Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2015

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Submarine pipeline Submarine cable	Heavy construction Source ID: Q1: Q2: Q3: S1, S2, S3 Q4: S1, S2, S3	Percentage active area, p	15.0	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.67014E-07 3.87622E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	15	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.2129E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: Q2: Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, TRD2, TCPN-1, TCPN-2, TCPN-3, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p	16.9	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.25715E-07 4.36344E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	16.9	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.36536E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q2: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q3: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q4: EM1, EM2, ITT1	Percentage active area, p	34.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.0673E-06 8.85857E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	34.3	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.77192E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q3: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q4:	Percentage active area, p	34.28	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.28076E-05 1.06303E-06	g/m²/s (unmitigated) g/m²/s (mitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p	34.28	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.77192E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) Boundary Crossing Facilities (BCF)	Heavy construction Source ID: Q1: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q2: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q3: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q4: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4	Percentage active area, p	10.0	%	Extracted from HKBCF EIA, assume 10% works area for heavy construction
		Mitigation efficiency	87.5	%	Extracted from HKBCF EIA
		No. of working days per month, d	26	days	Extracted from HKBCF EIA
		No. of working hours per day, h	12	hour	Extracted from HKBCF EIA
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	7.18483E-07 8.98104E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	10	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	8.086E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) Hong Kong Link Road (HKLR)	Heavy construction Source ID: Q1: LR-2, LR-3, LR-4, LR-5, LR-6, LR-7, LR-8, LR-9, LR-10, LR-11, LR-12, LR-13, LR-14 Q2: Q3: Q4:	Percentage active area, p	10.0	%	Extracted from HKLR EIA, assume 10% works area for heavy construction
		Mitigation efficiency	87.5	%	Extracted from HKLR EIA
		No. of working days per month, d	26	days	Extracted from HKLR EIA
		No. of working hours per day, h	12	hour	Extracted from HKLR EIA
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	7.18483E-07 8.98104E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	10	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	8.086E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2016

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: Q2: Q3: Q4: 1_03-1, 1_03-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.1 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.8559E-09 g/m²/s (unmitigated) 2.3704E-10 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.1 % 0.0255 Mg/hectare/year 7.41717E-11 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Submarine pipeline Submarine cable	Heavy construction Source ID: Q1: S1, S2, S3 Q2: S1, S2, S3 Q3: S1, S2, S3 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	22.5 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 7.00521E-07 g/m²/s (unmitigated) 5.81432E-08 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	22.5 % 0.0255 Mg/hectare/year 1.81935E-08 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q2: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	16.0 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 4.9862E-07 g/m²/s (unmitigated) 4.13854E-08 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	16.0 % 0.0255 Mg/hectare/year 1.29498E-08 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: AES6, EM1, EM2, ITT1 Q2: AES6, EM1, EM2, ITT1 Q3: AES6, EM1, EM2, ITT1 Q4: AES6, EM1, EM2, ITT1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	35.9 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.11861E-06 g/m²/s (unmitigated) 9.28444E-08 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	35.9 % 0.0255 Mg/hectare/year 2.90518E-08 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2016

(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q3: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q4: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	35.93 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.34233E-05 g/m²/s (unmitigated) 1.11413E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	35.93 % 0.0255 Mg/hectare/year 2.90518E-08 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Advanced Works (Temporary Car Parks NCD and Temporary Road Diversion)	Heavy construction Source ID: Q1: TRD1, TRD3, TRD4, TRD5, TRD6 Q2: TRD1, TRD5, TRD6 Q3: TRD1, TRD5, TRD6 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	1.0 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 3.22126E-08 g/m²/s (unmitigated) 2.67364E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	1.0 % 0.0255 Mg/hectare/year 8.36605E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) Boundary Crossing Facilities (BCF)	Heavy construction Source ID: Q1: BCF-C4 Q2: BCF-C4 Q3: BCF-C4 Q4: BCF-C4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	10.0 % 87.5 % 26 days 12 hour 0.0807 Mg/hectare/month of activity 7.18483E-07 g/m²/s (unmitigated) 8.98104E-08 g/m²/s (mitigated)	Extracted from HKBCF EIA, assume 10% works area for heavy construction Extracted from HKBCF EIA Extracted from HKBCF EIA Extracted from HKBCF EIA AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	10 % 0.0255 Mg/hectare/year 8.086E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-1 Q2: ABT1-1 Q3: ABT1-1 Q4: ABT1-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	5.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.6071E-07 g/m²/s (unmitigated) 1.3339E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	5.2 % 0.0255 Mg/hectare/year 4.17387E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Roadworks corresponding to Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-2, ABT1-3 Q2: ABT1-2, ABT1-3 Q3: ABT1-2, ABT1-3 Q4: ABT1-2, ABT1-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	5.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.92852E-06 g/m²/s (unmitigated) 1.60068E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	5.2 % 0.0255 Mg/hectare/year 4.17387E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2017

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 1_01, 1_03-1, 1_03-2, 1_04, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 1_09-1, 1_09-2, 2_03B, 2_04-1, 2_04-2, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07B, 2_08, 2_09-1, 2_09-2 Q2: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 1_09-1, 1_09-2, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 3_01A-1, 3_01A-2, 3_01A-3 Q4: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	1.4 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 4.45002E-08 g/m²/s (unmitigated) 3.69352E-09 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: Q2: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3 Q3: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2 Q4: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	1.4 % 91.7 % 30 days 12 (night) hour 0.0807 Mg/hectare/month of activity 8.90004E-08 g/m²/s (unmitigated) 7.38703E-09 g/m²/s (mitigated)		AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	1.4 % 0.0255 Mg/hectare/year 1.15573E-09 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: Q2: Q3: Q4: 1_08B-1, 1_08B-2, 3_01A-1, 3_01A-2, 3_01A-3	Percentage active area, p Emission Factor (0.03) Emission Rate	20.0 % 0.0255 Mg/hectare/year 1.6172E-08 g/m²/s		Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012 AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 4_04, 4_05-1 Q2: 4_04, 4_05-1 Q3: 4_04, 4_05-1 Q4: 4_04, 4_05-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.0 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 8.58968E-10 g/m²/s (unmitigated) 7.12944E-11 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.0 % 0.0255 Mg/hectare/year 2.23086E-11 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q2: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	3.1 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 9.65381E-08 g/m²/s (unmitigated) 8.01266E-09 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	3.1 % 0.0255 Mg/hectare/year 2.50723E-09 g/m²/s		AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2017

(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: AES6 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	7.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.2403E-07 g/m²/s (unmitigated) 1.85945E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	7.2 % 0.0255 Mg/hectare/year 5.81837E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	7.20 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.68836E-06 g/m²/s (unmitigated) 2.23134E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	7.20 % 0.0255 Mg/hectare/year 5.81837E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	30.48 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.13869E-05 g/m²/s (unmitigated) 9.45115E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	30.48 % 0.0255 Mg/hectare/year 2.46445E-08 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	30.5 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.18614E-06 g/m²/s (unmitigated) 9.84495E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	30.5 % 0.0255 Mg/hectare/year 2.46445E-08 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2017

Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	20.7 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 8.04473E-07 g/m²/s (unmitigated) 6.67713E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	20.7 % 0.0255 Mg/hectare/year 1.67146E-08 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: Q2: Q3: AIS1, AIS2 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.7 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.24013E-08 g/m²/s (unmitigated) 1.8593E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1:	Percentage active area, p Emission Factor (0.03) Emission Rate	0.72 % 0.0255 Mg/hectare/year 5.81792E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: Q2: Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 5.42931E-09 g/m²/s (unmitigated) 4.50633E-10 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1:	Percentage active area, p Emission Factor (0.03) Emission Rate	0.17 % 0.0255 Mg/hectare/year 1.41007E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion Area	Heavy construction Source ID: Q1: Q2: Q3: T2E-1, T2E-2, T2E-3, BHS1, BHS2, NAB1, NAB2, SAB, NAD1 Q4: T2E-1, T2E-2, T2E-3, AIS1, AIS2, BHS1, BHS2, NAB1, NAB2, SAB, NAD1, EVA1, EVA2, EVA3, EVA4, EVA5, EVA6, EVA7, EVA8, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.0 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.44149E-09 g/m²/s (unmitigated) 1.19644E-10 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.0 % 0.0255 Mg/hectare/year 3.74376E-11 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Emergency Vehicular Access (EVA)	Heavy construction Source ID: Q1: Q2: Q3: EVA1, EVA2, EVA3, EVA4, EVA5, EVA6, EVA7, EVA8, EVA9 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	2.0 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 6.20924E-08 g/m²/s (unmitigated) 5.15367E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	2.0 % 0.0255 Mg/hectare/year 1.61263E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2017

Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-1 Q2: ABT1-1 Q3: ABT1-1 Q4: ABT1-1	Percentage active area, p	1.4 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.36713E-08 g/m²/s (unmitigated) 3.62472E-09 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.4 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.1342E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Roadworks corresponding to Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-2, ABT1-3 Q2: ABT1-2, ABT1-3 Q3: ABT1-2, ABT1-3 Q4: ABT1-2, ABT1-3	Percentage active area, p	1.4 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.24056E-07 g/m²/s (unmitigated) 4.34966E-08 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.4 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.1342E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2018

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_08B-2, 2_02B-1, 2_02B-2, 2_03A, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2 Q2: 1_02-1, 1_02-2, 1_05, 1_06-1, 1_06-2, 2_02B-1, 2_02B-2, 2_03A, 2_05A, 2_08, 3_02B Q3: 1_06-1, 1_06-2, 2_01, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2 Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05B-1, 2_05B-2	Percentage active area, p	6.8	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.10499E-07 1.74714E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3 Q2: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3, 3_02A-1, 3_02A-2, 3_02A-3 Q3: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3, 3_02A-1, 3_02A-2, 3_02A-3 Q4: 1_09-1, 1_09-2, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3	Percentage active area, p	6.8	%	
		Mitigation efficiency	91.7	%	
		No. of working days per month, d	30	days	
		No. of working hours per day, h	12 (night)	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.20998E-07 3.49428E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	6.8	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.46694E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 1_07-2, 1_08A-2, 2_03B, 2_07B, 2_08, 3_01A-1, 3_01A-2, 3_01A-3 Q2: 1_01, 1_03-1, 1_03-2, 1_04, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B Q3: 1_09-1, 1_09-2, 2_08, 3_02B Q4: 2_04-1, 2_04-2, 2_05A, 2_06-1, 2_06-2, 2_06-3, 2_08, 3_02B	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.6172E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 1_07-1, 1_08A-1, 1_08B-1, 4_04, 4_05-1 Q2: 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 4_04, 4_05-1 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_07A-1, 2_07A-2, 2_07B, 4_04, 4_05-1 Q4: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_04, 4_05-1	Percentage active area, p	2.4	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	7.43415E-08 6.17034E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	2.4	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.93075E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q2: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q3: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q4: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2	Percentage active area, p	26.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	8.18814E-07 6.79615E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	26.3	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.12657E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2018

Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p	0.7 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.1273E-08 g/m²/s (unmitigated) 1.76566E-09 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.7 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.52489E-10 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: CA1, CA2 Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p	43.24 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.61535E-05 g/m²/s (unmitigated) 1.34074E-06 g/m²/s (mitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p	43.24 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	3.49607E-08 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: CA3, CA4, CA5, CA6, CA7, CA8 Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p	43.2 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.68265E-06 g/m²/s (unmitigated) 1.3966E-07 g/m²/s (mitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p	43.2 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	3.49607E-08 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p	29.3 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.14122E-06 g/m²/s (unmitigated) 9.47215E-08 g/m²/s (mitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p	29.3 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.37113E-08 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: Q2: AIS1, AIS2, EVA6, EVA7, EVA8 Q3: AIS1, AIS2, EVA6, EVA7, EVA8 Q4: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p	8.1 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.51202E-07 g/m²/s (unmitigated) 2.08497E-08 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1:	Percentage active area, p	8.07 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	6.52405E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2018

Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: Q2: BHS1, BHS2, EVA9 Q3: BHS1, BHS2, EVA9 Q4: BHS1, BHS2, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	10.7 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 3.33502E-07 g/m²/s (unmitigated) 2.76807E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1:	Percentage active area, p Emission Factor (0.03) Emission Rate	10.71 % 0.0255 Mg/hectare/year 8.66151E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD1, NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4: NAD1, NAD2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.4 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.29094E-08 g/m²/s (unmitigated) 1.07148E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: NAD1, NAD2	Percentage active area, p Emission Factor (0.03) Emission Rate	0.41 % 0.0255 Mg/hectare/year 3.35276E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1, BAT2, NAB3, NAB4 Q2: BAT1, BAT2, NAB3, NAB4 Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.5 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.52021E-08 g/m²/s (unmitigated) 1.26177E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Emission Factor (0.03) Emission Rate	0.49 % 0.0255 Mg/hectare/year 3.94819E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion Area	Heavy construction Source ID: Q1: T2E-1, T2E-2, T2E-3, AIS1, AIS2, BHS2 Q2: T2E-3 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 5.46382E-09 g/m²/s (unmitigated) 4.53497E-10 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.2 % 0.0255 Mg/hectare/year 1.41903E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Car Park North (North Annex Building)	Heavy construction Source ID: Q1: NAB1, NAB2, BHS1 Q2: NAB1, NAB2 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 4.86999E-09 g/m²/s (unmitigated) 4.04209E-10 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.2 % 0.0255 Mg/hectare/year 1.2648E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Lounge Limo (South Annex Building)	Heavy construction Source ID: Q1: SAB Q2: SAB Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 5.69905E-09 g/m²/s (unmitigated) 4.73021E-10 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.2 % 0.0255 Mg/hectare/year 1.48012E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2018

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2019

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 2_01, 2_02A Q2: 2_01, 2_02A, 2_05A Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_05A Q4: 2_02B-1, 2_02B-2, 2_03A	Percentage active area, p	6.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.06269E-07 1.71203E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: 1_09-1, 1_09-2, 2_06-1, 2_06-2, 2_06-3, 3_02A-1, 3_02A-2, 3_02A-3 Q2: 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3 Q3: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3 Q4: 2_09-1	Percentage active area, p	6.6	%	
		Mitigation efficiency	91.7	%	
		No. of working days per month, d	30	days	
		No. of working hours per day, h	12 (night)	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.12537E-07 3.42406E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	6.6	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.35708E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 2_02B-1, 2_03A, 2_03B, 2_04-1, 2_04-2, 2_05A, 2_05B-1, 2_05B-2, 2_08, 2_09-1, 2_09-2, 3_02B Q2: 2_02B-1, 2_03A, 2_03B, 2_05B-1, 2_05B-2, 3_02B Q3: 1_09-2, 3_02B Q4: 3_02A-1, 3_02A-2, 3_02A-3, 3_02B	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.6172E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_07-1, 1_08A-1, 1_08B-1, 2_02B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 4_04 Q2: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_09-1, 2_02B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_09-1, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04 Q4: 1_09-1, 1_09-2, 2_01, 2_02A, 2_03B, 2_04-1, 2_04-2, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04	Percentage active area, p	1.8	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.75391E-08 4.77575E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.8	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.49437E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p	1.5	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.73069E-08 3.92648E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.5	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.22863E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2019

South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: CA1, CA2 Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p	11.16 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.16979E-06 g/m²/s (unmitigated) 3.46092E-07 g/m²/s (mitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p	11.16 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	9.0246E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: CA3, CA4, CA5, CA6, CA7, CA8 Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p	11.2 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.34353E-07 g/m²/s (unmitigated) 3.60513E-08 g/m²/s (mitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p	11.2 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	9.0246E-09 g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p	7.6 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.9459E-07 g/m²/s (unmitigated) 2.4451E-08 g/m²/s (mitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p	7.6 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	6.12074E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: AIS1, AIS2, EVA6, EVA7, EVA8 Q2: Q3: Q4:	Percentage active area, p	2.6 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	8.20748E-08 g/m²/s (unmitigated) 6.81221E-09 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p	2.64 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.1316E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2019

Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: BHS1, BHS2, EVA9 Q2: Q3: Q4: BHS1, BHS2, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	7.4 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.2904E-07 g/m²/s (unmitigated) 1.90103E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BHS1, BHS2, EVA9	Percentage active area, p Emission Factor (0.03) Emission Rate	7.36 % 0.0255 Mg/hectare/year 5.94849E-09 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD1, NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4: NAD2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.4 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.29094E-08 g/m²/s (unmitigated) 1.07148E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: NAD1, NAD2	Percentage active area, p Emission Factor (0.03) Emission Rate	0.41 % 0.0255 Mg/hectare/year 3.35276E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1, BAT2, NAB3, NAB4 Q2: BAT1, BAT2, NAB3, NAB4 Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.5 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 1.52021E-08 g/m²/s (unmitigated) 1.26177E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Emission Factor (0.03) Emission Rate	0.49 % 0.0255 Mg/hectare/year 3.94819E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion Area	Heavy construction Source ID: Q1: Q2: Q3: Q4: AIS1, AIS2, NAB1, NAB2, NAB3, NAB4, BAT2, NAD1, EVA6, EVA7, EVA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.03) Emission Rate	0.8 % 91.7 % 30 days 24 hour 0.0807 Mg/hectare/month of activity 2.4034E-08 g/m²/s (unmitigated) 1.99482E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.03) Emission Rate	0.8 % 0.0255 Mg/hectare/year 6.24196E-10 g/m²/s	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2020

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities:	Percentage active area, p	0.1	%	Assume % works area for heavy construction
	Q1:	Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
	Q2:	No. of working days per month, d	30	days	
	Q3:	No. of working hours per day, h	24	hour	
	Q4:	Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.95947E-09 1.62636E-10	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	For night-time activities:	Percentage active area, p	0.1	%	
	Q1:	Mitigation efficiency	91.7	%	
	Q2: 3_02A-1, 3_02A-2, 3_02A-3	No. of working days per month, d	30	days	
	Q3: 3_02A-1, 3_02A-2, 3_02A-3	No. of working hours per day, h	12 (night)	hour	
	Q4:	Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	3.91894E-09 3.25272E-10	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.1	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.08901E-11	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID:	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
	Q1: 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3, 3_02B	Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
	Q2: 2_09-1, 3_02B Q3: 2_09-1, 3_02B Q4: 3_02A-1, 3_02B	Emission Rate	1.6172E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID:	Percentage active area, p	1.3	%	Assume % works area for heavy construction
	Q1: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2	Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
	Q2: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2	No. of working days per month, d	30	days	
	Q3: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2	No. of working hours per day, h	24	hour	
	Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_09-1, 3_02A-2, 3_02A-3	Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.10099E-08 3.40382E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.3	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.06508E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID:	Percentage active area, p	0.7	%	Assume % works area for heavy construction
	Q1: MD Q2: MD Q3: MD Q4: MD	Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.05772E-08 1.70791E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.7	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.34418E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Western Support Area Emergency Access Road (flyover)	Heavy construction Source ID:	Percentage active area, p	55.2	%	Assume % works area for heavy construction
	Q1: WSA1, WSA2, WSA3, WSA4 Q2: WSA1, WSA2, WSA3, WSA4 Q3: WSA1, WSA2, WSA3, WSA4 Q4: WSA1, WSA2, WSA3, WSA4	Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.14727E-06 1.78223E-07	g/m²/s (unmitigated) g/m²/s (mitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p	55.2	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.46141E-08	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2020

Western Support Area Emergency Access Road (at grade)	Heavy construction Source ID: Q1: WSA5 Q2: WSA5 Q3: WSA5 Q4: WSA5	Percentage active area, p	55.2 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.06138E-05 g/m²/s (unmitigated) 1.71095E-06 g/m²/s (mitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p	55.2 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.46141E-08 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: AIS1, AIS2, EVA6, EVA7, EVA8 Q2: AIS1, AIS2, EVA6, EVA7, EVA8 Q3: Q4:	Percentage active area, p	1.9 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.93756E-08 g/m²/s (unmitigated) 4.92818E-09 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p	1.91 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.54207E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: BHS1, BHS2, EVA9 Q2: BHS1, BHS2, EVA9 Q3: Q4:	Percentage active area, p	3.0 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	9.39246E-08 g/m²/s (unmitigated) 7.79574E-09 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BHS1, BHS2, EVA9	Percentage active area, p	3.02 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.43935E-09 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4:	Percentage active area, p	0.3 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	9.68208E-09 g/m²/s (unmitigated) 8.03613E-10 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: NAD2	Percentage active area, p	0.31 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.51457E-10 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1 Q2: BAT1, BAT2, NAB3, NAB4 Q3: Q4:	Percentage active area, p	0.2 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	6.51517E-09 g/m²/s (unmitigated) 5.40759E-10 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BAT1	Percentage active area, p	0.21 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.69208E-10 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
T2 Expansion Area	Heavy construction Source ID: Q1: NAB1, NAB2, NAB3, NAB4, BAT2, NAD1 Q2: NAB1, NAB2 Q3: Q4:	Percentage active area, p	0.2 %	Assume % works area for heavy construction
		Mitigation efficiency	91.7 %	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30 days	
		No. of working hours per day, h	24 hour	
		Emission Factor (0.03)	0.0807 Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	5.12952E-09 g/m²/s (unmitigated) 4.2575E-10 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.2 %	
		Emission Factor (0.03)	0.0255 Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.33221E-10 g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2021

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: Q2: Q3: Q4: 3_01B-1, 3_01B-2	Percentage active area, p	0.9	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.67288E-08 2.21849E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.9	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	6.94183E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 3_02A-1, 3_02B Q2: 3_02A-1, 3_02B Q3: 3_02A-1, 3_02B Q4: 3_02A-1, 3_02B	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.6172E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_09-1, 3_02A-2, 3_02A-3 Q2: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_05-1 Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 3_01B-1, 3_01B-2, 4_01-1, 4_01-2, 4_01-3, 4_05-1 Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_03-1, 4_03-2, 4_05-1	Percentage active area, p	0.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.84274E-08 1.52947E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.6	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.78584E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Airside tunnels (AT)	Heavy construction Source ID: Q1: Q2: AT1, AT3 Q3: AT1, AT3 Q4: AT1, AT2, AT3	Percentage active area, p	0.4	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.28853E-08 1.06948E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.4	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	3.34649E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p	0.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.74857E-08 1.45132E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.6	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.54129E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2021

South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: Q2: Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p	3.63	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.35651E-06	g/m²/s (unmitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
			1.1259E-07	g/m²/s (mitigated)	
	Wind Erosion Source ID: (as above)	Percentage active area, p	3.63	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.93586E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: Q2: Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p	3.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.41303E-07	g/m²/s (unmitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
			1.17281E-08	g/m²/s (mitigated)	
	Wind Erosion Source ID: (as above)	Percentage active area, p	3.6	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.93586E-09	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: Q2: Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p	2.5	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	9.58355E-08	g/m²/s (unmitigated)	Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
			7.95435E-09	g/m²/s (mitigated)	
	Wind Erosion Source ID: (as above)	Percentage active area, p	2.5	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.99118E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for Annual FSP Assessment at Year 2022

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 3_02B Q2: Q3: Q4: 3_02B	Percentage active area, p	0.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	8.80231E-09 7.30591E-10	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.3	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	2.28608E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 3_02A-1 Q2: 3_02A-1 Q3: 3_02B Q4:	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.6172E-08	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_03-1, 4_03-2, 4_05-1 Q2: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-3, 3_02B, 4_03-1, 4_03-2, 4_05-1 Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_02A-1, 4_05-1 Q4: 2_01, 2_02A, 2_02B-1, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 4_05-1	Percentage active area, p	1.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.18554E-08 3.474E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.3	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.08704E-09	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Airside tunnels (AT)	Heavy construction Source ID: Q1: AT1, AT2, AT3 Q2: AT2, AT3 Q3: AT3 Q4: AT3	Percentage active area, p	0.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.03)	0.0807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	1.92465E-08 1.59746E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.6	%	
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Table 11.9-4 Thompson G. Pace, USEPA. Examination of the Multiplier Used to Estimate PM2.5 Fugitive Dust Emissions from PM10, April 2005
		Emission Rate	4.99859E-10	g/m²/s	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for FSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles (FSP)

Description	Sources	Parameter	Emission Rate		Remarks
Barging Point	Unloading of spoils to barge	Particle size multiplier, k	0.053		For FSP, AP-42, section 13.2.4, 11/06 ed.
	Source ID: TBP1-6	Moisture content, M	5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.66E-05	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
		No. of operation hour	12	hr	26 days per month
		Maximum handling capcity for each barging point	47000	Mg/day	From engineer
			2.61E-01	kg/hr (Asphalt)	Assume 12 working hours (7:00 - 19:00) per day
		Emission height	0.5	m	
		Mitigation efficiency	90	%	Installation of flexible curtain and shelter with water spray at discharge point
		Emission Rate	7.24E-03	g/s (mitigated)	
Concrete Batching Plant	Paved haul road outside concrete batching plant -	Particle size multiplier, k	0.15	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
	For **Laden** Vehicle	Average truck weight, W	28.3	tons	Full loading of Asphalt Tipper, engineering estimate
	Source ID:				
	WAB-HR1 to WAB-HR13				
	WAB-P4-HR1 to WAB-P4-HR10	Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
	WC-HR1 to WC-HR13	FSP emission factor, E			E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.)
	WC-P4-HR1 to WC-P4-HR10		44	g/VKT	Asphalt Tipper
	EAB-HR1 to EAB-HR4				
		No. of truck trips per day	96	trips/hr	From engineer, Asphalt Tipper Lorries in Asphalt Plant
	EAC-HR1 to EAC-HR4		140	trips/hr	From Enginner, Asphalt Tipper Lorries in Concrete Batching Plant
	EC-HR1 to EC-HR14	No. of operation hour	12	hr	
	EC-P2-HR1 to EC-P2-HR7	% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	2.90E-05	g/m/s (mitigated)	Asphalt Tipper Lorries in Asphalt Plant
			4.23E-05	g/m/s (mitigated)	Asphalt Tipper Lorries in Concrete Batching Plant
Concrete Batching Plant	Paved haul road outside concrete batching plant -	Particle size multiplier, k	0.15	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
	For **Unladen** Vehicle	Average truck weight, W	8.24	tons	Empty loading of Asphalt Tipper, engineering estimate
	Source ID:				
	WAB-HR1 to WAB-HR13	Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
	WAB-P4-HR1 to WAB-P4-HR10				
		FSP emission factor, E			E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.)
	WC-HR1 to WC-HR13		12	g/VKT	Asphalt Tipper
	WC-P4-HR1 to WC-P4-HR10				
	EAB-HR1 to EAB-HR4	No. of truck trips per day	30	trips/hr	From engineer, Asphalt Tipper Lorries in Asphalt Plant
			140	trips/hr	From Enginner, Asphalt Tipper Lorries in Concrete Batching Plant
	EAC-HR1 to EAC-HR4	No. of operation hour	12	hr	
	EC-HR1 to EC-HR14	% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
	EC-P2-HR1 to EC-P2-HR7				
		Emission Rate	2.6E-06	g/m/s (mitigated)	Asphalt Tipper Lorries in Asphalt Plant
			1.20E-05	g/m/s (mitigated)	Asphalt Tipper Lorries in Concrete Batching Plant
Concrete Batching Plant (Unloading of raw materials)	Unloading aggregate	Consumption Rate (Western + Eastern)	300	Mg/h (Asphalt)	From engineer: Asphalt: 300 ton/hr = 150 ton/hr x 2 plants
	Source ID: (EP9)		2000	Mg/h (Concrete)	From engineer: Concrete: 2000 ton/hr = 500 ton/hr x4 plants
		Consumption Rate (Western only)	150	Mg/h (Asphalt)	From engineer: Asphalt: 150 ton/hr
	WAB-EP9, WAB-P4-EP9,		500	Mg/h (Concrete)	From engineer: Concrete: 500 ton/hr
	WC-EP9, WC-P4-EP9	Particle size multiplier, k	0.053		For FSP, AP-42, section 13.2.4, 11/06 ed.
		Moisture content, M	2	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
	EAB-EP9,				
	EC-EP9, EC-2-EP9, EC-3-EP9,	Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
	EC-P2-EP9	Emission Factor, E	2.40E-04	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
			0.07	kg/hr (Asphalt - Westen + Eastern)	
			0.48	kg/hr (Concrete - Western +Eastern)	
			0.04	kg/hr (Asphalt - Westen only)	
			0.12	kg/hr (Concrete - Western only)	
		Mitigation efficiency	99	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		No. of operation hour	12	hr	
		Emission height	4	m	
		Emission Rate (Western + Eastern) - **Period 2 to 4**	1.00E-04	g/s (mitigated) (Asphalt)	For each plant (150 ton/hr) Period 2 to 4: 150 ton/hr x 2 plants
			3.34E-04	g/s (mitigated) (Concrete)	For each plant (500ton/hr) Period 2: 500ton/hr x 2 plants Period 3&4: 500ton/hr x 4 plants
		Emission Rate (Western only) - **Period 1**	1.00E-04	g/s (mitigated) (Asphalt)	For 150 ton/hr only
			3.34E-04	g/s (mitigated) (Concrete)	For 500 ton/hr only
Concrete Batching Plant (Cement / PFA Silos)	Small Cementitious Material Silos	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	Source ID: (EP5-EP8)				
	WAB-EP5 to EP8, WAB-P4-EP5 to EP8,				
	WC-EP5 to EP8, WC-P4-EP5 to EP8	FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
	EAB-EP5 to EP8,				
	EC-EP5 to EP8, EC-2-EP5 to EP8, EC-3-EP5 to EP8,	Dust exhaust flow rate for each mixer (Total 4 sources)	60	tons/hr (Asphalt)	Assume volume displacement by loading material
	EC-P2-EP5 to EP8		1200	tons/hr (Concrete)	
			26.8	m3/hr (Asphalt)	For concrete & Asphalt density: 2.24 tons/m3
			535.7	m3/hr (Concrete)	
		No. of operation hour	12	hr	
		No. of small cement silos	4		Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission height	21 or 22	m	EP5: 21m, EP6-EP8: 22m Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate (Total 4 sources)	5.21E-05	g/s (mitigated) (Asphalt)	
			1.04E-03	g/s (mitigated) (Concrete)	
		Emission Rate (Each source)	1.30E-05	g/s (mitigated) (Asphalt)	
		.	2.60E-04	g/s (mitigated) (Concrete)	
	PFA weight Hopper	Emission Factor (without mitigation)	2.60E-03	kg/Mg	Weight hopper loading (uncontrolled), AP-42, section 11.12-4, Table 11.12-1, 6/06 ed.
	Source ID: (EP3-EP4)	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	WAB-EP3 to EP4, WAB-P4-EP3 to EP4,				
	WC-EP3 to EP4, WC-P4-EP3 to EP4				
	EAB-EP3 to EP4,	Emission factor	5.82E-03	kg/m3	
	EC-EP3 to EP4, EC-2-EP3 to EP4, EC-3-EP3 to EP4,	Production rate (Total 2 sources)	25	m3/hr (Asphalt)	From engineer
	EC-P2-EP3 to EP4		429	m3/hr (Concrete)	
		Mitigation efficiency	99	%	Total enclosure and fabric filter
		Emission height	13	m	
		Emission Rate (Total 2 sources)	4.04E-04	g/s (mitigated) (Asphalt)	
			6.94E-03	g/s (mitigated) (Concrete)	
Concrete Batching Plant (Mixing Tower)	Mixer Source ID: (EP1-EP2)	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	WAB-EP1 to EP2, WAB-P4-EP1 to EP2,				
	WC-EP1 to EP2, WC-P4-EP1 to EP2				
		FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
	EAB-EP1 to EP2,				
	EC-EP1 to EP2, EC-2-EP1 to EP2, EC-3-EP1 to EP2,				
	EC-P2-EP1 to EP2	Dust exhaust flow rate for each mixer (Total 2 sources)	60	tons/hr (Asphalt)	Assume volume displacement by loading material
			1200	tons/hr (Concrete)	
			26.8	m3/hr (Asphalt)	For concrete & Asphalt density: 2.24 tons/m3
			535.7	m3/hr (Concrete)	
		No. of operation hour	12	hr	
		No. of small cement silos	2		
		Emission height	13	m	
		Emission Rate (Total 2 sources)	5.21E-05	g/s (mitigated) (Asphalt)	
			1.04E-03	g/s (mitigated) (Concrete)	

Appendix 5.2.15 - Details of Dust Emission Sources for FSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles (FSP)

Description	Sources	Parameter	Emission Rate		Remarks
Stockpile within Asphalt batching plant in western location	Material handling and storage piles Source ID: WABA1, WABA1-P4 WABA2, WABA2-P4	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	335	m3/month (Asphalt)	From engineer
			5,250	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	1.1	m3/hr (Asphalt)	26 days per month, 12 working hours per day
			16.8	m3/hr (Aggregate)	
			2.7	Mg/hr (Asphalt)	Assume capacity of dump truck is 6m^3 and 15 tons
			42.1	Mg/hr (Aggregate)	
		Area of the Asphalt stockpile, A	234	m^2(Asphalt)	
		Area of the Aggregate stockpile, A	2,200	m^2(Aggregate)	
		Emission Rate (Asphalt stockpile)	2.12177E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			4.24354E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	3.53766E-07	g/m²/s (unmitigated)	
			7.07531E-08	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
Milled Material, Crushed Aggregate and Sub-base Stockpile in western location	Material handling and storage piles Source ID: WAR1, WAR1-P4 WCAS1, WCAS1-P4 WSS1, WSS1-P4	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	422	m3/month (Milled Material)	From engineer
			15,182	m3/month (Crushed Aggregate)	From engineer
			16,275	m3/month (Sub-base stockpile)	From engineer
		Maximum hourly output, op	1.4	m3/hr (Milled Material)	26 days per month, 12 working hours per day
			48.7	m3/hr (Crushed Aggregate)	
			52.2	m3/hr (Sub-base stockpile)	
			3.4	Mg/hr (Milled Material)	Assume capacity of dump truck is 6m^3 and 15 tons
			121.6	Mg/hr (Crushed Aggregate)	
			130.4	Mg/hr (Sub-base stockpile)	
		Area of the Milled Material stockpile, A	279	m^2 (Milled Material)	
		Area of the Crushed Aggregate stockpile, A	5,822	m^2(Crushed Aggregate)	
		Area of the Sub-base stockpile, A	6,209	m^2(Sub-base stockpile)	
		Emission Rate (Milled Material stockpile)	2.24376E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			4.48752E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Crushed Aggregate stockpile)	3.86492E-07	g/m²/s (unmitigated)	
			7.72983E-08	g/m²/s (mitigated)	
		Emission Rate (Sub-base stockpile)	3.88446E-07	g/m²/s (unmitigated)	
			7.76891E-08	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
Stockpile within Asphalt batching plant in eastern location	Material handling and storage piles Source ID: EABA1, EABA2	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	67	m3/month (Asphalt)	From engineer
			1,050	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	0.2	m3/hr (Asphalt)	26 days per month, 12 working hours per day
			3.4	m3/hr (Aggregate)	
			0.5	Mg/hr (Asphalt)	Assume capacity of dump truck is 6m^3 and 15 tons
			8.4	Mg/hr (Aggregate)	
		Area of the Asphalt stockpile, A	154	m^2(Asphalt)	
		Area of the Aggregate stockpile, A	562	m^2(Aggregate)	
		Emission Rate (Asphalt stockpile)	6.46124E-08	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			1.29225E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	2.77069E-07	g/m²/s (unmitigated)	
			5.54139E-08	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
Stockpile within Airfield batching plant in eastern location	Material handling and storage piles Source ID: EACC1, EACA1	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	2,540	m3/month (Cement)	From engineer
			13,824	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	8.1	m3/hr (Cement)	26 days per month, 12 working hours per day
			44.3	m3/hr (Aggregate)	
			20.3	Mg/hr (Cement)	Assume capacity of dump truck is 6m^3 and 15 tons
			110.8	Mg/hr (Aggregate)	
		Area of the Cement stockpile, A	1,163	m^2 (Cement)	
		Area of the Aggregate stockpile, A	5,329	m^2(Aggregate)	
		Emission Rate (Cement stockpile)	3.23687E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			6.47373E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	3.84457E-07	g/m²/s (unmitigated)	
			7.68914E-08	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
Stockpile within Concrete Batching Plant in eastern location	Material handling and storage piles Source ID: ECC1_2, ECC1_3, ECC1-P2 ECA1_2, ECA1_3, ECA1-P2	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	43,270	m3/month (Cement)	From engineer
			173,079	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	138.7	m3/hr (Cement)	26 days per month, 12 working hours per day
			554.7	m3/hr (Aggregate)	
			346.7	Mg/hr (Cement)	Assume capacity of dump truck is 6m^3 and 15 tons
			1386.8	Mg/hr (Aggregate)	
		Area of the Cement stockpile, A	3,944	m2 (Cement)	
		Area of the Aggregate stockpile, A	14,520	m2(Aggregate)	
		Emission Rate (Cement stockpile)	1.62605E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			3.25209E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	1.7666E-06	g/m²/s (unmitigated)	
			3.5332E-07	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	

Appendix 5.2.15 - Details of Dust Emission Sources for FSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles (FSP)

Description	Sources	Parameter	Emission Rate		Remarks
Crushed Aggregate Stockpile in eastern location	Material handling and storage piles Source ID: ECA2, ECA2-P2	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	4,364	m3/month	From engineer
		Maximum hourly output, op	14.0	m3/hr	26 days per month, 12 working hours per day
			35.0	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
		Area of the stockpile, A	1,866	m2	
		Emission Rate	3.46531E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			6.93062E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
C&D Stockpile near seawall	Material handling and storage piles Source ID: CD1	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	1,167	m3/month	From engineer
		Maximum hourly output, op	3.7	m3/hr	26 days per month, 12 working hours per day
			7.5	Mg/hr	Density of C&D material: 2Mg/m3 (from engineer)
		Area of the stockpile, A	3,900	m2	
		Emission Rate	3.54683E-08	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			7.09366E-09	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
C&D Stockpile at midfield	Material handling and storage piles Source ID: CD2, CD3	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	0.053		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	6.65864E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	33,222	m3/month	From engineer
		Maximum hourly output, op	106.5	m3/hr	26 days per month, 12 working hours per day
			213.0	Mg/hr	Density of C&D material: 2Mg/m3 (from engineer)
		Area of the stockpile, A	8,100	m2	
		Emission Rate	4.86297E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			9.72595E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.03)	0.0255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-08	g/m²/s (unmitigated)	=0.85*0.03*1000000/(10000*365*24*60*60)*p/100
			1.6172E-08	g/m²/s (mitigated)	
Crushing Plant	Screening Source ID: CP1, CP2	FSP emission factor (0.03)	1.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Mineral Works (Stone Crushing Plants), EPD
		Density of rock	1760	Kg/m3	Assume the same as approved EIA South East New Territories (SENT) Landfill Extension (EIA-143/2007) Annex A2
		Maximum handling capcity	700	Mg/hr	From engineer
		No. of operation hour	12	hr	
		Emission height	15	m	
		Emission Rate	1.66E-04	g/s (mitigated)	
Crushing Plant	Tertiary Crushing Source ID: CP1, CP2	FSP emission factor (0.03)	1.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Mineral Works (Stone Crushing Plants), EPD
		Density of rock	1760	Kg/m3	Assume the same as approved EIA South East New Territories (SENT) Landfill Extension (EIA-143/2007) Annex A2
		Maximum handling capcity	700	Mg/hr	From engineer
		No. of operation hour	12	hr	
		Emission height	15	m	
		Emission Rate	1.66E-04	g/s (mitigated)	
Crushing Plant	Paved haul road outside crushing plant - For **Laden** Vehicle Source ID: WAB-HR1 to WAB-HR13 WC-HR1 to WC-HR13	Particle size multiplier, k	0.15	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
		Average truck weight, W	28.3	tons	Full loading of truck, assume the same as Asphalt Tipper, engineering estimate
		Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
		FSP emission factor, E	44	g/VKT	E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.) Truck
		No. of truck trips per day	66	trips/hr	From engineer: 700Mg/hr * (1/(6m3/veh)) * (1/1760 kg/m3) * 1000 Assume density = 1760kg/m3, truck loading = 6m3/veh
		No. of operation hour	12	hr	
		% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	2.00E-05	g/m/s (mitigated)	Truck for crushing plant
Crushing Plant	Paved haul road outside crushing plant - For **Unladen** Vehicle Source ID: WAB-HR1 to WAB-HR13 WC-HR1 to WC-HR13	Particle size multiplier, k	0.15	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
		Average truck weight, W	8.24	tons	Empty loading of truck, assume the same as Asphalt Tipper, engineering estimate
		Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
		FSP emission factor, E	12	g/VKT	E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.) Truck
		No. of truck trips per day	66	trips/hr	From engineer: 700Mg/hr * (1/(6m3/veh)) * (1/1760 kg/m3) * 1000 Assume density = 1760kg/m3, truck loading = 6m3/veh
		No. of operation hour	12	hr	
		% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	5.7E-06	g/m/s (mitigated)	Truck for crushing plant

Appendix 5.2.15 - Details of Dust Emission Sources for FSP Assessment

(Annual) Floating Concrete Batching Plant

Description	Sources	Parameter	Emission Rate		Remarks
Floating Concrete Batching Plant (Unloading of raw materials)	Unloading aggregate Source ID: F-EP1	Consumption Rate	39.6	Mg/h (Concrete)	From engineer: Concrete: 39.6 ton/hr = 1900 ton / (2 days * 24 h)
		Aggregate tank capacity	1900	tons	From engineer
		Refill frequency	2	days	From engineer
		Particle size multiplier, k	0.053		For FSP, AP-42, section 13.2.4, 11/06 ed.
		Moisture content, M	2	%	Assume as the same as land-based CBP
		Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	2.40E-04	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
			0.01	kg/hr (Concrete)	
		Mitigation efficiency	99	%	Fully covered and handling with water spraying system (From engineer)
		No. of operation hours	24	hr	Assume worst case
		Emission height	10	m	From engineer
		Emission Rate	2.64E-05	g/s (mitigated) (Concrete)	
Floating Concrete Batching Plant (Cement / PFA / CSF Silos)	Cement Silos Source ID: F-EP2	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		Cement silo capacity (Each silo)	110	tons	From engineer
		Refill frequency	2.5	days	From engineer
		Dust exhaust flow rate (Total 4 silos)	7.33	tons/hr (Concrete)	From engineer: 7.33 ton/hr = 4 silos * (110 ton / (2.5 days * 24 h))
			3.3	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of small cement silos	4		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 4 silos)	6.37E-06	g/s (mitigated) (Concrete)	
	PFA Silos Source ID: F-EP3	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		PFA silo capacity (Each silo)	90	tons	From engineer
		Refill frequency	2	days	From engineer
		Dust exhaust flow rate (Total 2 silos)	3.75	tons/hr (Concrete)	From engineer: 3.75 ton/hr = 2 silos * (90 ton / (2 days * 24 h))
			1.7	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of PFA silos	2		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 2 silos)	3.26E-06	g/s (mitigated) (Concrete)	
	CSF Silos Source ID: F-EP4	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		CSF silo capacity (Each silo)	30	tons	From engineer
		Refill frequency	5	days	From engineer
		Dust exhaust flow rate (Total 2 silos)	0.50	tons/hr (Concrete)	From engineer: 0.5 ton/hr = 2 silos * (30 ton / (5 days * 24 h))
			0.2	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of CSF silos	2		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 2 silos)	4.34E-07	g/s (mitigated) (Concrete)	
Floating Concrete Batching Plant (Mixing Tower)	Mixer Source ID: F-EP5	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		FSP emission factor (0.14)	7	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		Dust exhaust flow rate (Total 2 mixers)	560	tons/hr (Concrete)	From engineer: 280 ton/hr * 2 mixers
			250.0	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of mixers	2		From engineer
		Emission height	17	m	From engineer
		Emission Rate (Total 2 mixers)	4.86E-04	g/s (mitigated) (Concrete)	

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2015

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Submarine pipeline Submarine cable	Heavy construction Source ID: Q1: Q2: Q3: S1, S2, S3 Q4: S1, S2, S3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	15.0 91.7 30 24 0.807 4.67014E-06 3.87622E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	15 0.255 1.2129E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: Q2: Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, TRD2, TCPN-1, TCPN-2, TCPN-3, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	16.9 91.7 30 24 0.807 5.25715E-06 4.36344E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	16.9 0.255 1.36536E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q2: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q3: SCCP1, AES6, AES13, AES14, AES15, EM1, EM2, EGC3-1, EGC3-2, ITT1 Q4: EM1, EM2, ITT1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	34.3 91.7 30 24 0.807 1.0673E-05 8.85857E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	34.3 0.255 2.77192E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q3: SCRE1, SCRE2, SCRE3, SCRE4, SCRE5, SCRE6, SCRE7, SCRE8, SCRE9, SCRE10, AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	34.28 91.7 30 24 0.807 0.000128076 1.06303E-05	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	34.28 0.255 2.77192E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) Boundary Crossing Facilities (BCF)	Heavy construction Source ID: Q1: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q2: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q3: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4 Q4: BCF-A, BCF-B, BCF-C1, BCF-C2, BCF-C3, BCF-C4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	10.0 87.5 26 12 0.807 7.18483E-06 8.98104E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Extracted from HKBCF EIA, assume 10% works area for heavy construction Extracted from HKBCF EIA Extracted from HKBCF EIA Extracted from HKBCF EIA AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	10 0.255 8.086E-08	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) Hong Kong Link Road (HKLR)	Heavy construction Source ID: Q1: LR-2, LR-3, LR-4, LR-5, LR-6, LR-7, LR-8, LR-9, LR-10, LR-11, LR-12, LR-13, LR-14 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	10.0 87.5 26 12 0.807 7.18483E-06 8.98104E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Extracted from HKLR EIA, assume 10% works area for heavy construction Extracted from HKLR EIA Extracted from HKLR EIA Extracted from HKLR EIA AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	10 0.255 8.086E-08	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2016

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: Q2: Q3: Q4: 1_03-1, 1_03-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.1 91.7 30 24 0.807 2.8559E-08 2.3704E-09	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.1 0.255 7.41717E-10	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Submarine pipeline Submarine cable	Heavy construction Source ID: Q1: S1, S2, S3 Q2: S1, S2, S3 Q3: S1, S2, S3 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	22.5 91.7 30 24 0.807 7.00521E-06 5.81432E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	22.5 0.255 1.81935E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q2: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	16.0 91.7 30 24 0.807 4.9862E-06 4.13854E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	16.0 0.255 1.29498E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: AES6, EM1, EM2, ITT1 Q2: AES6, EM1, EM2, ITT1 Q3: AES6, EM1, EM2, ITT1 Q4: AES6, EM1, EM2, ITT1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	35.9 91.7 30 24 0.807 1.11861E-05 9.28444E-07	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	35.9 0.255 2.90518E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q3: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q4: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	35.93 91.7 30 24 0.807 0.000134233 1.11413E-05	% % days hour Mg/hectare/month of activity g/m²/s (unmitigated) g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	35.93 0.255 2.90518E-07	% Mg/hectare/year g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2016

T2 Expansion - Advanced Works (Temporary Car Park NCD and Temporary Road Diversion)	Heavy construction Source ID: Q1: TRD1, TRD3, TRD4, TRD5, TRD6 Q2: TRD1, TRD5, TRD6 Q3: TRD1, TRD5, TRD6 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.0 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 3.22126E-07 g/m²/s (unmitigated) 2.67364E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	1.0 % 0.255 Mg/hectare/year 8.36605E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
(Concurrent project) Boundary Crossing Facilities (BCF)	Heavy construction Source ID: Q1: BCF-C4 Q2: BCF-C4 Q3: BCF-C4 Q4: BCF-C4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	10.0 % 87.5 % 26 days 12 hour 0.807 Mg/hectare/month of activity 7.18483E-06 g/m²/s (unmitigated) 8.98104E-07 g/m²/s (mitigated)	Extracted from HKBCF EIA, assume 10% works area for heavy construction Extracted from HKBCF EIA Extracted from HKBCF EIA Extracted from HKBCF EIA AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	10 % 0.255 Mg/hectare/year 8.086E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-1 Q2: ABT1-1 Q3: ABT1-1 Q4: ABT1-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	5.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.6071E-06 g/m²/s (unmitigated) 1.3339E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	5.2 % 0.255 Mg/hectare/year 4.17387E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Roadworks corresponding to Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-2, ABT1-3 Q2: ABT1-2, ABT1-3 Q3: ABT1-2, ABT1-3 Q4: ABT1-2, ABT1-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	5.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.92852E-05 g/m²/s (unmitigated) 1.60068E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	5.2 % 0.255 Mg/hectare/year 4.17387E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2017

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 1_01, 1_03-1, 1_03-2, 1_04, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 1_09-1, 1_09-2, 2_03B, 2_04-1, 2_04-2, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07B, 2_08, 2_09-1, 2_09-2 Q2: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 1_09-1, 1_09-2, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 3_01A-1, 3_01A-2, 3_01A-3 Q4: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 4.45002E-07 g/m²/s (unmitigated) 3.69352E-08 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: Q2: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3 Q3: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2 Q4: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.4 % 91.7 % 30 days 12 (night) hour 0.807 Mg/hectare/month of activity 8.90004E-07 g/m²/s (unmitigated) 7.38703E-08 g/m²/s (mitigated)		AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	1.4 % 0.255 Mg/hectare/year 1.15573E-08 g/m²/s		AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: Q2: Q3: Q4: 1_08B-1, 1_08B-2, 3_01A-1, 3_01A-2, 3_01A-3	Percentage active area, p Emission Factor (0.3) Emission Rate	20.0 % 0.255 Mg/hectare/year 1.6172E-07 g/m²/s		Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012 AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 4_04, 4_05-1 Q2: 4_04, 4_05-1 Q3: 4_04, 4_05-1 Q4: 4_04, 4_05-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.0 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 8.58968E-09 g/m²/s (unmitigated) 7.12944E-10 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.0 % 0.255 Mg/hectare/year 2.23086E-10 g/m²/s		AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q2: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q3: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7 Q4: NCD1-1, NCD1-2, NCD1-3, NCD1-4, NCD1-5, NCD2-1, NCD2-2, NCD2-3, TRD2, TRD3, TRD4, TCPN-1, TCPN-2, TCPN-3, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2, EGC4, EGC5, EGC6, EGC7	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	3.1 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 9.65381E-07 g/m²/s (unmitigated) 8.01266E-08 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	3.1 % 0.255 Mg/hectare/year 2.50723E-08 g/m²/s		AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (area sources)	Heavy construction Source ID: Q1: AES6 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	7.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.2403E-06 g/m²/s (unmitigated) 1.85945E-07 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	7.2 % 0.255 Mg/hectare/year 5.81837E-08 g/m²/s		AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) ITT works (line sources) Roadworks - at grade	Heavy construction Source ID: Q1: AES1, AES2, AES3, AES4, AES5, AES7, AES8, AES9, AES10, AES11, AES12 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	7.20 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.68836E-05 g/m²/s (unmitigated) 2.23134E-06 g/m²/s (mitigated)		Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	7.20 % 0.255 Mg/hectare/year 5.81837E-08 g/m²/s		AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2017

South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	30.48 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 0.000113869 g/m²/s (unmitigated) 9.45115E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	30.48 % 0.255 Mg/hectare/year 2.46445E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	30.5 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.18614E-05 g/m²/s (unmitigated) 9.84495E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	30.5 % 0.255 Mg/hectare/year 2.46445E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	20.7 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 8.04473E-06 g/m²/s (unmitigated) 6.67713E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	20.7 % 0.255 Mg/hectare/year 1.67146E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: Q2: Q3: AIS1, AIS2 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.7 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.24013E-07 g/m²/s (unmitigated) 1.8593E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.72 % 0.255 Mg/hectare/year 5.81792E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: Q2: Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.42931E-08 g/m²/s (unmitigated) 4.50633E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.17 % 0.255 Mg/hectare/year 1.41007E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

T2 Expansion Area	Heavy construction Source ID: Q1: Q2: Q3: T2E-1, T2E-2, T2E-3, BHS1, BHS2, NAB1, NAB2, SAB, NAD1 Q4: T2E-1, T2E-2, T2E-3, AIS1, AIS2, BHS1, BHS2, NAB1, NAB2, SAB, NAD1, EVA1, EVA2, EVA3, EVA4, EVA5, EVA6, EVA7, EVA8, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.0 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.44149E-08 g/m²/s (unmitigated) 1.19644E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.0 % 0.255 Mg/hectare/year 3.74376E-10 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Emergency Vehicular Access (EVA)	Heavy construction Source ID: Q1: Q2: Q3: EVA1, EVA2, EVA3, EVA4, EVA5, EVA6, EVA7, EVA8, EVA9 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	2.0 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 6.20924E-07 g/m²/s (unmitigated) 5.15367E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	2.0 % 0.255 Mg/hectare/year 1.61263E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-1 Q2: ABT1-1 Q3: ABT1-1 Q4: ABT1-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 4.36713E-07 g/m²/s (unmitigated) 3.62472E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	1.4 % 0.255 Mg/hectare/year 1.1342E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Roadworks corresponding to Other airport facilities related works	Heavy construction Source ID: Q1: ABT1-2, ABT1-3 Q2: ABT1-2, ABT1-3 Q3: ABT1-2, ABT1-3 Q4: ABT1-2, ABT1-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.24056E-06 g/m²/s (unmitigated) 4.34966E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	1.4 % 0.255 Mg/hectare/year 1.1342E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2018

Third Runway Work Areas

Works Area	Sources	Parameter		Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_08B-2, 2_02B-1, 2_02B-2, 2_03A, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2 Q2: 1_02-1, 1_02-2, 1_05, 1_06-1, 1_06-2, 2_02B-1, 2_02B-2, 2_03A, 2_05A, 2_08, 3_02B Q3: 1_06-1, 1_06-2, 2_01, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2 Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05B-1, 2_05B-2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	6.8 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.10499E-06 g/m²/s (unmitigated) 1.74714E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3 Q2: 1_09-1, 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3, 3_02A-1, 3_02A-2, 3_02A-3 Q3: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 2_09-2, 3_01A-1, 3_01A-2, 3_01A-3, 3_02A-1, 3_02A-2, 3_02A-3 Q4: 1_09-1, 1_09-2, 2_09-1, 2_09-2, 3_02A-1, 3_02A-2, 3_02A-3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	6.8 % 91.7 % 30 days 12 (night) hour 0.807 Mg/hectare/month of activity 4.20998E-06 g/m²/s (unmitigated) 3.49428E-07 g/m²/s (mitigated)	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	6.8 % 0.255 Mg/hectare/year 5.46694E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 1_07-2, 1_08A-2, 2_03B, 2_07B, 2_08, 3_01A-1, 3_01A-2, 3_01A-3 Q2: 1_01, 1_03-1, 1_03-2, 1_04, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B Q3: 1_09-1, 1_09-2, 2_08, 3_02B Q4: 2_04-1, 2_04-2, 2_05A, 2_06-1, 2_06-2, 2_06-3, 2_08, 3_02B	Percentage active area, p Emission Factor (0.3) Emission Rate	20.0 % 0.255 Mg/hectare/year 1.6172E-07 g/m²/s	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012 AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 1_07-1, 1_08A-1, 1_08B-1, 4_04, 4_05-1 Q2: 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 4_04, 4_05-1 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_07A-1, 2_07A-2, 2_07B, 4_04, 4_05-1 Q4: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_07-1, 1_07-2, 1_08A-1, 1_08A-2, 1_08B-1, 1_08B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_04, 4_05-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	2.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 7.43415E-07 g/m²/s (unmitigated) 6.17034E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	2.4 % 0.255 Mg/hectare/year 1.93075E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
(Concurrent project) NCD works	Heavy construction Source ID: Q1: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q2: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q3: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2 Q4: NCD2-1, NCD2-2, NCD2-3, TRD3, TRD4, SCCP1, EGC1, EGC2, EGC3-1, EGC3-2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	26.3 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 8.18814E-06 g/m²/s (unmitigated) 6.79615E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	26.3 % 0.255 Mg/hectare/year 2.12657E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2018

Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.7 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.1273E-07 g/m²/s (unmitigated) 1.76566E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.7 % 0.255 Mg/hectare/year 5.52489E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: CA1, CA2 Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	43.24 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 0.000161535 g/m²/s (unmitigated) 1.34074E-05 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	43.24 % 0.255 Mg/hectare/year 3.49607E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: CA3, CA4, CA5, CA6, CA7, CA8 Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	43.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.68265E-05 g/m²/s (unmitigated) 1.3966E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	43.2 % 0.255 Mg/hectare/year 3.49607E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	29.3 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.14122E-05 g/m²/s (unmitigated) 9.47215E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	29.3 % 0.255 Mg/hectare/year 2.37113E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: Q2: AIS1, AIS2, EVA6, EVA7, EVA8 Q3: AIS1, AIS2, EVA6, EVA7, EVA8 Q4: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	8.1 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.51202E-06 g/m²/s (unmitigated) 2.08497E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	8.07 % 0.255 Mg/hectare/year 6.52405E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2018

Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: Q2: BHS1, BHS2, EVA9 Q3: BHS1, BHS2, EVA9 Q4: BHS1, BHS2, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	10.7 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 3.33502E-06 g/m²/s (unmitigated) 2.76807E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	10.71 % 0.255 Mg/hectare/year 8.66151E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD1, NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4: NAD1, NAD2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.29094E-07 g/m²/s (unmitigated) 1.07148E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: NAD1, NAD2	Percentage active area, p Emission Factor (0.3) Emission Rate	0.41 % 0.255 Mg/hectare/year 3.35276E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1, BAT2, NAB3, NAB4 Q2: BAT1, BAT2, NAB3, NAB4 Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.5 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.52021E-07 g/m²/s (unmitigated) 1.26177E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above) Q1: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Emission Factor (0.3) Emission Rate	0.49 % 0.255 Mg/hectare/year 3.94819E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
T2 Expansion Area	Heavy construction Source ID: Q1: T2E-1, T2E-2, T2E-3, AIS1, AIS2, BHS2 Q2: T2E-3 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.46382E-08 g/m²/s (unmitigated) 4.53497E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.2 % 0.255 Mg/hectare/year 1.41903E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Car Park North (North Annex Building)	Heavy construction Source ID: Q1: NAB1, NAB2, BHS1 Q2: NAB1, NAB2 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 4.86999E-08 g/m²/s (unmitigated) 4.04209E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.2 % 0.255 Mg/hectare/year 1.2648E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
T2 Expansion - Lounge Limo (South Annex Building)	Heavy construction Source ID: Q1: SAB Q2: SAB Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.69905E-08 g/m²/s (unmitigated) 4.73021E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.2 % 0.255 Mg/hectare/year 1.48012E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2019

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 2_01, 2_02A Q2: 2_01, 2_02A, 2_05A Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_05A Q4: 2_02B-1, 2_02B-2, 2_03A	Percentage active area, p	6.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	2.06269E-06 1.71203E-07	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: 1_09-1, 1_09-2, 2_06-1, 2_06-2, 2_06-3, 3_02A-1, 3_02A-2, 3_02A-3 Q2: 1_09-2, 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3 Q3: 2_04-1, 2_04-2, 2_06-1, 2_06-2, 2_06-3, 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3 Q4: 2_09-1	Percentage active area, p	6.6	%	
		Mitigation efficiency	91.7	%	
		No. of working days per month, d	30	days	
		No. of working hours per day, h	12 (night)	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.12537E-06 3.42406E-07	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	6.6	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	5.35708E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 2_02B-1, 2_03A, 2_03B, 2_04-1, 2_04-2, 2_05A, 2_05B-1, 2_05B-2, 2_08, 2_09-1, 2_09-2, 3_02B Q2: 2_02B-1, 2_03A, 2_03B, 2_05B-1, 2_05B-2, 3_02B Q3: 1_09-2, 3_02B Q4: 3_02A-1, 3_02A-2, 3_02A-3, 3_02B	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.6172E-07	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_07-1, 1_08A-1, 1_08B-1, 2_02B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 4_04 Q2: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_09-1, 2_02B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04 Q3: 1_01, 1_02-1, 1_02-2, 1_03-1, 1_03-2, 1_04, 1_05, 1_06-1, 1_06-2, 1_09-1, 2_03B, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04 Q4: 1_09-1, 1_09-2, 2_01, 2_02A, 2_03B, 2_04-1, 2_04-2, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2, 4_04	Percentage active area, p	1.8	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	5.75391E-07 4.77575E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.8	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.49437E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p	1.5	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.73069E-07 3.92648E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.5	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.22863E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: CA1, CA2 Q2: CA1, CA2 Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p	11.16	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.16979E-05 3.46092E-06	g/m²/s (unmitigated) g/m²/s (mitigated)	Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p	11.16	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	9.0246E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2019

South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: CA3, CA4, CA5, CA6, CA7, CA8 Q2: CA3, CA4, CA5, CA6, CA7, CA8 Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	11.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 4.34353E-06 g/m²/s (unmitigated) 3.60513E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	11.2 % 0.255 Mg/hectare/year 9.0246E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q2: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	7.6 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.9459E-06 g/m²/s (unmitigated) 2.4451E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	7.6 % 0.255 Mg/hectare/year 6.12074E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: AIS1, AIS2, EVA6, EVA7, EVA8 Q2: Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	2.6 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 8.20748E-07 g/m²/s (unmitigated) 6.81221E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p Emission Factor (0.3) Emission Rate	2.64 % 0.255 Mg/hectare/year 2.1316E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: BHS1, BHS2, EVA9 Q2: Q3: Q4: BHS1, BHS2, EVA9	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	7.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.2904E-06 g/m²/s (unmitigated) 1.90103E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: BHS1, BHS2, EVA9	Percentage active area, p Emission Factor (0.3) Emission Rate	7.36 % 0.255 Mg/hectare/year 5.94849E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD1, NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4: NAD2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.29094E-07 g/m²/s (unmitigated) 1.07148E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: NAD1, NAD2	Percentage active area, p Emission Factor (0.3) Emission Rate	0.41 % 0.255 Mg/hectare/year 3.35276E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2019

BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1, BAT2, NAB3, NAB4 Q2: BAT1, BAT2, NAB3, NAB4 Q3: BAT1, BAT2, NAB3, NAB4 Q4: BAT1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.5 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.52021E-07 g/m²/s (unmitigated) 1.26177E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: BAT1, BAT2, NAB3, NAB4	Percentage active area, p Emission Factor (0.3) Emission Rate	0.49 % 0.255 Mg/hectare/year 3.94819E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
T2 Expansion Area	Heavy construction Source ID: Q1: Q2: Q3: Q4: AIS1, AIS2, NAB1, NAB2, NAB3, NAB4, BAT2, NAD1, EVA6, EVA7, EVA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.8 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.4034E-07 g/m²/s (unmitigated) 1.99482E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.8 % 0.255 Mg/hectare/year 6.24196E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2020

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: Q2: Q3: Q4:	Percentage active area, p	0.1	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.95947E-08 1.62636E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	For night-time activities: Q1: Q2: 3_02A-1, 3_02A-2, 3_02A-3 Q3: 3_02A-1, 3_02A-2, 3_02A-3 Q4:	Percentage active area, p	0.1	%	
		Mitigation efficiency	91.7	%	
		No. of working days per month, d	30	days	
		No. of working hours per day, h	12 (night)	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	3.91894E-08 3.25272E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.1	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	5.08901E-10	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 2_09-1, 3_02A-1, 3_02A-2, 3_02A-3, 3_02B Q2: 2_09-1, 3_02B Q3: 2_09-1, 3_02B Q4: 3_02A-1, 3_02B	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.6172E-07	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2 Q2: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_06-1, 2_06-2, 2_06-3, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2 Q3: 1_09-1, 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_08, 2_09-2 Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_09-1, 3_02A-2, 3_02A-3	Percentage active area, p	1.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.10099E-07 3.40382E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.3	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.06508E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p	0.7	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	2.05772E-07 1.70791E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.7	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	5.34418E-09	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Western Support Area Emergency Access Road (flyover)	Heavy construction Source ID: Q1: WSA1, WSA2, WSA3, WSA4 Q2: WSA1, WSA2, WSA3, WSA4 Q3: WSA1, WSA2, WSA3, WSA4 Q4: WSA1, WSA2, WSA3, WSA4	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	55.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.14727E-05 g/m²/s (unmitigated) 1.78223E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	55.2 % 0.255 Mg/hectare/year 4.46141E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Western Support Area Emergency Access Road (at grade)	Heavy construction Source ID: Q1: WSA5 Q2: WSA5 Q3: WSA5 Q4: WSA5	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	55.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 0.000206138 g/m²/s (unmitigated) 1.71095E-05 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	55.2 % 0.255 Mg/hectare/year 4.46141E-07 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
New APM Interchange Station (AIS)	Heavy construction Source ID: Q1: AIS1, AIS2, EVA6, EVA7, EVA8 Q2: AIS1, AIS2, EVA6, EVA7, EVA8 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	1.9 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.93756E-07 g/m²/s (unmitigated) 4.92818E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: AIS1, AIS2, EVA6, EVA7, EVA8	Percentage active area, p Emission Factor (0.3) Emission Rate	1.91 % 0.255 Mg/hectare/year 1.54207E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
Baggage Hall - Baggage Handling System (BHS)	Heavy construction Source ID: Q1: BHS1, BHS2, EVA9 Q2: BHS1, BHS2, EVA9 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	3.0 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 9.39246E-07 g/m²/s (unmitigated) 7.79574E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: BHS1, BHS2, EVA9	Percentage active area, p Emission Factor (0.3) Emission Rate	3.02 % 0.255 Mg/hectare/year 2.43935E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	

New APM Depot (NAD)	Heavy construction Source ID: Q1: NAD2 Q2: NAD1, NAD2 Q3: NAD1, NAD2 Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.3 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 9.68208E-08 g/m²/s (unmitigated) 8.03613E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: NAD2	Percentage active area, p Emission Factor (0.3) Emission Rate	0.31 % 0.255 Mg/hectare/year 2.51457E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
BHS and APM tunnel	Heavy construction Source ID: Q1: BAT1 Q2: BAT1, BAT2, NAB3, NAB4 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 6.51517E-08 g/m²/s (unmitigated) 5.40759E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above) Q1: BAT1	Percentage active area, p Emission Factor (0.3) Emission Rate	0.21 % 0.255 Mg/hectare/year 1.69208E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	
T2 Expansion Area	Heavy construction Source ID: Q1: NAB1, NAB2, NAB3, NAB4, BAT2, NAD1 Q2: NAB1, NAB2 Q3: Q4:	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.2 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 5.12952E-08 g/m²/s (unmitigated) 4.2575E-09 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100	
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.2 % 0.255 Mg/hectare/year 1.33221E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100	

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2021

Third Runway Work Areas

Works Area	Sources	Parameter		Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: Q2: Q3: Q4: 3_01B-1, 3_01B-2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.9 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 2.67288E-07 g/m²/s (unmitigated) 2.21849E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.9 % 0.255 Mg/hectare/year 6.94183E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID: Q1: 3_02A-1, 3_02B Q2: 3_02A-1, 3_02B Q3: 3_02A-1, 3_02B Q4: 3_02A-1, 3_02B	Percentage active area, p Emission Factor (0.3) Emission Rate	20.0 % 0.255 Mg/hectare/year 1.6172E-07 g/m²/s	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012 AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 2_09-1, 3_02A-2, 3_02A-3 Q2: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_05-1 Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 3_01B-1, 3_01B-2, 4_01-1, 4_01-2, 4_01-3, 4_05-1 Q4: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_03-1, 4_03-2, 4_05-1	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.6 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.84274E-07 g/m²/s (unmitigated) 1.52947E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.6 % 0.255 Mg/hectare/year 4.78584E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Airside tunnels (AT)	Heavy construction Source ID: Q1: Q2: AT1, AT3 Q3: AT1, AT3 Q4: AT1, AT2, AT3	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.4 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.28853E-07 g/m²/s (unmitigated) 1.06948E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.4 % 0.255 Mg/hectare/year 3.34649E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Midfield development (MD)	Heavy construction Source ID: Q1: MD Q2: MD Q3: MD Q4: MD	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	0.6 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.74857E-07 g/m²/s (unmitigated) 1.45132E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	0.6 % 0.255 Mg/hectare/year 4.54129E-09 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
South Cargo Roadworks - at grade	Heavy construction Source ID: Q1: Q2: Q3: CA1, CA2 Q4: CA1, CA2	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	3.63 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.35651E-05 g/m²/s (unmitigated) 1.1259E-06 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume road width equals 12m, therefore multiply emission rate by 12m. =2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	3.63 % 0.255 Mg/hectare/year 2.93586E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 Details of Dust Emission Sources for Annual RSP Assessment at Year 2021

South Cargo Roadworks - viaduct	Heavy construction Source ID: Q1: Q2: Q3: CA3, CA4, CA5, CA6, CA7, CA8 Q4: CA3, CA4, CA5, CA6, CA7, CA8	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	3.6 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 1.41303E-06 g/m²/s (unmitigated) 1.17281E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	3.6 % 0.255 Mg/hectare/year 2.93586E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Roadworks Road 6 - viaduct (Concept F, Option 3)	Heavy construction Source ID: Q1: Q2: Q3: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37 Q4: RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10, RF11, RF12, RF13, RF14, RF15, RF16, RF17, RF18, RF19, RF20, RF21, RF22, RF23, RF24, RF25, RF26, RF27, RF28, RF29, RF30, RF31, RF32, RF33, RF34, RF35, RF36, RF37	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor (0.3) Emission Rate	2.5 % 91.7 % 30 days 24 hour 0.807 Mg/hectare/month of activity 9.58355E-07 g/m²/s (unmitigated) 7.95435E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 Assume 30m spacing between road piers (base:5mx 5m), therefore total active area equals 5m divided by 30m. Since the road is approximated to a line, assume width of 7.5m (i.e. 5m pile width + 50% extra for works) '=2.69*0.3*1000000/(10000*30*h*60*60)*p/100 * (5/30) * 7.5
	Wind Erosion Source ID: (as above)	Percentage active area, p Emission Factor (0.3) Emission Rate	2.5 % 0.255 Mg/hectare/year 1.99118E-08 g/m²/s	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Third Runway Work Areas

Works Area	Sources	Parameter			Remarks
Third Runway Land Formation	Heavy construction Source ID: For 24hrs activities: Q1: 3_02B Q2: Q3: Q4: 3_02B	Percentage active area, p	0.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	8.80231E-08 7.30591E-09	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69**0.3*1000000/(10000*30*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.3	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	2.28608E-09	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Wind Erosion (only)	Wind Erosion Source ID:	Percentage active area, p	20.0	%	Based on maximum fines content of 20% in reclamation fill material (Type C), Table 3.1, Working Paper No. 3 Fill Management (Deliverable D6.3) (rev. 01), Atkins, October 2012
	Q1: 3_02A-1	Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
	Q2: 3_02A-1 Q3: 3_02B Q4:	Emission Rate	1.6172E-07	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Third Runway Other Construction Works/Facilities on newly formed land	Heavy construction Source ID: Q1: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-1, 3_01A-2, 3_01A-3, 4_01-1, 4_01-2, 4_01-3, 4_03-1, 4_03-2, 4_05-1 Q2: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_01A-3, 3_02B, 4_03-1, 4_03-2, 4_05-1 Q3: 2_01, 2_02A, 2_02B-1, 2_02B-2, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 2_07A-1, 2_07A-2, 2_07B, 3_02A-1, 4_05-1 Q4: 2_01, 2_02A, 2_02B-1, 2_03A, 2_03B, 2_05A, 2_05B-1, 2_05B-2, 4_05-1	Percentage active area, p	1.3	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.18554E-07 3.474E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	1.3	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.08704E-08	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Airside tunnels (AT)	Heavy construction Source ID: Q1: AT1, AT2, AT3 Q2: AT2, AT3 Q3: AT3 Q4: AT3	Percentage active area, p	0.6	%	Assume % works area for heavy construction
		Mitigation efficiency	91.7	%	Water suppression 12 times a day Equation (3-2) in the USEPA's Control of Open Fugitive Dust Sources Final Report
		No. of working days per month, d	30	days	
		No. of working hours per day, h	24	hour	
		Emission Factor (0.3)	0.807	Mg/hectare/month of activity	AP42, Section 13.2.3.3 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	1.92465E-07 1.59746E-08	g/m²/s (unmitigated) g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: (as above)	Percentage active area, p	0.6	%	
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Table 11.9-4 USEPA document Estimating Particulate Matter Emissions from Construction Operations, 1999
		Emission Rate	4.99859E-09	g/m²/s	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Appendix 5.2.15 - Details of Dust Emission Sources for RSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles

Description	Sources	Parameter	Emission Rate		Remarks
Barging Point	Unloading of spoils to barge	Particle size multiplier, k	0.35		For RSP, AP-42, section 13.2.4, 11/06 ed.
	Source ID: TBP1-6	Moisture content, M	5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	4.40E-04	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
		No. of operation hour	12	hr	26 days per month
		Maximum handling capcity for each barging point	47000	Mg/day	From engineer
			1.72E+00	kg/hr (Asphalt)	Assume 12 working hours (7:00 - 19:00) per day
		Emission height	0.5	m	
		Mitigation efficiency	90	%	Installation of flexible curtain and shelter with water spray at discharge point
		Emission Rate	4.78E-02	g/s (mitigated)	
Concrete Batching Plant	Paved haul road outside concrete batching plant -	Particle size multiplier, k	0.62	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
	For **Laden** Vehicle	Average truck weight, W	28.3	tons	Full loading of Asphalt Tipper, engineering estimate
	Source ID:				
	WAB-HR1 to WAB-HR13				
	WAB-P4-HR1 to WAB-P4-HR10	Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
	WC-HR1 to WC-HR13	RSP emission factor, E			E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.)
	WC-P4-HR1 to WC-P4-HR10		180	g/VKT	Asphalt Tipper
	EAB-HR1 to EAB-HR4				
		No. of truck trips per day	96	trips/hr	From engineer, Asphalt Tipper Lorries in Asphalt Plant
	EAC-HR1 to EAC-HR4		140	trips/hr	From Enginner, Asphalt Tipper Lorries in Concrete Batching Plant
	EC-HR1 to EC-HR14	No. of operation hour	12	hr	
	EC-P2-HR1 to EC-P2-HR7	% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	1.20E-04	g/m/s (mitigated)	Asphalt Tipper Lorries in Asphalt Plant
			1.75E-04	g/m/s (mitigated)	Asphalt Tipper Lorries in Concrete Batching Plant
Concrete Batching Plant	Paved haul road outside concrete batching plant -	Particle size multiplier, k	0.62	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
	For **Unladen** Vehicle	Average truck weight, W	8.24	tons	Empty loading of Asphalt Tipper, engineering estimate
	Source ID:				
	WAB-HR1 to WAB-HR13	Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
	WAB-P4-HR1 to WAB-P4-HR10				
		RSP emission factor, E			E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.)
	WC-HR1 to WC-HR13		51	g/VKT	Asphalt Tipper
	WC-P4-HR1 to WC-P4-HR10				
	EAB-HR1 to EAB-HR4	No. of truck trips per day	30	trips/hr	From engineer, Asphalt Tipper Lorries in Asphalt Plant
			140	trips/hr	From Enginner, Asphalt Tipper Lorries in Concrete Batching Plant
	EAC-HR1 to EAC-HR4	No. of operation hour	12	hr	
	EC-HR1 to EC-HR14	% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
	EC-P2-HR1 to EC-P2-HR7				
		Emission Rate	1.1E-05	g/m/s (mitigated)	Asphalt Tipper Lorries in Asphalt Plant
			4.97E-05	g/m/s (mitigated)	Asphalt Tipper Lorries in Concrete Batching Plant
Concrete Batching Plant (Unloading of raw materials)	Unloading aggregate	Consumption Rate (Western + Eastern)	300	Mg/h (Asphalt)	From engineer: Asphalt: 300 ton/hr = 150 ton/hr x 2 plants
	Source ID: (EP9)		2000	Mg/h (Concrete)	From engineer: Concrete: 2000 ton/hr = 500 ton/hr x4 plants
		Consumption Rate (Western only)	150	Mg/h (Asphalt)	From engineer: Asphalt: 150 ton/hr
	WAB-EP9, WAB-P4-EP9,		500	Mg/h (Concrete)	From engineer: Concrete: 500 ton/hr
	WC-EP9, WC-P4-EP9	Particle size multiplier, k	0.35		For RSP, AP-42, section 13.2.4, 11/06 ed.
		Moisture content, M	2	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
	EAB-EP9,				
	EC-EP9, EC-2-EP9, EC-3-EP9,	Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
	EC-P2-EP9	Emission Factor, E	1.59E-03	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
			0.48	kg/hr (Asphalt - Westen + Eastern)	
			3.17	kg/hr (Concrete - Western +Eastern)	
			0.24	kg/hr (Asphalt - Westen only)	
			0.79	kg/hr (Concrete - Western only)	
		Mitigation efficiency	99	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		No. of operation hour	12	hr	
		Emission height	4	m	
		Emission Rate (Western + Eastern) - **Period 2 to 4**	6.61E-04	g/s (mitigated) (Asphalt)	For each plant (150 ton/hr) Period 2 to 4: 150 ton/hr x 2 plants
			2.20E-03	g/s (mitigated) (Concrete)	For each plant (500ton/hr) Period 2: 500ton/hr x 2 plants Period 3&4: 500ton/hr x 4 plants
		Emission Rate (Western only) - **Period 1**	6.61E-04	g/s (mitigated) (Asphalt)	For 150 ton/hr only
			2.20E-03	g/s (mitigated) (Concrete)	For 500 ton/hr only
Concrete Batching Plant (Cement / PFA Silos)	Small Cementitious Material Silos	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	Source ID: (EP5-EP8)				
	WAB-EP5 to EP8, WAB-P4-EP5 to EP8,				
	WC-EP5 to EP8, WC-P4-EP5 to EP8	RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
	EAB-EP5 to EP8,				
	EC-EP5 to EP8, EC-2-EP5 to EP8, EC-3-EP5 to EP8,	Dust exhaust flow rate for each mixer (Total 4 sources)	60	tons/hr (Asphalt)	Assume volume displacement by loading material
	EC-P2-EP5 to EP8		1200	tons/hr (Concrete)	
			26.8	m3/hr (Asphalt)	For concrete & Asphalt density: 2.24 tons/m3
			535.7	m3/hr (Concrete)	
		No. of operation hour	12	hr	
		No. of small cement silos	4		Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission height	21 or 22	m	EP5: 21m, EP6-EP8: 22m Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate (Total 4 sources)	1.38E-04	g/s (mitigated) (Asphalt)	
			2.75E-03	g/s (mitigated) (Concrete)	
		Emission Rate (Each source)	3.44E-05	g/s (mitigated) (Asphalt)	
		.	6.88E-04	g/s (mitigated) (Concrete)	
	PFA weight Hopper	Emission Factor (without mitigation)	2.60E-03	kg/Mg	Weight hopper loading (uncontrolled), AP-42, section 11.12-4, Table 11.12-1, 6/06 ed.
	Source ID: (EP3-EP4)	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	WAB-EP3 to EP4, WAB-P4-EP3 to EP4,				
	WC-EP3 to EP4, WC-P4-EP3 to EP4				
	EAB-EP3 to EP4,	RSP emission factor	5.82E-03	kg/m3	
	EC-EP3 to EP4, EC-2-EP3 to EP4, EC-3-EP3 to EP4,	Production rate (Total 2 sources)	25	m3/hr (Asphalt)	From engineer
	EC-P2-EP3 to EP4		429	m3/hr (Concrete)	
		Mitigation efficiency	99	%	Total enclosure and fabric filter
		Emission height	13	m	
		Emission Rate (Total 2 sources)	4.04E-04	g/s (mitigated) (Asphalt)	
			6.94E-03	g/s (mitigated) (Concrete)	
Concrete Batching Plant (Mixing Tower)	Mixer Source ID: (EP1-EP2)	Density	2.24	Mg/m3	For Concrete & Asphalt density Refer to this web "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
	WAB-EP1 to EP2, WAB-P4-EP1 to EP2,				
	WC-EP1 to EP2, WC-P4-EP1 to EP2				
		RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
	EAB-EP1 to EP2,				
	EC-EP1 to EP2, EC-2-EP1 to EP2, EC-3-EP1 to EP2,				
	EC-P2-EP1 to EP2	Dust exhaust flow rate for each mixer (Total 2 sources)	60	tons/hr (Asphalt)	Assume volume displacement by loading material
			1200	tons/hr (Concrete)	
			26.8	m3/hr (Asphalt)	For concrete & Asphalt density: 2.24 tons/m3
			535.7	m3/hr (Concrete)	
		No. of operation hour	12	hr	
		No. of small cement silos	2		
		Emission height	13	m	
		Emission Rate (Total 2 sources)	1.38E-04	g/s (mitigated) (Asphalt)	
			2.75E-03	g/s (mitigated) (Concrete)	

Appendix 5.2.15 - Details of Dust Emission Sources for RSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles

Description	Sources	Parameter	Emission Rate		Remarks
Stockpile within Asphalt batching plant in western location	Material handling and storage piles Source ID: WABA1, WABA1-P4 WABA2, WABA2-P4	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	335	m3/month (Asphalt)	From engineer
			5,250	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	1.1	m3/hr (Asphalt)	26 days per month, 12 working hours per day
			16.8	m3/hr (Aggregate)	
			2.7	Mg/hr (Asphalt)	Assume capacity of dump truck is 6m^3 and 15 tons
			42.1	Mg/hr (Aggregate)	
		Area of the Asphalt stockpile, A	234	m^2(Asphalt)	
		Area of the Aggregate stockpile, A	2,200	m^2(Aggregate)	
		Emission Rate (Asphalt stockpile)	1.40117E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			2.80234E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	2.33619E-06	g/m²/s (unmitigated)	
			4.67237E-07	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
Milled Material, Crushed Aggregate and Sub-base Stockpile in western location	Material handling and storage piles Source ID: WAR1, WAR1-P4 WCAS1, WCAS1-P4 WSS1, WSS1-P4	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	422	m3/month (Milled Material)	From engineer
			15,182	m3/month (Crushed Aggregate)	From engineer
			16,275	m3/month (Sub-base stockpile)	From engineer
		Maximum hourly output, op	1.4	m3/hr (Milled Material)	26 days per month, 12 working hours per day
			48.7	m3/hr (Crushed Aggregate)	
			52.2	m3/hr (Sub-base stockpile)	
			3.4	Mg/hr (Milled Material)	Assume capacity of dump truck is 6m^3 and 15 tons
			121.6	Mg/hr (Crushed Aggregate)	
			130.4	Mg/hr (Sub-base stockpile)	
		Area of the Milled Material stockpile, A	279	m^2 (Milled Material)	
		Area of the Crushed Aggregate stockpile, A	5,822	m^2(Crushed Aggregate)	
		Area of the Sub-base stockpile, A	6,209	m^2(Sub-base stockpile)	
		Emission Rate (Milled Material stockpile)	1.48173E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			2.96346E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Crushed Aggregate stockpile)	2.5523E-06	g/m²/s (unmitigated)	
			5.10461E-07	g/m²/s (mitigated)	
		Emission Rate (Sub-base stockpile)	2.56521E-06	g/m²/s (unmitigated)	
			5.13041E-07	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
Stockpile within Asphalt batching plant in eastern location	Material handling and storage piles Source ID: EABA1, EABA2	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	67	m3/month (Asphalt)	From engineer
			1,050	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	0.2	m3/hr (Asphalt)	26 days per month, 12 working hours per day
			3.4	m3/hr (Aggregate)	
			0.5	Mg/hr (Asphalt)	Assume capacity of dump truck is 6m^3 and 15 tons
			8.4	Mg/hr (Aggregate)	
		Area of the Asphalt stockpile, A	154	m^2(Asphalt)	
		Area of the Aggregate stockpile, A	562	m^2(Aggregate)	
		Emission Rate (Asphalt stockpile)	4.26685E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			8.53371E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	1.8297E-06	g/m²/s (unmitigated)	
			3.65941E-07	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
Stockpile within Airfield batching plant in eastern location	Material handling and storage piles Source ID: EACC1, EACA1	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	2,540	m3/month (Cement)	From engineer
			13,824	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	8.1	m3/hr (Cement)	26 days per month, 12 working hours per day
			44.3	m3/hr (Aggregate)	
			20.3	Mg/hr (Cement)	Assume capacity of dump truck is 6m^3 and 15 tons
			110.8	Mg/hr (Aggregate)	
		Area of the Cement stockpile, A	1,163	m^2 (Cement)	
		Area of the Aggregate stockpile, A	5,329	m^2(Aggregate)	
		Emission Rate (Cement stockpile)	2.13755E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			4.27511E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	2.53887E-06	g/m²/s (unmitigated)	
			5.07773E-07	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
Stockpile within Concrete Batching Plant in eastern location	Material handling and storage piles Source ID: ECC1_2, ECC1_3, ECC1-P2 ECA1_2, ECA1_3, ECA1-P2	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	43,270	m3/month (Cement)	From engineer
			173,079	m3/month (Aggregate)	From engineer
		Maximum hourly output, op	138.7	m3/hr (Cement)	26 days per month, 12 working hours per day
			554.7	m3/hr (Aggregate)	
			346.7	Mg/hr (Cement)	Assume capacity of dump truck is 6m^3 and 15 tons
			1386.8	Mg/hr (Aggregate)	
		Area of the Cement stockpile, A	3,944	m2 (Cement)	
		Area of the Aggregate stockpile, A	14,520	m2(Aggregate)	
		Emission Rate (Cement stockpile)	1.0738E-05	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			2.14761E-06	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Emission Rate (Aggregate stockpile)	1.16662E-05	g/m²/s (unmitigated)	
			2.33324E-06	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	

Appendix 5.2.15 - Details of Dust Emission Sources for RSP Assessment (Annual)

Barging Points, Crushing Plant, Concrete and Asphalt Batching Plants, C&D Stockpile and other Stockpiles

Description	Sources	Parameter	Emission Rate		Remarks
Crushed Aggregate Stockpile in eastern location	Material handling and storage piles Source ID: ECA2, ECA2-P2	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	4,364	m3/month	From engineer
		Maximum hourly output, op	14.0	m3/hr	26 days per month, 12 working hours per day
			35.0	Mg/hr	Assume capacity of dump truck is $6m^3$ and 15 tons
		Area of the stockpile, A	1,866	m2	
		Emission Rate	2.28841E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			4.57683E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
C&D Stockpile near seawall	Material handling and storage piles Source ID: CD1	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	1,167	m3/month	From engineer
		Maximum hourly output, op	3.7	m3/hr	26 days per month, 12 working hours per day
			7.5	Mg/hr	Density of C&D material: 2Mg/m3 (from engineer)
		Area of the stockpile, A	3,900	m2	
		Emission Rate	2.34225E-07	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			4.68449E-08	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
C&D Stockpile at midfield	Material handling and storage piles Source ID: CD2, CD3	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	0.35		k (particle size < 30μm)
		Moisture content, M	5	%	Assume worst case scenario
		Average wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	0.000439721	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
		Monthly output	33,222	m3/month	From engineer
		Maximum hourly output, op	106.5	m3/hr	26 days per month, 12 working hours per day
			213.0	Mg/hr	Density of C&D material: 2Mg/m3 (from engineer)
		Area of the stockpile, A	8,100	m2	
		Emission Rate	3.2114E-06	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
			6.42279E-07	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor (0.3)	0.255	Mg/hectare/year	AP42, Section 11.9.4
		Emission Rate	8.086E-07	g/m²/s (unmitigated)	=0.3*0.85*1000000/(10000*365*24*60*60)*p/100
			1.6172E-07	g/m²/s (mitigated)	
Crushing Plant	Screening Source ID: CP1, CP2	RSP emission factor (0.3)	15	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Mineral Works (Stone Crushing Plants), EPD
		Density of rock	1760	Kg/m3	Assume the same as approved EIA South East New Territories (SENT) Landfill Extension (EIA-143/2007) Annex A2
		Maximum handling capcity	700	Mg/hr	From engineer
		No. of operation hour	12	hr	
		Emission height	15	m	
		Emission Rate	1.66E-03	g/s (mitigated)	
Crushing Plant	Tertiary Crushing Source ID: CP1, CP2	RSP emission factor (0.3)	15	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Mineral Works (Stone Crushing Plants), EPD
		Density of rock	1760	Kg/m3	Assume the same as approved EIA South East New Territories (SENT) Landfill Extension (EIA-143/2007) Annex A2
		Maximum handling capcity	700	Mg/hr	From engineer
		No. of operation hour	12	hr	
		Emission height	15	m	
		Emission Rate	1.66E-03	g/s (mitigated)	
Crushing Plant	Paved haul road outside crushing plant - For **Laden** Vehicle Source ID: WAB-HR1 to WAB-HR13 WC-HR1 to WC-HR13	Particle size multiplier, k	0.62	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
		Average truck weight, W	28.3	tons	Full loading of truck, assume the same as Asphalt Tipper, engineering estimate
		Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
		RSP emission factor, E	180	g/VKT	E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.) Truck
		No. of truck trips per day	66	trips/hr	From engineer: 700Mg/hr * (1/(6m3/veh)) * (1/1760 kg/m3) * 1000 Assume density = 1760kg/m3, truck loading = 6m3/veh
		No. of operation hour	12	hr	
		% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	8.29E-05	g/m/s (mitigated)	Truck for crushing plant
Crushing Plant	Paved haul road outside crushing plant - For **Unladen** Vehicle Source ID: WAB-HR1 to WAB-HR13 WC-HR1 to WC-HR13	Particle size multiplier, k	0.62	g/VKT	AP-42, Section 13.2.1, Table 13.2.1-1, 01/11 ed.
		Road surface silt loading, sL	12	g/m2	AP-42, Section 13.2.1, Table 13.2.1-3, 01/11 ed.
		Average truck weight, W	8.24	tons	Empty loading of truck, assume the same as Asphalt Tipper, engineering estimate
		Emission height	0.5	m	Assumed that vehicle will lift dust from the road surface and disperse from 0.5m height
		RSP emission factor, E	51	g/VKT	E=k x (sL)^0.91x (W)^1.02 (AP-42, section 13.2.1, 01/11 ed.) Truck
		No. of truck trips per day	66	trips/hr	From engineer: 700Mg/hr * (1/(6m3/veh)) * (1/1760 kg/m3) * 1000 Assume density = 1760kg/m3, truck loading = 6m3/veh
		No. of operation hour	12	hr	
		% of dust suppression	97.5	%	Assume as the same as Express Rail Link and Extracted from SP License of XRL (Appendix C).
		Emission Rate	2.4E-05	g/m/s (mitigated)	Truck for crushing plant

Appendix 5.2.15 - Details of Dust Emission Sources for RSP Assessment

(Annual) Floating Concrete Batching Plant

Description	Sources	Parameter	Emission Rate		Remarks
Floating Concrete Batching Plant (Unloading of raw materials)	Unloading aggregate Source ID: F-EP1	Consumption Rate	39.6	Mg/h (Concrete)	From engineer: Concrete: 39.6 ton/hr = 1900 ton / (2 days * 24 h)
		Aggregate tank capacity	1900	tons	From engineer
		Refill frequency	2	days	From engineer
		Particle size multiplier, k	0.35		For RSP, AP-42, section 13.2.4, 11/06 ed.
		Moisture content, M	2	%	Assume as the same as land-based CBP
		Mean wind speed, U	4.9	m/s	HKOAMO 2012 annual average wind speed
		Emission Factor, E	1.59E-03	kg/Mg	E=k x (0.0016) x ((U/2.2)^1.3/(M/2)^1.4) (AP-42, section 13.2.4, 11/06 ed.)
			0.06	kg/hr (Concrete)	
		Mitigation efficiency	99	%	Fully covered and handling with water spraying system (From engineer)
		No. of operation hours	24	hr	Assume worst case
		Emission height	10	m	From engineer
		Emission Rate	1.74E-04	g/s (mitigated) (Concrete)	
Floating Concrete Batching Plant (Cement / PFA / CSF Silos)	Cement Silos Source ID: F-EP2	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		Cement silo capacity (Each silo)	110	tons	From engineer
		Refill frequency	2.5	days	From engineer
		Dust exhaust flow rate (Total 4 silos)	7.33	tons/hr (Concrete)	From engineer: 7.33 ton/hr = 4 silos * (110 ton / (2.5 days * 24 h))
			3.3	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of small cement silos	4		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 4 silos)	1.68E-05	g/s (mitigated) (Concrete)	
	PFA Silos Source ID: F-EP3	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		PFA silo capacity (Each silo)	90	tons	From engineer
		Refill frequency	2	days	From engineer
		Dust exhaust flow rate (Total 2 silos)	3.75	tons/hr (Concrete)	From engineer: 3.75 ton/hr = 2 silos * (90 ton / (2 days * 24 h))
			1.7	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of PFA silos	2		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 2 silos)	8.60E-06	g/s (mitigated) (Concrete)	
	CSF Silos Source ID: F-EP4	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		CSF silo capacity (Each silo)	30	tons	From engineer
		Refill frequency	5	days	From engineer
		Dust exhaust flow rate (Total 2 silos)	0.50	tons/hr (Concrete)	From engineer: 0.5 ton/hr = 2 silos * (30 ton / (5 days * 24 h))
			0.2	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of CSF silos	2		From engineer
		Emission height	10	m	From engineer
		Emission Rate (Total 2 silos)	1.15E-06	g/s (mitigated) (Concrete)	
Floating Concrete Batching Plant (Mixing Tower)	Mixer Source ID: F-EP5	Density	2.24	Mg/m3	For Concrete density, refer to this website "http://www.aqua-calc.com/page/density-table/substance/concrete-coma-and-blank-asphalt"
		RSP emission factor (0.37)	18.5	mg/m3	Concretration limit, Annex I, A Guidance Note on the Best Praticable Means for Cement Works (Concrete Batching Plant), EPD
		Dust exhaust flow rate (Total 2 mixers)	560	tons/hr (Concrete)	From engineer: 280 ton/hr * 2 mixers
			250.0	m3/hr (Concrete)	For concrete density: 2.24 tons/m3
		No. of operation hours	24	hr	Assume worst case
		No. of mixers	2		From engineer
		Emission height	17	m	From engineer
		Emission Rate (Total 2 mixers)	1.28E-03	g/s (mitigated) (Concrete)	