Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Northern Section

Location	Sources	Emission Factors	Parameter			Remarks
Boundary Control Point	Cut & Cover Area Source ID: BCP1 - BCP3, BCP4a & BCP4b, BCP5	Heavy construction	Percentage active area, p	100	%	Assume 100% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	$g/m^2/s$ (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	$g/m^2/s$ (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	$g/m^2/s$	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: BCP6	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	1106.5	m^3/day	From engineer Total volume of output: (127872+1086500)+(9497+3675+12466+4236)+(850+249+3015+21624)+(70062+309828+17451+116298) = 1783623m^3 BCP construction duration: 62 months (assume 26 working days per month)
			Maximum hourly output, op	92	m^3/hr	12 hours per day
				231	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	19575	m^2	Assumption made by consultant
			Emission Rate	8.8748E-07	$g/m^2/s$ (unmitigated)	=E*1000*op/(A*60*60)
				1.77496E-07	$g/m^2/s$ (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	$g/m^2/s$ (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	$g/m^2/s$ (mitigated)	
	Slope Cutting Source: BCP7	Slope cutting works	Percentage active area, p	100	%	Assume 100% works area for heavy construction
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	$g/m^2/s$ (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	$g/m^2/s$ (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	$g/m^2/s$	=0.85*1000000/(10000*365*24*60*60)*p/100
Connecting Road to BCP (Lin Ma Hang FLA Section + Wo Keng Shan to Ping Yeung Section)	Construction of Connecting Road Source: NCR1, NCR2a & 2b, NCR3 - NCR8, NCR9a & 9b, NCR10, NCR11a & 11b & 11c, NCR12 - NCR15, NCR17, NCR19, NCR21, NCR22a & 22b & 22c, NCR25, LMH1, LMH2a &2b,	Heavy construction	Percentage active area, p	100	%	Assume 100% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	$g/m^2/s$ (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	$g/m^2/s$ (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	$g/m^2/s$	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Stabilization Source: NCR16, NCR18, NCR23-NCR24, NCR26-NCR27	Slope cutting works	Percentage active area, p	100	%	Assume 100% works area for heavy construction
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	$g/m^2/s$ (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	$g/m^2/s$ (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	$g/m^2/s$	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan - input data

No. of source	Type of Source	ID	Emission - Unmitigated (g/m²/s)	Emission - Mitigated (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	BCP1	0.000239495	0.000029937	833916.0	845982.0	235	102	0	0		Heavy construction (BCP)
2	Area		0.000002696	0.000002696	833916.0	845982.0	235	102	0	0		wind erosion (BCP)
3	Area	BCP2	0.000239495	0.000029937	833810.0	845855.0	210	145	0	0		Heavy construction (BCP)
4	Area		0.000002696	0.000002696	833810.0	845855.0	210	145	0	0		wind erosion (BCP)
5	Area	BCP3	0.000239495	0.000029937	833810.0	845725.0	205	120	0	0		Heavy construction (BCP)
6	Area		0.000002696	0.000002696	833810.0	845725.0	205	120	0	0		wind erosion (BCP)
7	Area	BCP4a	0.000239495	0.000029937	833714.0	845584.0	175	155	0	0		Heavy construction (BCP)
8	Area		0.000002696	0.000002696	833714.0	845584.0	175	155	0	0		wind erosion (BCP)
9	Area	BCP4b	0.000239495	0.000029937	833891.0	845584.0	175	155	0	0		Heavy construction (BCP)
10	Area		0.000002696	0.000002696	833891.0	845584.0	175	155	0	0		wind erosion (BCP)
11	Area	BCP5	0.000239495	0.000029937	833661.3	845457.8	207	95	0	0		Heavy construction (BCP)
12	Area		0.000002696	0.000002696	833661.3	845457.8	207	95	0	0		wind erosion (BCP)
13	Area	BCP6	0.000000888	0.000000178	833979.0	845796.0	265	123	0	90		Material handling & storage pile (BCP)
14	Area		0.000002696	0.00000054	833979.0	845796.0	265	123	0	90		wind erosion (BCP)
15	Area	BCP7	0.000239495	0.000029937	833800.8	845445.1	122	29	0	57		Slope cutting (BCP)
16	Area		0.000002696	0.000002696	833800.8	845445.1	122	29	0	57		wind erosion (BCP)
17	Area	NCR1	0.000239495	0.000029937	833751.6	845299.0	217	43	0	-79		Heavy construction (BCP)
18	Area		0.000002696	0.000002696	833751.6	845299.0	217	43	0	-79		wind erosion (BCP)
19	Area	NCR2a	0.000239495	0.000029937	833760.8	845144.4	98	21	0	90		Heavy construction (BCP)
20	Area		0.000002696	0.000002696	833760.8	845144.4	98	21	0	90		wind erosion (BCP)
21	Area	NCR2b	0.000239495	0.000029937	833763.7	845043.2	104	21	0	90		Heavy construction (BCP)
22	Area		0.000002696	0.000002696	833763.7	845043.2	104	21	0	90		wind erosion (BCP)
23	Area	NCR3	0.000239495	0.000029937	833795.0	845167.0	55	17	0	90		Heavy construction (BCP)
24	Area		0.000002696	0.000002696	833795.0	845167.0	55	17	0	90		wind erosion (BCP)
25	Area	NCR4	0.000239495	0.000029937	833821.9	845104.3	87	7	0	-47		Heavy construction (BCP)
26	Area		0.000002696	0.000002696	833821.9	845104.3	87	7	0	-47		wind erosion (BCP)
27	Area	NCR5	0.000239495	0.000029937	833946.6	845099.9	131	16	0	15		Heavy construction (BCP)
28	Area		0.000002696	0.000002696	833946.6	845099.9	131	16	0	15		wind erosion (BCP)
29	Area	NCR6	0.000239495	0.000029937	833789.4	844917.3	150	21	0	-69		Heavy construction (BCP)
30	Area		0.000002696	0.000002696	833789.4	844917.3	150	21	0	-69		wind erosion (BCP)
31	Area	NCR7	0.000239495	0.000029937	833874.2	844771.6	184	41	0	-50		Heavy construction (BCP)
32	Area		0.000002696	0.000002696	833874.2	844771.6	184	41	0	-50		wind erosion (BCP)
33	Area	NCR8	0.000239495	0.000029937	834023.8	844609.3	255	29	0	-42		Heavy construction (BCP)
34	Area		0.000002696	0.000002696	834023.8	844609.3	255	29	0	-42		wind erosion (BCP)
35	Area	NCR9a	0.000239495	0.000029937	834223.6	844500.3	200	45	0	-17		Heavy construction (BCP)
36	Area		0.000002696	0.000002696	834223.6	844500.3	200	45	0	-17		wind erosion (BCP)
37	Area	NCR9b	0.000239495	0.000029937	834417.4	844439.9	200	45	0	-17		Heavy construction (BCP)
38	Area		0.000002696	0.000002696	834417.4	844439.9	200	45	0	-17		wind erosion (BCP)
39	Area	NCR10	0.000239495	0.000029937	834676.0	844424.0	57	17	0	-57		Heavy construction (BCP)
40	Area		0.000002696	0.000002696	834676.0	844424.0	57	17	0	-57		wind erosion (BCP)
41	Area	NCR11a	0.000239495	0.000029937	834570.6	844393.5	117	31	0	-17		Heavy construction (BCP)
42	Area		0.000002696	0.000002696	834570.6	844393.5	117	31	0	-17		wind erosion (BCP)
43	Area	NCR11b	0.000239495	0.000029937	834682.5	844358.2	117	31	0	-17		Heavy construction (BCP)
44	Area		0.000002696	0.000002696	834682.5	844358.2	117	31	0	-17		wind erosion (BCP)
45	Area	NCR11c	0.000239495	0.000029937	834794.6	844323.7	117	31	0	-17		Heavy construction (BCP)
46	Area		0.000002696	0.000002696	834794.6	844323.7	117	31	0	-17		wind erosion (BCP)
47	Area	NCR12	0.000239495	0.000029937	834652.0	844308.5	47	11	0	72		Heavy construction (BCP)
48	Area		0.000002696	0.000002696	834652.0	844308.5	47	11	0	72		wind erosion (BCP)
49	Area	NCR13	0.000239495	0.000029937	834623.2	844253.4	74	10	0	72		Heavy construction (BCP)
50	Area		0.000002696	0.000002696	834623.2	844253.4	74	10	0	72		wind erosion (BCP)
51	Area	NCR14	0.000239495	0.000029937	834652.5	844185.5	83	10	0	-32		Heavy construction (BCP)
52	Area		0.000002696	0.000002696	834652.5	844185.5	83	10	0	-32		wind erosion (BCP)
53	Area	NCR15	0.000239495	0.000029937	834965.5	844257.8	245	34	0	-19		Heavy construction (BCP)
54	Area		0.000002696	0.000002696	834965.5	844257.8	245	34	0	-19		wind erosion (BCP)
55	Area	NCR16	0.000239495	0.000029937	835202.9	844150.0	61	39	0	-45		Slope cutting (BCP)
56	Area		0.000002696	0.000002696	835202.9	844150.0	61	39	0	-45		wind erosion (BCP)
57	Area	NCR17	0.000239495	0.000029937	835151.1	844142.7	199	42	0	-45		Heavy construction (BCP)
58	Area		0.000002696	0.000002696	835151.1	844142.7	199	42	0	-45		wind erosion (BCP)
59	Area	NCR18	0.000239495	0.000029937	835102.2	844149.4	41	24	0	-45		Slope cutting (BCP)
60	Area		0.000002696	0.000002696	835102.2	844149.4	41	24	0	-45		wind erosion (BCP)
61	Area	NCR19	0.000239495	0.000029937	835332.1	843883.5	413	36	0	-60		Heavy construction (BCP)
62	Area		0.000002696	0.000002696	835332.1	843883.5	413	36	0	-60		wind erosion (BCP)
63	Area	NCR21	0.000239495	0.000029937	835485.3	843678.9	97	15	0	-57		Heavy construction (BCP)
64	Area		0.000002696	0.000002696	835485.3	843678.9	97	15	0	-57		wind erosion (BCP)
65	Area	NCR22a	0.000239495	0.000029937	835488.3	843630.8	182	29	0	-57		Heavy construction (BCP)
66	Area		0.000002696	0.000002696	835488.3	843630.8	182	29	0	-57		wind erosion (BCP)
67	Area	NCR22b	0.000239495	0.000029937	835562.3	843513.2	95	29	0	-57		Heavy construction (BCP)
68	Area		0.000002696	0.000002696	835562.3	843513.2	95	29	0	-57		wind erosion (BCP)
69	Area	NCR22c	0.000239495	0.000029937	835614.1	843430.8	99	29	0	-57		Heavy construction (BCP)
70	Area		0.000002696	0.000002696	835614.1	843430.8	99	29	0	-57		wind erosion (BCP)
71	Area	NCR23	0.000239495	0.000029937	835448.9	843642.1	123	25	0	-57		Slope cutting (BCP)
72	Area		0.000002696	0.000002696	835448.9	843642.1	123	25	0	-57		wind erosion (BCP)
73	Area	NCR24	0.000239495	0.000029937	835757.8	843323.0	47	42	0	44		Slope cutting (BCP)
74	Area		0.000002696	0.000002696	835757.8	843323.0	47	42	0	44		wind erosion (BCP)
75	Area	NCR25	0.000239495	0.000029937	835708.3	843322.9	179	25	0	-45		Heavy construction (BCP)
76	Area		0.000002696	0.000002696	835708.3	843322.9	179	25	0	-45		wind erosion (BCP)
77	Area	NCR26	0.000239495	0.000029937	835712.2	843249.8	94	43	0	-45		Slope cutting (BCP)
78	Area		0.000002696	0.000002696	835712.2	843249.8	94	43	0	-45		wind erosion (BCP)
79	Area	NCR27	0.000239495	0.000029937	835793.7	843219.0	108	80	0	47		Slope cutting (BCP)
80	Area		0.000002696	0.000002696	835793.7	843219.0	108	80	0	47		wind erosion (BCP)
81	Area	LMH1	0.000239495	0.000029937	833705.7	845087.2	25	20	0	64		Heavy construction (BCP)
82	Area		0.000002696	0.000002696	833705.7	845087.2	25	20	0	64		wind erosion (BCP)
83	Area	LMH2a	0.000239495	0.000029937	833660.6	844975.9	215	15	0	64		Heavy construction (BCP)
84	Area		0.000002696	0.000002696	833660.6	844975.9	215	15	0	64		wind erosion (BCP)
85	Area	LMH2b	0.000239495	0.000029937	833568.5	844783.9	215	15	0	64		Heavy construction (BCP)
86	Area		0.000002696	0.000002696	833568.5	844783.9	215	15	0	64		wind erosion (BCP)
87	Area	LMH3	0.000239495	0.000029937	833469.3	844624.7	140	15	0	44		Heavy construction (BCP)
88	Area		0.000002696	0.000002696	833469.3	844624.7	140	15	0	44		wind erosion (BCP)
89	Area	LMH4	0.000239495	0.000029937	833399.2	844545.2	82	15	0	53		Heavy construction (BCP)
90	Area		0.000002696	0.000002696	833399.2	844545.2	82	15	0	53		wind erosion (BCP)

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Sha Tau Kok Section

Location	Sources	Emission Factors	Parameter			Remarks
Loi Tung (Sha Tau Kok Road Section)	Cut & Cover Area Source ID: LTR2A-2B, LTR3, LTR4A-4C, LTR5, LTR6A-6B, LTR8-11, LTR13, LTR15-16	Heavy construction	Percentage active area, p	100	%	Assume 100% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: LTR7	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	787.9818376	m^3/day	From engineer Total volume of output: (43071+12501+187708+8889+45404) + (63602+18750+281252+17094+59280) = 737551m^3 STKRd construction duration: 36 months (assume 26 working days per month)
			Maximum hourly output, op	66	m^3/hr	12 hours per day
				164	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	20000	m^2	From engineer
			Emission Rate	6.18598E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				1.2372E-07	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: LTR1, LTR12, LTR14, LTR17 & 18	Slope cutting works	Percentage active area, p	100	%	Assume 100% works area for heavy construction
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)
Sha Tau Kok - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	LTR1	0.000239495	0.000029937	836271.5	842842.8	130	100	0	-58		Slope cutting (Sha Tau Kok)
2	Area		0.000002696	0.000002696	836271.5	842842.8	130	100	0	-58		wind erosion (Sha Tau Kok)
3	Area	LTR2A	0.000239495	0.000029937	836320.4	842748.3	82	36	0	-58		Heavy construction (Sha Tau Kok)
4	Area		0.000002696	0.000002696	836320.4	842748.3	82	36	0	-58		wind erosion (Sha Tau Kok)
5	Area	LTR2B	0.000239495	0.000029937	836377.3	842773.1	21.1	19.3	0	30		Heavy construction (Sha Tau Kok)
6	Area		0.000002696	0.000002696	836377.3	842773.1	21.1	19.3	0	30		wind erosion (Sha Tau Kok)
7	Area	LTR3	0.000239495	0.000029937	836372.6	842664.8	115	42	0	-58		Heavy construction (Sha Tau Kok)
8	Area		0.000002696	0.000002696	836372.6	842664.8	115	42	0	-58		wind erosion (Sha Tau Kok)
9	Area	LTR4A	0.000239495	0.000029937	836440.2	842556.8	140	50	0	-58		Heavy construction (Sha Tau Kok)
10	Area		0.000002696	0.000002696	836440.2	842556.8	140	50	0	-58		wind erosion (Sha Tau Kok)
11	Area	LTR4B	0.000239495	0.000029937	836307.5	842681.5	160.7	21.5	0	-59.3		Heavy construction (Sha Tau Kok)
12	Area		0.000002696	0.000002696	836307.5	842681.5	160.7	21.5	0	-59.3		wind erosion (Sha Tau Kok)
13	Area	LTR4C	0.000239495	0.000029937	836370.6	842524.4	170.1	14.3	0	-76.2		Heavy construction (Sha Tau Kok)
14	Area		0.000002696	0.000002696	836370.6	842524.4	170.1	14.3	0	-76.2		wind erosion (Sha Tau Kok)
15	Area	LTR5	0.000239495	0.000029937	836424.4	842404.9	60	25	0	0		Heavy construction (Sha Tau Kok)
16	Area		0.000002696	0.000002696	836424.4	842404.9	60	25	0	0		wind erosion (Sha Tau Kok)
17	Area	LTR6a	0.000239495	0.000029937	836501.0	842426.7	115	90	0	90		Heavy construction (Sha Tau Kok)
18	Area		0.000002696	0.000002696	836501.0	842426.7	115	90	0	90		wind erosion (Sha Tau Kok)
19	Area	LTR6b	0.000239495	0.000029937	836585.9	842426.6	115	75	0	90		Heavy construction (Sha Tau Kok)
20	Area		0.000002696	0.000002696	836585.9	842426.6	115	75	0	90		wind erosion (Sha Tau Kok)
21	Area	LTR7	0.000000619	0.000000124	836585.0	842700.0	175	60	0	75		Stockpiling (Sha Tau Kok)
22	Area		0.000002696	0.00000054	836585.0	842700.0	175	60	0	75		wind erosion (Sha Tau Kok)
23	Area	LTR8	0.000239495	0.000029937	836518.9	842641.7	80	20	0	75		Heavy construction (Sha Tau Kok)
24	Area		0.000002696	0.000002696	836518.9	842641.7	80	20	0	75		wind erosion (Sha Tau Kok)
25	Area	LTR9	0.000239495	0.000029937	836540.0	842570.0	70	20	0	-51		Heavy construction (Sha Tau Kok)
26	Area		0.000002696	0.000002696	836540.0	842570.0	70	20	0	-51		wind erosion (Sha Tau Kok)
27	Area	LTR10	0.000239495	0.000029937	836578.5	842516.3	61	18	0	-73		Heavy construction (Sha Tau Kok)
28	Area		0.000002696	0.000002696	836578.5	842516.3	61	18	0	-73		wind erosion (Sha Tau Kok)
29	Area	LTR11	0.000239495	0.000029937	836685.9	842430.5	121	24	0	0		Heavy construction (Sha Tau Kok)
30	Area		0.000002696	0.000002696	836685.9	842430.5	121	24	0	0		wind erosion (Sha Tau Kok)
31	Area	LTR12	0.000239495	0.000029937	836690.0	842305.0	55	15	0	-46		Slope cutting (Sha Tau Kok)
32	Area		0.000002696	0.000002696	836690.0	842305.0	55	15	0	-46		wind erosion (Sha Tau Kok)
33	Area	LTR13	0.000239495	0.000029937	836650.0	842295.0	145	50	0	-46		Heavy construction (Sha Tau Kok)
34	Area		0.000002696	0.000002696	836650.0	842295.0	145	50	0	-46		wind erosion (Sha Tau Kok)
35	Area	LTR14	0.000239495	0.000029937	836635.0	842250.0	85	36	0	-46		Slope cutting (Sha Tau Kok)
36	Area		0.000002696	0.000002696	836635.0	842250.0	85	36	0	-46		wind erosion (Sha Tau Kok)
37	Area	LTR15	0.000239495	0.000029937	836755.0	842180.0	160	50	0	-46		Heavy construction (Sha Tau Kok)
38	Area		0.000002696	0.000002696	836755.0	842180.0	160	50	0	-46		wind erosion (Sha Tau Kok)
39	Area	LTR16	0.000239495	0.000029937	836830.0	842087.5	85	60	0	22		Heavy construction (Sha Tau Kok)
40	Area		0.000002696	0.000002696	836830.0	842087.5	85	60	0	22		wind erosion (Sha Tau Kok)
41	Area	LTR17	0.000239495	0.000029937	836852.5	842040.0	85	40	0	22		Slope cutting (Sha Tau Kok)
42	Area		0.000002696	0.000002696	836852.5	842040.0	85	40	0	22		wind erosion (Sha Tau Kok)
43	Area	LTR18	0.000239495	0.000029937	836784.7	842001.5	100	65	0	-67		Slope cutting (Sha Tau Kok)
44	Area		0.000002696	0.000002696	836784.7	842001.5	100	65	0	-67		wind erosion (Sha Tau Kok)

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Po Kat Tsai Section

Location	Sources	Emission Factors	Parameter			Remarks
Po Kat Tsai	Stock Pile Source ID: PKT1	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	8.3	m^3/day	From engineer Total volume of output: (5625+1313) = 6938m^3 Lau Shui Heung (ventilation Bldg + shat & adit) construction duration: 32 months (assume 26 working days per month)
			Maximum hourly output, op	1	m^3/hr	12 hours per day
				2	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	10000	m^2	From engineer
			Emission Rate	1.30928E-08	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				2.61856E-09	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: PKT2	Slope cutting works	Percentage active area, p	100	%	Assume 100% works area for heavy construction
			Mitigation efficiency	75	%	Water suppression 4 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				5.98736E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)
Po Kak Tsai - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	PKA1	0.000000014	0.000000003	834921.9	840130.8	108	60	0	-45		Material handling & storage pile(Po Kak Tsai)
2	Area		0.000002696	0.00000054	834921.9	840130.8	108	60	0	-45		wind erosion (Po Kak Tsai)
3	Area	PKA2	0.000239495	0.000059874	834994.4	840032.5	126	37.5	0	-32		Heavy construction (Po Kat Tsai)
4	Area		0.000002696	0.000002696	834994.4	840032.5	126	37.5	0	-32		wind erosion (Po Kak Tsai)

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Fanling Section

Location	Sources	Emission Factors	Parameter			Remarks
Fanling Section	Cut & Cover Area Source ID: FLH1, FLH2, FLH3a, FLH3b, FLH3c, FLH4a FLH4b, KLH2, KLH4	Heavy construction	Percentage active area, p	100	%	Assume 100% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: KLH3	Material handling and storage piles	Percentage open stockpile area,	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	169.1	m^3/day	From engineer Total volume of output: (32085+9464+141880+4446+14409) = 202284m^3 Fanling section construction duration: 46 months (assume 26 working days per month)
			Maximum hourly output, op	14	m^3/hr	12 hours per day
				35	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	6000	m^2	From engineer
			Emission Rate	4.4259E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				8.85179E-08	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area,	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
				2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
				e		
	Slope Cutting Source: KLH1	Slope cutting works	Percentage active area, p	100	%	Assume 100% works area for heavy construction
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)
Fanling - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	FLH1	0.000239495	0.000029937	833877.1	838180.3	188	49	0	-79		Heavy construction (Fanling)
2	Area		0.000002696	0.000002696	833877.1	838180.3	188	49	0	-79		wind erosion (Fanling)
3	Area	FLH2	0.000239495	0.000029937	833926.4	837966.8	230	97	0	90		Heavy construction (Fanling)
4	Area		0.000002696	0.000002696	833926.4	837966.8	230	97	0	90		wind erosion (Fanling)
5	Area	FLH3a	0.000239495	0.000029937	833951.0	837736.3	245	97	0	90		Heavy construction (Fanling)
6	Area		0.000002696	0.000002696	833951.0	837736.3	245	97	0	90		wind erosion (Fanling)
7	Area	FLH3b	0.000239495	0.000029937	833865.8	837794.3	125	79	0	90		Heavy construction (Fanling)
8	Area		0.000002696	0.000002696	833865.8	837794.3	125	79	0	90		wind erosion (Fanling)
9	Area	FLH3c	0.000239495	0.000029937	833861.5	837675.4	125	80	0	90		Heavy construction (Fanling)
10	Area		0.000002696	0.000002696	833861.5	837675.4	125	80	0	90		wind erosion (Fanling)
11	Area	FLH4a	0.000239495	0.000029937	833915.5	837549.4	130	62	0	90		Heavy construction (Fanling)
12	Area		0.000002696	0.000002696	833915.5	837549.4	130	62	0	90		wind erosion (Fanling)
13	Area	FLH4b	0.000239495	0.000029937	833918.0	837419.2	130	61	0	90		Heavy construction (Fanling)
14	Area		0.000002696	0.000002696	833918.0	837419.2	130	61	0	90		wind erosion (Fanling)
15	Area	KLH1	0.000239495	0.000029937	834075.2	838388.9	117	82	0	-20		Slope cutting (Fanling)
16	Area		0.000002696	0.000002696	834075.2	838388.9	117	82	0	-20		wind erosion (Fanling)
17	Area	KLH2	0.000239495	0.000029937	834032.7	838300.0	112	71	0	67		Slope cutting (Fanling)
18	Area		0.000002696	0.000002696	834032.7	838300.0	112	71	0	67		wind erosion (Fanling)
19	Area	KLH3	0.000000443	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
20	Area		0.000002696	0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)
21	Area	KLH4	0.000239495	0.000029937	833972.4	838169.8	168	41	0	67		Heavy construction (Fanling)
22	Area		0.000002696	0.000002696	833972.4	838169.8	168	41	0	67		wind erosion (Fanling)

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Concurrent Projects

Location	Sources	Emission Factors	Parameter	Remarks
Regulation of Shenzhen River Stage IV	Construction works Source ID:SZR1, SZR4-SZR6,SZR8-SZR19, SZR22	Heavy construction	2.99E-04 g/m²/s (unmitigated) 2.99E-05 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
		Wind erosion	2.69E-06 g/m²/s (unmitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
	Stockpiling area	Earth handling/ loading & unloading Source ID: SZR2-SZR3	2.62E-06 g/m²/s (unmitigated) 7.88E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12
		Earth handling/ loading & unloading Source ID: SZR7	2.17E-06 g/m²/s (unmitigated) 6.50E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP21
		Earth handling/ loading & unloading Source ID: SZR20, SZR21	6.56E-06 g/m²/s (unmitigated) 1.97E-06 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP31, SP32
		Wind erosion Source ID: SZR2-SZR3, SZR7, SZR20-SZR21	2.69E-06 g/m²/s (unmitigated) 8.09E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12, SP21, SP31-SP32
NENT Landfill Extension	Construction works Source ID:NENT1	Heavy construction	2.42E-04 g/m²/s (unmitigated) 1.21E-04 g/m²/s (mitigated)	Extract from approved NENT Landfill Extentsion EIA (Appendix 3.1) Source ID in the EIA report: 104
		Wind erosion	1.36E-06 g/m²/s (mitigated)	Extract from approved NENT Landfill Extentsion EIA (Appendix 3.1) Source ID in the EIA report: 204

Appendix 3.1a - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)
Concurrent Projects - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	SZR1	0.000299000	0.000029900	834279.0	846334.0	352	44	0	68		Heavy construction (Regulation of Shenzhen River)
2	Area		0.000002690	0.000002690	834279.0	846334.0	352	44	0	68		wind erosion (Regulation of Shenzhen River)
3	Area	SZR2	0.000002620	0.000000788	834190.0	846208.0	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
4	Area		0.000002690	0.000000809	834190.0	846208.0	93	18	0	68		wind erosion (Regulation of Shenzhen River)
5	Area	SZR3	0.000002620	0.000000788	834158.0	846178.0	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
6	Area		0.000002690	0.000000809	834158.0	846178.0	38	20	0	68		wind erosion (Regulation of Shenzhen River)
7	Area	SZR4	0.000299000	0.000029900	834171.5	846137.6	75	40	0	26		Heavy construction (Regulation of Shenzhen River)
8	Area		0.000002690	0.000002690	834171.5	846137.6	75	40	0	26		wind erosion (Regulation of Shenzhen River)
9	Area	SZR5	0.000299000	0.000029900	834050.6	846118.0	208	40	0	30		Heavy construction (Regulation of Shenzhen River)
10	Area		0.000002690	0.000002690	834050.6	846118.0	208	40	0	30		wind erosion (Regulation of Shenzhen River)
11	Area	SZR6	0.000299000	0.000029900	833836.3	846094.8	238	40	0	-17.3		Heavy construction (Regulation of Shenzhen River)
12	Area		0.000002690	0.000002690	833836.3	846094.8	238	40	0	-17.3		wind erosion (Regulation of Shenzhen River)
13	Area	SZR7	0.000002170	0.000000650	833750.0	846065.0	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
14	Area		0.000002690	0.000000809	833750.0	846065.0	70	45	0	24		wind erosion (Regulation of Shenzhen River)
15	Area	SZR8	0.000299000	0.000029900	833687.5	846079.4	95	48	0	57.4		Heavy construction (Regulation of Shenzhen River)
16	Area		0.000002690	0.000002690	833687.5	846079.4	95	48	0	57.4		wind erosion (Regulation of Shenzhen River)
17	Area	SZR9	0.000299000	0.000029900	833789.5	846032.1	132	50	0	24.4		Heavy construction (Regulation of Shenzhen River)
18	Area		0.000002690	0.000002690	833789.5	846032.1	132	50	0	24.4		wind erosion (Regulation of Shenzhen River)
19	Area	SZR10	0.000299000	0.000029900	833685.0	845891.0	270	65	0	87		Heavy construction (Regulation of Shenzhen River)
20	Area		0.000002690	0.000002690	833685.0	845891.0	270	65	0	87		wind erosion (Regulation of Shenzhen River)
21	Area	SZR11	0.000299000	0.000029900	833612.4	845695.0	128	56	0	38		Heavy construction (Regulation of Shenzhen River)
22	Area		0.000002690	0.000002690	833612.4	845695.0	128	56	0	38		wind erosion (Regulation of Shenzhen River)
23	Area	SZR12	0.000299000	0.000029900	833514.8	845599.4	126.4	58	0	54		Heavy construction (Regulation of Shenzhen River)
24	Area		0.000002690	0.000002690	833514.8	845599.4	126.4	58	0	54		wind erosion (Regulation of Shenzhen River)
25	Area	SZR13	0.000299000	0.000029900	833505.1	845474.3	114	33	0	-87		Heavy construction (Regulation of Shenzhen River)
26	Area		0.000002690	0.000002690	833505.1	845474.3	114	33	0	-87		wind erosion (Regulation of Shenzhen River)
27	Area	SZR14	0.000299000	0.000029900	833472.3	845397.0	270	40	0	-87		Heavy construction (Regulation of Shenzhen River)
28	Area		0.000002690	0.000002690	833472.3	845397.0	270	40	0	-87		wind erosion (Regulation of Shenzhen River)
29	Area	SZR15	0.000299000	0.000029900	833533.0	845284.0	269	72	0	-87		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	0.000002690	833533.0	845284.0	269	72	0	-87		wind erosion (Regulation of Shenzhen River)
31	Area	SZR16	0.000299000	0.000029900	833644.5	845283.0	250	150	0	-87		Heavy construction (Regulation of Shenzhen River)
32	Area		0.000002690	0.000002690	833644.5	845283.0	250	150	0	-87		wind erosion (Regulation of Shenzhen River)
33	Area	SZR17	0.000299000	0.000029900	833461.0	845032.2	276	48	0	50		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	0.000002690	833461.0	845032.2	276	48	0	50		wind erosion (Regulation of Shenzhen River)
35	Area	SZR18	0.000299000	0.000029900	833350.0	844870.0	100	48	0	75		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	0.000002690	833350.0	844870.0	100	48	0	75		wind erosion (Regulation of Shenzhen River)
37	Area	SZR19	0.000299000	0.000029900	833349.2	844753.2	117	48	0	-78		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000002690	0.000002690	833349.2	844753.2	117	48	0	-78		wind erosion (Regulation of Shenzhen River)
39	Area	SZR20	0.000006560	0.000001970	833321.0	844726.0	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000002690	0.000000809	833321.0	844726.0	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
41	Area	SZR21	0.000006560	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000002690	0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
43	Area	SZR22	0.000299000	0.000029900	833153.6	844626.8	420	48	0	14		Heavy construction (Regulation of Shenzhen River)
44	Area		0.000002690	0.000002690	833153.6	844626.8	420	48	0	14		wind erosion (Regulation of Shenzhen River)
45	Area	NENT1	0.000242006	0.000121003	835260.0	844665.0	175	95	0	0		Heavy construction (NENT Landfill Extension)
46	Area		0.000001362	0.000001362	835260.0	844665.0	175	95	0	0		wind erosion (NENT Landfill Extension)

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment

Northern Section

Location	Sources	Emission Factors	Parameter		Remarks
Boundary Control Point	Cut & Cover Area Source ID: BCP1 - BCP3, BCP4a & BCP4b, BCP5	Heavy construction	Percentage active area, p	10 %	Assume 10% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: BCP6	Material handling and storage piles	Percentage open stockpile area, p	20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74	k (particle size < 30μm)
			Moisture content, M	5 %	From engineering information, worst case scenario
			Average wind speed, U	1.9 m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor	0.00027131 kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4] From engineer
			Maximum daily output	1106.5 m^3/day	Total volume of output: (127872+1086500)+(9497+3675+12466+4236)+(850+249+3015+21624)+(70062+309828+17451+116298) = 1783623m^3 BCP construction duration: 62 months (assume 26 working days per month)
			Maximum hourly output, op	92 m^3/hr 231 Mg/hr	12 working hours per day Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	19575 m^2	Assumption made by consultant
			Emission Rate	8.8748E-07 g/m²/s (unmitigated) 1.77496E-07 g/m²/s (mitigated)	=E*1000*op/(A*60*60) =E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100 % (unmitigated) 20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06 g/m²/s (unmitigated) 5.39066E-07 g/m²/s (mitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Cutting Source: BCP7	Slope cutting works	Percentage active area, p	10 %	Assume 10% works area for heavy construction
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Connecting Road to BCP (Lin Ma Hang FLA Section + Wo Keng Shan to Ping Yeung Section)	Construction of Connecting Road Source: NCR1, NCR2a & 2b, NCR3 - NCR8, NCR9a & 9b, NCR10, NCR11a & 11b & 11c, NCR12 - NCR15, NCR17, NCR19, NCR21, NCR22a & 22b & 22c, NCR25, LMH1, LMH2a &2b, LMH2 - LMH4	Heavy construction	Percentage active area, p	10 %	Assume 10% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Cutting Source: NCR16, NCR18, NCR23-NCR24, NCR26-NCR27	Slope cutting works	Percentage active area, p	10 %	Assume 10% works area for heavy construction
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan - input data

No. of source	Type of Source	ID	Emission - Unmitigated (g/m²/s)	Emission - Mitigated (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	BCP1	0.000023950	0.000002994	833916.0	845982.0	235	102	0	0		Heavy construction (BCP)
2	Area		0.000000270	0.000000270	833916.0	845982.0	235	102	0	0		wind erosion (BCP)
3	Area	BCP2	0.000023950	0.000002994	833810.0	845855.0	210	145	0	0		Heavy construction (BCP)
4	Area		0.000000270	0.000000270	833810.0	845855.0	210	145	0	0		wind erosion (BCP)
5	Area	BCP3	0.000023950	0.000002994	833810.0	845725.0	205	120	0	0		Heavy construction (BCP)
6	Area		0.000000270	0.000000270	833810.0	845725.0	205	120	0	0		wind erosion (BCP)
7	Area	BCP4a	0.000023950	0.000002994	833714.0	845584.0	175	155	0	0		Heavy construction (BCP)
8	Area		0.000000270	0.000000270	833714.0	845584.0	175	155	0	0		wind erosion (BCP)
9	Area	BCP4b	0.000023950	0.000002994	833891.0	845584.0	175	155	0	0		Heavy construction (BCP)
10	Area		0.000000270	0.000000270	833891.0	845584.0	175	155	0	0		wind erosion (BCP)
11	Area	BCP5	0.000023950	0.000002994	833661.3	845457.8	207	95	0	0		Heavy construction (BCP)
12	Area		0.000000270	0.000000270	833661.3	845457.8	207	95	0	0		wind erosion (BCP)
13	Area	BCP6	0.000000888	0.000000178	833979.0	845796.0	265	123	0	90		Material handling & storage pile (BCP)
14	Area		0.000002696	0.000000540	833979.0	845796.0	265	123	0	90		wind erosion (BCP)
15	Area	BCP7	0.000023950	0.000002994	833800.8	845445.1	122	29	0	57		Slope cutting (BCP)
16	Area		0.000000270	0.000000270	833800.8	845445.1	122	29	0	57		wind erosion (BCP)
17	Area	NCR1	0.000023950	0.000002994	833751.6	845299.0	217	43	0	-79		Heavy construction (BCP)
18	Area		0.000000270	0.000000270	833751.6	845299.0	217	43	0	-79		wind erosion (BCP)
19	Area	NCR2a	0.000023950	0.000002994	833760.8	845144.4	98	21	0	90		Heavy construction (BCP)
20	Area		0.000000270	0.000000270	833760.8	845144.4	98	21	0	90		wind erosion (BCP)
21	Area	NCR2b	0.000023950	0.000002994	833763.7	845043.2	104	21	0	90		Heavy construction (BCP)
22	Area		0.000000270	0.000000270	833763.7	845043.2	104	21	0	90		wind erosion (BCP)
23	Area	NCR3	0.000023950	0.000002994	833795.0	845167.0	55	17	0	90		Heavy construction (BCP)
24	Area		0.000000270	0.000000270	833795.0	845167.0	55	17	0	90		wind erosion (BCP)
25	Area	NCR4	0.000023950	0.000002994	833821.9	845104.3	87	7	0	-47		Heavy construction (BCP)
26	Area		0.000000270	0.000000270	833821.9	845104.3	87	7	0	-47		wind erosion (BCP)
27	Area	NCR5	0.000023950	0.000002994	833946.6	845099.9	131	16	0	15		Heavy construction (BCP)
28	Area		0.000000270	0.000000270	833946.6	845099.9	131	16	0	15		wind erosion (BCP)
29	Area	NCR6	0.000023950	0.000002994	833789.4	844917.3	150	21	0	-69		Heavy construction (BCP)
30	Area		0.000000270	0.000000270	833789.4	844917.3	150	21	0	-69		wind erosion (BCP)
31	Area	NCR7	0.000023950	0.000002994	833874.2	844771.6	184	41	0	-50		Heavy construction (BCP)
32	Area		0.000000270	0.000000270	833874.2	844771.6	184	41	0	-50		wind erosion (BCP)
33	Area	NCR8	0.000023950	0.000002994	834023.8	844609.3	255	29	0	-42		Heavy construction (BCP)
34	Area		0.000000270	0.000000270	834023.8	844609.3	255	29	0	-42		wind erosion (BCP)
35	Area	NCR9a	0.000023950	0.000002994	834223.6	844500.3	200	45	0	-17		Heavy construction (BCP)
36	Area		0.000000270	0.000000270	834223.6	844500.3	200	45	0	-17		wind erosion (BCP)
37	Area	NCR9b	0.000023950	0.000002994	834417.4	844439.9	200	45	0	-17		Heavy construction (BCP)
38	Area		0.000000270	0.000000270	834417.4	844439.9	200	45	0	-17		wind erosion (BCP)
39	Area	NCR10	0.000023950	0.000002994	834676.0	844424.0	57	17	0	-57		Heavy construction (BCP)
40	Area		0.000000270	0.000000270	834676.0	844424.0	57	17	0	-57		wind erosion (BCP)
41	Area	NCR11a	0.000023950	0.000002994	834570.6	844393.5	117	31	0	-17		Heavy construction (BCP)
42	Area		0.000000270	0.000000270	834570.6	844393.5	117	31	0	-17		wind erosion (BCP)
43	Area	NCR11b	0.000023950	0.000002994	834682.5	844358.2	117	31	0	-17		Heavy construction (BCP)
44	Area		0.000000270	0.000000270	834682.5	844358.2	117	31	0	-17		wind erosion (BCP)
45	Area	NCR11c	0.000023950	0.000002994	834794.6	844323.7	117	31	0	-17		Heavy construction (BCP)
46	Area		0.000000270	0.000000270	834794.6	844323.7	117	31	0	-17		wind erosion (BCP)
47	Area	NCR12	0.000023950	0.000002994	834652.0	844308.5	47	11	0	72		Heavy construction (BCP)
48	Area		0.000000270	0.000000270	834652.0	844308.5	47	11	0	72		wind erosion (BCP)
49	Area	NCR13	0.000023950	0.000002994	834623.2	844253.4	74	10	0	72		Heavy construction (BCP)
50	Area		0.000000270	0.000000270	834623.2	844253.4	74	10	0	72		wind erosion (BCP)
51	Area	NCR14	0.000023950	0.000002994	834652.5	844185.5	83	10	0	-32		Heavy construction (BCP)
52	Area		0.000000270	0.000000270	834652.5	844185.5	83	10	0	-32		wind erosion (BCP)
53	Area	NCR15	0.000023950	0.000002994	834965.5	844257.8	245	34	0	-19		Heavy construction (BCP)
54	Area		0.000000270	0.000000270	834965.5	844257.8	245	34	0	-19		wind erosion (BCP)
55	Area	NCR16	0.000023950	0.000002994	835202.9	844150.0	61	39	0	-45		Slope cutting (BCP)
56	Area		0.000000270	0.000000270	835202.9	844150.0	61	39	0	-45		wind erosion (BCP)
57	Area	NCR17	0.000023950	0.000002994	835151.1	844142.7	199	42	0	-45		Heavy construction (BCP)
58	Area		0.000000270	0.000000270	835151.1	844142.7	199	42	0	-45		wind erosion (BCP)
59	Area	NCR18	0.000023950	0.000002994	835102.2	844149.4	41	24	0	-45		Slope cutting (BCP)
60	Area		0.000000270	0.000000270	835102.2	844149.4	41	24	0	-45		wind erosion (BCP)
61	Area	NCR19	0.000023950	0.000002994	835332.1	843883.5	413	36	0	-60		Heavy construction (BCP)
62	Area		0.000000270	0.000000270	835332.1	843883.5	413	36	0	-60		wind erosion (BCP)
63	Area	NCR21	0.000023950	0.000002994	835485.3	843678.9	97	15	0	-57		Heavy construction (BCP)
64	Area		0.000000270	0.000000270	835485.3	843678.9	97	15	0	-57		wind erosion (BCP)
65	Area	NCR22a	0.000023950	0.000002994	835488.3	843630.8	182	29	0	-57		Heavy construction (BCP)
66	Area		0.000000270	0.000000270	835488.3	843630.8	182	29	0	-57		wind erosion (BCP)
67	Area	NCR22b	0.000023950	0.000002994	835562.3	843513.2	95	29	0	-57		Heavy construction (BCP)
68	Area		0.000000270	0.000000270	835562.3	843513.2	95	29	0	-57		wind erosion (BCP)
69	Area	NCR22c	0.000023950	0.000002994	835614.1	843430.8	99	29	0	-57		Heavy construction (BCP)
70	Area		0.000000270	0.000000270	835614.1	843430.8	99	29	0	-57		wind erosion (BCP)
71	Area	NCR23	0.000023950	0.000002994	835448.9	843642.1	123	25	0	-57		Slope cutting (BCP)
72	Area		0.000000270	0.000000270	835448.9	843642.1	123	25	0	-57		wind erosion (BCP)
73	Area	NCR24	0.000023950	0.000002994	835757.8	843323.0	47	42	0	44		Slope cutting (BCP)
74	Area		0.000000270	0.000000270	835757.8	843323.0	47	42	0	44		wind erosion (BCP)
75	Area	NCR25	0.000023950	0.000002994	835708.3	843322.9	179	25	0	-45		Heavy construction (BCP)
76	Area		0.000000270	0.000000270	835708.3	843322.9	179	25	0	-45		wind erosion (BCP)
77	Area	NCR26	0.000023950	0.000002994	835712.2	843249.8	94	43	0	-45		Slope cutting (BCP)
78	Area		0.000000270	0.000000270	835712.2	843249.8	94	43	0	-45		wind erosion (BCP)
79	Area	NCR27	0.000023950	0.000002994	835793.7	843219.0	108	80	0	47		Slope cutting (BCP)
80	Area		0.000000270	0.000000270	835793.7	843219.0	108	80	0	47		wind erosion (BCP)
81	Area	LMH1	0.000023950	0.000002994	833705.7	845087.2	25	20	0	64		Heavy construction (BCP)
82	Area		0.000000270	0.000000270	833705.7	845087.2	25	20	0	64		wind erosion (BCP)
83	Area	LMH2a	0.000023950	0.000002994	833660.6	844975.9	215	15	0	64		Heavy construction (BCP)
84	Area		0.000000270	0.000000270	833660.6	844975.9	215	15	0	64		wind erosion (BCP)
85	Area	LMH2b	0.000023950	0.000002994	833568.5	844783.9	215	15	0	64		Heavy construction (BCP)
86	Area		0.000000270	0.000000270	833568.5	844783.9	215	15	0	64		wind erosion (BCP)
87	Area	LMH3	0.000023950	0.000002994	833469.3	844624.7	140	15	0	44		Heavy construction (BCP)
88	Area		0.000000270	0.000000270	833469.3	844624.7	140	15	0	44		wind erosion (BCP)
89	Area	LMH4	0.000023950	0.000002994	833399.2	844545.2	82	15	0	53		Heavy construction (BCP)
90	Area		0.000000270	0.000000270	833399.2	844545.2	82	15	0	53		wind erosion (BCP)

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment

Sha Tau Kok Section

Location	Sources	Emission Factors	Parameter		Remarks
Loi Tung (Sha Tau Kok Road Section)	Cut & Cover Area Source ID: LTR2A-2B, LTR3, LTR4A-4C, LTR5, LTR6A-6B, LTR8-11, LTR13, LTR15-16	Heavy construction	Percentage active area, p	10 %	Assume 10% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: LTR7	Material handling and storage piles	Percentage open stockpile area, p	20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74	k (particle size < 30μm)
			Moisture content, M	5 %	From engineering information, worst case scenario
			Average wind speed, U	1.9 m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131 kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	787.9818376 m^3/day	From engineer Total volume of output: (43071+12501+187708+8889+45404) + (63602+18750+281252+17094+59280) = 737551m^3 STKRd construction duration: 36 months (assume 26 working days per month)
			Maximum hourly output, op	66 m^3/hr 164 Mg/hr	12 working hours per day Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	20000 m^2	From engineer
			Emission Rate	6.18598E-07 g/m²/s (unmitigated) 1.2372E-07 g/m²/s (mitigated)	=E*1000*op/(A*60*60) =E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100 % (unmitigated) 20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06 g/m²/s (unmitigated) 5.39066E-07 g/m²/s (mitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Cutting Source: LTR1, LTR12, LTR14, LTR17 & 18	Slope cutting works	Percentage active area, p	10 %	Assume 10% works area for heavy construction
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment
Sha Tau Kok - input data

No. of source	Type of Source	ID	Emission - Unmitigated (g/m²/s)	Emission - Mitigated (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	LTR1	0.000023950	0.000002994	836271.5	842842.8	130	100	0	-58		Slope cutting (Sha Tau Kok)
2	Area		0.000000270	0.000000270	836271.5	842842.8	130	100	0	-58		wind erosion (Sha Tau Kok)
3	Area	LTR2A	0.000023950	0.000002994	836320.4	842748.3	82	36	0	-58		Heavy construction (Sha Tau Kok)
4	Area		0.000000270	0.000000270	836320.4	842748.3	82	36	0	-58		wind erosion (Sha Tau Kok)
5	Area	LTR2B	0.000023950	0.000002994	836377.3	842773.1	21.1	19.3	0	30		Heavy construction (Sha Tau Kok)
6	Area		0.000000270	0.000000270	836377.3	842773.1	21.1	19.3	0	30		wind erosion (Sha Tau Kok)
7	Area	LTR3	0.000023950	0.000002994	836372.6	842664.8	115	42	0	-58		Heavy construction (Sha Tau Kok)
8	Area		0.000000270	0.000000270	836372.6	842664.8	115	42	0	-58		wind erosion (Sha Tau Kok)
9	Area	LTR4A	0.000023950	0.000002994	836440.2	842556.8	140	50	0	-58		Heavy construction (Sha Tau Kok)
10	Area		0.000000270	0.000000270	836440.2	842556.8	140	50	0	-58		wind erosion (Sha Tau Kok)
11	Area	LTR4B	0.000023950	0.000002994	836307.5	842681.5	160.7	21.5	0	-59.3		Heavy construction (Sha Tau Kok)
12	Area		0.000000270	0.000000270	836307.5	842681.5	160.7	21.5	0	-59.3		wind erosion (Sha Tau Kok)
13	Area	LTR4C	0.000023950	0.000002994	836370.6	842524.4	170.1	14.3	0	-76.2		Heavy construction (Sha Tau Kok)
14	Area		0.000000270	0.000000270	836370.6	842524.4	170.1	14.3	0	-76.2		wind erosion (Sha Tau Kok)
15	Area	LTR5	0.000023950	0.000002994	836424.4	842404.9	60	25	0	0		Heavy construction (Sha Tau Kok)
16	Area		0.000000270	0.000000270	836424.4	842404.9	60	25	0	0		wind erosion (Sha Tau Kok)
17	Area	LTR6a	0.000023950	0.000002994	836501.0	842426.7	115	90	0	90		Heavy construction (Sha Tau Kok)
18	Area		0.000000270	0.000000270	836501.0	842426.7	115	90	0	90		wind erosion (Sha Tau Kok)
19	Area	LTR6b	0.000023950	0.000002994	836585.9	842426.6	115	75	0	90		Heavy construction (Sha Tau Kok)
20	Area		0.000000270	0.000000270	836585.9	842426.6	115	75	0	90		wind erosion (Sha Tau Kok)
21	Area	LTR7	0.000000619	0.000000124	836585.0	842700.0	175	60	0	75		Stockpiling (Sha Tau Kok)
22	Area		0.000002696	0.000000540	836585.0	842700.0	175	60	0	75		wind erosion (Sha Tau Kok)
23	Area	LTR8	0.000023950	0.000002994	836518.9	842641.7	80	20	0	75		Heavy construction (Sha Tau Kok)
24	Area		0.000000270	0.000000270	836518.9	842641.7	80	20	0	75		wind erosion (Sha Tau Kok)
25	Area	LTR9	0.000023950	0.000002994	836540.0	842570.0	70	20	0	-51		Heavy construction (Sha Tau Kok)
26	Area		0.000000270	0.000000270	836540.0	842570.0	70	20	0	-51		wind erosion (Sha Tau Kok)
27	Area	LTR10	0.000023950	0.000002994	836578.5	842516.3	61	18	0	-73		Heavy construction (Sha Tau Kok)
28	Area		0.000000270	0.000000270	836578.5	842516.3	61	18	0	-73		wind erosion (Sha Tau Kok)
29	Area	LTR11	0.000023950	0.000002994	836685.9	842430.5	121	24	0	0		Heavy construction (Sha Tau Kok)
30	Area		0.000000270	0.000000270	836685.9	842430.5	121	24	0	0		wind erosion (Sha Tau Kok)
31	Area	LTR12	0.000023950	0.000002994	836690.0	842305.0	55	15	0	-46		Slope cutting (Sha Tau Kok)
32	Area		0.000000270	0.000000270	836690.0	842305.0	55	15	0	-46		wind erosion (Sha Tau Kok)
33	Area	LTR13	0.000023950	0.000002994	836650.0	842295.0	145	50	0	-46		Heavy construction (Sha Tau Kok)
34	Area		0.000000270	0.000000270	836650.0	842295.0	145	50	0	-46		wind erosion (Sha Tau Kok)
35	Area	LTR14	0.000023950	0.000002994	836635.0	842250.0	85	36	0	-46		Slope cutting (Sha Tau Kok)
36	Area		0.000000270	0.000000270	836635.0	842250.0	85	36	0	-46		wind erosion (Sha Tau Kok)
37	Area	LTR15	0.000023950	0.000002994	836755.0	842180.0	160	50	0	-46		Heavy construction (Sha Tau Kok)
38	Area		0.000000270	0.000000270	836755.0	842180.0	160	50	0	-46		wind erosion (Sha Tau Kok)
39	Area	LTR16	0.000023950	0.000002994	836830.0	842087.5	85	60	0	22		Heavy construction (Sha Tau Kok)
40	Area		0.000000270	0.000000270	836830.0	842087.5	85	60	0	22		wind erosion (Sha Tau Kok)
41	Area	LTR17	0.000023950	0.000002994	836852.5	842040.0	85	40	0	22		Slope cutting (Sha Tau Kok)
42	Area		0.000000270	0.000000270	836852.5	842040.0	85	40	0	22		wind erosion (Sha Tau Kok)
43	Area	LTR18	0.000023950	0.000002994	836784.7	842001.5	100	65	0	-67		Slope cutting (Sha Tau Kok)
44	Area		0.000000270	0.000000270	836784.7	842001.5	100	65	0	-67		wind erosion (Sha Tau Kok)

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment

Po Kat Tsai Section

Location	Sources	Emission Factors	Parameter		Remarks
Po Kat Tsai	Stock Pile Source ID: PKT1	Material handling and storage piles	Percentage open stockpile area, p	20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74	k (particle size < 30μm)
			Moisture content, M	5 %	From engineering information, worst case scenario
			Average wind speed, U	1.9 m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor	0.00027131 kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	8.3 m^3/day	From engineer Total volume of output: (5625+1313) = 6938m^3 Lau Shui Heung (ventilation Bldg + shat & adit) construction duration: 32 months (assume 26 working days per month)
			Maximum hourly output, op	1 m^3/hr 2 Mg/hr	12 working hours per day Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	10000 m^2	From engineer
			Emission Rate	1.30928E-08 g/m²/s (unmitigated) 2.61856E-09 g/m²/s (mitigated)	=E*1000*op/(A*60*60) =E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100 % (unmitigated) 20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06 g/m²/s (unmitigated) 5.39066E-07 g/m²/s (mitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Cutting Source: PKT2	Slope cutting works	Percentage active area, p	10 %	Assume 10% works area for heavy construction
			Mitigation efficiency	75 %	Water suppression 4 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 5.98736E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment
Po Kak Tsai - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	PKA1	0.000000014	0.000000003	834921.9	840130.8	108	60	0	-45		Material handling & storage pile(Po Kak Tsai)
2	Area		0.000002696	0.000000540	834921.9	840130.8	108	60	0	-45		wind erosion (Po Kak Tsai)
3	Area	PKA2	0.000023950	0.000005988	834994.4	840032.5	126	37.5	0	-32		Heavy construction (Po Kat Tsai)
4	Area		0.000000270	0.000000270	834994.4	840032.5	126	37.5	0	-32		wind erosion (Po Kak Tsai)

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment

Fanling Section

Location	Sources	Emission Factors	Parameter		Remarks
Fanling Section	Cut & Cover Area Source ID: FLH1, FLH2, FLH3a, FLH3b, FLH3c, FLH4a FLH4b, KLH2, KLH4	Heavy construction	Percentage active area, p	10 %	Assume 10% works area for construction of cut-and-cover section
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: KLH3	Material handling and storage piles	Percentage open stockpile area,	20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74	k (particle size < 30μm)
			Moisture content, M	5 %	From engineering information, worst case scenario
			Average wind speed, U	1.9 m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131 kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	169.1 m^3/day	From engineer Total volume of output: (32085+9464+141880+4446+14409) = 202284m^3 Fanling section construction duration: 46 months (assume 26 working days per month)
			Maximum hourly output, op	14 m^3/hr 35 Mg/hr	12 working hours per day Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	6000 m^2	From engineer
			Emission Rate	4.4259E-07 g/m²/s (unmitigated) 8.85179E-08 g/m²/s (mitigated)	=E*1000*op/(A*60*60) =E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area,	100 % (unmitigated) 20 % (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06 g/m²/s (unmitigated) 5.39066E-07 g/m²/s (mitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
	Slope Cutting Source: KLH1	Slope cutting works	Percentage active area, p	10 %	Assume 10% works area for heavy construction
			Mitigation efficiency	87.5 %	Water suppression 8 times a day
			No. of working days per month, d	26 days	
			No. of working hours per day, h	12 hours	
			Emission Factor	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	2.39494E-05 g/m²/s (unmitigated) 2.99368E-06 g/m²/s (mitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
		Wind erosion	Percentage active area, p	10 %	
			Emission Factor	0.85 Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-07 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment
Fanling - input data

No. of source	Type of Source	ID	Emission - Unmitigated ($g/m^2/s$)	Emission - Mitigated ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	FLH1	0.000023950	0.000002994	833877.1	838180.3	188	49	0	-79		Heavy construction (Fanling)
2	Area		0.000000270	0.000000270	833877.1	838180.3	188	49	0	-79		wind erosion (Fanling)
3	Area	FLH2	0.000023950	0.000002994	833926.4	837966.8	230	97	0	90		Heavy construction (Fanling)
4	Area		0.000000270	0.000000270	833926.4	837966.8	230	97	0	90		wind erosion (Fanling)
5	Area	FLH3a	0.000023950	0.000002994	833951.0	837736.3	245	97	0	90		Heavy construction (Fanling)
6	Area		0.000000270	0.000000270	833951.0	837736.3	245	97	0	90		wind erosion (Fanling)
7	Area	FLH3b	0.000023950	0.000002994	833865.8	837794.3	125	79	0	90		Heavy construction (Fanling)
8	Area		0.000000270	0.000000270	833865.8	837794.3	125	79	0	90		wind erosion (Fanling)
9	Area	FLH3c	0.000023950	0.000002994	833861.5	837675.4	125	80	0	90		Heavy construction (Fanling)
10	Area		0.000000270	0.000000270	833861.5	837675.4	125	80	0	90		wind erosion (Fanling)
11	Area	FLH4a	0.000023950	0.000002994	833915.5	837549.4	130	62	0	90		Heavy construction (Fanling)
12	Area		0.000000270	0.000000270	833915.5	837549.4	130	62	0	90		wind erosion (Fanling)
13	Area	FLH4b	0.000023950	0.000002994	833918.0	837419.2	130	61	0	90		Heavy construction (Fanling)
14	Area		0.000000270	0.000000270	833918.0	837419.2	130	61	0	90		wind erosion (Fanling)
15	Area	KLH1	0.000023950	0.000002994	834075.2	838388.9	117	82	0	-20		Slope cutting (Fanling)
16	Area		0.000000270	0.000000270	834075.2	838388.9	117	82	0	-20		wind erosion (Fanling)
17	Area	KLH2	0.000023950	0.000002994	834032.7	838300.0	112	71	0	67		Slope cutting (Fanling)
18	Area		0.000000270	0.000000270	834032.7	838300.0	112	71	0	67		wind erosion (Fanling)
19	Area	KLH3	0.000000443	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
20	Area		0.000002696	0.000000540	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)
21	Area	KLH4	0.000023950	0.000002994	833972.4	838169.8	168	41	0	67		Heavy construction (Fanling)
22	Area		0.000000270	0.000000270	833972.4	838169.8	168	41	0	67		wind erosion (Fanling)

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment

Concurrent Projects

Location	Sources	Emission Factors	Parameter	Remarks
Regulation of Shenzhen River Stage IV	Construction works Source ID:SZR1, SZR4-SZR6,SZR8-SZR19, SZR22	Heavy construction	3.14E-05 g/m²/s (unmitigated) 3.14E-06 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
		Wind erosion	2.70E-07 g/m²/s (unmitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
	Stockpiling area	Earth handling/ loading & unloading Source ID: SZR2-SZR3	2.62E-06 g/m²/s (unmitigated) 7.88E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report: SP11-SP12
		Earth handling/ loading & unloading Source ID: SZR7	2.17E-06 g/m²/s (unmitigated) 6.50E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report: SP21
		Earth handling/ loading & unloading Source ID: SZR20, SZR 21	6.56E-06 g/m²/s (unmitigated) 1.97E-06 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report: SP31, SP32
		Wind erosion Source ID: SZR2-SZR3, SZR7,	2.69E-06 g/m²/s (unmitigated) 8.09E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A2(a)) Source ID in the draft report:SP11-SP12, SP21, SP31-SP32
NENT Landfill Extension	Construction works Source ID:NENT1	Heavy construction	1.14E-06 g/m²/s (unmitigated) 5.69E-07 g/m²/s (mitigated)	Extract from approved NENT Landfill Extentsion EIA (Appendix 3.1) Source ID in the EIA report: 104
		Wind erosion	6.40E-09 g/m²/s (mitigated)	Extract from approved NENT Landfill Extentsion EIA (Appendix 3.1) Source ID in the EIA report: 204

Appendix 3.1b - Details of Dust Emission Sources for Annual TSP Assessment
Concurrent project - input data

No. of source	Type of Source	ID	Emission - Unmitigated (g/m²/s)	Emission - Mitigated (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	SZR1	0.000031400	0.000003140	834279.0	846334.0	352	44	0	68		Heavy construction (Regulation of Shenzhen River)
2	Area		0.000000270	0.000000270	834279.0	846334.0	352	44	0	68		wind erosion (Regulation of Shenzhen River)
3	Area	SZR2	0.000002620	0.000000788	834190.0	846208.0	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
4	Area		0.000002690	0.000000809	834190.0	846208.0	93	18	0	68		wind erosion (Regulation of Shenzhen River)
5	Area	SZR3	0.000002620	0.000000788	834158.0	846178.0	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
6	Area		0.000002690	0.000000809	834158.0	846178.0	38	20	0	68		wind erosion (Regulation of Shenzhen River)
7	Area	SZR4	0.000031400	0.000003140	834171.5	846137.6	75	40	0	26		Heavy construction (Regulation of Shenzhen River)
8	Area		0.000000270	0.000000270	834171.5	846137.6	75	40	0	26		wind erosion (Regulation of Shenzhen River)
9	Area	SZR5	0.000031400	0.000003140	834050.6	846118.0	208	40	0	30		Heavy construction (Regulation of Shenzhen River)
10	Area		0.000000270	0.000000270	834050.6	846118.0	208	40	0	30		wind erosion (Regulation of Shenzhen River)
11	Area	SZR6	0.000031400	0.000003140	833836.3	846094.8	238	40	0	-17.3		Heavy construction (Regulation of Shenzhen River)
12	Area		0.000000270	0.000000270	833836.3	846094.8	238	40	0	-17.3		wind erosion (Regulation of Shenzhen River)
13	Area	SZR7	0.000002170	0.000000650	833750.0	846065.0	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
14	Area		0.000002690	0.000000809	833750.0	846065.0	70	45	0	24		wind erosion (Regulation of Shenzhen River)
15	Area	SZR8	0.000031400	0.000003140	833687.5	846079.4	95	48	0	57.4		Heavy construction (Regulation of Shenzhen River)
16	Area		0.000000270	0.000000270	833687.5	846079.4	95	48	0	57.4		wind erosion (Regulation of Shenzhen River)
17	Area	SZR9	0.000031400	0.000003140	833789.5	846032.1	132	50	0	24.4		Heavy construction (Regulation of Shenzhen River)
18	Area		0.000000270	0.000000270	833789.5	846032.1	132	50	0	24.4		wind erosion (Regulation of Shenzhen River)
19	Area	SZR10	0.000031400	0.000003140	833685.0	845891.0	270	65	0	87		Heavy construction (Regulation of Shenzhen River)
20	Area		0.000000270	0.000000270	833685.0	845891.0	270	65	0	87		wind erosion (Regulation of Shenzhen River)
21	Area	SZR11	0.000031400	0.000003140	833612.4	845695.0	128	56	0	38		Heavy construction (Regulation of Shenzhen River)
22	Area		0.000000270	0.000000270	833612.4	845695.0	128	56	0	38		wind erosion (Regulation of Shenzhen River)
23	Area	SZR12	0.000031400	0.000003140	833514.8	845599.4	126.4	58	0	54		Heavy construction (Regulation of Shenzhen River)
24	Area		0.000000270	0.000000270	833514.8	845599.4	126.4	58	0	54		wind erosion (Regulation of Shenzhen River)
25	Area	SZR13	0.000031400	0.000003140	833505.1	845474.3	114	33	0	-87		Heavy construction (Regulation of Shenzhen River)
26	Area		0.000000270	0.000000270	833505.1	845474.3	114	33	0	-87		wind erosion (Regulation of Shenzhen River)
27	Area	SZR14	0.000031400	0.000003140	833472.3	845397.0	270	40	0	-87		Heavy construction (Regulation of Shenzhen River)
28	Area		0.000000270	0.000000270	833472.3	845397.0	270	40	0	-87		wind erosion (Regulation of Shenzhen River)
29	Area	SZR15	0.000031400	0.000003140	833533.0	845284.0	269	72	0	-87		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000000270	0.000000270	833533.0	845284.0	269	72	0	-87		wind erosion (Regulation of Shenzhen River)
31	Area	SZR16	0.000031400	0.000003140	833644.5	845283.0	250	150	0	-87		Heavy construction (Regulation of Shenzhen River)
32	Area		0.000000270	0.000000270	833644.5	845283.0	250	150	0	-87		wind erosion (Regulation of Shenzhen River)
33	Area	SZR17	0.000031400	0.000003140	833461.0	845032.2	276	48	0	50		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000000270	0.000000270	833461.0	845032.2	276	48	0	50		wind erosion (Regulation of Shenzhen River)
35	Area	SZR18	0.000031400	0.000003140	833350.0	844870.0	100	48	0	75		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000000270	0.000000270	833350.0	844870.0	100	48	0	75		wind erosion (Regulation of Shenzhen River)
37	Area	SZR19	0.000031400	0.000003140	833349.2	844753.2	117	48	0	-78		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000000270	0.000000270	833349.2	844753.2	117	48	0	-78		wind erosion (Regulation of Shenzhen River)
39	Area	SZR20	0.000006560	0.000001970	833321.0	844726.0	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000002690	0.000000809	833321.0	844726.0	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
41	Area	SZR21	0.000006560	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000002690	0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
43	Area	SZR22	0.000031400	0.000003140	833153.6	844626.8	420	48	0	14		Heavy construction (Regulation of Shenzhen River)
44	Area		0.000000270	0.000000270	833153.6	844626.8	420	48	0	14		wind erosion (Regulation of Shenzhen River)
45	Area	NENT1	0.000001138	0.000000569	835260.0	844665.0	175	95	0	0		Heavy construction (NENT Landfill Extension)
46	Area		0.000000007	0.000000007	835260.0	844665.0	175	95	0	0		wind erosion (NENT Landfill Extension)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)

Northern Section

Location	Sources	Emission Factors	Parameter			Remarks
Boundary Control Point	Cut & Cover Area Source ID: G1 - G3	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: BCP6	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	1106.5	m^3/day	From engineer Total volume of output: (127872+1086500)+(9497+3675+12466+4236)+(850+249+3015+21624)+(70062+309828+17451+116298) = 1783623m^3 BCP construction duration: 62 months (assume 26 working days per month)
			Maximum hourly output, op	92	m^3/hr	12 hours per day
				231	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	19575	m^2	Assumption made by consultant
			Emission Rate	8.8748E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				1.77496E-07	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: G4	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Connecting Road to BCP (Lin Ma Hang FLA Section + Wo Keng Shan to Ping Yeung Section)	Construction of Connecting Road Source: G5-G11	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)

Concurrent Projects

Location	Sources	Emission Factors	Parameter	Remarks
Regulation of Shenzhen River Stage IV	Construction works Source ID: W1N - W4N, W1S - W4S	Heavy construction	2.99E-04 g/m²/s (unmitigated) 2.99E-05 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
		Wind erosion	2.69E-06 g/m²/s (unmitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
	Stockpiling area	Earth handling/ loading & unloading Source ID: SZR2-SZR3	2.62E-06 g/m²/s (unmitigated) 7.88E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12
		Earth handling/ loading & unloading Source ID: SZR7	2.17E-06 g/m²/s (unmitigated) 6.50E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP21
		Earth handling/ loading & unloading Source ID: SZR20, SZR21	6.56E-06 g/m²/s (unmitigated) 1.97E-06 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP31, SP32
		Wind erosion Source ID: SZR2-SZR3, SZR7, SZR20-SZR21	2.69E-06 g/m²/s (unmitigated) 8.09E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12, SP21, SP31-SP32

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.1 - 3.3.2
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - TYHP & TYH)- input data

No. of source	Type of Source	ID	Emission (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833978.3	845962.9	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833978.3	845962.9	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833812.0	845825.0	205	81.4	0	0		Heavy construction (BCP)
4	Area		0.000002696	833812.0	845825.0	205	81.4	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833800.0	845632.1	353	62.8	0	0		Heavy construction (BCP)
6	Area		0.000002696	833800.0	845632.1	353	62.8	0	0		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979.0	845796.0	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979.0	845796.0	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833820.0	845470.0	40	30	0	59		Slope cutting (BCP)
10	Area		0.000002696	833820.0	845470.0	40	30	0	59		wind erosion (BCP)
11	Area	G5	0.000029937	833766.3	845300.0	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.3	845300.0	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833760.0	845160.0	63.7	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833760.0	845160.0	63.7	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833977.3	845105.0	67.5	16.1	0	15		Heavy construction (BCP)
16	Area		0.000002696	833977.3	845105.0	67.5	16.1	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833785.0	844925.0	128.3	25	0	-72		Heavy construction (BCP)
18	Area		0.000002696	833785.0	844925.0	128.3	25	0	-72		wind erosion (BCP)
19	Area	G9	0.000029937	834023.7	844609.2	253.9	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834023.7	844609.2	253.9	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833676.2	845015.2	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833676.2	845015.2	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833500.0	844650.0	66.6	15	0	42		Heavy construction (BCP)
24	Area		0.000002696	833500.0	844650.0	66.6	15	0	42		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190.0	846208.0	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190.0	846208.0	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158.0	846178.0	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158.0	846178.0	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1N	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750.0	846065.0	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750.0	846065.0	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2N	0.000029900	833679.0	845927.3	150	71.1	0	81		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833679.0	845927.3	150	71.1	0	81		wind erosion (Regulation of Shenzhen River)
35	Area	W3N	0.000029900	833482.6	845475.1	150	90.8	0	-86.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833482.6	845475.1	150	90.8	0	-86.5		wind erosion (Regulation of Shenzhen River)
37	Area	W4N	0.000029900	833347.3	844869.5	150	67.8	0	72.5		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000002690	833347.3	844869.5	150	67.8	0	72.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR20	0.000001970	833321.0	844726.0	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833321.0	844726.0	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
41	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.3 - 3.3.4
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - KL1 TKL1 & TKL2)- input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833853.1	845958.5	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833853.1	845958.5	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814	845701.3	205.6	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814	845701.3	205.6	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833707	845505.2	191	112.5	0	90		Heavy construction (BCP)
6	Area		0.000002696	833707	845505.2	191	112.5	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833775.2	845402	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833775.2	845402	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.2	845301.4	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.2	845301.4	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833764.3	845022	61.7	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833764.3	845022	61.7	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833821.9	845104.3	90	12.1	0	-47		Heavy construction (BCP)
16	Area		0.000002696	833821.9	845104.3	90	12.1	0	-47		wind erosion (BCP)
17	Area	G8	0.000029937	833907.4	844730.7	78.3	41	0	-50		Heavy construction (BCP)
18	Area		0.000002696	833907.4	844730.7	78.3	41	0	-50		wind erosion (BCP)
19	Area	G9	0.000029937	834019.1	844613.1	254	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834019.1	844613.1	254	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833549.3	844749	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833549.3	844749	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833440.5	844596.1	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833440.5	844596.1	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.5 - 3.3.6
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASR - KTW2 & KTW4)- input data

No. of source	Type of Source	ID	Emission (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833978.3	845962.9	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833978.3	845962.9	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814.1	845701.3	210	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814.1	845701.3	210	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833707	845505.2	191	112.6	0	90		Heavy construction (BCP)
6	Area		0.000002696	833707	845505.2	191	112.6	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833775.2	845402	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833775.2	845402	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.2	845301.4	220	12.8	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.2	845301.4	220	12.8	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833764.3	845022	61.8	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833764.3	845022	61.8	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833919.1	845089.4	72.8	15	0	15		Heavy construction (BCP)
16	Area		0.000002696	833919.1	845089.4	72.8	15	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833907.4	844730.7	78.3	41	0	-50		Heavy construction (BCP)
18	Area		0.000002696	833907.4	844730.7	78.3	41	0	-50		wind erosion (BCP)
19	Area	G9	0.000029937	834023.8	844609.3	255.7	29.8	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834023.8	844609.3	255.7	29.8	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833549.3	844751.2	140	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833549.3	844751.2	140	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833495.9	844650.5	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833495.9	844650.5	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Heavy construction (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.7 - 3.3.8
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - V1 & V2) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833915.8	845944.6	235	30.6	0	0		Heavy construction (BCP)
2	Area		0.000002696	833915.8	845944.6	235	30.6	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814.1	845701.6	210	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814.1	845701.6	210	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833706.9	845505.5	197	112.5	0	90		Heavy construction (BCP)
6	Area		0.000002696	833706.9	845505.5	197	112.5	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833778.4	845406.5	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833778.4	845406.5	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.3	845301.4	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.3	845301.4	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833762.8	845077.8	60.6	21	0	90		Heavy construction (BCP)
14	Area		0.000002696	833762.8	845077.8	60.6	21	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833919.1	845089.4	72.8	15	0	15		Heavy construction (BCP)
16	Area		0.000002696	833919.1	845089.4	72.8	15	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833785.6	844927.2	128.3	25	0	-69		Heavy construction (BCP)
18	Area		0.000002696	833785.6	844927.2	128.3	25	0	-69		wind erosion (BCP)
19	Area	G9	0.000029937	834024	844610	253.9	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834024	844610	253.9	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833676.1	845008.2	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833676.1	845008.2	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833495.8	844650.8	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833495.8	844650.8	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Heavy construction (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.9
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASR - WKS7) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	835519.0	843582.0	69.7	29	0	-57		Heavy construction (BCP)
2	Area		0.000002696	835519.0	843582.0	69.7	29	0	-57		wind erosion (BCP)
3	Area	G2	0.000029937	835628.1	843412.7	58.2	29	0	-57		Heavy construction (BCP)
4	Area		0.000002696	835628.1	843412.7	58.2	29	0	-57		wind erosion (BCP)
5	Area	G3	0.000029937	835472.9	843604.6	36.9	25	0	-57		Slope cutting (BCP)
6	Area		0.000002696	835472.9	843604.6	36.9	25	0	-57		wind erosion (BCP)
7	Area	G4	0.000029937	835750.4	843333.2	47	12.6	0	44		Slope cutting (BCP)
8	Area		0.000002696	835750.4	843333.2	47	12.6	0	44		wind erosion (BCP)
9	Area	G5	0.000029937	835660.2	843366.6	53.7	25	0	-45		Heavy construction (BCP)
10	Area		0.000002696	835660.2	843366.6	53.7	25	0	-45		wind erosion (BCP)
11	Area	G6	0.000029937	835707.1	843258.6	88.5	43	0	-45		Slope cutting (BCP)
12	Area		0.000002696	835707.1	843258.6	88.5	43	0	-45		wind erosion (BCP)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Sha Tau Kok Section

Location	Sources	Emission Factors	Parameter			Remarks
Loi Tung (Sha Tau Kok Road Section)	Cut & Cover Area Source ID: G2-G11, G13, G15-G16	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: LTR7	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	787.9818376	m^3/day	From engineer Total volume of output: (43071+12501+187708+8889+45404) + (63602+18750+281252+17094+59280) = 737551m^3 STKRd construction duration: 36 months (assume 26 working days per month)
			Maximum hourly output, op	66	m^3/hr	12 hours per day
				164	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	20000	m^2	From engineer
			Emission Rate	6.18598E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				1.2372E-07	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: G1, G12, G14, G17	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.10 - 3.3.11
Sha Tau Kok Section (for ASRs - TTW1 & TTW3) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	3	G1	0.000029937	836297.0	842804.6	100	39	0	32		Slope cutting (Sha Tau Kok)
2	3		0.000002696	836297.0	842804.6	100	39	0	32		wind erosion (Sha Tau Kok)
3	3	G2	0.000029937	836387.4	842640.0	55.6	42.1	0	-58		Heavy construction (Sha Tau Kok)
4	3		0.000002696	836387.4	842640.0	55.6	42.1	0	-58		wind erosion (Sha Tau Kok)
5	3	G3	0.000029937	836380.7	842767.3	21.1	5.8	0	30		Heavy construction (Sha Tau Kok)
6	3		0.000002696	836380.7	842767.3	21.1	5.8	0	30		wind erosion (Sha Tau Kok)
7	3	G4	0.000029937	836469.6	842515.3	50	42	0	32		Heavy construction (Sha Tau Kok)
8	3		0.000002696	836469.6	842515.3	50	42	0	32		wind erosion (Sha Tau Kok)
9	3	G5	0.000029937	836335.4	842634.4	48.3	21.5	0	-59.3		Heavy construction (Sha Tau Kok)
10	3		0.000002696	836335.4	842634.4	48.3	21.5	0	-59.3		wind erosion (Sha Tau Kok)
11	3	G6	0.000029937	836384.6	842467.3	51.1	14.3	0	-76.2		Heavy construction (Sha Tau Kok)
12	3		0.000002696	836384.6	842467.3	51.1	14.3	0	-76.2		wind erosion (Sha Tau Kok)
13	3	G7	0.000029937	836444.2	842403.6	25	18	0	90		Heavy construction (Sha Tau Kok)
14	3		0.000002696	836444.2	842403.6	25	18	0	90		wind erosion (Sha Tau Kok)
15	3	G8	0.000029937	836545.7	842423.9	115	49.5	0	90		Heavy construction (Sha Tau Kok)
16	3		0.000002696	836545.7	842423.9	115	49.5	0	90		wind erosion (Sha Tau Kok)
17	3	LTR7	0.000000124	836585.0	842700.0	175	60	0	75		Stockpiling (Sha Tau Kok)
18	3		0.00000054	836585.0	842700.0	175	60	0	75		wind erosion (Sha Tau Kok)
19	3	G9	0.000029937	836511.4	842613.1	24	20	0	75		Heavy construction (Sha Tau Kok)
20	3		0.000002696	836511.4	842613.1	24	20	0	75		wind erosion (Sha Tau Kok)
21	3	G10	0.000029937	836581.3	842510.2	41.7	18.1	0	-73		Heavy construction (Sha Tau Kok)
22	3		0.000002696	836581.3	842510.2	41.7	18.1	0	-73		wind erosion (Sha Tau Kok)
23	3	G11	0.000029937	836644.3	842430.8	36.3	24	0	0		Heavy construction (Sha Tau Kok)
24	3		0.000002696	836644.3	842430.8	36.3	24	0	0		wind erosion (Sha Tau Kok)
25	3	G12	0.000029937	836677.7	842312.2	16.5	15	0	-46		Slope cutting (Sha Tau Kok)
26	3		0.000002696	836677.7	842312.2	16.5	15	0	-46		wind erosion (Sha Tau Kok)
27	3	G13	0.000029937	836616.8	842332.5	50	43.5	0	-46		Heavy construction (Sha Tau Kok)
28	3		0.000002696	836616.8	842332.5	50	43.5	0	-46		wind erosion (Sha Tau Kok)
29	3	G14	0.000029937	836611.7	842271.6	36	25.5	0	43		Slope cutting (Sha Tau Kok)
30	3		0.000002696	836611.7	842271.6	36	25.5	0	43		wind erosion (Sha Tau Kok)
31	3	G15	0.000029937	836718.3	842225.9	50	48	0	44		Heavy construction (Sha Tau Kok)
32	3		0.000002696	836718.3	842225.9	50	48	0	44		wind erosion (Sha Tau Kok)
33	3	G16	0.000029937	836824.9	842109.2	85	18	0	22		Heavy construction (Sha Tau Kok)
34	3		0.000002696	836824.9	842109.2	85	18	0	22		wind erosion (Sha Tau Kok)
35	3	G17	0.000029937	836818.0	842038.3	157.8	19.8	0	22		Slope cutting (Sha Tau Kok)
36	3		0.000002696	836818.0	842038.3	157.8	19.8	0	22		wind erosion (Sha Tau Kok)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Fanling Section

Location	Sources	Emission Factors	Parameter			Remarks
Fanling Section	Cut & Cover Area Source ID: G2-G7	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: KLH3	Material handling and storage piles	Percentage open stockpile area,	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	169.1	m^3/day	From engineer Total volume of output: (32085+9464+141880+4446+14409) = 202284m^3 Fanling section construction duration: 46 months (assume 26 working days per month)
			Maximum hourly output, op	14	m^3/hr	12 hours per day
				35	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	6000	m^2	From engineer
			Emission Rate	4.4259E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				8.85179E-08	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area,	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
				2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
					e	
	Slope Cutting Source: G1	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.12 - 3.3.13
Fanling Section (for ASR - TH1) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833926.9	838033.4	97	97	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833926.9	838033.4	97	97	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833954.3	837820.6	97	73.5	0	0		Heavy construction (Fanling)
4	Area		0.000002696	833954.3	837820.6	97	73.5	0	0		wind erosion (Fanling)
5	Area	G6	0.000029937	833865.4	837816.9	80	74.6	0	0		Heavy construction (Fanling)
6	Area		0.000002696	833865.4	837816.9	80	74.6	0	0		wind erosion (Fanling)
7	Area	G7	0.000029937	833918.8	837574.9	77.4	62	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833918.8	837574.9	77.4	62	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834116.2	838371.0	82	35.1	0	70		Slope cutting (Fanling)
10	Area		0.000002696	834116.2	838371.0	82	35.1	0	70		wind erosion (Fanling)
11	Area	G2	0.000029937	834059.9	838289.4	112	21.3	0	67		Slope cutting (Fanling)
12	Area		0.000002696	834059.9	838289.4	112	21.3	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)
15	Area	G3	0.000029937	833994.7	838221.2	48.7	42.1	0	67		Slope cutting (Fanling)
16	Area		0.000002696	833994.7	838221.2	48.7	42.1	0	67		wind erosion (Fanling)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.14 - 3.3.15
Fanling Section (for ASRs - NWP1 NWP2 NWP3) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833928.5	837910.5	97	97.5	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833928.5	837910.5	97	97.5	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833917.6	837735.8	245	29.1	0	90		Heavy construction (Fanling)
4	Area		0.000002696	833917.6	837735.8	245	29.1	0	90		wind erosion (Fanling)
5	Area	G6	0.000029937	833835.9	837736.3	245	24.4	0	90		Heavy construction (Fanling)
6	Area		0.000002696	833835.9	837736.3	245	24.4	0	90		wind erosion (Fanling)
7	Area	G7	0.000029937	833902.0	837483.8	260	18.5	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833902.0	837483.8	260	18.5	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834065.4	838361.7	117	24.6	0	-20		Slope cutting (Fanling)
10	Area		0.000002696	834065.4	838361.7	117	24.6	0	-20		wind erosion (Fanling)
11	Area	G2	0.000029937	833962.7	838139.4	108.5	41.1	0	67		Heavy construction (Fanling)
12	Area		0.000002696	833962.7	838139.4	108.5	41.1	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.16 - 3.3.17
Fanling Section (for ASRs - KT1 KT2 KT3 & KLH1) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833928.5	837910.5	97	97.5	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833928.5	837910.5	97	97.5	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833985.1	837736.3	245	29.1	0	90		Heavy construction (Fanling)
4	Area		0.000002696	833985.1	837736.3	245	29.1	0	90		wind erosion (Fanling)
5	Area	G6	0.000029937	833889.3	837735.8	245	24.4	0	90		Heavy construction (Fanling)
6	Area		0.000002696	833889.3	837735.8	245	24.4	0	90		wind erosion (Fanling)
7	Area	G7	0.000029937	833938.4	837483.8	260	18.5	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833938.4	837483.8	260	18.5	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834065.4	838361.7	117	24.6	0	-20		Slope cutting (Fanling)
10	Area		0.000002696	834065.4	838361.7	117	24.6	0	-20		wind erosion (Fanling)
11	Area	G2	0.000029937	833962.7	838139.4	108.5	41.1	0	67		Heavy construction (Fanling)
12	Area		0.000002696	833962.7	838139.4	108.5	41.1	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)