



# Appendix 3.7 Calculation of Emissions from Portals

## Traffic Data and Composite Emission Factors (Year 2031)

Individual Road Information											Traffic Flow (%)																	With ColdStart			Without ColdStart				
Road Name	Road ID	Road Type	Road Length (km)	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (γ/N)	Temperature (oC)	Relative Humidity (%)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles>15-24t	08 - Public Light Buses	09 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycle	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total	NOx	RSP	FSP	NOx	RSP	FSP
											PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9							
Road 801	801	-	0.1	100	100	-	0	16	0000-0100	726	32.30%	13.07%	0.08%	7.64%	2.74%	2.33%	4.57%	2.74%	0.04%	0.31%	0.71%	0.49%	1.08%	0.15%	3.79%	1.82%	1.19%	0.00%	75%	0.7238	0.0223	0.0204	0.3990	0.0189	0.0173
Road 801	801	-	0.1	100	100	-	0	16	0100-0200	521	31.60%	12.30%	0.09%	8.18%	2.94%	2.54%	4.99%	2.71%	0.05%	0.43%	0.80%	0.56%	1.22%	0.15%	3.77%	1.98%	1.30%	0.00%	76%	0.7550	0.0229	0.0211	0.4065	0.0195	0.0179
Road 801	801	-	0.1	100	100	-	0	16	0200-0300	384	30.90%	11.53%	0.09%	8.74%	3.14%	2.75%	5.41%	2.69%	0.07%	0.54%	0.89%	0.62%	1.35%	0.14%	3.74%	2.14%	1.41%	0.00%	76%	0.7864	0.0236	0.0217	0.4140	0.0202	0.0185
Road 801	801	-	0.1	100	100	-	0	16	0300-0400	315	30.19%	10.75%	0.10%	9.29%	3.34%	2.96%	5.83%	2.66%	0.08%	0.65%	0.98%	0.68%	1.49%	0.14%	3.72%	2.31%	1.52%	0.00%	77%	0.8180	0.0243	0.0223	0.4215	0.0208	0.0191
Road 801	801	-	0.1	100	100	-	0	16	0400-0500	332	29.48%	9.97%	0.10%	9.85%	3.54%	3.18%	6.25%	2.64%	0.10%	0.77%	1.07%	0.74%	1.63%	0.14%	3.69%	2.47%	1.63%	0.00%	77%	0.8497	0.0250	0.0230	0.4291	0.0215	0.0197
Road 801	801	-	0.1	100	100	-	0	16	0500-0600	440	28.77%	9.18%	0.11%	10.41%	3.74%	3.40%	6.68%	2.61%	0.11%	0.88%	1.16%	0.80%	1.77%	0.13%	3.67%	2.63%	1.74%	0.00%	78%	0.8816	0.0257	0.0236	0.4368	0.0222	0.0204
Road 801	801	-	0.1	100	100	-	0	16	0600-0700	1029	28.05%	8.39%	0.11%	10.97%	3.94%	3.61%	7.10%	2.59%	0.13%	1.00%	1.25%	0.87%	1.90%	0.13%	3.64%	2.80%	1.86%	0.00%	78%	0.9138	0.0264	0.0242	0.4444	0.0228	0.0210
Road 801	801	-	0.1	100	100	-	0	16	0700-0800	2570	27.33%	7.59%	0.12%	11.54%	4.14%	3.83%	7.54%	2.56%	0.14%	1.11%	1.34%	0.93%	2.04%	0.13%	3.61%	2.96%	1.97%	0.00%	79%	0.9461	0.0271	0.0249	0.4522	0.0235	0.0216
Road 801	801	-	0.1	100	100	-	0	16	0800-0900	3014	30.39%	7.64%	0.13%	12.12%	4.35%	3.41%	6.71%	1.99%	0.10%	0.78%	1.04%	0.72%	1.59%	0.03%	2.19%	1.57%	1.75%	0.00%	77%	0.7984	0.0216	0.0198	0.3650	0.0185	0.0170
Road 801	801	-	0.1	100	100	-	0	16	0900-1000	2703	25.51%	7.81%	0.15%	14.79%	5.31%	4.86%	9.56%	1.94%	0.10%	0.79%	0.93%	0.64%	1.41%	0.07%	2.73%	1.19%	2.50%	0.00%	80%	0.9943	0.0255	0.0234	0.4423	0.0230	0.0211
Road 801	801	-	0.1	100	100	-	0	16	1000-1100	2685	23.62%	7.22%	0.17%	16.19%	5.81%	5.84%	11.49%	1.86%	0.05%	0.39%	0.73%	0.50%	1.11%	0.05%	3.04%	0.69%	3.00%	0.00%	82%	1.0981	0.0276	0.0253	0.4789	0.0254	0.0234
Road 801	801	-	0.1	100	100	-	0	16	1100-1200	2421	22.65%	6.28%	0.18%	17.41%	6.25%	5.88%	11.57%	1.99%	0.09%	0.67%	0.72%	0.50%	1.10%	0.00%	3.45%	0.73%	3.02%	0.00%	83%	1.1281	0.0289	0.0266	0.5002	0.0268	0.0247
Road 801	801	-	0.1	100	100	-	0	16	1200-1300	3423	32.30%	11.66%	0.08%	7.82%	2.81%	3.43%	6.75%	1.47%	0.15%	1.13%	0.88%	0.61%	1.35%	0.03%	1.84%	0.98%	1.76%	0.00%	75%	0.7630	0.0195	0.0179	0.3451	0.0165	0.0152
Road 801	801	-	0.1	100	100	-	0	16	1300-1400	3655	32.49%	11.81%	0.09%	8.53%	3.06%	3.18%	6.24%	1.62%	0.08%	0.59%	0.86%	0.59%	1.30%	0.05%	1.69%	1.10%	1.63%	0.00%	75%	0.7269	0.0186	0.0171	0.3326	0.0156	0.0143
Road 801	801	-	0.1	100	100	-	0	16	1400-1500	3557	31.81%	10.99%	0.09%	8.62%	3.10%	3.56%	7.00%	1.34%	0.10%	0.75%	0.92%	0.64%	1.40%	0.05%	1.61%	1.64%	1.83%	0.00%	75%	0.7707	0.0196	0.0180	0.3398	0.0163	0.0150
Road 801	801	-	0.1	100	100	-	0	16	1500-1600	3957	33.27%	10.60%	0.09%	8.58%	3.08%	2.92%	5.75%	0.98%	0.14%	1.08%	1.11%	0.77%	1.69%	0.07%	1.51%	1.20%	1.50%	0.00%	74%	0.7009	0.0182	0.0167	0.3158	0.0151	0.0139
Road 801	801	-	0.1	100	99	-	0	16	1600-1700	4042	32.52%	11.52%	0.09%	8.37%	3.01%	2.79%	5.48%	1.35%	0.20%	1.56%	0.99%	0.69%	1.51%	0.04%	1.67%	1.69%	1.43%	0.00%	75%	0.7054	0.0185	0.0170	0.3264	0.0151	0.0139
Road 801	801	-	0.1	100	96	-	0	16	1700-1800	4595	35.10%	9.93%	0.08%	7.60%	2.73%	2.05%	4.03%	1.31%	0.17%	1.34%	0.88%	0.61%	1.34%	0.06%	1.39%	3.23%	1.05%	0.00%	73%	0.5946	0.0169	0.0155	0.2787	0.0126	0.0115
Road 801	801	-	0.1	100	93	-	0	16	1800-1900	5225	41.39%	7.74%	0.05%	4.72%	1.70%	1.16%	2.28%	1.20%	0.06%	0.45%	0.87%	0.61%	1.33%	0.05%	1.12%	2.72%	0.60%	0.00%	68%	0.4246	0.0139	0.0127	0.2045	0.0093	0.0086
Road 801	801	-	0.1	100	100	-	0	16	1900-2000	4149	41.58%	10.14%	0.03%	3.15%	1.13%	1.16%	2.27%	1.19%	0.01%	0.07%	0.98%	0.68%	1.49%	0.04%	1.49%	1.90%	0.59%	0.00%	68%	0.4379	0.0143	0.0131	0.2237	0.0101	0.0093
Road 801	801	-	0.1	100	100	-	0	16	2000-2100	3076	40.03%	12.21%	0.03%	2.88%	1.03%	1.22%	2.39%	1.71%	0.01%	0.12%	1.04%	0.72%	1.59%	0.07%	1.76%	1.67%	0.62%	0.00%	69%	0.4784	0.0150	0.0137	0.2522	0.0111	0.0102
Road 801	801	-	0.1	100	100	-	0	16	2100-2200	2738	38.53%	14.42%	0.03%	2.69%	0.97%	1.48%	2.91%	1.72%	0.01%	0.04%	0.74%	0.52%	1.13%	0.09%	1.78%	2.42%	0.76%	0.00%	70%	0.5083	0.0153	0.0140	0.2675	0.0111	0.0102
Road 801	801	-	0.1	100	100	-	0	16	2200-2300	2624	38.90%	16.85%	0.03%	2.96%	1.06%	0.86%	1.70%	1.53%	0.01%	0.11%	0.62%	0.43%	0.94%	0.07%	1.71%	1.74%	0.44%	0.00%	70%	0.4368	0.0133	0.0121	0.2528	0.0094	0.0086
Road 801	801	-	0.1	100	100	-	0	16	2300-0000	2008	38.49%	16.13%	0.03%	3.24%	1.16%	0.97%	1.90%	1.53%	0.03%	0.24%	0.73%	0.51%	1.11%	0.07%	1.71%	1.94%	0.50%	0.00%	70%	0.4578	0.0138	0.0127	0.2581	0.0099	0.0091
Road 802	802	-	0.1	100	100	-	0	16	0000-0100	960	34.18%	13.82%	0.07%	6.22%	2.24%	1.90%	3.73%	2.07%	0.04%	0.33%	0.75%	0.52%	1.15%	0.14%	3.55%	1.93%	0.97%	0.00%	74%	0.6548	0.0206	0.0189	0.3692	0.0171	0.0157
Road 802	802	-	0.1	100	100	-	0	16	0100-0200	686	33.56%	13.06%	0.07%	6.70%	2.40%	2.08%	4.08%	2.06%	0.06%	0.45%	0.85%	0.59%	1.29%	0.14%	3.54%	2.10%	1.07%	0.00%	74%	0.6834	0.0213	0.0196	0.3763	0.0177	0.0162
Road 802	802	-	0.1	100	100	-	0	16	0200-0300	505	32.93%	12.28%	0.07%	7.17%	2.58%	2.26%	4.44%	2.05%	0.07%	0.57%	0.95%	0.66%	1.44%	0.14%	3.53%	2.28%	1.16%	0.00%	75%	0.7123	0.0220	0.0202	0.3835	0.0183	0.0168
Road 802	802	-	0.1	100	100	-	0	16	0300-0400	412	32.29%	11.49%	0.08%	7.65%	2.75%	2.44%	4.80%	2.04%	0.09%	0.70%	1.05%	0.73%	1.59%	0.13%	3.52%	2.47%	1.25%	0.00%	75%	0.7417	0.0227	0.0208	0.3907	0.0190	0.0174
Road 802	802	-	0.1	100	100	-	0	16	0400-0500	433	31.65%	10.70%	0.09%	8.14%	2.92%	2.63%	5.17%	2.02%	0.11%	0.82%	1.15%	0.80%	1.75%	0.13%	3.51%	2.65%	1.35%	0.00%	76%	0.7714	0.0234	0.0215	0.3981	0.0196	0.0180
Road 802	802	-	0.1	100	100	-	0	16	0500-0600	572	30.99%	9.89%	0.09%	8.64%	3.10%	2.82%	5.54%	2.01%	0.12%	0.95%	1.25%	0.87%	1.90%	0.13%	3.49%	2.84%	1.45%	0.00%	76%	0.8015	0.0241	0.0221	0.4055	0.0203	0.0186
Road 802	802	-	0.1	100	100	-	0	16	0600-0700	1332	30.33%	9.07%	0.10%	9.14%	3.28%	3.01%	5.92%	2.00%	0.14%	1.08%	1.35%	0.94%	2.06%	0.12%	3.48%	3.02%	1.55%	0.00%	77%	0.8320	0.0248	0.0228	0.4131	0.0210	0.0192
Road 802	802	-	0.1	100	100	-	0	16	0700-0800	3315	29.66%	8.24%	0.10%	9.65%	3.47%	3.20%	6.30%	1.99%	0.15%	1.21%	1.46%	1.01%	2.22%	0.12%	3.47%	3.22%	1.65%	0.00%	77%	0.8630	0.0256	0.0234	0.4207	0.0216	0.0199
Road 802	802	-	0.1	100	100	-	0	16	0800-0900	3908	32.81%	8.25%	0.11%	10.08%	3.62%	2.84%	5.58%	1.54%	0.11%	0.85%	1.13%	0.78%	1.72%	0.03%	2.09%	1.70%	1.46%	0.00%	75%	0.7195	0.0201	0.0185	0.3357	0.0168	0.0154
Road 802	802	-	0.1	100	100	-	0	16	0900-1000	3428	28.16%	8.63%	0.13%	12.58%	4.52%	4.14%	8.13%	1.53%	0.11%	0.87%	1.02%	0.71%	1.56%	0.07%	2.67%	1.31%	2.12%	0.00%	78%	0.9014	0.0239	0.0219	0.4107	0.0210	0.0193
Road 802	802	-	0.1	100	100	-	0	16	1000-1100	3233	26.43%	8.08%	0.15%	13.96%	5.01%	5.04%	9.91%	1.49%	0.06%	0.44%	0.81%	0.56%	1.24%	0.05%	3.01%	0.77%	2.59%	0.00%	80%	0.9968	0.0258	0.0237	0.4460	0.0234	0.0215

### Appendix 3.7 Calculation of Emissions from Portals

Operation Phase (Year 2031)

Emission Rate Calculation

Description	Length (m)	Road Link ID	Hour	Flow (Veh/hr)	Composite Emission Factor				Emission Rate			
					NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
					(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB)	209	801	1	726	3.5659E-01	4.2423E-02	1.8869E-02	1.7326E-02	9.3215E-03	1.1090E-03	4.9326E-04	4.5292E-04
	209	801	2	521	3.6147E-01	4.5010E-02	1.9522E-02	1.7926E-02	6.7766E-03	8.4383E-04	3.6599E-04	3.3608E-04
	209	801	3	384	3.6637E-01	4.7612E-02	2.0178E-02	1.8530E-02	5.0676E-03	6.5857E-04	2.7910E-04	2.5631E-04
	209	801	4	315	3.7130E-01	5.0229E-02	2.0838E-02	1.9137E-02	4.2082E-03	5.6929E-04	2.3617E-04	2.1690E-04
	209	801	5	332	3.7626E-01	5.2862E-02	2.1501E-02	1.9748E-02	4.4981E-03	6.3196E-04	2.5704E-04	2.3609E-04
	209	801	6	440	3.8125E-01	5.5511E-02	2.2169E-02	2.0363E-02	6.0426E-03	8.7983E-04	3.5137E-04	3.2274E-04
	209	801	7	1029	3.8626E-01	5.8175E-02	2.2841E-02	2.0981E-02	1.4306E-02	2.1546E-03	8.4595E-04	7.7706E-04
	209	801	8	2570	3.9131E-01	6.0855E-02	2.3516E-02	2.1603E-02	3.6213E-02	5.6317E-03	2.1763E-03	1.9992E-03
	209	801	9	3014	3.1330E-01	5.1695E-02	1.8489E-02	1.6979E-02	3.3997E-02	5.6096E-03	2.0063E-03	1.8425E-03
	209	801	10	2703	3.7735E-01	6.4982E-02	2.2967E-02	2.1102E-02	3.6729E-02	6.3251E-03	2.2355E-03	2.0540E-03
	209	801	11	2585	4.0700E-01	7.1924E-02	2.5433E-02	2.3372E-02	3.7884E-02	6.6948E-03	2.3673E-03	2.1755E-03
	209	801	12	2421	4.2584E-01	7.4341E-02	2.6836E-02	2.4664E-02	3.7119E-02	6.4801E-03	2.3392E-03	2.1499E-03
	209	801	13	3423	2.9766E-01	4.7474E-02	1.6531E-02	1.5178E-02	3.6682E-02	5.8505E-03	2.0373E-03	1.8704E-03
	209	801	14	3655	2.8770E-01	4.4895E-02	1.5621E-02	1.4340E-02	3.7867E-02	5.9090E-03	2.0560E-03	1.8874E-03
	209	801	15	3557	2.9176E-01	4.8047E-02	1.6324E-02	1.4986E-02	3.7366E-02	6.1535E-03	2.0906E-03	1.9193E-03
	209	801	16	3957	2.7167E-01	4.4144E-02	1.5101E-02	1.3862E-02	3.8710E-02	6.2901E-03	2.1517E-03	1.9752E-03
	209	801	17	4042	2.8247E-01	4.3893E-02	1.5139E-02	1.3940E-02	4.1109E-02	6.3880E-03	2.2032E-03	2.0288E-03
	209	801	18	4595	2.4271E-01	3.5989E-02	1.2591E-02	1.1543E-02	4.0155E-02	5.9540E-03	2.0831E-03	1.9096E-03
	209	801	19	5225	1.7991E-01	2.4630E-02	9.3038E-03	8.5789E-03	3.3849E-02	4.6340E-03	1.7504E-03	1.6140E-03
	209	801	20	4149	1.9909E-01	2.4582E-02	1.0132E-02	9.2836E-03	2.9745E-02	3.6727E-03	1.5138E-03	1.3870E-03
	209	801	21	3076	2.2539E-01	2.6793E-02	1.1097E-02	1.0172E-02	2.4962E-02	2.9673E-03	1.2290E-03	1.1266E-03
	209	801	22	2738	2.4032E-01	2.7161E-02	1.1114E-02	1.0187E-02	2.3695E-02	2.6780E-03	1.0958E-03	1.0044E-03
	209	801	23	2624	2.3107E-01	2.1768E-02	9.4115E-03	8.6229E-03	2.1835E-02	2.0570E-03	8.8935E-04	8.1483E-04
	209	801	24	2008	2.3453E-01	2.3612E-02	9.9253E-03	9.0955E-03	1.6960E-02	1.7074E-03	7.1773E-04	6.5773E-04
	Daily	-	-	-	-	-	-	6.1510E-01	9.1850E-02	3.3771E-02	3.1015E-02	
Fanling Highway Full Enclosure (EB)	209	802	1	960	3.3193E-01	3.7297E-02	1.7056E-02	1.5657E-02	1.1500E-02	1.2922E-03	5.9095E-04	5.4247E-04
	209	802	2	686	3.3660E-01	3.9698E-02	1.7686E-02	1.6236E-02	8.3347E-03	9.8298E-04	4.3792E-04	4.0203E-04
	209	802	3	505	3.4133E-01	4.2130E-02	1.8323E-02	1.6823E-02	6.2137E-03	7.6695E-04	3.3356E-04	3.0625E-04
	209	802	4	412	3.4613E-01	4.4594E-02	1.8969E-02	1.7417E-02	5.1445E-03	6.6282E-04	2.8194E-04	2.5888E-04
	209	802	5	433	3.5098E-01	4.7091E-02	1.9624E-02	1.8020E-02	5.4827E-03	7.3562E-04	3.0654E-04	2.8148E-04
	209	802	6	572	3.5590E-01	4.9621E-02	2.0287E-02	1.8630E-02	7.3441E-03	1.0239E-03	4.1862E-04	3.8442E-04
	209	802	7	1332	3.6089E-01	5.2185E-02	2.0959E-02	1.9248E-02	1.7338E-02	2.5070E-03	1.0069E-03	9.2471E-04
	209	802	8	3315	3.6595E-01	5.4783E-02	2.1640E-02	1.9875E-02	4.3765E-02	6.5517E-03	2.5880E-03	2.3769E-03
	209	802	9	3908	2.8977E-01	4.5880E-02	1.6773E-02	1.5399E-02	4.0854E-02	6.4684E-03	2.3647E-03	2.1711E-03
	209	802	10	3428	3.5255E-01	5.8149E-02	2.1036E-02	1.9325E-02	4.3596E-02	7.1908E-03	2.6014E-03	2.3897E-03
	209	802	11	3233	3.8155E-01	6.4477E-02	2.3407E-02	2.1507E-02	4.4506E-02	7.5209E-03	2.7303E-03	2.5086E-03
	209	802	12	3011	4.0096E-01	6.7096E-02	2.4892E-02	2.2874E-02	4.3556E-02	7.2887E-03	2.7041E-03	2.4848E-03
	209	802	13	2843	3.3324E-01	5.4442E-02	1.9221E-02	1.7653E-02	3.4179E-02	5.5838E-03	1.9714E-03	1.8106E-03
	209	802	14	3037	3.2161E-01	5.1594E-02	1.8166E-02	1.6683E-02	3.5237E-02	5.6528E-03	1.9904E-03	1.8278E-03
	209	802	15	2964	3.2561E-01	5.5038E-02	1.8902E-02	1.7360E-02	3.4817E-02	5.8851E-03	2.0212E-03	1.8562E-03
	209	802	16	3273	3.0305E-01	5.0288E-02	1.7432E-02	1.6007E-02	3.5782E-02	5.9378E-03	2.0583E-03	1.8901E-03
	209	802	17	3341	3.1507E-01	4.9998E-02	1.7605E-02	1.6167E-02	3.7975E-02	6.0261E-03	2.1219E-03	1.9485E-03
	209	802	18	3757	2.7249E-01	4.1199E-02	1.4773E-02	1.3557E-02	3.6930E-02	5.5837E-03	2.0022E-03	1.8374E-03
	209	802	19	4184	2.0445E-01	2.8418E-02	1.1089E-02	1.0164E-02	3.0861E-02	4.2895E-03	1.6738E-03	1.5342E-03
	209	802	20	3306	2.2557E-01	2.8364E-02	1.1948E-02	1.0955E-02	2.6904E-02	3.3831E-03	1.4251E-03	1.3066E-03
	209	802	21	2456	2.5501E-01	3.0875E-02	1.3136E-02	1.2048E-02	2.2590E-02	2.7351E-03	1.1636E-03	1.0673E-03
	209	802	22	2191	2.7090E-01	3.1734E-02	1.3296E-02	1.2195E-02	2.1410E-02	2.5080E-03	1.0508E-03	9.6377E-04
	209	802	23	2087	2.5815E-01	2.5277E-02	1.1293E-02	1.0354E-02	1.9438E-02	1.9032E-03	8.5032E-04	7.7963E-04
	209	802	24	1601	2.6209E-01	2.7295E-02	1.1848E-02	1.0864E-02	1.5134E-02	1.5761E-03	6.8412E-04	6.2735E-04
	Daily	-	-	-	-	-	-	6.2889E-01	9.4056E-02	3.5378E-02	3.2481E-02	

Description	Hour	No. of Volume Sources	Total Emission Rate				Daily Emission Rate (from 1st 50m for each portal source)				Daily Emission Rate (from 2nd 50m for each portal source)			
			NO	NO2	RSP	FSP	NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
			(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB+EB)	1	6	2.0822E-02	2.4012E-03	1.0842E-03	9.9539E-04	2.3135E-03	2.6680E-04	1.2047E-04	1.1060E-04	1.1568E-03	1.3340E-04	6.0234E-05	5.5299E-05
	2	6	1.5111E-02	1.8268E-03	8.0391E-04	7.3811E-04	1.6790E-03	2.0298E-04	8.9323E-05	8.2013E-05	8.3952E-04	1.0149E-04	4.4662E-05	4.1006E-05
	3	6	1.1281E-02	1.4255E-03	6.1266E-04	5.6256E-04	1.2535E-03	1.5839E-04	6.8073E-05	6.2507E-05	6.2674E-04	7.9196E-05	3.4037E-05	3.1253E-05
	4	6	9.3527E-03	1.2321E-03	5.1811E-04	4.7578E-04	1.0392E-03	1.3690E-04	5.7568E-05	5.2864E-05	5.1960E-04	6.8450E-05	2.8784E-05	2.6432E-05
	5	6	9.9808E-03	1.3676E-03	5.6359E-04	5.1757E-04	1.1090E-03	1.5195E-04	6.2621E-05	5.7508E-05	5.5449E-04	7.5976E-05	3.1310E-05	2.8754E-05
	6	6	1.3387E-02	1.9038E-03	7.6999E-04	7.0716E-04	1.4874E-03	2.1153E-04	8.5554E-05	7.8574E-05	7.4371E-04	1.0576E-04	4.2777E-05	3.9287E-05
	7	6	3.1644E-02	4.6616E-03	1.8528E-03	1.7018E-03	3.5160E-03	5.1796E-04	1.8909E-04	1.7580E-03	2.5898E-04	1.0294E-04	9.4543E-05	
	8	6	7.9979E-02	1.2183E-02	4.7643E-03	4.3761E-03	8.8865E-03	1.3537E-03	5.2937E-04	4.8623E-04	4.4433E-03	6.7686E-04	2.6468E-04	2.4312E-04
	9	6	7.4851E-02	1.2078E-02	4.3710E-03	4.0136E-03	8.3168E-03	1.3420E-03	4.8566E-04	4.4595E-04	4.1584E-03	6.7100E-04	2.4283E-04	2.2298E-04
	10	6	8.0326E-02	1.3516E-02	4.8369E-03	4.4437E-03	9.9251E-03	1.5018E-03	5.3743E-04	4.9375E-04	4.4625E-03	7.5088E-04	2.6871E-04	2.4687E-04
	11	6	8.2390E-02	1.4216E-02	5.0976E-03	4.6842E-03	9.1545E-03	1.5795E-03	5.6640E-04	5.2047E-04	4.5722E-03	7.8976E-04	2.8320E-04	2.6023E-04
	12	6	8.0676E-02	1.3769E-02	5.0433E-03	4.6347E-03	8.9639E-03	1.5299E-03	5.6036E-04	5.1496E-04	4.4820E-03	7.6493E-04	2.8018E-04	2.5748E-04
	13	6	7.0861E-02	1.1434E-02	4.0087E-03	3.6810E-03	7.8735E-03	1.2705E-03	4.4541E-04	4.0900E-04	3.9367E-03	6.3524E-04	2.2270E-04	2.0450E-04
	14	6	7.3104E-02	1.1562E-02	4.0463E-03	3.7152E-03	8.1227E-03	1.2846E-03	4.4959E-04	4.1280E-04	4.0613E-03	6.4232E-04	2.2480E-04	2.0640E-04
	15	6	7.2183E-02	1.2039E-02	4.1118E-03	3.7755E-03	8.0203E-03	1.3376E-03	4.5687E-04	4.1950E-04	4.0102E-03	6.6881		

**Appendix 3.7 Calculation of Emissions from Portals**

Operation Phase (Year 2031)

Emission Rate of Full Enclosure

Road Name	Height (m)	Width (m)	Source ID	Source Type	X	Y	Emission Rate (g/s)				Release Height (HS) (m)	Lateral Dimension (SY) (m)	Vertical Dimension (SZ) (m)
							NO	NO2	RSP	FSP			
Fanling Highway Full Enclosure (WB)	6.00	21.43	FEW01	VOLUME	827951.83	840457.71	1.3822E-01	2.0656E-02	7.6833E-03	7.0550E-03	3.00	9.97	2.79
	6.00	21.43	FEW02	VOLUME	827930.45	840459.11	1.3822E-01	2.0656E-02	7.6833E-03	7.0550E-03	3.00	9.97	2.79
	6.00	21.43	FEW03	VOLUME	827909.07	840460.52	1.3822E-01	2.0656E-02	7.6833E-03	7.0550E-03	3.00	9.97	2.79
	6.00	21.43	FEW04	VOLUME	827887.69	840461.92	6.9111E-02	1.0328E-02	3.8416E-03	3.5275E-03	3.00	9.97	2.79
	6.00	21.43	FEW05	VOLUME	827866.31	840463.33	6.9111E-02	1.0328E-02	3.8416E-03	3.5275E-03	3.00	9.97	2.79
	6.00	21.43	FEW06	VOLUME	827844.93	840464.73	6.9111E-02	1.0328E-02	3.8416E-03	3.5275E-03	3.00	9.97	2.79

Remark

1. The dimension of the portal opening is based on the engineering design.

Hourly Profile for FEW01-FEW06

Hour	NO	NO2	RSP	FSP
Hour 1	0.01674	0.01292	0.01568	0.01568
Hour 2	0.01215	0.00983	0.01163	0.01162
Hour 3	0.00907	0.00767	0.00886	0.00886
Hour 4	0.00752	0.00663	0.00749	0.00749
Hour 5	0.00802	0.00736	0.00815	0.00815
Hour 6	0.01076	0.01024	0.01114	0.01114
Hour 7	0.02544	0.02508	0.02679	0.02680
Hour 8	0.06429	0.06554	0.06890	0.06892
Hour 9	0.06017	0.06497	0.06321	0.06321
Hour 10	0.06457	0.07270	0.06995	0.06998
Hour 11	0.06623	0.07647	0.07372	0.07377
Hour 12	0.06485	0.07406	0.07293	0.07299
Hour 13	0.05696	0.06151	0.05797	0.05797
Hour 14	0.05877	0.06219	0.05852	0.05851
Hour 15	0.05803	0.06476	0.05946	0.05946
Hour 16	0.05988	0.06577	0.06088	0.06087
Hour 17	0.06357	0.06678	0.06255	0.06264
Hour 18	0.06197	0.06206	0.05908	0.05901
Hour 19	0.05202	0.04800	0.04952	0.04958
Hour 20	0.04554	0.03795	0.04250	0.04242
Hour 21	0.03823	0.03067	0.03460	0.03455
Hour 22	0.03626	0.02790	0.03104	0.03100
Hour 23	0.03318	0.02130	0.02516	0.02511
Hour 24	0.02580	0.01766	0.02027	0.02024
Total	1.00000	1.00000	1.00000	1.00000



# Appendix 3.7 Calculation of Emissions from Portals

## Traffic Data and Composite Emission Factors (Year 2034)

Individual Road Information											Traffic Flow (%)																	With ColdStart			Without ColdStart				
Road Name	Road ID	Road Type	Road Length (km)	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (γ/N)	Temperature (oC)	Relative Humidity (%)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycle s	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total	NOx	RSP	FSP	NOx	RSP	FSP
											PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9							
Road 801	801	-	0.1	100	100	-	0	16	0000-0100	658	23.36%	12.71%	0.08%	8.11%	2.91%	2.47%	4.85%	3.02%	0.04%	0.31%	0.69%	0.48%	1.05%	0.17%	4.37%	1.77%	1.27%	0.00%	68%	0.5701	0.0144	0.0132	0.2553	0.0116	0.0107
Road 801	801	-	0.1	100	100	-	0	16	0100-0200	473	22.83%	11.95%	0.08%	8.68%	3.12%	2.69%	5.29%	2.99%	0.05%	0.41%	0.78%	0.54%	1.18%	0.17%	4.34%	1.93%	1.38%	0.00%	68%	0.5961	0.0149	0.0137	0.2582	0.0121	0.0111
Road 801	801	-	0.1	100	100	-	0	16	0200-0300	349	22.29%	11.18%	0.10%	9.26%	3.32%	2.91%	5.73%	2.96%	0.07%	0.52%	0.86%	0.60%	1.31%	0.17%	4.30%	2.08%	1.50%	0.00%	69%	0.6222	0.0154	0.0141	0.2610	0.0125	0.0115
Road 801	801	-	0.1	100	100	-	0	16	0300-0400	286	21.76%	10.42%	0.10%	9.83%	3.53%	3.14%	6.17%	2.93%	0.08%	0.63%	0.95%	0.66%	1.44%	0.16%	4.27%	2.23%	1.61%	0.00%	70%	0.6484	0.0159	0.0145	0.2639	0.0130	0.0119
Road 801	801	-	0.1	100	100	-	0	16	0400-0500	303	21.22%	9.65%	0.11%	10.41%	3.74%	3.36%	6.61%	2.90%	0.09%	0.74%	1.03%	0.72%	1.58%	0.16%	4.23%	2.39%	1.73%	0.00%	71%	0.6746	0.0164	0.0150	0.2668	0.0135	0.0124
Road 801	801	-	0.1	100	100	-	0	16	0500-0600	402	20.68%	8.87%	0.11%	10.99%	3.95%	3.58%	7.05%	2.87%	0.11%	0.85%	1.12%	0.78%	1.71%	0.15%	4.20%	2.54%	1.84%	0.00%	71%	0.7010	0.0169	0.0155	0.2697	0.0139	0.0128
Road 801	801	-	0.1	100	100	-	0	16	0600-0700	940	20.14%	8.10%	0.12%	11.57%	4.15%	3.81%	7.49%	2.84%	0.12%	0.96%	1.21%	0.84%	1.84%	0.15%	4.16%	2.70%	1.96%	0.00%	72%	0.7275	0.0174	0.0159	0.2727	0.0144	0.0132
Road 801	801	-	0.1	100	100	-	0	16	0700-0800	2351	19.59%	7.32%	0.13%	12.15%	4.36%	4.04%	7.93%	2.80%	0.14%	1.07%	1.29%	0.90%	1.97%	0.14%	4.13%	2.86%	2.07%	0.00%	73%	0.7540	0.0179	0.0164	0.2756	0.0148	0.0136
Road 801	801	-	0.1	100	100	-	0	16	0800-0900	2745	21.88%	7.40%	0.13%	12.81%	4.60%	3.61%	7.09%	2.19%	0.10%	0.76%	1.01%	0.70%	1.54%	0.04%	2.51%	1.52%	1.85%	0.00%	70%	0.6488	0.0145	0.0133	0.2260	0.0120	0.0110
Road 801	801	-	0.1	100	100	-	0	16	0900-1000	2484	18.21%	7.50%	0.16%	15.50%	5.57%	5.10%	10.02%	2.11%	0.10%	0.76%	0.89%	0.62%	1.35%	0.06%	3.11%	1.14%	2.62%	0.00%	75%	0.8034	0.0165	0.0152	0.2654	0.0145	0.0133
Road 801	801	-	0.1	100	100	-	0	16	1000-1100	2388	16.77%	6.89%	0.18%	16.88%	6.06%	6.09%	11.98%	2.02%	0.05%	0.38%	0.69%	0.48%	1.06%	0.06%	3.44%	0.66%	3.13%	0.00%	77%	0.8833	0.0174	0.0160	0.2807	0.0158	0.0145
Road 801	801	-	0.1	100	100	-	0	16	1100-1200	2241	16.05%	5.99%	0.19%	18.11%	6.50%	6.12%	12.03%	2.15%	0.08%	0.64%	0.69%	0.48%	1.05%	0.00%	3.90%	0.70%	3.14%	0.00%	78%	0.9020	0.0182	0.0167	0.2913	0.0166	0.0152
Road 801	801	-	0.1	100	100	-	0	16	1200-1300	3909	25.02%	12.15%	0.07%	6.87%	2.47%	3.01%	5.93%	1.29%	0.15%	1.18%	0.92%	0.64%	1.40%	0.03%	1.68%	1.02%	1.55%	0.00%	65%	0.5593	0.0118	0.0109	0.2014	0.0094	0.0086
Road 801	801	-	0.1	100	98	-	0	16	1300-1400	4174	25.18%	12.31%	0.08%	7.49%	2.69%	2.79%	5.48%	1.42%	0.08%	0.62%	0.89%	0.62%	1.36%	0.05%	1.55%	1.14%	1.43%	0.00%	65%	0.5322	0.0114	0.0105	0.1948	0.0088	0.0081
Road 801	801	-	0.1	100	99	-	0	16	1400-1500	4054	24.69%	11.48%	0.08%	7.59%	2.73%	3.13%	6.16%	1.18%	0.10%	0.79%	0.96%	0.67%	1.46%	0.05%	1.48%	1.71%	1.61%	0.00%	66%	0.5667	0.0121	0.0111	0.1975	0.0092	0.0085
Road 801	801	-	0.1	100	95	-	0	16	1500-1600	4530	25.71%	11.02%	0.08%	7.51%	2.70%	2.56%	5.04%	0.85%	0.14%	1.12%	1.15%	0.80%	1.76%	0.06%	1.37%	1.24%	1.32%	0.00%	64%	0.5173	0.0113	0.0104	0.1852	0.0086	0.0080
Road 801	801	-	0.1	100	94	-	0	16	1600-1700	4629	25.12%	11.97%	0.08%	7.33%	2.63%	2.44%	4.80%	1.18%	0.21%	1.32%	1.03%	0.72%	1.57%	0.03%	1.52%	1.75%	1.25%	0.00%	65%	0.5222	0.0116	0.0106	0.1943	0.0087	0.0080
Road 801	801	-	0.1	100	91	-	0	16	1700-1800	5296	26.95%	10.26%	0.07%	6.61%	2.37%	1.78%	3.50%	1.13%	0.18%	1.38%	0.91%	0.63%	1.38%	0.06%	1.26%	3.33%	0.92%	0.00%	63%	0.4425	0.0111	0.0102	0.1692	0.0073	0.0067
Road 801	801	-	0.1	100	87	-	0	16	1800-1900	6094	31.40%	7.89%	0.04%	4.06%	1.46%	1.00%	1.97%	1.03%	0.06%	0.46%	0.89%	0.62%	1.36%	0.04%	1.00%	2.77%	0.51%	0.00%	57%	0.3137	0.0094	0.0086	0.1254	0.0055	0.0050
Road 801	801	-	0.1	100	97	-	0	16	1900-2000	4854	31.44%	10.32%	0.03%	2.70%	0.97%	0.99%	1.95%	1.02%	0.01%	0.07%	0.99%	0.69%	1.51%	0.04%	1.33%	1.94%	0.51%	0.00%	57%	0.3194	0.0092	0.0085	0.1371	0.0058	0.0053
Road 801	801	-	0.1	100	100	-	0	16	2000-2100	3595	30.30%	12.43%	0.03%	2.47%	0.89%	1.04%	2.05%	1.46%	0.02%	0.12%	1.06%	0.74%	1.62%	0.06%	1.57%	1.70%	0.54%	0.00%	58%	0.3494	0.0096	0.0088	0.1565	0.0063	0.0058
Road 801	801	-	0.1	100	100	-	0	16	2100-2200	3197	29.20%	14.69%	0.02%	2.31%	0.83%	1.27%	2.50%	1.48%	0.01%	0.04%	0.76%	0.53%	1.15%	0.08%	1.60%	2.47%	0.65%	0.00%	60%	0.3721	0.0097	0.0089	0.1685	0.0062	0.0056
Road 801	801	-	0.1	100	100	-	0	16	2200-2300	3074	29.39%	17.12%	0.03%	2.54%	0.91%	0.74%	1.45%	1.30%	0.01%	0.11%	0.63%	0.44%	0.96%	0.06%	1.52%	1.76%	0.38%	0.00%	59%	0.3244	0.0084	0.0077	0.1669	0.0052	0.0048
Road 801	801	-	0.1	100	100	-	0	16	2300-0000	2349	29.11%	16.41%	0.03%	2.78%	1.00%	0.83%	1.63%	1.31%	0.03%	0.24%	0.74%	0.51%	1.13%	0.06%	1.53%	1.97%	0.43%	0.00%	60%	0.3402	0.0089	0.0081	0.1688	0.0056	0.0051
Road 802	802	-	0.1	100	100	-	0	16	0000-0100	979	25.97%	14.13%	0.06%	5.50%	1.97%	1.67%	3.29%	2.03%	0.04%	0.34%	0.77%	0.53%	1.17%	0.14%	3.61%	1.97%	0.86%	0.00%	64%	0.4712	0.0124	0.0114	0.2240	0.0094	0.0086
Road 802	802	-	0.1	100	100	-	0	16	0100-0200	699	25.55%	13.37%	0.06%	5.93%	2.13%	1.84%	3.61%	2.02%	0.06%	0.46%	0.87%	0.60%	1.33%	0.14%	3.61%	2.15%	0.94%	0.00%	65%	0.4931	0.0129	0.0119	0.2267	0.0098	0.0090
Road 802	802	-	0.1	100	100	-	0	16	0200-0300	513	25.11%	12.60%	0.07%	6.36%	2.28%	2.00%	3.93%	2.01%	0.08%	0.59%	0.97%	0.67%	1.48%	0.14%	3.60%	2.34%	1.03%	0.00%	65%	0.5153	0.0134	0.0123	0.2294	0.0102	0.0094
Road 802	802	-	0.1	100	100	-	0	16	0300-0400	418	24.67%	11.81%	0.07%	6.80%	2.44%	2.17%	4.26%	2.01%	0.09%	0.72%	1.08%	0.75%	1.64%	0.14%	3.59%	2.53%	1.11%	0.00%	66%	0.5379	0.0139	0.0128	0.2322	0.0107	0.0098
Road 802	802	-	0.1	100	100	-	0	16	0400-0500	438	24.22%	11.01%	0.08%	7.25%	2.60%	2.34%	4.60%	2.00%	0.11%	0.85%	1.18%	0.82%	1.80%	0.13%	3.59%	2.73%	1.20%	0.00%	66%	0.5609	0.0145	0.0132	0.2350	0.0111	0.0102
Road 802	802	-	0.1	100	100	-	0	16	0500-0600	578	23.76%	10.20%	0.08%	7.70%	2.77%	2.51%	4.94%	1.99%	0.13%	0.98%	1.29%	0.89%	1.96%	0.13%	3.58%	2.92%	1.29%	0.00%	67%	0.5843	0.0150	0.0137	0.2378	0.0116	0.0106
Road 802	802	-	0.1	100	100	-	0	16	0600-0700	1343	23.30%	9.37%	0.09%	8.16%	2.93%	2.69%	5.29%	1.98%	0.14%	1.11%	1.40%	0.97%	2.13%	0.13%	3.58%	3.13%	1.38%	0.00%	68%	0.6080	0.0155	0.0142	0.2407	0.0121	0.0111
Road 802	802	-	0.1	100	100	-	0	16	0700-0800	3337	22.83%	8.53%	0.09%	8.64%	3.10%	2.87%	5.64%	1.98%	0.16%	1.25%	1.51%	1.05%	2.30%	0.12%	3.57%	3.33%	1.47%	0.00%	68%	0.6322	0.0161	0.0147	0.2437	0.0125	0.0115
Road 802	802	-	0.1	100	100	-	0	16	0800-0900	3939	25.22%	8.53%	0.09%	9.01%	3.23%	2.54%	4.99%	1.52%	0.11%	0.87%	1.17%	0.81%	1.78%	0.03%	2.15%	1.76%	1.30%	0.00%	65%	0.5327	0.0128	0.0118	0.1971	0.0099	0.0091
Road 802	802	-	0.1	100	100	-	0	16	0900-1000	3416	21.90%	9.02%	0.12%	11.37%	4.08%	3.74%	7.35%	1.53%	0.12%	0.91%	1.07%	0.74%	1.63%	0.07%	2.78%	1.37%	1.92%	0.00%	70%	0.6649	0.0146	0.0134	0.2347	0.0122	0.0112
Road 802	802	-	0.1	100	100	-	0	16	1000-1100	3199	20.70%	8.51%	0.13%	12.71%	4.56%	4.59%	9.02%	1.50%	0.06%	0.46%	0.86%	0.59%	1.30%	0.06%	3.15%	0.81%	2.36%	0.00%	71%	0.7305	0.0153	0.0141	0.2485	0.0133	0.0122

## Appendix 3.7 Calculation of Emissions from Portals

Operation Phase (Year 2034)

Emission Rate Calculation

Description	Length (m)	Road Link ID	Hour	Flow (Veh/hr)	Composite Emission Factor				Emission Rate			
					NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
					(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB)	209	801	1	658	2.2162E-01	3.3674E-02	1.1640E-02	1.0683E-02	5.2523E-03	7.9806E-04	2.7586E-04	2.5318E-04
	209	801	2	473	2.2287E-01	3.5291E-02	1.2091E-02	1.1098E-02	3.7929E-03	6.0059E-04	2.0578E-04	1.8887E-04
	209	801	3	349	2.2413E-01	3.6914E-02	1.2545E-02	1.1515E-02	2.8177E-03	4.6407E-04	1.5771E-04	1.4476E-04
	209	801	4	286	2.2539E-01	3.8542E-02	1.2999E-02	1.1933E-02	2.3247E-03	3.9752E-04	1.3407E-04	1.2307E-04
	209	801	5	303	2.2666E-01	4.0176E-02	1.3455E-02	1.2352E-02	2.4690E-03	4.3763E-04	1.4657E-04	1.3455E-04
	209	801	6	402	2.2793E-01	4.1815E-02	1.3913E-02	1.2773E-02	3.2958E-03	6.0465E-04	2.0119E-04	1.8470E-04
	209	801	7	940	2.2920E-01	4.3460E-02	1.4372E-02	1.3195E-02	7.7545E-03	1.4704E-03	4.8626E-04	4.4644E-04
	209	801	8	2351	2.3048E-01	4.5110E-02	1.4833E-02	1.3619E-02	1.9509E-02	3.8184E-03	1.2556E-03	1.1528E-03
	209	801	9	2745	1.8918E-01	3.6855E-02	1.2016E-02	1.1027E-02	1.8701E-02	3.6432E-03	1.1878E-03	1.0901E-03
	209	801	10	2484	2.2005E-01	4.5397E-02	1.4513E-02	1.3325E-02	1.9682E-02	4.0604E-03	1.2981E-03	1.1918E-03
	209	801	11	2388	2.3119E-01	4.9517E-02	1.5777E-02	1.4487E-02	1.9875E-02	4.2570E-03	1.3564E-03	1.2455E-03
	209	801	12	2241	2.3996E-01	5.1373E-02	1.6551E-02	1.5199E-02	1.9365E-02	4.1457E-03	1.3356E-03	1.2266E-03
	209	801	13	3909	1.7127E-01	3.0162E-02	9.3508E-03	8.5770E-03	2.4106E-02	4.2451E-03	1.3161E-03	1.2072E-03
	209	801	14	4174	1.6665E-01	2.8186E-02	8.7978E-03	8.1088E-03	2.5045E-02	4.2360E-03	1.3222E-03	1.2186E-03
	209	801	15	4054	1.6749E-01	3.0001E-02	9.2470E-03	8.5177E-03	2.4448E-02	4.3791E-03	1.3498E-03	1.2433E-03
	209	801	16	4530	1.5719E-01	2.8045E-02	8.6293E-03	7.9649E-03	2.5642E-02	4.5749E-03	1.4077E-03	1.2993E-03
	209	801	17	4629	1.6595E-01	2.8355E-02	8.6774E-03	7.9934E-03	2.7661E-02	4.7263E-03	1.4464E-03	1.3324E-03
	209	801	18	5296	1.4578E-01	2.3401E-02	7.2700E-03	6.6962E-03	2.7797E-02	4.4622E-03	1.3862E-03	1.2768E-03
	209	801	19	6094	1.0901E-01	1.6440E-02	5.4666E-03	5.0406E-03	2.3920E-02	3.6074E-03	1.1995E-03	1.1061E-03
	209	801	20	4854	1.2027E-01	1.6851E-02	5.7752E-03	5.3318E-03	2.1022E-02	2.9452E-03	1.0094E-03	9.3191E-04
	209	801	21	3595	1.3775E-01	1.8739E-02	6.3446E-03	5.8105E-03	1.7830E-02	2.4256E-03	8.2125E-04	7.5212E-04
	209	801	22	3197	1.4981E-01	1.8649E-02	6.1581E-03	5.6372E-03	1.7244E-02	2.1466E-03	7.0881E-04	6.4886E-04
	209	801	23	3074	1.5144E-01	1.5480E-02	5.2125E-03	4.7690E-03	1.6761E-02	1.7133E-03	5.7690E-04	5.2781E-04
	209	801	24	2349	1.5212E-01	1.6685E-02	5.5670E-03	5.0950E-03	1.2868E-02	1.4114E-03	4.7094E-04	4.3101E-04
			Daily	-	-	-	-	3.8918E-01	6.5571E-02	2.1056E-02	1.9358E-02	
Fanling Highway Full Enclosure (EB)	209	802	1	979	1.9703E-01	2.7006E-02	9.3853E-03	8.6082E-03	6.9607E-03	9.5406E-04	3.3156E-04	3.0411E-04
	209	802	2	699	1.9821E-01	2.8490E-02	9.8133E-03	9.0018E-03	4.9957E-03	7.1806E-04	2.4733E-04	2.2688E-04
	209	802	3	513	1.9942E-01	3.0000E-02	1.0248E-02	9.4020E-03	3.6885E-03	5.5488E-04	1.8956E-04	1.7390E-04
	209	802	4	418	2.0064E-01	3.1534E-02	1.0691E-02	9.8088E-03	3.0245E-03	4.7535E-04	1.6116E-04	1.4786E-04
	209	802	5	438	2.0188E-01	3.3094E-02	1.1141E-02	1.0223E-02	3.1925E-03	5.2335E-04	1.7618E-04	1.6166E-04
	209	802	6	578	2.0314E-01	3.4681E-02	1.1598E-02	1.0643E-02	4.2357E-03	7.2312E-04	2.4183E-04	2.2192E-04
	209	802	7	1343	2.0443E-01	3.6295E-02	1.2064E-02	1.1071E-02	9.9051E-03	1.7586E-03	5.8451E-04	5.3643E-04
	209	802	8	3337	2.0574E-01	3.7937E-02	1.2537E-02	1.1507E-02	2.4768E-02	4.5671E-03	1.5093E-03	1.3852E-03
	209	802	9	3939	1.6682E-01	3.0244E-02	9.9452E-03	9.1227E-03	2.3705E-02	4.2975E-03	1.4132E-03	1.2963E-03
	209	802	10	3416	1.9704E-01	3.7705E-02	1.2163E-02	1.1164E-02	2.4283E-02	4.6468E-03	1.4990E-03	1.3758E-03
	209	802	11	3199	2.0737E-01	4.1099E-02	1.3269E-02	1.2180E-02	2.3934E-02	4.7436E-03	1.5315E-03	1.4059E-03
	209	802	12	2972	2.1587E-01	4.3217E-02	1.4100E-02	1.2945E-02	2.3144E-02	4.6334E-03	1.5117E-03	1.3879E-03
	209	802	13	2888	1.9712E-01	3.8462E-02	1.1961E-02	1.0977E-02	2.0537E-02	4.0071E-03	1.2461E-03	1.1437E-03
	209	802	14	3085	1.9223E-01	3.6148E-02	1.1378E-02	1.0441E-02	2.1394E-02	4.0230E-03	1.2663E-03	1.1620E-03
	209	802	15	3015	1.9266E-01	3.8257E-02	1.1859E-02	1.0882E-02	2.0954E-02	4.1610E-03	1.2898E-03	1.1836E-03
	209	802	16	3322	1.8177E-01	3.5175E-02	1.1048E-02	1.0138E-02	2.1782E-02	4.2152E-03	1.3240E-03	1.2149E-03
	209	802	17	3389	1.9113E-01	3.5474E-02	1.1142E-02	1.0224E-02	2.3364E-02	4.3364E-03	1.3620E-03	1.2498E-03
	209	802	18	3796	1.6942E-01	2.9457E-02	9.4914E-03	8.7024E-03	2.3201E-02	4.0340E-03	1.2998E-03	1.1918E-03
	209	802	19	4197	1.2882E-01	2.0923E-02	7.2021E-03	6.5958E-03	1.9505E-02	3.1679E-03	1.0905E-03	9.9865E-04
	209	802	20	3310	1.4096E-01	2.1670E-02	7.4722E-03	6.8464E-03	1.6830E-02	2.5872E-03	8.9213E-04	8.1742E-04
	209	802	21	2458	1.5975E-01	2.4025E-02	8.1603E-03	7.4812E-03	1.4167E-02	2.1305E-03	7.2367E-04	6.6345E-04
	209	802	22	2195	1.7199E-01	2.4554E-02	8.1346E-03	7.4559E-03	1.3617E-02	1.9441E-03	6.4407E-04	5.9033E-04
	209	802	23	2087	1.7103E-01	2.0062E-02	6.8642E-03	6.2888E-03	1.2876E-02	1.5104E-03	5.1677E-04	4.7345E-04
	209	802	24	1602	1.7208E-01	2.1443E-02	7.2658E-03	6.6581E-03	9.9429E-03	1.2390E-03	4.1982E-04	3.8471E-04
			Daily	-	-	-	-	3.7401E-01	6.5952E-02	2.1472E-02	1.9697E-02	

Description	Hour	No. of Volume Sources	Total Emission Rate				Daily Emission Rate (from 1st 50m for each portal source)				Daily Emission Rate (from 2nd 50m for each portal source)			
			NO	NO2	RSP	FSP	NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
			(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB+EB)	1	6	1.2213E-02	1.7521E-03	6.0742E-04	5.5728E-04	1.3570E-03	1.9468E-04	6.7491E-05	6.1920E-05	6.7850E-04	9.7340E-05	3.3745E-05	3.0960E-05
	2	6	8.7886E-03	1.3187E-03	4.5311E-04	4.1575E-04	9.7651E-04	1.4652E-04	5.0345E-05	4.6194E-05	4.8826E-04	7.3259E-05	2.5173E-05	2.3097E-05
	3	6	6.5062E-03	1.0190E-03	3.4727E-04	3.1866E-04	7.2291E-04	1.1322E-04	3.8585E-05	3.5407E-05	3.6145E-04	5.6609E-05	1.9293E-05	1.7703E-05
	4	6	5.3492E-03	8.7288E-04	2.9523E-04	2.7094E-04	5.9435E-04	9.6986E-05	3.2804E-05	3.0104E-05	2.9718E-04	4.8493E-05	1.6402E-05	1.5052E-05
	5	6	5.6615E-03	9.6098E-04	3.2275E-04	2.9621E-04	6.2905E-04	1.0678E-04	3.5861E-05	3.2912E-05	3.1453E-04	5.3388E-05	1.7930E-05	1.6456E-05
	6	6	7.5316E-03	1.3278E-03	4.4302E-04	4.0662E-04	8.3684E-04	1.4753E-04	4.9224E-05	4.5180E-05	4.1842E-04	7.3765E-05	2.4612E-05	2.2590E-05
	7	6	1.7660E-02	3.2289E-03	1.0708E-03	9.8286E-04	1.9622E-03	3.5877E-04	1.1897E-04	1.0921E-04	9.8109E-04	1.7939E-04	5.9487E-05	5.4604E-05
	8	6	4.4277E-02	8.3854E-03	2.7649E-03	2.5380E-03	4.9197E-03	9.3171E-04	3.0721E-04	2.8200E-04	2.4598E-03	4.6586E-04	1.5360E-04	1.4100E-04
	9	6	4.2406E-02	7.9407E-03	2.6010E-03	2.3864E-03	4.7118E-03	8.8230E-04	2.8900E-04	2.6515E-04	2.3559E-03	4.4115E-04	1.4450E-04	1.3258E-04
	10	6	4.3965E-02	8.7072E-03	2.7971E-03	2.5676E-03	4.8850E-03	9.6746E-04	3.1079E-04	2.8529E-04	2.4425E-03	4.8373E-04	1.5540E-04	1.4265E-04
	11	6	4.3809E-02	9.0005E-03	2.8878E-03	2.6513E-03	4.8677E-03	1.0001E-03	3.2087E-04	2.9459E-04	2.4339E-03	5.0003E-04	1.6044E-04	1.4730E-04
	12	6	4.2508E-02	8.7791E-03	2.8473E-03	2.6144E-03	4.7231E-03	9.7545E-04	3.1637E-04	2.9049E-04	2.3616E-03	4.8773E-04	1.5819E-04	1.4525E-04
	13	6	4.4642E-02	8.2522E-03	2.5622E-03	2.3508E-03	4.9603E-03	9.1691E-04	2.8469E-04	2.6120E-04	2.4801E-03	4.5845E-04	1.4234E-04	1.3060E-04
	14	6	4.6439E-02	8.2590E-03	2.5885E-03	2.3806E-03	5.1599E-03	9.1767E-04	2.8761E-04	2.6451E-04	2.5799E-03	4.5884E-04	1.4380E-04	1.3226E-04
	15	6	4.5402E-02	8.5401E-03	2.6396E-03	2.4269E-03	5.0447E-03	9.4890E-04	2.6965E-04	2.5223E-03	4.7445E-04</			

**Appendix 3.7 Calculation of Emissions from Portals**

Operation Phase (Year 2034)

Emission Rate of Full Enclosure

Road Name	Height (m)	Width (m)	Source ID	Source Type	X	Y	Emission Rate (g/s)				Release Height (HS) (m)	Lateral Dimension (SY) (m)	Vertical Dimension (SZ) (m)
							NO	NO2	RSP	FSP			
Fanling Highway Full Enclosure (WB)	6.00	21.43	FEW01	VOLUME	827951.83	840457.71	8.4799E-02	1.4614E-02	4.7253E-03	4.3395E-03	3.00	9.97	2.79
	6.00	21.43	FEW02	VOLUME	827930.45	840459.11	8.4799E-02	1.4614E-02	4.7253E-03	4.3395E-03	3.00	9.97	2.79
	6.00	21.43	FEW03	VOLUME	827909.07	840460.52	8.4799E-02	1.4614E-02	4.7253E-03	4.3395E-03	3.00	9.97	2.79
	6.00	21.43	FEW04	VOLUME	827887.69	840461.92	4.2399E-02	7.3068E-03	2.3626E-03	2.1697E-03	3.00	9.97	2.79
	6.00	21.43	FEW05	VOLUME	827866.31	840463.33	4.2399E-02	7.3068E-03	2.3626E-03	2.1697E-03	3.00	9.97	2.79
	6.00	21.43	FEW06	VOLUME	827844.93	840464.73	4.2399E-02	7.3068E-03	2.3626E-03	2.1697E-03	3.00	9.97	2.79

Remark

1. The dimension of the portal opening is based on the engineering design.

Hourly Profile for FEW01-FEW06

Hour	NO	NO2	RSP	FSP
Hour 1	0.01600	0.01332	0.01428	0.01427
Hour 2	0.01152	0.01003	0.01065	0.01065
Hour 3	0.00853	0.00775	0.00817	0.00816
Hour 4	0.00701	0.00664	0.00694	0.00694
Hour 5	0.00742	0.00731	0.00759	0.00758
Hour 6	0.00987	0.01010	0.01042	0.01041
Hour 7	0.02314	0.02455	0.02518	0.02517
Hour 8	0.05802	0.06376	0.06501	0.06499
Hour 9	0.05556	0.06038	0.06116	0.06110
Hour 10	0.05761	0.06620	0.06577	0.06574
Hour 11	0.05740	0.06843	0.06791	0.06789
Hour 12	0.05570	0.06675	0.06695	0.06694
Hour 13	0.05849	0.06274	0.06025	0.06019
Hour 14	0.06085	0.06280	0.06087	0.06096
Hour 15	0.05949	0.06493	0.06207	0.06214
Hour 16	0.06214	0.06683	0.06423	0.06437
Hour 17	0.06686	0.06891	0.06604	0.06612
Hour 18	0.06682	0.06460	0.06316	0.06321
Hour 19	0.05690	0.05151	0.05385	0.05389
Hour 20	0.04960	0.04206	0.04471	0.04479
Hour 21	0.04193	0.03464	0.03633	0.03625
Hour 22	0.04044	0.03110	0.03181	0.03173
Hour 23	0.03883	0.02451	0.02572	0.02564
Hour 24	0.02989	0.02015	0.02095	0.02089
Total	1.00000	1.00000	1.00000	1.00000



# Appendix 3.7 Calculation of Emissions from Portals

Environmental Impact Assessment Study for San Tin Lok Ma Chau Development Node (Operation Phase - Year 2039)  
 Summary of Composite Vehicular Emission Factors for CALINE4 Model

**Open Road 24 hour NO Emission Factor (g/mile-veh) and Traffic Profile**

No. of CALINE 4 Model Links	Cold Start (Yes/No)	Link No	Link Type [1]	X-Start	Y-Start	X-End	Y-End	Height	Width	Length	Hour 01		Hour 02		Hour 03		Hour 04		Hour 05		Hour 06		Hour 07		Hour 08		Hour 09		Hour 10		Hour 11		Hour 12		Hour 13		Hour 14		Hour 15		Hour 16		Hour 17		Hour 18		Hour 19		Hour 20		Hour 21		Hour 22		Hour 23		Hour 24			
											Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf
											4196	NO	801	1	82796.3	840481.0	828096.5	840472.6	0.0	16.0	132.5	717	0.151	514	0.158	378	0.159	310	0.160	326	0.161	432	0.162	1007	0.163	2513	0.164	2947	0.162	2622	0.164	2494	0.171	2332	0.174	4335	0.178	4629	0.176	4490	0.177	5033	0.179	5144	0.176	5909	0.179	6853	0.180	5468
4197	NO	802	1	82796.2	840453.2	828099.4	840448.0	0.0	16.0	136.7	1142	0.144	813	0.145	596	0.145	485	0.144	508	0.147	669	0.147	1551	0.148	3847	0.149	4560	0.127	3910	0.149	3636	0.154	3366	0.156	2989	0.153	3192	0.151	3111	0.152	3446	0.144	3520	0.151	3978	0.134	4473	0.099	3545	0.107	2632	0.121	2345	0.133	2241	0.136	1717	0.136		

**Open Road 24 hour NO2 Emission Factor (g/mile-veh) and Traffic Profile**

No. of CALINE 4 Model Links	Cold Start (Yes/No)	Link No	Link Type [1]	X-Start	Y-Start	X-End	Y-End	Height	Width	Length	Hour 01		Hour 02		Hour 03		Hour 04		Hour 05		Hour 06		Hour 07		Hour 08		Hour 09		Hour 10		Hour 11		Hour 12		Hour 13		Hour 14		Hour 15		Hour 16		Hour 17		Hour 18		Hour 19		Hour 20		Hour 21		Hour 22		Hour 23		Hour 24					
											Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf
											4196	NO	801	1	82796.3	840481.0	828096.5	840472.6	0.0	16.0	132.5	717	0.031	514	0.033	378	0.034	310	0.036	326	0.037	432	0.039	1007	0.040	2513	0.042	2947	0.034	2622	0.041	2494	0.045	2332	0.047	4335	0.028	4629	0.026	4490	0.027	5033	0.026	5144	0.026	5909	0.022	6853	0.015	5468	0.016	4047
4197	NO	802	1	82796.2	840453.2	828099.4	840448.0	0.0	16.0	136.7	1142	0.025	813	0.026	596	0.028	485	0.029	508	0.031	669	0.032	1551	0.034	3847	0.035	4560	0.028	3910	0.034	3636	0.037	3366	0.040	2989	0.035	3192	0.033	3111	0.034	3446	0.032	3520	0.032	3978	0.027	4473	0.019	3545	0.020	2632	0.022	2345	0.023	2241	0.019	1717	0.020				

**Open Road 24 hour RSP Emission Factor (g/mile-veh) and Traffic Profile**

No. of CALINE 4 Model Links	Cold Start (Yes/No)	Link No	Link Type [1]	X-Start	Y-Start	X-End	Y-End	Height	Width	Length	Hour 01		Hour 02		Hour 03		Hour 04		Hour 05		Hour 06		Hour 07		Hour 08		Hour 09		Hour 10		Hour 11		Hour 12		Hour 13		Hour 14		Hour 15		Hour 16		Hour 17		Hour 18		Hour 19		Hour 20		Hour 21		Hour 22		Hour 23		Hour 24					
											Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf
											4196	NO	801	1	82796.3	840481.0	828096.5	840472.6	0.0	16.0	132.5	717	0.007	514	0.007	378	0.008	310	0.008	326	0.009	432	0.009	1007	0.009	2513	0.010	2947	0.009	2622	0.010	2494	0.011	2332	0.012	4335	0.007	4629	0.006	4490	0.007	5033	0.006	5144	0.006	5909	0.005	6853	0.004	5468	0.004	4047
4197	NO	802	1	82796.2	840453.2	828099.4	840448.0	0.0	16.0	136.7	1142	0.005	813	0.006	596	0.006	485	0.007	508	0.007	669	0.007	1551	0.008	3847	0.008	4560	0.007	3910	0.009	3636	0.009	3366	0.010	2989	0.008	3192	0.008	3111	0.009	3446	0.008	3520	0.008	3978	0.007	4473	0.005	3545	0.005	2632	0.005	2345	0.005	2241	0.004	1717	0.004				

**Open Road 24 hour FSP Emission Factor (g/mile-veh) and Traffic Profile**

No. of CALINE 4 Model Links	Cold Start (Yes/No)	Link No	Link Type [1]	X-Start	Y-Start	X-End	Y-End	Height	Width	Length	Hour 01		Hour 02		Hour 03		Hour 04		Hour 05		Hour 06		Hour 07		Hour 08		Hour 09		Hour 10		Hour 11		Hour 12		Hour 13		Hour 14		Hour 15		Hour 16		Hour 17		Hour 18		Hour 19		Hour 20		Hour 21		Hour 22		Hour 23		Hour 24					
											Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf	Flow	Emf
											4196	NO	801	1	82796.3	840481.0	828096.5	840472.6	0.0	16.0	132.5	717	0.006	514	0.007	378	0.007	310	0.007	326	0.008	432	0.008	1007	0.009	2513	0.009	2947	0.008	2622	0.010	2494	0.010	2332	0.011	4335	0.006	4629	0.006	4490	0.006	5033	0.006	5144	0.006	5909	0.005	6853	0.004	5468	0.003	4047
4197	NO	802	1	82796.2	840453.2	828099.4	840448.0	0.0	16.0	136.7	1142	0.005	813	0.005	596	0.006	485	0.006	508	0.006	669	0.007	1551	0.007	3847	0.008	4560	0.006	3910	0.008	3636	0.009	3366	0.009	2989	0.008	3192	0.007	3111	0.008	3446	0.007	3520	0.007	3978	0.006	4473	0.004	3545	0.004	2632	0.005	2345	0.005	2241	0.004	1717	0.004				

# Appendix 3.7 Calculation of Emissions from Portals

## Traffic Data and Composite Emission Factors (Year 2039)

Individual Road Information											Traffic Flow (%)																	With ColdStart			Without ColdStart				
Road Name	Road ID	Road Type	Road Length (km)	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (γ/N)	Temperature (oC)	Relative Humidity (%)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles>15t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycle	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total	NOx	RSP	FSP	NOx	RSP	FSP
											PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9							
Road 801	801	-	0.1	100	100	-	0	16	0000-0100	717	11.60%	13.28%	0.07%	7.02%	2.52%	2.14%	4.20%	2.77%	0.04%	0.32%	0.72%	0.50%	1.10%	0.16%	4.01%	1.85%	1.10%	0.00%	53%	0.4644	0.0086	0.0080	0.1882	0.0067	0.0062
Road 801	801	-	0.1	100	100	-	0	16	0100-0200	514	11.36%	12.52%	0.08%	7.53%	2.70%	2.33%	4.59%	2.75%	0.06%	0.43%	0.82%	0.57%	1.24%	0.16%	3.99%	2.02%	1.20%	0.00%	54%	0.4884	0.0092	0.0084	0.1906	0.0072	0.0066
Road 801	801	-	0.1	100	100	-	0	16	0200-0300	378	11.13%	11.75%	0.08%	8.05%	2.89%	2.53%	4.98%	2.73%	0.07%	0.55%	0.91%	0.63%	1.38%	0.15%	3.97%	2.18%	1.30%	0.00%	55%	0.5125	0.0097	0.0089	0.1931	0.0076	0.0070
Road 801	801	-	0.1	100	100	-	0	16	0300-0400	310	10.89%	10.98%	0.09%	8.58%	3.08%	2.74%	5.38%	2.71%	0.09%	0.67%	1.00%	0.69%	1.52%	0.15%	3.95%	2.35%	1.41%	0.00%	56%	0.5369	0.0102	0.0094	0.1956	0.0081	0.0075
Road 801	801	-	0.1	100	100	-	0	16	0400-0500	326	10.65%	10.19%	0.10%	9.10%	3.27%	2.94%	5.78%	2.69%	0.10%	0.78%	1.09%	0.76%	1.66%	0.15%	3.93%	2.52%	1.51%	0.00%	57%	0.5615	0.0107	0.0099	0.1981	0.0086	0.0079
Road 801	801	-	0.1	100	100	-	0	16	0500-0600	432	10.41%	9.40%	0.10%	9.64%	3.46%	3.14%	6.18%	2.67%	0.12%	0.90%	1.19%	0.82%	1.81%	0.14%	3.90%	2.70%	1.61%	0.00%	58%	0.5863	0.0112	0.0103	0.2007	0.0090	0.0083
Road 801	801	-	0.1	100	100	-	0	16	0600-0700	1007	10.16%	8.61%	0.11%	10.18%	3.65%	3.35%	6.59%	2.64%	0.13%	1.02%	1.28%	0.89%	1.95%	0.14%	3.88%	2.87%	1.72%	0.00%	59%	0.6113	0.0118	0.0108	0.2032	0.0095	0.0087
Road 801	801	-	0.1	100	100	-	0	16	0700-0800	2513	9.91%	7.80%	0.11%	10.72%	3.85%	3.56%	7.00%	2.62%	0.15%	1.14%	1.38%	0.96%	2.10%	0.13%	3.86%	3.04%	1.83%	0.00%	60%	0.6366	0.0123	0.0113	0.2058	0.0100	0.0092
Road 801	801	-	0.1	100	100	-	0	16	0800-0900	2947	11.03%	7.85%	0.12%	11.26%	4.04%	3.17%	6.23%	2.04%	0.10%	0.80%	1.07%	0.74%	1.63%	0.03%	3.24%	1.62%	1.63%	0.00%	56%	0.5527	0.0103	0.0095	0.1755	0.0085	0.0079
Road 801	801	-	0.1	100	100	-	0	16	0900-1000	2622	9.33%	8.10%	0.14%	13.85%	4.98%	4.56%	8.95%	2.00%	0.10%	0.82%	0.96%	0.67%	1.46%	0.07%	2.95%	1.23%	2.34%	0.00%	63%	0.6915	0.0118	0.0109	0.2059	0.0104	0.0096
Road 801	801	-	0.1	100	100	-	0	16	1000-1100	2494	8.68%	7.52%	0.16%	15.24%	5.47%	5.50%	10.82%	1.93%	0.05%	0.41%	0.76%	0.52%	1.15%	0.06%	3.29%	0.71%	2.83%	0.00%	65%	0.7623	0.0124	0.0114	0.2158	0.0113	0.0104
Road 801	801	-	0.1	100	100	-	0	16	1100-1200	2332	8.34%	6.56%	0.17%	16.41%	5.89%	5.55%	10.91%	2.06%	0.09%	0.70%	0.75%	0.52%	1.15%	0.00%	3.75%	0.76%	2.85%	0.00%	66%	0.7772	0.0128	0.0118	0.2210	0.0117	0.0108
Road 801	801	-	0.1	100	97	-	0	16	1200-1300	4335	12.21%	12.48%	0.07%	6.25%	2.25%	2.74%	5.39%	1.16%	0.16%	1.21%	0.95%	0.66%	1.44%	0.03%	1.52%	1.04%	1.41%	0.00%	51%	0.4923	0.0083	0.0077	0.1661	0.0068	0.0062
Road 801	801	-	0.1	100	95	-	0	16	1300-1400	4629	12.28%	12.64%	0.07%	6.82%	2.45%	2.54%	4.99%	1.28%	0.08%	0.63%	0.92%	0.64%	1.39%	0.04%	1.40%	1.18%	1.30%	0.00%	51%	0.4685	0.0080	0.0074	0.1614	0.0064	0.0059
Road 801	801	-	0.1	100	96	-	0	16	1400-1500	4490	12.06%	11.80%	0.07%	6.91%	2.48%	2.85%	5.61%	1.07%	0.10%	0.81%	0.99%	0.68%	1.50%	0.04%	1.33%	1.76%	1.47%	0.00%	52%	0.5009	0.0088	0.0080	0.1641	0.0069	0.0063
Road 801	801	-	0.1	100	91	-	0	16	1500-1600	5033	12.52%	11.30%	0.07%	6.83%	2.45%	2.33%	4.57%	0.77%	0.15%	1.15%	1.18%	0.82%	1.80%	0.05%	1.24%	1.28%	1.20%	0.00%	50%	0.4583	0.0081	0.0075	0.1547	0.0064	0.0059
Road 801	801	-	0.1	100	91	-	0	16	1600-1700	5144	12.23%	12.27%	0.07%	6.66%	2.39%	2.22%	4.36%	1.06%	0.21%	1.66%	1.06%	0.73%	1.61%	0.03%	1.37%	1.79%	1.14%	0.00%	51%	0.4616	0.0083	0.0076	0.1620	0.0064	0.0058
Road 801	801	-	0.1	100	86	-	0	16	1700-1800	5909	13.06%	10.47%	0.06%	5.98%	2.15%	1.61%	3.17%	1.02%	0.18%	1.41%	0.93%	0.64%	1.41%	0.03%	1.13%	3.40%	0.83%	0.00%	48%	0.3892	0.0081	0.0075	0.1414	0.0053	0.0049
Road 801	801	-	0.1	100	81	-	0	16	1800-1900	6853	15.11%	7.99%	0.04%	3.65%	1.31%	0.90%	1.76%	0.91%	0.06%	0.47%	0.90%	0.63%	1.38%	0.04%	0.89%	2.81%	0.46%	0.00%	39%	0.2716	0.0065	0.0060	0.1039	0.0038	0.0035
Road 801	801	-	0.1	100	92	-	0	16	1900-2000	5468	15.10%	10.43%	0.03%	2.42%	0.87%	0.89%	1.74%	0.91%	0.01%	0.07%	1.00%	0.70%	1.53%	0.04%	1.18%	1.96%	0.46%	0.00%	39%	0.2741	0.0060	0.0056	0.1114	0.0038	0.0035
Road 801	801	-	0.1	100	100	-	0	16	2000-2100	4047	14.56%	12.57%	0.02%	2.21%	0.79%	0.94%	1.84%	1.30%	0.02%	0.12%	1.08%	0.75%	1.64%	0.06%	1.40%	1.72%	0.48%	0.00%	41%	0.3015	0.0062	0.0058	0.1286	0.0042	0.0038
Road 801	801	-	0.1	100	100	-	0	16	2100-2200	3596	14.05%	14.88%	0.02%	2.07%	0.74%	1.14%	2.25%	1.31%	0.01%	0.05%	0.77%	0.53%	1.17%	0.08%	1.42%	2.50%	0.59%	0.00%	44%	0.3218	0.0064	0.0059	0.1402	0.0039	0.0036
Road 801	801	-	0.1	100	100	-	0	16	2200-2300	3465	14.10%	17.30%	0.02%	2.27%	0.82%	0.66%	1.30%	1.16%	0.01%	0.11%	0.64%	0.44%	0.97%	0.06%	1.35%	1.78%	0.34%	0.00%	43%	0.2820	0.0052	0.0048	0.1417	0.0032	0.0029
Road 801	801	-	0.1	100	100	-	0	16	2300-0000	2646	13.98%	16.59%	0.03%	2.49%	0.89%	0.74%	1.46%	1.16%	0.03%	0.24%	0.75%	0.52%	1.14%	0.06%	1.36%	1.99%	0.38%	0.00%	44%	0.2963	0.0057	0.0052	0.1430	0.0035	0.0032
Road 802	802	-	0.1	100	100	-	0	16	0000-0100	1142	12.68%	14.52%	0.05%	4.91%	1.76%	1.49%	2.94%	1.74%	0.04%	0.35%	0.79%	0.55%	1.21%	0.12%	3.10%	2.02%	0.77%	0.00%	49%	0.3903	0.0074	0.0068	0.1690	0.0053	0.0049
Road 802	802	-	0.1	100	100	-	0	16	0100-0200	813	12.49%	13.76%	0.06%	5.29%	1.90%	1.64%	3.23%	1.74%	0.06%	0.48%	0.90%	0.62%	1.36%	0.12%	3.10%	2.22%	0.84%	0.00%	50%	0.4104	0.0079	0.0073	0.1710	0.0057	0.0053
Road 802	802	-	0.1	100	100	-	0	16	0200-0300	596	12.30%	12.99%	0.06%	5.69%	2.04%	1.79%	3.52%	1.73%	0.08%	0.61%	1.00%	0.70%	1.53%	0.12%	3.10%	2.42%	0.92%	0.00%	51%	0.4309	0.0084	0.0077	0.1730	0.0061	0.0057
Road 802	802	-	0.1	100	100	-	0	16	0300-0400	485	12.10%	12.20%	0.06%	6.09%	2.19%	1.94%	3.82%	1.73%	0.09%	0.74%	1.11%	0.77%	1.69%	0.12%	3.10%	2.62%	1.00%	0.00%	51%	0.4517	0.0089	0.0082	0.1751	0.0066	0.0060
Road 802	802	-	0.1	100	100	-	0	16	0400-0500	508	11.90%	11.39%	0.07%	6.51%	2.34%	2.10%	4.13%	1.73%	0.11%	0.88%	1.22%	0.85%	1.86%	0.11%	3.10%	2.82%	1.08%	0.00%	52%	0.4731	0.0094	0.0087	0.1773	0.0070	0.0064
Road 802	802	-	0.1	100	100	-	0	16	0500-0600	669	11.70%	10.57%	0.07%	6.93%	2.49%	2.26%	4.44%	1.72%	0.13%	1.01%	1.33%	0.93%	2.03%	0.11%	3.10%	3.03%	1.16%	0.00%	53%	0.4948	0.0099	0.0091	0.1795	0.0074	0.0068
Road 802	802	-	0.1	100	100	-	0	16	0600-0700	1551	11.49%	9.73%	0.08%	7.36%	2.64%	2.42%	4.76%	1.72%	0.15%	1.15%	1.45%	1.01%	2.21%	0.11%	3.10%	3.24%	1.24%	0.00%	54%	0.5170	0.0105	0.0096	0.1817	0.0079	0.0073
Road 802	802	-	0.1	100	100	-	0	16	0700-0800	3847	11.27%	8.87%	0.08%	7.79%	2.80%	2.59%	5.09%	1.71%	0.17%	1.30%	1.57%	1.09%	2.39%	0.11%	3.10%	3.46%	1.33%	0.00%	55%	0.5396	0.0110	0.0101	0.1840	0.0083	0.0077
Road 802	802	-	0.1	100	95	-	0	16	0800-0900	4560	12.40%	8.83%	0.08%	8.09%	2.91%	2.28%	4.48%	1.32%	0.12%	0.90%	1.21%	0.84%	1.84%	0.03%	1.86%	1.82%	1.17%	0.00%	50%	0.4584	0.0088	0.0081	0.1542	0.0069	0.0063
Road 802	802	-	0.1	100	99	-	0	16	0900-1000	3910	10.89%	9.45%	0.11%	10.34%	3.71%	3.40%	6.68%	1.34%	0.12%	0.95%	1.12%	0.78%	1.70%	0.06%	2.43%	1.43%	1.75%	0.00%	56%	0.5765	0.0102	0.0093	0.1831	0.0085	0.0078
Road 802	802	-	0.1	100	100	-	0	16	1000-1100	3636	10.37%	8.97%	0.12%	11.63%	4.18%	4.20%	8.26%	1.32%	0.06%	0.49%	0.90%	0.63%	1.37%	0.05%	2.77%	0.85%	2.16%	0.00%	58%	0.6329	0.0106	0.0097	0.1912		

### Appendix 3.7 Calculation of Emissions from Portals

Operation Phase (Year 2039)

Emission Rate Calculation

Description	Length (m)	Road Link ID	Hour	Flow (Veh/hr)	Composite Emission Factor				Emission Rate			
					NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
					(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/mile-veh)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB)	209	801	1	717	1.5680E-01	3.1368E-02	6.7467E-03	6.2094E-03	4.0505E-03	8.1027E-04	1.7428E-04	1.6040E-04
	209	801	2	514	1.5779E-01	3.2840E-02	7.1953E-03	6.6216E-03	2.9189E-03	6.0750E-04	1.3311E-04	1.2249E-04
	209	801	3	378	1.5878E-01	3.4325E-02	7.6478E-03	7.0375E-03	2.1639E-03	4.6779E-04	1.0423E-04	9.5910E-05
	209	801	4	310	1.5978E-01	3.5823E-02	8.1044E-03	7.4570E-03	1.7816E-03	3.9944E-04	9.0367E-05	8.3149E-05
	209	801	5	326	1.6079E-01	3.7334E-02	8.5650E-03	7.8803E-03	1.8883E-03	4.3845E-04	1.0059E-04	9.2545E-05
	209	801	6	432	1.6181E-01	3.8859E-02	9.0297E-03	8.3073E-03	2.5156E-03	6.0413E-04	1.4038E-04	1.2915E-04
	209	801	7	1007	1.6284E-01	4.0398E-02	9.4987E-03	8.7382E-03	5.9067E-03	1.4654E-03	3.4455E-04	3.1696E-04
	209	801	8	2513	1.6388E-01	4.1951E-02	9.9718E-03	9.1730E-03	1.4830E-02	3.7964E-03	9.0242E-04	8.3013E-04
	209	801	9	2947	1.6496E-01	4.3524E-02	1.0401E-02	7.8591E-03	1.5065E-02	3.5577E-03	9.0634E-04	8.3403E-04
	209	801	10	2622	1.6438E-01	4.1486E-02	1.0401E-02	9.5665E-03	1.5517E-02	3.9161E-03	9.8181E-04	9.0304E-04
	209	801	11	2494	1.7061E-01	4.5227E-02	1.1294E-02	1.0385E-02	1.5321E-02	4.0615E-03	1.0142E-03	9.3260E-04
	209	801	12	2332	1.7369E-01	4.7305E-02	1.1722E-02	1.0778E-02	1.4583E-02	3.9715E-03	9.8412E-04	9.0489E-04
	209	801	13	4335	1.3848E-01	2.7655E-02	6.7695E-03	6.2285E-03	2.1616E-02	4.3169E-03	1.0567E-03	9.7225E-04
	209	801	14	4629	1.3560E-01	2.5789E-02	6.3853E-03	5.8774E-03	2.2600E-02	4.2982E-03	1.0642E-03	9.7955E-04
	209	801	15	4490	1.3674E-01	2.7400E-02	6.8634E-03	6.3001E-03	2.2109E-02	4.4302E-03	1.1097E-03	1.0186E-03
	209	801	16	5033	1.2899E-01	2.5720E-02	6.4339E-03	5.8996E-03	2.3376E-02	4.6612E-03	1.1660E-03	1.0692E-03
	209	801	17	5144	1.3590E-01	2.6117E-02	6.3792E-03	5.8494E-03	2.5172E-02	4.8375E-03	1.1816E-03	1.0834E-03
	209	801	18	5909	1.1982E-01	2.1615E-02	5.3024E-03	4.8810E-03	2.5495E-02	4.5992E-03	1.1282E-03	1.0385E-03
	209	801	19	6853	8.8678E-02	1.5237E-02	3.8118E-03	3.5110E-03	2.1880E-02	3.7596E-03	9.4053E-04	8.6631E-04
	209	801	20	5468	9.5784E-02	1.5634E-02	3.7792E-03	3.4847E-03	1.8859E-02	3.0783E-03	7.4410E-04	6.8611E-04
	209	801	21	4047	1.1108E-01	1.7507E-02	4.1545E-03	3.8319E-03	1.6186E-02	2.5509E-03	6.0535E-04	5.5835E-04
	209	801	22	3596	1.2286E-01	1.7311E-02	3.9377E-03	3.6309E-03	1.5907E-02	2.2413E-03	5.0982E-04	4.7009E-04
	209	801	23	3465	1.2718E-01	1.4544E-02	3.1650E-03	2.9211E-03	1.5867E-02	1.8144E-03	3.9486E-04	3.6443E-04
	209	801	24	2646	1.2731E-01	1.5659E-02	3.4923E-03	3.2220E-03	1.2131E-02	1.4921E-03	3.3277E-04	3.0701E-04
	Daily	-	-	-	-	-	-	3.3774E-01	6.6176E-02	1.6110E-02	1.4819E-02	
Fanling Highway Full Enclosure (EB)	209	802	1	1142	1.4398E-01	2.4975E-02	5.3169E-03	4.8968E-03	5.9305E-03	1.0287E-03	2.1900E-04	2.0170E-04
	209	802	2	813	1.4463E-01	2.6346E-02	5.7239E-03	5.2709E-03	4.2436E-03	7.7301E-04	1.6794E-04	1.5465E-04
	209	802	3	596	1.4530E-01	2.7743E-02	6.1389E-03	5.6523E-03	3.1237E-03	5.9646E-04	1.3198E-04	1.2152E-04
	209	802	4	485	1.4597E-01	2.9169E-02	6.5622E-03	6.0414E-03	2.5536E-03	5.1027E-04	1.1480E-04	1.0569E-04
	209	802	5	508	1.4666E-01	3.0623E-02	6.9940E-03	6.4382E-03	2.6873E-03	5.6109E-04	1.2815E-04	1.1796E-04
	209	802	6	669	1.4737E-01	3.2107E-02	7.4346E-03	6.8432E-03	3.5544E-03	7.7437E-04	1.7931E-04	1.6505E-04
	209	802	7	1551	1.4809E-01	3.3621E-02	7.8843E-03	7.2565E-03	8.2859E-03	1.8812E-03	4.4114E-04	4.0601E-04
	209	802	8	3847	1.4882E-01	3.5167E-02	8.3432E-03	7.6783E-03	2.0654E-02	4.8805E-03	1.1579E-03	1.0656E-03
	209	802	9	4560	1.2658E-01	2.7572E-02	6.8793E-03	6.3325E-03	2.0823E-02	4.5358E-03	1.1317E-03	1.0417E-03
	209	802	10	3910	1.4862E-01	3.4436E-02	8.5386E-03	7.8400E-03	2.0965E-02	4.8578E-03	1.2045E-03	1.1060E-03
	209	802	11	3636	1.5372E-01	3.7441E-02	9.2598E-03	8.5183E-03	2.0162E-02	4.9110E-03	1.2146E-03	1.1173E-03
	209	802	12	3366	1.5620E-01	3.9604E-02	9.7158E-03	8.9371E-03	1.8969E-02	4.8094E-03	1.1799E-03	1.0853E-03
	209	802	13	2989	1.5316E-01	3.4675E-02	8.4744E-03	7.7980E-03	1.6515E-02	3.7389E-03	9.1377E-04	8.4084E-04
	209	802	14	3192	1.5057E-01	3.2515E-02	8.0999E-03	7.4536E-03	1.7341E-02	3.7446E-03	9.3282E-04	8.5839E-04
	209	802	15	3111	1.5163E-01	3.4288E-02	8.6026E-03	7.9151E-03	1.7015E-02	3.8476E-03	9.6533E-04	8.8819E-04
	209	802	16	3446	1.4382E-01	3.1718E-02	8.0167E-03	7.3783E-03	1.7881E-02	3.9434E-03	9.9668E-04	9.1732E-04
	209	802	17	3520	1.5066E-01	3.2209E-02	7.9752E-03	7.3399E-03	1.9131E-02	4.0900E-03	1.0127E-03	9.3202E-04
	209	802	18	3978	1.3350E-01	2.6705E-02	6.7329E-03	6.1982E-03	1.9156E-02	3.8319E-03	9.6610E-04	8.8938E-04
	209	802	19	4473	9.8650E-02	1.8970E-02	4.8271E-03	4.4481E-03	1.5919E-02	3.0612E-03	7.7896E-04	7.1779E-04
	209	802	20	3545	1.0696E-01	1.9878E-02	4.7210E-03	4.3516E-03	1.3678E-02	2.5419E-03	6.0368E-04	5.5645E-04
	209	802	21	2632	1.2114E-01	2.2244E-02	5.0984E-03	4.6984E-03	1.1500E-02	2.1117E-03	4.8401E-04	4.4604E-04
	209	802	22	2345	1.3289E-01	2.2506E-02	4.9954E-03	4.6019E-03	1.1244E-02	1.9043E-03	4.2268E-04	3.8938E-04
	209	802	23	2241	1.3554E-01	1.8748E-02	3.9918E-03	3.6800E-03	1.0956E-02	1.5155E-03	3.2266E-04	2.9746E-04
	209	802	24	1717	1.3597E-01	1.9988E-02	4.3573E-03	4.0160E-03	8.4201E-03	1.2378E-03	2.6982E-04	2.4869E-04
	Daily	-	-	-	-	-	-	3.1071E-01	6.5688E-02	1.5940E-02	1.4670E-02	

Description	Hour	No. of Volume Sources	Total Emission Rate				Daily Emission Rate (from 1st 50m for each portal source)				Daily Emission Rate (from 2nd 50m for each portal source)			
			NO	NO2	RSP	FSP	NO	NO2	RSP	FSP	NO	NO2	RSP	FSP
			(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)
Fanling Highway Full Enclosure (WB+EB)	1	6	9.9810E-03	1.8390E-03	3.9328E-04	3.6210E-04	1.1090E-03	2.0433E-04	4.3698E-05	4.0233E-05	5.5450E-04	1.0217E-04	2.1849E-05	2.0117E-05
	2	6	7.1625E-03	1.3805E-03	3.0105E-04	2.7715E-04	7.9584E-04	1.5339E-04	3.3450E-05	3.0794E-05	3.9792E-04	7.6695E-05	1.6725E-05	1.5397E-05
	3	6	5.2877E-03	1.0642E-03	2.3621E-04	2.1743E-04	5.8752E-04	1.1825E-04	2.6245E-05	2.4159E-05	2.9376E-04	5.9125E-05	1.3123E-05	1.2079E-05
	4	6	4.3353E-03	9.0971E-04	2.0516E-04	1.8884E-04	4.8170E-04	1.0108E-04	2.2796E-05	2.0982E-05	2.4085E-04	5.0539E-05	1.1398E-05	1.0491E-05
	5	6	4.5756E-03	9.9953E-04	2.2873E-04	2.1051E-04	5.0840E-04	1.1106E-04	2.5415E-05	2.3390E-05	2.5420E-04	5.5530E-05	1.2707E-05	1.1695E-05
	6	6	6.0699E-03	1.3785E-03	3.1969E-04	2.9420E-04	6.7444E-04	1.5317E-04	3.5521E-05	3.2689E-05	3.3722E-04	7.6583E-05	1.7761E-05	1.6344E-05
	7	6	1.4193E-02	3.3465E-03	7.8569E-04	7.2298E-04	1.5770E-03	3.7184E-04	8.7299E-05	8.0331E-05	7.8848E-04	1.8592E-04	4.3649E-05	4.0165E-05
	8	6	3.5484E-02	8.6769E-03	2.0603E-03	1.8957E-03	3.9427E-03	9.6410E-04	2.2892E-04	2.1064E-04	1.9714E-03	4.8205E-04	1.1446E-04	1.0532E-04
	9	6	3.5888E-02	8.0935E-03	2.0380E-03	1.8758E-03	3.9876E-03	8.9927E-04	2.2645E-04	2.0842E-04	1.9938E-03	4.4964E-04	1.1322E-04	1.0421E-04
	10	6	3.6482E-02	8.7739E-03	2.1863E-03	2.0090E-03	4.0535E-03	9.7488E-04	2.4293E-04	2.2322E-04	2.0268E-03	4.8744E-04	1.2146E-04	1.1161E-04
	11	6	3.5484E-02	8.9725E-03	2.2288E-03	2.0499E-03	3.9426E-03	9.9649E-04	2.4764E-04	2.2777E-04	1.9713E-03	4.9847E-04	1.2382E-04	1.1388E-04
	12	6	3.3551E-02	8.7810E-03	2.1640E-03	1.9902E-03	3.7279E-03	9.7567E-04	2.4044E-04	2.2113E-04	1.8640E-03	4.8783E-04	1.2022E-04	1.1057E-04
	13	6	3.8131E-02	8.0558E-03	1.9705E-03	1.8131E-03	4.2368E-03	8.9509E-04	2.1894E-04	2.0145E-04	2.1184E-03	4.4754E-04	1.0947E-04	1.0073E-04
	14	6	3.9941E-02	8.0428E-03	1.9970E-03	1.8379E-03	4.4379E-03	8.9364E-04	2.2189E-04	2.0422E-04	2.2190E-03	4.4682E-04	1.1095E-04	1.0211E-04
	15	6	3.9124E-02	8.2778E-03	2.0750E-03	1.9068E-03	4.3471E-03	9.1976E-04	2.3056E-04	2.1187E-04	2.173			

**Appendix 3.7 Calculation of Emissions from Portals**

Operation Phase (Year 2039)

Emission Rate of Full Enclosure

Road Name	Height (m)	Width (m)	Source ID	Source Type	X	Y	Emission Rate (g/s)				Release Height (HS) (m)	Lateral Dimension (SY) (m)	Vertical Dimension (SZ) (m)
							NO	NO2	RSP	FSP			
Fanling Highway Full Enclosure (WB)	6.00	21.43	FEW01	VOLUME	827951.83	840457.71	7.2050E-02	1.4652E-02	3.5611E-03	3.2766E-03	3.00	9.97	2.79
	6.00	21.43	FEW02	VOLUME	827930.45	840459.11	7.2050E-02	1.4652E-02	3.5611E-03	3.2766E-03	3.00	9.97	2.79
	6.00	21.43	FEW03	VOLUME	827909.07	840460.52	7.2050E-02	1.4652E-02	3.5611E-03	3.2766E-03	3.00	9.97	2.79
	6.00	21.43	FEW04	VOLUME	827887.69	840461.92	3.6025E-02	7.3258E-03	1.7806E-03	1.6383E-03	3.00	9.97	2.79
	6.00	21.43	FEW05	VOLUME	827866.31	840463.33	3.6025E-02	7.3258E-03	1.7806E-03	1.6383E-03	3.00	9.97	2.79
	6.00	21.43	FEW06	VOLUME	827844.93	840464.73	3.6025E-02	7.3258E-03	1.7806E-03	1.6383E-03	3.00	9.97	2.79

Remark

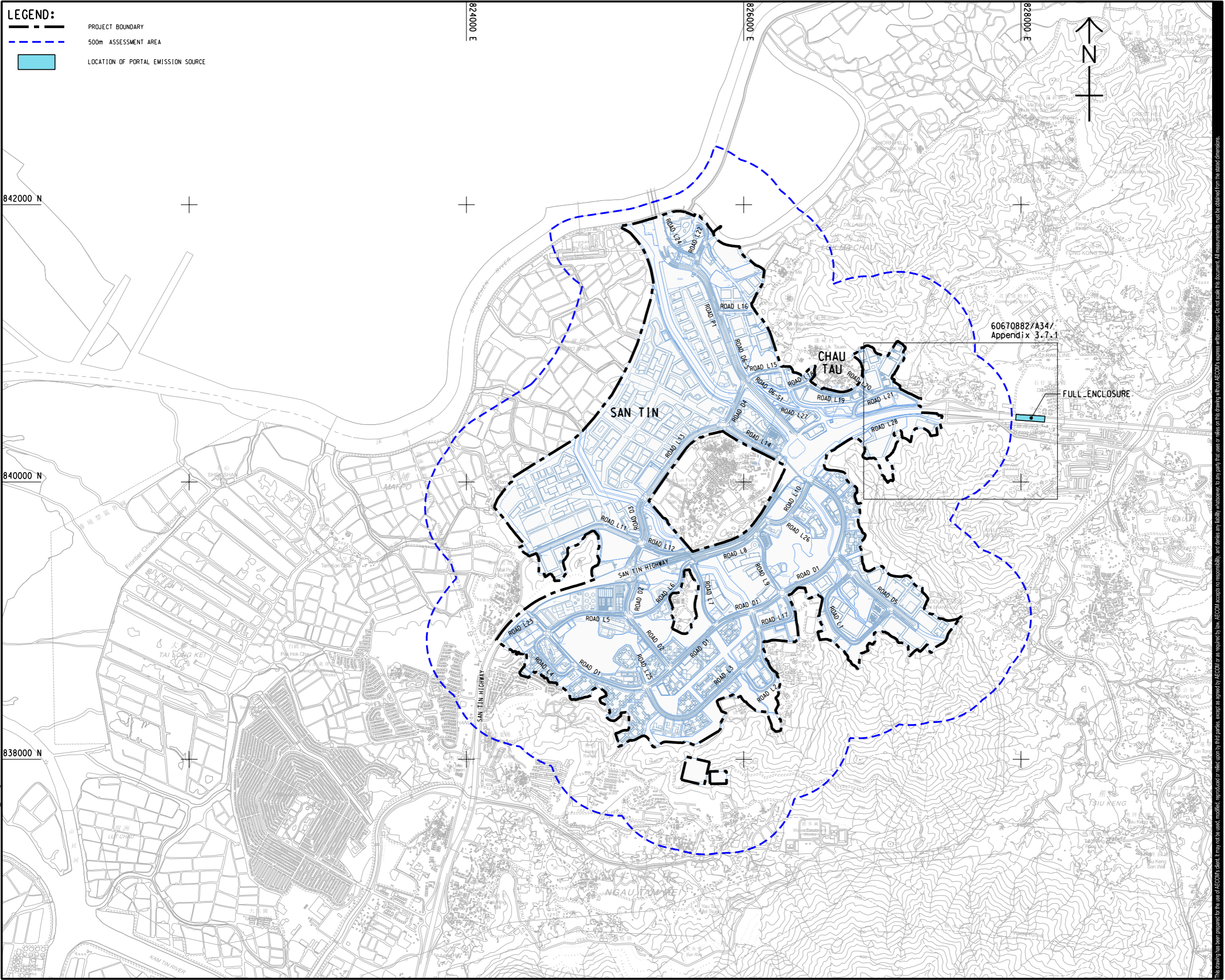
1. The dimension of the portal opening is based on the engineering design.

Hourly Profile for FEW01-FEW06

Hour	NO	NO2	RSP	FSP
Hour 1	0.01539	0.01395	0.01227	0.01228
Hour 2	0.01105	0.01047	0.00939	0.00940
Hour 3	0.00815	0.00807	0.00737	0.00737
Hour 4	0.00669	0.00690	0.00640	0.00640
Hour 5	0.00706	0.00758	0.00714	0.00714
Hour 6	0.00936	0.01045	0.00997	0.00998
Hour 7	0.02189	0.02538	0.02451	0.02452
Hour 8	0.05472	0.06580	0.06428	0.06429
Hour 9	0.05535	0.06138	0.06359	0.06361
Hour 10	0.05626	0.06654	0.06822	0.06813
Hour 11	0.05472	0.06804	0.06954	0.06951
Hour 12	0.05174	0.06659	0.06752	0.06749
Hour 13	0.05880	0.06109	0.06148	0.06148
Hour 14	0.06159	0.06099	0.06231	0.06233
Hour 15	0.06033	0.06278	0.06474	0.06466
Hour 16	0.06362	0.06525	0.06748	0.06736
Hour 17	0.06832	0.06770	0.06846	0.06834
Hour 18	0.06886	0.06394	0.06534	0.06538
Hour 19	0.05829	0.05173	0.05365	0.05372
Hour 20	0.05018	0.04262	0.04205	0.04214
Hour 21	0.04270	0.03536	0.03399	0.03406
Hour 22	0.04187	0.03144	0.02910	0.02914
Hour 23	0.04136	0.02525	0.02239	0.02244
Hour 24	0.03169	0.02070	0.01880	0.01884
Total	1.00000	1.00000	1.00000	1.00000



ISO A1 594mm x 841mm  
 Approved:  
 Checked:  
 Designer:  
 Project Management Initials:  
 Plot File by: haipuen.zhao 11/14/2023  
 PATH: P:\PROJECTS\60670882\DRAWING\REPORT\A34\A34\_632.dgn



**LEGEND:**

- PROJECT BOUNDARY
- 500m ASSESSMENT AREA
- LOCATION OF PORTAL EMISSION SOURCE



**PROJECT**  
 項目  
 FIRST PHASE DEVELOPMENT OF  
 THE NEW TERRITORIES NORTH –  
 SAN TIN / LOK MA CHAU  
 DEVELOPMENT NODE –  
 INVESTIGATION

**CLIENT**  
 業主  
**土木工程拓展署**  
 Civil Engineering and  
 Development Department  
**規劃署**  
 Planning Department

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 分判工程師/顧問公司

**ISSUE/REVISION**  
 修訂

NO.	DATE	DESCRIPTION	CHK.

**STATUS**  
 階段

**SCALE**  
 比例  
 A3 1 : 25000

**DIMENSION UNIT**  
 度量單位  
 METRES

**KEY PLAN**  
 索引圖

**PROJECT NO.**  
 項目編號  
 60670882

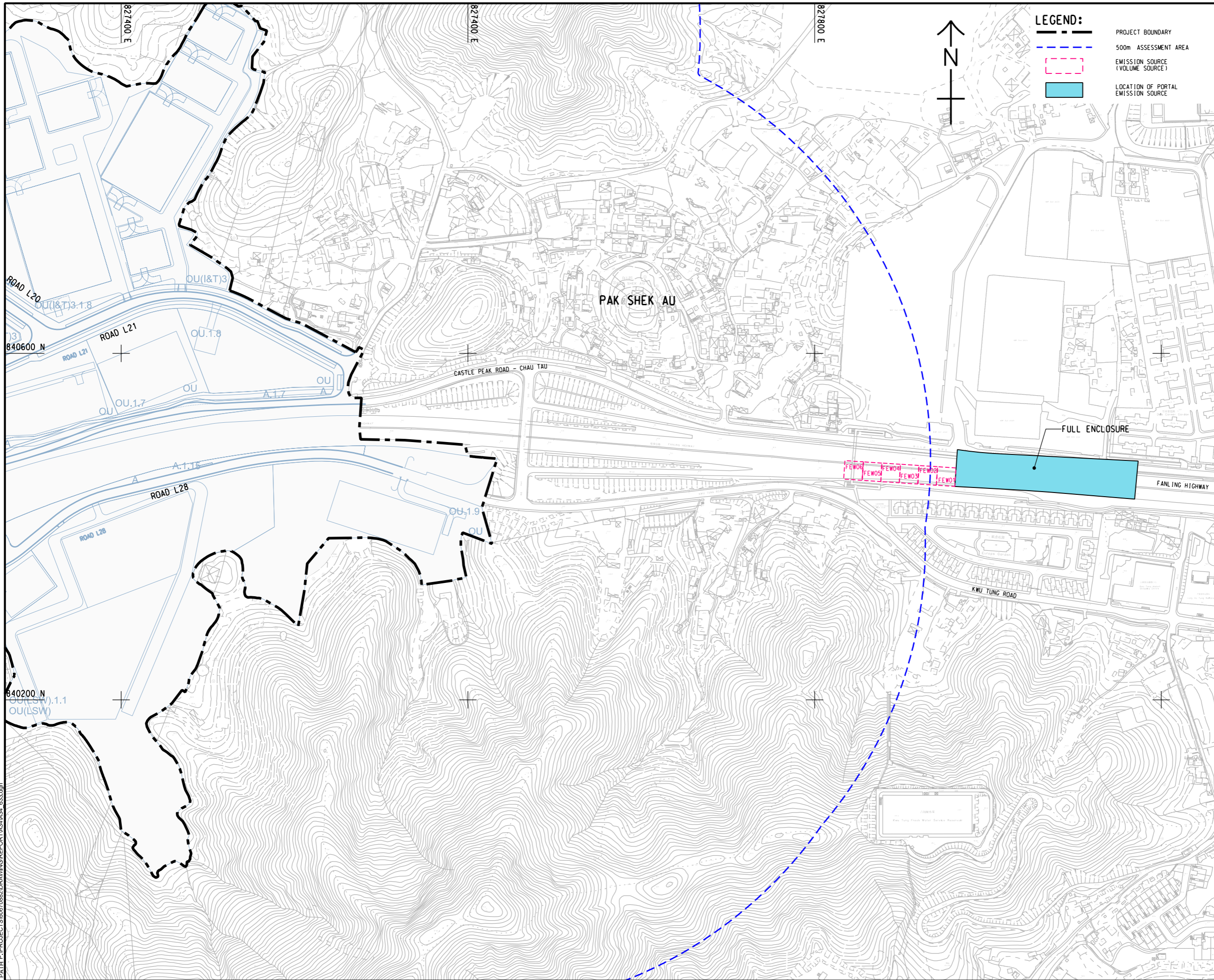
**AGREEMENT NO.**  
 協議編號  
 CE 20/2021

**SHEET TITLE**  
 圖紙名稱  
 LOCATION OF PORTAL EMISSION  
 SOURCE

**SHEET NUMBER**  
 圖紙編號  
 60670882/A34/Appendix 3.7

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**LEGEND:**

- PROJECT BOUNDARY
- - - 500m ASSESSMENT AREA
- EMISSION SOURCE (VOLUME SOURCE)
- LOCATION OF PORTAL EMISSION SOURCE



**PROJECT**  
項目  
FIRST PHASE DEVELOPMENT OF THE NEW TERRITORIES NORTH – SAN TIN / LOK MA CHAU DEVELOPMENT NODE – INVESTIGATION

**CLIENT**  
業主  
 土木工程拓展署  
 Civil Engineering and Development Department  
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**ISSUE/REVISION**  
修訂

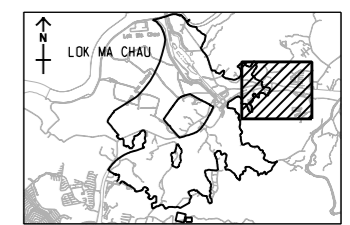
IR	DATE	DESCRIPTION	CHK.
修訂	日期	內容摘要	核對

**STATUS**  
階段

**SCALE**  
比例  
A3 1 : 4000

**DIMENSION UNIT**  
尺寸單位  
METRES

**KEY PLAN** A3 1 : 150000  
索引圖



**PROJECT NO.**  
項目編號  
60670882

**AGREEMENT NO.**  
協議編號  
CE 20/2021

**SHEET TITLE**  
圖紙名稱  
LOCATION OF PORTAL EMISSION SOURCE

**SHEET NUMBER**  
圖紙編號  
60670882/A34/Appendix 3.7.1

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