
51	837520	835830	30.9	950	413	6.1420	2.0477	0.1199
52	837530	835480	27	500	413	7.7691	0.7175	0.0420
53	837620	835480	39.3	650	478	10.3709	1.3986	0.0819
54	837620	835690	37.8	1000	413	8.9283	3.2982	0.1931
55	837630	835680	37.8	1000	413	6.0981	2.2527	0.1319
56	837630	835690	37.8	820	413	6.8133	1.6924	0.0991
57	837640	835640	33	500	413	4.8341	0.4464	0.0261
59	837820	835090	25.2	660	413	11.5788	1.8632	0.1091
62	845620	826810	19	254	413	5.9255	0.1412	0.0083
63	845990	827270	13.83	310	433	9.0140	0.3052	0.0179
65	846000	826970	3	243	413	5.4299	0.1184	0.0069

**Table D6 Emission Rate for Chimneys with Naphtha Consumption**

Chimney No.	Easting	Northing	Height (m)	Diameter (mm)	Temperature (K) <sup>a</sup>	Efflux Velocity (m/s) <sup>a</sup>	NOx kg/hr <sup>a</sup>	NO2 g/s
10	836785	835003	25.9	1220	663	8.4560	4.000	0.3333
11	836800	835035	41.4	1700	393	16.5513	4.000	0.3333
12	836820	835003	25.9	1220	683	9.4773	4.400	0.3667
13	836834	834995	13.4	880	533	11.8241	3.860	0.3217
20	836882	835003	25.9	1220	663	8.4560	4.000	0.3333
21	836900	835035	41.4	1700	393	16.5513	4.000	0.3333
22	836902	835112	40.8	1020	423	12.9127	7.976	0.6647
23	836916	835003	25.9	1220	683	9.4773	4.400	0.3667
24	836922	835067	25.3	712	508	4.7422	0.973	0.0811
25	836922	835100	25.3	712	508	4.7422	0.973	0.0811
26	836935	835112	40.8	1020	423	12.9127	7.976	0.6647
27	836953	835067	25.3	712	803	7.1133	0.909	0.0758
28	836953	835100	25.3	762	803	7.5500	1.092	0.0910
33	837011	835112	40.8	1020	423	12.9127	7.976	0.6647
35	837026	835067	25.3	712	508	4.7422	0.973	0.0811
36	837026	835100	25.3	712	508	4.7422	0.973	0.0811
38	837043	835112	40.8	1020	423	12.9127	7.973	0.6647
39	837060	835067	25.3	712	803	7.1133	0.909	0.0758
40	837060	835100	25.3	762	803	7.5500	1.092	0.0910

Note :

<sup>a</sup> : NOx emission rate is EPD's registered specified process emission rate data  
it is assume that 30% of NOx will be converted to NO2

**Table D7 : Predicted Pollutant Conc. at rASR within the Study Area from Industrial Emission**

ASR	Floor	NO <sub>2</sub> <sup>1</sup>			SO <sub>2</sub> <sup>2</sup>		
		1hr	24hr	Annual	1hr	24hr	Annual
1	1	65.7	53.3	52.5	48.6	20.3	18.2
	6	65.9	53.6	52.5	48.4	20.7	18.2
	12	69.4	53.9	52.5	54.2	21.3	18.2
2	1	63.5	53.1	52.5	53.6	20.8	18.2
	3	63.6	53.1	52.5	53.5	21.0	18.2
3	1	62.1	53.1	52.4	56.1	21.0	18.2
	3	62.1	53.1	52.4	56.0	21.2	18.2
4	1	65.2	53.2	52.5	51.5	20.5	18.2
	4	65.3	53.3	52.5	51.4	20.7	18.2
	7	65.4	53.4	52.5	51.5	21.1	18.2
5	1	66.3	53.5	52.5	52.0	20.9	18.2
	3	66.4	53.6	52.5	52.0	21.1	18.2
6	1	62.9	53.1	52.4	58.4	21.1	18.2
	5	63.0	53.1	52.5	58.6	21.6	18.2
	10	63.4	53.1	52.5	68.4	22.5	18.3
	20	64.3	53.3	52.5	78.0	23.4	18.3
	30	65.6	53.2	52.5	61.5	21.9	18.2
7	1	60.6	53.0	52.4	60.5	21.3	18.2
	5	60.6	53.0	52.4	61.4	21.8	18.2
	10	60.6	53.0	52.4	69.3	22.5	18.3
	20	60.6	53.0	52.4	73.7	23.0	18.3
	30	61.3	53.0	52.4	57.5	21.5	18.2
	40	62.2	53.0	52.4	53.2	19.9	18.1
	50	62.8	53.0	52.4	51.3	19.6	18.1
8	1	60.8	53.0	52.4	60.6	21.3	18.2
	5	60.8	53.0	52.4	60.7	21.8	18.2
	10	60.8	53.0	52.4	68.1	22.4	18.3
	20	60.8	53.0	52.4	71.8	22.8	18.3
	30	60.8	53.0	52.4	55.8	21.4	18.2
	40	61.0	53.0	52.4	53.2	19.9	18.1
	50	61.6	53.0	52.4	51.2	19.6	18.1
9	1	61.2	53.0	52.4	60.3	21.2	18.2
	5	61.2	53.0	52.4	60.0	21.6	18.2
	10	61.2	53.0	52.4	65.3	22.2	18.2
	20	61.6	53.1	52.4	67.3	22.4	18.3
	30	62.1	53.1	52.4	55.2	21.0	18.2
	40	62.6	53.2	52.4	52.9	19.8	18.1
	50	63.0	53.2	52.4	50.9	19.6	18.1
10	1	61.6	53.1	52.4	60.8	21.1	18.2
	5	61.6	53.1	52.4	60.4	21.6	18.2
	10	61.8	53.1	52.4	64.3	22.1	18.2
	20	62.3	53.1	52.4	65.6	22.2	18.2
	30	62.9	53.2	52.4	55.4	20.8	18.2
	40	63.4	53.2	52.4	52.8	19.8	18.1
	42	63.5	53.3	52.4	52.3	19.7	18.1
11	1	65.1	53.4	52.4	57.6	20.8	18.2
	5	65.2	53.4	52.5	57.4	21.0	18.2
	10	65.5	53.4	52.5	56.9	21.4	18.2
	20	66.2	53.6	52.5	59.5	21.7	18.2
	30	67.2	53.6	52.5	53.0	20.7	18.2
	37	68.0	53.6	52.5	51.2	19.9	18.1
12	1	69.1	54.2	52.5	50.8	20.6	18.2
	5	70.4	54.6	52.5	50.5	20.8	18.2
	10	75.8	55.2	52.6	51.2	21.0	18.2
	20	84.3	56.3	52.6	50.2	20.9	18.2

**Table D7 : Predicted Pollutant Conc. at rASR within the Study Area from Industrial Emission**

ASR	Floor	NO <sub>2</sub> <sup>1</sup>			SO <sub>2</sub> <sup>2</sup>		
		1hr	24hr	Annual	1hr	24hr	Annual
	30	81.4	56.0	52.6	46.4	20.0	18.1
	37	73.9	55.0	52.6	44.9	19.5	18.1
13	1	67.8	53.6	52.5	53.7	20.6	18.2
	3	67.9	53.6	52.5	53.6	20.7	18.2
14	1	68.5	53.7	52.5	52.5	20.6	18.2
	3	68.6	53.9	52.5	52.4	20.7	18.2
15	1	65.1	53.4	52.4	57.9	20.8	18.2
	3	65.2	53.4	52.5	57.8	20.9	18.2
16	1	64.3	53.3	52.4	59.2	20.7	18.2
	3	64.3	53.3	52.4	59.2	20.8	18.2
17	1	61.6	53.0	52.4	62.3	20.7	18.2
	3	61.6	53.0	52.4	62.3	20.8	18.2
18	1	61.1	53.0	52.4	61.9	21.0	18.2
	5	61.1	53.0	52.4	61.6	21.4	18.2
	10	61.1	53.0	52.4	64.7	22.1	18.2
	20	61.1	53.0	52.4	73.1	22.9	18.3
	30	61.1	53.0	52.4	64.5	22.1	18.2
19	1	62.0	53.1	52.4	62.8	21.0	18.2
	5	62.1	53.1	52.4	62.6	21.5	18.2
	10	62.4	53.1	52.5	67.1	22.4	18.3
	20	63.4	53.1	52.5	78.9	23.4	18.3
	22	64.4	53.1	52.5	70.3	22.7	18.3
20	1	64.7	53.2	52.5	60.9	21.1	18.2
	5	64.8	53.2	52.5	60.8	21.5	18.2
	10	65.1	53.3	52.5	64.5	22.2	18.3
21	1	65.2	53.2	52.5	61.4	20.8	18.2
22	1	66.2	53.3	52.5	60.3	20.8	18.2
23	1	67.5	53.5	52.5	57.1	20.8	18.2
	3	67.6	53.6	52.5	57.1	21.0	18.2
	7	68.5	53.8	52.5	56.9	21.4	18.2
24	1	67.9	53.6	52.5	57.9	20.8	18.2
	4	68.0	53.7	52.5	57.8	21.0	18.2
25	1	68.7	53.8	52.5	53.6	20.4	18.2
	3	69.1	53.9	52.5	53.5	20.5	18.2
26	1	72.5	54.1	52.5	47.9	19.9	18.2
	3	73.4	54.2	52.5	47.9	19.9	18.2
	6	76.4	54.4	52.5	47.8	20.1	18.2
27	1	74.3	54.2	52.5	44.5	20.0	18.2
	3	75.3	54.3	52.5	44.4	20.0	18.2
	6	78.3	54.6	52.5	44.4	20.0	18.2
28	1	70.4	54.0	52.5	51.5	20.4	18.2
	5	73.0	54.2	52.5	51.4	20.7	18.2
	10	78.0	54.6	52.5	51.2	21.2	18.2
29	1	67.9	53.7	52.5	53.6	20.6	18.2
	5	70.5	54.0	52.5	53.4	21.1	18.2
	10	76.0	54.4	52.5	59.0	21.8	18.2
	20	86.3	55.3	52.6	69.4	22.7	18.3
	22	86.7	55.3	52.6	62.6	22.1	18.2
30	1	62.1	53.1	52.4	61.1	20.7	18.2
	3	62.1	53.1	52.4	61.1	20.8	18.2
31	1	62.4	53.1	52.4	59.3	21.5	18.2
	5	62.6	53.2	52.4	61.7	21.9	18.2
	10	62.8	53.2	52.4	65.1	22.2	18.2
	20	63.4	53.2	52.4	59.5	21.7	18.2
	30	64.0	53.3	52.4	53.6	20.1	18.1

**Table D7 : Predicted Pollutant Conc. at rASR within the Study Area from Industrial Emission**

ASR	Floor	NO <sub>2</sub> <sup>1</sup>			SO <sub>2</sub> <sup>2</sup>		
		1hr	24hr	Annual	1hr	24hr	Annual
32	1	67.8	54.0	52.5	52.9	21.0	18.2
	5	68.2	54.3	52.5	54.1	21.2	18.2
	10	71.4	54.7	52.5	55.1	21.3	18.2
	20	73.5	55.0	52.6	50.0	20.7	18.2
	30	71.0	54.3	52.5	47.9	19.7	18.1

Note :

1 - NO<sub>2</sub> Background 52.4 µg/m<sup>3</sup> is included; 1 hr AQO is 300 µg/m<sup>3</sup>, 24hr AQO is 150 µg/m<sup>3</sup>; Annual : 80 µg/m<sup>3</sup>

2 - SO<sub>2</sub> Background 18.0 µg/m<sup>3</sup> is included; 1hr AQO is 800 µg/m<sup>3</sup>; 24 hr AQO is 350 µg/m<sup>3</sup>; Annual : 80 µg/m<sup>3</sup>

**Table D8 : Predicted Cumulative Nitrogen Dioxide Concentration at rASRs from Traffic and Industrial Emission**

ASR	Floor	1 Hour			Daily		
		Traffic	Industrial	Total	Traffic	Industrial	Total
1	1	37.6	13.3	103.3	22.6	0.9	75.9
	6	30.1	13.5	96.0	18.0	1.2	71.6
	12	22.6	17.0	92.0	13.5	1.5	67.4
2	1	48.9	11.1	112.4	29.3	0.7	82.4
	3	48.9	11.2	112.4	29.3	0.7	82.4
3	1	41.4	9.7	103.4	24.8	0.7	77.9
	3	45.1	9.7	107.2	27.1	0.7	80.1
4	1	56.4	12.8	121.6	33.8	0.8	87.0
	4	60.2	12.9	125.5	36.1	0.9	89.4
	7	56.4	13.0	121.8	33.8	1.0	87.2
5	1	30.1	13.9	96.4	18.0	1.1	71.6
	3	30.1	14.0	96.5	18.0	1.2	71.7
6	1	33.8	10.5	96.7	20.3	0.7	73.4
	5	30.1	10.6	93.1	18.0	0.7	71.1
	10	22.6	11.0	85.9	13.5	0.7	66.6
	20	11.3	11.9	75.6	6.8	0.9	60.1
	30	3.8	13.2	69.3	2.3	0.8	55.5
7	1	30.1	8.2	90.7	18.0	0.6	71.1
	5	22.6	8.2	83.2	13.5	0.6	66.6
	10	15.0	8.2	75.7	9.0	0.6	62.1
	20	11.3	8.2	71.9	6.8	0.6	59.8
	30	7.5	8.9	68.8	4.5	0.6	57.5
	40	0.0	9.8	62.2	0.0	0.6	53.0
	50	0.0	10.4	62.8	0.0	0.6	53.0
8	1	33.8	8.4	94.7	20.3	0.6	73.3
	5	26.3	8.4	87.1	15.8	0.6	68.8
	10	18.8	8.4	79.6	11.3	0.6	64.3
	20	11.3	8.4	72.1	6.8	0.6	59.8
	30	7.5	8.4	68.3	4.5	0.6	57.5
	40	0.0	8.6	61.0	0.0	0.6	53.0
	50	0.0	9.2	61.6	0.0	0.6	53.0
9	1	41.4	8.8	102.6	24.8	0.6	77.8
	5	37.6	8.8	98.8	22.6	0.6	75.6
	10	22.6	8.8	83.8	13.5	0.6	66.6
	20	11.3	9.2	72.9	6.8	0.7	59.9
	30	7.5	9.7	69.6	4.5	0.7	57.6
	40	0.0	10.2	62.6	0.0	0.8	53.2
	50	0.0	10.6	63.0	0.0	0.8	53.2
10	1	26.3	9.2	87.9	15.8	0.7	68.9
	5	18.8	9.2	80.4	11.3	0.7	64.4
	10	18.8	9.4	80.6	11.3	0.7	64.4
	20	11.3	9.9	73.6	6.8	0.7	59.9
	30	3.8	10.5	66.6	2.3	0.8	55.5
	40	0.0	11.0	63.4	0.0	0.8	53.2
	42	0.0	11.1	63.5	0.0	0.9	53.3
11	1	30.1	12.7	95.2	18.0	1.0	71.4
	5	22.6	12.8	87.8	13.5	1.0	66.9
	10	18.8	13.1	84.3	11.3	1.0	64.7
	20	11.3	13.8	77.5	6.8	1.2	60.3
	30	7.5	14.8	74.7	4.5	1.2	58.1
	37	3.8	15.6	71.7	2.3	1.2	55.9
12	1	26.3	16.7	95.4	15.8	1.8	70.0
	5	22.6	18.0	93.0	13.5	2.2	68.1
	10	18.8	23.4	94.6	11.3	2.8	66.5



**Table D8 : Predicted Cumulative Nitrogen Dioxide Concentration at rASRs from Traffic and Industrial Emission**

ASR	Floor	1 Hour			Daily		
		Traffic	Industrial	Total	Traffic	Industrial	Total
	20	11.3	31.9	95.5	6.8	3.9	63.1
	30	3.8	29.0	85.2	2.3	3.6	58.2
	37	3.8	21.5	77.6	2.3	2.6	57.3
13	1	26.3	15.4	94.1	15.8	1.2	69.4
	3	26.3	15.5	94.2	15.8	1.2	69.4
14	1	22.6	16.1	91.1	13.5	1.3	67.3
	3	18.8	16.2	87.4	11.3	1.5	65.2
15	1	26.3	12.7	91.5	15.8	1.0	69.2
	3	26.3	12.8	91.5	15.8	1.0	69.2
16	1	18.8	11.9	83.1	11.3	0.9	64.6
	3	18.8	11.9	83.1	11.3	0.9	64.6
17	1	22.6	9.2	84.2	13.5	0.6	66.6
	3	22.6	9.2	84.2	13.5	0.6	66.6
18	1	26.3	8.7	87.4	15.8	0.6	68.8
	5	26.3	8.7	87.4	15.8	0.6	68.8
	10	15.0	8.7	76.1	9.0	0.6	62.1
	20	11.3	8.7	72.3	6.8	0.6	59.8
	30	7.5	8.7	68.6	4.5	0.6	57.5
19	1	15.0	9.6	77.0	9.0	0.7	62.1
	5	15.0	9.7	77.2	9.0	0.7	62.1
	10	11.3	10.0	73.7	6.8	0.7	59.9
	20	7.5	11.0	70.9	4.5	0.7	57.6
	22	7.5	12.0	71.9	4.5	0.7	57.6
20	1	15.0	12.3	79.7	9.0	0.8	62.2
	5	15.0	12.4	79.8	9.0	0.8	62.2
	10	11.3	12.7	76.4	6.8	0.9	60.1
21	1	11.3	12.8	76.5	6.8	0.8	59.9
22	1	11.3	13.8	77.5	6.8	0.9	60.0
23	1	11.3	15.1	78.8	6.8	1.1	60.3
	3	11.3	15.2	78.9	6.8	1.2	60.4
	7	7.5	16.1	76.0	4.5	1.4	58.3
24	1	11.3	15.5	79.2	6.8	1.2	60.4
	4	11.3	15.6	79.3	6.8	1.3	60.5
25	1	15.0	16.3	83.8	9.0	1.4	62.8
	3	15.0	16.7	84.1	9.0	1.5	62.9
26	1	26.3	20.1	98.8	15.8	1.7	69.9
	3	22.6	21.0	96.0	13.5	1.8	67.7
	6	18.8	24.0	95.2	11.3	2.0	65.7
27	1	15.0	21.9	89.3	9.0	1.8	63.3
	3	15.0	22.9	90.3	9.0	1.9	63.3
	6	15.0	25.9	93.3	9.0	2.2	63.6
28	1	22.6	18.0	92.9	13.5	1.6	67.5
	5	18.8	20.6	91.8	11.3	1.8	65.5
	10	15.0	25.6	93.0	9.0	2.2	63.6
29	1	22.6	15.5	90.5	13.5	1.3	67.3
	5	30.1	18.1	100.5	18.0	1.6	72.0
	10	30.1	23.6	106.1	18.0	2.0	72.5
	20	22.6	33.9	108.8	13.5	2.9	68.8
	22	30.1	34.3	116.8	18.0	2.9	73.4
30	1	37.6	9.7	99.7	22.6	0.7	75.7
	3	33.8	9.7	96.0	20.3	0.7	73.4
31	1	67.7	10.0	130.1	40.6	0.7	93.8
	5	63.9	10.2	126.5	38.4	0.8	91.5
	10	56.4	10.4	119.2	33.8	0.8	87.0

**Table D8 : Predicted Cumulative Nitrogen Dioxide Concentration at rASRs from Traffic and Industrial Emission**

ASR	Floor	1 Hour			Daily		
		Traffic	Industrial	Total	Traffic	Industrial	Total
	20	45.1	11.0	108.5	27.1	0.8	80.3
	30	22.6	11.6	86.6	13.5	0.9	66.8
32	1	56.4	15.4	124.2	33.8	1.6	87.8
	5	45.1	15.8	113.3	27.1	1.9	81.4
	10	33.8	19.0	105.3	20.3	2.3	75.0
	20	18.8	21.1	92.3	11.3	2.6	66.2
	30	11.3	18.6	82.3	6.8	1.9	61.1

Note

NO<sub>2</sub> Background 52.4 µg/m<sup>3</sup> is included; 1 hr AQO is 300 µg/m<sup>3</sup>, 24hr AQO is 150 µg/m<sup>3</sup>