Appendix 3.3 Calculation of Construction Dust Emission Source

Construction Phase Year 2027

Location	Source	Emission Rates		Unmitigated	Mitigated	Parameters		Remarks
Works Site of LRT	**Construction Activities**	Heavy Construction				Emission Rate = (Emission Factor*10^6/10000)/(30*No. of Operation hour*60*60)*(Percentage Active/100)*(1-Dust Suppression%)		
		Area Source	**TSP**	**2.076E-04**	**1.723E-05**	TSP emission factor (Mg/hectare/month of activity)	2.69	from AP-42, S13.2.3, 1/95 ed.
	ID:	($g/m^2.s$)				Percentage area actively operating (%)	100	
	ST1 - ST31					% of dust suppression	91.7	Assume watering once every 2 hours. Refer to the Calculation of Dust Supression Efficiency by Watering.
	ST35 - ST48					no. of operation hour (hr)	12	Assume typical working hours of work site (0700 - 1900)
	KL1 - KL10, KL12					Emission height (m)	0.5	
			RSP	**9.818E-05**	**8.149E-06**	RSP emission factor (Mg/hectare/month of activity)	1.27	
						% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
			FSP	**1.494E-05**	**1.240E-06**	FSP emission factor (Mg/hectare/month of activity)	0.19	
						% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
		Wind Erosion				Emission Rate = Emission Factor*10^6/(10000*365*24*60*60)*(Percentage Active/100)		
		Area Source	**TSP**	**2.695E-06**		TSP emission factor (Mg/hectare/yr)	0.85	AP-42, 5th ed., Table 11.9.4
		($g/m^2/s$)				Percentage area actively operating (%)	100	
						Emission height (m)	0.5	
			RSP	**1.275E-06**		RSP emission factor (Mg/hectare/yr)	0.4021	
						% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
			FSP	**1.941E-07**		FSP emission factor (Mg/hectare/yr)	0.0612	
						% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
60m Mined Tunnel for TBM Launch at Shatin Portal	**Tunneling Works**	Wet Drilling (g/s)				Emission Rate (g/s)	Q = Emission factor * Material Throughput * 1000 / 3600	
	ID:					Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
	ST32					Density of Rock (kg/m^3)	2600	from Geologist
						Maximum Material Throughput (Mg/hr)	78	drill and break throughput * density * 0.001
			TSP		**8.645E-03**	TSP emssion factor (kg/Mg)	3.99E-04	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			RSP		**8.645E-04**	RSP emission factor (kg/Mg)	3.99E-05	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			FSP		**8.645E-04**	FSP emission factor (kg/Mg)	3.99E-05	Assuming all RSP as FSP
		Spoil Handling (g/s)				Emission factor (kg/Mg)	E = k ´ (0.0016) ´ $[(U/2.2)^{1.3} / (M/2)^{1.4}]$	Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for TSP, k	0.74	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for RSP, k	0.35	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for FSP, k	0.053	from Section 13.2.4, AP-42, 11/06 ed.
						Material moisture content, M (%)	0.7	for crushed limestone from Table 13.2.4-1, AP-42, 11/06 ed.
						Average wind speed, U (m/s)	0.1	Assume minimum wind speed inside the tunnel
						Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
						Density of Spoil Material (kg/m^3)	1950	from Geologist
						Maximum Spoil Handling Rate (Mg/hr)	59	drill and break throughput * density * 0.001
						% of dust suppression	91.7	Water once every two hours
			TSP	**1.504E-03**	**1.249E-04**	TSP emssion factor (kg/Mg)	9.26E-05	by formula above
			RSP	**7.115E-04**	**5.906E-05**	RSP emission factor (kg/Mg)	4.38E-05	by formula above
			FSP	**1.077E-04**	**8.943E-06**	FSP emission factor (kg/Mg)	6.63E-06	by formula above

Appendix 3.3 Calculation of Construction Dust Emission Source

Construction Phase Year 2027

Location	Source	Emission Rates		Unmitigated	Mitigated	Parameters		Remarks
60m Mined Tunnel for TBM Launch at Shatin Portal	**Tunneling Works** ID: ST32	Unpaved Haul Road inside the tunnel (g/s)				Emission factor (g/VKT)	$E = k (s/12)^a \times (W/3)^b \times 281.9$	Section 13.2.2, AP-42, 11/06 ed.
						Surface Material Silt Content, s (%)	10	for plant road of Stone quarrying, from Table 13.2.2-1, AP-42, 11/06 ed.
						Mean Vehicle Weight, W (US ton)	27.6	Average value of full load weight and net weight of truck provided by Engineer
						Number of Vehicle per hour	4	from Engineer
						Travelling Distance (m) per vehicle	120	60m tunnel round-trip
						% of dust suppression	91.7	Water once every two hours
			TSP	**4.397E-01**	**3.649E-02**	Particle Size Multiplier for TSP, k	4.9	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.7	
						b	0.45	
						TSP emission factor (g/vehicle-meter-travelled)	3.298	
			RSP	**1.298E-01**	**1.077E-02**	Particle Size Multiplier for RSP, k	1.5	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.9	
						b	0.45	
						RSP emission factor (g/vehicle-meter-travelled)	0.973	
			FSP	**1.298E-02**	**1.077E-03**	Particle Size Multiplier for FSP, k	0.15	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.9	
						b	0.45	
						FSP emission factor (g/vehicle-meter-travelled)	0.097	
	Exhaust from Mined Tunnel ID: ST32	Subtotal	**TSP**	**4.498E-01**	**9.053E-03**	% of dust suppression	80	to be treated by dust filter at exhaust
			RSP	**1.314E-01**	**2.339E-03**			
			FSP	**1.395E-02**	**3.901E-04**			
100m Mined Tunnel for TBM Break Out at Kowloon Portal	**Tunneling Works** ID: KL11	Wet Drilling (g/s)				Emission Rate (g/s)	Q = Emission factor * Material Throughput * 1000 / 3600	
						Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
						Density of Rock (kg/m^3)	2600	from Geologist
						Maximum Material Throughput (Mg/hr)	78	drill and break throughput * density * 0.001
			TSP		**8.645E-03**	TSP emssion factor (kg/Mg)	3.99E-04	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			RSP		**8.645E-04**	RSP emission factor (kg/Mg)	3.99E-05	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			FSP		**8.645E-04**	FSP emission factor (kg/Mg)	3.99E-05	Assuming all RSP as FSP
		Spoil Handling (g/s)				Emission factor (kg/Mg)	$E = k \times (0.0016) \times [(U/2.2)^{1.3} / (M/2)^{1.4}]$	Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for TSP, k	0.74	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for RSP, k	0.35	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for FSP, k	0.053	from Section 13.2.4, AP-42, 11/06 ed.
						Material moisture content, M (%)	0.7	for crushed limestone from Table 13.2.4-1, AP-42, 11/06 ed.
						Average wind speed, U (m/s)	0.1	Assume minimum wind speed inside the tunnel
						Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
						Density of Spoil Material (kg/m^3)	1950	from Geologist
						Maximum Spoil Handling Rate (Mg/hr)	59	drill and break throughput * density * 0.001
						% of dust suppression	91.7	Water once every two hours
			TSP	**1.504E-03**	**1.249E-04**	TSP emssion factor (kg/Mg)	9.26E-05	by formula above
			RSP	**7.115E-04**	**5.906E-05**	RSP emission factor (kg/Mg)	4.38E-05	by formula above
			FSP	**1.077E-04**	**8.943E-06**	FSP emission factor (kg/Mg)	6.63E-06	by formula above

Appendix 3.3 Calculation of Construction Dust Emission Source

Construction Phase Year 2027

Location	Source	Emission Rates		Unmitigated	Mitigated	Parameters		Remarks
100m Mined Tunnel for TBM Break Out at Kowloon Portal	**Tunneling Works** ID: KL11	Unpaved Haul Road inside the tunnel (g/s)				Emission factor (g/VKT)	$E = k (s/12)^a \times (W/3)^b \times 281.9$	Section 13.2.2, AP-42, 11/06 ed.
						Surface Material Silt Content, s (%)	10	for plant road of Stone quarrying, from Table 13.2.2-1, AP-42, 11/06 ed.
						Mean Vehicle Weight, W (US ton)	27.6	Average value of full load weight and net weight of truck provided by Engineer
						Number of Vehicle per hour	4	from Engineer
						Travelling Distance (m) per vehicle	200	100m tunnel round-trip
						% of dust suppression	91.7	Water once every two hours
			TSP	**7.328E-01**	**6.082E-02**	Particle Size Multiplier for TSP, k	4.9	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.7	
						b	0.45	
						TSP emission factor (g/vehicle-meter-travelled)	3.298	
			RSP	**2.163E-01**	**1.795E-02**	Particle Size Multiplier for RSP, k	1.5	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.9	
						b	0.45	
						RSP emission factor (g/vehicle-meter-travelled)	0.973	
			FSP	**2.163E-02**	**1.795E-03**	Particle Size Multiplier for FSP, k	0.15	from Table 13.2.2-2, AP-42, 11/06 ed.
						a	0.9	
						b	0.45	
						FSP emission factor (g/vehicle-meter-travelled)	0.097	
	Exhaust from Mined Tunnel ID: KL11	Subtotal	**TSP**	**7.430E-01**	**1.392E-02**	% of dust suppression	80	to be treated by dust filter at exhaust
			RSP	**2.179E-01**	**3.775E-03**			
			FSP	**2.260E-02**	**5.338E-04**			
Enlargement of Existing Kowloon-bound Tunnel (Access at Shatin Portal)	**Tunneling Works** ID: ST33	Wet Drilling (g/s)				Emission Rate (g/s)	Q = Emission factor * Material Throughput * 1000 / 3600	
						Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
						Density of Rock (kg/m^3)	2600	from Geologist
						Maximum Material Throughput (Mg/hr)	78	drill and break throughput * density * 0.001
			TSP		**8.645E-03**	TSP emssion factor (kg/Mg)	3.99E-04	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			RSP		**8.645E-04**	RSP emission factor (kg/Mg)	3.99E-05	from Table B-5, Emissions from the Crushed Granite Industry: State of the Art
			FSP		**8.645E-04**	FSP emission factor (kg/Mg)	3.99E-05	Assuming all RSP as FSP
		Spoil Handling (g/s)				Emission factor (kg/Mg)	$E = k \times (0.0016) \times [(U/2.2)^{1.3} / (M/2)^{1.4}]$	Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for TSP, k	0.74	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for RSP, k	0.35	from Section 13.2.4, AP-42, 11/06 ed.
						Particle size mutipler for FSP, k	0.053	from Section 13.2.4, AP-42, 11/06 ed.
						Material moisture content, M (%)	0.7	for crushed limestone from Table 13.2.4-1, USEPA AP-42
						Average wind speed, U (m/s)	0.1	Assume minimum wind speed inside the tunnel
						Maximum hourly drill and break throughput (m^3/hr)	30	from Engineer
						Density of Spoil Material (kg/m^3)	1950	from Geologist
						Maximum Spoil Handling Rate (Mg/hr)	59	drill and break throughput * density * 0.001
						% of dust suppression	91.7	Water once every two hours
			TSP	**1.504E-03**	**1.249E-04**	TSP emssion factor (kg/Mg)	9.26E-05	by formula above
			RSP	**7.115E-04**	**5.906E-05**	RSP emission factor (kg/Mg)	4.38E-05	by formula above
			FSP	**1.077E-04**	**8.943E-06**	FSP emission factor (kg/Mg)	6.63E-06	by formula above

Appendix 3.3 Calculation of Construction Dust Emission Source

Construction Phase Year 2027

Location	Source	Emission Rates		Unmitigated	Mitigated	Parameters		Remarks
Enlargement of Kowloon-bound Tunnel (Access at Shatin Portal)	**Tunneling Works** ID: ST33	Paved Haul Road inside the tunnel (g/s)				Emission factor (g/VKT)	$E = k\ (sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1.3, 1/11 ed.
						Road Surface Silt Loading, sL (g/m^2)	8.2	for Quarrying, from Table 13.2.1-3, AP-42, 1/11 ed.
						Mean Vehicle Weight, W (US ton)	27.6	Average value of full load weight and net weight of truck provided by Engineer
						Number of Vehicle per hour	4	from Engineer
						Travelling Distance (m) per vehicle	2800	1400m tunnel round-trip
						% of dust suppression	91.7	Water once every two hours
			TSP	**2.007E+00**	**1.666E-01**	Particle Size Multiplier for TSP, k	3.23	from Table 13.2.1-1, USEPA AP-42, 1/11 ed.
						TSP emission factor (g/vehicle-meter-travelled)	0.645	
			RSP	**3.853E-01**	**3.198E-02**	Particle Size Multiplier for RSP, k	0.62	from Table 13.2.1-1, USEPA AP-42, 1/11 ed.
						RSP emission factor (g/vehicle-meter-travelled)	0.124	
			FSP	**9.322E-02**	**7.737E-03**	Particle Size Multiplier for FSP, k	0.15	from Table 13.2.1-1, USEPA AP-42, 1/11 ed.
						FSP emission factor (g/vehicle-meter-travelled)	0.030	
	Exhaust from Mined Tunnel ID: ST33	Subtotal	**TSP**	**2.017E+00**	**3.508E-02**	% of dust suppression	80	to be treated by dust filter at exhaust
			RSP	**3.869E-01**	**6.581E-03**			
			FSP	**9.419E-02**	**1.722E-03**			
Rehabilitation of Existing Shatin-bound Tunnel	**Repairing Works**[1] ID: ST34	Heavy Construction Area Source (g/s)				Emission Rate = (Emission Factor*10^6/10000)/(30*No. of Operation hour*60*60)*(Active Area)*(1-Dust Suppression%)		
			TSP	**5.404E-01**	**4.485E-02**	TSP emission factor (Mg/hectare/month of activity)	2.69	from AP-42, S13.2.3, 1/95 ed.
								The length and width of the tunnel is 1415m and 9.2m respectively
						Active works area (m^2)	2604	The engineer advises that the repairing works are divided into 5 portions within the tunnel.
								Thus, 20% area of the tunnel at one time is assumed as active works area.
						% of dust suppression	91.7	Assume watering once every 2 hours. Refer to the Calculation of Dust Supression Efficiency by Watering.
						no. of operation hour (hr)	12	Assume typical working hours of work site (0700 - 1900)
			RSP	**2.556E-01**	**2.122E-02**	RSP emission factor (Mg/hectare/month of activity)	1.27	
						% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
			FSP	**3.891E-02**	**3.229E-03**	FSP emission factor (Mg/hectare/month of activity)	0.19	
						% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4
	Exhaust from Mined Tunnel ID: ST34	Subtotal	**TSP**	**5.404E-01**	**8.971E-03**	% of dust suppression	80	to be treated by dust filter at exhaust
			RSP	**2.556E-01**	**4.243E-03**			
			FSP	**3.891E-02**	**6.459E-04**			

Type of Vehicles	Full load Weight (US ton)	Net Weight (US ton)
Dump truck	39.7	15.4

Remarks:
1. For Rehabilitation of Existing Shatin-bound Tunnel, the repairing works include removal and replacement of overhead ventilation duct slab, tunnel road slab, injection of grout at defect location and spray membrane.
The repairing works, associated spoil handling and vehicle movement are collectively considered as heavy construction activities for assessment purpose.

Appendix 3.3 Calculation of Construction Dust Emission Source

Emission Source Listing in AERMOD

Mitigated Construction Dust Emission Sources

									TSP Emission Rate [4]		RSP Emission Rate [4]		FSP Emission Rate [4]	
Source ID	Type	X	Y	Base Elevation (m)	Release Height (mAG)	No. of Vertices	Syinit	Szinit	Working Hour	Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
ST1	AREAPOLY	837463.84	825655.04	45.0	0.5	13	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST2	AREAPOLY	837323.46	825477.03	45.0	0.5	16	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST3	AREAPOLY	837189.01	825307.04	45.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST4	AREAPOLY	837133.89	825258.78	44.0	0.5	13	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST5	AREAPOLY	837022.21	825186.15	45.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST6	AREAPOLY	836918.82	825136.80	48.0	0.5	19	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST7	AREAPOLY	836783.21	825096.20	45.0	0.5	16	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST8	AREAPOLY	836852.64	825114.19	47.0	0.5	14	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST9	AREAPOLY	836805.66	825090.34	52.0	0.5	9	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST10	AREAPOLY	836709.83	825032.59	53.0	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST11	AREAPOLY	836655.44	825003.79	46.0	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST12	AREAPOLY	836645.97	824982.91	56.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST13	AREAPOLY	836664.81	824956.52	56.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST14	AREAPOLY	836664.81	824956.52	59.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST15	AREAPOLY	836392.09	824779.43	65.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST16	AREAPOLY	836061.15	824479.07	85.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST17	AREAPOLY	836066.01	824470.28	82.0	0.5	14	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST18	AREAPOLY	835863.14	824353.33	91.0	0.5	15	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST19	AREAPOLY	836046.42	824403.20	85.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST20	AREAPOLY	836089.92	824407.23	85.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST21	AREAPOLY	835983.50	824357.59	86.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST22	AREAPOLY	835985.73	824353.38	86.0	0.5	13	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST23	AREAPOLY	835899.77	824300.76	87.0	0.5	14	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST24	AREAPOLY	835898.02	824338.21	92.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST25	AREAPOLY	835853.41	824239.93	99.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST26	AREAPOLY	835847.06	824213.57	99.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST27	AREAPOLY	835869.76	824179.28	99.0	0.5	6	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST28	AREAPOLY	835875.61	824138.86	100.0	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST29	AREAPOLY	835918.18	824165.80	100.0	0.5	14	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST30	AREAPOLY	835798.96	824259.56	100.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST31	AREAPOLY	836244.59	824628.62	75.0	0.5	12	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST32[1,5]	VOLUME	835869.91	824172.85	98.0	5.0	-	7.49	4.65	08:00 - 17:00	9.053E-03	0.000E+00	2.339E-03	0.000E+00	3.901E-04	0.000E+00
ST33[2,5]	VOLUME	835890.92	824194.57	98.0	4.7	-	7.58	4.37	08:00 - 17:00	3.508E-02	0.000E+00	6.581E-03	0.000E+00	1.722E-03	0.000E+00
ST34[3]	VOLUME	835860.87	824136.94	97.5	3.4	-	4.28	3.12	07:00 - 19:00	8.971E-03	0.000E+00	4.243E-03	0.000E+00	6.459E-04	0.000E+00
ST35	AREAPOLY	837363.75	825467.46	52.0	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST36	AREAPOLY	837269.44	825335.86	57.0	0.5	16	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST37	AREAPOLY	837201.76	825279.95	52.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST38	AREAPOLY	837090.30	825178.74	63.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST39	AREAPOLY	836826.39	825053.42	50.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST40	AREAPOLY	836434.64	824770.14	68.0	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST41	AREAPOLY	837454.12	825700.10	45.0	0.5	12	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST42	AREAPOLY	837472.41	825661.11	45.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST43	AREAPOLY	837303.21	825438.00	45.0	0.5	9	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST44	AREAPOLY	837306.60	825387.76	45.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST45	AREAPOLY	837061.64	825255.38	44.0	0.5	14	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST46	AREAPOLY	836958.56	825126.24	45.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST47	AREAPOLY	836495.00	824814.56	65.0	0.5	5	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
ST48	AREAPOLY	836316.34	824719.54	75.0	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL1	AREAPOLY	836711.98	823001.86	93.5	0.5	11	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL2	AREAPOLY	836736.79	822959.80	93.5	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL3	AREAPOLY	836698.12	822993.53	93.5	0.5	13	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL4	AREAPOLY	836719.47	822960.67	90.5	0.5	9	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL5	AREAPOLY	836752.70	822984.40	93.5	0.5	8	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL6	AREAPOLY	836723.67	822922.43	90.0	0.5	18	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL7	AREAPOLY	836742.58	822816.27	86.0	0.5	12	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL8	AREAPOLY	836745.99	822759.77	86.0	0.5	17	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL9	AREAPOLY	836857.59	822800.19	70.0	0.5	10	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL10	AREAPOLY	836699.14	823025.34	100.0	0.5	17	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07
KL11[1,5]	VOLUME	836702.26	823059.13	94.0	5.0	-	7.49	4.65	08:00 - 17:00	1.392E-02	0.000E+00	3.775E-03	0.000E+00	5.338E-04	0.000E+00
KL12	AREAPOLY	836747.82	823039.41	94.0	0.5	4	-	-	07:00 - 19:00	1.723E-05	2.695E-06	8.149E-06	1.275E-06	1.240E-06	1.941E-07

Remarks:

1. The height and width of the new third tunnel tube are 10m and 16.1m respectively based on engineering design.
2. The height and width of the enlarged Kowloon bound tunnel tube are 9.4m and 16.3m respectively based on engineering design.
3. The height and width of the existing Shatin bound tunnel tube are 6.7m and 9.2m respectively based on engineering design.
4. The unit for area soucres and volume sources is in g/m^2-s and g/s respectively.
5. Drilling and break works for new tunnel, enlargement works of existing Kowloon-bound tunnel and repairing works of existing Shatin-bound tunnel will be conducted at 08:00 - 17:00.

Hourly Profile for AERAPOLY Sources

Hour	TSP	RSP	FSP
Hour 1	0.1565	0.1565	0.1565
Hour 2	0.1565	0.1565	0.1565
Hour 3	0.1565	0.1565	0.1565
Hour 4	0.1565	0.1565	0.1565
Hour 5	0.1565	0.1565	0.1565
Hour 6	0.1565	0.1565	0.1565
Hour 7	0.1565	0.1565	0.1565
Hour 8	1.0000	1.0000	1.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	1.0000	1.0000	1.0000
Hour 19	1.0000	1.0000	1.0000
Hour 20	0.1565	0.1565	0.1565
Hour 21	0.1565	0.1565	0.1565
Hour 22	0.1565	0.1565	0.1565
Hour 23	0.1565	0.1565	0.1565
Hour 24	0.1565	0.1565	0.1565

Hourly Profile for VOLUME Sources (except ST34)

Hour	TSP	RSP	FSP
Hour 1	0.0000	0.0000	0.0000
Hour 2	0.0000	0.0000	0.0000
Hour 3	0.0000	0.0000	0.0000
Hour 4	0.0000	0.0000	0.0000
Hour 5	0.0000	0.0000	0.0000
Hour 6	0.0000	0.0000	0.0000
Hour 7	0.0000	0.0000	0.0000
Hour 8	0.0000	0.0000	0.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	0.0000	0.0000	0.0000
Hour 19	0.0000	0.0000	0.0000
Hour 20	0.0000	0.0000	0.0000
Hour 21	0.0000	0.0000	0.0000
Hour 22	0.0000	0.0000	0.0000
Hour 23	0.0000	0.0000	0.0000
Hour 24	0.0000	0.0000	0.0000

Hourly Profile for ST34

Hour	TSP	RSP	FSP
Hour 1	0.0000	0.0000	0.0000
Hour 2	0.0000	0.0000	0.0000
Hour 3	0.0000	0.0000	0.0000
Hour 4	0.0000	0.0000	0.0000
Hour 5	0.0000	0.0000	0.0000
Hour 6	0.0000	0.0000	0.0000
Hour 7	0.0000	0.0000	0.0000
Hour 8	1.0000	1.0000	1.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	1.0000	1.0000	1.0000
Hour 19	1.0000	1.0000	1.0000
Hour 20	0.0000	0.0000	0.0000
Hour 21	0.0000	0.0000	0.0000
Hour 22	0.0000	0.0000	0.0000
Hour 23	0.0000	0.0000	0.0000
Hour 24	0.0000	0.0000	0.0000

Appendix 3.3 Calculation of Construction Dust Emission Source

Emission Source Listing in AERMOD

Unmitigated Construction Dust Emission Sources

									TSP Emission Rate [4]		RSP Emission Rate [4]		FSP Emission Rate [4]	
Source ID	Type	X	Y	Base Elevation (m)	Release Height (mAG)	No. of Vertices	Syinit	Szinit	Working Hour	Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
ST1	AREAPOLY	837463.84	825655.04	45.0	0.5	13	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST2	AREAPOLY	837323.46	825477.03	45.0	0.5	16	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST3	AREAPOLY	837189.01	825307.04	45.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST4	AREAPOLY	837133.89	825258.78	44.0	0.5	13	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST5	AREAPOLY	837022.21	825186.15	45.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST6	AREAPOLY	836918.82	825136.80	48.0	0.5	19	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST7	AREAPOLY	836783.21	825096.20	45.0	0.5	16	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST8	AREAPOLY	836852.64	825114.19	47.0	0.5	14	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST9	AREAPOLY	836805.66	825090.34	52.0	0.5	9	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST10	AREAPOLY	836709.83	825032.59	53.0	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST11	AREAPOLY	836655.44	825003.79	46.0	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST12	AREAPOLY	836645.97	824982.91	56.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST13	AREAPOLY	836664.81	824956.52	56.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST14	AREAPOLY	836664.81	824956.52	59.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST15	AREAPOLY	836392.09	824779.43	65.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST16	AREAPOLY	836061.15	824479.07	85.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST17	AREAPOLY	836066.01	824470.28	82.0	0.5	14	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST18	AREAPOLY	835863.14	824353.33	91.0	0.5	15	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST19	AREAPOLY	836046.42	824403.20	85.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST20	AREAPOLY	836089.92	824407.23	85.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST21	AREAPOLY	835983.50	824357.59	86.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST22	AREAPOLY	835985.73	824353.38	86.0	0.5	13	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST23	AREAPOLY	835899.77	824300.76	87.0	0.5	14	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST24	AREAPOLY	835898.02	824338.21	92.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST25	AREAPOLY	835853.41	824239.93	99.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST26	AREAPOLY	835847.06	824213.57	99.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST27	AREAPOLY	835869.76	824179.28	99.0	0.5	6	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST28	AREAPOLY	835875.61	824138.86	100.0	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST29	AREAPOLY	835918.18	824165.80	100.0	0.5	14	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST30	AREAPOLY	835798.96	824259.56	100.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST31	AREAPOLY	836244.59	824628.62	75.0	0.5	12	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST32[1,5]	VOLUME	835869.91	824172.85	98.0	5.0	-	7.49	4.65	08:00 - 17:00	4.498E-01	0.000E+00	1.314E-01	0.000E+00	1.395E-02	0.000E+00
ST33[2,5]	VOLUME	835890.92	824194.57	98.0	4.7	-	7.58	4.37	08:00 - 17:00	2.017E+00	0.000E+00	3.869E-01	0.000E+00	9.419E-02	0.000E+00
ST34[3]	VOLUME	835860.87	824136.94	97.5	3.4	-	4.28	3.12	07:00 - 19:00	5.404E-01	0.000E+00	2.556E-01	0.000E+00	3.891E-02	0.000E+00
ST35	AREAPOLY	837363.75	825467.46	52.0	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST36	AREAPOLY	837269.44	825335.86	57.0	0.5	16	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST37	AREAPOLY	837201.76	825279.95	52.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST38	AREAPOLY	837090.30	825178.74	63.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST39	AREAPOLY	836826.39	825053.42	50.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST40	AREAPOLY	836434.64	824770.14	68.0	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST41	AREAPOLY	837454.12	825700.10	45.0	0.5	12	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST42	AREAPOLY	837472.41	825661.11	45.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST43	AREAPOLY	837303.21	825438.00	45.0	0.5	9	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST44	AREAPOLY	837306.60	825387.76	45.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST45	AREAPOLY	837061.64	825255.38	44.0	0.5	14	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST46	AREAPOLY	836958.56	825126.24	45.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST47	AREAPOLY	836495.00	824814.56	65.0	0.5	5	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
ST48	AREAPOLY	836316.34	824719.54	75.0	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL1	AREAPOLY	836711.98	823001.86	93.5	0.5	11	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL2	AREAPOLY	836736.79	822959.80	93.5	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL3	AREAPOLY	836698.12	822993.53	93.5	0.5	13	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL4	AREAPOLY	836719.47	822960.67	90.5	0.5	9	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL5	AREAPOLY	836752.70	822984.40	93.5	0.5	8	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL6	AREAPOLY	836723.67	822922.43	90.0	0.5	18	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL7	AREAPOLY	836742.58	822816.27	86.0	0.5	12	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL8	AREAPOLY	836745.99	822759.77	86.0	0.5	17	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL9	AREAPOLY	836857.59	822800.19	70.0	0.5	10	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL10	AREAPOLY	836699.14	823025.34	100.0	0.5	17	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07
KL11[1,5]	VOLUME	836702.26	823059.13	94.0	5.0	-	7.49	4.65	08:00 - 17:00	7.430E-01	0.000E+00	2.179E-01	0.000E+00	2.260E-02	0.000E+00
KL12	AREAPOLY	836747.82	823039.41	94.0	0.5	4	-	-	07:00 - 19:00	2.076E-04	2.695E-06	9.818E-05	1.275E-06	1.494E-05	1.941E-07

Remarks:

1. The height and width of the new third tunnel tube are 10m and 16.1m respectively based on engineering design.
2. The height and width of the enlarged Kowloon bound tunnel tube are 9.4m and 16.3m respectively based on engineering design.
3. The height and width of the existing Shatin bound tunnel tube are 6.7m and 9.2m respectively based on engineering design.
4. The unit for area soucres and volume sources is in g/m^2-s and g/s respectively.
5. Drilling and break works for new tunnel, enlargement works of existing Kowloon-bound tunnel and repairing works of existing Shatin-bound tunnel will be conducted at 08:00 - 17:00.

Hourly Profile for AERAPOLY Sources

Hour	TSP	RSP	FSP
Hour 1	0.0130	0.0130	0.0130
Hour 2	0.0130	0.0130	0.0130
Hour 3	0.0130	0.0130	0.0130
Hour 4	0.0130	0.0130	0.0130
Hour 5	0.0130	0.0130	0.0130
Hour 6	0.0130	0.0130	0.0130
Hour 7	0.0130	0.0130	0.0130
Hour 8	1.0000	1.0000	1.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	1.0000	1.0000	1.0000
Hour 19	1.0000	1.0000	1.0000
Hour 20	0.0130	0.0130	0.0130
Hour 21	0.0130	0.0130	0.0130
Hour 22	0.0130	0.0130	0.0130
Hour 23	0.0130	0.0130	0.0130
Hour 24	0.0130	0.0130	0.0130

Hourly Profile for VOLUME Sources (except ST34)

Hour	TSP	RSP	FSP
Hour 1	0.0000	0.0000	0.0000
Hour 2	0.0000	0.0000	0.0000
Hour 3	0.0000	0.0000	0.0000
Hour 4	0.0000	0.0000	0.0000
Hour 5	0.0000	0.0000	0.0000
Hour 6	0.0000	0.0000	0.0000
Hour 7	0.0000	0.0000	0.0000
Hour 8	0.0000	0.0000	0.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	0.0000	0.0000	0.0000
Hour 19	0.0000	0.0000	0.0000
Hour 20	0.0000	0.0000	0.0000
Hour 21	0.0000	0.0000	0.0000
Hour 22	0.0000	0.0000	0.0000
Hour 23	0.0000	0.0000	0.0000
Hour 24	0.0000	0.0000	0.0000

Hourly Profile for ST34

Hour	TSP	RSP	FSP
Hour 1	0.0000	0.0000	0.0000
Hour 2	0.0000	0.0000	0.0000
Hour 3	0.0000	0.0000	0.0000
Hour 4	0.0000	0.0000	0.0000
Hour 5	0.0000	0.0000	0.0000
Hour 6	0.0000	0.0000	0.0000
Hour 7	0.0000	0.0000	0.0000
Hour 8	1.0000	1.0000	1.0000
Hour 9	1.0000	1.0000	1.0000
Hour 10	1.0000	1.0000	1.0000
Hour 11	1.0000	1.0000	1.0000
Hour 12	1.0000	1.0000	1.0000
Hour 13	1.0000	1.0000	1.0000
Hour 14	1.0000	1.0000	1.0000
Hour 15	1.0000	1.0000	1.0000
Hour 16	1.0000	1.0000	1.0000
Hour 17	1.0000	1.0000	1.0000
Hour 18	1.0000	1.0000	1.0000
Hour 19	1.0000	1.0000	1.0000
Hour 20	0.0000	0.0000	0.0000
Hour 21	0.0000	0.0000	0.0000
Hour 22	0.0000	0.0000	0.0000
Hour 23	0.0000	0.0000	0.0000
Hour 24	0.0000	0.0000	0.0000

Appendix 3.3 Calculation of Construction Dust Emission Source

Location of Vertices for AREAPOLY

	Vertice 1		Vertice 2		Vertice 3		Vertice 4		Vertice 5		Vertice 6		Vertice 7		Vertice 8		Vertice 9		Vertice 10	
Source ID	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ST1	837463.84	825655.04	837432.15	825623.37	837416.80	825606.83	837396.96	825577.60	837383.20	825546.24	837365.40	825486.78	837355.15	825459.53	837360.05	825477.32	837368.96	825523.54	837377.27	825554.71
ST2	837323.46	825477.03	837334.82	825457.61	837326.51	825439.72	837317.82	825425.78	837306.12	825410.97	837287.78	825393.11	837259.37	825367.59	837222.92	825336.04	837189.01	825307.04	837185.14	825309.96
ST3	837189.01	825307.04	837133.89	825258.78	837129.69	825268.86	837127.94	825278.63	837129.21	825284.74	837134.85	825291.80	837150.33	825302.04	837168.11	825309.11	837177.73	825310.59	837185.14	825309.96
ST4	837133.89	825258.78	837126.72	825252.43	837098.72	825232.36	837080.87	825217.80	837076.17	825217.21	837070.15	825217.21	837065.19	825219.79	837062.87	825223.82	837066.44	825221.00	837071.87	825220.32
ST5	837022.21	825186.15	837022.80	825179.07	837010.23	825171.20	836987.28	825161.47	836918.82	825136.80	836913.00	825144.08	836951.70	825155.65	836969.49	825161.47	836983.45	825166.63	837008.58	825178.41
ST6	836918.82	825136.80	836894.39	825128.19	836882.59	825126.95	836852.64	825114.19	836850.94	825116.36	836833.80	825109.96	836814.01	825101.70	836786.38	825088.79	836783.21	825096.20	836787.12	825098.32
ST7	836783.21	825096.20	836786.38	825088.79	836776.21	825084.31	836762.32	825080.27	836741.92	825079.31	836730.49	825082.65	836718.39	825088.76	836706.16	825097.41	836694.53	825110.98	836688.46	825123.05
ST8	836852.64	825114.19	836823.13	825099.59	836788.94	825081.49	836736.09	825050.91	836730.79	825061.23	836728.08	825073.33	836730.49	825082.65	836743.76	825079.40	836762.32	825080.27	836776.21	825084.31
ST9	836805.66	825090.34	836798.66	825075.80	836771.87	825060.80	836714.13	825025.57	836653.46	824987.64	836677.68	825008.52	836709.83	825032.59	836736.09	825050.91	836788.94	825081.49	-	-
ST10	836709.83	825032.59	836653.46	824987.64	836645.97	824982.91	836660.58	824997.83	836668.16	825007.43	836677.88	825022.59	836683.28	825036.64	836686.30	825051.17	836694.04	825050.26	836699.63	825047.16
ST11	836655.44	825003.79	836662.27	825014.53	836669.09	825027.45	836674.49	825041.26	836678.46	825057.50	836680.52	825074.54	836681.79	825061.95	836680.95	825048.98	836677.77	825035.44	836669.99	825020.04
ST12	836645.97	824982.91	836636.30	824977.02	836621.88	824965.70	836614.15	824959.99	836630.98	824977.17	836646.26	824988.37	836666.97	825005.93	836660.58	824997.83	-	-	-	-
ST13	836664.81	824956.52	836663.75	824957.05	836655.27	824956.62	836655.48	824960.61	836658.88	824965.04	836666.74	824970.23	836672.75	824972.61	836674.20	824972.51	836675.87	824970.92	836677.83	824967.42
ST14	836664.81	824956.52	836625.88	824924.51	836564.06	824873.52	836599.59	824914.82	836615.43	824931.50	836636.57	824950.01	836639.96	824950.77	836649.51	824954.94	836655.27	824956.62	836663.75	824957.05
ST15	836392.09	824779.43	836464.99	824830.10	836522.77	824878.83	836568.07	824917.62	836552.19	824893.58	836534.18	824872.70	836477.90	824821.82	836398.76	824769.05	-	-	-	-
ST16	836061.15	824479.07	836066.01	824470.28	836033.91	824452.77	836021.28	824448.28	836014.47	824448.41	836009.04	824450.99	835999.39	824448.28	836036.39	824468.12	836031.47	824477.65	836054.64	824490.66
ST17	836066.01	824470.28	836061.15	824479.07	836102.64	824503.47	836160.32	824556.39	836236.36	824637.18	836244.59	824628.62	836153.86	824531.75	836143.05	824522.35	836128.95	824514.43	836105.30	824493.57
ST18	835863.14	824353.33	835869.27	824368.66	835866.81	824374.69	835866.92	824384.11	835870.58	824390.47	835877.96	824396.18	835888.61	824398.82	835910.45	824407.18	835940.29	824423.53	835943.86	824416.81
ST19	836046.42	824403.20	836094.97	824431.14	836102.78	824417.49	836054.76	824389.39	-	-	-	-	-	-	-	-	-	-	-	-
ST20	836089.92	824407.23	836088.60	824400.32	836086.48	824396.35	836082.28	824392.81	836078.51	824391.52	836073.22	824391.16	836065.19	824391.99	836075.87	824397.48	-	-	-	-
ST21	835983.50	824357.59	835985.07	824358.43	835980.90	824366.12	836002.23	824376.92	836006.72	824368.75	835991.15	824361.04	835993.14	824357.21	835985.73	824353.38	-	-	-	-
ST22	835985.73	824353.38	836012.24	824367.09	836009.33	824371.69	836012.72	824373.17	836010.44	824377.83	836014.68	824379.68	836054.39	824388.47	836056.17	824385.59	836016.21	824365.88	836020.28	824359.05
ST23	835899.77	824300.76	835916.80	824327.11	835921.56	824333.03	835961.64	824361.45	835977.56	824368.75	835993.53	824339.55	835982.68	824336.87	835973.56	824343.60	835923.05	824318.30	835919.90	824312.90
ST24	835898.02	824338.21	835878.86	824305.04	835901.49	824300.41	835897.65	824292.21	835867.88	824299.22	835845.53	824273.95	835839.07	824277.90	835857.25	824308.14	835872.33	824328.38	835889.39	824343.72
ST25	835853.41	824239.93	835871.98	824231.83	835864.84	824215.96	835847.06	824224.05	-	-	-	-	-	-	-	-	-	-	-	-
ST26	835847.06	824213.57	835859.92	824208.65	835858.01	824203.26	835844.84	824208.02	-	-	-	-	-	-	-	-	-	-	-	-
ST27	835869.76	824179.28	835861.03	824195.48	835871.89	824201.03	835871.35	824202.94	835875.00	824204.88	835884.37	824187.22	-	-	-	-	-	-	-	-
ST28	835875.61	824138.86	835918.18	824165.80	835923.70	824152.74	835917.88	824131.36	835911.74	824126.70	835906.87	824125.96	835898.47	824120.97	835894.50	824118.98	835884.87	824120.70	835881.47	824126.23
ST29	835918.18	824165.80	835875.61	824138.86	835859.34	824127.85	835854.41	824134.56	835864.48	824141.89	835851.56	824159.44	835838.25	824188.31	835850.56	824194.07	835862.20	824167.22	835866.17	824161.53
ST30	835798.96	824259.56	835816.79	824251.70	835810.28	824236.54	835792.50	824244.00	-	-	-	-	-	-	-	-	-	-	-	-
ST31	836244.59	824628.62	836236.36	824637.18	836291.55	824695.82	836313.78	824717.25	836347.64	824747.42	836392.09	824779.43	836398.76	824769.05	836381.23	824758.47	836359.14	824742.26	836338.50	824725.92
ST35	837363.75	825467.46	837363.79	825467.63	837365.75	825473.22	837368.15	825480.46	837369.23	825483.96	837375.76	825493.94	837383.93	825501.67	837384.96	825500.58	837376.92	825492.97	837368.10	825479.50
ST36	837269.44	825335.86	837282.06	825348.27	837290.00	825353.79	837295.65	825361.64	837296.77	825362.74	837305.75	825366.00	837310.24	825374.41	837316.45	825379.41	837317.39	825378.24	837311.41	825373.44
ST37	837276.95	825322.42	837242.58	825320.42	837243.64	825319.35	837202.81	825278.89	-	-	-	-	-	-	-	-	-	-	-	-
ST38	837090.30	825178.74	837104.86	825189.42	837113.60	825199.96	837125.28	825204.08	837125.78	825202.67	837114.49	825198.68	837105.90	825188.32	837091.19	825177.53	-	-	-	-
ST39	836826.39	825053.42	836826.39	825059.48	836831.33	825066.81	836837.56	825068.64	836838.40	825065.76	836833.21	825064.23	836829.39	825058.56	836829.39	825053.42	-	-	-	-
ST40	836434.64	824770.14	836468.98	824793.19	836471.79	824789.26	836469.30	824787.59	836468.24	824789.08	836438.88	824769.37	836440.60	824766.95	836438.01	824765.42	-	-	-	-
ST41	837454.12	825700.10	837457.82	825702.62	837461.39	825702.35	837463.91	825701.29	837466.42	825698.12	837466.55	825693.75	837464.44	825690.31	837460.47	825686.48	837455.55	825681.95	837447.24	825675.13
ST42	837472.41	825661.11	837490.54	825674.79	837493.00	825671.98	837492.52	825665.67	837490.58	825660.39	837488.28	825656.66	837486.69	825653.32	837483.99	825650.58	837475.48	825654.02	837472.52	825657.20
ST43	837303.21	825438.00	837289.80	825457.53	837291.78	825468.80	837296.31	825479.28	837306.47	825496.82	837307.34	825484.04	837317.56	825470.58	837310.82	825453.04	837306.72	825444.28	-	-
ST44	837306.60	825387.76	837343.59	825433.87	837335.25	825415.22	837322.71	825399.35	-	-	-	-	-	-	-	-	-	-	-	-
ST45	837061.64	825255.38	837063.33	825251.31	837067.41	825247.07	837073.46	825242.36	837079.55	825240.25	837086.16	825240.91	837094.90	825245.54	837109.75	825256.15	837128.44	825272.76	837129.69	825268.86
ST46	836958.56	825126.24	837005.28	825143.41	836990.44	825132.93	836974.96	825127.46	-	-	-	-	-	-	-	-	-	-	-	-
ST47	836495.00	824814.56	836550.57	824861.92	836543.16	824852.92	836535.49	824843.27	836515.18	824825.94	-	-	-	-	-	-	-	-	-	-
ST48	836316.34	824719.54	836329.73	824736.56	836349.97	824753.37	836367.63	824762.96	836372.17	824765.08	836372.04	824764.98	836353.74	824751.80	836347.64	824747.42	836345.44	824745.46	836329.08	824730.89
KL1	836711.98	823001.86	836726.47	823011.32	836728.85	823006.83	836729.91	823007.69	836732.03	823004.71	836730.97	823003.58	836738.18	822993.00	836737.58	822985.33	836735.27	822978.18	836730.24	822979.64
KL2	836736.79	822959.80	836742.21	822959.73	836742.21	822954.11	836736.79	822954.11	-	-	-	-	-	-	-	-	-	-	-	-
KL3	836698.12	822993.53	836719.47	822960.67	836719.47	822945.03	836717.49	822923.04	836706.61	822922.89	836684.63	822923.44	836678.12	822931.70	836665.89	822963.05	836660.73	822974.32	836659.62	822987.42
KL4	836719.47	822960.67	836722.81	822945.67	836723.92	822915.74	836725.98	822892.80	836725.16	822884.55	836723.65	822893.60	836718.25	822911.38	836717.49	822923.04	836719.47	822945.03	-	-
KL5	836752.70	822984.40	836757.23	822965.43	836758.10	822951.14	836756.75	822937.65	836755.32	822927.41	836752.28	822938.39	836751.52	822959.02	836752.17	822984.48	-	-	-	-
KL6	836723.67	822922.43	836728.69	822923.63	836743.02	822849.88	836748.89	822817.25	836740.71	822815.98	836726.90	822818.92	836719.24	822807.84	836705.70	822797.37	836690.75	822792.27	836652.14	822792.62
KL7	836742.58	822816.27	836739.12	822807.20	836728.45	822797.52	836713.13	822790.49	836671.14	822786.93	836650.57	822786.60	836698.33	822790.04	836690.75	822792.27	836705.70	822797.37	836719.24	822807.84
KL8	836734.99	822759.77	836753.08	822759.88	836752.13	822740.99	836745.96	822722.94	836735.57	822706.54	836723.13	822694.58	836707.79	822684.68	836689.90	822676.17	836677.36	822677.38	836666.35	822679.92
KL9	836857.59	822800.19	836870.87	822794.69	836885.42	822787.18	836901.56	822775.85	836920.83	822760.03	836949.67	822736.43	836983.19	822712.47	836949.14	822734.05	836918.97	822756.91	836884.42	822783.84
KL10	836699.14	823025.34	836685.22	823027.01	836668.38	823050.02	836672.31	823074.54	836683.10	823102.06	836691.57	823119.94	836700.57	823129.15	836709.25	823133.60	836719.19	823130.85	836727.55	823124.39
KL12	836747.82	823039.41	836763.63	823043.11	836768.02	823024.50	836752.12	823020.68	-	-	-	-	-	-	-	-	-	-	-	-

	Vertice 11		Vertice 12		Vertice 13		Vertice 14		Vertice 15		Vertice 16		Vertice 17		Vertice 18		Vertice 19		Vertice 20	
Source ID	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
ST1	837385.95	825574.61	837404.89	825602.55	837421.09	825619.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST2	837177.73	825310.59	837217.53	825344.67	837256.47	825381.61	837280.92	825405.53	837309.07	825442.46	837317.33	825460.77	-	-	-	-	-	-	-	-
ST3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST4	837075.97	825221.97	837090.06	825234.41	837129.69	825268.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST6	836791.36	825104.88	836798.98	825110.06	836807.55	825111.65	836820.67	825111.76	836833.22	825116.10	836845.65	825123.82	836881.18	825137.98	836903.81	825144.57	836913.00	825144.08	-	-
ST7	836694.85	825113.05	836707.83	825099.44	836723.82	825090.78	836740.89	825087.13	836759.94	825088.08	836771.57	825091.02	-	-	-	-	-	-	-	-
ST8	836786.38	825088.79	836814.01	825101.70	836833.80	825109.96	836850.94	825116.36	-	-	-	-	-	-	-	-	-	-	-	-
ST9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST10	836702.73	825044.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST11	836662.42	825010.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST17	836100.66	824493.77	836097.96	824491.11	836096.25	824487.78	836091.92	824484.41	-	-	-	-	-	-	-	-	-	-	-	-
ST18	835981.43	824437.77	835944.79	824413.91	835949.62	824404.09	835912.67	824384.28	835894.25	824377.14	-	-	-	-	-	-	-	-	-	-
ST19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST22	836000.69	824348.59	836003.19	824343.54	835993.53	824339.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST23	835946.17	824297.90	835939.03	824287.26	835925.77	824292.34	835912.20	824294.25	-	-	-	-	-	-	-	-	-	-	-	-
ST24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST28	835880.38	824130.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST29	835886.41	824174.23	835882.20	824180.75	835904.98	824192.89	835912.48	824179.30	-	-	-	-	-	-	-	-	-	-	-	-
ST30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST31	836317.73	824706.21	836296.63	824684.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST35	837365.21	825467.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST36	837306.80	825364.79	837297.59	825361.44	837296.79	825360.66	837291.07	825352.70	837283.02	825347.11	837270.49	825334.79	-	-	-	-	-	-	-	-
ST37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST41	837443.27	825678.83	837446.02	825689.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST45	837075.97	825221.97	837071.87	825220.32	837066.44	825221.00	837062.87	825223.82	-	-	-	-	-	-	-	-	-	-	-	-
ST46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST48	836316.38	824719.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL1	836723.63	822984.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL3	836665.50	822997.74	836675.82	823003.53	836689.79	823000.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL6	836653.98	822793.71	836680.77	822796.92	836698.43	822802.60	836712.40	822812.76	836722.72	822830.58	836726.66	822849.97	836725.16	822884.55	836723.92	822915.74	-	-	-	-
KL7	836726.90	822818.92	836740.71	822815.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL8	836680.16	822678.81	836690.96	822680.66	836706.78	822689.29	836719.32	822698.87	836732.15	822711.40	836740.12	822725.64	836744.98	822742.64	-	-	-	-	-	-
KL9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KL10	836737.29	823112.32	836743.75	823092.53	836735.60	823059.41	836722.05	823085.13	836701.89	823076.26	836693.90	823070.15	836681.94	823057.50	-	-	-	-	-	-
KL12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3.3 Calculation of Construction Dust Emission Source

Calculation of Dust Suppression Efficiency from Watering

Dust suppression efficiency is assumed to be 91.7%. Assumptions are stated as below.

With reference to the Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), dust suppression efficiency can be estimated by:

$$C = 100 - \frac{0.8 \cdot p \cdot d \cdot t}{i}$$

where

C = average control efficiency, in percent

p = potential average hourly daytime evaporation rate in mm/hour

d = average hourly daytime traffic rate in vehicles per hour

i = application intensity in L/m^2

t = time between applications in hour

The following assumptions are made for assessment purpose:

Assumption 1:

Potential average hourly daytime evaporation rate p can be estimated by 0.0049 * e, where e is the mean annual average evaporation rate (inches). From past measurement data in Hong Kong's Observatory, evaporation recorded at King's Park between 1981 - 2010 is 1227.3 mm[1]. Therefore p = 0.0049 * (1227.3 mm) = 0.0049 * (48.3188976 inches) = 0.2368.

Assumption 2:

Estimate average hourly daytime traffic rate in vehicles per hour = 20. (d = 20)

Assumption 3:

Assume watering application intensity as 0.91 L/m^2. (i = 0.91)

Assumption 4:

Assumes watering frequency as once every 2 hours. (t = 2)

With the above assumptions, dust suppression efficiency is calculated as below:

C = 100 – 0.8*(0.2368)*(20)*(2) / 0.91 = **91.7%**

[1] The Hong Kong's Observatory evaporation recorded at King's Park between 1981 to 2010 is taken from https://www.hko.gov.hk/en/cis/monthlyElement.htm?ele=EVAPO

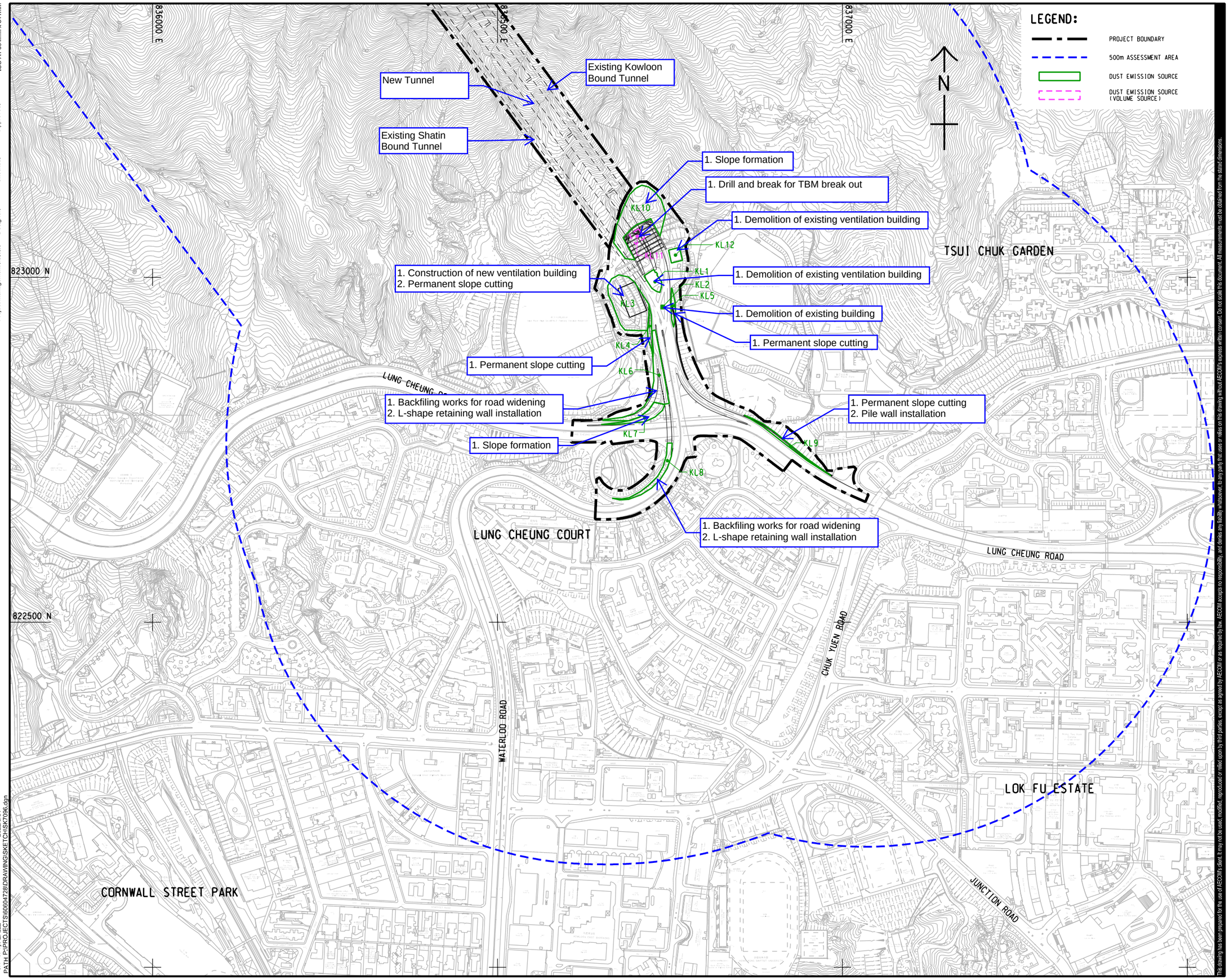
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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PATH P:\PROJECTS\60604728\DRAWING\SKETCH\SK7096.dgn
2022/3/31

AECOM

PROJECT
項目

IMPROVEMENT OF LION ROCK TUNNEL - INVESTIGATION

CLIENT
業主

路政署 HIGHWAYS DEPARTMENT

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

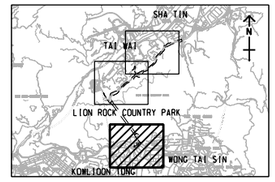
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
狀況

SCALE 比例
A3 1 : 5000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN A3 1 : 200000
索引圖



PROJECT NO. 項目編號
60604728

AGREEMENT NO. 合約編號
CE 48/2018(HY)

SHEET TITLE
圖紙名稱

LOCATION OF CONSTRUCTION DUST EMISSION SOURCES (KOWLOON SIDE)

SHEET NUMBER
圖紙編號

60604728/SK7096

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60604728/SK4097 TO SK4098.

LEGEND:

- PROJECT BOUNDARY
- 500m ASSESSMENT AREA
- DUST EMISSION SOURCE
- DUST EMISSION SOURCE (VOLUME SOURCE)

836000 E

836500 E

825000 N

824500 N

N

HIN TIN PLAYGROUND

KING TIN COURT

CHUK YUEN NE A-A

ANNEX NO. 60604728/SK7150

ST4

ST5

ST6

ST7

ST8

ST9

ST10

ST11

ST12

ST13

ST14

ST15

ST16

ST17

ST18

ST19

ST20

ST21

ST22

ST23

ST24

ST25

ST26

ST27

ST28

ST29

ST30

ST31

ST32

ST33

ST34

ST39

ST40

ST46

ST47

ST48

1. Permanent slope cutting

1. L-shape retaining wall installation
2. Permanent slope cutting

1. L-shape retaining wall installation
2. Permanent slope cutting

1. L-shape retaining wall installation
2. Permanent slope cutting

1. L-shape retaining wall installation
2. Permanent slope cutting

1. Construction of layby

1. Slope formation

1. L-shape retaining wall installation
2. Permanent slope cutting

1. Slope formation

1. Backing filing with special retaining structure

1. Backfiling works for road widening
2. L-shape retaining wall installation
3. Pile wall installation

1. Construction of layby

1. Backfiling works for road widening
2. Pile wall installation

1. Permanent slope cutting
2. Pile wall installation

1. Construction of layby

1. Construction of rigid barrier

1. Backfiling works for road widening
2. Pile wall installation

1. Backfiling works for road widening
2. Pile wall installation

1. Backfiling works for road widening
2. Pile wall installation

1. Demolition of existing building

1. Backfiling works for road widening
2. L-shape retaining wall installation
3. Pile wall installation

1. Construction of new administration building

1. L-shape retaining wall installation

1. Demolition of existing building

1. Backfiling works for car parking facilities
2. L-shape retaining wall installation
3. Pile wall installation

1. Construction of new surge tank

1. Backfiling works for car parking facilities
2. L-shape retaining wall installation
3. Pile wall installation
4. Spoil storage area

1. Demolition of existing surge tank

1. Demolition of existing building

1. Drill and break for existing Kowloon-bound tunnel enlargement

1. Demolition of existing ventilation building

1. Drill and break for TBM launch

1. Construction of new ventilation building
2. Slope formation

New Tunnel

1. Construction of new ventilation building and portal structure
2. Slope formation

1. Rehabilitation of existing Shatin-bound tunnel

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2022/8/15

AECOM

PROJECT
項目

IMPROVEMENT OF LION ROCK TUNNEL - INVESTIGATION

CLIENT
業主

路政署 HIGHWAYS DEPARTMENT

CONSULTANT
工程顧問公司

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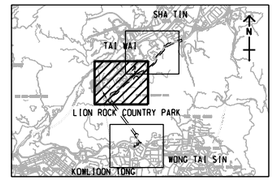
狀況

SCALE 比例
A3 1 : 5000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN A3 1 : 200000
索引圖



PROJECT NO. 項目編號
60604728

AGREEMENT NO. 合約編號
CE 48/2018(HY)

SHEET TITLE
圖紙名稱

LOCATION OF CONSTRUCTION DUST EMISSION SOURCES (SHATIN SIDE)

SHEET 1 OF 2

SHEET NUMBER
圖紙編號

60604728/SK7149

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

836500 E

837000 E

837500 E

826000 N

825500 N

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60604728/SK4097.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60604728/SK4097 TO SK4098.

N

CHUN SHEK ESTATE

KING TIN COURT

CUTTING LINE (SEE DRAWING 60604728/SK7149)

1. Demolition of stepped ramp structure
2. Piling area for permanent footbridge

1. Demolition of stepped ramp structure
2. Piling area for permanent footbridge

1. Permanent slope cutting
2. Pile wall installation

1. Permanent fill slope
2. Retaining wall (bored pile)

1. Backfiling works for road widening
2. L-shape retaining wall installation
3. Permanent slope cutting
4. Pile wall installation

1. L-shape retaining wall installation
2. Permanent slope cutting

1. Slope formation

1. Retaining wall

1.Permanent slope cutting

1. L-shape retaining wall installation
2. Permanent slope cutting

1. Construction of rigid barrier

1. Construction of flexible barrier

1. L-shape retaining wall installation
2. Permanent slope cutting

1. Construction of flexible barrier

1.Permanent slope cutting

1. Construction of flexible barrier

1. Construction of layby
2. Retaining wall

1. Construction of flexible barrier

1. Construction of flexible barrier

ST1 ST2 ST3 ST4 ST5 ST6 ST7 ST11 ST35 ST36 ST37 ST38 ST39 ST41 ST42 ST43 ST44 ST45

2022/6/24

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ISSUE/REVISION
修訂

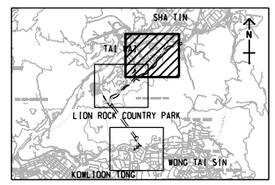
I/R 修訂	DATE 日期	DESCRIPTION 修訂內容	CHK. 核准

STATUS
狀況

SCALE 比例: A3 1 : 5000

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖 A3 1 : 200000



PROJECT NO. 項目編號: 60604728

AGREEMENT NO. 協議編號: CE 48/2018(HY)

SHEET TITLE
圖紙名稱

LOCATION OF CONSTRUCTION DUST EMISSION SOURCES (SHATIN SIDE)

SHEET 2 OF 2

SHEET NUMBER
圖紙編號

60604728/SK7150