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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

APPENDICES

FOR

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT

COMMERCIAL-IN-CONFIDENCE

Prepared By:

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List of Appendices

Chapter 3 Project Description	
Appendix 3.1	Preliminary Construction Programme
Appendix 3.2	Photos of Proposed Activities
Chapter 4 Air Quality Impact Assessment	
Appendix 4.1	Photos of Representative Air Sensitive Receivers
Appendix 4.2	Meteorological Data from Hong Kong Observatory
Appendix 4.3	Calculation of Emission Factors for CALINE 4
Appendix 4.4	Calculation of Emission Factors of Travelling Vehicles within the Proposed Project for ISCST 3
Appendix 4.5	Calculation of Emission Factors of Idling Vehicles within the Proposed Project for ISCST 3
Appendix 4.6	List of Chemical Emissions from Government Laboratory
Chapter 5 Noise Impact Assessment	
Appendix 5.1	Photos of Representative Existing Noise Sensitive Receivers
Appendix 5.2	Results of Prevailing Background Noise Surveys
Appendix 5.3	TD Endorsement Letter, Summary of Estimated Road Traffic Generation (Ingress and Egress) and Suggested Routing from the Proposed Project
Appendix 5.4	Location Plan Showing the Area of Island Eastern Corridor with Low Noise Road Surface
Appendix 5.5	Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Unmitigated Scenario)
Appendix 5.6	Detailed Calculation of Fixed Plant Noise Impact Assessment
Appendix 5.7	Result Summary of Traffic Noise Impact Assessment
Appendix 5.8	Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Mitigated Scenario)
Appendix 5.9	Methodology and Noise Measurement Results of Noise emitted by Brake Test Strip
Chapter 6 Water Quality and Sewerage Impact Assessment	
Appendix 6.1	Hydraulic Assessment
Chapter 7 Landscape and Visual Impact Assessment	
Appendix 7.1	Tree Assessment Schedule
Chapter 9 Land Contamination Assessment	
Appendix 9.1	Correspondence with Local Authorities on Record Request
Appendix 9.2	Relevant Ground Investigation Records
Appendix 9.3	Site Walkover Checklist
Appendix 9.4	On-site Storage Location of Diesel in the Past
Appendix 9.5	Site Photos of Current Land Use Activities
Chapter 10 Hazard to Life Assessment	
Appendix 10.1	Traffic Data
Appendix 10.2	MTR Train Population (Between Hang Fa Chuen and Chai Wan Station)
Appendix 10.3	HAZID Workshop Meeting Minutes and Worksheets
Appendix 10.4	Fault Trees for ExxonMobil Petrol cum LPG Filling Stations
Appendix 10.5	Fault Trees for Diesel Refilling in Bus Depots
Appendix 10.6	Illustration of Falls and U-Channels of the Oil Terminal
Chapter 11 Conclusion	
Appendix 11.1	Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and Related Prior Agreement(s) with Director

Appendix 3.1

Preliminary Construction Programme

Project: Chai Wan Government Complex and Vehicle Depot Appendix 3.1

Preliminary Construction Programme

Project	Activities/ Month/Year	2016												2017												2018											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Chai Wan Government Complex and Vehicle Depot	Site formation, Excavation and Filling																																				
	Foundation																																				
	Main Building Construction																																				

Appendix 3.2

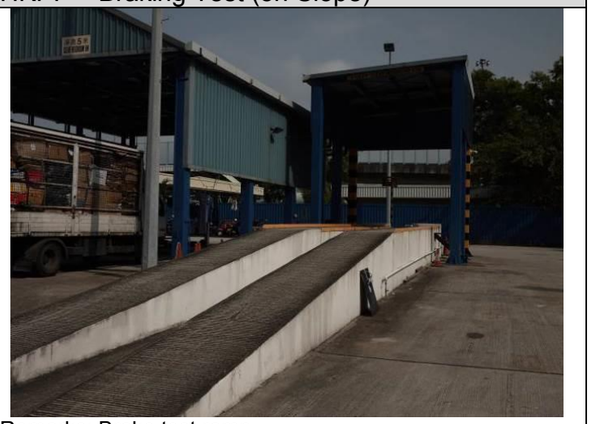
Photos of Proposed Activities

Photos of Proposed Activities

HKPF – Braking Test (on Grade)

Remarks: Brake test strip, about 100m long

HKPF – Braking Test (on Slope)



Remarks: Brake test ramp

HKPF – Use of Compressed Air, e.g. Screw Driving

HKPF – Braking Test (for Vehicles other than Motorcycle)

HKPF – Hammering

Remarks: Not available.

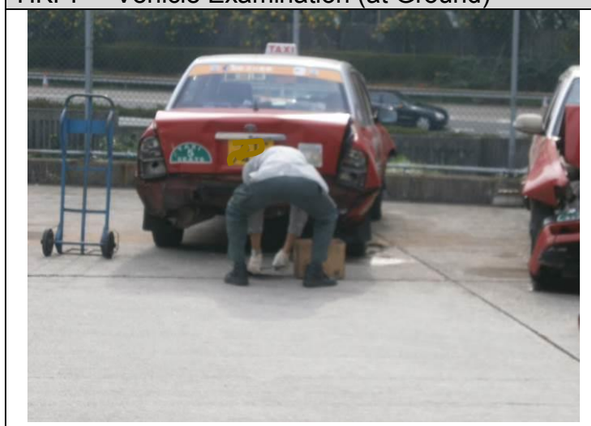
HKPF – Vehicle Parking

HKPF – Vehicle Lifting

HKPF – Vehicle Examination (in Pit)

Remarks: Not available.

HKPF – Vehicle Examination (at Ground)



Photos of Proposed Activities

EMSD - Braking test (for Vehicles other than Motorcycle)

EMSD – Braking Test (for Motorcycle)

EMSD – Speedometer Test (for Motorcycle)

EMSD – Tyre Balancing

EMSD – Tyre Changing

EMSD – Hammering

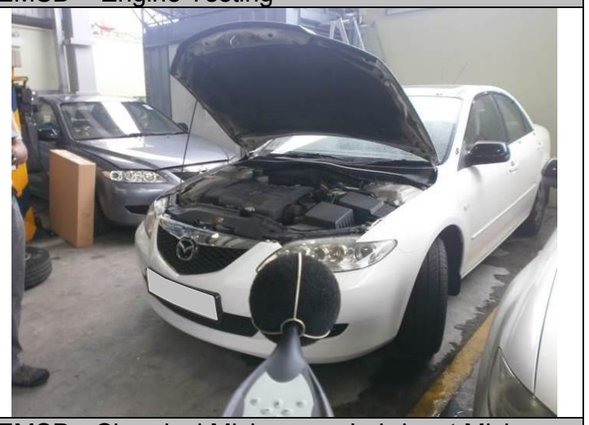
EMSD – Use of Compressed Air, e.g. Screw Driving

EMSD – Vehicle Washing (Manual Washing)

Remarks: Not available.

EMSD – Vehicle Lifting

EMSD – Engine Testing



EMSD – Vehicle Parking

EMSD - Chemical Mixing, e.g. Lubricant Mixing

Photos of Proposed Activities

EMSD – Battery Charging	EMSD – Chemical Refilling e.g. Lubricant Refilling
FEHD – Vehicle Washing (Manual Washing)	FEHD – Vehicle Washing (Automatic Washing Machine)
FEHD – Vehicle Parking	FEHD – Water Refilling in Vehicle

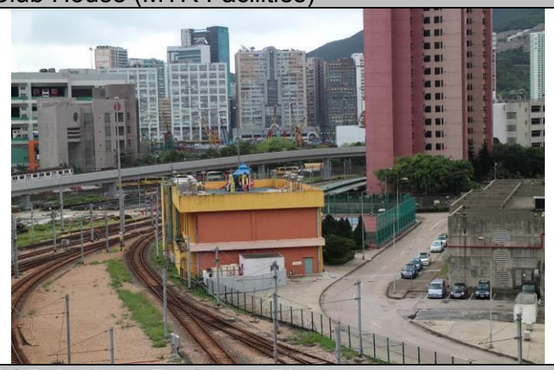
GL – Vehicle Parking	GL – Chemical Testing
Remarks: Not available.	

Appendix 4.1

Photos of Representative Air Sensitive Receivers

Photos of the Representative ASRs

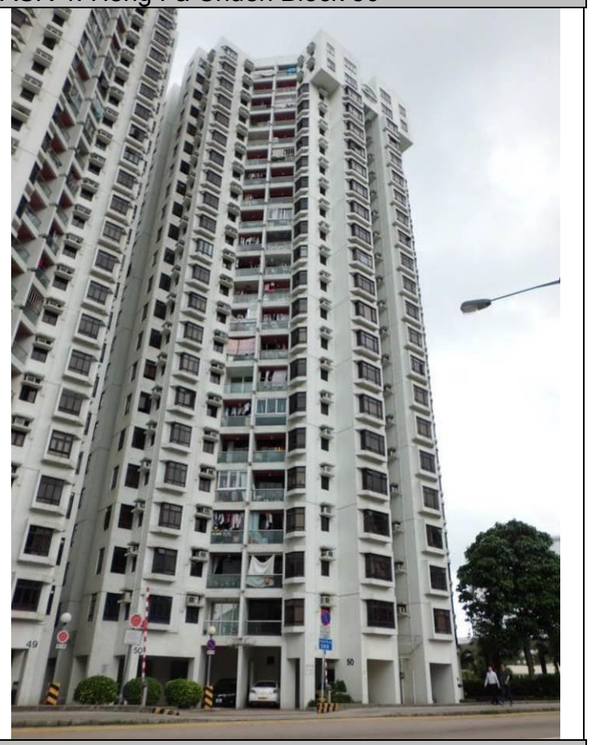
ASR 1: Metro Recreational Club Chai Wan Depot Club House (MTR Facilities)



ASR 2: Heng Fa Chuen Lutheran Day Nursery

ASR 3: Heng Fa Chuen Block 1

ASR 4: Heng Fa Chuen Block 50

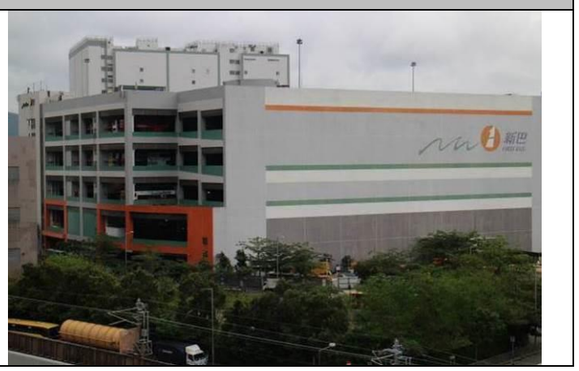


ASR 5: Heng Fa Chuen Playground

ASR 5: Heng Fa Chuen Playground (Con't)

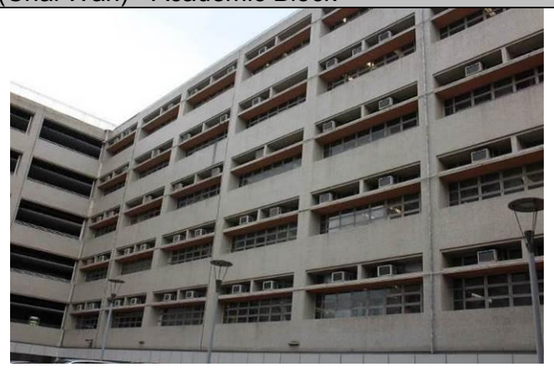
ASR 6: Government Logistics Centre

ASR 7: NWFB Depot

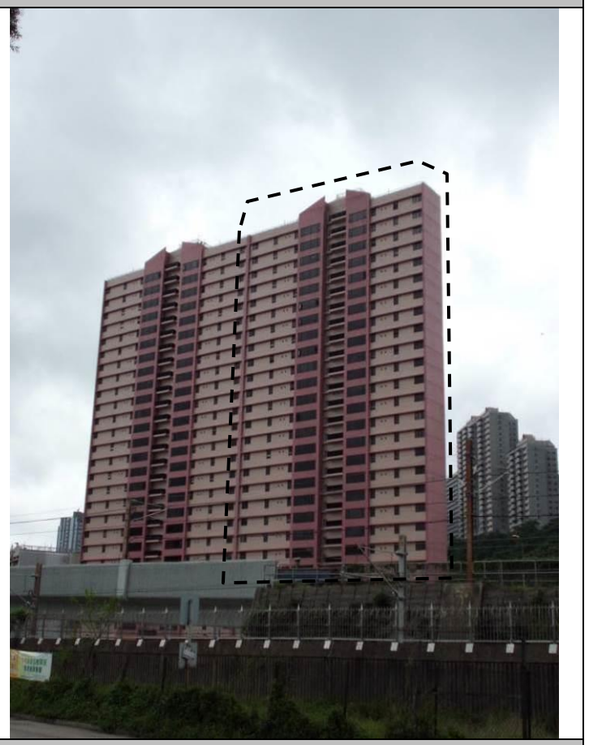


Photos of the Representative ASRs

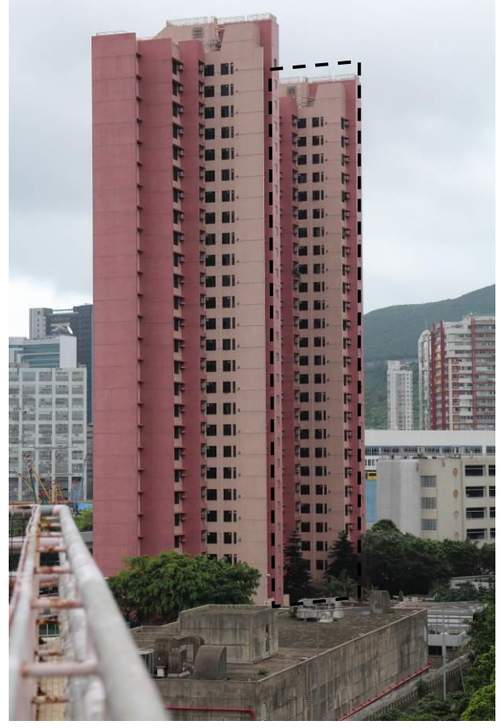
ASR 8: Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block



ASR 9: Knight Court Flat A & B



ASR 10: Knight Court Flat C & D



Photos of the Representative ASRs

ASR 11: Citybus Depot

ASR 12: EMSD Depot

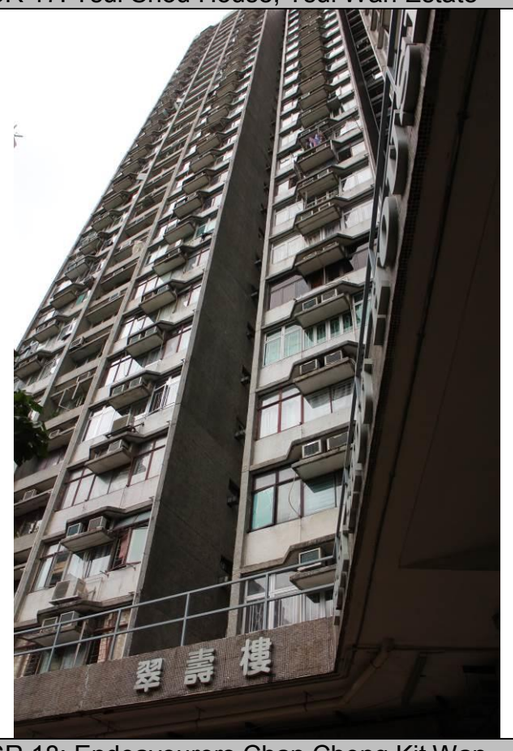
ASR 13: Wing Tai Road Garden

ASR 14: Pamela Youde Nethersole Eastern Hospital - Block F

ASR 15: Pamela Youde Nethersole Eastern Hospital - East Block

ASR 16: Tsui Wan Estate Playground

ASR 17: Tsui Shou House, Tsui Wan Estate



ASR 18: Endeavourers Chan Cheng Kit Wan Kindergarten

ASR 19: Tsui Ching House, Hang Tsui Court

Photos of the Representative ASRs

ASR 20: Tsui Wan Nursing Home Limited

ASR 21: Tsui Wan Estate Shopping Complex

ASR 22: S.K.H Li Fook Hing Secondary School

ASR 23: TWGHs & LKWFSL Mrs Fung Yiu Hing Memorial Primary School

ASR 24: Chai Wan Fire Station

ASR 25: Chai Wan Industrial City Phase II

ASR 26: Ming Pao Industrial Centre Block B

Photos of the Representative ASRs

ASR 27: Safety Godown Industrial Building	
ASR 29: Planned Pet Garden at Sheung On Street	ASR 30: Planned THEi New Campus
Remarks: The site is currently occupied by car parking.	Remarks: The site is currently under construction.

Appendix 4.2

Meteorological Data from Hong Kong Observatory

Summary Table for RH & Temperature

Station Hong Kong Observatory Manned Weather Station
Year 2013

	Annual Hourly Average	
Hour	**RH (%)**	**Temp. (°C)**
00	82	23
01	82	22
02	83	22
03	83	22
04	83	22
05	83	22
06	83	22
07	82	22
08	79	23
09	77	23
10	74	24
11	72	25
12	71	25
13	71	25
14	71	25
15	72	25
16	74	24
17	76	24
18	77	23
19	78	23
20	79	23
21	80	23
22	81	23
23	81	23
Min	71	22
Max	83	25

Appendix 4.3

Calculation of Emission Factors for CALINE 4

2018 without Project

2018 w/o Project		Vehicle Breakdown %															Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
1	0	37%	11%	1%	19%	12%	2%	4%	0%	2%	1%	1%	1%	1%	4%	7%	197	230	EX	70	70	23	82	0	0.674	30.532	0.020	0.908	0.018	0.833
1	1	37%	11%	1%	20%	12%	1%	4%	0%	2%	1%	1%	0%	0%	4%	7%	115	230	EX	70	70	22	83	0	0.639	16.903	0.017	0.443	0.015	0.406
1	2	37%	11%	0%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	7%	75	230	EX	70	70	22	83	0	0.643	11.086	0.018	0.302	0.016	0.278
1	3	37%	11%	0%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	76	230	EX	70	70	22	83	0	0.635	11.109	0.017	0.303	0.016	0.278
1	4	36%	11%	0%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	76	230	EX	70	70	22	83	0	0.651	11.381	0.018	0.311	0.016	0.285
1	5	36%	11%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	5%	8%	112	230	EX	70	70	22	83	0	0.661	17.019	0.017	0.447	0.016	0.409
1	6	35%	10%	0%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	224	230	EX	70	70	22	83	0	0.664	34.232	0.018	0.911	0.016	0.835
1	7	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	372	230	EX	70	70	22	82	0	0.674	57.630	0.018	1.540	0.016	1.412
1	8	34%	10%	1%	23%	14%	1%	4%	0%	1%	1%	0%	0%	0%	4%	9%	483	230	EX	70	70	23	79	0	0.670	74.418	0.018	2.001	0.017	1.835
1	9	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	491	230	EX	70	70	23	77	0	0.680	76.825	0.019	2.143	0.017	1.965
1	10	35%	10%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	457	230	EX	70	70	24	74	0	0.663	69.654	0.019	1.969	0.017	1.806
1	11	36%	11%	1%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	7%	419	230	EX	70	70	25	72	0	0.653	62.961	0.018	1.777	0.017	1.630
1	12	37%	11%	1%	20%	12%	1%	4%	0%	1%	1%	1%	0%	0%	4%	7%	425	230	EX	70	70	25	71	0	0.652	63.701	0.019	1.835	0.017	1.684
1	13	38%	11%	1%	20%	12%	1%	4%	0%	1%	1%	1%	0%	0%	4%	7%	429	230	EX	70	70	25	71	0	0.646	63.779	0.019	1.834	0.017	1.684
1	14	38%	12%	1%	19%	11%	1%	4%	0%	1%	1%	1%	0%	1%	4%	6%	432	230	EX	70	70	25	71	0	0.645	64.084	0.019	1.879	0.017	1.725
1	15	39%	12%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	473	230	EX	70	70	25	72	0	0.630	68.518	0.019	2.059	0.017	1.891
1	16	40%	13%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	5%	517	230	EX	70	70	24	74	0	0.638	75.854	0.019	2.253	0.017	2.069
1	17	41%	13%	0%	17%	10%	1%	4%	0%	2%	1%	1%	0%	1%	4%	5%	521	230	EX	70	70	24	76	0	0.625	74.930	0.019	2.266	0.017	2.082
1	18	40%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	0%	4%	5%	440	230	EX	70	70	23	77	0	0.645	65.239	0.019	1.960	0.018	1.801
1	19	39%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	1%	4%	5%	360	230	EX	70	70	23	78	0	0.654	54.175	0.020	1.642	0.018	1.508
1	20	39%	12%	1%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	316	230	EX	70	70	23	79	0	0.631	45.839	0.018	1.334	0.017	1.225
1	21	39%	12%	1%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	275	230	EX	70	70	23	80	0	0.654	41.349	0.019	1.203	0.017	1.105
1	22	38%	12%	0%	19%	11%	1%	4%	0%	1%	1%	0%	0%	0%	4%	6%	236	230	EX	70	70	23	81	0	0.650	35.302	0.019	1.043	0.018	0.958
1	23	38%	12%	0%	19%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	6%	235	230	EX	70	70	23	81	0	0.652	35.235	0.019	1.042	0.018	0.956
2	0	40%	10%	1%	17%	10%	1%	3%	1%	3%	3%	1%	1%	1%	3%	6%	208	420	EX	70	70	23	82	0	0.620	54.137	0.020	1.744	0.018	1.602
2	1	41%	10%	1%	17%	10%	1%	3%	0%	3%	3%	1%	1%	0%	3%	6%	123	420	EX	70	70	22	82	0	0.612	31.622	0.020	1.052	0.019	0.966
2	2	40%	11%	0%	17%	9%	1%	4%	0%	4%	2%	1%	1%	1%	0%	4%	6%	85	420	EX	70	70	22	83	0	0.644	22.975	0.023	0.810	0.021	0.744
2	3	42%	11%	0%	16%	10%	1%	4%	0%	4%	2%	1%	1%	1%	0%	4%	5%	84	420	EX	70	70	22	83	0	0.642	22.667	0.023	0.799	0.021	0.735
2	4	41%	12%	0%	16%	9%	1%	4%	0%	4%	3%	1%	1%	1%	0%	4%	5%	86	420	EX	70	70	22	83	0	0.640	23.133	0.023	0.821	0.021	0.754
2	5	42%	12%	0%	15%	9%	2%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	127	420	EX	70	70	22	83	0	0.588	31.370	0.020	1.063	0.018	0.976
2	6	42%	13%	0%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	256	420	EX	70	70	22	83	0	0.598	64.333	0.020	2.129	0.018	1.957
2	7	43%	13%	1%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	428	420	EX	70	70	22	82	0	0.591	106.166	0.019	3.467	0.018	3.186
2	8	43%	14%	0%	13%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	4%	558	420	EX	70	70	23	79	0	0.570	133.489	0.018	4.299	0.017	3.951
2	9	43%	13%	0%	14%	8%	1%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	555	420	EX	70	70	23	77	0	0.579	134.954	0.018	4.308	0.017	3.958
2	10	42%	12%	0%	15%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	3%	5%	506	420	EX	70	70	24	72	0	0.594	126.236	0.019	4.060	0.018	3.730
2	11	41%	11%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	462	420	EX	70	70	25	72	0	0.596	115.642	0.019	3.766	0.018	3.459
2	12	41%	11%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	458	420	EX	70	70	24	74	0	0.614	118.185	0.020	3.883	0.019	3.566
2	13	40%	9%	0%	17%	10%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	454	420	EX	70	70	25	71	0	0.625	119.139	0.021	3.927	0.019	3.606
2	14	39%	8%	0%	18%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	450	420	EX	70	70	25	71	0	0.633	119.611	0.021	3.921	0.019	3.600
2	15	39%	7%	0%	19%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	486	420	EX	70	70	25	72	0	0.636	129.870	0.021	4.193	0.019	3.848
2	16	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	524	420	EX	70	70	24	74	0	0.659	144.934	0.021	4.616	0.019	4.236
2	17	37%	6%	1%	21%	13%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	520	420	EX	70	70	24	76	0	0.665	145.167	0.021	4.669	0.020	4.285
2	18	37%	6%	1%	21%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	442	420	EX	70	70	23	77	0	0.668	123.949	0.021	3.981	0.020	3.653
2	19	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	382	420	EX	70	70	23	78	0	0.664	100.887	0.021	3.166	0.019	2.906
2	20	38%	7%	1%	19%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	325	420	EX	70	70	23	79	0	0.653	89.188	0.021	2.849	0.019	2.616
2	21	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	283	420	EX	70	70	23	80	0	0.645	76.653	0.021	2.477	0.019	2.274
2	22	39%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	1%	0%	4%	6%	246	420	EX	70	70	23	81	0	0.646	66.732	0.020	2.110	0.019	1.938
2	23	40%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	248	420	EX	70	70	23	81	0	0.634	66.081	0.020	2.100	0.019	1.929
3	0	36%	17%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	726	530	EX	70	70	23	82	0	0.674	259.455	0.024	9.063	0.022	8.331
3	1	36%	18%	1%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	438	530	EX	70	70	22	82	0	0.689	160.008	0.024	5.566	0.022	5.117
3	2	36%	18%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	292	530	EX	70	70	22	83	0	0.687	106.264	0.024	3.640	0.022	3.346
3	3	36%	19%	0%	13%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	295	530	EX	70	70	22	83	0	0.690	107.805	0.025	3.831	0.023	3.522
3	4	36%	19%	0%	12%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	295	530	EX	70	70	22	83	0	0.689	107.694	0.024	3.821	0.022	3.513
3	5	36%	19%	0%	12%	7%	3%	7%	0%	3%	3%	1%	1%	1%	0%	3%	4%	446	530	EX	70	70	22	83	0	0.685	161.991	0.024	5.662	0.022	5.206
3	6	36%	20%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	899	530	EX	70	70	22	83	0	0.692	329.515	0.024	11.670	0.023	10.730
3	7	36%	20%	0%	11%	7%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	1506	530	EX	69	70	22	82	0	0.702	560.200	0.025	19.852	0.023	18.264
3	8	36%	21%	0%	11%	6%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	1966	530	EX	64	70	23	79	0	0.697	726.617	0.024	25.001	0.022	23.001
3	9	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1949	530	EX	64	70	23	77	0	0.703	726.441	0.024	24.393	0.022	22.443
3	10	36%	19%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1784	530	EX	66	70	24	74	0	0.695	657.219	0.024	22.493	0.022	20.653
3	11	36%	19%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1619	530	EX	68	70	25	72	0	0.677	580.689	0.024	20.190	0.022	18.561
3	12	36%	18%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1604	530	EX	68	70	25	71	0	0.683	580.414	0.023	19.719	0.021	18.126
3	13	36%	17%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1587	530	EX	68	70	25	71	0	0.682	573.763	0.023	19.582	0.021	18.000
3	14	36%	17%	0%	15%	9%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1572	530	EX	69	70	25	71	0	0.677	563.679	0.023	19.116	0.021	17.583
3	15	36%	16%	0%	16%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1699	530	EX	67	70	25	72	0	0.674	607.179	0.022	20.095	0.020	18.446
3	16	36%	16%	0%	16%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1820	530	EX	66	70	24	74	0	0.678	654.382	0.022	20.959	0.020	19.237
3	17	35%	14%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1804	530	EX	66	70	24	76	0	0.677	647.547	0.022	20.837	0.020	19.125
3	18	36%	15%	1%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1534	530	EX	69	70	23	77	0	0.682	554.475	0.022	17.903	0.020	16.465
3	19	36%	15%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1263	530	EX	70	70	23	78	0	0.687	460.121	0.023	15.212	0.021	13.981
3	20	36%	16%	0%	16%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1130	530	EX	70	70	23	79	0	0.677	405.729	0.023	13.571	0.021	12.473
3	21	36%	16%	0%	15%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	993	530	EX	70	70	23	80	0	0.675	355.500	0.023	11.977	0.021	11.008
3	22	36%	17%	0%	15%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	857	530	EX	70	70	23	81	0	0.675	306.611	0.023	10.453	0.021	9.608
3	23	36%	17%	0%	15%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	861	530	EX	70	70	23	81	0	0.673	306.977	0.023	10.520	0.021	9.671
4	0	34%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	671	360	EX	70	70	23	82	0	0.729	176.084	0.023	5.572	0.021	5.122
4	1	34%	19%	1%	16%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	4%	405	360	EX	70	70	22	82	0	0.732	106.717	0.023	3.314	0.021	3.046
4	2	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	0%	0%	0%	4%	4%	270	360	EX	70	70	22	83	0	0.741	72.031	0.023	2.203	0.021	2.025
4	3	33%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	270	360	EX	70	70	22	83	0	0.743	72.204	0.023	2.208	0.021	2.029
4	4	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	4%	4%	273	360	EX	70	70	22	83	0	0.753	74.022	0.023	2.243	0.021	2.062
4	5	33%	19%	1%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	409	360	EX	70	70	22	83	0	0.728	107.207	0.022	3.242	0.020	2.980
4	6	32%	20%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	3%	4%	819	360	EX	70	70	22	83	0	0.731	215.635	0.022	6.489	0.020	5.965
4	7	32%	20%	0%	16%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	1373	360	EX	70	70	22	82	0	0.740	365.982	0.022	11.066	0.021	10.173
4	8	32%	20%	0%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	1792	360	EX	66	70	23	79	0	0.742	478.557	0.022	14.214	0.020	13.050
4	9	32%	20%	0%	16%	10%	3%	9%	0%	1%	1%	0%	0%	0%	4%	4%	1783	360	EX	66	70	23	77	0	0.751	481.815	0.022	14.301	0.020	13.129
4	10	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	1636	360	EX	67	70	24	74	0	0.742	436.823	0.023	13.262	0.021	12.175
4	11	33%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	1490	360	EX	69	70	25	72	0	0.730	391.550	0.022	12.065	0.021	11.096
4	12	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	1481	360	EX	69	70	25	71	0	0.737	392.743	0.023	12.181	0.021	11.203
4	13	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	4%	1473	360	EX	69	70	25	71	0	0.727	385.304	0.022	11.863	0.021	10.911
4	14	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	1466	360	EX	69	70	25	71	0	0.731	385.950	0.023	11.985	0.021	11.023
4	15	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	4%	5%	1589	360	EX	68	70	25	72	0	0.725	414.760	0.023	12.951	0.021	11.903
4	16	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1712	360	EX	67	70	24	74	0	0.742	457.275	0.023	14.216	0.021	13.050
4	17	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	0%	0%	5%	5%	1702	360	EX	67	70	24	76	0	0.731	448.033	0.023	13.959	0.021	12.813
4	18	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1444	360	EX	70	70	23	77	0	0.734	381.815	0.023	12.045	0.021	11.071
4	19	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1188	360	EX	70	70	23	78	0	0.739	316.108	0.023	9.985	0.021	9.177
4	20	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	1057	360	EX	70	70	23	79	0	0.733	278.903	0.023	8.741	0.021	8.034
4	21	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	929	360	EX	70	70	23	80	0	0.728	243.578	0.023	7.610	0.021	6.995
4	22	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	800	360	EX	70	70	23	81	0	0.728	209.753	0.023	6.610	0.021	6.076
4	23	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	802	360	EX	70	70	23	81	0	0.726	209.585	0.023	6.600	0.021	6.066
5	0	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	0%	4%	4%	4%	460	230	PD	40	50	23	82	0	0.893	94.489	0.029	3.037	0.026	2.793
5	1	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	4%	278	230	PD	40	50	22	82	0	0.918	58.671	0.029	1.851	0.027	1.702
5	2	33%	22%	1%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	3%	184	230	PD	40	50	22	83	0	0.894	37.818	0.028	1.189	0.026	1.093
5	3	32%	22%	1%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	3%	185	230	PD	40	50	22	83	0	0.892	37.944	0.028	1.190	0.026	1.094
5	4	32%	23%	1%	14%	8%	3%	10%	0%	1%	1%	1%	1%	1%	4%	3%	185	230	PD	40	50	22	83	0	0.877	37.319	0.028	1.202	0.026	1.105
5	5	32%	23%	1%	14%	8%	3%	10%	0%	1%	1%	1%	1%	1%	4%	3%	185	230	PD	40	50	22	83	0	0.877	37.319	0.028	1.202	0.026	1.105
5	6	31%	23%	0%	14%	8%	4%	10%	0%	1%	1%	1%	0%	0%	3%	3%	559	230	PD	40	50	22	83	0	0.907	116.568	0.029	3.713	0.027	3.415
5	7	31%	24%	0%	14%	8%	4%	10%	0%	1%	1%	1%	0%	0%	4%	3%	1024	230	PD	37	50	22	82	0	0.925	217.792	0.030	7.121	0.028	6.544
5	8	31%	24%	0%	14%	8%	4%	11%	0%	1%	1%	0%	0%	0%	4%	3%	1306	230	PD	34	50	23	79	0	0.939	281.955	0.032	9.568	0.029	8.793
5	9	31%	23%	0%	14%	8%	4%	10%	0%	1%	1%	0%	0%	0%	4%	3%	1116	230	PD	36	50	23	77	0	0.938	240.667	0.031	7.948	0.028	7.305
5	10	32%	23%	0%	14%	8%	3%	10%	0%	1%	1%	1%	0%	0%	4%	3%	1021	230	PD	37	50	24	74	0	0.917	215.363	0.030	7.054	0.028	6.481
5	11	32%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	3%	925	230	PD	37	50	25	72	0	0.916	194.830	0.030	6.399	0.028	5.879
5	12	33%	22%	0%	14%	8%	4%	10%	0%	1%	1%	1%	1%	1%	4%	3%	1014	230	PD	37	50	25	71	0	0.924	215.588	0.030	7.046	0.028	6.472
5	13	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	4%	1012	230	PD	37	50	25	71	0	0.932	216.872	0.030	7.052	0.028	6.477
5	14	34%	20%	0%	14%	8%	3%	8%	0%	1%	1%	1%	0%	4%	4%	4%	1005	230	PD	37	50	25	71	0	0.931	215.305	0.030	6.953	0.028	6.386
5	15	35%	20%	0%	13%	8%	3%	8%	0%	1%	1%	1%	0%	4%	4%	4%	1095	230	PD	36	50	25	72	0	0.932	234.611	0.030	7.645	0.028	7.022
5	16	35%	19%	0%	13%	8%	3%	7%	0%	1%	1%	1%	0%	5%	4%

2018 without Project

2018 w/o Project		Vehicle Breakdown %																			Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
11	20	34%	19%	0%	13%	8%	3%	9%	3%	2%	1%	1%	1%	1%	0%	4%	4%	632	210	DD	27	50	23	79	1	1.059	140.502	0.040	5.254	0.036	4.824
11	21	33%	19%	0%	13%	8%	3%	9%	3%	1%	1%	1%	1%	1%	0%	4%	3%	557	210	DD	27	50	23	80	1	1.059	123.881	0.040	4.684	0.037	4.302
11	22	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	1%	0%	4%	3%	560	210	DD	27	50	23	81	1	1.062	124.840	0.040	4.720	0.037	4.334
11	23	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	484	210	DD	28	50	23	81	1	1.034	105.067	0.039	3.919	0.035	3.599
12	0	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	471	160	DD	28	50	23	82	1	0.989	74.535	0.037	2.799	0.034	2.570
12	1	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	281	160	DD	29	50	22	82	1	0.997	44.819	0.036	1.626	0.033	1.493
12	2	31%	21%	1%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	183	160	DD	30	50	22	83	1	0.961	28.141	0.035	1.016	0.032	0.933
12	3	31%	21%	1%	13%	8%	3%	8%	4%	2%	2%	1%	1%	1%	0%	3%	3%	183	160	DD	30	50	22	83	1	0.960	28.099	0.035	1.010	0.032	0.927
12	4	30%	21%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	182	160	DD	30	50	22	83	1	0.979	28.508	0.036	1.034	0.033	0.949
12	5	30%	22%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	181	160	DD	30	50	22	83	1	0.990	28.667	0.036	1.044	0.033	0.958
12	6	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	534	160	DD	27	50	22	83	1	1.046	89.395	0.040	3.384	0.036	3.107
12	7	30%	23%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	974	160	DD	24	50	22	82	1	1.142	177.944	0.046	7.148	0.042	6.563
12	8	30%	23%	0%	11%	6%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1225	160	DD	23	50	23	79	1	1.170	229.331	0.048	9.445	0.044	8.674
12	9	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1069	160	DD	24	50	23	77	1	1.147	196.224	0.046	7.856	0.042	7.213
12	10	30%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	991	160	DD	24	50	24	74	1	1.113	176.507	0.045	7.097	0.041	6.516
12	11	31%	21%	0%	13%	7%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	914	160	DD	25	50	25	72	1	1.062	155.313	0.042	6.183	0.039	5.681
12	12	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1020	160	DD	24	50	25	71	1	1.088	177.579	0.044	7.153	0.040	6.567
12	13	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1038	160	DD	24	50	25	71	1	1.088	180.775	0.044	7.281	0.040	6.684
12	14	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1051	160	DD	24	50	25	71	1	1.081	181.701	0.043	7.296	0.040	6.698
12	15	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1161	160	DD	23	50	25	72	1	1.094	203.174	0.044	8.207	0.041	7.534
12	16	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1179	160	DD	23	50	24	74	1	1.098	207.185	0.044	8.260	0.040	7.583
12	17	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1293	160	DD	22	50	24	76	1	1.113	230.213	0.045	9.412	0.042	8.643
12	18	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1184	160	DD	23	50	23	77	1	1.102	208.687	0.044	8.246	0.040	7.569
12	19	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	981	160	DD	24	50	23	78	1	1.070	167.997	0.042	6.627	0.039	6.082
12	20	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	778	160	DD	26	50	23	79	1	1.028	128.015	0.039	4.911	0.036	4.509
12	21	31%	19%	0%	14%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	674	160	DD	26	50	23	80	1	1.020	109.960	0.039	4.214	0.036	3.870
12	22	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	669	160	DD	26	50	23	81	1	1.019	109.042	0.039	4.199	0.036	3.856
12	23	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	568	160	DD	27	50	23	81	1	1.004	91.229	0.038	3.490	0.035	3.204
13	0	39%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	5%	156	60	DD	30	50	23	82	1	0.659	6.168	0.021	0.197	0.019	0.180
13	1	39%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	4%	91	60	DD	30	50	22	82	1	0.648	3.539	0.020	0.107	0.018	0.098
13	2	40%	21%	0%	16%	9%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	5%	58	60	DD	30	50	22	83	1	0.601	2.090	0.017	0.058	0.015	0.053
13	3	41%	21%	0%	14%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	56	60	DD	30	50	22	83	1	0.607	2.038	0.016	0.055	0.015	0.050
13	4	39%	23%	0%	14%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	56	60	DD	30	50	22	83	1	0.613	2.060	0.016	0.054	0.015	0.050
13	5	38%	24%	0%	15%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	55	60	DD	30	50	22	83	1	0.619	2.042	0.016	0.054	0.015	0.049
13	6	38%	23%	1%	14%	8%	0%	1%	0%	4%	4%	1%	1%	1%	0%	4%	3%	168	60	DD	30	50	22	83	1	0.685	6.907	0.020	0.205	0.019	0.188
13	7	37%	24%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	300	60	DD	29	50	22	82	1	0.733	13.192	0.022	0.391	0.020	0.359
13	8	37%	24%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	372	60	DD	29	50	23	79	1	0.708	15.801	0.021	0.458	0.019	0.420
13	9	38%	23%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	333	60	DD	29	50	23	77	1	0.718	14.354	0.021	0.430	0.020	0.394
13	10	38%	22%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	4%	314	60	DD	29	50	24	74	1	0.706	13.294	0.021	0.403	0.020	0.369
13	11	38%	21%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	4%	297	60	DD	29	50	25	72	1	0.709	12.625	0.022	0.398	0.020	0.365
13	12	38%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	5%	337	60	DD	29	50	25	71	1	0.722	14.599	0.023	0.455	0.021	0.417
13	13	39%	19%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	5%	348	60	DD	29	50	25	71	1	0.716	14.941	0.023	0.474	0.021	0.434
13	14	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	356	60	DD	29	50	25	71	1	0.713	15.229	0.023	0.486	0.021	0.445
13	15	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	400	60	DD	28	50	25	72	1	0.712	17.090	0.023	0.555	0.021	0.508
13	16	39%	16%	1%	16%	10%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	412	60	DD	28	50	24	74	1	0.717	17.721	0.023	0.572	0.021	0.523
13	17	40%	15%	0%	16%	10%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	458	60	DD	28	50	24	76	1	0.706	19.400	0.023	0.639	0.021	0.584
13	18	39%	16%	1%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	417	60	DD	28	50	23	77	1	0.731	18.281	0.024	0.591	0.022	0.540
13	19	39%	16%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	340	60	DD	29	50	23	78	1	0.691	14.104	0.022	0.445	0.020	0.407
13	20	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	6%	270	60	DD	29	50	23	79	1	0.706	11.433	0.022	0.360	0.020	0.329
13	21	39%	17%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	232	60	DD	29	50	23	80	1	0.706	9.834	0.022	0.306	0.020	0.280
13	22	39%	16%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	4%	6%	227	60	DD	30	50	23	81	1	0.694	9.447	0.021	0.289	0.019	0.264
13	23	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	5%	190	60	DD	30	50	23	81	1	0.657	7.493	0.021	0.239	0.019	0.218
14	0	56%	17%	0%	6%	4%	0%	0%	0%	4%	4%	2%	2%	2%	0%	0%	0%	48	590	LD	25	50	23	82	1	0.527	14.921	0.027	0.752	0.024	0.692
14	1	57%	18%	0%	7%	4%	0%	0%	0%	0%	4%	4%	4%	0%	0%	0%	0%	28	590	LD	25	50	22	82	1	0.352	5.811	0.017	0.276	0.015	0.254
14	2	61%	17%	0%	6%	6%	0%	0%	0%	0%	6%	6%	0%	0%	0%	0%	0%	18	590	LD	25	50	22	83	1	0.305	3.239	0.012	0.130	0.011	0.121
14	3	58%	21%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	19	590	LD	25	50	22	83	1	0.312	3.493	0.012	0.130	0.011	0.120
14	4	60%	20%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	20	590	LD	25	50	22	83	1	0.297	3.503	0.011	0.133	0.010	0.123
14	5	57%	19%	0%	10%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	21	590	LD	25	50	22	83	1	0.319	3.954	0.013	0.161	0.012	0.149
14	6	54%	19%	0%	9%	4%	0%	0%	0%	0%	4%	4%	2%	0%	0%	0%	0%	68	590	LD	25	50	22	83	1	0.483	19.371	0.023	0.909	0.021	0.837
14	7	54%	19%	0%	7%	4%	0%	0%	0%	0%	5%	4%	2%	2%	2%	0%	0%	128	590	LD	24	50	22	82	1	0.537	40.533	0.026	1.986	0.024	1.825
14	8	54%	19%	0%	7%	4%	0%	1%	0%	5%	4%	2%	1%	2%	0%	0%	2%	165	590	LD	24	50	23	79	1	0.515	50.113	0.025	2.395	0.023	2.201
14	9	54%	18%	0%	7%	4%	0%	1%	0%	4%	4%	2%	2%	2%	0%	0%	2%	136	590	LD	24	50	23	77	1	0.525	42.105	0.025	2.040	0.023	1.874
14	10	55%	19%	0%	7%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	118	590	LD	24	50	24	74	1	0.529	36.841	0.026	1.800	0.024	1.654
14	11	55%	17%	0%	7%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	104	590	LD	25	50	25	72	1	0.535	32.802	0.027	1.648	0.025	1.517
14	12	56%	16%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	110	590	LD	25	50	25	71	1	0.532	34.508	0.026	1.717	0.024	1.580
14	13	56%	16%	0%	8%	5%	0%	1%	0%	4%	2%	1%	1%	1%	0%	0%	2%	105	590	LD	25	50	25	71	1	0.465	28.830	0.023	1.403	0.021	1.291
14	14	58%	16%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	97	590	LD	25	50	25	71	1	0.454	25.993	0.023	1.290	0.021	1.187
14	15	58%	14%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	101	590	LD	25	50	25	72	1	0.463	27.610	0.023	1.379	0.021	1.269
14	16	59%	14%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	95	590	LD	25	50	24	74	1	0.466	26.142	0.024	1.327	0.022	1.222
14	17	59%	12%	0%	8%	5%	1%	2%	0%	4%	3%	2%	1%	1%	0%	0%	2%	99	590	LD	25	50	24	76	1	0.511	29.829	0.026	1.525	0.024	1.404
14	18	60%	13%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	92	590	LD	25	50	23	77	1	0.467	25.331	0.024	1.283	0.022	1.181
14	19	59%	13%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	0%	0%	0%	2%	80	590	LD	25	50	23	78	1	0.495	23.383	0.024	1.144	0.022	1.052
14	20	59%	14%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	66	590	LD	25	50	23	79	1	0.505	19.681	0.026	0.994	0.024	0.916
14	21	57%	15%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	62	590	LD	25	50	23	80	1	0.534	19.530	0.027	0.981	0.025	0.903
14	22	57%	14%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	63	590	LD	25	50	23	81	1	0.530	19.692	0.027	0.995	0.025	0.916
14	23	56%	16%	0%	7%	4%	0%	2%	0%	4%	4%	2%	2%	2%	0%	0%	2%	55	590	LD	25	50	23	81	1	0.547	17.757	0.028	0.898	0.025	0.827
15	0	36%	23%	0%	9%	5%	0%	0%	0%	9%	5%	5%	5%	5%	0%	0%	0%	22	590	LD	25	50	23	82	1	0.861	11.173	0.045	0.581	0.041	0.535
15	1	33%	20%	0%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	0%	0%	0%	15	590	LD	25	50	22	82	1	1.175	10.402	0.061	0.539	0.056	0.497
15	2	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	3	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	4	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	5	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	6	35%	27%	0%	8%	4%	0%	0%	0%	8%	4%	8%	4%	4%	0%	0%	0%	26	590	LD	25	50	22	83	1	0.852	13.064	0.044	0.673	0.040	0.620
15	7	35%	29%	0%	6%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	49	590	LD	25	50	22	82	1	0.874	25.270	0.043	1.249	0.040	1.151
15	8	36%	31%	0%	5%	3%	0%	0%	0%	7%	5%	5%	3%	5%	0%	0%	0%	59	590	LD	25	50	23	79	1	0.863	30.025	0.042	1.458	0.039	1.343
15	9	35%	29%	0%	6%	4%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	52	590	LD	25	50	23	77	1	0.829	25.438	0.041	1.255	0.038	1.156
15	10	35%	27%	0%	7%	4%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	48	590	LD	25	50	24	74	1	0.881	24.939	0.044	1.257	0.041	1.158
15	11	36%	24%	0%	7%	4%	0%	0%	0%	7%	7%	7%	4%	4%	0%	0%	0%	45	590	LD	25	50	25	72	1	0.899	23.869	0.047	1.239	0.043	1.141
15	12	35%	23%	0%	8%	4%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	48	590	LD	25	50	25	71	1	0.875	24.782	0.046	1.293	0.042	1.191
15	13	35%	21%	0%	8%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	48	590	LD	25	50	25	71	1	0.904	25.589	0.047	1.322	0.043	1.218
15	14	36%	20%	0%	10%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	50	590	LD	25	50	25	71	1	0.878	25.904	0.046	1.345	0.042	1.239
15	15	36%	19%	0%	9%	6%	0%	2%	0%	8%	6%	6%	4%	6%	0%	0%	0%	53	590	LD	25	50	25	72	1	1.020	31.880	0.053	1.656	0.049	1.525
15	16	35%	16%	0%	11%	6%	0%	2%	0%	7%	6%	7%	6%	6%	0%	0%	0%	55	590	LD	25	50	24	74	1	1.107	35.921	0.060	1.932	0.055	1.779
15	17	35%	13%	0%	12%	7%	0%	2%	0%	8%	7%	7%	5%	5%	0%	0%	0%	60	590	LD	25	50	24	76	1	1.059	37.475	0.057	2.023	0.053	1.863
15	18	36%	14%	0%	11%	5%	0%	2%	0%	7%	7%	7%	5%	5%	0%	0%	0%	56	590	LD	25	50	23	77	1	1.103	36.448	0.059	1.955	0.054	1.800
15	19	36%	16%	0%	11%	7%	0%	2%	0%	7%	7%	7%	4%	4%	0%	0%	0%	45	590	LD	25	50	23	78	1	1.031	27.366	0.054	1.438	0.050	1.324
15	20	36%	17%	0%	11%	6%	0%	0%	0%	8%	6%	6%	6%	6%	0%	0%	0%	36	590	LD	25	50	23	79	1	1.023	21.737	0.054	1.157	0.050	1.066
15	21	37%	20%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	30	590	LD	25	50	23	80	1	0.839	14.854	0.043	0.762	0.040	0.701
15	22	37%	20%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	30	590	LD	25	50	23	81	1	0.836	14.798	0.043	0.762	0.040	0.701
15	23	39%	19%	0%	8%	4%	0%	0%	0%	8%	8%	8%	4%	4%	0%	0%	0%	26	590	LD	25	50	23	81	1	0.846	12.981	0.046	0.699	0.042	0.644
16	0	28%	22%	0%	9%	5%	2%	5%	7%	5%	4%	2%	2%	2%	1%	5%	2%	171	200	LD	24	50	23	82	1	1.227	41.956	0.049	1.671	0.045	1.536
16	1	27%	22%	0%	9%	6%	2%	6%	8%	5%	5%	3%	2%	2%	0%	5%	2%	103	200	LD	25	50	22	82	1	1.203	24.776	0.047	0.975	0.044	0.897
16	2	27%	22%	0%	9%	6%	2%	6%	8%	5%	5%	3%	2%	2%	0%	5%	2%	67	200	LD	25	50	22	83	1	1.182	15.834	0.047	0.635	0.044	0.584
16	3	27%	22%	0%	9%	6%	2%	6%	8%	5%	5%	3%	2%	2%	0%	5%	2%	67	200	LD	25	50	22	83	1	1.182	15.834	0.047	0.635	0.044	0.584
16	4	26%	22%	0%	9%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	1%	69	200	LD	25	50	22	83	1	1.287	17.754	0.054	0.746	0.050	0.686
16	5	25%	22%	0%	9%	6%	2%	6%	7%	4%	4%	3%	3%	3%	0%	4%	2%	68	200	LD	25	50	22	83	1	1.306	17.767	0.055	0.744	0.050	0.684
16	6	25%	22%	0%	9%	5%	2%	6%	7%	5%	4%	3%	2%	2%	1%	4%	2%	205	200	LD	24	50	22	83	1	1.329	54.493	0.055	2.246	0.050	2.065
16	7	24%	23%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	375	200	LD	22	50	22	82	1	1.428	107.091	0.061	4.582	0.056	4.213
16	8	24%	23%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	477	200	LD	21	50	23	79	1	1.459	139.234	0.064	6.137	0.059	5.643
16	9	25%	23%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	408	200	LD	22	50	23	77	1	1.401	114.283	0.060	4.862	0.055	4.471
16	10	25%	23%	0%	9%	5%	2%	6%	7%	5%	4%	3%	2%	2%	0%	5%	2%	378	200	LD	22	50	24

2018 without Project

2018 w/o Project		Vehicle Breakdown %															Summary of Emission Factors												
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
22	16	23%	21%	0%	12%	7%	0%	2%	11%	6%	5%	2%	1%	1%	0%	5%	3%	267	330	LD	22	50	24	74	1	1.111	97.902	0.043	3.773	0.039	3.465
22	17	23%	22%	0%	12%	7%	1%	2%	10%	6%	5%	2%	1%	1%	0%	4%	3%	298	330	LD	22	50	24	76	1	1.116	109.734	0.044	4.340	0.041	3.986
22	18	23%	22%	0%	12%	7%	0%	2%	10%	6%	5%	2%	1%	1%	0%	4%	3%	270	330	LD	22	50	23	77	1	1.111	99.009	0.043	3.795	0.039	3.485
22	19	23%	21%	0%	12%	7%	0%	1%	10%	6%	5%	2%	1%	1%	0%	5%	3%	223	330	LD	23	50	23	78	1	1.100	80.920	0.042	3.086	0.039	2.834
22	20	24%	21%	1%	12%	7%	1%	1%	11%	6%	5%	2%	1%	1%	0%	4%	3%	174	330	LD	23	50	23	79	1	1.047	60.140	0.040	2.322	0.037	2.132
22	21	23%	21%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	150	330	LD	24	50	23	80	1	1.015	50.263	0.041	2.016	0.037	1.852
22	22	23%	21%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	148	330	LD	24	50	23	81	1	1.036	50.594	0.042	2.045	0.038	1.878
22	23	23%	21%	0%	12%	7%	1%	2%	11%	6%	6%	2%	2%	2%	0%	4%	3%	126	330	LD	24	50	23	81	1	1.050	43.642	0.043	1.786	0.039	1.640
23	0	35%	9%	0%	11%	7%	2%	4%	0%	2%	7%	4%	4%	0%	9%	4%	4%	46	330	LD	25	50	23	82	1	1.622	24.627	0.065	0.981	0.059	0.902
23	1	38%	8%	0%	13%	8%	0%	4%	0%	0%	4%	4%	4%	0%	8%	4%	4%	24	330	LD	25	50	22	82	1	1.542	12.211	0.059	0.465	0.054	0.427
23	2	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.704	8.995	0.075	0.398	0.069	0.366
23	3	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.704	8.995	0.075	0.398	0.069	0.366
23	4	43%	7%	0%	14%	7%	0%	7%	0%	0%	0%	7%	0%	0%	0%	7%	7%	14	330	LD	25	50	22	83	1	1.189	5.492	0.044	0.203	0.040	0.186
23	5	39%	8%	0%	15%	8%	0%	8%	0%	0%	0%	8%	0%	0%	0%	8%	8%	13	330	LD	25	50	22	83	1	1.285	5.511	0.047	0.202	0.043	0.185
23	6	42%	3%	0%	16%	8%	3%	8%	0%	3%	3%	3%	3%	3%	0%	5%	3%	38	330	LD	25	50	22	83	1	1.353	16.971	0.057	0.719	0.053	0.662
23	7	42%	3%	0%	15%	9%	3%	9%	0%	5%	3%	3%	2%	2%	0%	3%	3%	67	330	LD	25	50	22	82	1	1.176	26.010	0.053	1.177	0.049	1.082
23	8	43%	1%	0%	16%	10%	4%	10%	0%	4%	4%	3%	1%	1%	0%	1%	3%	80	330	LD	25	50	23	79	1	1.108	29.262	0.054	1.433	0.050	1.318
23	9	40%	4%	0%	14%	9%	3%	8%	0%	4%	3%	4%	3%	3%	0%	4%	3%	77	330	LD	25	50	23	77	1	1.305	33.171	0.058	1.476	0.053	1.357
23	10	39%	5%	0%	14%	8%	3%	8%	0%	3%	3%	4%	3%	3%	0%	6%	4%	78	330	LD	25	50	24	74	1	1.434	36.911	0.059	1.511	0.054	1.388
23	11	36%	6%	0%	13%	8%	3%	6%	0%	3%	3%	5%	4%	4%	0%	8%	4%	80	330	LD	25	50	25	72	1	1.569	41.426	0.064	1.698	0.059	1.561
23	12	35%	7%	0%	12%	7%	2%	5%	0%	2%	2%	5%	4%	4%	1%	8%	4%	95	330	LD	24	50	25	71	1	1.749	54.841	0.068	2.120	0.062	1.947
23	13	35%	9%	0%	11%	7%	2%	5%	0%	2%	2%	5%	4%	4%	1%	10%	4%	101	330	LD	24	50	25	71	1	1.800	60.002	0.067	2.227	0.061	2.044
23	14	33%	9%	0%	11%	6%	2%	5%	0%	2%	1%	6%	5%	5%	1%	11%	5%	110	330	LD	24	50	25	71	1	1.890	68.619	0.069	2.519	0.064	2.314
23	15	33%	9%	0%	10%	6%	2%	4%	0%	1%	1%	7%	5%	5%	1%	12%	6%	128	330	LD	24	50	25	72	1	1.931	81.559	0.070	2.964	0.064	2.721
23	16	32%	10%	0%	10%	6%	2%	4%	0%	1%	1%	7%	5%	5%	1%	13%	5%	136	330	LD	24	50	24	74	1	2.026	90.918	0.072	3.253	0.067	2.986
23	17	31%	11%	0%	9%	6%	1%	3%	0%	1%	1%	8%	5%	6%	1%	13%	5%	157	330	LD	23	50	24	76	1	2.141	110.942	0.076	3.943	0.070	3.621
23	18	32%	11%	0%	9%	6%	1%	4%	0%	1%	1%	7%	5%	5%	1%	13%	5%	139	330	LD	24	50	23	77	1	2.043	93.727	0.071	3.274	0.066	3.006
23	19	32%	10%	0%	10%	5%	1%	4%	0%	1%	1%	7%	5%	5%	1%	13%	5%	112	330	LD	24	50	23	78	1	2.047	75.663	0.073	2.697	0.067	2.476
23	20	33%	9%	0%	11%	6%	1%	4%	0%	1%	1%	7%	5%	5%	1%	12%	5%	85	330	LD	25	50	23	79	1	1.899	53.253	0.067	1.879	0.062	1.726
23	21	33%	10%	0%	10%	6%	1%	4%	0%	1%	1%	7%	4%	6%	1%	11%	6%	73	330	LD	25	50	23	80	1	1.893	45.605	0.068	1.637	0.062	1.503
23	22	34%	9%	0%	10%	6%	2%	4%	0%	2%	2%	6%	4%	4%	2%	12%	4%	68	330	LD	25	50	23	81	1	1.888	42.368	0.066	1.476	0.060	1.356
23	23	32%	9%	0%	10%	7%	2%	5%	0%	2%	2%	7%	5%	5%	0%	10%	5%	59	330	LD	25	50	23	81	1	1.827	35.572	0.071	1.388	0.066	1.275
24	0	19%	21%	0%	9%	5%	1%	3%	15%	7%	6%	4%	3%	3%	0%	5%	1%	81	130	LD	25	50	23	82	1	1.222	12.871	0.053	0.554	0.048	0.510
24	1	20%	22%	0%	9%	4%	0%	2%	16%	9%	7%	2%	2%	2%	0%	4%	0%	45	130	LD	25	50	22	82	1	1.124	6.576	0.047	0.275	0.043	0.253
24	2	18%	21%	0%	9%	6%	0%	3%	15%	6%	6%	3%	3%	3%	0%	6%	0%	33	130	LD	25	50	22	83	1	1.372	5.885	0.055	0.238	0.051	0.219
24	3	16%	22%	0%	9%	6%	0%	3%	16%	6%	6%	3%	3%	3%	0%	6%	0%	32	130	LD	25	50	22	83	1	1.415	5.885	0.057	0.237	0.052	0.218
24	4	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	1.446	5.828	0.059	0.237	0.054	0.218
24	5	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	1.446	5.828	0.059	0.237	0.054	0.218
24	6	17%	20%	0%	9%	6%	1%	2%	16%	8%	7%	3%	2%	2%	0%	6%	1%	89	130	LD	25	50	22	83	1	1.264	14.621	0.052	0.597	0.047	0.549
24	7	16%	21%	0%	9%	6%	1%	2%	17%	8%	6%	3%	3%	3%	1%	6%	1%	159	130	LD	25	50	22	82	1	1.329	27.476	0.053	1.094	0.049	1.007
24	8	15%	20%	1%	10%	6%	1%	2%	17%	8%	6%	4%	3%	3%	1%	5%	1%	202	130	LD	24	50	23	79	1	1.339	35.158	0.056	1.462	0.051	1.345
24	9	17%	21%	0%	10%	6%	1%	2%	17%	8%	6%	3%	2%	2%	1%	5%	1%	176	130	LD	25	50	23	77	1	1.286	29.423	0.052	1.200	0.048	1.105
24	10	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	6%	1%	164	130	LD	25	50	24	74	1	1.293	27.566	0.052	1.110	0.048	1.021
24	11	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	5%	1%	155	130	LD	25	50	25	72	1	1.260	25.394	0.051	1.036	0.047	0.954
24	12	18%	21%	0%	9%	5%	1%	3%	15%	8%	6%	3%	2%	2%	1%	5%	1%	174	130	LD	25	50	25	71	1	1.249	28.253	0.051	1.144	0.047	1.052
24	13	19%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	179	130	LD	25	50	25	71	1	1.241	28.880	0.051	1.178	0.047	1.084
24	14	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	182	130	LD	25	50	25	71	1	1.216	28.779	0.050	1.177	0.046	1.083
24	15	21%	22%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	3%	1%	5%	1%	202	130	LD	24	50	25	72	1	1.251	32.859	0.052	1.355	0.047	1.246
24	16	21%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	208	130	LD	24	50	24	74	1	1.248	33.759	0.051	1.390	0.047	1.278
24	17	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	228	130	LD	24	50	24	76	1	1.217	36.064	0.050	1.494	0.046	1.374
24	18	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	209	130	LD	24	50	23	77	1	1.256	34.128	0.051	1.394	0.047	1.282
24	19	21%	23%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	171	130	LD	25	50	23	78	1	1.221	27.154	0.049	1.093	0.045	1.006
24	20	21%	22%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	2%	135	130	LD	25	50	23	79	1	1.196	20.998	0.049	0.858	0.045	0.789
24	21	21%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	3%	3%	0%	5%	1%	117	130	LD	25	50	23	80	1	1.234	18.773	0.051	0.783	0.047	0.720
24	22	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	4%	3%	3%	0%	5%	1%	115	130	LD	25	50	23	81	1	1.241	18.555	0.052	0.777	0.048	0.715
24	23	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	0%	5%	1%	97	130	LD	25	50	23	81	1	1.212	15.283	0.050	0.633	0.046	0.583
25	0	43%	17%	0%	10%	6%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	97	130	LD	25	50	23	82	1	1.057	13.328	0.040	0.507	0.037	0.466
25	1	43%	16%	0%	10%	7%	2%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	58	130	LD	25	50	22	82	1	1.074	8.102	0.040	0.302	0.037	0.277
25	2	42%	15%	0%	11%	7%	2%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	38	130	LD	25	50	22	83	1	1.112	5.492	0.041	0.204	0.038	0.187
25	3	43%	14%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	37	130	LD	25	50	22	83	1	1.132	5.446	0.043	0.205	0.039	0.189
25	4	44%	14%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	36	130	LD	25	50	22	83	1	0.989	4.631	0.042	0.197	0.039	0.181
25	5	43%	14%	0%	14%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	37	130	LD	25	50	22	83	1	0.977	4.701	0.042	0.202	0.039	0.185
25	6	46%	12%	0%	13%	8%	1%	3%	0%	3%	3%	2%	2%	2%	0%	3%	3%	105	130	LD	25	50	22	83	1	0.911	12.439	0.038	0.517	0.035	0.475
25	7	46%	12%	0%	14%	8%	1%	3%	0%	3%	3%	2%	2%	2%	0%	3%	3%	190	130	LD	25	50	22	82	1	0.856	21.134	0.037	0.911	0.034	0.838
25	8	47%	12%	0%	15%	8%	1%	3%	0%	3%	3%	2%	2%	2%	0%	2%	3%	232	130	LD	24	50	23	79	1	0.783	23.614	0.035	1.066	0.032	0.980
25	9	46%	12%	0%	14%	8%	1%	3%	0%	2%	1%	1%	1%	1%	0%	2%	2%	209	130	LD	24	50	23	77	1	0.874	23.747	0.037	1.007	0.034	0.925
25	10	44%	13%	0%	13%	8%	1%	3%	0%	3%	3%	2%	2%	2%	0%	3%	3%	198	130	LD	25	50	24	74	1	0.935	24.064	0.039	1.007	0.036	0.926
25	11	43%	14%	1%	12%	7%	1%	3%	0%	3%	2%	3%	2%	2%	1%	4%	3%	188	130	LD	25	50	25	72	1	1.031	25.197	0.040	0.974	0.037	0.895
25	12	43%	15%	1%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	1%	5%	3%	212	130	LD	24	50	25	71	1	1.123	30.945	0.044	1.200	0.040	1.102
25	13	42%	16%	1%	10%	6%	1%	3%	0%	2%	2%	4%	2%	3%	1%	6%	3%	219	130	LD	24	50	25	71	1	1.179	33.557	0.044	1.264	0.041	1.161
25	14	41%	16%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	6%	4%	226	130	LD	24	50	25	71	1	1.229	36.094	0.045	1.335	0.042	1.226
25	15	41%	17%	0%	9%	6%	1%	3%	0%	2%	2%	4%	3%	3%	0%	7%	4%	254	130	LD	24	50	25	72	1	1.294	42.736	0.047	1.545	0.043	1.419
25	16	39%	18%	0%	8%	5%	1%	3%	0%	2%	2%	4%	3%	3%	0%	8%	4%	264	130	LD	24	50	24	74	1	1.356	46.547	0.048	1.657	0.044	1.521
25	17	39%	18%	0%	8%	5%	1%	3%	0%	2%	1%	4%	3%	3%	1%	8%	4%	295	130	LD	24	50	24	76	1	1.405	53.879	0.049	1.885	0.045	1.731
25	18	39%	18%	0%	8%	5%	1%	3%	0%	2%	2%	4%	3%	3%	0%	8%	4%	265	130	LD	24	50	23	77	1	1.382	47.620	0.048	1.661	0.044	1.525
25	19	40%	18%	0%	8%	5%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	4%	217	130	LD	24	50	23	78	1	1.373	38.725	0.049	1.385	0.045	1.272
25	20	40%	18%	0%	9%	5%	1%	3%	0%	2%	2%	4%	3%	3%	1%	7%	4%	171	130	LD	25	50	23	79	1	1.297	28.837	0.046	1.032	0.043	0.949
25	21	40%	17%	0%	10%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	3%	146	130	LD	25	50	23	80	1	1.251	23.745	0.045	0.846	0.041	0.777
25	22	41%	17%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	6%	4%	144	130	LD	25	50	23	81	1	1.225	22.926	0.044	0.833	0.041	0.765
25	23	42%	17%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	6%	4%	120	130	LD	25	50	23	81	1	1.158	18.059	0.042	0.653	0.038	0.600
26	0	41%	18%	0%	10%	6%	2%	5%	0%	3%	3%	3%	2%	2%	0%	3%	3%	145	130	DD	29	50	23	82	1	0.896	16.881	0.037	0.694	0.034	0.637
26	1	41%	19%	0%	9%	6%	2%	5%	0%	4%	2%	2%	2%	2%	0%	2%	4%	86	130	DD	30	50	22	82	1	0.879	9.826	0.035	0.396	0.033	0.364
26	2	40%	19%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	57	130	DD	30	50	22	83	1	0.835	6.184	0.035	0.257	0.032	0.236
26	3	40%	19%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	57	130	DD	30	50	22	83	1	0.835	6.184	0.035	0.257	0.032	0.236
26	4	39%	20%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	56	130	DD	30	50	22	83	1	0.844	6.145	0.035	0.255	0.032	0.234
26	5	39%	20%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	56	130	DD	30	50	22	83	1	0.844	6.145	0.035	0.255	0.032	0.234
26	6	37%	20%	0%	8%	5%	2%	6%	0%	4%	4%	3%	3%	3%	0%	2%	3%	175	130	DD	29	50	22	83	1	0.962	21.879	0.042	0.958	0.039	0.880
26	7	37%	20%	0%	8%	5%	2%	6%	0%	4%	3%	3%	3%	3%	0%	2%	3%	323	130	DD	27	50	22	82	1	1.025	43.022	0.046	1.922	0.042	1.766
26	8	36%	20%	0%	8%	5%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	3%	413	130	DD	25	50	23	79	1	1.063	57.064	0.049	2.656	0.045	2.442
26	9	37%	20%	0%	9%	5%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	3%	352	130	DD	26	50	23	77	1	1.033	47.290	0.046	2.108	0.042	1.937
26	10	38%	19%	0%	9%	5%	2%	6%	0%	4%	3%	3%	3%	3%	0%	2%	3%	322	130	DD	27	50	24	74	1	0.984	41.175	0.043	1.799	0.039	1.652
26	11	39%	19%	0%	9%	6%	2%	5%	0%	4%	3%	3%	2%	2%	0%	2%	3%	290	130	DD	27	50	25	72	1	0.945	35.645	0.041	1.534	0.037	1.409
26	12	40%	19%	0%	9%	6%	2%	5%	0%	4%	3%	3%	2%	2%	0%	3%	3%	318	130	DD	27	50	25	71	1	0.928	38.379	0.038	1.590	0.035	1.461
26	13	41%	18%	0%	10%	6%	2%	5%	0%	3%	3%	3%	2%	2%	0%	3%	3%	317	130	DD	27	50	25	71	1	0.913	37.610	0.037	1.509	0.034	1.386
26	14	42%	18%	0%	10%	6%	2%	5%	0%	3%	3%	3%	2%	2%	0%	3%	3%	319	130	DD	26	50	25	71	1	0.910	37.743	0.036	1.480	0.033	1.359
26	15	43%	18%	0%	11%	6%	2%	4%	0%	3%	2%	2%	1%	1%	0%	3%	4%	344	130	DD	26	50	25	72	1	0.882	39.429	0.034	1.526	0.031	1.401
26	16	44%	17%	0%	11%	6%	2%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	342	130	DD	27	50	24	74	1	0.853	37.904	0.031	1.376	0.028	1.263
26	17	45%	17%	0%	11%	7%	1%	4%	0%	2%	2%	1%	1%	1%	0%	4%	4%	370	130	DD	26	50	24	76	1	0.850	40.876	0.030	1.444	0.028	1.326
26	18	44%	17%	0%	11%	6%	2%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	343	130	DD	27	50	23	77	1	0.850	37.889	0.031	1.363	0.028	1.251
26	19	44%	17%	0%	11%	6%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	287	130	DD	27	50	23	78	1	0.859	32.060	0.031	1.168	0.029	1.072
26	20	43%	17%	0%	10%	6%	2%	4%	0%	3%	2%	2%	1%	1%	0%	4%	4%	231	130	DD	28	50	23	79	1	0.882	26.498	0.033	0.977	0.030	0.896
26	21	43%	18%	1%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	1%	4%	3%	202	130	DD	28	50	23	80	1	0.851	22.352	0.033	0.877	0.031	0.805
26	22	43%	18%	1%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	200	130	DD	28	50	23	81	1	0.848	22.037	0.033	0.865	0.031	0.794
26	23	42%	18%	0%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	172	130	DD	29	50	23	81	1	0.855	19.129	0.034	0.757	0.031	0.695
27	0	20%	22%	0%	9%	7%	0%	0%	13%	7%	7%	2%	2%	2%	0%	9%	2%	46	130	LD	25	50	23	82	1	1.307	7.815	0.045	0.267	0.041	0.246
27	1	17%	21%	0%	10%	7%	0%	0%	14%	7%	7%	3%	3%	3%	0%	7%	0%	29	130	LD	25	50	22	82	1	1.381	5.205	0.053	0.201	0.049	0.185
27	2	24%	24%	0%	12%	6%	0%	0%	12%	6%	6%	6%	0%	0%	0%	6%	0%	17	130	LD	25	50	22	83	1	0.987	2.182	0.035	0.078	0.032	0.072
27	3	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	4	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	5	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	6	18%	26%	0%	8%	6%	0%	0%	14%	8%	6%	2%	2%	2%	0%	6%	2%	50	130	LD	25	50	22	83	1	1

2018 without Project

2018 w/o Project		Vehicle Breakdown %																			Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
33	12	13%	0%	0%	13%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	42%	0%	24	220	LD	25	50	25	71	1	3.947	20.840	0.089	0.468	0.082	0.430
33	13	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	44%	0%	25	220	LD	25	50	25	71	1	4.039	22.212	0.088	0.483	0.081	0.444
33	14	11%	4%	0%	14%	7%	0%	4%	0%	0%	0%	7%	4%	4%	4%	43%	0%	28	220	LD	25	50	25	71	1	3.884	23.927	0.083	0.510	0.076	0.469
33	15	9%	3%	0%	12%	9%	0%	3%	0%	3%	0%	6%	3%	3%	3%	46%	0%	33	220	LD	25	50	25	72	1	3.914	28.416	0.079	0.570	0.072	0.525
33	16	11%	3%	0%	14%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	46%	0%	37	220	LD	25	50	24	74	1	3.895	31.703	0.076	0.615	0.069	0.566
33	17	9%	2%	0%	11%	7%	2%	5%	0%	2%	0%	5%	5%	5%	2%	46%	0%	44	220	LD	25	50	24	76	1	4.058	39.282	0.089	0.858	0.082	0.790
33	18	11%	3%	0%	13%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	46%	0%	37	220	LD	25	50	23	77	1	3.919	31.904	0.076	0.615	0.069	0.566
33	19	10%	3%	0%	13%	7%	0%	3%	0%	0%	0%	7%	3%	3%	3%	47%	0%	30	220	LD	25	50	23	78	1	4.079	26.920	0.082	0.540	0.075	0.497
33	20	9%	4%	0%	13%	9%	0%	4%	0%	0%	0%	4%	4%	4%	4%	44%	0%	23	220	LD	25	50	23	79	1	4.053	20.510	0.085	0.430	0.078	0.395
33	21	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	80	1	4.302	17.037	0.096	0.381	0.088	0.350
33	22	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	81	1	4.287	16.978	0.096	0.381	0.088	0.350
33	23	13%	0%	0%	13%	7%	0%	7%	0%	0%	0%	7%	7%	7%	0%	40%	0%	15	220	LD	25	50	23	81	1	3.855	12.722	0.102	0.335	0.093	0.308
34	0	28%	25%	0%	14%	9%	2%	7%	0%	4%	4%	2%	2%	2%	0%	0%	4%	57	170	LD	25	50	23	82	1	0.949	9.199	0.044	0.429	0.041	0.394
34	1	28%	25%	0%	14%	8%	3%	6%	0%	3%	3%	3%	3%	3%	0%	0%	3%	36	170	LD	25	50	22	82	1	1.043	6.380	0.049	0.301	0.045	0.277
34	2	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	0%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	3	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	0%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	4	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	0%	0%	0%	0%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	5	26%	26%	0%	13%	9%	4%	9%	0%	4%	4%	4%	0%	0%	0%	0%	0%	23	170	LD	25	50	22	83	1	0.938	3.668	0.043	0.169	0.040	0.155
34	6	24%	27%	0%	16%	9%	3%	7%	1%	4%	3%	3%	1%	1%	0%	0%	1%	71	170	LD	25	50	22	83	1	0.978	11.802	0.045	0.549	0.042	0.505
34	7	22%	26%	1%	15%	9%	2%	7%	2%	4%	4%	3%	2%	2%	0%	0%	1%	135	170	LD	24	50	22	82	1	1.107	25.401	0.053	1.211	0.049	1.114
34	8	22%	27%	1%	15%	9%	2%	8%	1%	5%	4%	3%	2%	2%	0%	0%	1%	171	170	LD	23	50	23	79	1	1.105	32.113	0.053	1.538	0.049	1.415
34	9	23%	26%	1%	15%	9%	2%	8%	1%	5%	4%	3%	2%	2%	0%	0%	1%	146	170	LD	24	50	23	77	1	1.080	26.756	0.051	1.270	0.047	1.168
34	10	25%	27%	0%	15%	9%	2%	7%	1%	4%	3%	2%	2%	2%	0%	0%	2%	127	170	LD	24	50	24	74	1	1.005	21.698	0.047	1.019	0.043	0.937
34	11	26%	26%	0%	15%	9%	3%	7%	1%	3%	3%	3%	2%	2%	0%	0%	3%	117	170	LD	24	50	25	72	1	0.998	19.842	0.048	0.949	0.044	0.872
34	12	28%	26%	0%	14%	8%	2%	6%	1%	3%	3%	2%	2%	2%	0%	0%	3%	125	170	LD	24	50	25	71	1	0.952	20.229	0.045	0.959	0.041	0.881
34	13	29%	25%	0%	14%	8%	2%	6%	1%	3%	2%	2%	2%	2%	0%	0%	4%	125	170	LD	24	50	25	71	1	0.945	20.084	0.045	0.957	0.041	0.879
34	14	30%	25%	0%	13%	7%	2%	6%	1%	3%	2%	2%	2%	2%	0%	1%	5%	126	170	LD	24	50	25	71	1	0.948	20.296	0.043	0.929	0.040	0.852
34	15	32%	24%	0%	12%	8%	2%	6%	1%	3%	2%	2%	2%	2%	0%	1%	5%	133	170	LD	24	50	25	72	1	0.911	20.606	0.041	0.933	0.038	0.855
34	16	31%	24%	0%	12%	7%	2%	6%	1%	3%	2%	2%	2%	2%	0%	1%	6%	130	170	LD	24	50	24	74	1	0.894	19.749	0.040	0.884	0.037	0.810
34	17	36%	24%	0%	11%	6%	1%	5%	0%	3%	2%	1%	2%	1%	0%	1%	7%	140	170	LD	24	50	24	76	1	0.833	19.823	0.038	0.897	0.035	0.821
34	18	35%	24%	0%	12%	7%	2%	5%	0%	2%	2%	2%	2%	2%	0%	1%	6%	130	170	LD	24	50	23	77	1	0.893	19.733	0.040	0.879	0.036	0.805
34	19	34%	24%	0%	12%	7%	2%	6%	0%	3%	2%	2%	2%	2%	0%	1%	6%	110	170	LD	24	50	23	78	1	0.937	17.529	0.042	0.782	0.038	0.717
34	20	33%	24%	0%	13%	7%	2%	6%	0%	2%	2%	2%	1%	1%	0%	0%	6%	87	170	LD	25	50	23	79	1	0.814	12.037	0.038	0.555	0.034	0.509
34	21	32%	24%	0%	13%	8%	3%	5%	0%	3%	3%	3%	1%	1%	0%	0%	5%	78	170	LD	25	50	23	80	1	0.838	11.117	0.039	0.515	0.036	0.472
34	22	31%	24%	0%	13%	8%	3%	6%	0%	3%	3%	3%	1%	1%	0%	0%	5%	78	170	LD	25	50	23	81	1	0.883	11.709	0.041	0.547	0.038	0.502
34	23	30%	25%	0%	13%	8%	2%	6%	0%	3%	3%	3%	2%	2%	0%	0%	5%	67	170	LD	25	50	23	81	1	0.878	9.998	0.041	0.468	0.038	0.430
35	0	16%	8%	0%	11%	6%	11%	13%	11%	8%	3%	2%	1%	1%	0%	0%	0%	38	170	LD	25	50	23	82	1	1.302	8.409	0.072	0.464	0.066	0.427
35	1	12%	8%	0%	12%	8%	4%	12%	12%	12%	8%	4%	4%	4%	0%	0%	0%	25	170	LD	25	50	22	82	1	1.527	6.490	0.082	0.349	0.076	0.321
35	2	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	3	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	4	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	5	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	6	10%	8%	0%	8%	6%	4%	14%	14%	12%	10%	6%	4%	4%	0%	0%	2%	51	170	LD	25	50	22	83	1	1.583	13.721	0.087	0.752	0.080	0.692
35	7	9%	7%	0%	8%	5%	4%	13%	13%	12%	10%	6%	5%	5%	0%	1%	2%	99	170	LD	25	50	22	82	1	1.705	28.696	0.091	1.533	0.084	1.410
35	8	9%	8%	0%	8%	5%	5%	12%	13%	12%	10%	7%	5%	5%	0%	1%	2%	130	170	LD	25	50	23	79	1	1.654	36.562	0.090	1.989	0.083	1.829
35	9	9%	7%	0%	8%	5%	5%	12%	13%	12%	10%	7%	5%	5%	0%	1%	2%	108	170	LD	25	50	23	77	1	1.656	30.403	0.089	1.635	0.082	1.504
35	10	11%	7%	0%	9%	5%	4%	12%	13%	12%	10%	6%	4%	4%	0%	1%	2%	94	170	LD	25	50	24	74	1	1.613	25.778	0.086	1.382	0.080	1.271
35	11	12%	7%	0%	10%	6%	4%	12%	13%	11%	10%	6%	4%	4%	0%	0%	2%	83	170	LD	25	50	25	72	1	1.467	20.702	0.082	1.157	0.075	1.064
35	12	14%	8%	0%	11%	6%	4%	12%	13%	12%	9%	5%	4%	4%	0%	0%	1%	86	170	LD	25	50	25	71	1	1.416	20.708	0.078	1.147	0.072	1.055
35	13	15%	8%	0%	12%	7%	4%	11%	13%	11%	8%	5%	4%	4%	0%	0%	1%	86	170	LD	25	50	25	71	1	1.393	20.362	0.077	1.123	0.071	1.033
35	14	17%	8%	0%	12%	7%	4%	11%	13%	10%	7%	4%	3%	3%	0%	0%	1%	81	170	LD	25	50	25	71	1	1.267	17.451	0.069	0.949	0.063	0.874
35	15	19%	8%	0%	13%	8%	4%	9%	13%	9%	6%	4%	2%	2%	0%	0%	1%	86	170	LD	25	50	25	72	1	1.225	17.904	0.067	0.977	0.061	0.899
35	16	21%	8%	0%	15%	8%	4%	8%	12%	10%	7%	2%	2%	2%	0%	0%	0%	83	170	LD	25	50	24	74	1	1.194	16.844	0.064	0.904	0.059	0.832
35	17	22%	8%	0%	15%	9%	2%	8%	13%	9%	7%	2%	1%	1%	0%	0%	0%	85	170	LD	25	50	24	76	1	1.058	15.289	0.057	0.821	0.052	0.756
35	18	22%	9%	0%	15%	9%	3%	9%	13%	9%	8%	3%	1%	1%	0%	0%	0%	79	170	LD	25	50	23	77	1	1.111	14.923	0.059	0.788	0.054	0.725
35	19	20%	9%	0%	15%	9%	3%	9%	13%	10%	7%	3%	1%	1%	0%	0%	0%	69	170	LD	25	50	23	78	1	1.118	13.109	0.060	0.700	0.055	0.645
35	20	20%	9%	0%	14%	7%	4%	9%	13%	9%	9%	4%	2%	2%	0%	0%	0%	56	170	LD	25	50	23	79	1	1.171	11.151	0.063	0.604	0.058	0.556
35	21	18%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	2%	2%	0%	0%	0%	49	170	LD	25	50	23	80	1	1.250	10.415	0.068	0.564	0.062	0.520
35	22	17%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	3%	3%	0%	0%	0%	52	170	LD	25	50	23	81	1	1.318	11.655	0.071	0.632	0.066	0.581
35	23	15%	9%	0%	11%	7%	4%	11%	13%	11%	9%	4%	2%	2%	0%	0%	2%	46	170	LD	25	50	24	81	1	1.285	10.048	0.071	0.551	0.065	0.507
36	0	19%	24%	0%	19%	11%	3%	11%	0%	3%	3%	3%	0%	0%	0%	5%	0%	37	330	LD	25	50	23	82	1	1.332	16.260	0.049	0.602	0.045	0.554
36	1	17%	26%	0%	17%	13%	4%	9%	0%	4%	4%	0%	0%	0%	0%	4%	0%	23	330	LD	25	50	22	82	1	1.242	9.428	0.043	0.330	0.040	0.304
36	2	19%	25%	0%	19%	13%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	0%	16	330	LD	25	50	22	83	1	1.198	6.326	0.036	0.193	0.034	0.177
36	3	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	1.272	6.295	0.038	0.190	0.035	0.175
36	4	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	1.272	6.295	0.038	0.190	0.035	0.175
36	5	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	1.272	6.295	0.038	0.190	0.035	0.175
36	6	13%	26%	0%	20%	11%	2%	4%	2%	4%	4%	2%	2%	2%	0%	7%	0%	46	330	LD	25	50	22	83	1	1.436	21.793	0.051	0.778	0.047	0.716
36	7	11%	28%	0%	20%	11%	1%	5%	3%	5%	4%	3%	1%	1%	0%	6%	1%	80	330	LD	25	50	22	82	1	1.367	36.096	0.047	1.248	0.043	1.148
36	8	11%	27%	1%	19%	12%	1%	4%	2%	5%	4%	3%	2%	2%	0%	7%	1%	103	330	LD	24	50	23	79	1	1.450	49.301	0.051	1.721	0.047	1.583
36	9	12%	26%	0%	19%	11%	2%	6%	2%	5%	3%	2%	1%	2%	0%	7%	1%	89	330	LD	25	50	23	77	1	1.455	42.735	0.051	1.491	0.047	1.371
36	10	15%	25%	0%	19%	12%	2%	6%	1%	4%	4%	2%	1%	1%	0%	6%	1%	83	330	LD	25	50	24	74	1	1.370	37.530	0.049	1.330	0.045	1.224
36	11	15%	24%	0%	18%	11%	3%	8%	1%	4%	4%	1%	1%	0%	0%	6%	1%	79	330	LD	25	50	25	72	1	1.412	36.804	0.051	1.324	0.047	1.218
36	12	17%	24%	0%	18%	11%	3%	9%	1%	3%	3%	1%	1%	1%	0%	6%	1%	89	330	LD	25	50	25	71	1	1.402	41.162	0.052	1.522	0.048	1.401
36	13	19%	23%	0%	17%	11%	3%	10%	1%	3%	3%	1%	1%	1%	0%	5%	1%	92	330	LD	24	50	25	71	1	1.443	43.799	0.055	1.670	0.051	1.536
36	14	19%	21%	0%	17%	11%	4%	11%	1%	3%	3%	1%	1%	1%	0%	5%	1%	94	330	LD	24	50	25	71	1	1.474	45.735	0.058	1.784	0.053	1.641
36	15	21%	21%	0%	17%	11%	4%	12%	0%	3%	3%	1%	1%	1%	0%	5%	1%	105	330	LD	24	50	25	72	1	1.464	50.744	0.059	2.028	0.054	1.865
36	16	22%	20%	0%	17%	10%	5%	13%	0%	3%	3%	1%	1%	1%	0%	5%	1%	109	330	LD	24	50	24	74	1	1.471	52.915	0.059	2.122	0.054	1.952
36	17	23%	19%	1%	17%	10%	5%	13%	0%	3%	3%	1%	1%	1%	0%	4%	1%	121	330	LD	24	50	24	76	1	1.432	57.179	0.059	2.365	0.054	2.175
36	18	22%	20%	0%	17%	10%	5%	13%	0%	3%	3%	1%	1%	1%	0%	5%	1%	109	330	LD	24	50	23	77	1	1.481	53.270	0.059	2.122	0.054	1.952
36	19	21%	20%	0%	17%	10%	5%	13%	0%	3%	3%	1%	1%	1%	0%	4%	1%	89	330	LD	25	50	23	78	1	1.434	42.108	0.057	1.674	0.052	1.541
36	20	21%	21%	0%	17%	10%	4%	13%	0%	3%	3%	1%	1%	1%	0%	4%	1%	72	330	LD	25	50	23	79	1	1.443	34.277	0.059	1.394	0.054	1.282
36	21	20%	22%	0%	17%	10%	3%	12%	0%	3%	3%	2%	0%	2%	0%	5%	2%	60	330	LD	25	50	23	80	1	1.424	28.186	0.055	1.081	0.050	0.994
36	22	20%	21%	0%	16%	10%	3%	12%	0%	4%	3%	2%	2%	2%	0%	5%	2%	61	330	LD	25	50	23	81	1	1.451	29.214	0.058	1.162	0.053	1.068
36	23	18%	22%	0%	18%	10%	4%	10%	0%	4%	2%	2%	0%	2%	0%	6%	0%	49	330	LD	25	50	23	81	1	1.475	23.857	0.055	0.888	0.051	0.817
37	0	22%	7%	0%	15%	7%	4%	11%	19%	4%	0%	4%	0%	0%	0%	7%	0%	27	330	LD	25	50	23	82	1	1.505	13.407	0.064	0.570	0.059	0.525
37	1	21%	7%	0%	14%	7%	7%	14%	21%	0%	0%	0%	0%	0%	0%	7%	0%	14	330	LD	25	50	22	82	1	1.652	7.635	0.070	0.323	0.064	0.297
37	2	22%	11%	0%	15%	7%	4%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.697	5.039	0.059	0.175	0.054	0.161
37	3	25%	0%	0%	13%	13%	0%	13%	25%	0%	0%	0%	0%	0%	0%	13%	0%	8	330	LD	25	50	22	83	1	1.856	4.901	0.066	0.175	0.061	0.161
37	4	22%	0%	0%	11%	11%	11%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.902	5.650	0.073	0.216	0.067	0.198
37	5	11%	0%	0%	11%	11%	11%	11%	22%	22%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	2.316	6.877	0.094	0.278	0.086	0.256
37	6	14%	4%	0%	14%	7%	7%	18%	25%	0%	0%	4%	0%	0%	0%	7%	0%	28	330	LD	25	50	22	83	1	1.871	17.284	0.085	0.782	0.078	0.720
37	7	12%	2%	0%	14%	8%	6%	18%	26%	0%	0%	2%	2%	2%	0%	6%	2%	50	330	LD	25	50	22	82	1	1.985	32.751	0.093	1.537	0.086	1.414
37	8	10%	2%	0%	14%	8%	6%	21%	27%	0%	0%	2%	2%	2%	0%	6%	2%	63	330	LD	25	50	23	79	1	2.048	42.581	0.097	2.007	0.089	1.846
37	9	12%	3%	0%	14%	9%	7%	17%	24%	0%	0%	2%	2%	2%	0%	7%	2%	58	330	LD	25	50	23	77	1	1.990	38.088	0.090	1.720	0.083	1.582
37	10	15%	4%	0%	13%	7%	6%	15%	24%	2%	0%	2%	2%	2%	0%	7%	2%	54	330	LD	25	50	24	74	1	1.891	33.701	0.085	1.513	0.078	1.392
37	11	18%	4%	0%	14%	8%	4%	14%	22%	2%	2%	2%	2%	2%	0%	6%	2%	51	330	LD	25	50	25	72	1	1.718	28.914	0.080	1.344	0.073	1.236
37	12	20%	5%	0%	14%	9%	3%	12%	20%	2%	2%	2%	2%	2%	0%	7%	2%	59	330	LD	25	50	25	71	1	1.669	32.498	0.073	1.430	0.068	1.315
37	13	22%	7%	0%	14%	9%	3%	10%	19%	2%	2%	2%	2%	2%	0%	7%	2%	59	330	LD	25	50	25	71	1	1.598	31.103	0.069	1.342	0.063	1.234
37	14	24%	7%	0%	13%	8%	3%	10%	18%	3%	2%	2%	2%	2%	0%	7%	2%	62	330	LD	25	50	25	71	1	1.522	31.150	0.066	1.347	0.061	1.240
37	15	26%	9%	0%	13%	7%	3%	7%	17%	3%	3%	1%	1%	1%	0%	7%	1%	70	330	LD	25	50	25	72	1	1.423	32.880	0.059	1.360	0.054	1.252
37	16	28%	9%	0%	13%	7%	3%	6%	16%	3%	3%	3%	1%	1%	0%	7%	1%	71	330	LD	25	50	24	74	1	1.382	32.382	0.057	1.326	0.052	1.220
37	17	29%	9%	0%	13%	7%	1%	6%	16%	3%	3%	3%	1%	1%	0%	8%	1%	79	330	LD	25	50	24	76	1	1.349	35.169	0.053	1.390	0.049	1.279
37	18	29%	9%	0%	13%	7%	1%	6%	16%	3%	3%	3%	1%	1%	0%	7%	1%	70	330	LD	25	50	23	77	1	1.380	31.871	0.056	1.286	0.051	1.183
37	19	28%	9%	0%	12%	7%	2%	7%	16%	3%	3%	2%	2%	2%	0%	7%	2%	58	330	LD	25	50	23	78	1	1.416	27.097	0.058	1.107	0.053	1.018
37	20	26%	9%	0%	13%	7%	2%	7%	17%	2%	2%	2%	2%	2%	0%	7%	2%	46	330	LD	25	50	23	79	1	1.449	22.000	0.062	0.941	0.057	0.866
37	21	24%	7%	0%	12%	7%	2%	7%	17%	2%	2%	2%	2%	2%	0%	7%	2%	41	330	LD	25	50	23	80	1	1.556	21.053	0.066	0.889	0.060	0.818
37	22	22%	7%	0%	12%	7%	2%	10%	17%	2%	2%	2%	2%	2%	0%	7%	2%	41	330	LD	25	50	23	81	1	1.642	22.220	0.070	0.954	0.065	0.877
37	23	24%	6%	0%	12%	9%	3%	9%	18%	3%	3%	3%	3%	3%	0%	6%	0%	34	330	LD	25	50	23	81	1	1.605	18.006	0.073	0.814	0.067	0.750
38	0	21%	18%	1%	18%	11%	4%	15%	4%	6%	3%	2%	1%	1%	0%	7%	1%	57	330	LD	25	50	22	82	1	1.411	26.539	0.066	1.049	0.061	0.965
38	1	20%	17%	0%	17%	9%	3%	9%	0%	6%	6%	3%	3%	3%	0%	6%	0%	35	330	LD	25	50	22	82	1	1.551	17.915	0.062	0.720	0.057	0.662
38	2	24%	19%	0%	19%	10%	5%	10%	0%	5%	5%	0%	0%	0%	0%	5%	0%	21	330	LD	25	50	22	83	1

2018 without Project

2018 w/o Project		Vehicle Breakdown %																	Summary of Emission Factors												
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
44	8	25%	8%	1%	15%	9%	3%	8%	20%	3%	2%	0%	0%	0%	1%	4%	1%	183	70	LD	23	50	23	79	1	1.307	16.746	0.058	0.743	0.053	0.683
44	9	26%	9%	1%	15%	9%	2%	7%	19%	3%	2%	0%	0%	0%	1%	4%	2%	170	70	LD	23	50	23	77	1	1.241	14.763	0.054	0.642	0.050	0.590
44	10	28%	10%	1%	15%	9%	2%	6%	18%	2%	2%	0%	0%	0%	1%	4%	3%	166	70	LD	23	50	24	74	1	1.187	13.791	0.051	0.588	0.047	0.541
44	11	29%	12%	1%	15%	9%	2%	6%	17%	3%	2%	0%	0%	0%	0%	4%	3%	162	70	LD	23	50	25	72	1	1.100	12.475	0.048	0.542	0.044	0.498
44	12	30%	12%	1%	15%	9%	2%	5%	16%	2%	2%	0%	0%	0%	1%	4%	3%	191	70	LD	23	50	25	71	1	1.088	14.546	0.045	0.602	0.041	0.553
44	13	31%	13%	1%	15%	9%	2%	4%	15%	3%	2%	0%	0%	0%	1%	4%	3%	203	70	LD	23	50	25	71	1	1.031	14.644	0.042	0.602	0.039	0.553
44	14	32%	14%	1%	15%	9%	1%	3%	14%	2%	2%	0%	0%	0%	1%	4%	3%	213	70	LD	23	50	25	71	1	1.001	14.927	0.040	0.591	0.036	0.543
44	15	34%	14%	0%	14%	9%	1%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	245	70	LD	22	50	25	72	1	0.986	16.906	0.039	0.676	0.036	0.621
44	16	34%	15%	0%	14%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	258	70	LD	22	50	24	74	1	0.980	17.698	0.038	0.679	0.035	0.623
44	17	35%	15%	0%	14%	9%	1%	2%	12%	2%	2%	0%	0%	0%	0%	4%	4%	294	70	LD	22	50	24	76	1	0.922	18.970	0.035	0.730	0.033	0.669
44	18	34%	15%	0%	15%	8%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	262	70	LD	22	50	23	77	1	0.978	17.934	0.037	0.685	0.034	0.629
44	19	34%	15%	1%	15%	8%	1%	2%	13%	2%	2%	0%	0%	0%	1%	4%	4%	214	70	LD	23	50	23	78	1	0.965	14.454	0.037	0.549	0.034	0.504
44	20	33%	15%	1%	15%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	165	70	LD	24	50	23	79	1	0.917	10.596	0.036	0.412	0.033	0.378
44	21	33%	14%	1%	14%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	4%	139	70	LD	24	50	23	80	1	0.930	9.048	0.036	0.354	0.033	0.325
44	22	32%	13%	1%	15%	9%	2%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	136	70	LD	24	50	23	81	1	0.956	9.104	0.038	0.362	0.035	0.332
44	23	32%	14%	0%	14%	9%	1%	4%	14%	2%	2%	0%	0%	0%	0%	5%	4%	111	70	LD	24	50	23	81	1	0.980	7.611	0.039	0.302	0.036	0.277
45	0	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	3%	313	70	LD	24	50	23	82	1	1.235	27.068	0.052	1.148	0.048	1.055
45	1	27%	21%	1%	12%	7%	4%	12%	6%	2%	1%	1%	1%	1%	0%	3%	3%	188	70	LD	25	50	22	82	1	1.231	16.201	0.051	0.678	0.047	0.623
45	2	27%	21%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	123	70	LD	25	50	22	83	1	1.200	10.329	0.050	0.428	0.046	0.394
45	3	27%	21%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.202	10.264	0.050	0.425	0.046	0.391
45	4	27%	22%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.191	10.171	0.049	0.422	0.045	0.388
45	5	27%	22%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.236	10.553	0.051	0.440	0.047	0.404
45	6	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	3%	369	70	LD	23	50	22	83	1	1.340	34.610	0.057	1.485	0.053	1.364
45	7	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	673	70	LD	21	50	22	82	1	1.418	66.808	0.063	2.977	0.058	2.735
45	8	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	4%	854	70	LD	19	50	23	79	1	1.516	90.614	0.070	4.186	0.064	3.846
45	9	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	735	70	LD	20	50	23	77	1	1.455	74.885	0.066	3.373	0.060	3.100
45	10	27%	22%	0%	11%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	680	70	LD	21	50	24	74	1	1.399	66.593	0.062	2.960	0.057	2.720
45	11	27%	21%	0%	12%	7%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	618	70	LD	21	50	25	72	1	1.360	58.855	0.061	2.638	0.056	2.424
45	12	27%	21%	0%	12%	7%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	685	70	LD	21	50	25	71	1	1.363	65.362	0.060	2.696	0.056	2.661
45	13	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	689	70	LD	21	50	25	71	1	1.359	65.533	0.060	2.894	0.055	2.660
45	14	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	694	70	LD	21	50	25	71	1	1.353	65.712	0.059	2.878	0.054	2.646
45	15	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	762	70	LD	20	50	25	72	1	1.386	73.936	0.062	3.284	0.057	3.020
45	16	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	767	70	LD	20	50	24	74	1	1.391	74.662	0.061	3.275	0.056	3.012
45	17	27%	19%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	836	70	LD	19	50	24	76	1	1.396	81.705	0.062	3.641	0.057	3.348
45	18	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	769	70	LD	20	50	23	77	1	1.400	75.382	0.061	3.276	0.056	3.012
45	19	27%	20%	0%	15%	9%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	639	70	LD	21	50	23	78	1	1.352	60.474	0.059	2.628	0.054	2.416
45	20	27%	20%	0%	15%	9%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	508	70	LD	22	50	23	79	1	1.302	46.297	0.056	1.986	0.051	1.826
45	21	27%	20%	1%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	443	70	LD	22	50	23	80	1	1.298	40.264	0.056	1.729	0.051	1.590
45	22	27%	20%	1%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	3%	441	70	LD	23	50	23	81	1	1.251	38.630	0.054	1.658	0.049	1.523
45	23	27%	21%	0%	13%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	3%	378	70	LD	23	50	23	81	1	1.275	33.725	0.055	1.449	0.050	1.331
46	0	20%	16%	0%	9%	6%	8%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	144	280	LD	23	50	23	82	1	1.747	70.432	0.088	3.541	0.081	3.256
46	1	20%	17%	0%	8%	5%	8%	25%	8%	2%	1%	1%	1%	1%	0%	2%	1%	84	280	LD	24	50	22	82	1	1.697	39.919	0.082	1.922	0.075	1.767
46	2	19%	18%	0%	9%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	2%	2%	57	280	LD	25	50	22	83	1	1.606	25.628	0.076	1.221	0.070	1.123
46	3	19%	18%	0%	7%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	2%	2%	57	280	LD	25	50	22	83	1	1.702	27.171	0.077	1.227	0.071	1.129
46	4	18%	18%	0%	7%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	4%	2%	56	280	LD	25	50	22	83	1	1.731	27.141	0.078	1.222	0.072	1.124
46	5	18%	19%	0%	7%	4%	9%	26%	9%	2%	2%	0%	0%	0%	0%	4%	2%	57	280	LD	25	50	22	83	1	1.741	27.788	0.079	1.264	0.073	1.163
46	6	16%	19%	0%	7%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	2%	172	280	LD	23	50	22	83	1	1.873	90.194	0.090	4.357	0.083	4.005
46	7	16%	20%	0%	6%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	3%	317	280	LD	20	50	22	82	1	2.110	187.264	0.104	9.269	0.096	8.522
46	8	15%	20%	0%	6%	4%	9%	26%	9%	2%	2%	1%	1%	1%	0%	3%	3%	402	280	LD	18	50	23	79	1	2.245	252.649	0.115	12.982	0.106	11.936
46	9	16%	19%	0%	7%	4%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	346	280	LD	20	50	23	77	1	2.080	201.534	0.104	10.077	0.096	9.265
46	10	17%	19%	0%	7%	4%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	318	280	LD	20	50	24	74	1	2.044	181.962	0.103	9.197	0.095	8.456
46	11	18%	17%	0%	8%	5%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	288	280	LD	21	50	25	72	1	1.905	153.620	0.096	7.711	0.088	7.091
46	12	20%	17%	0%	8%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	3%	2%	315	280	LD	20	50	25	71	1	1.949	171.874	0.100	8.782	0.092	8.076
46	13	21%	16%	0%	9%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	2%	316	280	LD	20	50	25	71	1	1.915	169.454	0.099	8.730	0.091	8.029
46	14	22%	15%	0%	10%	6%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	1%	317	280	LD	20	50	25	71	1	1.880	166.872	0.098	8.696	0.090	7.998
46	15	23%	14%	0%	10%	6%	8%	23%	8%	2%	1%	1%	0%	0%	0%	2%	1%	346	280	LD	20	50	25	72	1	1.839	178.194	0.097	9.382	0.089	8.630
46	16	24%	13%	0%	11%	6%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	343	280	LD	20	50	24	74	1	1.826	175.356	0.096	9.228	0.088	8.489
46	17	25%	12%	0%	11%	7%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	374	280	LD	19	50	24	76	1	1.852	193.948	0.100	10.449	0.092	9.615
46	18	24%	13%	0%	11%	6%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	344	280	LD	20	50	23	77	1	1.835	176.718	0.096	9.247	0.088	8.508
46	19	24%	13%	0%	11%	6%	8%	23%	7%	2%	1%	0%	0%	0%	0%	2%	1%	284	280	LD	21	50	23	78	1	1.789	142.225	0.092	7.333	0.085	6.747
46	20	23%	14%	0%	10%	6%	8%	24%	7%	2%	2%	0%	0%	0%	0%	2%	1%	230	280	LD	22	50	23	79	1	1.731	111.498	0.088	5.696	0.081	5.239
46	21	22%	14%	1%	10%	6%	8%	23%	7%	2%	2%	1%	1%	1%	0%	2%	1%	202	280	LD	22	50	23	80	1	1.751	99.036	0.089	5.033	0.082	4.630
46	22	22%	15%	1%	9%	5%	8%	24%	7%	2%	2%	1%	1%	1%	0%	2%	2%	202	280	LD	22	50	23	81	1	1.756	99.310	0.090	5.072	0.082	4.665
46	23	21%	15%	0%	9%	5%	9%	24%	8%	2%	2%	1%	1%	1%	0%	2%	1%	171	280	LD	23	50	23	81	1	1.751	83.831	0.087	4.185	0.080	3.848
47	0	13%	43%	0%	11%	6%	2%	4%	19%	0%	0%	0%	0%	0%	0%	0%	0%	47	280	LD	25	50	23	82	1	0.808	10.630	0.038	0.495	0.035	0.456
47	1	15%	41%	0%	11%	7%	0%	4%	22%	0%	0%	0%	0%	0%	0%	0%	0%	27	280	LD	25	50	22	82	1	0.760	5.743	0.034	0.256	0.031	0.236
47	2	13%	38%	0%	13%	6%	0%	6%	25%	0%	0%	0%	0%	0%	0%	0%	0%	16	280	LD	25	50	22	83	1	0.857	3.842	0.041	0.184	0.038	0.170
47	3	13%	33%	0%	13%	7%	0%	7%	27%	0%	0%	0%	0%	0%	0%	0%	0%	15	280	LD	25	50	22	83	1	0.885	3.715	0.044	0.184	0.040	0.169
47	4	14%	29%	0%	14%	7%	0%	7%	29%	0%	0%	0%	0%	0%	0%	0%	0%	14	280	LD	25	50	22	83	1	0.913	3.579	0.047	0.183	0.043	0.169
47	5	17%	25%	0%	8%	8%	0%	8%	33%	0%	0%	0%	0%	0%	0%	0%	0%	12	280	LD	25	50	22	83	1	0.966	3.247	0.051	0.170	0.047	0.157
47	6	13%	20%	0%	10%	5%	3%	8%	30%	3%	3%	3%	3%	3%	0%	0%	0%	40	280	LD	25	50	22	83	1	1.226	13.731	0.068	0.763	0.063	0.703
47	7	13%	14%	0%	11%	6%	3%	8%	36%	2%	2%	3%	2%	2%	0%	0%	0%	64	280	LD	25	50	22	82	1	1.227	21.991	0.079	1.258	0.065	1.158
47	8	11%	7%	0%	11%	7%	3%	8%	41%	3%	1%	4%	3%	3%	0%	0%	0%	74	280	LD	25	50	23	79	1	1.370	28.383	0.082	1.696	0.075	1.562
47	9	12%	19%	0%	11%	7%	3%	7%	33%	1%	1%	3%	1%	3%	0%	0%	0%	75	280	LD	25	50	23	77	1	1.220	25.630	0.067	1.417	0.062	1.304
47	10	13%	27%	0%	10%	6%	3%	5%	28%	1%	1%	3%	1%	1%	0%	0%	0%	78	280	LD	25	50	24	74	1	1.035	22.608	0.056	1.214	0.051	1.117
47	11	13%	33%	0%	10%	6%	1%	5%	24%	1%	1%	1%	1%	1%	0%	0%	0%	78	280	LD	25	50	25	72	1	0.960	20.960	0.049	1.073	0.045	0.988
47	12	13%	38%	0%	10%	6%	1%	4%	22%	1%	1%	1%	1%	1%	0%	0%	0%	97	280	LD	25	50	25	71	1	0.871	23.658	0.042	1.147	0.039	1.057
47	13	13%	43%	0%	10%	7%	1%	4%	19%	1%	1%	1%	1%	1%	0%	0%	0%	108	280	LD	24	50	25	71	1	0.852	25.753	0.040	1.206	0.037	1.109
47	14	14%	47%	0%	10%	6%	1%	3%	16%	0%	0%	1%	1%	1%	0%	0%	1%	116	280	LD	24	50	25	71	1	0.793	25.751	0.035	1.152	0.033	1.059
47	15	14%	50%	0%	10%	6%	1%	2%	15%	0%	0%	1%	1%	1%	0%	0%	1%	137	280	LD	24	50	25	72	1	0.734	28.165	0.031	1.199	0.029	1.102
47	16	14%	52%	0%	10%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	149	280	LD	24	50	24	74	1	0.730	30.449	0.029	1.230	0.027	1.130
47	17	14%	53%	0%	10%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	174	280	LD	24	50	24	76	1	0.698	33.993	0.027	1.322	0.025	1.216
47	18	14%	52%	0%	10%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	155	280	LD	24	50	23	77	1	0.712	30.921	0.028	1.214	0.026	1.116
47	19	14%	51%	0%	11%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	124	280	LD	24	50	23	78	1	0.757	26.269	0.031	1.085	0.029	0.997
47	20	14%	49%	0%	10%	6%	1%	2%	14%	0%	0%	1%	1%	1%	0%	0%	1%	96	280	LD	25	50	23	79	1	0.767	20.623	0.032	0.858	0.029	0.789
47	21	14%	48%	0%	10%	6%	1%	3%	15%	0%	0%	1%	0%	1%	0%	0%	0%	79	280	LD	25	50	23	80	1	0.777	17.177	0.033	0.724	0.030	0.666
47	22	13%	45%	0%	11%	7%	1%	3%	16%	0%	0%	1%	1%	1%	0%	0%	0%	75	280	LD	25	50	23	81	1	0.839	17.616	0.038	0.791	0.035	0.729
47	23	13%	44%	0%	10%	7%	2%	3%	18%	0%	0%	2%	0%	2%	0%	0%	0%	61	280	LD	25	50	23	81	1	0.848	14.479	0.038	0.651	0.035	0.600
48	0	5%	6%	0%	11%	6%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	2%	65	300	LD	25	50	23	82	1	2.585	50.412	0.134	2.619	0.124	2.409
48	1	5%	8%	0%	10%	5%	18%	53%	0%	0%	0%	0%	0%	0%	0%	0%	3%	40	300	LD	25	50	22	82	1	2.599	31.188	0.133	1.593	0.122	1.465
48	2	4%	8%	0%	8%	4%	19%	54%	0%	0%	0%	0%	0%	0%	0%	0%	4%	26	300	LD	25	50	22	83	1	2.646	20.640	0.136	1.060	0.125	0.975
48	3	4%	8%	0%	8%	4%	19%	54%	0%	0%	0%	0%	0%	0%	0%	0%	4%	26	300	LD	25	50	22	83	1	2.646	20.640	0.136	1.060	0.125	0.975
48	4	7%	7%	0%	7%	4%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	4%	27	300	LD	25	50	22	83	1	2.554	20.691	0.131	1.064	0.121	0.978
48	5	7%	7%	0%	7%	4%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	4%	27	300	LD	25	50	22	83	1	2.554	20.691	0.131	1.064	0.121	0.978
48	6	6%	10%	0%	7%	5%	18%	51%	0%	0%	0%	0%	0%	0%	0%	0%	4%	83	300	LD	24	50	22	83	1	2.602	64.791	0.135	3.371	0.124	3.098
48	7	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	4%	154	300	LD	23	50	22	82	1	2.719	125.632	0.144	6.664	0.133	6.125
48	8	6%	11%	0%	6%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	4%	197	300	LD	22	50	23	79	1	2.793	165.071	0.152	8.971	0.140	8.247
48	9	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	4%	168	300	LD	22	50	23	77	1	2.828	142.540	0.153	7.700	0.140	7.079
48	10	6%	9%	0%	8%	5%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	3%	153	300	LD	23	50	24	74	1	2.741	125.794	0.147	6.734	0.135	6.190
48	11	5%	8%	0%	9%	5%	18%	51%	0%	0%	0%	1%	0%	0%	0%	0%	3%	135	300	LD	23	50	25	72	1	2.690	108.964	0.145	5.879	0.133	5.404
48	12	5%	7%	0%	10%	5%	18%	51%	0%	0%	0%	1%	0%	0%	0%	0%	3%	148	300	LD	23	50	25	71	1	2.724	120.957	0.147	6.514	0.135	5.989
48	13	6%	6%	0%	10%	6%	18%	52%	0%	0%	0%	0%	0%	0%	0%	0%	2%	144	300	LD	23	50	25	71	1	2.751	118.847	0.148	6.385	0.136	5.871
48	14	5%	5%	0%	11%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	143	300	LD	23	50	25	71	1	2.778	119.185	0.149	6.400	0.137	5.885
48	15	5%	4%	0%	12%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	155	300	LD	22	50	25	72	1	2.863	133.122	0.157	7.311	0.145	6.725
48	16	5%	3%	1%	13%	8%	18%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	153	300	LD	23	50	24	74	1	2.814	129.166	0.150	6.908	0.138	6.353
48	17	4%	1%	1%	14%	9%	18%	52%	0%	1%	0%	0%	0%	0%	0%	0%	0%	164	300	LD	22	50	24	76	1	2.906	142.988	0.159	7.840	0.147	7.213
48	18	5%	2%	1%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	151	300	LD	23	50	23	77	1	2.862	129.639	0.152	6.897	0.140	6.344
48	19	5%	2%	0%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	127	300	LD	23	50	23	78	1	2.850	108.584	0.152	5.793	0.140	5.328
48	20	5%	3%	0%	13%	8%	18%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	103	300	LD	24	50	23	79	1	2.723	84.132	0.143	4.419	0.132	4.064
48	21	4%	4%	0%	12%	7%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	90	300	LD	24	50	23	80	1	2.701	72.920	0.142	3.847	0.131	3.538
48	22	6%	4%	0%	11%	7%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	90	300	LD	24	50	23	81

2018 with Project

2018 w/ Project		Vehicle Breakdown %																	Summary of Emission Factors										
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
1	0	37%	11%	1%	19%	12%	2%	4%	0%	2%	1%	1%	1%	1%	4%	7%	197	230	EX	70	70	23	82	0	0.674	30.532	0.020	0.908	0.018	0.833
1	1	37%	11%	1%	20%	12%	1%	4%	0%	2%	1%	1%	0%	0%	4%	7%	115	230	EX	70	70	22	82	0	0.639	16.903	0.017	0.443	0.015	0.406
1	2	37%	11%	0%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	7%	75	230	EX	70	70	22	83	0	0.643	11.086	0.018	0.302	0.016	0.278
1	3	37%	11%	0%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	76	230	EX	70	70	22	83	0	0.635	11.109	0.017	0.303	0.016	0.278
1	4	36%	11%	0%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	76	230	EX	70	70	22	83	0	0.651	11.381	0.018	0.311	0.016	0.285
1	5	36%	11%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	5%	8%	112	230	EX	70	70	22	83	0	0.661	17.019	0.017	0.447	0.016	0.409
1	6	35%	10%	0%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	224	230	EX	70	70	22	83	0	0.664	34.232	0.018	0.911	0.016	0.835
1	7	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	372	230	EX	70	70	22	82	0	0.674	57.630	0.018	1.540	0.016	1.412
1	8	34%	10%	1%	23%	14%	1%	4%	0%	1%	1%	0%	0%	0%	4%	9%	483	230	EX	70	70	23	79	0	0.670	74.418	0.018	2.001	0.017	1.835
1	9	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	491	230	EX	70	70	23	77	0	0.680	76.825	0.019	2.143	0.017	1.965
1	10	35%	10%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	8%	457	230	EX	70	70	24	74	0	0.663	69.654	0.019	1.969	0.017	1.806
1	11	36%	11%	1%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	7%	429	230	EX	70	70	25	72	0	0.653	62.961	0.018	1.777	0.017	1.630
1	12	37%	11%	1%	20%	12%	1%	4%	0%	1%	1%	1%	0%	0%	4%	7%	425	230	EX	70	70	25	71	0	0.652	63.701	0.019	1.835	0.017	1.684
1	13	38%	11%	1%	20%	12%	1%	4%	0%	1%	1%	1%	0%	0%	4%	7%	429	230	EX	70	70	25	71	0	0.646	63.779	0.019	1.834	0.017	1.684
1	14	38%	12%	1%	19%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	432	230	EX	70	70	25	71	0	0.645	64.084	0.019	1.879	0.017	1.725
1	15	39%	12%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	473	230	EX	70	70	25	72	0	0.630	68.518	0.019	2.059	0.017	1.891
1	16	40%	13%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	5%	517	230	EX	70	70	24	74	0	0.638	75.854	0.019	2.253	0.017	2.069
1	17	41%	13%	0%	17%	10%	1%	4%	0%	2%	1%	1%	0%	1%	4%	5%	521	230	EX	70	70	24	76	0	0.625	74.930	0.019	2.266	0.017	2.082
1	18	40%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	0%	4%	5%	440	230	EX	70	70	23	77	0	0.645	65.239	0.019	1.960	0.018	1.801
1	19	39%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	1%	4%	5%	360	230	EX	70	70	23	78	0	0.654	54.175	0.020	1.642	0.018	1.508
1	20	39%	12%	1%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	316	230	EX	70	70	23	79	0	0.631	45.839	0.018	1.334	0.017	1.225
1	21	39%	12%	1%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	6%	275	230	EX	70	70	23	80	0	0.654	41.349	0.019	1.203	0.017	1.105
1	22	38%	12%	0%	19%	11%	1%	4%	0%	1%	1%	0%	0%	0%	4%	6%	236	230	EX	70	70	23	81	0	0.650	35.302	0.019	1.043	0.018	0.958
1	23	38%	12%	0%	19%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	6%	235	230	EX	70	70	23	81	0	0.652	35.235	0.019	1.042	0.018	0.956
2	0	40%	10%	1%	17%	10%	1%	3%	1%	3%	3%	1%	1%	1%	3%	6%	208	420	EX	70	70	23	82	0	0.620	54.137	0.020	1.744	0.018	1.602
2	1	41%	10%	1%	17%	10%	1%	3%	0%	3%	3%	1%	1%	0%	3%	6%	123	420	EX	70	70	22	82	0	0.612	31.622	0.020	1.052	0.019	0.966
2	2	40%	11%	0%	17%	9%	1%	4%	0%	4%	2%	1%	1%	1%	0%	4%	6%	85	420	EX	70	70	22	83	0	0.644	22.975	0.023	0.810	0.021	0.744
2	3	42%	11%	0%	16%	10%	1%	4%	0%	4%	2%	1%	1%	1%	0%	4%	5%	84	420	EX	70	70	22	83	0	0.642	22.667	0.023	0.799	0.021	0.735
2	4	41%	11%	0%	16%	9%	1%	4%	0%	4%	2%	1%	1%	1%	0%	4%	5%	86	420	EX	70	70	22	83	0	0.640	23.133	0.023	0.821	0.021	0.754
2	5	42%	12%	0%	15%	9%	2%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	127	420	EX	70	70	22	83	0	0.588	31.370	0.020	1.063	0.018	0.976
2	6	42%	13%	0%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	256	420	EX	70	70	22	83	0	0.598	64.333	0.020	2.129	0.018	1.957
2	7	43%	13%	1%	14%	8%	1%	4%	1%	4%	3%	1%	1%	1%	0%	3%	5%	428	420	EX	70	70	22	82	0	0.591	106.166	0.019	3.467	0.018	3.186
2	8	43%	14%	0%	13%	8%	1%	4%	1%	4%	3%	1%	1%	1%	0%	3%	4%	558	420	EX	70	70	23	79	0	0.570	133.489	0.018	4.299	0.017	3.951
2	9	43%	13%	0%	14%	8%	1%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	555	420	EX	70	70	23	77	0	0.579	134.954	0.018	4.308	0.017	3.958
2	10	42%	12%	0%	15%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	3%	5%	506	420	EX	70	70	24	74	0	0.594	126.236	0.019	4.060	0.018	3.733
2	11	41%	11%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	462	420	EX	70	70	25	72	0	0.596	115.642	0.019	3.766	0.018	3.459
2	12	41%	11%	0%	16%	10%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	458	420	EX	70	70	25	71	0	0.614	118.185	0.020	3.883	0.019	3.566
2	13	40%	9%	0%	17%	10%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	454	420	EX	70	70	25	71	0	0.625	119.139	0.021	3.927	0.019	3.606
2	14	39%	8%	0%	18%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	450	420	EX	70	70	25	71	0	0.633	119.611	0.021	3.921	0.019	3.600
2	15	39%	7%	0%	19%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	486	420	EX	70	70	25	72	0	0.636	129.870	0.021	4.193	0.019	3.848
2	16	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	524	420	EX	70	70	24	74	0	0.659	144.934	0.021	4.616	0.019	4.236
2	17	37%	6%	1%	21%	13%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	520	420	EX	70	70	24	76	0	0.665	145.167	0.021	4.669	0.020	4.285
2	18	37%	6%	1%	21%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	442	420	EX	70	70	23	77	0	0.668	123.949	0.021	3.981	0.020	3.653
2	19	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	382	420	EX	70	70	23	78	0	0.664	100.887	0.021	3.166	0.019	2.906
2	20	38%	7%	1%	19%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	325	420	EX	70	70	23	79	0	0.653	89.188	0.021	2.849	0.019	2.616
2	21	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	283	420	EX	70	70	23	80	0	0.645	76.653	0.021	2.477	0.019	2.274
2	22	39%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	246	420	EX	70	70	23	81	0	0.646	66.732	0.020	2.110	0.019	1.938
2	23	40%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	248	420	EX	70	70	23	81	0	0.634	66.081	0.020	2.100	0.019	1.929
3	0	36%	17%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	731	530	EX	70	70	23	82	0	0.673	260.856	0.024	9.112	0.022	8.376
3	1	36%	18%	1%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	439	530	EX	70	70	22	82	0	0.691	160.780	0.024	5.591	0.022	5.140
3	2	36%	18%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	293	530	EX	70	70	22	83	0	0.686	106.552	0.023	3.649	0.022	3.355
3	3	36%	19%	0%	13%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	295	530	EX	70	70	22	83	0	0.690	107.805	0.025	3.831	0.023	3.522
3	4	36%	19%	0%	12%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	295	530	EX	70	70	22	83	0	0.689	107.694	0.024	3.821	0.022	3.513
3	5	36%	19%	0%	12%	7%	3%	7%	0%	3%	3%	1%	1%	1%	0%	3%	5%	448	530	EX	70	70	22	83	0	0.682	162.018	0.024	5.656	0.022	5.199
3	6	36%	20%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	899	530	EX	70	70	22	83	0	0.692	329.515	0.024	11.670	0.023	10.730
3	7	36%	20%	0%	11%	7%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	1510	530	EX	69	70	22	82	0	0.697	558.131	0.025	19.860	0.023	18.271
3	8	36%	20%	0%	11%	6%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	1980	530	EX	64	70	23	79	0	0.700	734.281	0.024	25.264	0.022	23.243
3	9	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1958	530	EX	64	70	23	77	0	0.705	731.675	0.024	24.570	0.022	22.604
3	10	36%	19%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1798	530	EX	66	70	24	74	0	0.688	655.989	0.023	22.320	0.022	20.493
3	11	36%	19%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1631	530	EX	68	70	25	72	0	0.680	587.988	0.024	20.437	0.022	18.787
3	12	35%	18%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1626	530	EX	68	70	25	71	0	0.689	593.667	0.024	20.311	0.022	18.671
3	13	36%	17%	0%	14%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1597	530	EX	68	70	25	71	0	0.686	580.697	0.023	19.838	0.022	18.235
3	14	35%	16%	0%	15%	9%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1587	530	EX	69	70	25	71	0	0.682	573.307	0.023	19.374	0.021	17.820
3	15	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1720	530	EX	67	70	25	72	0	0.677	616.967	0.022	20.423	0.021	18.747
3	16	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1837	530	EX	66	70	24	76	0	0.680	661.723	0.022	21.179	0.020	19.440
3	17	35%	14%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1812	530	EX	66	70	24	76	0	0.678	650.690	0.022	20.948	0.020	19.227
3	18	35%	15%	1%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1539	530	EX	69	70	23	77	0	0.683	556.799	0.022	17.981	0.020	16.536
3	19	36%	15%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1265	530	EX	70	70	23	78	0	0.682	457.383	0.023	15.164	0.021	13.936
3	20	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1137	530	EX	70	70	23	79	0	0.680	409.851	0.023	13.711	0.021	12.602
3	21	35%	16%	0%	16%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	1007	530	EX	70	70	23	80	0	0.685	365.826	0.023	12.357	0.021	11.358
3	22	36%	17%	0%	15%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	859	530	EX	70	70	23	81	0	0.675	307.499	0.023	10.500	0.021	9.652
3	23	36%	17%	0%	15%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	862	530	EX	70	70	23	81	0	0.671	306.344	0.023	10.493	0.021	9.646
4	0	34%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	671	360	EX	70	70	23	82	0	0.729	176.084	0.023	5.572	0.021	5.122
4	1	35%	18%	1%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	4%	408	360	EX	70	70	22	82	0	0.731	107.299	0.023	3.334	0.021	3.065
4	2	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	270	360	EX	70	70	22	83	0	0.741	72.031	0.023	2.203	0.021	2.025
4	3	33%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	270	360	EX	70	70	22	83	0	0.743	72.204	0.023	2.208	0.021	2.029
4	4	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	4%	4%	273	360	EX	70	70	22	83	0	0.753	74.022	0.023	2.243	0.021	2.062
4	5	33%	19%	1%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	409	360	EX	70	70	22	83	0	0.728	107.207	0.022	3.242	0.020	2.980
4	6	32%	19%	0%	16%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	828	360	EX	70	70	22	83	0	0.749	223.203	0.023	6.788	0.021	6.240
4	7	32%	20%	0%	17%	10%	3%	9%	0%	1%	1%	1%	0%	0%	3%	4%	1390	360	EX	70	70	22	82	0	0.736	368.079	0.022	11.159	0.020	10.258
4	8	31%	20%	1%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	1821	360	EX	66	70	23	79	0	0.737	483.448	0.022	14.392	0.020	13.213
4	9	32%	19%	1%	17%	10%	3%	8%	0%	1%	1%	0%	0%	0%	3%	4%	1801	360	EX	66	70	23	77	0	0.746	483.747	0.022	14.398	0.020	13.218
4	10	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	4%	1647	360	EX	67	70	24	74	0	0.743	440.630	0.023	13.386	0.021	12.289
4	11	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	5%	1502	360	EX	69	70	25	72	0	0.728	393.822	0.022	12.117	0.021	11.143
4	12	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	1%	1%	4%	5%	1488	360	EX	69	70	25	71	0	0.734	393.270	0.023	12.185	0.021	11.206
4	13	34%	18%	0%	16%	9%	3%	7%	0%	1%	1%	1%	1%	0%	4%	4%	1488	360	EX	69	70	25	71	0	0.729	390.470	0.022	12.033	0.021	11.067
4	14	34%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	0%	4%	5%	1475	360	EX	69	70	25	71	0	0.733	390.046	0.023	12.110	0.021	11.137
4	15	36%	17%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	1604	360	EX	68	70	25	72	0	0.732	422.575	0.023	13.239	0.021	12.167
4	16	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1722	360	EX	67	70	24	74	0	0.739	458.107	0.023	14.162	0.021	12.999
4	17	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	0%	5%	5%	1714	360	EX	67	70	24	76	0	0.728	449.476	0.023	13.981	0.021	12.831
4	18	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1446	360	EX	70	70	23	77	0	0.734	381.907	0.023	12.046	0.021	11.071
4	19	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	1188	360	EX	70	70	23	78	0	0.739	316.108	0.023	9.985	0.021	9.177
4	20	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	1059	360	EX	70	70	23	79	0	0.730	278.186	0.023	8.749	0.021	8.041
4	21	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	932	360	EX	70	70	23	80	0	0.730	244.847	0.023	7.653	0.021	7.034
4	22	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	800	360	EX	70	70	23	81	0	0.728	209.753	0.023	6.610	0.021	6.076
4	23	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	0%	4%	5%	803	360	EX	70	70	23	81	0	0.726	209.932	0.023	6.609	0.021	6.074
5	0	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	0%	4%	4%	4%	460	230	PD	40	50	23	82	0	0.893	94.489	0.029	3.037	0.026	2.793
5	1	34%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	4%	281	230	PD	40	50	22	82	0	0.911	58.907	0.029	1.858	0.026	1.709
5	2	33%	22%	1%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	3%	184	230	PD	40	50	22	83	0	0.894	37.818	0.028	1.189	0.026	1.093
5	3	32%	22%	1%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	3%	185	230	PD	40	50	22	83	0	0.892	37.944	0.028	1.190	0.026	1.094
5	4	32%	23%	1%	14%	8%	3%	10%	0%	1%	1%	1%	1%	0%	4%	3%	185	230	PD	40	50	22	83	0	0.877	37.319	0.028	1.202	0.026	1.105
5	5	32%	23%	1%	14%	8%	3%	10%	0%	1%	1%	1%	1%	0%	4%	3%	185	230	PD	40	50	22	83	0	0.877	37.319	0.028	1.202	0.026	1.105
5	6	31%	23%	0%	14%	8%	4%	11%	0%	1%	1%	1%	0%	0%	4%	3%	568	230	PD	40	50	22	83	0	0.935	122.174	0.030	3.936	0.028	3.621
5	7	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	1%	0%	0%	4%	3%	1041	230	PD	37	50	22	82	0	0.926	221.711	0.030	7.258	0.028	6.669
5	8	30%	23%	0%	15%	9%	4%	10%	0%	1%	1%	0%	0%	0%	4%	3%	1335	230	PD	34	50	23	79	0	0.936	287.378	0.032	9.794	0.029	9.001
5	9	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	0%	0%	0%	4%	3%	1134	230	PD	36	50	23	77	0	0.939	244.922	0.031	8.094	0.029	7.439
5	10	32%	23%	0%	14%	9%	3%	10%	0%	1%	1%	1%	0%	0%	4%	3%	1032	230	PD	37	50	24	74	0	0.919	218.083	0.030	7.144	0.028	6.563
5	11	32%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	3%	937	230	PD	37	50	25	72	0	0.910	196.075	0.030	6.466	0.028	5.940
5	12	33%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	4%	1021	230	PD	37	50	25	71	0	0.920	216.068	0.030	7.055	0.028	6.480
5	13	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	4%	1027	230	PD	37	50	25	71	0	0.933	220.320	0.031	7.207	0.028	6.619
5	14	34%	20%	0%	14%	8%	3%	8%	0%	1%	1%	1%	1%	0%	4%	4%	1018	230	PD	37	50	25	71	0	0.929	217.436	0.030	7.063	0.028	6.486
5	15	34%	20%	0%	14%	8%	3%	8%	0%	1%	1%	1%	1%	0%	4%	4%	1110	230	PD	36	50	25	72	0	0.936	239.085	0.031	7.851	0.028	7.211
5	16	35%	19%	0%	14%	8%	3%	7%	0%	1%	1%	1%	1

2018 with Project

2018 w/ Project		Vehicle Breakdown %																			Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
11	20	34%	19%	0%	13%	8%	3%	9%	3%	2%	1%	1%	1%	1%	0%	4%	4%	632	210	DD	27	50	23	79	1	1.059	140.502	0.040	5.254	0.036	4.824
11	21	33%	19%	0%	13%	8%	3%	9%	3%	1%	1%	1%	1%	1%	0%	4%	3%	557	210	DD	27	50	23	80	1	1.059	123.881	0.040	4.684	0.037	4.302
11	22	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	1%	0%	4%	3%	560	210	DD	27	50	23	81	1	1.062	124.840	0.040	4.720	0.037	4.334
11	23	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	484	210	DD	28	50	23	81	1	1.034	105.067	0.039	3.919	0.035	3.599
12	0	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	471	160	DD	29	50	23	82	1	0.989	74.535	0.037	2.799	0.034	2.570
12	1	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	281	160	DD	29	50	22	82	1	0.997	44.819	0.036	1.626	0.033	1.493
12	2	31%	21%	1%	13%	8%	3%	8%	4%	2%	2%	1%	1%	0%	0%	3%	3%	183	160	DD	30	50	22	83	1	0.961	28.141	0.035	1.016	0.032	0.933
12	3	31%	21%	1%	13%	8%	3%	8%	4%	2%	2%	1%	1%	1%	0%	3%	3%	183	160	DD	30	50	22	83	1	0.960	28.099	0.035	1.010	0.032	0.927
12	4	30%	21%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	182	160	DD	30	50	22	83	1	0.979	28.508	0.036	1.034	0.033	0.949
12	5	30%	22%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	181	160	DD	30	50	22	83	1	0.990	28.667	0.036	1.044	0.033	0.958
12	6	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	534	160	DD	27	50	22	83	1	1.046	89.395	0.040	3.384	0.036	3.107
12	7	30%	23%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	974	160	DD	24	50	22	82	1	1.142	177.944	0.046	7.148	0.042	6.563
12	8	30%	23%	0%	11%	6%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1225	160	DD	23	50	23	79	1	1.170	229.331	0.048	9.445	0.044	8.674
12	9	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1069	160	DD	24	50	23	77	1	1.147	196.224	0.046	7.856	0.042	7.213
12	10	30%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	991	160	DD	24	50	24	74	1	1.113	176.507	0.045	7.097	0.041	6.516
12	11	31%	21%	0%	13%	7%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	914	160	DD	25	50	25	72	1	1.062	155.313	0.042	6.183	0.039	5.681
12	12	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1020	160	DD	24	50	25	71	1	1.088	177.579	0.044	7.153	0.040	6.567
12	13	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1038	160	DD	24	50	25	71	1	1.088	180.775	0.044	7.281	0.040	6.684
12	14	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1051	160	DD	24	50	25	71	1	1.081	181.701	0.043	7.296	0.040	6.698
12	15	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1161	160	DD	23	50	25	72	1	1.094	203.174	0.044	8.207	0.041	7.534
12	16	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1179	160	DD	23	50	24	74	1	1.098	207.185	0.044	8.260	0.040	7.583
12	17	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1293	160	DD	22	50	24	76	1	1.113	230.213	0.045	9.412	0.042	8.643
12	18	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1184	160	DD	23	50	23	77	1	1.102	208.687	0.044	8.246	0.040	7.569
12	19	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	981	160	DD	24	50	23	78	1	1.070	167.997	0.042	6.627	0.039	6.082
12	20	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	778	160	DD	26	50	23	79	1	1.028	128.015	0.039	4.911	0.036	4.509
12	21	31%	19%	0%	14%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	674	160	DD	26	50	23	80	1	1.020	109.960	0.039	4.214	0.036	3.870
12	22	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	669	160	DD	26	50	23	81	1	1.019	109.042	0.039	4.199	0.036	3.856
12	23	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	568	160	DD	27	50	23	81	1	1.004	91.229	0.038	3.490	0.035	3.204
13	0	29%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	5%	156	60	DD	30	50	23	82	1	0.659	6.168	0.021	0.197	0.019	0.180
13	1	39%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	4%	91	60	DD	30	50	22	82	1	0.648	3.539	0.020	0.107	0.018	0.098
13	2	40%	21%	0%	16%	9%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	5%	58	60	DD	30	50	22	83	1	0.601	2.090	0.017	0.058	0.015	0.053
13	3	41%	21%	0%	14%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	56	60	DD	30	50	22	83	1	0.607	2.038	0.016	0.055	0.015	0.050
13	4	39%	23%	0%	14%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	56	60	DD	30	50	22	83	1	0.613	2.060	0.016	0.054	0.015	0.050
13	5	38%	24%	0%	15%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	55	60	DD	30	50	22	83	1	0.619	2.042	0.016	0.054	0.015	0.049
13	6	38%	23%	1%	14%	8%	0%	1%	0%	4%	4%	1%	1%	1%	0%	4%	3%	168	60	DD	30	50	22	83	1	0.685	6.907	0.020	0.205	0.019	0.188
13	7	37%	24%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	300	60	DD	29	50	22	82	1	0.733	13.192	0.022	0.391	0.020	0.359
13	8	37%	25%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	372	60	DD	29	50	23	79	1	0.708	15.801	0.021	0.458	0.019	0.420
13	9	38%	23%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	333	60	DD	29	50	23	77	1	0.718	14.354	0.021	0.430	0.020	0.394
13	10	38%	22%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	4%	314	60	DD	29	50	24	74	1	0.706	13.294	0.021	0.403	0.020	0.369
13	11	38%	21%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	4%	297	60	DD	29	50	25	72	1	0.709	12.625	0.022	0.398	0.020	0.365
13	12	38%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	5%	337	60	DD	29	50	25	71	1	0.722	14.599	0.023	0.455	0.021	0.417
13	13	39%	19%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	5%	348	60	DD	29	50	25	71	1	0.716	14.941	0.023	0.474	0.021	0.434
13	14	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	356	60	DD	29	50	25	71	1	0.713	15.229	0.023	0.486	0.021	0.445
13	15	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	400	60	DD	28	50	25	72	1	0.712	17.090	0.023	0.555	0.021	0.508
13	16	39%	16%	1%	16%	10%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	412	60	DD	28	50	24	74	1	0.717	17.721	0.023	0.572	0.021	0.523
13	17	40%	15%	0%	16%	10%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	458	60	DD	28	50	24	76	1	0.706	19.400	0.023	0.639	0.021	0.584
13	18	39%	16%	1%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	417	60	DD	28	50	23	77	1	0.731	18.281	0.024	0.591	0.022	0.540
13	19	39%	16%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	340	60	DD	29	50	23	78	1	0.691	14.104	0.022	0.445	0.020	0.407
13	20	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	6%	270	60	DD	29	50	23	79	1	0.706	11.433	0.022	0.360	0.020	0.329
13	21	39%	17%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	232	60	DD	29	50	23	80	1	0.706	9.834	0.022	0.306	0.020	0.280
13	22	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	4%	6%	227	60	DD	30	50	23	81	1	0.694	9.447	0.021	0.289	0.019	0.264
13	23	39%	18%	1%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	5%	190	60	DD	30	50	23	81	1	0.657	7.493	0.021	0.239	0.019	0.218
14	0	56%	17%	0%	6%	4%	0%	0%	0%	4%	4%	2%	2%	2%	0%	0%	0%	48	590	LD	25	50	23	82	1	0.527	14.921	0.027	0.752	0.024	0.692
14	1	57%	18%	0%	7%	4%	0%	0%	0%	0%	4%	4%	4%	0%	0%	0%	0%	28	590	LD	25	50	22	82	1	0.352	5.811	0.017	0.276	0.015	0.254
14	2	61%	17%	0%	6%	6%	0%	0%	0%	0%	6%	6%	0%	0%	0%	0%	0%	18	590	LD	25	50	22	83	1	0.305	3.239	0.012	0.130	0.011	0.121
14	3	58%	21%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	19	590	LD	25	50	22	83	1	0.312	3.493	0.012	0.130	0.011	0.120
14	4	60%	20%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	20	590	LD	25	50	22	83	1	0.297	3.503	0.011	0.133	0.010	0.123
14	5	57%	19%	0%	10%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	21	590	LD	25	50	22	83	1	0.319	3.954	0.013	0.161	0.012	0.149
14	6	54%	19%	0%	7%	4%	0%	1%	0%	0%	4%	3%	1%	1%	0%	2%	0%	68	590	LD	25	50	22	83	1	0.483	19.371	0.023	0.909	0.021	0.837
14	7	54%	19%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	128	590	LD	24	50	22	82	1	0.537	40.533	0.026	1.986	0.024	1.825
14	8	54%	19%	0%	7%	4%	0%	1%	0%	5%	4%	2%	1%	2%	0%	0%	2%	165	590	LD	24	50	23	79	1	0.515	50.113	0.025	2.395	0.023	2.201
14	9	54%	18%	0%	7%	4%	0%	1%	0%	4%	4%	2%	2%	2%	0%	0%	2%	136	590	LD	24	50	23	77	1	0.525	42.105	0.025	2.040	0.023	1.874
14	10	55%	19%	0%	7%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	118	590	LD	24	50	24	74	1	0.529	36.841	0.026	1.800	0.024	1.654
14	11	55%	17%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	104	590	LD	25	50	25	72	1	0.535	32.802	0.027	1.648	0.025	1.517
14	12	56%	16%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	110	590	LD	25	50	25	71	1	0.532	34.508	0.026	1.717	0.024	1.580
14	13	56%	16%	0%	8%	5%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	105	590	LD	25	50	25	71	1	0.465	28.830	0.023	1.403	0.021	1.291
14	14	58%	16%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	97	590	LD	25	50	25	71	1	0.454	25.993	0.023	1.290	0.021	1.187
14	15	58%	14%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	101	590	LD	25	50	25	72	1	0.463	27.610	0.023	1.379	0.021	1.269
14	16	59%	14%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	95	590	LD	25	50	24	74	1	0.466	26.142	0.024	1.327	0.022	1.222
14	17	59%	12%	0%	8%	5%	1%	2%	0%	4%	3%	2%	1%	1%	0%	0%	2%	99	590	LD	25	50	24	76	1	0.511	29.829	0.026	1.525	0.024	1.404
14	18	60%	13%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	92	590	LD	25	50	23	77	1	0.467	25.331	0.024	1.283	0.022	1.181
14	19	59%	13%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	80	590	LD	25	50	23	78	1	0.495	23.383	0.024	1.144	0.022	1.052
14	20	59%	14%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	66	590	LD	25	50	23	79	1	0.505	19.681	0.026	0.994	0.024	0.916
14	21	57%	15%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	62	590	LD	25	50	23	80	1	0.534	19.530	0.027	0.981	0.025	0.903
14	22	57%	14%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	63	590	LD	25	50	23	81	1	0.530	19.692	0.027	0.995	0.025	0.916
14	23	56%	16%	0%	7%	4%	0%	2%	0%	4%	4%	2%	2%	2%	0%	0%	2%	55	590	LD	25	50	23	81	1	0.547	17.757	0.028	0.898	0.025	0.827
15	0	36%	23%	0%	9%	5%	0%	0%	0%	9%	5%	5%	5%	5%	0%	0%	0%	22	590	LD	25	50	23	82	1	0.861	11.173	0.045	0.581	0.041	0.535
15	1	33%	20%	0%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	0%	0%	0%	15	590	LD	25	50	22	82	1	1.175	10.402	0.061	0.539	0.056	0.497
15	2	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	3	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	4	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	5	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.537	2.851	0.030	0.159	0.028	0.146
15	6	35%	27%	0%	8%	4%	0%	0%	0%	0%	8%	4%	8%	4%	0%	0%	0%	26	590	LD	25	50	22	83	1	0.852	13.064	0.044	0.673	0.040	0.620
15	7	35%	29%	0%	6%	4%	0%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	49	590	LD	25	50	22	82	1	0.874	25.270	0.043	1.249	0.040	1.151
15	8	36%	31%	0%	5%	3%	0%	0%	0%	0%	7%	5%	5%	3%	5%	0%	0%	59	590	LD	25	50	23	79	1	0.863	30.025	0.042	1.458	0.039	1.343
15	9	35%	29%	0%	6%	4%	0%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	52	590	LD	25	50	23	77	1	0.829	25.438	0.041	1.255	0.038	1.156
15	10	35%	27%	0%	7%	4%	0%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	48	590	LD	25	50	24	74	1	0.881	24.939	0.044	1.257	0.041	1.158
15	11	36%	24%	0%	7%	4%	0%	0%	0%	0%	7%	7%	7%	4%	4%	0%	0%	45	590	LD	25	50	25	72	1	0.899	23.869	0.047	1.239	0.043	1.141
15	12	35%	23%	0%	8%	4%	0%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	48	590	LD	25	50	25	71	1	0.875	24.782	0.046	1.293	0.042	1.191
15	13	35%	21%	0%	8%	6%	0%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	48	590	LD	25	50	25	71	1	0.904	25.589	0.047	1.322	0.043	1.218
15	14	36%	20%	0%	10%	6%	0%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	50	590	LD	25	50	25	71	1	0.878	25.904	0.046	1.345	0.042	1.239
15	15	36%	19%	0%	9%	6%	0%	2%	0%	0%	8%	6%	6%	4%	4%	0%	0%	53	590	LD	25	50	25	72	1	1.020	31.880	0.053	1.656	0.049	1.525
15	16	35%	16%	0%	11%	6%	0%	2%	0%	7%	6%	7%	6%	6%	0%	0%	0%	55	590	LD	25	50	24	74	1	1.107	35.921	0.060	1.932	0.055	1.779
15	17	35%	13%	0%	12%	7%	0%	2%	0%	8%	7%	7%	5%	5%	0%	0%	0%	60	590	LD	25	50	24	76	1	1.059	37.475	0.057	2.023	0.053	1.863
15	18	36%	14%	0%	11%	5%	0%	2%	0%	7%	7%	7%	5%	5%	0%	0%	0%	56	590	LD	25	50	23	77	1	1.103	36.448	0.059	1.955	0.054	1.800
15	19	36%	16%	0%	11%	7%	0%	2%	0%	7%	7%	7%	4%	4%	0%	0%	0%	45	590	LD	25	50	23	78	1	1.031	27.366	0.054	1.438	0.050	1.324
15	20	36%	17%	0%	11%	6%	0%	0%	0%	8%	6%	6%	6%	0%	0%	0%	0%	36	590	LD	25	50	23	79	1	1.023	21.737	0.054	1.157	0.050	1.066
15	21	37%	20%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	30	590	LD	25	50	23	80	1	0.839	14.854	0.043	0.762	0.040	0.701
15	22	37%	20%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	30	590	LD	25	50	23	81	1	0.836	14.798	0.043	0.762	0.040	0.701
15	23	39%	19%	0%	8%	4%	0%	0%	0%	8%	8%	8%	4%	4%	0%	0%	0%	26	590	LD	25	50	23	81	1	0.846	12.981	0.046	0.699	0.042	0.644
16	0	28%	22%	0%	10%	6%	2%	5%	7%	5%	4%	2%	2%	1%	5%	2%	1%	176	200	LD	24	50	23	82	1	1.200	42.226	0.048	1.685	0.044	1.549
16	1	27%	22%	0%	9%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	3%	104	200	LD	25	50	22	82	1	1.199	24.929	0.047	0.984	0.044	0.905
16	2	27%	22%	0%	9%	6%	2%	6%	7%	4%	4%	3%	2%	2%	0%	4%	3%	68	200	LD	25	50	22	83	1	1.169	15.902	0.047	0.638	0.043	0.587
16	3	27%	22%	0%	9%	6%	2%	6%	8%	5%	5%	3%	2%	2%	0%	5%	2%	67	200	LD	25	50	22	83	1	1.182	15.834	0.047	0.635	0.044	0.584
16	4	26%	22%	0%	9%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	1%	69	200	LD	25	50	22	83	1	1.287	17.754	0.054	0.746	0.050	0.686
16	5	24%	21%	0%	9%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	4%	70	200	LD	25	50	22	83	1	1.291	18.075	0.054	0.757	0.050	0.696
16	6	25%	22%	0%	9%	5%	2%	6%	7%	5%	4%	3%	2%	2%	1%	4%	2%	205	200	LD	24	50	22	83	1	1.329	54.493	0.055	2.246	0.050	2.065
16	7	25%	22%	0%	8%	5%	2%	6%	7%	5%	4%	3%	3%	3%	0%	4%	2%	379	200	LD	22	50	22	82	1	1.411	106.921	0.061	4.588	0.056	4.218
16	8	25%	22%	0%	9%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	2%	491	200	LD	21	50	23	79	1	1.441	141.498	0.063	6.222	0.058	5.720
16	9	25%	22%	0%	9%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	2%	417	200	LD	22	50	23	77	1	1.385	115.494	0.059	4.909	0.054	4.513
16	10	25%	22%	0%	10%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	2%	392	200	LD	22	50	24

2018 with Project

2018 w/ Project		Vehicle Breakdown %																Summary of Emission Factors											
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
22	16	23%	21%	0%	12%	7%	0%	2%	11%	6%	5%	2%	1%	1%	0%	5%	3%	267	330	LD	22	50	24	74	1	1.111	97.902	0.043	3.773	0.039	3.465
22	17	23%	22%	0%	12%	7%	1%	2%	10%	6%	5%	2%	1%	1%	0%	4%	3%	298	330	LD	22	50	22	76	1	1.116	109.734	0.044	4.340	0.041	3.986
22	18	23%	22%	0%	12%	7%	0%	2%	10%	6%	5%	2%	1%	1%	0%	4%	3%	270	330	LD	22	50	23	77	1	1.111	99.009	0.043	3.795	0.039	3.485
22	19	23%	21%	0%	12%	7%	0%	1%	10%	6%	5%	2%	1%	1%	0%	5%	3%	223	330	LD	23	50	23	78	1	1.100	80.920	0.042	3.086	0.039	2.834
22	20	24%	21%	0%	12%	7%	1%	1%	11%	6%	5%	2%	1%	1%	0%	4%	3%	174	330	LD	23	50	23	79	1	1.047	60.140	0.040	2.322	0.037	2.132
22	21	23%	21%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	150	330	LD	24	50	23	80	1	1.015	50.263	0.041	2.016	0.037	1.852
22	22	23%	21%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	148	330	LD	24	50	23	81	1	1.036	50.594	0.042	2.045	0.038	1.878
22	23	23%	21%	0%	12%	7%	1%	2%	11%	6%	6%	2%	2%	2%	0%	4%	3%	126	330	LD	24	50	23	81	1	1.050	43.642	0.043	1.786	0.039	1.640
23	0	35%	9%	0%	11%	7%	2%	4%	0%	2%	2%	7%	4%	4%	0%	9%	4%	46	330	LD	25	50	23	82	1	1.622	24.627	0.065	0.981	0.059	0.902
23	1	44%	7%	0%	11%	7%	0%	4%	0%	0%	4%	4%	4%	4%	0%	7%	4%	27	330	LD	25	50	22	82	1	1.372	12.223	0.053	0.469	0.048	0.431
23	2	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.704	8.995	0.075	0.398	0.069	0.366
23	3	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.704	8.995	0.075	0.398	0.069	0.366
23	4	43%	7%	0%	14%	7%	0%	7%	0%	0%	0%	7%	0%	0%	0%	7%	7%	14	330	LD	25	50	22	83	1	1.189	5.492	0.044	0.203	0.040	0.186
23	5	39%	8%	0%	15%	8%	0%	8%	0%	0%	0%	8%	0%	0%	0%	8%	8%	13	330	LD	25	50	22	83	1	1.285	5.511	0.047	0.202	0.043	0.185
23	6	34%	2%	0%	14%	7%	7%	19%	0%	2%	2%	2%	2%	2%	0%	4%	2%	47	330	LD	25	50	22	83	1	1.698	26.330	0.078	1.206	0.072	1.109
23	7	39%	2%	0%	20%	12%	3%	8%	0%	4%	2%	2%	1%	1%	0%	2%	2%	84	330	LD	25	50	22	82	1	1.128	31.268	0.051	1.414	0.047	1.301
23	8	34%	1%	0%	26%	15%	3%	7%	0%	3%	3%	2%	1%	1%	0%	1%	4%	109	330	LD	25	50	23	79	1	1.061	38.156	0.050	1.809	0.046	1.662
23	9	35%	3%	0%	21%	13%	2%	6%	0%	3%	2%	3%	2%	2%	0%	3%	4%	95	330	LD	25	50	23	77	1	1.239	38.827	0.055	1.711	0.050	1.572
23	10	36%	5%	0%	17%	10%	2%	7%	0%	2%	2%	3%	2%	2%	0%	6%	6%	89	330	LD	25	50	24	74	1	1.345	39.498	0.055	1.618	0.051	1.486
23	11	34%	5%	0%	16%	10%	2%	5%	0%	2%	2%	4%	3%	3%	0%	7%	5%	92	330	LD	25	50	25	72	1	1.467	44.526	0.060	1.831	0.055	1.682
23	12	34%	7%	0%	13%	8%	2%	5%	0%	2%	2%	5%	4%	4%	1%	8%	6%	102	330	LD	24	50	25	71	1	1.667	56.098	0.065	2.179	0.059	1.999
23	13	31%	5%	0%	15%	9%	2%	5%	0%	2%	2%	5%	4%	4%	1%	10%	6%	116	330	LD	24	50	25	71	1	1.734	66.359	0.066	2.519	0.060	2.312
23	14	30%	8%	0%	14%	8%	2%	5%	0%	2%	1%	6%	4%	4%	1%	10%	6%	123	330	LD	24	50	25	71	1	1.845	74.881	0.069	2.816	0.064	2.584
23	15	31%	8%	0%	12%	7%	2%	6%	0%	1%	1%	6%	4%	4%	1%	11%	6%	143	330	LD	24	50	25	72	1	1.903	89.803	0.072	3.385	0.066	3.106
23	16	31%	10%	0%	11%	7%	1%	3%	0%	1%	1%	7%	5%	5%	1%	12%	6%	146	330	LD	24	50	24	74	1	1.944	93.670	0.070	3.370	0.064	3.092
23	17	30%	10%	0%	11%	7%	1%	3%	0%	1%	1%	7%	5%	5%	1%	12%	8%	169	330	LD	23	50	24	76	1	2.047	114.156	0.073	4.082	0.067	3.745
23	18	31%	11%	0%	9%	6%	1%	4%	0%	1%	1%	7%	5%	5%	1%	13%	6%	141	330	LD	24	50	23	77	1	2.033	94.590	0.071	3.305	0.065	3.033
23	19	32%	10%	0%	10%	5%	1%	4%	0%	1%	1%	7%	5%	5%	1%	13%	5%	112	330	LD	24	50	23	78	1	2.047	75.663	0.073	2.697	0.067	2.476
23	20	32%	9%	0%	10%	5%	1%	3%	0%	1%	1%	7%	5%	5%	1%	12%	5%	87	330	LD	25	50	23	79	1	1.871	53.720	0.066	1.903	0.061	1.749
23	21	32%	9%	0%	12%	7%	1%	4%	0%	1%	1%	7%	4%	5%	1%	11%	5%	76	330	LD	25	50	23	80	1	1.853	46.471	0.067	1.678	0.061	1.541
23	22	34%	9%	0%	10%	6%	2%	4%	0%	2%	2%	6%	4%	4%	2%	12%	4%	68	330	LD	25	50	23	81	1	1.888	42.368	0.066	1.476	0.060	1.356
23	23	32%	8%	0%	10%	7%	2%	5%	0%	2%	2%	7%	5%	5%	0%	10%	7%	60	330	LD	25	50	23	81	1	1.801	35.668	0.070	1.393	0.065	1.279
24	0	19%	21%	0%	9%	5%	1%	3%	15%	7%	6%	4%	3%	3%	0%	5%	1%	81	130	LD	25	50	23	82	1	1.222	12.871	0.053	0.554	0.048	0.510
24	1	20%	22%	0%	9%	4%	0%	2%	16%	9%	7%	2%	2%	2%	0%	4%	0%	45	130	LD	25	50	22	82	1	1.124	6.576	0.047	0.275	0.043	0.253
24	2	18%	21%	0%	9%	6%	0%	3%	15%	6%	6%	3%	3%	3%	0%	6%	0%	33	130	LD	25	50	22	83	1	1.372	5.885	0.055	0.238	0.051	0.219
24	3	16%	22%	0%	9%	6%	0%	3%	16%	6%	6%	3%	3%	3%	0%	6%	0%	32	130	LD	25	50	22	83	1	1.415	5.885	0.057	0.237	0.052	0.218
24	4	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	1.446	5.828	0.059	0.237	0.054	0.218
24	5	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	1.446	5.828	0.059	0.237	0.054	0.218
24	6	17%	20%	0%	9%	6%	1%	2%	16%	8%	7%	3%	2%	2%	0%	6%	1%	89	130	LD	25	50	22	83	1	1.264	14.621	0.052	0.597	0.047	0.549
24	7	16%	21%	0%	9%	6%	1%	2%	17%	8%	6%	3%	3%	3%	1%	6%	1%	159	130	LD	25	50	22	82	1	1.329	27.476	0.053	1.094	0.049	1.007
24	8	15%	20%	1%	10%	6%	1%	2%	17%	8%	6%	4%	3%	3%	1%	5%	1%	202	130	LD	24	50	23	79	1	1.339	35.158	0.056	1.462	0.051	1.345
24	9	17%	21%	0%	10%	6%	1%	2%	17%	8%	6%	3%	2%	2%	1%	5%	1%	176	130	LD	25	50	23	77	1	1.286	29.423	0.052	1.200	0.048	1.105
24	10	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	6%	1%	164	130	LD	25	50	24	74	1	1.293	27.566	0.052	1.110	0.048	1.021
24	11	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	5%	1%	155	130	LD	25	50	25	72	1	1.260	25.394	0.051	1.036	0.047	0.954
24	12	18%	21%	0%	9%	5%	1%	3%	15%	8%	6%	3%	2%	2%	1%	5%	1%	174	130	LD	25	50	25	71	1	1.249	28.253	0.051	1.144	0.047	1.052
24	13	19%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	179	130	LD	25	50	25	71	1	1.241	28.880	0.051	1.178	0.047	1.084
24	14	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	182	130	LD	25	50	25	71	1	1.216	28.779	0.050	1.177	0.046	1.083
24	15	21%	22%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	3%	1%	5%	1%	202	130	LD	24	50	25	72	1	1.251	32.859	0.052	1.355	0.047	1.246
24	16	21%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	208	130	LD	24	50	24	74	1	1.248	33.759	0.051	1.390	0.047	1.278
24	17	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	228	130	LD	24	50	24	76	1	1.217	36.064	0.050	1.494	0.046	1.374
24	18	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	209	130	LD	24	50	23	77	1	1.256	34.128	0.051	1.394	0.047	1.282
24	19	21%	23%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	171	130	LD	25	50	23	78	1	1.221	27.154	0.049	1.093	0.045	1.006
24	20	21%	22%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	2%	135	130	LD	25	50	23	79	1	1.196	20.998	0.049	0.858	0.045	0.789
24	21	21%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	3%	3%	0%	5%	1%	117	130	LD	25	50	23	80	1	1.234	18.773	0.051	0.783	0.047	0.720
24	22	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	4%	3%	3%	0%	5%	1%	115	130	LD	25	50	23	81	1	1.241	18.555	0.052	0.777	0.048	0.715
24	23	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	0%	5%	1%	97	130	LD	25	50	23	81	1	1.212	15.283	0.050	0.633	0.046	0.583
25	0	43%	17%	0%	10%	6%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	97	130	LD	25	50	23	82	1	1.057	13.328	0.040	0.507	0.037	0.466
25	1	46%	15%	0%	10%	7%	2%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	61	130	LD	25	50	22	83	1	1.024	8.121	0.038	0.305	0.035	0.280
25	2	42%	16%	0%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	38	130	LD	25	50	22	83	1	1.112	5.492	0.041	0.204	0.038	0.187
25	3	43%	14%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	37	130	LD	25	50	22	83	1	1.132	5.446	0.043	0.205	0.039	0.189
25	4	44%	14%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	36	130	LD	25	50	22	83	1	0.989	4.631	0.042	0.197	0.039	0.181
25	5	43%	14%	0%	14%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	37	130	LD	25	50	22	83	1	0.977	4.701	0.042	0.202	0.039	0.185
25	6	42%	11%	0%	13%	7%	3%	8%	0%	3%	3%	2%	2%	2%	0%	3%	3%	114	130	LD	25	50	22	83	1	1.083	16.053	0.048	0.708	0.044	0.651
25	7	44%	11%	0%	16%	9%	1%	3%	0%	3%	2%	2%	1%	1%	0%	2%	2%	207	130	LD	25	50	22	82	1	0.853	22.962	0.037	0.992	0.034	0.913
25	8	42%	11%	0%	15%	8%	1%	3%	0%	3%	2%	2%	1%	1%	0%	2%	2%	261	130	LD	24	50	23	79	1	0.798	27.078	0.036	1.215	0.033	1.116
25	9	43%	12%	1%	16%	10%	1%	3%	0%	3%	3%	2%	1%	1%	0%	2%	3%	227	130	LD	24	50	23	77	1	0.877	25.883	0.037	1.097	0.034	1.007
25	10	43%	12%	1%	14%	8%	1%	3%	0%	3%	2%	2%	2%	2%	0%	4%	3%	209	130	LD	25	50	24	74	1	0.936	25.439	0.039	1.064	0.036	0.978
25	11	42%	14%	1%	14%	8%	1%	3%	0%	3%	2%	3%	2%	2%	1%	4%	4%	200	130	LD	25	50	25	72	1	1.019	26.505	0.040	1.030	0.036	0.946
25	12	42%	15%	1%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	1%	5%	4%	219	130	LD	24	50	25	71	1	1.109	31.582	0.043	1.224	0.039	1.123
25	13	40%	15%	1%	12%	7%	1%	3%	0%	2%	2%	3%	2%	3%	0%	5%	3%	234	130	LD	24	50	25	71	1	1.186	36.082	0.046	1.388	0.042	1.274
25	14	39%	16%	1%	11%	7%	1%	3%	0%	2%	2%	3%	3%	3%	0%	6%	4%	239	130	LD	24	50	25	71	1	1.230	38.225	0.046	1.429	0.042	1.312
25	15	39%	16%	1%	12%	7%	1%	3%	0%	2%	2%	4%	3%	3%	0%	7%	4%	269	130	LD	24	50	25	72	1	1.310	45.827	0.049	1.699	0.045	1.560
25	16	39%	17%	0%	9%	6%	1%	3%	0%	2%	2%	4%	3%	3%	0%	7%	4%	274	130	LD	24	50	24	74	1	1.337	47.619	0.048	1.703	0.044	1.563
25	17	38%	18%	0%	9%	5%	1%	3%	0%	2%	1%	4%	3%	3%	1%	8%	6%	307	130	LD	24	50	24	76	1	1.377	54.936	0.048	1.921	0.044	1.762
25	18	39%	18%	0%	8%	5%	1%	3%	0%	2%	2%	4%	3%	3%	0%	8%	5%	267	130	LD	24	50	23	77	1	1.382	47.980	0.048	1.671	0.044	1.533
25	19	40%	18%	0%	8%	5%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	4%	217	130	LD	24	50	23	78	1	1.373	38.725	0.049	1.385	0.045	1.272
25	20	39%	17%	0%	9%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	7%	4%	173	130	LD	25	50	23	79	1	1.296	29.157	0.047	1.047	0.043	0.962
25	21	40%	17%	0%	11%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	4%	149	130	LD	25	50	23	80	1	1.258	24.369	0.045	0.872	0.041	0.801
25	22	41%	17%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	6%	4%	144	130	LD	25	50	23	81	1	1.225	22.926	0.044	0.833	0.041	0.765
25	23	41%	17%	0%	10%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	6%	4%	121	130	LD	25	50	23	81	1	1.160	18.241	0.042	0.660	0.039	0.606
26	0	41%	17%	0%	11%	6%	2%	5%	0%	3%	3%	3%	2%	2%	0%	3%	3%	150	130	DD	29	50	23	82	1	0.885	17.267	0.036	0.710	0.033	0.652
26	1	40%	18%	0%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	3%	87	130	DD	30	50	22	82	1	0.884	10.003	0.036	0.403	0.033	0.370
26	2	40%	19%	0%	9%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	5%	58	130	DD	30	50	22	83	1	0.815	6.146	0.034	0.255	0.031	0.234
26	3	40%	19%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	57	130	DD	30	50	22	83	1	0.835	6.184	0.035	0.257	0.032	0.236
26	4	39%	20%	0%	9%	5%	2%	5%	0%	4%	4%	4%	2%	2%	0%	2%	4%	56	130	DD	30	50	22	83	1	0.844	6.145	0.035	0.255	0.032	0.234
26	5	38%	19%	0%	9%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	5%	58	130	DD	30	50	22	83	1	0.822	6.200	0.034	0.257	0.031	0.235
26	6	37%	19%	0%	8%	5%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	3%	175	130	DD	29	50	22	83	1	0.962	21.879	0.042	0.958	0.039	0.880
26	7	37%	19%	0%	8%	5%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	3%	327	130	DD	27	50	22	82	1	1.020	43.371	0.046	1.950	0.042	1.791
26	8	35%	19%	0%	9%	5%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	4%	427	130	DD	25	50	23	79	1	1.052	58.406	0.049	2.718	0.045	2.497
26	9	37%	19%	0%	9%	6%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	4%	361	130	DD	26	50	23	77	1	1.023	48.007	0.046	2.141	0.042	1.967
26	10	37%	19%	0%	10%	6%	2%	6%	0%	4%	3%	3%	2%	2%	0%	2%	4%	336	130	DD	27	50	24	74	1	0.989	43.183	0.043	1.892	0.040	1.737
26	11	38%	18%	0%	11%	6%	2%	5%	0%	4%	3%	3%	2%	2%	0%	2%	4%	302	130	DD	27	50	25	72	1	0.942	36.971	0.041	1.590	0.037	1.460
26	12	38%	17%	0%	11%	6%	2%	6%	0%	3%	3%	3%	2%	2%	0%	2%	4%	340	130	DD	27	50	25	71	1	0.983	43.453	0.041	1.825	0.038	1.676
26	13	40%	18%	0%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	3%	327	130	DD	27	50	25	71	1	0.923	39.233	0.037	1.573	0.034	1.444
26	14	40%	17%	0%	11%	7%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	334	130	DD	26	50	25	71	1	0.932	40.464	0.037	1.598	0.034	1.467
26	15	41%	17%	0%	13%	7%	1%	4%	0%	3%	2%	2%	1%	1%	0%	3%	4%	365	130	DD	26	50	25	72	1	0.885	41.970	0.034	1.633	0.032	1.499
26	16	42%	16%	0%	13%	8%	1%	4%	0%	3%	2%	1%	1%	1%	0%	3%	4%	359	130	DD	27	50	24	74	1	0.852	39.740	0.031	1.449	0.028	1.330
26	17	44%	17%	0%	12%	7%	1%	4%	0%	2%	2%	1%	1%	1%	0%	4%	4%	378	130	DD	26	50	24	76	1	0.849	41.727	0.030	1.482	0.028	1.360
26	18	44%	17%	0%	12%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	3%	4%	348	130	DD	27	50	23	77	1	0.845	38.207	0.030	1.376	0.028	1.263
26	19	43%	17%	0%	11%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	289	130	DD	27	50	23	78	1	0.866	32.523	0.032	1.186	0.029	1.089
26	20	42%	17%	1%	12%	7%	2%	4%	0%	3%	2%	2%	1%	1%	0%	3%	3%	238	130	DD	28	50	23	79	1	0.895	27.691	0.033	1.028	0.030	0.943
26	21	41%	17%	1%	12%	7%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	216	130	DD	28	50	23	80	1	0.883	24.791	0.035	0.988	0.032	0.907
26	22	42%	18%	1%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	202	130	DD	28	50	23	81	1	0.872	22.911	0.035	0.907	0.032	0.833
26	23	42%	18%	0%	10%	6%	2%	5%	0%	3%	3%	2%	2%	2%	0%	3%	4%	173	130	DD	29	50	23	81	1	0.857	19.271	0.034	0.762	0.031	0.700
27	0	20%	22%	0%	9%	7%	0%	0%	13%	7%	7%	2%	2%	2%	0%	9%	2%	46	130	LD	25	50	23	82	1	1.307	7.815	0.045	0.267	0.041	0.246
27	1	17%	21%	0%	10%	7%	0%	0%	14%	7%	7%	3%	3%	3%	0%	7%	0%	29	130	LD	25	50	22	82	1	1.381	5.205	0.053	0.201	0.049	0.185
27	2	24%	24%	0%	12%	6%	0%	0%	12%	6%	6%	6%	0%	0%	0%	6%	0%	17	130	LD	25	50	22	83	1	0.987	2.182	0.035	0.078	0.032	0.072
27	3	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	4	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	5	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.983	1.917	0.029	0.057	0.027	0.053
27	6	18%	26%	0%	8%	6%	0%	0%	14%	8%	6%	2%	2%	2%	0%	6%	2%	50	130	LD	25	50	22	83	1	1

2018 with Project

2018 w/ Project		Vehicle Breakdown %																		Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
33	12	13%	0%	0%	13%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	42%	0%	24	220	LD	25	50	25	71	1	3.947	20.840	0.089	0.468	0.082	0.430
33	13	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	44%	0%	25	220	LD	25	50	25	71	1	4.039	22.212	0.088	0.483	0.081	0.444
33	14	11%	4%	0%	14%	7%	0%	4%	0%	0%	0%	7%	4%	4%	4%	43%	0%	28	220	LD	25	50	25	71	1	3.884	23.927	0.083	0.510	0.076	0.469
33	15	9%	3%	0%	12%	9%	0%	3%	0%	3%	0%	6%	3%	3%	3%	46%	0%	33	220	LD	25	50	25	72	1	3.914	28.416	0.079	0.570	0.072	0.525
33	16	11%	3%	0%	14%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	46%	0%	37	220	LD	25	50	24	74	1	3.895	31.703	0.076	0.615	0.069	0.566
33	17	9%	2%	0%	11%	7%	2%	5%	0%	2%	0%	5%	5%	5%	2%	46%	0%	44	220	LD	25	50	24	76	1	4.058	39.282	0.089	0.858	0.082	0.790
33	18	11%	3%	0%	14%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	46%	0%	37	220	LD	25	50	23	77	1	3.919	31.904	0.076	0.615	0.069	0.566
33	19	10%	3%	0%	13%	7%	0%	3%	0%	0%	0%	7%	3%	3%	3%	47%	0%	30	220	LD	25	50	23	78	1	4.079	26.920	0.082	0.540	0.075	0.497
33	20	9%	4%	0%	13%	9%	0%	4%	0%	0%	0%	4%	4%	4%	4%	44%	0%	23	220	LD	25	50	23	79	1	4.053	20.510	0.085	0.430	0.078	0.395
33	21	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	80	1	4.302	17.037	0.096	0.381	0.088	0.350
33	22	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	81	1	4.287	16.978	0.096	0.381	0.088	0.350
33	23	13%	0%	0%	13%	7%	0%	7%	0%	0%	0%	7%	7%	7%	0%	40%	0%	15	220	LD	25	50	23	81	1	3.855	12.722	0.102	0.335	0.093	0.308
34	0	28%	25%	0%	14%	9%	2%	7%	0%	4%	4%	2%	2%	2%	0%	0%	4%	57	170	LD	25	50	23	82	1	0.949	9.199	0.044	0.429	0.041	0.394
34	1	28%	25%	0%	14%	8%	3%	6%	0%	3%	3%	3%	3%	3%	0%	0%	3%	36	170	LD	25	50	22	82	1	1.043	6.380	0.049	0.301	0.045	0.277
34	2	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	0%	0%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	3	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	0%	0%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	4	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	0%	0%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.922	3.760	0.042	0.173	0.039	0.159
34	5	26%	26%	0%	13%	9%	4%	9%	0%	4%	4%	4%	0%	0%	0%	0%	4%	23	170	LD	25	50	22	83	1	0.938	3.668	0.043	0.169	0.040	0.155
34	6	24%	27%	0%	16%	9%	3%	7%	1%	4%	3%	3%	1%	1%	0%	0%	1%	71	170	LD	25	50	22	83	1	0.978	11.802	0.045	0.549	0.042	0.505
34	7	22%	26%	1%	15%	9%	2%	7%	2%	4%	4%	3%	2%	2%	0%	0%	1%	135	170	LD	24	50	22	82	1	1.107	25.401	0.053	1.211	0.049	1.114
34	8	22%	27%	1%	15%	9%	2%	8%	1%	5%	4%	3%	2%	2%	0%	0%	1%	171	170	LD	23	50	23	79	1	1.105	32.113	0.053	1.538	0.049	1.415
34	9	23%	26%	1%	15%	9%	2%	8%	1%	5%	4%	3%	2%	2%	0%	0%	1%	146	170	LD	24	50	23	77	1	1.080	26.798	0.051	1.270	0.047	1.168
34	10	25%	27%	0%	15%	9%	2%	7%	1%	4%	3%	2%	2%	2%	0%	0%	2%	127	170	LD	24	50	24	74	1	1.005	21.698	0.047	1.019	0.043	0.937
34	11	26%	26%	0%	15%	9%	3%	7%	1%	3%	3%	3%	2%	2%	0%	0%	3%	117	170	LD	24	50	25	72	1	0.998	19.842	0.048	0.949	0.044	0.872
34	12	28%	26%	0%	14%	8%	2%	6%	1%	3%	3%	2%	2%	2%	0%	0%	3%	125	170	LD	24	50	25	71	1	0.952	20.229	0.045	0.959	0.041	0.881
34	13	29%	25%	0%	14%	8%	2%	6%	1%	3%	2%	2%	2%	2%	0%	0%	4%	125	170	LD	24	50	25	71	1	0.945	20.084	0.045	0.957	0.041	0.879
34	14	30%	25%	0%	13%	7%	2%	6%	1%	3%	2%	2%	2%	2%	0%	1%	5%	126	170	LD	24	50	25	71	1	0.948	20.296	0.043	0.929	0.040	0.852
34	15	32%	24%	0%	12%	8%	2%	5%	0%	3%	2%	2%	2%	2%	0%	1%	5%	133	170	LD	24	50	25	72	1	0.911	20.606	0.041	0.933	0.038	0.855
34	16	32%	24%	0%	12%	7%	2%	5%	0%	2%	2%	2%	2%	2%	0%	1%	6%	130	170	LD	24	50	24	74	1	0.894	19.749	0.040	0.884	0.037	0.810
34	17	36%	24%	0%	11%	6%	1%	5%	0%	2%	2%	1%	2%	1%	0%	1%	7%	140	170	LD	24	50	24	76	1	0.833	19.823	0.038	0.897	0.035	0.821
34	18	35%	24%	0%	12%	7%	2%	5%	0%	2%	2%	2%	2%	2%	0%	1%	6%	130	170	LD	24	50	23	77	1	0.893	19.733	0.040	0.879	0.036	0.805
34	19	34%	24%	0%	12%	7%	2%	6%	0%	3%	2%	2%	2%	2%	0%	1%	6%	110	170	LD	24	50	23	78	1	0.937	17.529	0.042	0.782	0.038	0.717
34	20	33%	24%	0%	13%	7%	2%	6%	0%	2%	2%	2%	1%	1%	0%	0%	6%	87	170	LD	25	50	23	79	1	0.814	12.037	0.038	0.555	0.034	0.509
34	21	32%	24%	0%	13%	8%	3%	5%	0%	3%	3%	3%	1%	1%	0%	0%	5%	78	170	LD	25	50	23	80	1	0.838	11.117	0.039	0.515	0.036	0.472
34	22	31%	24%	0%	13%	8%	3%	6%	0%	3%	3%	3%	1%	1%	0%	0%	5%	78	170	LD	25	50	23	81	1	0.883	11.709	0.041	0.547	0.038	0.502
34	23	30%	25%	0%	13%	8%	2%	6%	0%	3%	3%	3%	2%	2%	0%	0%	5%	67	170	LD	25	50	23	81	1	0.878	9.998	0.041	0.468	0.038	0.430
35	0	16%	8%	0%	11%	6%	11%	13%	11%	8%	3%	3%	3%	3%	0%	0%	3%	38	170	LD	25	50	23	82	1	1.302	8.409	0.072	0.464	0.066	0.427
35	1	12%	8%	0%	12%	8%	4%	12%	12%	12%	8%	4%	4%	4%	0%	0%	0%	25	170	LD	25	50	22	82	1	1.527	6.490	0.082	0.349	0.076	0.321
35	2	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	3	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	4	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	5	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.680	5.139	0.093	0.283	0.085	0.261
35	6	10%	8%	0%	8%	6%	4%	14%	14%	12%	10%	6%	4%	4%	0%	0%	2%	51	170	LD	25	50	22	83	1	1.583	13.721	0.087	0.752	0.080	0.692
35	7	9%	7%	0%	8%	5%	4%	13%	13%	12%	10%	6%	5%	5%	0%	1%	2%	99	170	LD	25	50	22	82	1	1.705	28.696	0.091	1.533	0.084	1.410
35	8	9%	8%	0%	8%	5%	5%	12%	13%	12%	10%	7%	5%	5%	0%	1%	2%	130	170	LD	25	50	23	79	1	1.654	36.562	0.090	1.989	0.083	1.829
35	9	9%	7%	0%	8%	5%	5%	12%	13%	12%	10%	7%	5%	5%	0%	1%	2%	108	170	LD	25	50	23	77	1	1.656	30.403	0.089	1.635	0.082	1.504
35	10	11%	7%	0%	9%	5%	4%	12%	13%	12%	10%	6%	4%	4%	0%	1%	2%	94	170	LD	25	50	24	74	1	1.613	25.778	0.086	1.382	0.080	1.271
35	11	12%	7%	0%	10%	6%	4%	12%	13%	11%	10%	6%	4%	4%	0%	0%	2%	83	170	LD	25	50	25	72	1	1.467	20.702	0.082	1.157	0.075	1.064
35	12	14%	8%	0%	11%	6%	4%	12%	13%	12%	9%	5%	4%	4%	0%	0%	1%	86	170	LD	25	50	25	71	1	1.416	20.708	0.078	1.147	0.072	1.055
35	13	15%	8%	0%	12%	7%	4%	11%	13%	11%	8%	5%	4%	4%	0%	0%	1%	86	170	LD	25	50	25	71	1	1.393	20.362	0.077	1.123	0.071	1.033
35	14	17%	9%	0%	12%	7%	4%	11%	13%	12%	10%	9%	4%	3%	3%	0%	1%	81	170	LD	25	50	25	71	1	1.267	17.451	0.069	0.949	0.063	0.874
35	15	19%	8%	0%	13%	8%	4%	9%	13%	9%	6%	4%	2%	2%	0%	0%	1%	86	170	LD	25	50	25	72	1	1.225	17.904	0.067	0.977	0.061	0.899
35	16	21%	8%	0%	15%	8%	4%	8%	12%	10%	7%	2%	2%	2%	0%	0%	0%	83	170	LD	25	50	24	74	1	1.194	16.844	0.064	0.904	0.059	0.832
35	17	22%	8%	0%	15%	9%	2%	8%	13%	9%	7%	2%	1%	1%	0%	0%	0%	85	170	LD	25	50	24	76	1	1.058	15.289	0.057	0.821	0.052	0.756
35	18	22%	9%	0%	15%	9%	3%	9%	13%	9%	8%	3%	1%	1%	0%	0%	0%	79	170	LD	25	50	23	77	1	1.111	14.923	0.059	0.788	0.054	0.725
35	19	20%	9%	0%	15%	9%	3%	9%	13%	10%	7%	3%	1%	1%	0%	0%	0%	69	170	LD	25	50	23	78	1	1.118	13.109	0.060	0.700	0.055	0.645
35	20	20%	9%	0%	14%	7%	4%	9%	13%	9%	9%	4%	2%	2%	0%	0%	0%	56	170	LD	25	50	23	79	1	1.171	11.151	0.063	0.604	0.058	0.556
35	21	18%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	2%	2%	0%	0%	0%	49	170	LD	25	50	23	80	1	1.250	10.415	0.068	0.564	0.062	0.520
35	22	17%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	2%	2%	0%	0%	0%	52	170	LD	25	50	23	81	1	1.318	11.655	0.071	0.632	0.066	0.581
35	23	15%	9%	0%	11%	7%	4%	11%	13%	11%	9%	4%	2%	2%	0%	0%	2%	46	170	LD	25	50	23	81	1	1.285	10.048	0.071	0.551	0.065	0.507
36	0	21%	21%	0%	21%	12%	2%	10%	0%	2%	2%	2%	0%	0%	0%	5%	0%	42	330	LD	25	50	23	82	1	1.258	17.436	0.047	0.654	0.043	0.602
36	1	17%	25%	0%	19%	14%	4%	8%	0%	4%	4%	0%	0%	0%	0%	4%	0%	24	330	LD	25	50	22	82	1	1.244	9.855	0.044	0.346	0.040	0.319
36	2	18%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	6%	17	330	LD	25	50	22	83	1	1.152	6.465	0.035	0.198	0.032	0.182
36	3	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	1.272	6.295	0.038	0.190	0.035	0.175
36	4	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	1.272	6.295	0.038	0.190	0.035	0.175
36	5	12%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	12%	17	330	LD	25	50	22	83	1	1.178	6.609	0.036	0.203	0.033	0.185
36	6	13%	26%	0%	20%	11%	2%	4%	2%	4%	4%	2%	2%	2%	0%	7%	0%	46	330	LD	25	50	22	82	1	1.436	21.793	0.051	0.778	0.047	0.716
36	7	13%	26%	0%	19%	11%	2%	6%	2%	5%	4%	2%	1%	1%	0%	6%	2%	84	330	LD	25	50	22	82	1	1.342	37.190	0.047	1.307	0.043	1.201
36	8	11%	24%	1%	21%	13%	1%	3%	2%	4%	3%	3%	2%	2%	0%	6%	4%	117	330	LD	24	50	23	79	1	1.377	53.157	0.049	1.889	0.045	1.733
36	9	13%	24%	0%	21%	12%	2%	5%	2%	4%	3%	2%	1%	2%	0%	6%	3%	98	330	LD	25	50	23	77	1	1.394	45.079	0.049	1.589	0.045	1.460
36	10	14%	22%	0%	22%	13%	3%	7%	1%	3%	3%	2%	1%	1%	0%	5%	3%	97	330	LD	25	50	24	74	1	1.350	43.201	0.050	1.590	0.046	1.461
36	11	15%	21%	0%	22%	13%	3%	7%	1%	3%	3%	1%	1%	1%	0%	6%	3%	91	330	LD	25	50	25	72	1	1.333	40.032	0.049	1.460	0.045	1.341
36	12	15%	19%	0%	20%	12%	5%	13%	1%	3%	3%	1%	1%	1%	0%	5%	3%	111	330	LD	25	50	25	71	1	1.477	54.088	0.059	2.165	0.054	1.990
36	13	19%	21%	0%	19%	12%	4%	10%	1%	3%	3%	1%	1%	1%	0%	5%	2%	102	330	LD	24	50	25	71	1	1.434	48.256	0.056	1.887	0.052	1.734
36	14	17%	18%	0%	20%	13%	4%	11%	1%	3%	3%	1%	1%	1%	0%	5%	2%	109	330	LD	24	50	25	71	1	1.472	52.948	0.059	2.125	0.054	1.954
36	15	19%	18%	0%	22%	13%	3%	11%	0%	2%	2%	1%	1%	1%	0%	4%	2%	126	330	LD	24	50	25	72	1	1.397	58.080	0.057	2.353	0.052	2.163
36	16	20%	18%	0%	22%	13%	4%	11%	0%	2%	2%	1%	1%	1%	0%	4%	2%	126	330	LD	24	50	24	74	1	1.420	59.048	0.057	2.382	0.053	2.190
36	17	23%	18%	1%	18%	11%	5%	12%	0%	2%	2%	1%	1%	1%	0%	4%	2%	129	330	LD	24	50	24	76	1	1.412	60.120	0.059	2.492	0.054	2.291
36	18	21%	19%	0%	18%	11%	4%	12%	0%	3%	3%	1%	1%	1%	0%	4%	2%	114	330	LD	24	50	23	77	1	1.468	55.228	0.059	2.209	0.054	2.031
36	19	22%	19%	0%	18%	11%	4%	12%	0%	3%	3%	1%	1%	1%	0%	4%	2%	91	330	LD	25	50	23	78	1	1.429	42.916	0.057	1.709	0.052	1.572
36	20	19%	19%	0%	21%	12%	4%	11%	0%	3%	3%	1%	1%	1%	0%	4%	1%	79	330	LD	25	50	23	79	1	1.415	36.900	0.058	1.506	0.053	1.385
36	21	19%	18%	0%	21%	13%	4%	13%	0%	3%	3%	1%	0%	1%	0%	4%	1%	74	330	LD	25	50	23	80	1	1.436	35.065	0.058	1.407	0.053	1.294
36	22	19%	21%	0%	16%	10%	4%	14%	0%	3%	3%	2%	2%	2%	0%	5%	2%	63	330	LD	25	50	23	81	1	1.522	31.639	0.062	1.288	0.057	1.185
36	23	18%	22%	0%	19%	11%	4%	10%	0%	4%	2%	2%	2%	0%	2%	6%	0%	50	330	LD	25	50	23	81	1	1.472	24.289	0.055	0.906	0.051	0.834
37	0	22%	7%	0%	15%	7%	4%	11%	19%	4%	0%	4%	0%	0%	0%	7%	0%	27	330	LD	25	50	23	82	1	1.505	13.407	0.064	0.570	0.059	0.525
37	1	35%	6%	0%	12%	6%	6%	12%	18%	0%	0%	0%	0%	0%	0%	6%	0%	17	330	LD	25	50	22	82	1	1.376	7.718	0.059	0.330	0.054	0.304
37	2	22%	11%	0%	11%	11%	0%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.697	5.039	0.059	0.175	0.054	0.161
37	3	25%	0%	0%	13%	13%	0%	13%	25%	0%	0%	0%	0%	0%	0%	13%	0%	8	330	LD	25	50	22	83	1	1.856	4.901	0.066	0.175	0.061	0.161
37	4	22%	0%	0%	11%	11%	11%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.902	5.650	0.073	0.216	0.067	0.198
37	5	11%	0%	0%	11%	11%	11%	22%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	2.316	6.877	0.094	0.278	0.086	0.256
37	6	11%	3%	0%	13%	6%	11%	30%	19%	0%	0%	3%	0%	0%	0%	5%	0%	37	330	LD	25	50	22	83	1	2.178	26.588	0.104	1.265	0.095	1.164
37	7	16%	2%	0%	21%	12%	5%	15%	19%	0%	0%	2%	2%	2%	0%	5%	2%	67	330	LD	25	50	22	82	1	1.724	38.127	0.080	1.778	0.074	1.636
37	8	10%	1%	0%	26%	15%	4%	14%	19%	0%	0%	1%	1%	1%	0%	4%	3%	92	330	LD	25	50	23	79	1	1.709	51.873	0.079	2.400	0.073	2.207
37	9	12%	3%	0%	22%	13%	5%	13%	18%	0%	0%	1%	1%	1%	0%	5%	4%	76	330	LD	25	50	23	77	1	1.748	43.831	0.078	1.960	0.072	1.802
37	10	15%	3%	0%	17%	10%	3%	12%	20%	2%	0%	2%	2%	2%	0%	6%	5%	65	330	LD	25	50	24	74	1	1.701	36.483	0.076	1.625	0.070	1.493
37	11	18%	3%	0%	19%	11%	3%	11%	18%	2%	2%	2%	2%	2%	0%	5%	5%	63	330	LD	25	50	25	72	1	1.551	32.239	0.071	1.485	0.066	1.365
37	12	21%	5%	0%	15%	9%	3%	11%	18%	2%	2%	2%	2%	2%	0%	6%	5%	66	330	LD	25	50	25	71	1	1.554	33.839	0.068	1.487	0.063	1.367
37	13	19%	5%	0%	20%	12%	3%	10%	15%	1%	1%	1%	1%	1%	0%	5%	3%	74	330	LD	25	50	25	71	1	1.541	37.627	0.067	1.645	0.062	1.513
37	14	21%	5%	0%	17%	11%	3%	10%	15%	3%	1%	1%	1%	1%	0%	5%	4%	75	330	LD	25	50	25	71	1	1.476	36.523	0.065	1.603	0.060	1.473
37	15	24%	7%	0%	15%	9%	4%	10%	14%	2%	2%	1%	1%	1%	0%	6%	4%	85	330	LD	25	50	25	72	1	1.469	41.207	0.063	1.774	0.058	1.631
37	16	27%	7%	0%	16%	9%	3%	9%	13%	3%	3%	3%	1%	1%	0%	6%	4%	81	330	LD	25	50	24	74	1	1.312	35.070	0.054	1.438	0.049	1.321
37	17	26%	8%	0%	15%	8%	3%	9%	13%	3%	3%	3%	1%	1%	0%	7%	4%	72	330	LD	25	50	24	76	1	1.267	38.050	0.060	1.511	0.046	1.387
37	18	28%	8%	0%	13%	7%	1%	6%	15%	3%	3%	3%	1%	1%	0%	7%	4%	72	330	LD	25	50	23	77	1	1.361	32.338	0.055	1.307	0.051	1.201
37	19	28%	9%	0%	12%	7%	2%	7%	16%	3%	3%	2%	2%	2%	0%	7%	2%	58	330	LD	25	50	23	78	1	1.416	27.097	0.058	1.107	0.053	1.018
37	20	25%	8%	0%	15%	8%	2%	6%	17%	2%	2%	2%	2%	2%	0%	6%	2%	48	330	LD	25	50	23	79	1	1.443	22.863	0.062	0.976	0.057	0.898
37	21	23%	7%	0%	16%	9%	2%	7%	16%	2%	2%	2%	2%	2%	0%	7%	2%	44	330	LD	25	50	23	80	1	1.536	22.307	0.065	0.944	0.060	0.868
37	22	22%	7%	0%	12%	7%	2%	10%	17%	2%	2%	2%	2%	2%	0%	7%	2%	41	330	LD	25	50	23	81	1	1.642	22.220	0.070	0.954	0.065	0.877
37	23	23%	6%	0%	11%	9%	3%	9%	17%	3%	3%	3%	3%	3%	0%	6%	3%	35	330	LD	25	50	23	81	1	1.586	18.315	0.072	0.830	0.066	0.764
38	0	21%	18%	1%	18%	11%	4%	9%	15%	2%	2%	1%	1%	1%	0%	5%	2%	57	330	LD	25	50	24	74	1	1.411	26.539	0.056	1.049	0.051	0.965
38	1	20%	17%	0%	17%	9%	3%	9%	0%	6%	6%	3%	3%	3%	0%	6%	0%	35	330	LD	25	50	22	82	1	1.551	17.915	0.062	0.720	0.057	0.662
38	2	24%	19%	0%	19%	10%	5%	10%	0%	5%	5%	0%	0%	0%	0%	5%	0%	21	330	LD	25	50	22	83	1	1

2018 with Project

2018 w/ Project		Vehicle Breakdown %																	Summary of Emission Factors										
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
44	8	25%	8%	1%	15%	9%	3%	8%	20%	3%	2%	0%	0%	0%	1%	4%	1%	183	70	LD	23	50	23	79	1	1.307	16.746	0.058	0.743	0.053	0.683
44	9	26%	9%	1%	15%	9%	2%	7%	19%	3%	2%	0%	0%	0%	1%	4%	2%	170	70	LD	23	50	23	77	1	1.241	14.763	0.054	0.642	0.050	0.590
44	10	28%	10%	1%	15%	9%	2%	6%	18%	2%	2%	0%	0%	0%	1%	4%	2%	166	70	LD	23	50	24	74	1	1.187	13.791	0.051	0.588	0.047	0.541
44	11	29%	12%	1%	15%	9%	2%	6%	17%	3%	2%	0%	0%	0%	0%	4%	3%	162	70	LD	23	50	25	72	1	1.100	12.475	0.048	0.542	0.044	0.498
44	12	30%	12%	1%	15%	9%	2%	5%	16%	2%	2%	0%	0%	0%	1%	4%	3%	191	70	LD	23	50	25	71	1	1.088	14.546	0.045	0.602	0.041	0.553
44	13	31%	13%	1%	15%	9%	2%	4%	15%	3%	2%	0%	0%	0%	1%	4%	3%	203	70	LD	23	50	25	71	1	1.031	14.644	0.042	0.602	0.039	0.553
44	14	32%	14%	1%	15%	9%	2%	4%	15%	3%	2%	0%	0%	0%	1%	4%	3%	213	70	LD	23	50	25	71	1	1.001	14.927	0.040	0.591	0.036	0.543
44	15	34%	14%	0%	14%	9%	1%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	245	70	LD	22	50	25	72	1	0.986	16.906	0.039	0.676	0.036	0.621
44	16	34%	15%	0%	14%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	258	70	LD	22	50	24	74	1	0.980	17.698	0.038	0.679	0.035	0.623
44	17	35%	15%	0%	14%	9%	1%	2%	12%	2%	2%	0%	0%	0%	0%	4%	4%	294	70	LD	22	50	24	76	1	0.922	18.970	0.035	0.730	0.033	0.669
44	18	34%	15%	0%	15%	8%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	262	70	LD	22	50	23	77	1	0.978	17.934	0.037	0.685	0.034	0.629
44	19	34%	15%	1%	15%	8%	1%	2%	13%	2%	2%	0%	0%	0%	1%	4%	4%	214	70	LD	23	50	23	78	1	0.965	14.454	0.037	0.549	0.034	0.504
44	20	33%	15%	1%	15%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	165	70	LD	24	50	23	79	1	0.917	10.596	0.036	0.412	0.033	0.378
44	21	33%	14%	1%	14%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	4%	139	70	LD	24	50	23	80	1	0.930	9.048	0.036	0.354	0.033	0.325
44	22	32%	13%	1%	15%	9%	2%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	136	70	LD	24	50	23	81	1	0.956	9.104	0.038	0.362	0.035	0.332
44	23	32%	14%	0%	14%	9%	1%	4%	14%	2%	2%	0%	0%	0%	0%	5%	4%	111	70	LD	24	50	23	81	1	0.980	7.611	0.039	0.302	0.036	0.277
45	0	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	3%	313	70	LD	24	50	23	82	1	1.235	27.068	0.052	1.148	0.048	1.055
45	1	27%	21%	1%	12%	7%	4%	12%	6%	2%	1%	1%	1%	1%	0%	3%	3%	188	70	LD	25	50	22	82	1	1.231	16.201	0.051	0.678	0.047	0.623
45	2	27%	21%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	123	70	LD	25	50	22	83	1	1.200	10.329	0.050	0.428	0.046	0.394
45	3	27%	21%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.202	10.264	0.050	0.425	0.046	0.391
45	4	27%	22%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.191	10.171	0.049	0.422	0.045	0.388
45	5	27%	22%	0%	12%	7%	4%	12%	7%	2%	1%	1%	0%	0%	0%	3%	3%	122	70	LD	25	50	22	83	1	1.236	10.553	0.051	0.440	0.047	0.404
45	6	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	3%	369	70	LD	23	50	22	83	1	1.340	34.610	0.057	1.485	0.053	1.364
45	7	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	673	70	LD	21	50	22	82	1	1.418	66.808	0.063	2.977	0.058	2.735
45	8	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	4%	854	70	LD	19	50	23	79	1	1.516	90.614	0.070	4.186	0.064	3.846
45	9	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	735	70	LD	20	50	23	77	1	1.455	74.885	0.066	3.373	0.060	3.100
45	10	27%	22%	0%	11%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	680	70	LD	21	50	24	74	1	1.399	66.593	0.062	2.960	0.057	2.720
45	11	27%	21%	0%	12%	7%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	618	70	LD	21	50	25	72	1	1.360	58.855	0.061	2.638	0.056	2.424
45	12	27%	21%	0%	12%	7%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	685	70	LD	21	50	25	71	1	1.363	65.362	0.060	2.696	0.055	2.661
45	13	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	689	70	LD	21	50	25	71	1	1.359	65.533	0.060	2.894	0.055	2.660
45	14	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	694	70	LD	21	50	25	71	1	1.353	65.712	0.059	2.878	0.054	2.646
45	15	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	762	70	LD	20	50	25	72	1	1.386	73.936	0.062	3.284	0.057	3.020
45	16	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	767	70	LD	20	50	24	74	1	1.391	74.662	0.061	3.275	0.056	3.012
45	17	27%	19%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	836	70	LD	19	50	24	76	1	1.396	81.705	0.062	3.641	0.057	3.348
45	18	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	769	70	LD	20	50	23	77	1	1.400	75.382	0.061	3.276	0.056	3.012
45	19	27%	20%	0%	15%	9%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	638	70	LD	21	50	23	78	1	1.352	60.474	0.059	2.628	0.054	2.416
45	20	27%	20%	0%	15%	9%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	508	70	LD	22	50	23	79	1	1.302	46.297	0.056	1.986	0.051	1.826
45	21	27%	20%	1%	14%	8%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	2%	443	70	LD	22	50	23	80	1	1.298	40.264	0.056	1.729	0.051	1.590
45	22	27%	20%	1%	14%	8%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	3%	441	70	LD	23	50	23	81	1	1.251	38.630	0.054	1.658	0.049	1.523
45	23	27%	21%	0%	13%	8%	4%	11%	6%	1%	1%	1%	0%	0%	0%	3%	3%	378	70	LD	23	50	23	81	1	1.275	33.725	0.055	1.449	0.050	1.331
46	0	20%	16%	0%	9%	6%	8%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	144	280	LD	23	50	23	82	1	1.747	70.432	0.088	3.541	0.081	3.256
46	1	20%	17%	0%	8%	5%	8%	25%	8%	2%	1%	1%	1%	0%	0%	2%	1%	84	280	LD	24	50	22	82	1	1.697	39.919	0.082	1.922	0.075	1.767
46	2	19%	18%	0%	9%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	2%	2%	57	280	LD	25	50	22	83	1	1.606	25.628	0.076	1.221	0.070	1.123
46	3	19%	18%	0%	7%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	2%	2%	57	280	LD	25	50	22	83	1	1.702	27.171	0.077	1.227	0.071	1.129
46	4	18%	18%	0%	7%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	4%	2%	56	280	LD	25	50	22	83	1	1.731	27.141	0.078	1.222	0.072	1.124
46	5	18%	19%	0%	7%	4%	9%	26%	9%	2%	2%	0%	0%	0%	0%	4%	2%	57	280	LD	25	50	22	83	1	1.741	27.788	0.079	1.264	0.073	1.163
46	6	16%	19%	0%	7%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	2%	172	280	LD	23	50	22	82	1	1.873	90.194	0.090	4.357	0.083	4.005
46	7	16%	20%	0%	6%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	3%	317	280	LD	20	50	22	82	1	2.110	187.264	0.104	9.269	0.096	8.522
46	8	15%	20%	0%	6%	4%	9%	26%	9%	2%	2%	1%	1%	1%	0%	3%	3%	402	280	LD	18	50	23	79	1	2.245	252.649	0.115	12.982	0.106	11.936
46	9	16%	19%	0%	7%	4%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	346	280	LD	20	50	23	77	1	2.080	201.534	0.104	10.077	0.096	9.265
46	10	17%	18%	0%	7%	4%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	318	280	LD	20	50	24	74	1	2.044	181.962	0.103	9.197	0.095	8.456
46	11	18%	17%	0%	8%	5%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	288	280	LD	21	50	25	72	1	1.905	153.620	0.096	7.711	0.088	7.091
46	12	20%	17%	0%	8%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	2%	315	280	LD	20	50	25	71	1	1.949	171.874	0.100	8.782	0.092	8.076
46	13	21%	16%	0%	9%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	2%	316	280	LD	20	50	25	71	1	1.915	169.454	0.099	8.730	0.091	8.029
46	14	22%	15%	0%	10%	6%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	1%	317	280	LD	20	50	25	71	1	1.880	166.872	0.098	8.696	0.090	7.998
46	15	23%	14%	0%	10%	6%	8%	23%	8%	2%	1%	1%	0%	0%	0%	2%	1%	346	280	LD	20	50	25	72	1	1.839	178.194	0.097	9.382	0.089	8.630
46	16	24%	13%	0%	11%	6%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	343	280	LD	20	50	24	74	1	1.826	175.356	0.096	9.228	0.088	8.489
46	17	25%	12%	0%	11%	7%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	374	280	LD	19	50	24	76	1	1.852	193.948	0.100	10.449	0.092	9.615
46	18	24%	13%	0%	11%	6%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	344	280	LD	21	50	23	77	1	1.835	176.718	0.096	9.247	0.088	8.508
46	19	24%	13%	0%	11%	6%	8%	23%	7%	2%	1%	0%	0%	0%	0%	2%	1%	284	280	LD	21	50	23	78	1	1.789	142.225	0.092	7.333	0.085	6.747
46	20	23%	14%	0%	10%	6%	8%	24%	7%	2%	2%	0%	0%	0%	0%	2%	1%	230	280	LD	22	50	23	79	1	1.731	111.498	0.088	5.696	0.081	5.239
46	21	22%	14%	1%	10%	6%	8%	23%	7%	2%	2%	1%	1%	1%	0%	2%	1%	202	280	LD	22	50	23	80	1	1.751	99.036	0.089	5.033	0.082	4.630
46	22	22%	15%	1%	9%	5%	8%	24%	7%	2%	2%	1%	1%	1%	0%	2%	2%	202	280	LD	22	50	23	81	1	1.756	99.310	0.090	5.072	0.082	4.665
46	23	21%	15%	0%	9%	5%	9%	24%	8%	2%	2%	1%	1%	1%	0%	2%	1%	171	280	LD	23	50	23	81	1	1.751	83.831	0.087	4.185	0.080	3.848
47	0	13%	41%	0%	11%	7%	0%	4%	22%	0%	0%	0%	0%	0%	0%	0%	0%	47	280	LD	25	50	22	82	1	0.808	10.630	0.038	0.495	0.035	0.456
47	1	15%	41%	0%	11%	7%	0%	4%	22%	0%	0%	0%	0%	0%	0%	0%	0%	27	280	LD	25	50	22	82	1	0.760	5.743	0.034	0.256	0.031	0.236
47	2	13%	38%	0%	13%	6%	0%	6%	25%	0%	0%	0%	0%	0%	0%	0%	0%	16	280	LD	25	50	22	83	1	0.857	3.842	0.041	0.184	0.038	0.170
47	3	13%	33%	0%	13%	7%	0%	7%	27%	0%	0%	0%	0%	0%	0%	0%	0%	15	280	LD	25	50	22	83	1	0.885	3.715	0.044	0.184	0.040	0.169
47	4	14%	29%	0%	14%	7%	0%	7%	29%	0%	0%	0%	0%	0%	0%	0%	0%	14	280	LD	25	50	22	83	1	0.913	3.579	0.047	0.183	0.043	0.169
47	5	17%	25%	0%	8%	8%	0%	8%	33%	0%	0%	0%	0%	0%	0%	0%	0%	12	280	LD	25	50	22	83	1	0.966	3.247	0.051	0.170	0.047	0.157
47	6	13%	20%	0%	10%	5%	3%	8%	30%	3%	3%	3%	3%	3%	0%	0%	0%	40	280	LD	25	50	22	83	1	1.226	13.731	0.068	0.763	0.063	0.703
47	7	13%	14%	0%	11%	6%	3%	8%	36%	2%	2%	3%	2%	2%	0%	0%	0%	64	280	LD	25	50	22	82	1	1.227	21.991	0.070	1.258	0.065	1.158
47	8	11%	14%	0%	7%	5%	3%	8%	41%	1%	1%	3%	1%	1%	0%	0%	0%	74	280	LD	25	50	23	79	1	1.370	28.383	0.082	1.696	0.075	1.562
47	9	12%	19%	0%	11%	7%	3%	7%	33%	1%	1%	3%	1%	1%	0%	0%	0%	75	280	LD	25	50	23	77	1	1.220	25.630	0.067	1.417	0.062	1.304
47	10	13%	27%	0%	10%	6%	3%	5%	28%	1%	1%	3%	1%	1%	0%	0%	0%	78	280	LD	25	50	24	74	1	1.035	22.608	0.056	1.214	0.051	1.117
47	11	13%	33%	0%	10%	6%	1%	5%	24%	1%	1%	1%	1%	1%	0%	0%	0%	78	280	LD	25	50	25	72	1	0.960	20.960	0.049	1.073	0.045	0.988
47	12	13%	38%	0%	10%	6%	1%	4%	22%	1%	1%	1%	1%	1%	0%	0%	0%	97	280	LD	25	50	25	71	1	0.871	23.658	0.042	1.147	0.039	1.057
47	13	13%	43%	0%	10%	7%	1%	4%	19%	1%	1%	1%	1%	1%	0%	0%	0%	108	280	LD	24	50	25	71	1	0.852	25.753	0.040	1.206	0.037	1.109
47	14	14%	47%	0%	10%	6%	1%	3%	16%	0%	0%	1%	1%	1%	0%	0%	0%	116	280	LD	24	50	25	71	1	0.793	25.751	0.035	1.152	0.033	1.059
47	15	14%	50%	0%	10%	6%	1%	2%	15%	0%	0%	1%	1%	1%	0%	1%	1%	137	280	LD	24	50	25	72	1	0.734	28.165	0.031	1.199	0.029	1.102
47	16	14%	52%	0%	10%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	149	280	LD	24	50	24	74	1	0.730	30.449	0.029	1.230	0.027	1.130
47	17	14%	53%	0%	10%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	174	280	LD	24	50	24	76	1	0.698	33.993	0.027	1.322	0.025	1.216
47	18	14%	52%	0%	10%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	155	280	LD	24	50	23	77	1	0.712	30.921	0.028	1.214	0.026	1.116
47	19	14%	51%	0%	11%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	124	280	LD	24	50	23	78	1	0.757	26.269	0.031	1.085	0.029	0.997
47	20	14%	49%	0%	10%	6%	1%	2%	14%	0%	0%	1%	1%	1%	0%	0%	1%	96	280	LD	25	50	23	79	1	0.767	20.623	0.032	0.858	0.029	0.789
47	21	14%	48%	0%	10%	6%	1%	3%	15%	0%	0%	1%	0%	1%	0%	0%	0%	79	280	LD	25	50	23	80	1	0.777	17.177	0.033	0.724	0.030	0.666
47	22	13%	45%	0%	11%	7%	1%	3%	16%	0%	0%	1%	1%	1%	0%	0%	0%	75	280	LD	25	50	23	81	1	0.839	17.616	0.038	0.791	0.035	0.729
47	23	13%	44%	0%	10%	7%	2%	3%	18%	0%	0%	2%	0%	2%	0%	0%	0%	61	280	LD	25	50	23	81	1	0.848	14.479	0.038	0.651	0.035	0.600
48	0	5%	6%	0%	11%	6%	19%	52%	0%	0%	0%	0%	0%	0%	0%	2%	0%	65	300	LD	25	50	23	82	1	2.585	50.412	0.134	2.619	0.124	2.409
48	1	5%	8%	0%	10%	5%	18%	53%	0%	0%	0%	0%	0%	0%	0%	3%	0%	40	300	LD	25	50	22	82	1	2.599	31.188	0.133	1.593	0.122	1.465
48	2	4%	8%	0%	8%	4%	19%	54%	0%	0%	0%	0%	0%	0%	0%	4%	0%	26	300	LD	25	50	22	83	1	2.646	20.640	0.136	1.060	0.125	0.975
48	3	4%	8%	0%	8%	4%	19%	54%	0%	0%	0%	0%	0%	0%	0%	4%	0%	26	300	LD	25	50	22	83	1	2.646	20.640	0.136	1.060	0.125	0.975
48	4	7%	7%	0%	7%	4%	19%	52%	0%	0%	0%	0%	0%	0%	0%	4%	0%	27	300	LD	25	50	22	83	1	2.554	20.691	0.131	1.064	0.121	0.978
48	5	7%	7%	0%	7%	4%	19%	52%	0%	0%	0%	0%	0%	0%	0%	4%	0%	27	300	LD	25	50	22	83	1	2.554	20.691	0.131	1.064	0.121	0.978
48	6	6%	10%	0%	7%	5%	18%	51%	0%	0%	0%	0%	0%	0%	0%	4%	0%	83	300	LD	24	50	22	83	1	2.602	64.791	0.135	3.371	0.124	3.098
48	7	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	4%	0%	154	300	LD	23	50	22	82	1	2.719	125.632	0.144	6.664	0.133	6.125
48	8	6%	11%	0%	6%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	4%	0%	197	300	LD	22	50	23	79	1	2.793	165.071	0.152	8.971	0.140	8.247
48	9	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	4%	0%	168	300	LD	22	50	23	77	1	2.828	142.540	0.153	7.700	0.140	7.079
48	10	6%	9%	0%	8%	5%	18%	50%	0%	0%	0%	1%	1%	1%	0%	3%	0%	153	300	LD	23	50	24	74	1	2.741	125.794	0.147	6.734	0.135	6.190
48	11	5%	8%	0%	9%	5%	18%	51%	0%	0%	0%	1%	0%	0%	0%	3%	0%	135	300	LD	23	50	25	72	1	2.690	108.964	0.145	5.879	0.133	5.404
48	12	5%	7%	0%	10%	5%	18%	51%	0%	0%	0%	1%	1%	0%	0%	3%	0%	148	300	LD	23	50	25	71	1	2.724	120.957	0.147	6.514	0.135	5.989
48	13	6%	6%	0%	10%	6%	18%	52%	0%	0%	0%	0%	0%	0%	0%	2%	0%	144	300	LD	23	50	25	71	1	2.751	118.847	0.148	6.385	0.136	5.871
48	14	5%	5%	0%	11%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	143	300	LD	23	50	25	71	1	2.778	119.185	0.149	6.400	0.137	5.885
48	15	5%	4%	0%	12%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	155	300	LD	22	50	25	72	1	2.863	133.122	0.157	7.311	0.145	6.725
48	16	5%	3%	1%	13%	8%	18%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	153	300	LD	23	50	24	74	1	2.814	129.166	0.150	6.908	0.138	6.353
48	17	4%	1%	1%	14%	9%	18%	52%	0%	1%	0%	0%	0%	0%	0%	0%	0%	164	300	LD	22	50	24	76	1	2.906	142.988	0.159	7.840	0.147	7.213
48	18	5%	2%	1%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	151	300	LD	23	50	23	77	1	2.862	129.639	0.152	6.897	0.140	6.344
48	19	5%	2%	0%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	127	300	LD	23	50	23	78	1	2.850	108.584	0.152	5.793	0.140	5.328
48	20	5%	3%	0%	13%	8%	18%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	103	300	LD	24	50	23	79	1	2.723	84.132	0.143	4.419	0.132	4.064
48	21	4%	4%	0%	12%	7%	19%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	90	300	LD	24	50	23	80	1	2.701	72.920	0.142	3.847	0.131	3.538
48	22	6%	4%	0%	11%	7%	19%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	90	300	LD	24	50	23	81	1	2

2023 with Project

2023 w/ Project		Vehicle Breakdown %																Summary of Emission Factors											
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
1	0	37%	11%	1%	19%	12%	2%	3%	0%	2%	1%	1%	1%	1%	1%	4%	7%	206	230	EX	70	70	23	82	0	0.417	19.776	0.019	0.880	0.017	0.809
1	1	38%	12%	1%	20%	12%	1%	3%	0%	2%	1%	1%	0%	0%	0%	4%	7%	121	230	EX	70	70	22	83	0	0.399	11.092	0.015	0.428	0.014	0.394
1	2	38%	10%	0%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	6%	79	230	EX	70	70	22	83	0	0.402	7.298	0.016	0.297	0.015	0.273
1	3	38%	10%	0%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	80	230	EX	70	70	22	83	0	0.402	7.405	0.016	0.300	0.015	0.276
1	4	36%	10%	0%	21%	14%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	80	230	EX	70	70	22	83	0	0.411	7.568	0.017	0.309	0.015	0.284
1	5	36%	11%	1%	21%	13%	1%	3%	0%	1%	1%	0%	0%	0%	0%	4%	9%	118	230	EX	70	70	22	83	0	0.412	11.181	0.016	0.429	0.015	0.394
1	6	35%	10%	0%	22%	13%	1%	3%	0%	1%	1%	0%	0%	0%	0%	4%	8%	237	230	EX	70	70	22	83	0	0.428	23.303	0.017	0.902	0.015	0.829
1	7	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	394	230	EX	70	70	22	82	0	0.432	39.122	0.017	1.531	0.016	1.408
1	8	34%	10%	1%	23%	14%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	510	230	EX	70	70	23	79	0	0.426	49.998	0.017	1.973	0.015	1.815
1	9	35%	10%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	518	230	EX	70	70	23	77	0	0.432	51.464	0.018	2.119	0.016	1.949
1	10	35%	10%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	8%	482	230	EX	70	70	24	74	0	0.419	46.486	0.017	1.933	0.016	1.778
1	11	36%	11%	1%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	7%	443	230	EX	70	70	25	72	0	0.413	42.096	0.017	1.750	0.016	1.610
1	12	37%	11%	0%	20%	12%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	7%	449	230	EX	70	70	25	71	0	0.410	42.358	0.017	1.798	0.016	1.654
1	13	38%	12%	0%	20%	12%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	7%	453	230	EX	70	70	25	71	0	0.408	42.544	0.017	1.809	0.016	1.665
1	14	39%	12%	0%	19%	11%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	6%	457	230	EX	70	70	25	71	0	0.403	42.330	0.017	1.824	0.016	1.678
1	15	39%	12%	0%	18%	11%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	6%	499	230	EX	70	70	25	72	0	0.396	45.393	0.018	2.034	0.016	1.872
1	16	40%	13%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	0%	4%	5%	545	230	EX	70	70	24	74	0	0.401	50.241	0.018	2.229	0.016	2.051
1	17	41%	13%	0%	17%	10%	1%	4%	0%	2%	1%	1%	0%	1%	0%	4%	5%	549	230	EX	70	70	24	76	0	0.390	49.247	0.017	2.208	0.016	2.032
1	18	40%	13%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	0%	4%	5%	464	230	EX	70	70	23	77	0	0.403	42.956	0.018	1.896	0.016	1.745
1	19	40%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	1%	0%	4%	5%	380	230	EX	70	70	23	78	0	0.407	35.557	0.018	1.579	0.017	1.453
1	20	39%	12%	1%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	0%	4%	6%	333	230	EX	70	70	23	79	0	0.402	30.782	0.017	1.330	0.016	1.224
1	21	39%	12%	0%	19%	12%	1%	4%	0%	2%	1%	1%	0%	0%	0%	4%	6%	291	230	EX	70	70	23	80	0	0.410	27.409	0.018	1.172	0.016	1.078
1	22	38%	12%	0%	19%	12%	1%	4%	0%	2%	1%	1%	0%	0%	0%	4%	6%	251	230	EX	70	70	23	81	0	0.419	24.180	0.018	1.061	0.017	0.976
1	23	38%	12%	0%	19%	12%	1%	4%	0%	1%	1%	0%	0%	0%	0%	4%	6%	250	230	EX	70	70	23	81	0	0.419	24.109	0.018	1.058	0.017	0.973
2	0	40%	10%	1%	17%	10%	1%	3%	1%	3%	3%	1%	1%	1%	1%	3%	6%	218	420	EX	70	70	23	82	0	0.383	35.037	0.018	1.677	0.017	1.543
2	1	41%	10%	1%	17%	10%	1%	3%	0%	3%	3%	1%	1%	1%	0%	3%	5%	129	420	EX	70	70	22	82	0	0.376	20.374	0.019	1.014	0.017	0.933
2	2	40%	11%	0%	17%	9%	1%	3%	0%	3%	2%	1%	1%	1%	0%	3%	6%	89	420	EX	70	70	22	83	0	0.386	14.428	0.020	0.753	0.019	0.693
2	3	42%	11%	0%	16%	9%	1%	3%	0%	3%	2%	1%	1%	1%	0%	3%	5%	88	420	EX	70	70	22	83	0	0.381	14.071	0.020	0.744	0.019	0.685
2	4	41%	11%	0%	16%	9%	1%	3%	1%	3%	3%	1%	1%	1%	0%	3%	5%	90	420	EX	70	70	22	83	0	0.381	14.412	0.020	0.764	0.019	0.703
2	5	42%	12%	0%	15%	9%	2%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	133	420	EX	70	70	22	83	0	0.364	20.335	0.019	1.042	0.017	0.959
2	6	42%	13%	0%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	270	420	EX	70	70	22	83	0	0.371	42.042	0.018	2.055	0.017	1.892
2	7	43%	13%	0%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	4%	452	420	EX	70	70	22	82	0	0.370	70.324	0.018	3.460	0.017	3.185
2	8	43%	14%	0%	13%	8%	1%	4%	1%	4%	3%	1%	1%	1%	0%	3%	4%	588	420	EX	70	70	23	79	0	0.359	88.741	0.017	4.307	0.016	3.966
2	9	43%	13%	0%	14%	8%	1%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	586	420	EX	70	70	23	77	0	0.365	89.923	0.018	4.317	0.016	3.974
2	10	42%	12%	0%	15%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	3%	5%	534	420	EX	70	70	24	74	0	0.374	83.816	0.018	4.019	0.016	3.700
2	11	41%	11%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	488	420	EX	70	70	25	72	0	0.377	77.184	0.018	3.760	0.017	3.461
2	12	41%	10%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	484	420	EX	70	70	25	71	0	0.381	77.528	0.018	3.749	0.017	3.451
2	13	40%	9%	0%	18%	10%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	481	420	EX	70	70	25	71	0	0.387	78.215	0.019	3.789	0.017	3.487
2	14	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	476	420	EX	70	70	25	71	0	0.395	78.940	0.019	3.804	0.018	3.501
2	15	39%	7%	0%	19%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	513	420	EX	70	70	25	72	0	0.399	86.031	0.019	4.152	0.018	3.821
2	16	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	554	420	EX	70	70	24	74	0	0.410	95.295	0.019	4.443	0.018	4.088
2	17	37%	6%	1%	21%	13%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	549	420	EX	70	70	24	76	0	0.412	95.064	0.019	4.481	0.018	4.123
2	18	37%	6%	0%	21%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	488	420	EX	70	70	23	77	0	0.416	81.806	0.020	3.877	0.018	3.567
2	19	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	383	420	EX	70	70	23	78	0	0.414	66.618	0.019	3.087	0.018	2.840
2	20	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	344	420	EX	70	70	23	79	0	0.414	59.847	0.020	2.860	0.018	2.632
2	21	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	299	420	EX	70	70	23	80	0	0.407	51.073	0.020	2.462	0.018	2.265
2	22	39%	9%	0%	19%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	260	420	EX	70	70	23	81	0	0.407	44.443	0.019	2.084	0.018	1.918
2	23	40%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	262	420	EX	70	70	23	81	0	0.404	44.433	0.019	2.090	0.017	1.923
3	0	36%	17%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	771	530	EX	70	70	23	82	0	0.413	168.624	0.022	9.044	0.020	8.322
3	1	36%	18%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	465	530	EX	70	70	22	82	0	0.425	104.767	0.023	5.611	0.021	5.163
3	2	36%	18%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	307	530	EX	70	70	22	83	0	0.417	67.771	0.022	3.572	0.020	3.287
3	3	36%	19%	0%	13%	7%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	309	530	EX	70	70	22	83	0	0.417	68.262	0.023	3.735	0.021	3.437
3	4	36%	19%	0%	12%	7%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	309	530	EX	70	70	22	83	0	0.416	68.189	0.023	3.730	0.021	3.432
3	5	36%	19%	0%	12%	7%	3%	7%	0%	3%	3%	1%	1%	1%	0%	3%	4%	474	530	EX	70	70	22	83	0	0.420	105.453	0.022	5.618	0.021	5.170
3	6	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	2%	1%	1%	0%	3%	4%	953	530	EX	70	70	22	83	0	0.421	212.727	0.023	11.759	0.021	10.821
3	7	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1598	530	EX	69	70	22	82	0	0.427	361.599	0.023	19.767	0.021	18.172
3	8	36%	20%	0%	11%	6%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	2092	530	EX	64	70	23	79	0	0.430	476.232	0.022	24.515	0.020	22.538
3	9	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	2071	530	EX	64	70	23	77	0	0.431	473.422	0.022	23.818	0.020	21.897
3	10	36%	19%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1900	530	EX	66	70	24	74	0	0.424	427.273	0.022	21.951	0.020	20.207
3	11	36%	19%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1726	530	EX	68	70	25	72	0	0.417	381.024	0.022	20.267	0.020	18.614
3	12	35%	18%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1720	530	EX	68	70	25	71	0	0.423	385.300	0.022	20.163	0.020	18.518
3	13	36%	17%	0%	14%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1689	530	EX	68	70	25	71	0	0.421	377.076	0.022	19.660	0.020	18.055
3	14	35%	16%	0%	15%	9%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1679	530	EX	69	70	25	71	0	0.420	373.365	0.022	19.380	0.020	17.817
3	15	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	1819	530	EX	67	70	25	72	0	0.422	406.461	0.021	20.432	0.020	18.804
3	16	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1942	530	EX	66	70	24	74	0	0.425	437.387	0.020	21.037	0.019	19.364
3	17	35%	14%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1917	530	EX	66	70	24	76	0	0.419	426.047	0.020	20.317	0.018	18.701
3	18	35%	15%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1628	530	EX	69	70	23	77	0	0.421	363.302	0.021	17.813	0.019	16.377
3	19	36%	15%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1337	530	EX	70	70	23	78	0	0.418	296.228	0.021	14.844	0.019	13.659
3	20	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1201	530	EX	70	70	23	79	0	0.418	266.111	0.021	13.630	0.020	12.542
3	21	35%	16%	0%	16%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	1064	530	EX	70	70	23	80	0	0.419	236.100	0.022	12.228	0.020	11.253
3	22	36%	17%	0%	15%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	905	530	EX	70	70	23	81	0	0.414	198.719	0.022	10.427	0.020	9.595
3	23	36%	17%	0%	15%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	910	530	EX	70	70	23	81	0	0.410	197.590	0.022	10.485	0.020	9.648
4	0	34%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	709	360	EX	70	70	23	82	0	0.449	114.631	0.022	5.587	0.020	5.140
4	1	35%	18%	1%	16%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	4%	431	360	EX	70	70	22	82	0	0.450	69.795	0.022	3.341	0.020	3.074
4	2	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	0%	0%	0%	0%	4%	5%	284	360	EX	70	70	22	83	0	0.461	47.122	0.021	2.195	0.020	2.019
4	3	33%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	0%	4%	5%	285	360	EX	70	70	22	83	0	0.462	47.440	0.021	2.204	0.020	2.028
4	4	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	0%	4%	5%	289	360	EX	70	70	22	83	0	0.460	47.837	0.021	2.190	0.019	2.015
4	5	33%	19%	1%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	0%	4%	4%	433	360	EX	70	70	22	83	0	0.454	70.702	0.021	3.278	0.019	3.016
4	6	32%	20%	0%	16%	10%	3%	9%	0%	1%	1%	0%	0%	0%	0%	3%	4%	874	360	EX	70	70	22	83	0	0.459	144.470	0.021	6.753	0.020	6.213
4	7	32%	20%	0%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	0%	3%	4%	1470	360	EX	70	70	22	82	0	0.457	241.625	0.021	11.191	0.019	10.296
4	8	31%	20%	0%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	0%	3%	4%	1923	360	EX	66	70	23	79	0	0.457	316.426	0.020	14.020	0.019	12.905
4	9	32%	20%	0%	17%	10%	3%	8%	0%	1%	1%	0%	0%	0%	0%	3%	4%	1902	360	EX	66	70	23	77	0	0.463	316.847	0.021	14.054	0.019	12.936
4	10	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	0%	3%	4%	1740	360	EX	67	70	24	74	0	0.454	284.303	0.021	12.901	0.019	11.871
4	11	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	0%	4%	5%	1587	360	EX	69	70	25	72	0	0.451	257.441	0.021	12.111	0.019	11.134
4	12	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	0%	4%	5%	1573	360	EX	69	70	25	71	0	0.452	256.006	0.021	12.015	0.020	11.045
4	13	34%	18%	0%	16%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	1573	360	EX	69	70	25	71	0	0.452	255.818	0.021	12.127	0.020	11.148
4	14	35%	18%	0%	16%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	1562	360	EX	69	70	25	71	0	0.451	253.824	0.022	12.135	0.020	11.155
4	15	36%	17%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	1696	360	EX	68	70	25	72	0	0.452	276.233	0.022	13.218	0.020	12.138
4	16	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	0%	4%	5%	1821	360	EX	67	70	24	74	0	0.456	298.739	0.021	14.010	0.020	12.894
4	17	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	1%	0%	5%	5%	1813	360	EX	67	70	24	76	0	0.449	293.275	0.021	13.849	0.020	12.746
4	18	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	0%	4%	5%	1530	360	EX	70	70	23	77	0	0.454	249.881	0.022	12.160	0.020	11.190
4	19	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	1%	0%	4%	5%	1258	360	EX	70	70	23	78	0	0.455	206.051	0.022	10.042	0.020	9.241
4	20	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	1120	360	EX	70	70	23	79	0	0.450	181.543	0.022	8.695	0.020	8.001
4	21	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	985	360	EX	70	70	23	80	0	0.450	159.412	0.022	7.630	0.020	7.021
4	22	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	844	360	EX	70	70	23	81	0	0.446	135.398	0.022	6.567	0.020	6.043
4	23	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	847	360	EX	70	70	23	81	0	0.447	136.244	0.022	6.607	0.020	6.079
5	0	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	0%	4%	4%	4%	4%	486	230	PD	40	50	23	82	0	0.581	64.902	0.020	2.267	0.019	2.087
5	1	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	4%	296	230	PD	40	50	22	82	0	0.597	40.612	0.021	1.408	0.019	1.296
5	2	33%	22%	1%	15%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	3%	193	230	PD	40	50	22	83	0	0.581	25.792	0.020	0.887	0.018	0.817
5	3	33%	22%	1%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	3%	194	230	PD	40	50	22	83	0	0.581	25.922	0.020	0.890	0.018	0.819
5	4	32%	23%	1%	14%	8%	3%	10%	0%	1%	1%	1%	1%	1%	0%	4%	3%	194	230	PD	40	50	22	83	0	0.573	25.556	0.020	0.894	0.018	0.823
5	5	32%	23%	1%	14%	8%	4%	10%	0%	1%	1%	1%	1%	1%	0%	4%	3%	194	230	PD	40	50	22	83	0	0.573	25.556	0.020	0.894	0.018	0.823
5	6	31%	23%	0%	14%	8%	4%	11%	0%	1%	1%	1%	0%	0%	0%	3%	3%	600	230	PD	40	50	22	83	0	0.605	83.461	0.021	2.866	0.019	2.638
5	7	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	1%	0%	0%	0%	3%	3%	1098	230	PD	37	50	22	82	0	0.613	154.853	0.021	5.197	0.019	4.777
5	8	30%	23%	0%	15%	9%	4%	10%	0%	1%	1%	0%	0%	0%	0%	3%	3%	1409	230	PD	34	50	23	79	0	0.625	202.590	0.021	6.755	0.019	6.213
5	9	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	0%	0%	0%	0%	3%	3%	1197	230	PD	36	50	23	77	0	0.619	170.355	0.021	5.660	0.019	5.205
5	10	32%	23%	0%	14%	9%	3%	10%	0%	1%	1%	1%	0%	0%	0%	3%	3%	1091	230	PD	37	50	24	74	0	0.607	152.266	0.020	5.144	0.019	4.728
5	11	32%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	3%	988	230	PD	37	50	25	72	0	0.603	136.929	0.021	4.704	0.019	4.324
5	12	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	4%	1078	230	PD	37	50	25	71	0	0.611	151.382	0.021	5.175	0.019	4.757
5	13	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	0%	4%	4%	1085	230	PD	37	50	25	71	0	0.613	152.988	0.021	5.247	0.019	4.822
5	14	34%	20%	0%	14%	8%	3%	8%	0%	1%	1%	1%	1%	0%	4%	4%	4

2023 with Project

2023 w/ Project		Vehicle Breakdown %																	Summary of Emission Factors												
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
11	20	34%	19%	0%	13%	8%	3%	9%	3%	2%	1%	1%	0%	0%	0%	4%	3%	667	210	DD	27	50	23	79	1	0.712	99.796	0.024	3.339	0.022	3.070
11	21	34%	19%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	588	210	DD	27	50	23	80	1	0.717	88.529	0.024	3.023	0.023	2.779
11	22	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	591	210	DD	27	50	23	81	1	0.717	88.974	0.024	2.991	0.022	2.750
11	23	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	512	210	DD	28	50	23	81	1	0.707	75.965	0.024	2.588	0.022	2.378
12	0	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	499	160	DD	28	50	23	82	1	0.676	53.980	0.024	1.877	0.022	1.725
12	1	31%	20%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	296	160	DD	29	50	22	82	1	0.679	32.156	0.023	1.090	0.021	1.001
12	2	31%	21%	1%	13%	8%	3%	8%	4%	2%	2%	1%	1%	0%	0%	3%	3%	194	160	DD	30	50	22	83	1	0.648	19.811	0.023	0.698	0.021	0.641
12	3	31%	22%	1%	13%	8%	3%	8%	4%	2%	2%	1%	1%	0%	0%	3%	3%	191	160	DD	30	50	22	83	1	0.648	19.808	0.023	0.695	0.021	0.638
12	4	31%	22%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	190	160	DD	30	50	22	83	1	0.663	20.152	0.023	0.706	0.021	0.648
12	5	31%	22%	1%	12%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	189	160	DD	30	50	22	83	1	0.663	20.049	0.023	0.702	0.021	0.645
12	6	30%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	565	160	DD	27	50	22	83	1	0.716	64.755	0.024	2.175	0.022	1.999
12	7	30%	23%	0%	11%	7%	3%	9%	5%	2%	2%	1%	1%	1%	0%	3%	3%	1030	160	DD	24	50	22	82	1	0.779	128.419	0.026	4.263	0.024	3.920
12	8	30%	23%	0%	11%	6%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1294	160	DD	23	50	23	79	1	0.795	164.495	0.026	5.435	0.024	5.001
12	9	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	0%	0%	3%	3%	1130	160	DD	24	50	23	77	1	0.777	140.430	0.025	4.609	0.023	4.239
12	10	30%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1049	160	DD	24	50	24	74	1	0.762	127.895	0.025	4.262	0.023	3.920
12	11	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	966	160	DD	25	50	25	72	1	0.729	112.618	0.025	3.816	0.023	3.506
12	12	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1079	160	DD	24	50	25	71	1	0.752	129.754	0.025	4.380	0.023	4.029
12	13	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1098	160	DD	24	50	25	71	1	0.745	130.921	0.025	4.415	0.023	4.060
12	14	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1112	160	DD	24	50	25	71	1	0.740	131.606	0.025	4.430	0.023	4.074
12	15	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1227	160	DD	23	50	25	72	1	0.748	146.759	0.025	4.907	0.023	4.514
12	16	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1246	160	DD	23	50	24	74	1	0.753	150.203	0.025	4.967	0.023	4.569
12	17	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1368	160	DD	22	50	24	76	1	0.767	167.813	0.026	5.534	0.023	5.087
12	18	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1253	160	DD	23	50	23	77	1	0.755	151.435	0.025	4.980	0.023	4.581
12	19	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1037	160	DD	24	50	23	78	1	0.736	122.124	0.024	4.065	0.023	3.738
12	20	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	824	160	DD	26	50	23	79	1	0.706	93.069	0.024	3.164	0.022	2.909
12	21	31%	19%	0%	14%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	713	160	DD	26	50	23	80	1	0.699	79.713	0.024	2.696	0.022	2.479
12	22	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	708	160	DD	26	50	23	81	1	0.697	78.957	0.024	2.678	0.022	2.463
12	23	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	602	160	DD	27	50	23	81	1	0.687	66.150	0.024	2.266	0.022	2.083
13	0	39%	20%	1%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	5%	163	60	DD	30	50	23	82	1	0.464	4.539	0.016	0.152	0.014	0.139
13	1	39%	20%	0%	16%	8%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	4%	95	60	DD	30	50	22	82	1	0.458	2.610	0.014	0.082	0.013	0.075
13	2	39%	21%	0%	16%	8%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	5%	61	60	DD	30	50	22	83	1	0.436	1.594	0.012	0.045	0.011	0.041
13	3	41%	22%	0%	14%	9%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	3%	58	60	DD	30	50	22	83	1	0.431	1.500	0.012	0.042	0.011	0.038
13	4	40%	24%	0%	14%	9%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	3%	58	60	DD	30	50	22	83	1	0.437	1.520	0.012	0.041	0.011	0.038
13	5	39%	25%	0%	14%	9%	0%	0%	0%	4%	4%	0%	0%	0%	0%	4%	4%	57	60	DD	30	50	22	83	1	0.447	1.529	0.012	0.041	0.011	0.038
13	6	38%	23%	1%	14%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	3%	176	60	DD	30	50	22	83	1	0.479	5.058	0.015	0.160	0.014	0.147
13	7	38%	24%	0%	13%	8%	0%	1%	0%	4%	4%	1%	1%	1%	0%	4%	3%	317	60	DD	29	50	22	82	1	0.517	9.833	0.016	0.297	0.014	0.272
13	8	37%	25%	0%	13%	8%	0%	1%	0%	4%	4%	1%	1%	1%	0%	4%	4%	393	60	DD	29	50	23	79	1	0.509	12.003	0.015	0.363	0.014	0.334
13	9	37%	23%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	353	60	DD	29	50	23	77	1	0.517	10.957	0.016	0.339	0.015	0.311
13	10	38%	22%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	4%	334	60	DD	29	50	24	74	1	0.509	10.209	0.016	0.319	0.015	0.293
13	11	38%	21%	0%	14%	8%	0%	1%	0%	4%	4%	1%	1%	1%	0%	4%	4%	315	60	DD	29	50	25	72	1	0.498	9.418	0.016	0.301	0.015	0.276
13	12	38%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	5%	358	60	DD	29	50	25	71	1	0.512	11.003	0.016	0.352	0.015	0.323
13	13	39%	19%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	4%	369	60	DD	29	50	25	71	1	0.504	11.157	0.016	0.355	0.015	0.326
13	14	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	377	60	DD	29	50	25	71	1	0.500	11.306	0.016	0.364	0.015	0.334
13	15	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	423	60	DD	28	50	25	72	1	0.498	12.632	0.016	0.417	0.015	0.382
13	16	39%	16%	1%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	436	60	DD	28	50	24	74	1	0.510	13.334	0.017	0.435	0.015	0.399
13	17	40%	15%	0%	16%	10%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	485	60	DD	28	50	24	76	1	0.501	14.567	0.017	0.480	0.015	0.440
13	18	39%	16%	1%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	7%	442	60	DD	28	50	23	77	1	0.516	13.676	0.017	0.444	0.015	0.407
13	19	39%	16%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	6%	360	60	DD	29	50	23	78	1	0.496	10.716	0.016	0.341	0.014	0.312
13	20	39%	17%	0%	15%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	4%	6%	285	60	DD	29	50	23	79	1	0.508	8.691	0.016	0.276	0.015	0.253
13	21	39%	17%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	243	60	DD	29	50	23	80	1	0.499	7.278	0.016	0.230	0.014	0.210
13	22	39%	16%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	238	60	DD	30	50	23	81	1	0.488	6.974	0.015	0.219	0.014	0.201
13	23	39%	16%	0%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	6%	200	60	DD	30	50	23	81	1	0.459	5.508	0.015	0.183	0.014	0.168
14	0	58%	16%	0%	6%	4%	0%	0%	0%	4%	4%	2%	2%	2%	0%	0%	0%	50	590	LD	25	50	23	82	1	0.318	9.366	0.019	0.549	0.017	0.504
14	1	59%	17%	0%	7%	3%	0%	0%	0%	3%	3%	3%	0%	0%	0%	0%	3%	29	590	LD	25	50	22	82	1	0.238	4.064	0.013	0.220	0.012	0.202
14	2	63%	16%	0%	5%	5%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	19	590	LD	25	50	22	83	1	0.209	2.345	0.010	0.109	0.009	0.100
14	3	60%	20%	0%	5%	5%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	20	590	LD	25	50	22	83	1	0.217	2.564	0.009	0.108	0.008	0.099
14	4	62%	19%	0%	5%	5%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	21	590	LD	25	50	22	83	1	0.209	2.585	0.009	0.113	0.008	0.103
14	5	59%	18%	0%	6%	5%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	22	590	LD	25	50	22	83	1	0.220	2.857	0.010	0.126	0.009	0.116
14	6	55%	20%	0%	7%	4%	0%	0%	0%	4%	3%	1%	1%	1%	0%	0%	0%	71	590	LD	25	50	22	83	1	0.305	12.771	0.016	0.661	0.014	0.607
14	7	55%	19%	0%	8%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	0%	134	590	LD	24	50	22	82	1	0.334	26.368	0.018	1.413	0.016	1.303
14	8	54%	20%	0%	7%	4%	0%	1%	0%	5%	4%	2%	1%	2%	0%	0%	2%	173	590	LD	24	50	23	79	1	0.326	33.286	0.017	1.703	0.015	1.571
14	9	55%	18%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	142	590	LD	24	50	23	77	1	0.330	27.633	0.017	1.459	0.016	1.345
14	10	56%	19%	0%	7%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	123	590	LD	24	50	24	74	1	0.329	23.869	0.017	1.262	0.016	1.164
14	11	56%	18%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	115	590	LD	25	50	25	71	1	0.327	22.169	0.018	1.220	0.017	1.120
14	12	57%	17%	0%	7%	4%	0%	1%	0%	5%	4%	2%	2%	2%	0%	0%	2%	109	590	LD	25	50	25	71	1	0.293	18.862	0.015	0.995	0.014	0.913
14	13	58%	16%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	101	590	LD	25	50	25	71	1	0.294	17.503	0.016	0.954	0.015	0.876
14	14	59%	14%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	105	590	LD	25	50	24	72	1	0.297	18.386	0.016	1.009	0.015	0.926
14	15	59%	14%	0%	8%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	105	590	LD	25	50	24	74	1	0.297	18.386	0.016	1.009	0.015	0.926
14	16	60%	14%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	99	590	LD	25	50	24	74	1	0.288	16.823	0.016	0.936	0.015	0.859
14	17	59%	13%	0%	8%	5%	1%	2%	0%	4%	3%	2%	1%	1%	0%	0%	2%	103	590	LD	25	50	24	76	1	0.322	19.539	0.017	1.059	0.016	0.972
14	18	60%	14%	0%	7%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	96	590	LD	25	50	23	77	1	0.289	16.378	0.016	0.915	0.015	0.840
14	19	60%	14%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	84	590	LD	25	50	23	78	1	0.307	15.196	0.016	0.802	0.015	0.736
14	20	59%	15%	0%	7%	4%	0%	1%	0%	4%	3%	1%	1%	1%	0%	0%	2%	69	590	LD	25	50	23	79	1	0.309	12.587	0.017	0.688	0.016	0.632
14	21	57%	15%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	65	590	LD	25	50	23	80	1	0.328	12.575	0.018	0.678	0.016	0.623
14	22	58%	15%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	66	590	LD	25	50	23	81	1	0.323	12.594	0.018	0.686	0.016	0.630
14	23	57%	17%	0%	7%	3%	0%	2%	0%	3%	3%	2%	2%	2%	0%	0%	2%	58	590	LD	25	50	23	81	1	0.334	11.426	0.018	0.623	0.017	0.572
15	0	36%	23%	0%	9%	5%	0%	0%	0%	9%	5%	5%	5%	5%	0%	0%	0%	22	590	LD	25	50	23	82	1	0.519	6.731	0.031	0.405	0.029	0.372
15	1	33%	20%	0%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	0%	0%	0%	15	590	LD	25	50	22	82	1	0.689	6.099	0.043	0.377	0.039	0.347
15	2	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.365	1.940	0.024	0.128	0.022	0.118
15	3	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.365	1.940	0.024	0.128	0.022	0.118
15	4	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.365	1.940	0.024	0.128	0.022	0.118
15	5	33%	22%	0%	11%	0%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.365	1.940	0.024	0.128	0.022	0.118
15	6	37%	26%	0%	7%	4%	0%	0%	0%	7%	4%	7%	4%	4%	0%	0%	0%	27	590	LD	25	50	22	83	1	0.505	8.045	0.031	0.489	0.028	0.450
15	7	35%	29%	0%	6%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	51	590	LD	25	50	22	82	1	0.523	15.740	0.030	0.896	0.027	0.824
15	8	36%	31%	0%	5%	3%	0%	0%	0%	7%	5%	5%	3%	5%	0%	0%	0%	61	590	LD	25	50	23	79	1	0.513	18.464	0.028	1.008	0.026	0.926
15	9	35%	30%	0%	6%	4%	0%	0%	0%	7%	6%	6%	4%	4%	0%	0%	0%	54	590	LD	25	50	23	77	1	0.505	16.079	0.029	0.910	0.026	0.837
15	10	36%	27%	0%	6%	4%	0%	0%	0%	7%	6%	6%	4%	4%	0%	0%	0%	50	590	LD	25	50	24	74	1	0.522	15.407	0.030	0.898	0.028	0.825
15	11	36%	26%	0%	6%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	47	590	LD	25	50	25	72	1	0.536	14.868	0.032	0.900	0.030	0.828
15	12	36%	24%	0%	8%	4%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	50	590	LD	25	50	25	71	1	0.515	15.205	0.031	0.919	0.029	0.845
15	13	36%	22%	0%	8%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	50	590	LD	25	50	25	71	1	0.532	15.705	0.032	0.941	0.029	0.865
15	14	37%	21%	0%	10%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	52	590	LD	25	50	25	71	1	0.520	15.963	0.031	0.955	0.029	0.879
15	15	36%	20%	0%	9%	6%	0%	2%	0%	7%	6%	6%	4%	6%	0%	0%	0%	55	590	LD	25	50	25	72	1	0.550	19.160	0.034	1.104	0.031	1.016
15	16	35%	18%	0%	11%	5%	0%	2%	0%	7%	5%	7%	5%	5%	0%	0%	0%	57	590	LD	25	50	24	74	1	0.637	21.427	0.039	1.327	0.036	1.221
15	17	36%	13%	0%	12%	7%	0%	2%	0%	8%	7%	7%	5%	5%	0%	0%	0%	61	590	LD	25	50	24	76	1	0.616	22.187	0.039	1.393	0.036	1.281
15	18	37%	14%	0%	11%	5%	0%	2%	0%	7%	7%	7%	5%	5%	0%	0%	0%	57	590	LD	25	50	23	77	1	0.640	21.540	0.040	1.351	0.037	1.243
15	19	37%	15%	0%	11%	7%	0%	2%	0%	7%	7%	7%	4%	4%	0%	0%	0%	46	590	LD	25	50	23	78	1	0.606	16.455	0.037	0.991	0.034	0.911
15	20	38%	16%	0%	11%	5%	0%	0%	0%	8%	5%	5%	5%	5%	0%	0%	0%	37	590	LD	25	50	23	79	1	0.583	12.716	0.037	0.801	0.034	0.737
15	21	39%	19%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	31	590	LD	25	50	23	80	1	0.504	9.220	0.030	0.555	0.028	0.510
15	22	39%	19%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	31	590	LD	25	50	23	81	1	0.502	9.183	0.030	0.555	0.028	0.510
15	23	41%	19%	0%	7%	4%	0%	0%	0%	7%	7%	7%	4%	4%	0%	0%	0%	27	590	LD	25	50	23	81	1	0.497	7.915	0.032	0.514	0.030	0.473
16	0	28%	22%	0%	10%	6%	2%	5%	7%	4%	4%	2%	2%	1%	4%	2%	0%	185	200	LD	24	50	23	82	1	0.801	29.654	0.030	1.112	0.028	1.023
16	1	28%	22%	0%	10%	6%	2%	5%	7%	4%	4%	2%	2%	1%	4%	2%	0%	108	200	LD	25	50	22	82	1	0.790	17.070	0.030	0.658	0.028	0.605
16	2	27%	23%	0%	9%	6%	1%	6%	7%	4%	4%	3%	1%	1%	0%	4%	3%	70	200	LD	25	50	22	83	1	0.773	10.822	0.029	0.412	0.027	0.378
16	3	28%	23%	0%	9%	6%	1%	6%	7%	4%	4%	3%	1%	1%	0%	4%	1%	69	200	LD	25	50	22	83	1	0.772	10.658	0.029	0.407	0.027	0.374
16	4	27%	23%	0%	9%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	1%	71	200	LD	25	50	22	83	1	0.827	11.747	0.034	0.482	0.031	0.444
16	5	25%	22%	0%	8%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	4%	72	200	LD	25	50	22	83	1	0.836	12.045	0.034	0.490	0.031	0.450
16	6	25%	23%	0%	9%	6%	2%	6%	7%	5%	4%	3%	2%	2%	1%	5%	2%	217	200	LD	24	50	22	82	1	0.887	38.510	0.034	1.479	0.031	1.361
16	7	24%	22%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	401	200	LD	22	50	22	82	1	0.926	74.273	0.037	2.937	0.034	2.702
16	8	24%	22%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	518	200	LD	21	50	23	79	1	0.953	98.689	0.038	3.913	0.035	3.596
16	9	25%	22%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	440	200	LD	22	50	23	77	1	0.915	80.534	0.036	3.139	0.033	2.888
16	10	25%	22%	0%	10%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	2%	415	200	LD	22

2023 with Project

2023 w/ Project		Vehicle Breakdown %																Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
22	16	23%	21%	0%	12%	7%	0%	1%	11%	6%	5%	2%	1%	1%	0%	5%	3%	282	330	LD	22	50	24	74	1	0.781	72.668	0.028	2.615	0.026	2.405
22	17	23%	22%	0%	12%	7%	1%	2%	11%	6%	5%	2%	1%	1%	0%	4%	4%	315	330	LD	22	50	23	77	1	0.773	80.320	0.028	2.954	0.026	2.716
22	18	23%	21%	0%	12%	7%	0%	1%	11%	6%	5%	2%	1%	1%	0%	5%	4%	286	330	LD	22	50	23	77	1	0.766	72.288	0.027	2.572	0.025	2.365
22	19	23%	21%	0%	12%	7%	0%	1%	10%	6%	6%	2%	1%	1%	0%	5%	3%	236	330	LD	23	50	23	78	1	0.779	60.666	0.028	2.195	0.026	2.019
22	20	24%	21%	1%	12%	7%	1%	1%	11%	7%	6%	2%	1%	1%	1%	4%	3%	183	330	LD	23	50	23	79	1	0.722	43.599	0.027	1.628	0.025	1.498
22	21	23%	22%	0%	12%	8%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	158	330	LD	24	50	23	80	1	0.695	36.262	0.027	1.431	0.025	1.317
22	22	23%	21%	0%	12%	8%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	156	330	LD	24	50	23	81	1	0.695	35.775	0.028	1.420	0.025	1.307
22	23	23%	21%	0%	12%	8%	1%	2%	11%	6%	5%	2%	2%	2%	0%	4%	3%	133	330	LD	24	50	23	81	1	0.710	31.149	0.028	1.238	0.026	1.139
23	0	36%	9%	0%	11%	6%	2%	4%	0%	2%	2%	6%	4%	4%	0%	9%	4%	47	330	LD	25	50	23	82	1	1.032	15.999	0.043	0.669	0.040	0.615
23	1	46%	7%	0%	11%	7%	0%	4%	0%	0%	4%	4%	4%	4%	0%	7%	4%	28	330	LD	25	50	22	82	1	0.857	7.918	0.035	0.319	0.032	0.293
23	2	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.054	5.566	0.049	0.260	0.045	0.239
23	3	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	1.054	5.566	0.049	0.260	0.045	0.239
23	4	43%	7%	0%	14%	7%	0%	7%	0%	0%	0%	7%	0%	0%	0%	7%	7%	14	330	LD	25	50	22	83	1	0.814	3.759	0.029	0.136	0.027	0.124
23	5	39%	8%	0%	15%	8%	0%	8%	0%	0%	0%	8%	0%	0%	0%	8%	8%	13	330	LD	25	50	22	83	1	0.880	3.776	0.031	0.134	0.029	0.123
23	6	35%	2%	0%	14%	7%	6%	19%	0%	2%	2%	2%	2%	2%	0%	4%	2%	48	330	LD	25	50	22	83	1	1.055	16.707	0.042	0.669	0.039	0.616
23	7	40%	2%	0%	20%	12%	3%	8%	0%	3%	2%	2%	1%	1%	0%	2%	2%	87	330	LD	25	50	22	82	1	0.704	20.224	0.030	0.858	0.027	0.789
23	8	35%	1%	0%	26%	15%	3%	7%	0%	3%	3%	2%	1%	1%	0%	1%	4%	112	330	LD	25	50	23	79	1	0.675	24.942	0.030	1.095	0.027	1.007
23	9	36%	3%	0%	21%	12%	2%	6%	0%	3%	2%	3%	2%	2%	0%	3%	4%	98	330	LD	25	50	23	77	1	0.776	25.110	0.033	1.077	0.031	0.990
23	10	37%	4%	0%	18%	9%	2%	7%	0%	2%	2%	3%	2%	2%	0%	5%	5%	92	330	LD	25	50	24	74	1	0.862	26.158	0.034	1.045	0.032	0.960
23	11	35%	5%	0%	17%	9%	2%	5%	0%	2%	2%	4%	3%	3%	0%	6%	5%	95	330	LD	25	50	25	72	1	0.928	29.102	0.038	1.203	0.035	1.105
23	12	35%	7%	0%	13%	8%	2%	5%	0%	2%	2%	5%	4%	4%	1%	8%	6%	105	330	LD	24	50	25	71	1	1.068	36.990	0.041	1.430	0.038	1.315
23	13	32%	5%	0%	16%	8%	2%	5%	0%	2%	2%	5%	4%	4%	1%	10%	6%	120	330	LD	24	50	25	71	1	1.148	45.464	0.042	1.653	0.038	1.520
23	14	31%	9%	0%	14%	8%	2%	5%	0%	2%	1%	6%	4%	4%	1%	10%	6%	128	330	LD	24	50	25	71	1	1.210	51.111	0.044	1.858	0.040	1.708
23	15	31%	9%	0%	12%	7%	2%	6%	0%	1%	1%	7%	4%	4%	1%	11%	6%	149	330	LD	24	50	25	72	1	1.241	61.008	0.046	2.259	0.042	2.076
23	16	31%	10%	0%	12%	7%	1%	3%	0%	1%	1%	7%	5%	5%	1%	12%	6%	153	330	LD	24	50	24	74	1	1.275	64.371	0.047	2.361	0.043	2.170
23	17	30%	10%	0%	11%	7%	1%	3%	0%	1%	1%	7%	5%	6%	1%	12%	7%	178	330	LD	23	50	24	76	1	1.349	79.211	0.048	2.848	0.045	2.618
23	18	32%	11%	0%	10%	5%	1%	3%	0%	1%	1%	7%	5%	5%	1%	13%	6%	148	330	LD	24	50	23	77	1	1.322	64.562	0.047	2.305	0.043	2.119
23	19	33%	10%	0%	10%	5%	1%	3%	0%	1%	1%	7%	5%	5%	1%	13%	5%	117	330	LD	24	50	23	78	1	1.331	51.398	0.048	1.849	0.044	1.700
23	20	33%	9%	0%	12%	6%	1%	3%	0%	1%	1%	7%	4%	4%	1%	12%	4%	91	330	LD	25	50	23	79	1	1.244	37.366	0.045	1.351	0.041	1.242
23	21	33%	9%	0%	12%	7%	1%	4%	0%	1%	1%	7%	4%	5%	1%	10%	5%	77	330	LD	25	50	23	80	1	1.205	30.625	0.045	1.136	0.041	1.043
23	22	35%	9%	0%	10%	6%	1%	4%	0%	1%	1%	6%	4%	4%	1%	12%	4%	69	330	LD	25	50	23	81	1	1.225	27.900	0.044	1.002	0.040	0.921
23	23	33%	8%	0%	10%	7%	2%	5%	0%	2%	2%	7%	5%	5%	0%	10%	7%	61	330	LD	25	50	23	81	1	1.140	22.954	0.046	0.933	0.043	0.857
24	0	19%	21%	0%	8%	5%	1%	2%	16%	7%	6%	4%	2%	2%	0%	5%	1%	84	130	LD	25	50	23	82	1	0.812	8.867	0.036	0.389	0.033	0.358
24	1	21%	23%	0%	9%	4%	0%	2%	15%	9%	6%	2%	2%	2%	0%	4%	0%	47	130	LD	25	50	22	82	1	0.746	4.560	0.031	0.191	0.029	0.176
24	2	18%	21%	0%	9%	6%	0%	3%	15%	6%	6%	3%	3%	3%	0%	6%	0%	33	130	LD	25	50	22	83	1	0.923	3.958	0.038	0.163	0.035	0.150
24	3	16%	22%	0%	9%	6%	0%	3%	16%	6%	6%	3%	3%	3%	0%	6%	0%	32	130	LD	25	50	22	83	1	0.952	3.959	0.039	0.163	0.036	0.150
24	4	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	0.970	3.907	0.040	0.163	0.037	0.150
24	5	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	0.970	3.907	0.040	0.163	0.037	0.150
24	6	17%	21%	0%	9%	5%	1%	2%	16%	8%	7%	3%	2%	2%	0%	5%	1%	92	130	LD	25	50	22	83	1	0.851	10.183	0.036	0.425	0.033	0.391
24	7	15%	21%	0%	10%	6%	1%	2%	17%	8%	7%	3%	2%	2%	1%	6%	1%	169	130	LD	25	50	22	82	1	0.916	20.123	0.037	0.805	0.034	0.741
24	8	16%	20%	1%	10%	6%	1%	2%	17%	8%	7%	3%	2%	2%	1%	6%	1%	213	130	LD	24	50	23	79	1	0.910	25.189	0.037	1.030	0.034	0.948
24	9	17%	20%	0%	10%	6%	1%	2%	17%	8%	6%	3%	2%	2%	1%	5%	1%	187	130	LD	25	50	23	77	1	0.866	21.054	0.035	0.859	0.032	0.790
24	10	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	6%	1%	175	130	LD	25	50	24	74	1	0.888	20.209	0.036	0.812	0.033	0.747
24	11	18%	22%	0%	9%	5%	1%	2%	15%	8%	7%	3%	2%	2%	1%	5%	1%	163	130	LD	25	50	25	72	1	0.835	17.694	0.034	0.728	0.032	0.670
24	12	18%	21%	0%	9%	5%	1%	2%	15%	8%	7%	3%	2%	2%	1%	5%	1%	185	130	LD	25	50	25	71	1	0.853	20.518	0.034	0.829	0.032	0.763
24	13	19%	22%	0%	9%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	189	130	LD	25	50	25	71	1	0.848	20.833	0.034	0.841	0.031	0.773
24	14	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	2%	2%	1%	5%	1%	192	130	LD	25	50	25	71	1	0.837	20.883	0.034	0.842	0.031	0.775
24	15	21%	22%	0%	8%	5%	1%	3%	14%	8%	6%	3%	2%	2%	1%	5%	1%	214	130	LD	24	50	25	72	1	0.842	23.438	0.034	0.933	0.031	0.859
24	16	21%	23%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	221	130	LD	24	50	24	74	1	0.847	24.321	0.034	0.970	0.031	0.892
24	17	22%	23%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	241	130	LD	24	50	24	76	1	0.827	25.902	0.033	1.039	0.031	0.956
24	18	22%	23%	0%	8%	5%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	222	130	LD	24	50	23	77	1	0.853	24.620	0.034	0.974	0.031	0.897
24	19	21%	23%	0%	9%	5%	1%	3%	13%	7%	6%	3%	2%	2%	1%	5%	1%	179	130	LD	25	50	23	78	1	0.812	18.899	0.033	0.764	0.030	0.703
24	20	21%	23%	0%	9%	4%	1%	3%	13%	8%	6%	3%	2%	2%	0%	5%	1%	142	130	LD	25	50	23	79	1	0.786	14.507	0.032	0.599	0.030	0.551
24	21	21%	23%	0%	8%	5%	1%	3%	14%	7%	6%	3%	3%	3%	0%	5%	1%	122	130	LD	25	50	23	80	1	0.813	12.901	0.035	0.549	0.032	0.505
24	22	20%	22%	0%	8%	5%	1%	3%	14%	7%	6%	3%	3%	3%	0%	5%	1%	119	130	LD	25	50	23	81	1	0.818	12.653	0.035	0.544	0.032	0.500
24	23	20%	22%	0%	8%	5%	1%	3%	15%	7%	6%	3%	2%	2%	0%	5%	1%	100	130	LD	25	50	23	81	1	0.807	10.491	0.034	0.438	0.031	0.403
25	0	44%	17%	0%	11%	6%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	101	130	LD	25	50	23	82	1	0.684	8.983	0.026	0.347	0.024	0.319
25	1	46%	16%	0%	10%	6%	2%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	63	130	LD	25	50	22	82	1	0.675	5.526	0.025	0.208	0.023	0.191
25	2	44%	15%	0%	10%	6%	1%	3%	0%	2%	1%	4%	3%	3%	0%	7%	5%	39	130	LD	25	50	22	83	1	0.721	3.654	0.028	0.142	0.026	0.131
25	3	45%	13%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	38	130	LD	25	50	22	83	1	0.726	3.584	0.028	0.140	0.026	0.129
25	4	46%	14%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	37	130	LD	25	50	22	83	1	0.616	2.962	0.028	0.133	0.025	0.122
25	5	45%	13%	0%	13%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	38	130	LD	25	50	22	83	1	0.609	3.008	0.027	0.135	0.025	0.124
25	6	43%	12%	0%	13%	7%	3%	8%	0%	3%	3%	2%	2%	2%	0%	3%	3%	119	130	LD	25	50	22	83	1	0.678	10.483	0.028	0.432	0.026	0.397
25	7	45%	11%	0%	13%	7%	3%	8%	0%	3%	3%	2%	2%	2%	0%	3%	3%	216	130	LD	25	50	22	82	1	0.555	15.582	0.024	0.668	0.022	0.614
25	8	43%	11%	0%	16%	9%	1%	3%	0%	3%	2%	2%	1%	1%	0%	2%	2%	272	130	LD	24	50	23	80	1	0.523	18.478	0.023	0.803	0.021	0.739
25	9	43%	12%	1%	16%	10%	1%	3%	0%	3%	3%	2%	1%	1%	0%	2%	3%	238	130	LD	24	50	23	77	1	0.571	17.667	0.024	0.737	0.022	0.678
25	10	44%	13%	1%	14%	9%	1%	3%	0%	3%	2%	2%	2%	2%	0%	4%	3%	218	130	LD	25	50	24	74	1	0.601	17.022	0.025	0.715	0.023	0.657
25	11	42%	14%	1%	13%	8%	1%	2%	0%	2%	2%	2%	2%	2%	1%	4%	4%	209	130	LD	25	50	25	72	1	0.663	18.011	0.026	0.703	0.024	0.646
25	12	42%	15%	1%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	4%	229	130	LD	24	50	25	71	1	0.733	21.826	0.028	0.835	0.026	0.768
25	13	40%	15%	1%	12%	7%	1%	3%	0%	2%	2%	3%	2%	3%	0%	5%	3%	244	130	LD	24	50	25	71	1	0.786	24.920	0.029	0.928	0.027	0.854
25	14	40%	16%	1%	11%	7%	1%	3%	0%	2%	2%	3%	2%	3%	0%	6%	4%	249	130	LD	24	50	25	71	1	0.815	26.367	0.030	0.965	0.027	0.888
25	15	39%	16%	1%	10%	6%	1%	3%	0%	2%	1%	4%	3%	3%	0%	7%	5%	283	130	LD	24	50	25	72	1	0.867	31.886	0.032	1.162	0.029	1.069
25	16	39%	17%	0%	9%	6%	1%	2%	0%	2%	1%	4%	3%	3%	0%	7%	5%	288	130	LD	24	50	24	74	1	0.879	32.909	0.032	1.191	0.029	1.095
25	17	38%	18%	0%	9%	5%	1%	3%	0%	2%	1%	4%	3%	3%	1%	8%	6%	324	130	LD	24	50	24	76	1	0.922	38.837	0.033	1.396	0.030	1.283
25	18	39%	18%	0%	8%	5%	1%	3%	0%	1%	1%	4%	3%	3%	0%	8%	5%	281	130	LD	24	50	23	77	1	0.910	33.250	0.032	1.167	0.029	1.073
25	19	40%	18%	0%	8%	5%	1%	3%	0%	2%	1%	4%	3%	3%	0%	8%	4%	228	130	LD	24	50	23	78	1	0.905	26.833	0.033	0.976	0.030	0.898
25	20	40%	18%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	7%	3%	182	130	LD	25	50	23	79	1	0.853	20.187	0.031	0.727	0.028	0.668
25	21	40%	17%	0%	11%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	3%	155	130	LD	25	50	23	80	1	0.844	16.997	0.030	0.614	0.028	0.564
25	22	41%	17%	0%	10%	5%	1%	3%	0%	2%	2%	3%	3%	3%	1%	7%	3%	150	130	LD	25	50	23	81	1	0.822	16.036	0.030	0.584	0.028	0.536
25	23	42%	17%	0%	10%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	3%	126	130	LD	25	50	23	81	1	0.759	12.431	0.028	0.459	0.026	0.422
26	0	41%	18%	0%	11%	6%	2%	5%	0%	3%	3%	3%	2%	2%	0%	3%	3%	156	130	DD	29	50	23	82	1	0.560	11.362	0.024	0.492	0.022	0.452
26	1	41%	19%	0%	10%	6%	2%	4%	0%	3%	2%	2%	2%	2%	0%	3%	3%	90	130	DD	30	50	22	82	1	0.553	6.468	0.024	0.281	0.022	0.258
26	2	40%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	5%	60	130	DD	30	50	22	83	1	0.525	4.098	0.023	0.182	0.021	0.167
26	3	41%	20%	0%	9%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	3%	59	130	DD	30	50	22	83	1	0.526	4.031	0.024	0.180	0.022	0.166
26	4	40%	21%	0%	9%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	3%	58	130	DD	30	50	22	83	1	0.530	3.999	0.024	0.178	0.022	0.163
26	5	38%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	7%	60	130	DD	30	50	22	82	1	0.532	4.152	0.023	0.182	0.021	0.167
26	6	38%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	6%	184	130	DD	29	50	23	83	1	0.603	14.436	0.028	0.675	0.026	0.620
26	7	37%	19%	0%	8%	5%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	3%	348	130	DD	27	50	22	82	1	0.649	29.345	0.031	1.383	0.028	1.272
26	8	35%	19%	0%	9%	5%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	4%	452	130	DD	25	50	23	79	1	0.667	39.216	0.031	1.844	0.029	1.694
26	9	37%	19%	0%	9%	5%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	4%	383	130	DD	26	50	23	77	1	0.655	32.595	0.030	1.489	0.027	1.369
26	10	37%	19%	0%	10%	6%	2%	6%	0%	4%	3%	3%	2%	2%	0%	2%	4%	355	130	DD	27	50	24	74	1	0.629	29.025	0.028	1.302	0.026	1.197
26	11	38%	18%	0%	11%	6%	2%	5%	0%	4%	3%	3%	2%	2%	0%	2%	4%	320	130	DD	27	50	25	72	1	0.602	25.062	0.026	1.102	0.024	1.013
26	12	38%	17%	0%	11%	6%	2%	6%	0%	3%	3%	3%	2%	2%	0%	2%	4%	358	130	DD	27	50	25	71	1	0.633	29.438	0.027	1.236	0.024	1.137
26	13	41%	18%	0%	10%	6%	2%	5%	0%	3%	3%	3%	2%	1%	0%	3%	4%	345	130	DD	27	50	25	71	1	0.611	27.482	0.024	1.082	0.022	0.995
26	14	40%	17%	0%	11%	7%	2%	5%	0%	3%	3%	2%	1%	1%	0%	3%	4%	352	130	DD	27	50	25	71	1	0.617	28.246	0.024	1.083	0.022	0.996
26	15	41%	17%	0%	12%	7%	1%	4%	0%	3%	2%	2%	1%	1%	0%	3%	4%	385	130	DD	26	50	25	72	1	0.596	29.806	0.022	1.102	0.020	1.013
26	16	43%	16%	0%	13%	8%	1%	4%	0%	3%	2%	1%	1%	1%	0%	3%	4%	378	130	DD	27	50	24	74	1	0.584	28.673	0.021	1.008	0.019	0.926
26	17	45%	17%	0%	12%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	399	130	DD	26	50	24	76	1	0.589	30.539	0.020	1.017	0.018	0.935
26	18	44%	17%	0%	12%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	367	130	DD	27	50	23	77	1	0.579	27.622	0.020	0.957	0.018	0.880
26	19	43%	17%	0%	11%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	305	130	DD	27	50	23	78	1	0.594	23.541	0.021	0.833	0.019	0.766
26	20	42%	17%	0%	12%	7%	2%	4%	0%	3%	2%	2%	1%	1%	0%	3%	3%	249	130	DD	28	50	23	79	1	0.591	19.136	0.022	0.715	0.020	0.657
26	21	41%	17%	0%	12%	7%	1%	4%	0%	3%	2%	2%	1%	1%	0%	3%	3%	226	130	DD	28	50	23	80	1	0.578	16.988	0.023	0.677	0.021	0.622
26	22	43%	18%	1%	10%	6%	2%	5%	0%	3%	2%	2%	1%	1%	0%	3%	3%	212	130	DD	28	50	23	81	1	0.570	15.699	0.023	0.629	0.021	0.578
26	23	42%	18%	0%	10%	6%	2%	4%	0%	3%	3%	2%	2%	2%	0%	3%	3%	181	130	DD	29	50	23	81	1	0.559	13.150	0.023	0.545	0.021	0.501
27	0	21%	23%	0%	8%	6%	0%	0%	13%	6%	6%	2%	2%	2%	0%	8%	2%	48	130	LD	25	50	23	82	1	0.883	5.508	0.031	0.196	0.029	0.180
27	1	17%	21%	0%	10%	7%	0%	0%	14%	7%	7%	3%	3%	3%	0%	7%	0%	29	130	LD	25	50	22	82	1	0.931	3.510	0.038	0.144	0.035	0.132
27	2	24%	24%	0%	12%	6%	0%	0%	12%	6%	6%	6%	0%	0%	0%	6%	0%	17	130	LD	25	50	22	83	1	0.713	1.575	0.027	0.059	0.025	0.055
27	3	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.730	1.424	0.022	0.042	0.020	0.039
27	4	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.730	1.424	0.022	0.042	0.020	0.039
27	5	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.730	1.424	0.022	0.042	0.020	0.039
27	6	19%	27%	0%	8%	6%	0%	0%	14%	8%	6%	2%	2%	2%	0%	6%	2%	52	130	LD	25	50	22	83	1	0.775	5

2023 with Project

2023 w/ Project		Vehicle Breakdown %																		Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
33	12	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	44%	0%	25	220	LD	25	50	25	71	1	2.861	15.735	0.066	0.363	0.061	0.334
33	13	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	46%	0%	26	220	LD	25	50	25	71	1	2.931	16.763	0.066	0.376	0.060	0.346
33	14	10%	3%	0%	14%	7%	0%	3%	0%	0%	0%	7%	3%	3%	3%	45%	0%	29	220	LD	25	50	25	71	1	2.818	17.977	0.062	0.395	0.057	0.363
33	15	9%	3%	0%	12%	9%	0%	3%	0%	3%	0%	6%	3%	3%	3%	47%	0%	34	220	LD	25	50	25	72	1	2.855	21.354	0.060	0.449	0.055	0.413
33	16	11%	3%	0%	13%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	47%	0%	38	220	LD	25	50	24	74	1	2.847	23.797	0.058	0.485	0.053	0.446
33	17	9%	2%	0%	11%	7%	2%	4%	0%	2%	0%	4%	4%	4%	2%	47%	0%	45	220	LD	25	50	24	76	1	2.900	28.709	0.065	0.639	0.059	0.588
33	18	11%	3%	0%	13%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	47%	0%	38	220	LD	25	50	23	77	1	2.865	23.948	0.058	0.485	0.053	0.446
33	19	10%	3%	0%	13%	7%	0%	3%	0%	0%	0%	7%	3%	3%	3%	48%	0%	31	220	LD	25	50	23	78	1	2.975	20.289	0.062	0.425	0.057	0.391
33	20	8%	4%	0%	13%	8%	0%	4%	0%	0%	0%	4%	4%	4%	4%	46%	0%	24	220	LD	25	50	23	79	1	2.967	15.665	0.063	0.334	0.058	0.307
33	21	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	80	1	3.030	11.997	0.070	0.278	0.065	0.256
33	22	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	81	1	3.019	11.956	0.070	0.278	0.065	0.256
33	23	13%	0%	0%	13%	7%	0%	7%	0%	0%	0%	7%	7%	7%	0%	40%	0%	15	220	LD	25	50	23	81	1	2.634	8.691	0.072	0.237	0.066	0.218
34	0	29%	25%	0%	14%	9%	2%	7%	0%	3%	3%	2%	2%	2%	0%	0%	3%	59	170	LD	25	50	23	82	1	0.601	6.028	0.026	0.256	0.023	0.235
34	1	29%	26%	0%	13%	8%	3%	5%	0%	3%	3%	3%	3%	3%	3%	0%	3%	38	170	LD	25	50	22	82	1	0.633	4.092	0.028	0.184	0.026	0.169
34	2	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.620	2.529	0.025	0.102	0.023	0.094
34	3	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.620	2.529	0.025	0.102	0.023	0.094
34	4	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.620	2.529	0.025	0.102	0.023	0.094
34	5	26%	26%	0%	13%	9%	4%	9%	0%	4%	4%	4%	0%	0%	0%	0%	0%	23	170	LD	25	50	22	83	1	0.626	2.446	0.025	0.100	0.023	0.092
34	6	24%	27%	0%	16%	8%	3%	7%	1%	4%	3%	3%	1%	1%	0%	0%	1%	74	170	LD	25	50	22	83	1	0.631	7.939	0.027	0.337	0.025	0.310
34	7	23%	26%	1%	15%	9%	2%	8%	1%	4%	4%	3%	2%	2%	0%	0%	1%	142	170	LD	24	50	22	82	1	0.712	17.181	0.031	0.744	0.028	0.685
34	8	22%	27%	1%	16%	9%	2%	8%	1%	4%	3%	3%	2%	2%	0%	0%	1%	180	170	LD	23	50	23	79	1	0.712	21.796	0.030	0.916	0.028	0.843
34	9	23%	26%	1%	15%	9%	2%	8%	1%	4%	4%	4%	2%	2%	0%	0%	1%	153	170	LD	24	50	23	77	1	0.700	18.208	0.030	0.781	0.028	0.719
34	10	25%	27%	0%	15%	9%	2%	8%	1%	4%	3%	2%	2%	2%	0%	0%	2%	134	170	LD	24	50	24	74	1	0.655	14.916	0.027	0.617	0.025	0.568
34	11	26%	26%	0%	15%	9%	2%	7%	1%	3%	3%	2%	2%	2%	0%	0%	2%	123	170	LD	24	50	25	72	1	0.635	13.281	0.027	0.567	0.025	0.521
34	12	28%	26%	0%	14%	8%	2%	6%	1%	3%	3%	2%	2%	2%	0%	0%	3%	131	170	LD	24	50	25	71	1	0.612	13.621	0.026	0.577	0.024	0.530
34	13	29%	25%	0%	14%	8%	2%	6%	1%	3%	2%	2%	2%	2%	0%	0%	4%	131	170	LD	24	50	25	71	1	0.606	13.496	0.026	0.573	0.024	0.527
34	14	30%	25%	0%	13%	8%	2%	5%	1%	3%	2%	2%	2%	2%	0%	1%	5%	132	170	LD	24	50	25	71	1	0.615	13.794	0.025	0.566	0.023	0.520
34	15	33%	24%	0%	12%	8%	2%	5%	0%	3%	2%	2%	1%	1%	0%	1%	5%	140	170	LD	24	50	25	72	1	0.582	13.852	0.024	0.565	0.022	0.520
34	16	31%	24%	0%	12%	8%	2%	5%	0%	3%	2%	2%	2%	2%	0%	1%	6%	137	170	LD	24	50	24	74	1	0.582	13.552	0.024	0.554	0.022	0.509
34	17	36%	24%	0%	12%	7%	1%	5%	0%	2%	1%	2%	1%	1%	0%	1%	7%	148	170	LD	24	50	24	76	1	0.550	13.848	0.022	0.566	0.021	0.519
34	18	35%	24%	0%	12%	7%	2%	5%	0%	2%	2%	2%	2%	2%	0%	1%	6%	137	170	LD	24	50	23	77	1	0.581	13.539	0.024	0.550	0.022	0.505
34	19	34%	24%	0%	12%	7%	2%	5%	0%	3%	2%	2%	2%	2%	0%	1%	5%	115	170	LD	24	50	23	78	1	0.598	11.685	0.024	0.470	0.022	0.432
34	20	34%	24%	0%	13%	7%	2%	6%	0%	2%	2%	2%	1%	1%	0%	0%	6%	91	170	LD	25	50	23	79	1	0.530	8.194	0.022	0.345	0.020	0.316
34	21	32%	25%	0%	14%	7%	3%	5%	0%	3%	3%	3%	1%	1%	0%	0%	5%	81	170	LD	25	50	23	80	1	0.540	7.434	0.023	0.317	0.021	0.291
34	22	31%	25%	0%	14%	7%	3%	6%	0%	3%	3%	3%	1%	1%	0%	0%	5%	81	170	LD	25	50	23	81	1	0.567	7.810	0.024	0.332	0.022	0.304
34	23	30%	26%	0%	14%	7%	3%	6%	0%	3%	3%	3%	1%	1%	0%	0%	4%	70	170	LD	25	50	23	81	1	0.559	6.656	0.024	0.290	0.022	0.267
35	0	16%	8%	0%	11%	8%	3%	11%	15%	11%	8%	3%	3%	3%	0%	0%	1%	38	170	LD	25	50	23	82	1	0.821	5.306	0.045	0.289	0.041	0.266
35	1	12%	8%	0%	12%	8%	4%	12%	12%	12%	8%	4%	4%	4%	0%	0%	0%	25	170	LD	25	50	22	82	1	0.943	4.008	0.050	0.212	0.046	0.195
35	2	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.016	3.108	0.057	0.175	0.053	0.161
35	3	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.016	3.108	0.057	0.175	0.053	0.161
35	4	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.016	3.108	0.057	0.175	0.053	0.161
35	5	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	1.016	3.108	0.057	0.175	0.053	0.161
35	6	10%	8%	0%	8%	6%	4%	14%	14%	12%	10%	6%	4%	4%	0%	0%	2%	51	170	LD	25	50	22	83	1	0.980	8.496	0.053	0.460	0.049	0.423
35	7	10%	7%	0%	8%	5%	4%	13%	13%	12%	9%	5%	4%	4%	0%	0%	2%	104	170	LD	25	50	22	82	1	1.035	18.299	0.056	0.983	0.051	0.904
35	8	9%	8%	0%	8%	4%	4%	12%	13%	12%	10%	7%	4%	4%	0%	1%	2%	138	170	LD	25	50	23	79	1	0.998	23.402	0.055	1.286	0.050	1.182
35	9	10%	7%	0%	9%	4%	4%	12%	13%	12%	11%	6%	4%	4%	0%	1%	2%	114	170	LD	25	50	23	77	1	1.013	19.630	0.054	1.055	0.050	0.971
35	10	11%	7%	0%	8%	5%	4%	12%	13%	12%	10%	6%	4%	4%	0%	1%	2%	99	170	LD	25	50	24	74	1	0.981	16.517	0.053	0.886	0.048	0.815
35	11	13%	7%	0%	9%	6%	3%	13%	14%	12%	9%	6%	3%	3%	0%	0%	2%	87	170	LD	25	50	25	72	1	0.902	13.343	0.050	0.739	0.046	0.680
35	12	14%	8%	0%	11%	6%	3%	12%	13%	12%	9%	4%	3%	3%	0%	0%	1%	91	170	LD	25	50	25	71	1	0.871	13.482	0.047	0.733	0.044	0.675
35	13	15%	8%	0%	12%	7%	3%	11%	13%	11%	8%	4%	3%	3%	0%	0%	1%	91	170	LD	25	50	25	71	1	0.857	13.252	0.047	0.722	0.043	0.664
35	14	15%	8%	0%	13%	7%	3%	11%	13%	11%	8%	4%	2%	2%	0%	0%	1%	84	170	LD	25	50	25	71	1	0.787	11.232	0.042	0.597	0.038	0.549
35	15	19%	8%	0%	14%	8%	3%	9%	14%	9%	8%	3%	2%	2%	0%	1%	1%	89	170	LD	25	50	25	72	1	0.766	11.586	0.041	0.616	0.037	0.567
35	16	21%	8%	0%	15%	8%	4%	8%	13%	9%	7%	2%	2%	2%	0%	0%	0%	86	170	LD	25	50	24	74	1	0.743	10.866	0.039	0.567	0.036	0.522
35	17	23%	8%	0%	16%	9%	2%	8%	14%	9%	7%	2%	1%	1%	0%	0%	0%	88	170	LD	25	50	24	76	1	0.675	10.104	0.035	0.518	0.032	0.476
35	18	22%	9%	0%	16%	9%	2%	9%	13%	9%	7%	2%	1%	1%	0%	0%	0%	82	170	LD	25	50	23	77	1	0.702	9.788	0.035	0.492	0.033	0.453
35	19	21%	8%	0%	15%	8%	3%	8%	14%	10%	7%	3%	1%	1%	0%	0%	0%	72	170	LD	25	50	23	78	1	0.711	8.703	0.037	0.448	0.034	0.412
35	20	21%	9%	0%	14%	7%	4%	9%	12%	9%	9%	4%	2%	2%	0%	0%	0%	57	170	LD	25	50	23	79	1	0.739	7.164	0.039	0.375	0.036	0.345
35	21	20%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	2%	2%	0%	0%	0%	50	170	LD	25	50	23	80	1	0.780	6.629	0.041	0.348	0.035	0.320
35	22	19%	8%	0%	13%	7%	3%	9%	14%	9%	8%	3%	2%	2%	0%	0%	0%	53	170	LD	25	50	23	81	1	0.812	7.319	0.043	0.384	0.039	0.354
35	23	15%	9%	0%	11%	7%	4%	11%	13%	11%	9%	4%	2%	2%	0%	0%	2%	46	170	LD	25	50	23	81	1	0.816	6.380	0.043	0.336	0.040	0.309
36	0	21%	23%	0%	21%	12%	2%	9%	0%	2%	2%	2%	0%	0%	0%	5%	0%	43	330	LD	25	50	23	82	1	0.851	12.074	0.027	0.386	0.025	0.355
36	1	17%	25%	0%	19%	14%	4%	8%	0%	4%	4%	0%	0%	0%	0%	4%	0%	24	330	LD	25	50	22	82	1	0.861	6.821	0.025	0.200	0.023	0.184
36	2	18%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	6%	17	330	LD	25	50	22	83	1	0.824	4.621	0.022	0.124	0.020	0.114
36	3	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	0.903	4.470	0.024	0.119	0.022	0.109
36	4	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	0.903	4.470	0.024	0.119	0.022	0.109
36	5	12%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	12%	17	330	LD	25	50	22	83	1	0.849	4.762	0.022	0.126	0.020	0.115
36	6	13%	27%	0%	21%	10%	2%	4%	2%	4%	4%	2%	2%	2%	0%	6%	0%	48	330	LD	25	50	22	82	1	0.955	15.126	0.032	0.510	0.030	0.469
36	7	14%	26%	0%	19%	11%	1%	5%	2%	5%	3%	2%	1%	1%	0%	6%	2%	88	330	LD	25	50	22	82	1	0.904	26.254	0.029	0.847	0.027	0.779
36	8	12%	25%	1%	21%	13%	1%	3%	2%	4%	3%	3%	2%	2%	0%	6%	4%	122	330	LD	24	50	23	79	1	0.924	37.203	0.031	1.231	0.028	1.132
36	9	14%	24%	0%	21%	13%	2%	5%	2%	4%	3%	2%	1%	2%	0%	6%	3%	102	330	LD	25	50	23	77	1	0.941	31.680	0.030	1.024	0.028	0.941
36	10	15%	22%	0%	22%	14%	3%	6%	1%	3%	3%	2%	1%	1%	0%	5%	3%	101	330	LD	25	50	24	74	1	0.909	30.281	0.030	1.003	0.028	0.922
36	11	16%	21%	0%	22%	14%	3%	6%	1%	3%	3%	1%	1%	1%	0%	5%	3%	95	330	LD	25	50	25	72	1	0.900	28.225	0.029	0.923	0.027	0.848
36	12	16%	19%	0%	20%	13%	4%	12%	1%	3%	3%	1%	1%	1%	0%	4%	3%	115	330	LD	25	50	25	71	1	0.974	36.951	0.033	1.249	0.030	1.148
36	13	19%	21%	0%	19%	12%	3%	11%	1%	3%	3%	1%	1%	1%	0%	5%	2%	107	330	LD	24	50	25	71	1	0.959	33.862	0.031	1.109	0.029	1.020
36	14	18%	18%	0%	20%	13%	4%	12%	1%	3%	3%	1%	1%	1%	0%	4%	2%	114	330	LD	24	50	25	71	1	0.987	37.114	0.033	1.243	0.030	1.143
36	15	19%	18%	0%	22%	14%	3%	11%	0%	2%	2%	1%	1%	1%	0%	4%	2%	131	330	LD	24	50	25	72	1	0.935	40.420	0.032	1.367	0.029	1.257
36	16	20%	18%	0%	22%	13%	4%	12%	0%	2%	2%	1%	1%	1%	0%	4%	2%	131	330	LD	24	50	24	74	1	0.949	41.011	0.032	1.377	0.029	1.267
36	17	23%	18%	1%	18%	11%	4%	13%	0%	2%	2%	1%	1%	1%	0%	4%	2%	135	330	LD	24	50	24	76	1	0.926	41.239	0.031	1.394	0.029	1.283
36	18	21%	19%	0%	18%	11%	4%	13%	0%	3%	3%	1%	1%	1%	0%	4%	2%	119	330	LD	24	50	23	77	1	0.971	38.126	0.032	1.248	0.029	1.148
36	19	21%	20%	0%	18%	11%	4%	13%	0%	3%	3%	1%	1%	1%	0%	4%	2%	96	330	LD	25	50	23	78	1	0.946	29.983	0.032	1.013	0.029	0.931
36	20	19%	19%	0%	21%	12%	4%	12%	0%	2%	2%	1%	1%	1%	0%	4%	1%	83	330	LD	25	50	23	79	1	0.926	25.358	0.033	0.893	0.030	0.821
36	21	20%	18%	0%	22%	12%	4%	12%	0%	3%	3%	1%	0%	1%	0%	4%	1%	77	330	LD	25	50	23	80	1	0.924	23.476	0.031	0.786	0.028	0.723
36	22	20%	21%	0%	17%	9%	4%	13%	0%	3%	3%	2%	2%	2%	0%	5%	2%	66	330	LD	25	50	23	81	1	0.965	21.013	0.034	0.738	0.031	0.678
36	23	19%	23%	0%	20%	10%	4%	9%	0%	4%	2%	2%	0%	2%	0%	6%	0%	53	330	LD	25	50	23	81	1	0.949	16.596	0.030	0.528	0.028	0.486
37	0	22%	7%	0%	15%	7%	4%	11%	19%	4%	0%	4%	0%	0%	0%	7%	0%	27	330	LD	25	50	23	82	1	1.026	9.140	0.039	0.350	0.036	0.322
37	1	35%	6%	0%	12%	6%	6%	12%	18%	0%	0%	0%	0%	0%	0%	6%	0%	17	330	LD	25	50	22	82	1	0.932	5.229	0.034	0.191	0.031	0.176
37	2	22%	11%	0%	11%	11%	0%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.192	3.539	0.057	0.110	0.034	0.101
37	3	25%	0%	0%	13%	13%	0%	13%	25%	0%	0%	0%	0%	0%	0%	13%	0%	8	330	LD	25	50	22	83	1	1.293	3.414	0.042	0.110	0.038	0.101
37	4	22%	0%	0%	11%	11%	11%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.305	3.877	0.043	0.128	0.040	0.118
37	5	11%	0%	0%	11%	11%	11%	11%	22%	22%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	1.560	4.633	0.052	0.155	0.048	0.142
37	6	11%	3%	0%	13%	6%	11%	30%	19%	0%	0%	3%	0%	0%	0%	5%	0%	37	330	LD	25	50	22	83	1	1.419	17.325	0.055	0.670	0.050	0.616
37	7	16%	1%	0%	20%	12%	5%	16%	20%	0%	0%	1%	1%	1%	0%	4%	1%	69	330	LD	25	50	22	82	1	1.135	25.835	0.047	1.074	0.043	0.988
37	8	10%	1%	0%	26%	15%	4%	15%	19%	0%	0%	1%	1%	1%	0%	4%	3%	95	330	LD	25	50	23	79	1	1.135	35.589	0.046	1.448	0.042	1.332
37	9	12%	3%	0%	21%	13%	5%	14%	19%	0%	0%	1%	1%	1%	0%	5%	4%	78	330	LD	25	50	23	77	1	1.167	30.033	0.046	1.193	0.043	1.097
37	10	15%	3%	0%	17%	10%	5%	12%	21%	2%	0%	2%	2%	2%	0%	6%	5%	66	330	LD	25	50	24	74	1	1.126	24.521	0.045	0.986	0.042	0.906
37	11	19%	3%	0%	18%	11%	3%	11%	19%	2%	2%	2%	2%	2%	0%	5%	5%	65	330	LD	25	50	25	72	1	1.002	21.496	0.042	0.907	0.039	0.834
37	12	22%	4%	0%	15%	9%	3%	10%	19%	2%	2%	2%	2%	2%	0%	6%	4%	68	330	LD	25	50	25	71	1	1.023	22.946	0.041	0.931	0.038	0.856
37	13	20%	5%	0%	20%	12%	3%	10%	16%	1%	1%	1%	1%	1%	0%	5%	3%	76	330	LD	25	50	25	71	1	1.007	25.248	0.040	1.004	0.037	0.924
37	14	22%	5%	0%	17%	10%	3%	10%	16%	3%	1%	1%	1%	1%	0%	5%	4%	77	330	LD	25	50	25	71	1	0.972	24.704	0.039	0.990	0.036	0.910
37	15	24%	7%	0%	16%	8%	4%	10%	15%	2%	2%	1%	1%	1%	0%	6%	3%	88	330	LD	25	50	25	72	1	0.964	27.988	0.038	1.092	0.035	1.004
37	16	27%	7%	0%	16%	9%	2%	9%	14%	2%	2%	1%	1%	1%	0%	6%	4%	84	330	LD	25	50	24	74	1	0.880	24.384	0.035	0.968	0.032	0.890
37	17	27%	7%	0%	16%	9%	2%	9%	14%	2%	2%	2%	1%	1%	0%	6%	4%	94	330	LD	25	50	24	76	1	0.859	26.656	0.033	1.027	0.030	0.943
37	18	28%	8%	0%	13%	7%	1%	5%	16%	3%	3%	3%	1%	1%	0%	7%	4%	75	330	LD	25	50	23	77	1	0.906	22.424	0.036	0.882	0.033	0.810
37	19	28%	8%	0%	12%	7%	2%	7%	17%	3%	3%	2%	2%	2%	0%	7%	2%	60	330	LD	25	50	23	78	1	0.943	18.678	0.037	0.739	0.034	0.680
37	20	27%	8%	0%	15%	8%	2%	6%	16%	2%	2%	2%	2%	2%	0%	6%	2%	49	330	LD	25	50	23	79	1	0.935	15.117	0.038	0.619	0.035	0.569
37	21	24%	7%	0%	15%	9%	2%	7%	16%	2%	2%	2%	2%	2%	0%	7%	2%	45	330	LD	25	50	23	80	1	1.001	14.867	0.041	0.602	0.037	0.554
37	22	24%	7%	0%	12%	7%	2%	10%	17%	2%	2%	2%	2%	2%	0%	7%	2%	42	330	LD	25	50	23	81	1	1.066	14.778	0.043	0.602	0.040	0.554
37	23	23%	6%	0%	11%	9%	3%	9%	17%	3%	3%	3%	3%	3%	0%	6%	3%	35	330	LD	25	50	23	81	1	1.037	11.981	0.045	0.524	0.042	0.482
38	0	18%	17%	0%	18%	10%	3%	5%	13%	5%	0%	0%	0%	0%	0%	5%	0%	60	330	LD	25	50	22	82	1	0.901	17.843	0.032	0.638	0.030	0.587
38	1	20%	17%	0%	17%	9%	3%	9%	0%	6%	6%	3%	3%	3%	0%	6%	0%	35	330	LD	25	50	22	82	1	1.013	11.699	0.039	0.445	0.035	0.409
38	2	24%	19%	0%	19%	10%	5%	10%	0%	5%	5%	0%	0%	0%	0%	5%	0%	21	330	LD	25	50	22	83	1	0

2023 with Project

2023 w/ Project		Vehicle Breakdown %																Summary of Emission Factors											
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBSD	FBDD	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
44	8	25%	8%	1%	16%	9%	3%	8%	20%	3%	2%	0%	0%	0%	1%	4%	1%	193	70	LD	23	50	23	79	1	0.890	12.021	0.034	0.453	0.031	0.417
44	9	26%	9%	1%	16%	9%	2%	7%	19%	3%	2%	0%	0%	0%	1%	4%	2%	180	70	LD	23	50	23	77	1	0.854	10.763	0.032	0.399	0.029	0.367
44	10	28%	10%	1%	15%	9%	2%	6%	18%	2%	2%	0%	0%	0%	1%	4%	2%	175	70	LD	23	50	24	74	1	0.826	10.124	0.030	0.371	0.028	0.342
44	11	29%	12%	1%	15%	9%	2%	6%	17%	2%	2%	0%	0%	0%	0%	4%	2%	171	70	LD	23	50	25	72	1	0.764	9.141	0.029	0.343	0.026	0.316
44	12	30%	12%	1%	15%	9%	2%	5%	16%	2%	2%	0%	0%	0%	1%	4%	3%	201	70	LD	23	50	25	71	1	0.765	10.764	0.028	0.389	0.025	0.359
44	13	31%	13%	1%	15%	9%	1%	4%	15%	2%	2%	0%	0%	0%	1%	4%	3%	214	70	LD	23	50	25	71	1	0.715	10.715	0.026	0.387	0.024	0.357
44	14	32%	14%	0%	15%	8%	1%	3%	14%	2%	2%	0%	0%	0%	1%	4%	3%	225	70	LD	23	50	25	71	1	0.712	11.218	0.025	0.390	0.023	0.359
44	15	34%	14%	0%	14%	9%	1%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	259	70	LD	22	50	25	72	1	0.702	12.731	0.024	0.440	0.022	0.404
44	16	34%	15%	0%	14%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	272	70	LD	22	50	24	74	1	0.704	13.407	0.024	0.449	0.022	0.413
44	17	35%	16%	0%	14%	8%	1%	2%	12%	2%	2%	0%	0%	0%	0%	4%	4%	310	70	LD	22	50	24	76	1	0.663	14.397	0.022	0.488	0.021	0.448
44	18	34%	15%	0%	15%	8%	1%	2%	13%	2%	1%	0%	0%	0%	0%	4%	4%	276	70	LD	22	50	23	77	1	0.702	13.555	0.023	0.451	0.021	0.415
44	19	34%	15%	0%	15%	8%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	226	70	LD	23	50	23	78	1	0.696	11.005	0.024	0.372	0.022	0.343
44	20	34%	15%	1%	15%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	4%	172	70	LD	24	50	23	79	1	0.651	7.836	0.023	0.278	0.021	0.256
44	21	34%	14%	1%	14%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	3%	146	70	LD	24	50	23	80	1	0.653	6.670	0.023	0.238	0.021	0.219
44	22	33%	13%	1%	15%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	4%	143	70	LD	24	50	23	81	1	0.670	6.703	0.024	0.242	0.022	0.223
44	23	33%	14%	0%	15%	9%	1%	3%	15%	2%	2%	0%	0%	0%	0%	4%	3%	117	70	LD	24	50	23	81	1	0.686	5.619	0.025	0.202	0.023	0.186
45	0	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	2%	330	70	LD	24	50	23	82	1	0.840	19.401	0.029	0.658	0.026	0.606
45	1	27%	21%	1%	12%	8%	4%	12%	7%	2%	1%	1%	1%	1%	0%	3%	3%	197	70	LD	25	50	22	82	1	0.820	11.305	0.029	0.397	0.026	0.365
45	2	27%	22%	0%	12%	8%	4%	12%	6%	2%	1%	1%	0%	0%	0%	3%	3%	130	70	LD	25	50	22	83	1	0.808	7.352	0.027	0.250	0.025	0.230
45	3	27%	22%	0%	12%	8%	4%	12%	6%	2%	1%	1%	0%	0%	0%	3%	3%	129	70	LD	25	50	22	83	1	0.810	7.318	0.027	0.248	0.025	0.228
45	4	27%	23%	0%	12%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	128	70	LD	25	50	22	83	1	0.799	7.161	0.027	0.243	0.025	0.223
45	5	27%	23%	0%	12%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	128	70	LD	25	50	22	83	1	0.820	7.340	0.028	0.252	0.026	0.232
45	6	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	3%	390	70	LD	23	50	22	83	1	0.904	24.676	0.030	0.823	0.028	0.757
45	7	27%	22%	0%	10%	6%	5%	13%	7%	1%	1%	1%	0%	0%	0%	3%	3%	712	70	LD	21	50	22	82	1	0.949	47.323	0.031	1.548	0.029	1.422
45	8	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	4%	904	70	LD	19	50	23	79	1	1.000	63.294	0.032	2.027	0.029	1.862
45	9	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	777	70	LD	20	50	23	77	1	0.974	52.987	0.031	1.705	0.029	1.569
45	10	27%	22%	0%	11%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	720	70	LD	21	50	24	74	1	0.938	47.258	0.031	1.554	0.028	1.427
45	11	27%	21%	0%	12%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	653	70	LD	21	50	25	72	1	0.913	41.731	0.030	1.381	0.028	1.269
45	12	27%	21%	0%	12%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	725	70	LD	21	50	25	71	1	0.921	46.761	0.030	1.538	0.028	1.413
45	13	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	729	70	LD	21	50	25	71	1	0.914	46.627	0.030	1.534	0.028	1.410
45	14	27%	20%	0%	14%	8%	4%	11%	6%	2%	1%	0%	0%	0%	0%	3%	3%	733	70	LD	21	50	25	71	1	0.913	46.822	0.030	1.539	0.028	1.414
45	15	27%	20%	0%	14%	8%	4%	11%	6%	2%	1%	0%	0%	0%	0%	3%	2%	807	70	LD	20	50	25	72	1	0.913	51.603	0.030	1.686	0.027	1.552
45	16	27%	20%	0%	15%	9%	4%	11%	6%	2%	1%	0%	0%	0%	0%	3%	2%	813	70	LD	20	50	24	74	1	0.921	52.388	0.030	1.701	0.028	1.566
45	17	27%	19%	0%	16%	9%	4%	10%	6%	2%	1%	0%	0%	0%	0%	3%	2%	885	70	LD	19	50	24	76	1	0.945	58.515	0.030	1.874	0.028	1.724
45	18	27%	20%	0%	15%	9%	4%	10%	6%	2%	1%	0%	0%	0%	0%	3%	2%	815	70	LD	20	50	23	77	1	0.926	52.850	0.030	1.703	0.027	1.568
45	19	27%	20%	0%	15%	9%	4%	11%	6%	2%	1%	0%	0%	0%	0%	3%	2%	674	70	LD	21	50	23	78	1	0.902	42.538	0.030	1.402	0.027	1.288
45	20	27%	21%	0%	13%	8%	4%	11%	6%	2%	1%	0%	0%	0%	0%	3%	2%	537	70	LD	22	50	23	79	1	0.885	33.277	0.029	1.095	0.027	1.007
45	21	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	469	70	LD	22	50	23	80	1	0.880	28.886	0.029	0.954	0.027	0.877
45	22	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	3%	466	70	LD	23	50	23	81	1	0.850	27.725	0.029	0.933	0.026	0.859
45	23	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	1%	0%	0%	0%	3%	3%	401	70	LD	23	50	23	81	1	0.854	23.968	0.029	0.805	0.026	0.741
46	0	20%	16%	0%	9%	5%	9%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	152	280	LD	23	50	23	82	1	1.119	47.643	0.042	1.802	0.039	1.659
46	1	21%	17%	0%	8%	5%	8%	25%	8%	2%	1%	1%	1%	0%	0%	2%	1%	87	280	LD	24	50	22	82	1	1.095	26.679	0.040	0.971	0.037	0.893
46	2	20%	18%	0%	8%	5%	8%	25%	8%	2%	2%	0%	0%	0%	0%	2%	2%	60	280	LD	25	50	22	83	1	1.037	17.424	0.038	0.638	0.035	0.587
46	3	20%	18%	0%	7%	5%	8%	25%	8%	2%	2%	0%	0%	0%	0%	3%	2%	60	280	LD	25	50	22	83	1	1.106	18.584	0.039	0.649	0.036	0.597
46	4	19%	19%	0%	7%	5%	9%	25%	9%	2%	2%	0%	0%	0%	0%	3%	2%	59	280	LD	25	50	22	83	1	1.127	18.621	0.039	0.648	0.036	0.596
46	5	18%	20%	0%	7%	3%	8%	27%	8%	2%	2%	0%	0%	0%	0%	3%	2%	60	280	LD	25	50	22	83	1	1.131	18.995	0.039	0.661	0.036	0.608
46	6	17%	19%	0%	7%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	2%	182	280	LD	23	50	22	82	1	1.197	61.012	0.042	2.164	0.039	1.992
46	7	16%	20%	0%	6%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	2%	336	280	LD	20	50	22	82	1	1.369	128.795	0.045	4.242	0.042	3.904
46	8	15%	20%	0%	6%	4%	9%	26%	9%	2%	2%	1%	1%	1%	0%	3%	3%	424	280	LD	18	50	23	79	1	1.442	171.138	0.046	5.485	0.042	5.045
46	9	16%	19%	0%	7%	4%	9%	26%	9%	2%	2%	1%	1%	1%	0%	3%	2%	365	280	LD	20	50	23	77	1	1.342	137.117	0.044	4.546	0.041	4.184
46	10	17%	18%	0%	7%	4%	9%	25%	8%	2%	2%	1%	1%	1%	0%	3%	2%	336	280	LD	20	50	24	74	1	1.330	125.138	0.045	4.220	0.041	3.884
46	11	19%	18%	0%	8%	5%	9%	25%	8%	2%	2%	1%	0%	0%	0%	3%	2%	302	280	LD	20	50	25	72	1	1.225	103.578	0.043	3.600	0.039	3.310
46	12	20%	17%	0%	8%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	3%	2%	332	280	LD	20	50	25	71	1	1.250	116.192	0.043	3.985	0.039	3.669
46	13	21%	16%	0%	9%	5%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	2%	333	280	LD	20	50	25	71	1	1.225	114.215	0.042	3.960	0.039	3.646
46	14	22%	15%	0%	10%	6%	9%	24%	8%	2%	2%	1%	0%	0%	0%	2%	1%	334	280	LD	20	50	25	71	1	1.201	112.303	0.042	3.961	0.039	3.647
46	15	23%	14%	0%	10%	6%	8%	24%	8%	2%	1%	1%	0%	0%	0%	2%	1%	366	280	LD	20	50	25	72	1	1.173	120.183	0.042	4.306	0.039	3.965
46	16	24%	13%	0%	11%	6%	8%	23%	7%	2%	1%	1%	0%	0%	0%	2%	1%	362	280	LD	20	50	24	74	1	1.171	118.646	0.042	4.245	0.039	3.909
46	17	25%	12%	0%	11%	7%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	394	280	LD	19	50	24	76	1	1.173	129.408	0.042	4.650	0.039	4.279
46	18	25%	13%	0%	12%	7%	8%	23%	7%	2%	2%	1%	0%	0%	0%	2%	1%	363	280	LD	21	50	23	77	1	1.173	119.236	0.042	4.250	0.039	3.915
46	19	24%	13%	0%	11%	6%	8%	23%	7%	2%	1%	0%	0%	0%	0%	2%	1%	299	280	LD	21	50	23	78	1	1.136	95.096	0.041	3.429	0.038	3.154
46	20	23%	14%	0%	10%	6%	8%	24%	7%	2%	2%	0%	0%	0%	0%	2%	1%	242	280	LD	22	50	23	79	1	1.115	75.529	0.041	2.779	0.038	2.557
46	21	22%	15%	1%	10%	6%	8%	23%	8%	2%	1%	1%	1%	0%	0%	2%	1%	214	280	LD	22	50	23	80	1	1.124	67.375	0.041	2.483	0.038	2.285
46	22	22%	15%	1%	9%	6%	8%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	214	280	LD	22	50	23	81	1	1.125	67.416	0.042	2.487	0.038	2.288
46	23	21%	16%	0%	9%	6%	9%	24%	8%	2%	2%	1%	1%	1%	0%	2%	1%	181	280	LD	23	50	23	81	1	1.121	56.795	0.042	2.118	0.038	1.949
47	0	12%	43%	0%	10%	6%	2%	4%	20%	0%	0%	0%	0%	0%	0%	0%	0%	49	280	LD	25	50	23	82	1	0.577	7.915	0.024	0.324	0.022	0.298
47	1	14%	43%	0%	11%	7%	0%	4%	21%	0%	0%	0%	0%	0%	0%	0%	0%	28	280	LD	25	50	22	82	1	0.551	4.324	0.021	0.162	0.019	0.149
47	2	13%	38%	0%	13%	6%	0%	6%	25%	0%	0%	0%	0%	0%	0%	0%	0%	16	280	LD	25	50	22	83	1	0.615	2.755	0.025	0.112	0.023	0.103
47	3	13%	33%	0%	13%	7%	0%	7%	27%	0%	0%	0%	0%	0%	0%	0%	0%	15	280	LD	25	50	22	83	1	0.629	2.643	0.027	0.112	0.025	0.103
47	4	14%	29%	0%	14%	7%	0%	7%	29%	0%	0%	0%	0%	0%	0%	0%	0%	14	280	LD	25	50	22	83	1	0.644	2.524	0.028	0.112	0.026	0.103
47	5	17%	25%	0%	8%	8%	0%	8%	33%	0%	0%	0%	0%	0%	0%	0%	0%	12	280	LD	25	50	22	83	1	0.677	2.276	0.031	0.105	0.029	0.096
47	6	12%	20%	0%	10%	5%	2%	7%	32%	2%	2%	2%	2%	2%	0%	0%	0%	41	280	LD	25	50	22	83	1	0.793	9.109	0.043	0.489	0.039	0.450
47	7	12%	15%	0%	11%	6%	3%	8%	36%	2%	2%	3%	2%	2%	0%	0%	0%	66	280	LD	25	50	22	82	1	0.800	14.784	0.043	0.801	0.040	0.737
47	8	11%	8%	0%	11%	7%	3%	8%	42%	3%	1%	4%	3%	1%	0%	0%	0%	76	280	LD	25	50	23	79	1	0.873	18.576	0.052	1.101	0.048	1.014
47	9	13%	19%	0%	10%	6%	3%	6%	33%	1%	1%	3%	1%	1%	0%	0%	0%	78	280	LD	25	50	23	77	1	0.784	17.121	0.041	0.898	0.038	0.827
47	10	14%	27%	0%	10%	6%	3%	5%	28%	1%	1%	3%	1%	1%	0%	0%	0%	81	280	LD	25	50	24	74	1	0.685	15.532	0.035	0.783	0.032	0.721
47	11	13%	34%	0%	10%	6%	1%	5%	24%	1%	1%	1%	1%	0%	0%	0%	0%	82	280	LD	25	50	25	72	1	0.641	14.709	0.030	0.688	0.028	0.633
47	12	14%	38%	0%	11%	6%	1%	4%	22%	1%	1%	1%	1%	1%	0%	0%	0%	102	280	LD	25	50	25	71	1	0.603	17.208	0.027	0.759	0.024	0.699
47	13	13%	43%	0%	11%	6%	1%	4%	18%	1%	1%	1%	1%	1%	0%	0%	0%	114	280	LD	24	50	25	71	1	0.592	18.901	0.024	0.775	0.022	0.713
47	14	14%	47%	0%	11%	6%	1%	3%	16%	0%	0%	1%	1%	1%	0%	0%	0%	122	280	LD	24	50	25	71	1	0.553	18.895	0.021	0.729	0.020	0.671
47	15	14%	50%	0%	10%	6%	1%	2%	15%	0%	0%	1%	1%	1%	0%	1%	0%	144	280	LD	24	50	25	72	1	0.530	21.360	0.019	0.780	0.018	0.718
47	16	14%	52%	0%	10%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	0%	157	280	LD	24	50	24	74	1	0.525	23.077	0.018	0.784	0.016	0.721
47	17	14%	54%	0%	10%	7%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	183	280	LD	24	50	24	76	1	0.507	25.972	0.016	0.843	0.015	0.776
47	18	14%	52%	0%	10%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	164	280	LD	24	50	23	77	1	0.524	24.068	0.017	0.799	0.016	0.736
47	19	14%	51%	0%	11%	5%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	131	280	LD	24	50	23	78	1	0.542	19.897	0.019	0.703	0.018	0.647
47	20	14%	49%	0%	11%	6%	1%	2%	14%	0%	0%	1%	1%	1%	0%	0%	1%	102	280	LD	25	50	23	79	1	0.545	15.565	0.020	0.582	0.019	0.535
47	21	15%	48%	0%	10%	6%	1%	2%	16%	0%	0%	1%	0%	1%	0%	0%	0%	83	280	LD	25	50	23	80	1	0.543	12.631	0.020	0.463	0.018	0.426
47	22	14%	46%	0%	10%	6%	1%	3%	17%	0%	0%	1%	1%	1%	0%	0%	0%	79	280	LD	25	50	23	81	1	0.579	12.797	0.024	0.527	0.022	0.485
47	23	13%	45%	0%	9%	6%	2%	3%	19%	0%	0%	2%	0%	2%	0%	0%	0%	64	280	LD	25	50	23	81	1	0.592	10.617	0.023	0.420	0.022	0.387
48	0	4%	6%	0%	10%	6%	19%	53%	0%	0%	0%	0%	0%	0%	0%	2%	0%	68	300	LD	25	50	23	82	1	1.625	33.140	0.062	1.258	0.057	1.158
48	1	5%	7%	0%	10%	5%	17%	54%	0%	0%	0%	0%	0%	0%	0%	2%	0%	41	300	LD	25	50	22	82	1	1.638	20.153	0.061	0.749	0.056	0.689
48	2	4%	7%	0%	7%	4%	19%	56%	0%	0%	0%	0%	0%	0%	0%	4%	0%	27	300	LD	25	50	22	83	1	1.676	13.576	0.062	0.505	0.057	0.464
48	3	4%	7%	0%	7%	4%	19%	56%	0%	0%	0%	0%	0%	0%	0%	4%	0%	27	300	LD	25	50	22	83	1	1.676	13.576	0.062	0.505	0.057	0.464
48	4	7%	7%	0%	7%	4%	18%	54%	0%	0%	0%	0%	0%	0%	0%	4%	0%	28	300	LD	25	50	22	83	1	1.618	13.588	0.060	0.507	0.056	0.466
48	5	7%	7%	0%	7%	4%	18%	54%	0%	0%	0%	0%	0%	0%	0%	4%	0%	28	300	LD	25	50	22	83	1	1.618	13.588	0.060	0.507	0.056	0.466
48	6	6%	6%	0%	7%	5%	19%	51%	0%	0%	0%	0%	0%	0%	0%	4%	0%	86	300	LD	24	50	22	83	1	1.641	42.347	0.060	1.541	0.055	1.416
48	7	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	4%	0%	163	300	LD	23	50	22	82	1	1.681	82.193	0.061	2.998	0.056	2.757
48	8	6%	11%	0%	6%	3%	18%	51%	0%	0%	0%	1%	1%	1%	0%	4%	0%	208	300	LD	22	50	23	79	1	1.730	107.969	0.062	3.876	0.057	3.564
48	9	6%	10%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	3%	0%	178	300	LD	22	50	23	77	1	1.746	93.240	0.063	3.348	0.058	3.079
48	10	6%	9%	0%	8%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	3%	0%	162	300	LD	23	50	24	74	1	1.683	81.789	0.062	3.020	0.057	2.778
48	11	5%	9%	0%	9%	5%	18%	51%	0%	0%	0%	1%	0%	0%	0%	3%	0%	142	300	LD	23	50	25	72	1	1.676	71.382	0.061	2.619	0.057	2.409
48	12	5%	7%	0%	10%	5%	19%	51%	0%	0%	0%	1%	0%	0%	0%	3%	0%	156	300	LD	23	50	25	71	1	1.692	79.180	0.062	2.902	0.057	2.669
48	13	5%	5%	0%	11%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	2%	0%	152	300	LD	23	50	25	71	1	1.713	78.124	0.062	2.850	0.057	2.621
48	14	5%	5%	0%	11%	7%	19%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	151	300	LD	23	50	25	71	1	1.729	78.338	0.063	2.861	0.058	2.632
48	15	5%	4%	0%	12%	7%	18%	52%	0%	0%	0%	0%	0%	0%	0%	1%	0%	164	300	LD	22	50	25	72	1	1.778	87.484	0.064	3.159	0.059	2.906
48	16	4%	3%	1%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	162	300	LD	23	50	24	74	1	1.755	85.279	0.064	3.117	0.059	2.868
48	17	4%	1%	1%	14%	9%	19%	53%	0%	1%	0%	0%	0%	0%	0%	0%	0%	173	300	LD	22	50	24	76	1	1.807	93.804	0.066	3.402	0.060	3.130
48	18	4%	2%	1%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	160	300	LD	23	50	23	77	1	1.782	85.537	0.065	3.112	0.060	2.864
48	19	5%	2%	0%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	134	300	LD	23	50	23	78	1	1.772	71.220	0.065	2.594	0.059	2.387
48	20	5%	3%	0%	13%	7%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	108	300	LD	24	50	23	79	1	1.698	55.031	0.063	2.050	0.058	1.884
48	21	4%	4%	0%	13%	6%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	95	300	LD	24	50	23	80	1	1.684	47.992	0.063	1.790	0.058	1.645
48	22	5%	4%	0%	12%	6%	19%	53%	0%	0%	0%	0%	0%	0%	0%	1%	0%	95	300	LD	24	50	23	81	1	1

2033 with Project

2033 w/ Project		Vehicle Breakdown %															Summary of Emission Factors											
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBS D	FBD D	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
1	0	37%	11%	1%	20%	12%	1%	3%	0%	1%	1%	1%	1%	1%	4%	4%	6%	214	230	EX	70	70	23	82	0	0.194	9.557	0.011	0.531	0.010	0.488
1	1	38%	12%	1%	20%	13%	1%	3%	0%	2%	1%	1%	0%	0%	4%	4%	6%	126	230	EX	70	70	22	82	0	0.191	5.538	0.009	0.259	0.008	0.238
1	2	38%	10%	0%	22%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	81	230	EX	70	70	22	83	0	0.188	3.507	0.009	0.173	0.009	0.159
1	3	38%	10%	0%	22%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	82	230	EX	70	70	22	83	0	0.190	3.584	0.009	0.175	0.009	0.161
1	4	37%	10%	0%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	82	230	EX	70	70	22	83	0	0.193	3.632	0.009	0.179	0.009	0.164
1	5	36%	11%	1%	21%	13%	1%	3%	0%	1%	1%	0%	0%	0%	4%	4%	8%	123	230	EX	70	70	22	83	0	0.198	5.609	0.009	0.258	0.008	0.237
1	6	36%	10%	0%	22%	13%	1%	3%	0%	1%	1%	0%	0%	0%	4%	4%	8%	245	230	EX	70	70	22	83	0	0.202	11.370	0.009	0.535	0.009	0.492
1	7	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	8%	409	230	EX	70	70	22	82	0	0.204	19.226	0.010	0.923	0.009	0.849
1	8	34%	10%	1%	23%	14%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	9%	531	230	EX	70	70	23	79	0	0.203	24.779	0.010	1.194	0.009	1.098
1	9	35%	10%	1%	22%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	8%	538	230	EX	70	70	23	77	0	0.204	25.264	0.010	1.277	0.009	1.175
1	10	35%	10%	1%	21%	13%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	8%	500	230	EX	70	70	24	74	0	0.200	23.028	0.010	1.180	0.009	1.085
1	11	36%	11%	0%	21%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	460	230	EX	70	70	25	72	0	0.197	20.844	0.010	1.072	0.009	0.986
1	12	37%	11%	0%	20%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	467	230	EX	70	70	25	71	0	0.197	21.115	0.010	1.114	0.010	1.025
1	13	38%	12%	0%	20%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	471	230	EX	70	70	25	71	0	0.194	21.049	0.010	1.111	0.009	1.022
1	14	39%	12%	0%	19%	11%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	6%	474	230	EX	70	70	25	71	0	0.193	21.034	0.010	1.133	0.010	1.043
1	15	39%	12%	0%	19%	11%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	6%	518	230	EX	70	70	25	72	0	0.190	22.657	0.011	1.269	0.010	1.168
1	16	40%	13%	0%	18%	11%	1%	4%	0%	1%	1%	1%	0%	0%	4%	4%	5%	566	230	EX	70	70	24	74	0	0.190	24.761	0.010	1.363	0.010	1.255
1	17	41%	13%	0%	17%	10%	1%	4%	0%	2%	1%	1%	0%	1%	4%	4%	5%	570	230	EX	70	70	24	76	0	0.187	24.561	0.011	1.380	0.010	1.270
1	18	40%	13%	0%	18%	11%	1%	4%	0%	2%	1%	1%	0%	0%	4%	4%	5%	481	230	EX	70	70	23	77	0	0.192	21.261	0.011	1.173	0.010	1.080
1	19	39%	13%	1%	18%	11%	1%	4%	0%	2%	1%	1%	1%	1%	4%	4%	5%	396	230	EX	70	70	23	78	0	0.195	17.772	0.011	0.997	0.010	0.918
1	20	39%	13%	1%	18%	11%	1%	4%	0%	1%	1%	1%	0%	0%	4%	4%	6%	345	230	EX	70	70	23	79	0	0.194	15.409	0.010	0.823	0.010	0.757
1	21	39%	13%	1%	18%	11%	1%	4%	0%	1%	1%	1%	0%	0%	4%	4%	6%	300	230	EX	70	70	23	80	0	0.193	13.287	0.010	0.710	0.009	0.653
1	22	38%	12%	0%	19%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	6%	260	230	EX	70	70	23	81	0	0.195	11.638	0.011	0.639	0.010	0.588
1	23	38%	12%	0%	19%	12%	1%	4%	0%	1%	1%	0%	0%	0%	4%	4%	7%	259	230	EX	70	70	23	81	0	0.197	11.726	0.011	0.645	0.010	0.594
2	0	40%	10%	0%	18%	10%	1%	3%	0%	3%	3%	1%	0%	0%	3%	3%	6%	226	420	EX	70	70	23	82	0	0.179	17.029	0.010	0.996	0.010	0.917
2	1	41%	10%	1%	17%	10%	1%	3%	0%	3%	3%	1%	1%	1%	3%	3%	5%	134	420	EX	70	70	22	82	0	0.177	9.981	0.011	0.601	0.010	0.553
2	2	41%	11%	0%	18%	9%	1%	3%	0%	3%	2%	1%	1%	1%	0%	3%	6%	91	420	EX	70	70	22	83	0	0.182	6.970	0.012	0.459	0.011	0.422
2	3	42%	11%	0%	17%	9%	1%	3%	0%	3%	2%	1%	1%	1%	0%	3%	4%	90	420	EX	70	70	22	83	0	0.178	6.736	0.012	0.453	0.011	0.417
2	4	41%	12%	0%	16%	9%	1%	3%	0%	3%	3%	1%	1%	1%	0%	3%	5%	92	420	EX	70	70	22	83	0	0.183	7.065	0.012	0.472	0.011	0.434
2	5	42%	12%	0%	15%	9%	2%	3%	1%	4%	3%	1%	1%	1%	0%	3%	4%	137	420	EX	70	70	22	83	0	0.174	10.031	0.011	0.615	0.010	0.566
2	6	43%	13%	0%	14%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	280	420	EX	70	70	22	83	0	0.179	21.046	0.011	1.284	0.010	1.182
2	7	43%	13%	0%	13%	8%	1%	4%	0%	4%	3%	1%	1%	1%	0%	3%	5%	470	420	EX	70	70	22	82	0	0.181	35.730	0.011	2.169	0.010	1.997
2	8	43%	14%	0%	13%	8%	1%	4%	1%	4%	3%	1%	1%	1%	0%	3%	4%	611	420	EX	70	70	23	79	0	0.178	45.647	0.011	2.731	0.010	2.515
2	9	43%	13%	0%	14%	8%	1%	3%	1%	4%	3%	1%	1%	1%	0%	3%	5%	609	420	EX	70	70	23	77	0	0.180	45.955	0.011	2.709	0.010	2.494
2	10	42%	12%	0%	15%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	3%	5%	556	420	EX	70	70	24	74	0	0.180	42.124	0.011	2.484	0.010	2.286
2	11	41%	11%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	508	420	EX	70	70	25	72	0	0.181	38.555	0.011	2.364	0.010	2.176
2	12	41%	10%	0%	16%	9%	1%	3%	0%	4%	3%	1%	1%	1%	0%	4%	5%	504	420	EX	70	70	25	71	0	0.184	38.889	0.011	2.376	0.010	2.187
2	13	40%	9%	0%	17%	10%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	501	420	EX	70	70	25	71	0	0.185	38.994	0.011	2.389	0.010	2.198
2	14	39%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	495	420	EX	70	70	25	71	0	0.186	38.662	0.011	2.351	0.010	2.163
2	15	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	534	420	EX	70	70	25	72	0	0.187	41.961	0.011	2.552	0.010	2.348
2	16	38%	6%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	576	420	EX	70	70	24	74	0	0.190	46.005	0.011	2.725	0.010	2.507
2	17	37%	6%	1%	21%	13%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	572	420	EX	70	70	24	76	0	0.190	45.634	0.011	2.729	0.010	2.511
2	18	37%	6%	0%	21%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	486	420	EX	70	70	23	77	0	0.193	39.490	0.012	2.363	0.011	2.174
2	19	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	397	420	EX	70	70	23	78	0	0.193	32.160	0.011	1.892	0.010	1.741
2	20	38%	7%	1%	20%	12%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	6%	357	420	EX	70	70	23	79	0	0.193	28.934	0.012	1.745	0.011	1.606
2	21	39%	8%	0%	19%	11%	1%	3%	0%	3%	3%	1%	1%	1%	0%	4%	7%	309	420	EX	70	70	23	80	0	0.186	24.191	0.011	1.449	0.010	1.334
2	22	39%	9%	0%	19%	11%	1%	3%	0%	3%	3%	1%	0%	0%	4%	4%	6%	269	420	EX	70	70	23	81	0	0.188	21.232	0.011	1.247	0.010	1.147
2	23	40%	9%	0%	18%	11%	1%	3%	0%	3%	3%	1%	0%	1%	0%	4%	6%	271	420	EX	70	70	23	81	0	0.189	21.463	0.011	1.261	0.010	1.160
3	0	36%	17%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	800	530	EX	70	70	23	82	0	0.196	83.018	0.013	5.667	0.012	5.214
3	1	36%	18%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	482	530	EX	70	70	22	82	0	0.200	51.212	0.013	3.425	0.012	3.151
3	2	36%	18%	0%	13%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	318	530	EX	70	70	22	83	0	0.197	33.133	0.013	2.167	0.012	1.994
3	3	36%	19%	0%	13%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	320	530	EX	70	70	22	83	0	0.198	33.509	0.014	2.297	0.012	2.114
3	4	36%	19%	0%	13%	8%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	320	530	EX	70	70	22	83	0	0.198	33.527	0.014	2.295	0.012	2.112
3	5	36%	19%	0%	12%	7%	2%	7%	0%	3%	2%	1%	1%	1%	0%	3%	5%	492	530	EX	70	70	22	83	0	0.201	52.373	0.013	3.497	0.012	3.218
3	6	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	2%	1%	1%	0%	3%	4%	990	530	EX	70	70	22	82	0	0.202	105.744	0.014	7.492	0.013	6.895
3	7	36%	20%	0%	11%	7%	3%	7%	0%	3%	3%	1%	1%	1%	0%	3%	4%	1663	530	EX	69	70	22	82	0	0.204	179.673	0.014	12.587	0.013	11.570
3	8	36%	20%	0%	11%	6%	3%	7%	0%	3%	3%	2%	1%	1%	0%	3%	4%	2173	530	EX	64	70	23	79	0	0.205	235.932	0.013	15.516	0.012	14.295
3	9	36%	20%	0%	11%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	2151	530	EX	64	70	23	77	0	0.205	234.238	0.013	15.028	0.012	13.847
3	10	36%	19%	0%	12%	7%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1974	530	EX	66	70	24	74	0	0.203	212.192	0.013	14.099	0.012	12.996
3	11	36%	19%	0%	13%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1796	530	EX	68	70	25	72	0	0.198	188.475	0.013	12.766	0.012	11.730
3	12	35%	18%	0%	14%	8%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1789	530	EX	68	70	25	71	0	0.200	189.629	0.013	12.667	0.012	11.638
3	13	36%	17%	0%	14%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1757	530	EX	68	70	25	71	0	0.198	184.433	0.013	12.286	0.012	11.288
3	14	36%	16%	0%	15%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	1745	530	EX	69	70	25	71	0	0.197	182.623	0.013	12.047	0.012	11.073
3	15	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1889	530	EX	67	70	25	72	0	0.197	196.782	0.012	12.402	0.011	11.403
3	16	35%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1993	530	EX	66	70	24	76	0	0.196	206.854	0.012	12.529	0.011	11.548
3	17	35%	14%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1690	530	EX	69	70	23	77	0	0.198	176.954	0.012	10.949	0.011	10.063
3	18	36%	15%	0%	17%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1389	530	EX	70	70	23	78	0	0.197	145.351	0.013	9.216	0.012	8.479
3	19	36%	15%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1389	530	EX	70	70	23	78	0	0.197	145.351	0.013	9.216	0.012	8.479
3	20	36%	16%	0%	16%	10%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	5%	1245	530	EX	70	70	23	79	0	0.196	129.552	0.013	8.426	0.012	7.753
3	21	36%	16%	0%	16%	9%	2%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	1105	530	EX	70	70	23	80	0	0.195	114.482	0.013	7.442	0.012	6.848
3	22	36%	17%	0%	15%	9%	3%	7%	0%	2%	2%	1%	1%	1%	0%	3%	4%	940	530	EX	70	70	23	81	0	0.195	96.957	0.013	6.373	0.012	5.864
3	23	36%	17%	0%	15%	9%	3%	7%	0%	3%	2%	1%	1%	1%	0%	3%	4%	845	530	EX	70	70	23	81	0	0.194	87.320	0.013	6.434	0.012	5.920
4	0	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	0%	4%	5%	736	360	EX	70	70	23	82	0	0.210	55.567	0.013	3.448	0.012	3.172
4	1	35%	18%	0%	16%	9%	3%	7%	0%	1%	1%	1%	0%	0%	4%	4%	5%	448	360	EX	70	70	22	82	0	0.212	34.255	0.013	2.061	0.012	1.897
4	2	34%	19%	0%	16%	9%	2%	8%	0%	1%	1%	1%	0%	0%	4%	4%	5%	295	360	EX	70	70	22	83	0	0.213	22.599	0.013	1.336	0.012	1.229
4	3	33%	19%	0%	16%	9%	2%	8%	0%	1%	1%	1%	0%	0%	4%	4%	5%	296	360	EX	70	70	22	83	0	0.214	22.763	0.013	1.340	0.012	1.233
4	4	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	4%	4%	5%	300	360	EX	70	70	22	83	0	0.216	23.275	0.013	1.358	0.012	1.250
4	5	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	4%	4%	5%	451	360	EX	70	70	22	83	0	0.213	34.599	0.012	2.024	0.011	1.862
4	6	32%	20%	0%	16%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	4%	907	360	EX	70	70	22	83	0	0.215	70.241	0.013	4.185	0.012	3.850
4	7	32%	20%	0%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	4%	1526	360	EX	70	70	22	82	0	0.215	117.975	0.013	6.921	0.012	6.366
4	8	31%	20%	0%	17%	10%	3%	9%	0%	1%	1%	0%	0%	0%	3%	4%	4%	1997	360	EX	66	70	23	79	0	0.216	155.064	0.012	8.686	0.011	8.005
4	9	32%	20%	0%	17%	10%	3%	8%	0%	1%	1%	0%	0%	0%	3%	4%	4%	1975	360	EX	66	70	23	77	0	0.218	154.949	0.012	8.706	0.011	8.023
4	10	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	0%	0%	0%	3%	4%	4%	1808	360	EX	67	70	24	74	0	0.214	139.038	0.012	7.964	0.011	7.323
4	11	33%	19%	0%	16%	10%	3%	8%	0%	1%	1%	1%	0%	0%	4%	5%	4%	1650	360	EX	69	70	25	72	0	0.211	125.189	0.013	7.533	0.012	6.924
4	12	34%	19%	0%	16%	9%	3%	8%	0%	1%	1%	1%	0%	0%	4%	5%	4%	1636	360	EX	69	70	25	71	0	0.210	123.769	0.013	7.471	0.012	6.867
4	13	34%	18%	0%	16%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	4%	1634	360	EX	69	70	25	71	0	0.211	124.046	0.013	7.537	0.012	6.928
4	14	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	4%	5%	4%	1627	360	EX	69	70	25	71	0	0.211	123.337	0.013	7.669	0.012	7.049
4	15	36%	17%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	4%	5%	4%	1763	360	EX	68	70	25	72	0	0.212	134.357	0.013	8.393	0.012	7.710
4	16	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	1%	4%	5%	4%	1893	360	EX	67	70	24	74	0	0.214	145.724	0.013	8.934	0.012	8.213
4	17	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	0%	5%	5%	5%	4%	1884	360	EX	67	70	24	76	0	0.211	143.127	0.013	8.801	0.012	8.091
4	18	37%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	5%	5%	5%	1590	360	EX	70	70	23	77	0	0.214	122.729	0.014	7.742	0.012	7.125
4	19	36%	17%	0%	15%	9%	2%	6%	0%	1%	1%	1%	1%	0%	4%	5%	5%	1307	360	EX	70	70	23	78	0	0.214	100.602	0.014	6.418	0.013	5.906
4	20	36%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	0%	4%	5%	5%	1164	360	EX	70	70	23	79	0	0.211	88.599	0.013	5.456	0.012	5.020
4	21	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	4%	5%	5%	1023	360	EX	70	70	23	80	0	0.211	77.827	0.013	4.815	0.012	4.431
4	22	35%	18%	0%	15%	9%	2%	7%	0%	1%	1%	1%	1%	1%	4%	5%	5%	876	360	EX	70	70	23	81	0	0.209	65.913	0.013	4.111	0.012	3.783
4	23	35%	18%	0%	15%	9%	3%	7%	0%	1%	1%	1%	1%	1%	4%	5%	5%	879	360	EX	70	70	23	81	0	0.210	66.488	0.013	4.149	0.012	3.817
5	0	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	4%	6%	506	230	PD	40	50	23	82	0	0.271	31.559	0.012	1.445	0.011	1.332
5	1	34%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	4%	6%	306	230	PD	40	50	22	82	0	0.273	19.198	0.012	0.879	0.012	0.811
5	2	33%	22%	1%	15%	9%	3%	10%	0%	1%	1%	1%	1%	0%	4%	3%	6%	200	230	PD	40	50	22	83	0	0.269	12.352	0.012	0.555	0.011	0.512
5	3	32%	22%	1%	14%	9%	3%	10%	0%	1%	1%	1%	1%	1%	4%	3%	6%	201	230	PD	40	50	22	83	0	0.270	12.459	0.012	0.557	0.011	0.514
5	4	32%	23%	1%	14%	9%	3%	10%	0%	1%	1%	1%	1%	1%	4%	3%	6%	201	230	PD	40	50	22	83	0	0.266	12.282	0.012	0.557	0.011	0.514
5	5	32%	23%	1%	14%	8%	4%	10%	0%	1%	1%	1%	1%	0%	4%	3%	6%	201	230	PD	40	50	22	83	0	0.266	12.282	0.012	0.557	0.011	0.514
5	6	31%	23%	0%	14%	8%	4%	11%	0%	1%	1%	1%	0%	0%	4%	3%	6%	622	230	PD	40	50	22	83	0	0.276	39.447	0.012	1.776	0.011	1.637
5	7	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	1%	0%	0%	4%	3%	6%	1139	230	PD	37	50	22	82	0	0.282	73.863	0.012	3.202	0.011	2.952
5	8	30%	23%	0%	15%	9%	4%	11%	0%	1%	1%	0%	0%	0%	4%	3%	6%	1463	230	PD	34	50	23	79	0	0.289	97.412	0.012	4.171	0.011	3.840
5	9	31%	23%	0%	15%	9%	4%	10%	0%	1%	1%	0%	0%	0%	4%	3%	6%	1243	230	PD	36	50	23	77	0	0.285	81.530	0.012	3.509	0.011	3.227
5	10	32%	23%	0%	14%	9%	3%	10%	0%	1%	1%	1%	0%	0%	4%	3%	6%	1132	230	PD	37	50	24	74	0	0.281	73.043	0.012	3.202	0.011	2.952
5	11	32%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	3%	6%	1025	230	PD	37	50	25	72	0	0.279	65.659	0.012	2.945	0.012	2.715
5	12	33%	22%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	1%	4%	3%	6%	1118	230	PD	37	50	25	71	0	0.281	72.306	0.012	3.188	0.011	2.938
5	13	33%	21%	0%	14%	8%	3%	9%	0%	1%	1%	1%	1%	0%	4%	4%	6%	1126	230	PD	37	50	25	71	0	0.282	73.100	0.013	3.301	0.012	3.042
5	14	34%	20%	0%	14%	8%	3%	8%	0%	1%	1%	1%	1%	0%	4%	4%	6%

2033 with Project

2033 w/ Project		Vehicle Breakdown %																	Summary of Emission Factors										
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBS D	FBD D	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
11	20	34%	19%	0%	13%	8%	3%	9%	3%	2%	1%	1%	0%	0%	0%	4%	4%	692	210	DD	27	50	23	79	1	0.334	48.584	0.015	2.142	0.014	1.973
11	21	34%	19%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	611	210	DD	27	50	23	80	1	0.333	42.764	0.015	1.931	0.014	1.778
11	22	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	615	210	DD	27	50	23	81	1	0.332	42.829	0.015	1.908	0.014	1.757
11	23	33%	20%	0%	13%	8%	3%	9%	3%	1%	1%	1%	0%	0%	0%	4%	3%	534	210	DD	28	50	23	81	1	0.328	36.757	0.015	1.657	0.014	1.524
12	0	30%	20%	0%	14%	8%	3%	8%	5%	2%	2%	1%	0%	0%	0%	4%	4%	520	160	DD	28	50	23	82	1	0.326	27.096	0.014	1.200	0.013	1.104
12	1	31%	20%	0%	13%	8%	3%	8%	5%	2%	2%	1%	0%	0%	0%	3%	4%	307	160	DD	29	50	22	82	1	0.324	15.892	0.014	0.686	0.013	0.633
12	2	31%	21%	1%	13%	8%	3%	9%	4%	2%	2%	1%	1%	0%	0%	3%	4%	198	160	DD	30	50	22	83	1	0.309	9.798	0.014	0.438	0.013	0.403
12	3	31%	22%	1%	13%	8%	3%	9%	4%	2%	2%	1%	1%	0%	0%	3%	3%	198	160	DD	30	50	22	83	1	0.310	9.815	0.014	0.437	0.013	0.401
12	4	31%	22%	1%	12%	8%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	197	160	DD	30	50	22	83	1	0.313	9.869	0.014	0.444	0.013	0.408
12	5	31%	22%	1%	12%	8%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	196	160	DD	30	50	22	83	1	0.316	9.906	0.014	0.445	0.013	0.409
12	6	30%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	589	160	DD	27	50	22	83	1	0.340	32.029	0.015	1.374	0.013	1.265
12	7	30%	23%	0%	11%	7%	3%	9%	4%	2%	2%	1%	1%	1%	0%	3%	3%	1070	160	DD	24	50	22	82	1	0.368	63.030	0.016	2.742	0.015	2.527
12	8	30%	23%	0%	11%	6%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1345	160	DD	23	50	23	79	1	0.371	79.822	0.016	3.443	0.015	3.175
12	9	30%	22%	0%	11%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1173	160	DD	24	50	23	77	1	0.364	68.255	0.016	2.937	0.014	2.708
12	10	31%	22%	0%	12%	7%	3%	9%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1090	160	DD	24	50	24	74	1	0.359	62.575	0.016	2.719	0.014	2.506
12	11	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1004	160	DD	25	50	25	72	1	0.345	55.383	0.015	2.433	0.014	2.239
12	12	31%	21%	0%	13%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	3%	1120	160	DD	24	50	25	71	1	0.352	63.149	0.015	2.750	0.014	2.535
12	13	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1141	160	DD	24	50	25	71	1	0.349	63.683	0.015	2.784	0.014	2.567
12	14	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1156	160	DD	24	50	25	71	1	0.346	63.979	0.015	2.749	0.014	2.534
12	15	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1275	160	DD	23	50	25	72	1	0.352	71.718	0.015	3.096	0.014	2.856
12	16	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1293	160	DD	23	50	24	74	1	0.353	73.010	0.015	3.098	0.014	2.858
12	17	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1302	160	DD	22	50	24	76	1	0.358	81.376	0.015	3.464	0.014	3.192
12	18	31%	18%	0%	15%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	1302	160	DD	23	50	23	77	1	0.354	73.826	0.015	3.109	0.014	2.868
12	19	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	1079	160	DD	24	50	23	78	1	0.345	59.600	0.015	2.552	0.014	2.352
12	20	31%	19%	0%	15%	9%	3%	7%	4%	2%	2%	1%	0%	0%	0%	3%	4%	856	160	DD	26	50	23	79	1	0.335	45.842	0.015	1.989	0.013	1.832
12	21	31%	19%	0%	14%	9%	3%	7%	4%	2%	2%	0%	0%	0%	0%	3%	4%	741	160	DD	26	50	23	80	1	0.331	39.271	0.014	1.696	0.013	1.562
12	22	31%	19%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	736	160	DD	26	50	23	81	1	0.333	39.182	0.014	1.696	0.013	1.562
12	23	31%	20%	0%	14%	8%	3%	8%	4%	2%	2%	0%	0%	0%	0%	3%	4%	626	160	DD	27	50	23	81	1	0.328	32.899	0.014	1.435	0.013	1.321
13	0	39%	20%	1%	16%	8%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	5%	168	60	DD	30	50	23	82	1	0.245	2.469	0.009	0.094	0.009	0.087
13	1	39%	20%	0%	16%	8%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	4%	98	60	DD	30	50	22	82	1	0.245	1.439	0.008	0.050	0.008	0.046
13	2	40%	22%	0%	16%	8%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	5%	63	60	DD	30	50	22	83	1	0.243	0.920	0.007	0.027	0.007	0.025
13	3	42%	23%	0%	13%	8%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	5%	60	60	DD	30	50	22	83	1	0.239	0.860	0.007	0.026	0.007	0.024
13	4	40%	25%	0%	13%	8%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	3%	60	60	DD	30	50	22	83	1	0.245	0.881	0.007	0.026	0.007	0.024
13	5	39%	25%	0%	14%	9%	0%	0%	0%	3%	3%	0%	0%	0%	0%	3%	3%	59	60	DD	30	50	22	83	1	0.250	0.885	0.007	0.026	0.007	0.023
13	6	38%	24%	1%	14%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	3%	183	60	DD	30	50	22	83	1	0.253	2.781	0.009	0.097	0.008	0.090
13	7	38%	24%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	2%	329	60	DD	29	50	22	82	1	0.271	5.344	0.010	0.188	0.009	0.174
13	8	37%	25%	0%	13%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	409	60	DD	29	50	23	79	1	0.271	6.646	0.009	0.230	0.009	0.213
13	9	37%	23%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	3%	366	60	DD	29	50	23	77	1	0.273	6.002	0.010	0.210	0.009	0.194
13	10	38%	22%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	4%	346	60	DD	29	50	24	74	1	0.267	5.542	0.010	0.200	0.009	0.185
13	11	38%	21%	0%	14%	8%	0%	1%	0%	4%	3%	1%	1%	1%	0%	3%	4%	328	60	DD	29	50	25	72	1	0.261	5.145	0.010	0.190	0.009	0.176
13	12	38%	20%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	5%	372	60	DD	29	50	25	71	1	0.269	5.993	0.010	0.217	0.009	0.201
13	13	39%	19%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	5%	384	60	DD	29	50	25	71	1	0.265	6.102	0.010	0.224	0.009	0.207
13	14	39%	18%	0%	15%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	6%	392	60	DD	29	50	25	71	1	0.264	6.210	0.010	0.230	0.009	0.213
13	15	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	1%	1%	0%	4%	6%	442	60	DD	28	50	25	72	1	0.261	6.924	0.010	0.265	0.009	0.244
13	16	39%	16%	0%	16%	10%	0%	1%	0%	4%	3%	0%	0%	0%	0%	4%	7%	455	60	DD	28	50	24	74	1	0.264	7.210	0.010	0.268	0.009	0.246
13	17	40%	15%	0%	16%	10%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	7%	505	60	DD	28	50	24	76	1	0.260	7.870	0.010	0.303	0.009	0.279
13	18	39%	16%	0%	16%	9%	0%	1%	0%	4%	3%	0%	0%	0%	0%	4%	7%	461	60	DD	28	50	23	77	1	0.266	7.365	0.010	0.273	0.009	0.251
13	19	40%	16%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	6%	373	60	DD	29	50	23	78	1	0.256	5.718	0.009	0.209	0.009	0.193
13	20	39%	17%	0%	16%	9%	0%	1%	0%	4%	3%	1%	0%	0%	0%	3%	6%	295	60	DD	29	50	23	79	1	0.259	4.582	0.009	0.166	0.009	0.154
13	21	39%	17%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	253	60	DD	29	50	23	80	1	0.260	3.941	0.009	0.143	0.009	0.132
13	22	39%	17%	0%	16%	9%	0%	1%	0%	3%	3%	0%	0%	0%	0%	3%	6%	247	60	DD	30	50	23	81	1	0.253	3.752	0.009	0.136	0.008	0.125
13	23	39%	18%	0%	16%	9%	0%	1%	0%	3%	3%	1%	1%	1%	0%	3%	5%	206	60	DD	30	50	23	81	1	0.241	2.980	0.009	0.113	0.008	0.104
14	0	59%	16%	0%	6%	4%	0%	0%	0%	4%	4%	2%	2%	2%	0%	0%	0%	51	590	LD	25	50	23	82	1	0.164	4.933	0.012	0.369	0.011	0.339
14	1	60%	17%	0%	7%	3%	0%	0%	0%	3%	3%	3%	0%	0%	0%	0%	0%	30	590	LD	25	50	22	82	1	0.143	2.530	0.009	0.152	0.008	0.139
14	2	63%	16%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	19	590	LD	25	50	22	83	1	0.127	1.427	0.007	0.078	0.006	0.072
14	3	60%	20%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	20	590	LD	25	50	22	83	1	0.139	1.643	0.007	0.078	0.006	0.071
14	4	64%	18%	0%	5%	5%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	22	590	LD	25	50	22	83	1	0.127	1.652	0.007	0.085	0.006	0.078
14	5	61%	17%	0%	9%	4%	0%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	23	590	LD	25	50	22	83	1	0.133	1.809	0.007	0.091	0.006	0.083
14	6	55%	20%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	0%	74	590	LD	25	50	22	83	1	0.173	7.541	0.010	0.453	0.010	0.416
14	7	55%	19%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	1%	138	590	LD	24	50	22	82	1	0.176	14.331	0.011	0.927	0.011	0.857
14	8	55%	20%	0%	7%	4%	0%	1%	0%	5%	3%	2%	1%	2%	0%	0%	2%	178	590	LD	24	50	23	79	1	0.177	18.544	0.011	1.138	0.010	1.052
14	9	56%	19%	0%	7%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	146	590	LD	24	50	23	77	1	0.177	15.276	0.011	0.979	0.011	0.905
14	10	57%	19%	0%	6%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	127	590	LD	24	50	24	74	1	0.174	13.072	0.011	0.854	0.011	0.790
14	11	56%	18%	0%	6%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	111	590	LD	25	50	25	72	1	0.173	11.321	0.012	0.779	0.011	0.716
14	12	57%	17%	0%	7%	4%	0%	1%	0%	4%	3%	2%	2%	2%	0%	0%	2%	119	590	LD	25	50	25	71	1	0.169	11.842	0.012	0.820	0.011	0.754
14	13	57%	17%	0%	7%	5%	0%	1%	0%	5%	4%	2%	1%	1%	0%	0%	2%	112	590	LD	25	50	25	71	1	0.160	10.563	0.010	0.670	0.009	0.616
14	14	59%	16%	0%	7%	4%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	104	590	LD	25	50	25	71	1	0.157	9.659	0.010	0.640	0.010	0.589
14	15	59%	15%	0%	7%	5%	0%	1%	0%	4%	4%	2%	1%	1%	0%	0%	2%	108	590	LD	25	50	25	72	1	0.153	9.757	0.010	0.661	0.010	0.608
14	16	60%	15%	0%	8%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	102	590	LD	25	50	24	74	1	0.153	9.207	0.011	0.632	0.010	0.582
14	17	59%	13%	0%	8%	5%	1%	2%	0%	4%	3%	2%	1%	1%	0%	0%	2%	106	590	LD	25	50	24	76	1	0.156	9.748	0.011	0.690	0.010	0.634
14	18	61%	14%	0%	7%	4%	0%	1%	0%	4%	3%	2%	1%	1%	0%	0%	2%	99	590	LD	25	50	23	77	1	0.151	8.830	0.011	0.616	0.010	0.566
14	19	61%	14%	0%	7%	4%	0%	1%	0%	4%	4%	1%	1%	1%	0%	2%	2%	86	590	LD	25	50	23	78	1	0.158	8.014	0.011	0.544	0.010	0.500
14	20	61%	14%	0%	7%	4%	0%	1%	0%	4%	3%	1%	1%	1%	0%	2%	2%	71	590	LD	25	50	23	79	1	0.155	6.496	0.011	0.469	0.010	0.431
14	21	58%	15%	0%	8%	5%	0%	2%	0%	5%	3%	2%	2%	2%	0%	0%	2%	66	590	LD	25	50	23	80	1	0.165	6.429	0.012	0.449	0.011	0.413
14	22	59%	15%	0%	7%	4%	0%	2%	0%	4%	3%	2%	2%	2%	0%	0%	2%	68	590	LD	25	50	23	81	1	0.161	6.471	0.012	0.463	0.011	0.426
14	23	58%	17%	0%	7%	3%	0%	2%	0%	3%	3%	2%	2%	2%	0%	0%	2%	59	590	LD	25	50	23	81	1	0.172	5.981	0.012	0.418	0.011	0.384
15	0	36%	23%	0%	9%	5%	0%	0%	0%	9%	5%	5%	5%	5%	0%	0%	0%	22	590	LD	25	50	23	82	1	0.247	3.205	0.019	0.249	0.018	0.229
15	1	33%	20%	0%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	0%	0%	0%	15	590	LD	25	50	22	82	1	0.300	2.652	0.026	0.232	0.024	0.213
15	2	33%	22%	0%	11%	7%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.208	1.102	0.015	0.078	0.013	0.071
15	3	33%	22%	0%	11%	7%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.208	1.102	0.015	0.078	0.013	0.071
15	4	33%	22%	0%	11%	7%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.208	1.102	0.015	0.078	0.013	0.071
15	5	33%	22%	0%	11%	7%	0%	0%	0%	11%	11%	11%	0%	0%	0%	0%	0%	9	590	LD	25	50	22	83	1	0.208	1.102	0.015	0.078	0.013	0.071
15	6	37%	26%	0%	7%	4%	0%	0%	0%	7%	4%	7%	4%	4%	0%	0%	0%	27	590	LD	25	50	22	83	1	0.248	3.944	0.019	0.302	0.017	0.278
15	7	36%	30%	0%	6%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	53	590	LD	25	50	22	82	1	0.264	8.252	0.018	0.564	0.017	0.519
15	8	37%	32%	0%	5%	3%	0%	0%	0%	6%	5%	5%	3%	5%	0%	0%	0%	63	590	LD	25	50	23	79	1	0.262	9.745	0.017	0.641	0.016	0.589
15	9	36%	30%	0%	5%	4%	0%	0%	0%	7%	5%	5%	4%	4%	0%	0%	0%	56	590	LD	25	50	23	77	1	0.258	8.508	0.017	0.573	0.016	0.527
15	10	37%	30%	0%	5%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	52	590	LD	25	50	24	74	1	0.257	7.895	0.018	0.559	0.017	0.514
15	11	38%	25%	0%	6%	4%	0%	0%	0%	6%	6%	6%	4%	4%	0%	0%	0%	48	590	LD	25	50	25	72	1	0.255	7.029	0.020	0.561	0.018	0.516
15	12	37%	24%	0%	8%	4%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	51	590	LD	25	50	25	71	1	0.245	7.384	0.019	0.570	0.017	0.524
15	13	37%	22%	0%	8%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	51	590	LD	25	50	25	71	1	0.246	7.407	0.019	0.580	0.018	0.534
15	14	38%	21%	0%	9%	6%	0%	0%	0%	8%	6%	6%	4%	4%	0%	0%	0%	53	590	LD	25	50	25	71	1	0.243	7.606	0.019	0.594	0.017	0.546
15	15	38%	20%	0%	9%	5%	0%	2%	0%	7%	5%	5%	4%	5%	0%	0%	0%	56	590	LD	25	50	25	72	1	0.262	8.641	0.021	0.687	0.019	0.632
15	16	36%	17%	0%	10%	5%	0%	2%	0%	7%	5%	7%	5%	5%	0%	0%	0%	58	590	LD	25	50	24	74	1	0.271	9.269	0.024	0.812	0.022	0.747
15	17	37%	13%	0%	11%	7%	0%	2%	0%	8%	7%	7%	5%	5%	0%	0%	0%	62	590	LD	25	50	24	76	1	0.267	9.405	0.023	0.850	0.021	0.782
15	18	38%	14%	0%	10%	5%	0%	2%	0%	7%	7%	5%	5%	5%	0%	0%	0%	58	590	LD	25	50	23	77	1	0.267	9.151	0.024	0.829	0.022	0.763
15	19	38%	15%	0%	11%	6%	0%	2%	0%	6%	6%	6%	4%	4%	0%	0%	0%	47	590	LD	25	50	23	78	1	0.259	7.176	0.022	0.614	0.020	0.565
15	20	40%	16%	0%	11%	5%	0%	0%	0%	8%	5%	5%	5%	5%	0%	0%	0%	38	590	LD	25	50	23	79	1	0.252	5.639	0.022	0.498	0.020	0.458
15	21	39%	19%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	31	590	LD	25	50	23	80	1	0.237	4.340	0.019	0.339	0.017	0.312
15	22	39%	19%	0%	10%	7%	0%	0%	0%	7%	7%	7%	3%	3%	0%	0%	0%	31	590	LD	25	50	23	81	1	0.236	4.322	0.019	0.339	0.017	0.312
15	23	41%	19%	0%	7%	4%	0%	0%	0%	7%	7%	7%	4%	4%	0%	0%	0%	27	590	LD	25	50	23	81	1	0.232	3.702	0.020	0.319	0.018	0.294
16	0	28%	22%	0%	10%	6%	2%	5%	7%	4%	4%	4%	2%	2%	1%	4%	2%	191	200	LD	24	50	23	82	1	0.379	14.495	0.019	0.709	0.017	0.653
16	1	28%	23%	0%	10%	6%	2%	5%	7%	4%	4%	4%	2%	2%	1%	4%	2%	110	200	LD	25	50	22	82	1	0.374	8.221	0.018	0.405	0.017	0.373
16	2	28%	24%	0%	8%	6%	1%	6%	7%	4%	4%	3%	1%	1%	0%	4%	3%	72	200	LD	25	50	22	83	1	0.373	5.371	0.018	0.260	0.017	0.239
16	3	28%	24%	0%	9%	6%	1%	6%	7%	4%	4%	3%	1%	1%	0%	4%	1%	71	200	LD	25	50	22	83	1	0.369	5.243	0.018	0.256	0.017	0.236
16	4	27%	23%	0%	8%	6%	1%	6%	7%	4%	4%	3%	3%	3%	0%	4%	1%	73	200	LD	25	50	22	83	1	0.384	5.612	0.021	0.302	0.019	0.277
16	5	26%	23%	0%	8%	5%	1%	5%	7%	4%	4%	3%	3%	3%	0%	4%	4%	74	200	LD	25	50	22	83	1	0.393	5.818	0.021	0.305	0.019	0.281
16	6	25%	23%	0%	9%	5%	2%	6%	7%	5%	4%	3%	2%	2%	0%	5%	2%	224	200	LD	24	50	22	83	1	0.412	18.445	0.021	0.941	0.019	0.866
16	7	25%	23%	0%	8%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	417	200	LD	22	50	22	82	1	0.429	35.789	0.023	1.886	0.021	1.736
16	8	24%	23%	0%	9%	5%	2%	6%	7%	5%	4%	4%	3%	3%	0%	4%	2%	539	200	LD	21	50	23	79	1	0.437	47.152	0.023	2.527	0.022	2.325
16	9	25%	22%	0%	9%	5%	2%	6%	7%	5%	4%	4%	2%	2%	0%	4%	2%	456	200	LD	22	50	23	77	1	0.427	38.922	0.022	2.009	0.020	1.850
16	10	25%	22%	0%	10%	6%	2%	6%	7%	5%	4%	3%	2%	2%	0%	4%	2%	431	200	LD	22	50

2033 with Project

2033 w/ Project		Vehicle Breakdown %																	Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBS D	FBD D	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
22	16	24%	21%	0%	12%	7%	0%	1%	11%	7%	6%	2%	1%	1%	0%	5%	3%	293	330	LD	22	50	24	74	1	0.397	38.359	0.017	1.650	0.016	1.519
22	17	23%	22%	0%	12%	7%	1%	2%	10%	6%	5%	2%	1%	1%	0%	5%	3%	327	330	LD	22	50	23	76	1	0.395	42.584	0.017	1.858	0.016	1.711
22	18	24%	21%	0%	12%	7%	0%	1%	10%	6%	5%	2%	1%	1%	0%	5%	3%	297	330	LD	22	50	23	77	1	0.398	39.018	0.017	1.654	0.016	1.523
22	19	23%	21%	0%	12%	7%	0%	1%	10%	7%	6%	2%	1%	1%	0%	5%	3%	245	330	LD	23	50	23	78	1	0.390	31.511	0.017	1.369	0.016	1.261
22	20	24%	22%	1%	12%	7%	1%	1%	11%	6%	5%	2%	1%	1%	1%	4%	3%	190	330	LD	23	50	23	79	1	0.373	23.406	0.017	1.039	0.015	0.958
22	21	24%	22%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	162	330	LD	24	50	23	80	1	0.354	18.948	0.017	0.882	0.015	0.813
22	22	23%	21%	0%	12%	7%	1%	1%	11%	7%	5%	2%	1%	1%	0%	4%	3%	160	330	LD	24	50	23	81	1	0.359	18.944	0.017	0.895	0.016	0.824
22	23	23%	21%	0%	12%	7%	1%	2%	12%	6%	5%	2%	2%	2%	0%	4%	3%	137	330	LD	24	50	23	81	1	0.361	16.303	0.017	0.779	0.016	0.718
23	0	38%	8%	0%	10%	6%	2%	4%	0%	2%	2%	6%	4%	4%	0%	8%	4%	48	330	LD	25	50	23	82	1	0.425	6.734	0.027	0.421	0.024	0.387
23	1	46%	7%	0%	11%	7%	0%	4%	0%	4%	4%	4%	4%	4%	0%	7%	4%	28	330	LD	25	50	22	82	1	0.363	3.358	0.022	0.203	0.020	0.186
23	2	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	0.430	2.270	0.031	0.161	0.028	0.148
23	3	38%	6%	0%	13%	6%	0%	6%	0%	0%	0%	6%	6%	6%	0%	6%	6%	16	330	LD	25	50	22	83	1	0.430	2.270	0.031	0.161	0.028	0.148
23	4	43%	7%	0%	14%	7%	0%	7%	0%	0%	0%	7%	0%	0%	0%	7%	7%	14	330	LD	25	50	22	83	1	0.358	1.652	0.018	0.084	0.017	0.077
23	5	39%	8%	0%	15%	8%	0%	8%	0%	0%	0%	8%	0%	0%	0%	8%	8%	13	330	LD	25	50	22	83	1	0.386	1.658	0.019	0.083	0.018	0.076
23	6	37%	2%	0%	14%	7%	6%	18%	0%	2%	2%	2%	2%	2%	0%	4%	2%	49	330	LD	25	50	22	83	1	0.387	6.251	0.025	0.410	0.023	0.377
23	7	41%	2%	0%	20%	11%	3%	8%	0%	3%	2%	2%	1%	1%	0%	2%	2%	88	330	LD	25	50	22	82	1	0.281	8.152	0.018	0.514	0.016	0.473
23	8	35%	1%	0%	26%	15%	3%	7%	0%	3%	3%	2%	1%	1%	0%	1%	4%	114	330	LD	25	50	23	79	1	0.267	10.048	0.017	0.628	0.015	0.578
23	9	36%	3%	0%	21%	12%	2%	6%	0%	3%	2%	3%	2%	2%	0%	3%	4%	99	330	LD	25	50	23	77	1	0.313	10.221	0.020	0.638	0.018	0.587
23	10	38%	4%	0%	18%	9%	2%	7%	0%	2%	2%	3%	2%	2%	0%	5%	5%	93	330	LD	25	50	24	74	1	0.360	11.050	0.021	0.640	0.019	0.589
23	11	35%	5%	0%	17%	9%	2%	5%	0%	2%	2%	4%	3%	3%	0%	6%	5%	96	330	LD	25	50	25	72	1	0.384	12.178	0.023	0.732	0.021	0.674
23	12	36%	7%	0%	13%	8%	2%	5%	0%	2%	2%	5%	4%	4%	1%	8%	6%	106	330	LD	24	50	25	71	1	0.443	15.506	0.025	0.890	0.023	0.820
23	13	32%	5%	0%	16%	8%	2%	5%	0%	2%	2%	5%	4%	4%	1%	16%	9%	121	330	LD	24	50	25	71	1	0.479	19.120	0.026	1.026	0.024	0.945
23	14	31%	8%	0%	14%	8%	2%	5%	0%	2%	1%	5%	4%	4%	1%	11%	5%	132	330	LD	24	50	25	71	1	0.515	22.432	0.027	1.177	0.025	1.084
23	15	31%	9%	0%	12%	7%	2%	6%	0%	1%	1%	7%	4%	4%	1%	11%	6%	154	330	LD	24	50	25	72	1	0.524	26.608	0.028	1.436	0.026	1.322
23	16	32%	10%	0%	12%	7%	1%	3%	0%	1%	1%	7%	4%	4%	1%	12%	6%	158	330	LD	24	50	24	74	1	0.542	28.276	0.029	1.496	0.026	1.378
23	17	30%	10%	0%	11%	7%	1%	3%	0%	1%	1%	8%	4%	5%	1%	13%	7%	184	330	LD	23	50	24	76	1	0.574	34.849	0.030	1.830	0.028	1.685
23	18	32%	11%	0%	10%	5%	1%	3%	0%	1%	1%	7%	5%	5%	1%	13%	6%	153	330	LD	24	50	23	77	1	0.572	28.895	0.030	1.493	0.027	1.375
23	19	33%	10%	0%	10%	5%	1%	3%	0%	1%	1%	7%	5%	5%	1%	13%	5%	120	330	LD	24	50	23	78	1	0.573	22.671	0.030	1.194	0.028	1.100
23	20	34%	9%	0%	12%	6%	1%	3%	0%	1%	1%	7%	5%	5%	1%	12%	4%	92	330	LD	25	50	23	79	1	0.526	15.979	0.028	0.852	0.026	0.784
23	21	33%	9%	0%	11%	7%	1%	4%	0%	1%	1%	6%	4%	5%	1%	10%	5%	78	330	LD	25	50	23	80	1	0.506	13.029	0.028	0.714	0.026	0.657
23	22	36%	9%	0%	10%	6%	1%	4%	0%	1%	1%	6%	4%	4%	1%	11%	4%	70	330	LD	25	50	23	81	1	0.516	11.909	0.028	0.643	0.026	0.592
23	23	34%	8%	0%	10%	7%	2%	5%	0%	2%	2%	7%	5%	5%	0%	10%	7%	62	330	LD	25	50	23	81	1	0.475	9.715	0.029	0.587	0.026	0.540
24	0	20%	22%	0%	8%	5%	1%	2%	16%	7%	6%	3%	2%	2%	0%	5%	1%	87	130	LD	25	50	23	82	1	0.397	4.496	0.022	0.246	0.020	0.226
24	1	21%	23%	0%	9%	4%	0%	2%	15%	9%	6%	2%	2%	2%	0%	4%	0%	47	130	LD	25	50	22	82	1	0.386	2.358	0.020	0.120	0.018	0.110
24	2	18%	21%	0%	9%	6%	0%	3%	15%	6%	6%	3%	3%	3%	0%	6%	0%	33	130	LD	25	50	23	82	1	0.448	1.921	0.024	0.102	0.022	0.094
24	3	16%	22%	0%	9%	6%	0%	3%	16%	6%	6%	3%	3%	3%	0%	6%	0%	32	130	LD	25	50	22	83	1	0.462	1.921	0.024	0.101	0.022	0.093
24	4	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	0.464	1.872	0.025	0.101	0.023	0.093
24	5	16%	19%	0%	10%	7%	0%	3%	16%	7%	7%	3%	3%	3%	0%	7%	0%	31	130	LD	25	50	22	83	1	0.464	1.872	0.025	0.101	0.023	0.093
24	6	18%	21%	0%	8%	5%	1%	2%	17%	7%	6%	3%	2%	2%	0%	5%	1%	95	130	LD	25	50	22	83	1	0.422	5.211	0.022	0.270	0.020	0.248
24	7	16%	21%	0%	10%	6%	1%	2%	17%	8%	6%	3%	2%	2%	1%	6%	1%	174	130	LD	25	50	22	82	1	0.447	10.104	0.022	0.505	0.021	0.465
24	8	15%	20%	1%	10%	6%	1%	2%	17%	8%	7%	3%	2%	2%	1%	5%	1%	221	130	LD	24	50	23	79	1	0.444	12.745	0.023	0.656	0.021	0.604
24	9	17%	21%	0%	10%	6%	1%	2%	17%	8%	6%	3%	2%	2%	1%	5%	1%	193	130	LD	25	50	23	77	1	0.429	10.760	0.022	0.547	0.020	0.503
24	10	17%	21%	0%	9%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	6%	1%	180	130	LD	25	50	24	74	1	0.434	10.145	0.022	0.513	0.020	0.472
24	11	18%	21%	0%	10%	6%	1%	2%	16%	8%	6%	3%	2%	2%	1%	5%	1%	168	130	LD	25	50	25	72	1	0.412	9.002	0.021	0.464	0.020	0.427
24	12	18%	22%	0%	9%	5%	1%	2%	15%	8%	6%	3%	2%	2%	1%	5%	1%	191	130	LD	25	50	25	71	1	0.417	10.362	0.021	0.523	0.019	0.481
24	13	19%	22%	0%	9%	5%	1%	3%	14%	8%	6%	3%	2%	2%	1%	5%	1%	195	130	LD	25	50	25	71	1	0.415	10.521	0.021	0.536	0.019	0.493
24	14	20%	22%	0%	9%	5%	1%	3%	14%	8%	6%	3%	2%	2%	1%	5%	1%	199	130	LD	25	50	25	71	1	0.407	10.540	0.021	0.534	0.019	0.491
24	15	21%	23%	0%	8%	5%	1%	3%	14%	8%	6%	3%	2%	2%	1%	5%	1%	222	130	LD	24	50	25	72	1	0.414	11.953	0.021	0.599	0.019	0.552
24	16	21%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	229	130	LD	24	50	24	74	1	0.412	12.254	0.021	0.618	0.019	0.569
24	17	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	249	130	LD	24	50	24	76	1	0.404	13.081	0.020	0.661	0.019	0.609
24	18	22%	23%	0%	8%	4%	1%	3%	13%	7%	6%	3%	2%	2%	0%	5%	1%	230	130	LD	24	50	23	77	1	0.414	12.377	0.021	0.619	0.019	0.570
24	19	22%	23%	0%	8%	4%	1%	3%	13%	8%	6%	3%	2%	2%	0%	5%	1%	186	130	LD	25	50	23	78	1	0.398	9.632	0.020	0.492	0.019	0.452
24	20	21%	23%	0%	8%	4%	1%	3%	14%	8%	6%	3%	2%	2%	0%	5%	1%	145	130	LD	25	50	23	79	1	0.396	7.466	0.020	0.384	0.019	0.353
24	21	21%	23%	0%	8%	5%	1%	2%	14%	6%	6%	3%	2%	2%	0%	5%	1%	125	130	LD	25	50	23	80	1	0.402	6.534	0.021	0.347	0.020	0.319
24	22	21%	22%	0%	8%	5%	1%	3%	15%	7%	6%	3%	3%	3%	0%	5%	1%	122	130	LD	25	50	23	81	1	0.404	6.415	0.022	0.348	0.020	0.320
24	23	20%	22%	0%	8%	5%	1%	3%	16%	7%	6%	3%	2%	2%	0%	5%	1%	103	130	LD	25	50	23	81	1	0.400	5.362	0.021	0.278	0.019	0.256
25	0	44%	17%	0%	11%	6%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	104	130	LD	25	50	23	82	1	0.310	4.197	0.016	0.220	0.015	0.202
25	1	47%	16%	0%	9%	6%	2%	3%	0%	2%	2%	3%	2%	2%	0%	5%	3%	64	130	LD	25	50	22	82	1	0.307	2.551	0.016	0.133	0.015	0.123
25	2	45%	15%	0%	10%	6%	2%	3%	0%	3%	2%	3%	2%	2%	0%	5%	3%	40	130	LD	25	50	22	83	1	0.320	1.663	0.017	0.090	0.016	0.083
25	3	46%	13%	0%	10%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	5%	3%	39	130	LD	25	50	22	83	1	0.319	1.618	0.018	0.091	0.016	0.084
25	4	47%	13%	0%	11%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	38	130	LD	25	50	22	83	1	0.269	1.327	0.017	0.083	0.015	0.076
25	5	46%	13%	0%	13%	8%	0%	3%	0%	3%	3%	3%	3%	3%	0%	3%	3%	39	130	LD	25	50	22	83	1	0.272	1.380	0.017	0.086	0.016	0.079
25	6	43%	12%	0%	14%	7%	3%	7%	0%	2%	2%	2%	2%	2%	0%	3%	2%	123	130	LD	25	50	22	83	1	0.286	4.566	0.017	0.267	0.015	0.246
25	7	45%	11%	0%	16%	9%	1%	3%	0%	3%	2%	2%	1%	1%	0%	2%	2%	223	130	LD	25	50	22	82	1	0.245	7.089	0.014	0.406	0.013	0.373
25	8	44%	11%	0%	15%	8%	1%	3%	0%	3%	3%	3%	2%	2%	0%	4%	2%	280	130	LD	24	50	23	79	1	0.235	8.551	0.013	0.483	0.012	0.446
25	9	44%	12%	1%	16%	10%	1%	2%	0%	3%	2%	2%	1%	1%	0%	2%	3%	245	130	LD	24	50	23	77	1	0.256	8.152	0.014	0.445	0.013	0.411
25	10	44%	13%	1%	14%	9%	1%	3%	0%	3%	2%	2%	2%	2%	0%	3%	3%	225	130	LD	25	50	24	74	1	0.271	7.927	0.015	0.449	0.014	0.413
25	11	42%	14%	1%	14%	8%	1%	2%	0%	2%	2%	2%	2%	2%	1%	4%	4%	215	130	LD	25	50	25	72	1	0.302	8.437	0.016	0.443	0.015	0.408
25	12	43%	15%	0%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	0%	5%	4%	236	130	LD	24	50	25	71	1	0.330	10.114	0.017	0.528	0.016	0.487
25	13	41%	15%	1%	12%	8%	1%	3%	0%	2%	2%	3%	2%	2%	0%	6%	3%	252	130	LD	24	50	25	71	1	0.359	11.770	0.018	0.598	0.017	0.551
25	14	40%	16%	0%	11%	7%	1%	3%	0%	2%	2%	3%	2%	2%	0%	6%	4%	258	130	LD	24	50	25	71	1	0.373	12.503	0.018	0.620	0.017	0.572
25	15	39%	17%	0%	10%	6%	1%	3%	0%	2%	1%	4%	2%	2%	0%	7%	4%	292	130	LD	24	50	25	72	1	0.389	14.762	0.020	0.744	0.018	0.685
25	16	39%	18%	0%	9%	6%	1%	2%	0%	2%	1%	4%	3%	3%	0%	7%	4%	297	130	LD	24	50	24	74	1	0.403	15.548	0.020	0.767	0.018	0.707
25	17	38%	18%	0%	9%	5%	1%	2%	0%	2%	1%	5%	3%	3%	1%	8%	6%	336	130	LD	24	50	24	76	1	0.421	18.374	0.021	0.916	0.019	0.845
25	18	39%	18%	0%	8%	5%	1%	2%	0%	1%	1%	4%	3%	3%	0%	8%	5%	290	130	LD	24	50	23	77	1	0.417	15.735	0.020	0.763	0.019	0.703
25	19	40%	18%	0%	9%	5%	1%	3%	0%	2%	1%	4%	3%	3%	0%	8%	3%	236	130	LD	24	50	23	78	1	0.409	12.558	0.021	0.633	0.019	0.583
25	20	40%	18%	0%	10%	6%	1%	3%	0%	2%	2%	4%	3%	3%	1%	7%	3%	188	130	LD	25	50	23	79	1	0.395	9.646	0.020	0.480	0.018	0.442
25	21	40%	17%	0%	11%	6%	1%	3%	0%	2%	1%	4%	3%	3%	1%	7%	3%	159	130	LD	25	50	23	80	1	0.378	7.815	0.019	0.391	0.017	0.359
25	22	42%	17%	0%	10%	5%	1%	3%	0%	2%	2%	3%	3%	3%	1%	7%	3%	154	130	LD	25	50	23	81	1	0.367	7.350	0.019	0.372	0.017	0.343
25	23	42%	17%	0%	11%	6%	1%	3%	0%	2%	2%	3%	3%	3%	1%	7%	3%	130	130	LD	25	50	23	81	1	0.344	5.818	0.017	0.294	0.016	0.270
26	0	41%	18%	0%	11%	6%	2%	4%	0%	3%	3%	3%	2%	2%	0%	3%	3%	160	130	DD	29	50	23	82	1	0.260	5.418	0.015	0.309	0.014	0.285
26	1	41%	20%	0%	9%	6%	2%	4%	0%	3%	2%	2%	2%	2%	0%	2%	3%	92	130	DD	30	50	22	82	1	0.261	3.122	0.015	0.177	0.014	0.163
26	2	41%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	5%	61	130	DD	30	50	22	83	1	0.250	1.979	0.014	0.112	0.013	0.103
26	3	42%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	3%	60	130	DD	30	50	22	83	1	0.249	1.944	0.014	0.113	0.013	0.104
26	4	41%	20%	0%	9%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	3%	59	130	DD	30	50	22	83	1	0.253	1.939	0.015	0.112	0.013	0.103
26	5	39%	20%	0%	8%	5%	2%	5%	0%	3%	3%	3%	2%	2%	0%	2%	7%	61	130	DD	30	50	22	83	1	0.256	2.031	0.014	0.112	0.013	0.103
26	6	38%	20%	0%	8%	5%	2%	6%	0%	3%	3%	3%	2%	2%	0%	2%	6%	189	130	DD	29	50	22	83	1	0.273	6.709	0.017	0.418	0.016	0.385
26	7	37%	19%	0%	8%	5%	2%	6%	0%	4%	3%	4%	3%	3%	0%	2%	3%	361	130	DD	27	50	22	82	1	0.293	13.749	0.019	0.882	0.017	0.812
26	8	35%	19%	0%	9%	5%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	4%	470	130	DD	25	50	23	79	1	0.304	18.562	0.020	1.193	0.018	1.098
26	9	37%	19%	0%	9%	6%	2%	6%	0%	4%	4%	4%	3%	3%	0%	2%	4%	397	130	DD	26	50	23	77	1	0.298	15.358	0.018	0.946	0.017	0.871
26	10	37%	19%	0%	10%	6%	2%	6%	0%	4%	3%	3%	2%	2%	0%	2%	4%	367	130	DD	27	50	24	74	1	0.285	13.614	0.017	0.815	0.016	0.750
26	11	39%	18%	0%	11%	6%	2%	5%	0%	4%	3%	3%	2%	2%	0%	2%	4%	330	130	DD	27	50	25	72	1	0.276	11.845	0.016	0.688	0.015	0.633
26	12	39%	17%	0%	11%	6%	2%	7%	0%	3%	3%	3%	2%	2%	0%	2%	4%	368	130	DD	27	50	25	71	1	0.286	13.683	0.016	0.770	0.015	0.709
26	13	41%	18%	0%	10%	6%	2%	6%	0%	3%	3%	3%	2%	2%	0%	3%	3%	356	130	DD	27	50	25	71	1	0.284	13.160	0.015	0.693	0.014	0.638
26	14	41%	17%	0%	11%	7%	2%	5%	0%	3%	2%	3%	2%	2%	0%	3%	4%	363	130	DD	26	50	25	71	1	0.287	13.529	0.015	0.695	0.014	0.640
26	15	41%	17%	0%	13%	7%	1%	4%	0%	3%	2%	2%	1%	1%	0%	3%	4%	399	130	DD	26	50	25	72	1	0.281	14.596	0.014	0.703	0.012	0.647
26	16	43%	16%	0%	13%	8%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	392	130	DD	27	50	24	74	1	0.283	14.405	0.013	0.653	0.012	0.601
26	17	45%	17%	0%	12%	7%	1%	4%	0%	2%	2%	1%	1%	1%	0%	4%	4%	415	130	DD	26	50	24	76	1	0.281	15.187	0.012	0.657	0.011	0.605
26	18	44%	17%	0%	12%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	381	130	DD	27	50	23	77	1	0.283	14.009	0.013	0.626	0.012	0.577
26	19	44%	18%	0%	11%	7%	1%	4%	0%	3%	2%	1%	1%	1%	0%	4%	4%	315	130	DD	27	50	23	78	1	0.283	11.587	0.013	0.542	0.012	0.499
26	20	42%	17%	0%	12%	7%	2%	4%	0%	3%	2%	2%	1%	1%	0%	3%	3%	257	130	DD	28	50	23	79	1	0.276	9.230	0.014	0.456	0.013	0.419
26	21	42%	17%	0%	12%	7%	2%	5%	0%	3%	2%	2%	1%	1%	0%	3%	3%	234	130	DD	28	50	23	80	1	0.266	8.082	0.014	0.425	0.013	0.391
26	22	43%	18%	0%	10%	6%	2%	5%	0%	3%	2%	2%	1%	1%	0%	3%	3%	220	130	DD	28	50	23	81	1	0.265	7.582	0.014	0.402	0.013	0.370
26	23	43%	18%	0%	11%	6%	2%	4%	0%	3%	3%	2%	2%	2%	0%	3%	3%	186	130	DD	29	50	23	81	1	0.259	6.271	0.014	0.339	0.013	0.313
27	0	21%	23%	0%	8%	6%	0%	0%	13%	6%	6%	2%	2%	2%	0%	8%	2%	48	130	LD	25	50	23	82	1	0.447	2.791	0.020	0.124	0.018	0.114
27	1	17%	21%	0%	10%	7%	0%	0%	14%	7%	7%	3%	3%	3%	0%	7%	0%	29	130	LD	25	50	22	82	1	0.455	1.714	0.024	0.089	0.022	0.082
27	2	24%	24%	0%	12%	6%	0%	0%	12%	6%	6%	6%	0%	0%	0%	6%	0%	17	130	LD	25	50	22	83	1	0.376	0.832	0.017	0.037	0.015	0.034
27	3	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.402	0.785	0.014	0.026	0.012	0.024
27	4	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.402	0.785	0.014	0.026	0.012	0.024
27	5	20%	27%	0%	13%	7%	0%	0%	13%	7%	7%	0%	0%	0%	0%	7%	0%	15	130	LD	25	50	22	83	1	0.402	0.785	0.014	0.026	0.012	0.024
27	6	19%	28%	0%	8%	6%	0%	0%	13%	8%	6%	2%	2%	2%	0%	6%	2%	53	130	LD	25	50	22	83	1	0.412

2033 with Project

2033 w/ Project		Vehicle Breakdown %																Summary of Emission Factors									
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBS D	FBD D	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
33	12	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	44%	0%	25	220	LD	25	50	25	71	1	1.216	6.687	0.044	0.241	0.040	0.222
33	13	12%	0%	0%	12%	8%	0%	4%	0%	0%	0%	8%	4%	4%	4%	46%	0%	26	220	LD	25	50	25	71	1	1.250	7.147	0.044	0.251	0.040	0.231
33	14	10%	3%	0%	13%	7%	0%	3%	0%	0%	0%	7%	3%	3%	3%	47%	0%	30	220	LD	25	50	25	71	1	1.246	8.223	0.042	0.275	0.038	0.253
33	15	9%	3%	0%	11%	9%	0%	3%	0%	3%	0%	6%	3%	3%	3%	49%	0%	35	220	LD	25	50	25	72	1	1.261	9.709	0.041	0.315	0.038	0.290
33	16	10%	3%	0%	13%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	49%	0%	39	220	LD	25	50	24	74	1	1.258	10.796	0.040	0.340	0.036	0.313
33	17	9%	2%	0%	11%	7%	2%	4%	0%	2%	0%	4%	4%	4%	2%	48%	0%	46	220	LD	25	50	24	76	1	1.259	12.743	0.043	0.439	0.040	0.404
33	18	10%	3%	0%	13%	8%	0%	3%	0%	3%	0%	5%	3%	3%	3%	49%	0%	39	220	LD	25	50	23	77	1	1.266	10.865	0.040	0.340	0.036	0.313
33	19	9%	3%	0%	13%	6%	0%	3%	0%	0%	0%	6%	3%	3%	3%	50%	0%	32	220	LD	25	50	23	78	1	1.312	9.237	0.042	0.297	0.039	0.274
33	20	8%	4%	0%	13%	8%	0%	4%	0%	0%	0%	4%	4%	4%	4%	46%	0%	24	220	LD	25	50	23	79	1	1.275	6.731	0.042	0.224	0.039	0.206
33	21	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	80	1	1.282	5.078	0.047	0.186	0.043	0.171
33	22	11%	0%	0%	11%	6%	0%	6%	0%	0%	0%	6%	6%	6%	6%	44%	0%	18	220	LD	25	50	23	81	1	1.278	5.061	0.047	0.186	0.043	0.171
33	23	13%	0%	0%	13%	7%	0%	7%	0%	0%	0%	7%	7%	7%	0%	40%	0%	15	220	LD	25	50	23	81	1	1.102	3.636	0.047	0.155	0.043	0.142
34	0	30%	26%	0%	13%	8%	2%	7%	0%	3%	3%	2%	2%	2%	0%	0%	3%	61	170	LD	25	50	23	82	1	0.283	2.938	0.015	0.151	0.013	0.139
34	1	29%	26%	0%	13%	8%	3%	5%	0%	3%	3%	3%	3%	3%	0%	0%	3%	38	170	LD	25	50	22	82	1	0.300	1.935	0.017	0.109	0.016	0.101
34	2	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.295	1.204	0.015	0.059	0.013	0.055
34	3	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.295	1.204	0.015	0.059	0.013	0.055
34	4	25%	25%	0%	13%	8%	4%	8%	0%	4%	4%	4%	4%	4%	0%	0%	4%	24	170	LD	25	50	22	83	1	0.295	1.204	0.015	0.059	0.013	0.055
34	5	26%	26%	0%	13%	9%	4%	9%	0%	4%	4%	4%	4%	0%	0%	0%	0%	23	170	LD	25	50	22	83	1	0.289	1.129	0.015	0.058	0.014	0.054
34	6	25%	28%	0%	16%	8%	3%	7%	1%	4%	3%	3%	1%	1%	0%	0%	1%	76	170	LD	25	50	22	83	1	0.297	3.838	0.015	0.195	0.014	0.180
34	7	23%	26%	1%	15%	10%	2%	8%	1%	4%	3%	3%	2%	2%	0%	0%	1%	146	170	LD	24	50	22	82	1	0.326	8.096	0.018	0.446	0.017	0.411
34	8	22%	27%	1%	16%	10%	2%	8%	1%	4%	3%	3%	2%	2%	0%	0%	1%	187	170	LD	23	50	23	79	1	0.327	10.396	0.017	0.546	0.016	0.503
34	9	23%	27%	1%	15%	10%	2%	8%	1%	4%	3%	3%	2%	2%	0%	0%	1%	158	170	LD	24	50	23	77	1	0.323	8.662	0.017	0.460	0.016	0.424
34	10	26%	27%	0%	15%	9%	2%	7%	1%	4%	3%	2%	2%	2%	0%	0%	2%	137	170	LD	24	50	24	74	1	0.307	7.139	0.016	0.367	0.015	0.338
34	11	26%	26%	0%	15%	9%	2%	6%	1%	3%	3%	2%	2%	2%	0%	0%	2%	126	170	LD	24	50	25	72	1	0.301	6.438	0.016	0.338	0.015	0.312
34	12	28%	26%	0%	14%	8%	2%	6%	1%	3%	3%	2%	2%	2%	0%	0%	3%	134	170	LD	24	50	25	71	1	0.293	6.674	0.015	0.344	0.014	0.317
34	13	30%	25%	0%	14%	8%	2%	6%	1%	3%	2%	2%	2%	2%	0%	0%	4%	135	170	LD	24	50	25	71	1	0.288	6.609	0.015	0.343	0.014	0.316
34	14	31%	25%	0%	13%	7%	2%	5%	1%	3%	2%	2%	2%	2%	0%	1%	4%	136	170	LD	24	50	25	71	1	0.294	6.806	0.015	0.341	0.014	0.315
34	15	33%	24%	0%	13%	8%	2%	5%	1%	3%	2%	2%	1%	1%	0%	1%	5%	144	170	LD	24	50	25	72	1	0.284	6.947	0.014	0.347	0.013	0.320
34	16	35%	24%	0%	12%	7%	1%	5%	0%	2%	1%	2%	1%	1%	0%	1%	6%	141	170	LD	24	50	24	74	1	0.284	6.803	0.014	0.335	0.013	0.309
34	17	36%	24%	0%	12%	7%	1%	5%	0%	2%	1%	2%	1%	1%	0%	1%	7%	152	170	LD	24	50	24	76	1	0.274	7.087	0.013	0.344	0.012	0.317
34	18	36%	24%	0%	12%	7%	1%	5%	0%	2%	1%	2%	1%	1%	0%	1%	6%	141	170	LD	24	50	23	77	1	0.283	6.794	0.014	0.332	0.013	0.307
34	19	35%	24%	0%	13%	7%	2%	5%	0%	3%	2%	2%	2%	2%	0%	1%	5%	119	170	LD	24	50	23	78	1	0.289	5.848	0.014	0.291	0.013	0.268
34	20	34%	25%	0%	13%	7%	2%	5%	0%	2%	2%	2%	1%	1%	0%	0%	5%	93	170	LD	25	50	23	79	1	0.266	4.201	0.013	0.209	0.012	0.192
34	21	33%	25%	0%	13%	7%	2%	5%	0%	2%	2%	2%	1%	1%	0%	0%	5%	83	170	LD	25	50	23	80	1	0.268	3.777	0.013	0.189	0.012	0.174
34	22	31%	25%	0%	13%	7%	2%	6%	0%	2%	2%	2%	1%	1%	0%	0%	5%	83	170	LD	25	50	23	81	1	0.275	3.881	0.014	0.197	0.013	0.181
34	23	31%	26%	0%	14%	7%	1%	6%	0%	3%	3%	3%	1%	1%	0%	0%	4%	72	170	LD	25	50	23	81	1	0.276	3.382	0.014	0.174	0.013	0.160
35	0	16%	8%	0%	11%	8%	3%	11%	13%	11%	8%	3%	3%	3%	0%	0%	1%	38	170	LD	25	50	23	82	1	0.350	2.261	0.027	0.173	0.025	0.160
35	1	12%	8%	0%	12%	8%	4%	12%	12%	12%	8%	4%	4%	4%	0%	0%	0%	25	170	LD	25	50	22	82	1	0.385	1.636	0.030	0.127	0.027	0.117
35	2	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	0.406	1.242	0.035	0.106	0.032	0.097
35	3	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	0.406	1.242	0.035	0.106	0.032	0.097
35	4	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	0.406	1.242	0.035	0.106	0.032	0.097
35	5	11%	6%	0%	11%	6%	6%	11%	11%	11%	11%	6%	6%	6%	0%	0%	0%	18	170	LD	25	50	22	83	1	0.406	1.242	0.035	0.106	0.032	0.097
35	6	10%	8%	0%	8%	6%	4%	14%	14%	12%	10%	6%	4%	4%	0%	2%	5%	51	170	LD	25	50	22	83	1	0.404	3.502	0.032	0.278	0.030	0.256
35	7	9%	7%	0%	8%	5%	4%	13%	13%	11%	10%	6%	4%	4%	0%	2%	5%	107	170	LD	25	50	22	82	1	0.426	7.751	0.034	0.615	0.031	0.565
35	8	9%	8%	0%	8%	4%	4%	13%	13%	13%	11%	7%	4%	4%	0%	1%	2%	142	170	LD	25	50	23	79	1	0.415	10.011	0.033	0.803	0.031	0.738
35	9	9%	7%	0%	9%	4%	4%	13%	14%	13%	10%	6%	4%	4%	0%	1%	2%	117	170	LD	25	50	23	77	1	0.420	8.346	0.033	0.658	0.030	0.605
35	10	11%	7%	0%	8%	5%	4%	12%	14%	12%	10%	6%	4%	4%	0%	1%	2%	100	170	LD	25	50	24	74	1	0.409	6.949	0.032	0.546	0.030	0.502
35	11	13%	7%	0%	9%	6%	3%	13%	14%	12%	9%	6%	3%	3%	0%	0%	2%	87	170	LD	25	50	25	72	1	0.376	5.555	0.030	0.447	0.028	0.411
35	12	15%	8%	0%	11%	5%	3%	12%	13%	12%	9%	4%	3%	3%	0%	0%	1%	92	170	LD	25	50	25	71	1	0.362	5.657	0.028	0.445	0.026	0.409
35	13	16%	8%	0%	12%	7%	3%	11%	13%	11%	8%	4%	3%	3%	0%	0%	1%	92	170	LD	25	50	25	71	1	0.356	5.567	0.028	0.436	0.026	0.401
35	14	19%	8%	0%	13%	7%	4%	9%	13%	9%	8%	4%	2%	2%	0%	0%	1%	85	170	LD	25	50	25	71	1	0.336	4.856	0.025	0.359	0.023	0.330
35	15	20%	8%	0%	13%	8%	3%	9%	13%	9%	8%	3%	2%	2%	0%	0%	1%	90	170	LD	25	50	25	72	1	0.328	5.014	0.024	0.370	0.022	0.340
35	16	22%	8%	0%	16%	8%	3%	8%	13%	9%	7%	2%	2%	2%	0%	0%	0%	88	170	LD	25	50	24	74	1	0.320	4.787	0.023	0.345	0.021	0.317
35	17	23%	8%	0%	17%	9%	2%	8%	13%	9%	7%	2%	1%	1%	0%	0%	0%	90	170	LD	25	50	24	76	1	0.297	4.542	0.020	0.311	0.019	0.286
35	18	23%	8%	0%	17%	8%	2%	8%	13%	8%	7%	2%	1%	1%	0%	0%	0%	84	170	LD	25	50	23	77	1	0.309	4.418	0.021	0.298	0.019	0.274
35	19	22%	8%	0%	15%	8%	3%	8%	14%	10%	7%	3%	1%	1%	0%	0%	0%	73	170	LD	25	50	23	78	1	0.310	3.853	0.022	0.268	0.020	0.246
35	20	21%	9%	0%	14%	7%	4%	9%	12%	9%	9%	4%	2%	2%	0%	0%	0%	57	170	LD	25	50	23	79	1	0.323	3.129	0.023	0.225	0.021	0.207
35	21	20%	8%	0%	12%	8%	4%	10%	12%	10%	8%	4%	2%	2%	0%	0%	0%	50	170	LD	25	50	23	80	1	0.329	2.800	0.025	0.209	0.023	0.192
35	22	19%	8%	0%	13%	7%	3%	9%	13%	9%	8%	3%	2%	2%	0%	0%	0%	53	170	LD	25	50	23	81	1	0.346	3.118	0.026	0.232	0.024	0.213
35	23	15%	9%	0%	11%	7%	4%	11%	13%	11%	9%	4%	2%	2%	0%	0%	0%	46	170	LD	25	50	24	81	1	0.351	2.743	0.026	0.202	0.024	0.186
36	0	21%	23%	0%	21%	12%	2%	9%	0%	2%	2%	2%	0%	0%	0%	5%	0%	43	330	LD	25	50	23	82	1	0.384	5.446	0.016	0.224	0.015	0.206
36	1	17%	25%	0%	19%	14%	4%	8%	0%	4%	4%	0%	0%	0%	0%	4%	0%	24	330	LD	25	50	22	82	1	0.394	3.117	0.014	0.114	0.013	0.105
36	2	18%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	6%	6%	17	330	LD	25	50	22	83	1	0.406	2.278	0.013	0.073	0.012	0.067
36	3	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	0.431	2.135	0.014	0.069	0.013	0.064
36	4	13%	27%	0%	20%	13%	0%	7%	0%	7%	7%	0%	0%	0%	0%	7%	0%	15	330	LD	25	50	22	83	1	0.431	2.135	0.014	0.069	0.013	0.064
36	5	12%	24%	0%	18%	12%	0%	6%	0%	6%	6%	0%	0%	0%	0%	12%	17	17	330	LD	25	50	22	83	1	0.430	2.414	0.013	0.073	0.012	0.067
36	6	12%	29%	0%	20%	10%	2%	4%	2%	4%	4%	2%	2%	2%	0%	6%	0%	49	330	LD	25	50	22	83	1	0.445	7.189	0.018	0.296	0.017	0.272
36	7	13%	27%	0%	20%	11%	1%	5%	2%	4%	3%	2%	1%	1%	0%	6%	2%	90	330	LD	25	50	22	82	1	0.429	12.736	0.017	0.499	0.015	0.459
36	8	11%	25%	1%	22%	14%	1%	3%	2%	4%	3%	2%	2%	2%	0%	6%	4%	125	330	LD	24	50	23	79	1	0.439	18.123	0.017	0.720	0.016	0.662
36	9	14%	24%	0%	21%	12%	2%	5%	2%	4%	3%	2%	1%	2%	0%	6%	3%	104	330	LD	25	50	23	77	1	0.436	14.960	0.017	0.596	0.016	0.549
36	10	15%	22%	0%	22%	13%	2%	6%	1%	3%	3%	2%	1%	1%	0%	5%	3%	104	330	LD	25	50	24	74	1	0.409	14.045	0.017	0.582	0.016	0.535
36	11	16%	21%	0%	22%	13%	2%	6%	1%	3%	3%	1%	1%	1%	0%	5%	3%	98	330	LD	25	50	25	72	1	0.405	13.093	0.016	0.529	0.015	0.487
36	12	16%	20%	0%	21%	12%	4%	12%	1%	3%	3%	1%	1%	1%	0%	4%	3%	118	330	LD	25	50	25	71	1	0.414	16.122	0.018	0.720	0.017	0.663
36	13	19%	21%	0%	19%	12%	3%	10%	1%	3%	3%	1%	1%	1%	0%	5%	2%	110	330	LD	24	50	25	71	1	0.415	15.069	0.018	0.658	0.017	0.606
36	14	18%	19%	0%	21%	13%	4%	11%	1%	3%	3%	1%	1%	1%	0%	4%	2%	117	330	LD	24	50	25	71	1	0.420	16.216	0.019	0.732	0.017	0.675
36	15	19%	18%	0%	22%	13%	3%	12%	0%	2%	2%	1%	1%	1%	0%	4%	2%	135	330	LD	24	50	25	72	1	0.399	17.770	0.018	0.800	0.017	0.737
36	16	20%	18%	0%	22%	13%	4%	12%	0%	2%	2%	1%	1%	1%	0%	4%	2%	135	330	LD	24	50	24	74	1	0.402	17.917	0.018	0.808	0.017	0.745
36	17	23%	18%	1%	18%	12%	4%	13%	0%	2%	2%	1%	1%	1%	0%	4%	1%	140	330	LD	24	50	24	76	1	0.394	18.211	0.018	0.854	0.017	0.787
36	18	21%	20%	0%	18%	11%	4%	13%	0%	2%	2%	1%	1%	1%	0%	4%	2%	123	330	LD	24	50	23	77	1	0.416	16.901	0.019	0.763	0.017	0.703
36	19	21%	20%	0%	18%	11%	4%	12%	0%	3%	3%	1%	1%	1%	0%	4%	1%	99	330	LD	25	50	23	78	1	0.398	13.003	0.018	0.603	0.017	0.555
36	20	20%	20%	0%	21%	11%	4%	12%	0%	2%	2%	1%	1%	1%	0%	4%	1%	86	330	LD	25	50	23	79	1	0.393	11.162	0.019	0.530	0.017	0.488
36	21	20%	19%	0%	21%	12%	4%	12%	0%	3%	3%	1%	0%	1%	0%	4%	1%	79	330	LD	25	50	23	80	1	0.393	10.234	0.018	0.460	0.016	0.424
36	22	21%	22%	0%	16%	9%	4%	13%	0%	3%	3%	2%	2%	2%	0%	4%	2%	68	330	LD	25	50	23	81	1	0.413	9.268	0.020	0.447	0.018	0.411
36	23	19%	23%	0%	20%	10%	4%	9%	0%	4%	2%	2%	0%	2%	0%	6%	0%	53	330	LD	25	50	23	81	1	0.420	7.353	0.018	0.312	0.016	0.287
37	0	22%	7%	0%	15%	7%	4%	11%	19%	4%	0%	4%	0%	0%	0%	7%	0%	27	330	LD	25	50	23	82	1	0.451	4.014	0.024	0.215	0.022	0.198
37	1	35%	6%	0%	12%	6%	6%	12%	18%	0%	0%	0%	0%	0%	0%	6%	0%	17	330	LD	25	50	22	82	1	0.407	2.281	0.021	0.120	0.020	0.111
37	2	22%	11%	0%	11%	6%	6%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	0.543	1.612	0.023	0.069	0.021	0.064
37	3	25%	0%	0%	13%	13%	0%	13%	25%	0%	0%	0%	0%	0%	0%	13%	0%	8	330	LD	25	50	22	83	1	0.564	1.490	0.026	0.069	0.024	0.064
37	4	22%	0%	0%	11%	11%	11%	11%	22%	0%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	0.552	1.638	0.027	0.080	0.025	0.073
37	5	11%	0%	0%	11%	11%	11%	11%	22%	22%	0%	0%	0%	0%	0%	11%	0%	9	330	LD	25	50	22	83	1	0.632	1.877	0.032	0.095	0.030	0.088
37	6	11%	3%	0%	13%	6%	11%	30%	19%	0%	0%	3%	0%	0%	0%	5%	0%	37	330	LD	25	50	22	83	1	0.552	6.740	0.033	0.408	0.031	0.375
37	7	16%	1%	0%	20%	12%	5%	15%	21%	0%	0%	1%	1%	1%	0%	4%	1%	70	330	LD	25	50	22	82	1	0.471	10.887	0.028	0.654	0.026	0.602
37	8	9%	1%	0%	26%	14%	4%	16%	20%	0%	0%	1%	1%	1%	0%	4%	3%	97	330	LD	25	50	23	79	1	0.475	15.216	0.027	0.866	0.025	0.797
37	9	8%	3%	0%	21%	13%	5%	14%	20%	0%	0%	1%	1%	1%	0%	5%	4%	79	330	LD	25	50	23	77	1	0.494	12.885	0.028	0.721	0.025	0.663
37	10	15%	3%	0%	17%	10%	5%	12%	22%	2%	0%	2%	2%	2%	0%	6%	5%	67	330	LD	25	50	24	74	1	0.489	10.803	0.028	0.610	0.025	0.561
37	11	19%	3%	0%	18%	11%	3%	11%	19%	2%	2%	2%	2%	2%	0%	5%	5%	65	330	LD	25	50	25	72	1	0.436	9.353	0.025	0.545	0.023	0.501
37	12	23%	4%	0%	14%	9%	3%	10%	20%	1%	1%	1%	1%	1%	0%	6%	4%	70	330	LD	25	50	25	71	1	0.443	10.244	0.025	0.580	0.023	0.533
37	13	21%	5%	0%	19%	12%	3%	10%	16%	1%	1%	1%	1%	1%	0%	5%	3%	77	330	LD	25	50	25	71	1	0.431	10.952	0.024	0.605	0.022	0.556
37	14	23%	5%	0%	17%	10%	3%	10%	15%	3%	1%	1%	1%	1%	0%	5%	4%	78	330	LD	25	50	25	71	1	0.420	10.801	0.023	0.602	0.022	0.554
37	15	24%	7%	0%	15%	8%	4%	10%	16%	2%	2%	1%	1%	1%	0%	6%	3%	90	330	LD	25	50	25	72	1	0.423	12.559	0.023	0.683	0.021	0.628
37	16	28%	7%	0%	16%	9%	2%	5%	14%	2%	2%	2%	1%	1%	0%	6%	4%	85	330	LD	25	50	24	74	1	0.399	11.190	0.021	0.595	0.020	0.547
37	17	27%	8%	0%	15%	8%	3%	9%	15%	2%	2%	2%	1%	1%	0%	6%	5%	96	330	LD	25	50	24	76	1	0.401	12.698	0.020	0.639	0.019	0.588
37	18	29%	8%	0%	13%	7%	1%	5%	16%	3%	3%	3%	1%	1%	0%	7%	4%	76	330	LD	25	50	23	77	1	0.418	10.476	0.022	0.551	0.020	0.507
37	19	30%	8%	0%	12%	7%	2%	7%	16%	3%	3%	2%	2%	2%	0%	7%	2%	61	330	LD	25	50	23	78	1	0.422	8.492	0.023	0.461	0.021	0.424
37	20	28%	8%	0%	15%	8%	2%	6%	16%	2%	2%	2%	2%	2%	0%	6%	2%	50	330	LD	25	50	23	79	1	0.418	6.895	0.023	0.387	0.022	0.356
37	21	24%	7%	0%	15%	9%	2%	7%	16%	2%	2%	2%	2%	2%	0%	7%	2%	45	330	LD	25	50	23	80	1	0.444	6.595	0.025	0.370	0.023	0.340
37	22	24%	7%	0%	12%	7%	2%	10%	17%	2%	2%	2%	2%	2%	0%	7%	2%	42	330	LD	25	50	23	81	1	0.468	6.484	0.027	0.374	0.025	0.344
37	23	23%	6%	0%	11%	9%	3%	9%	17%	3%	3%	3%	3%	3%	0%	6%	3%	35	330	LD	25	50	23	81	1	0.450	5.197	0.028	0.323	0.026	0.297
38	0	23%	18%	0%	18%	10%	3%	5%	5%	0%	0%	0%	0%	0%	0%	5%	0%	61	330	LD	25	50	23	82	1	0.388	7.810	0.019	0.378	0.017	0.348
38	1	20%	17%	0%	17%	9%	3%	9%	0%	6%	6%	3%	3%	3%	0%	6%	0%	35	330	LD	25	50	22	82	1	0.435	5.024	0.023	0.268	0.021	0.247
38	2	24%	19%	0%	19%	10%	5%	10%	0%	5%	5%	0%	0%	0%	0%	5%	0%	21	330	LD	25	50	22	83	1	0.379	2

2033 with Project

2033 w/ Project		Vehicle Breakdown %															Summary of Emission Factors												
Road ID	Hr	PC	TAXI	LGV 3	LGV 4	LGV 6	HGV 7	HGV 8	PLB	PV4	PV5	NFB 6	NFB 7	NFB 8	FBS D	FBD D	MC	Total (Veh/hr)	Road Length (m)	Road type	Average Speed (km/hr)	Speed Limit (km/hr)	Temp	RH	Start Emission Count	NOx EF (g/hr/km)	NOx EM (g/hr)	PM10 EF (g/hr/km)	PM10 EM (g/hr)	PM2.5 EF (g/hr/km)	PM2.5 EM (g/hr)
44	8	25%	9%	1%	15%	10%	3%	9%	20%	3%	2%	2%	0%	0%	0%	1%	4%	1%	201	70	LD	23	50	23	79	1	0.409	5.761	0.021	0.289	0.019	0.266
44	9	26%	10%	1%	16%	9%	2%	8%	19%	3%	2%	2%	0%	0%	0%	1%	4%	2%	187	70	LD	23	50	23	77	1	0.394	5.161	0.019	0.251	0.018	0.232
44	10	28%	11%	1%	15%	9%	2%	6%	18%	2%	2%	0%	0%	0%	1%	4%	2%	181	70	LD	23	50	24	74	1	0.387	4.900	0.018	0.233	0.017	0.215
44	11	29%	12%	1%	15%	9%	2%	6%	17%	2%	2%	0%	0%	0%	0%	4%	2%	177	70	LD	23	50	25	72	1	0.364	4.512	0.017	0.215	0.016	0.199
44	12	30%	12%	1%	15%	9%	1%	5%	16%	2%	2%	0%	0%	0%	1%	4%	2%	207	70	LD	23	50	25	71	1	0.367	5.313	0.017	0.244	0.016	0.225
44	13	32%	13%	1%	15%	9%	1%	4%	15%	2%	2%	0%	0%	0%	1%	4%	3%	221	70	LD	23	50	25	71	1	0.350	5.412	0.016	0.243	0.015	0.224
44	14	33%	14%	0%	15%	9%	1%	3%	14%	2%	2%	0%	0%	0%	0%	4%	3%	232	70	LD	23	50	25	71	1	0.354	5.751	0.015	0.248	0.014	0.228
44	15	34%	14%	0%	14%	9%	1%	3%	14%	2%	2%	0%	0%	0%	0%	4%	4%	266	70	LD	22	50	25	72	1	0.351	6.543	0.015	0.278	0.014	0.256
44	16	34%	15%	0%	15%	9%	1%	2%	13%	2%	1%	0%	0%	0%	0%	4%	4%	282	70	LD	22	50	24	74	1	0.355	7.007	0.015	0.286	0.013	0.264
44	17	35%	16%	0%	14%	8%	1%	2%	12%	2%	2%	0%	0%	0%	0%	4%	4%	323	70	LD	22	50	24	76	1	0.345	7.801	0.014	0.316	0.013	0.291
44	18	35%	15%	0%	15%	8%	1%	2%	13%	2%	1%	0%	0%	0%	0%	4%	4%	286	70	LD	22	50	23	77	1	0.352	7.052	0.014	0.287	0.013	0.264
44	19	34%	15%	0%	15%	9%	1%	2%	13%	2%	2%	0%	0%	0%	0%	4%	3%	233	70	LD	23	50	23	78	1	0.351	5.733	0.014	0.236	0.013	0.218
44	20	34%	15%	1%	15%	9%	1%	2%	14%	2%	2%	0%	0%	0%	0%	4%	3%	178	70	LD	24	50	23	79	1	0.330	4.112	0.014	0.176	0.013	0.162
44	21	34%	15%	1%	15%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	3%	152	70	LD	24	50	23	80	1	0.330	3.507	0.014	0.152	0.013	0.140
44	22	33%	13%	1%	15%	9%	1%	3%	14%	2%	1%	0%	0%	0%	0%	4%	3%	149	70	LD	24	50	23	81	1	0.333	3.474	0.015	0.153	0.014	0.141
44	23	33%	14%	0%	15%	9%	1%	3%	15%	2%	2%	0%	0%	0%	0%	4%	3%	122	70	LD	24	50	23	81	1	0.340	2.899	0.015	0.128	0.014	0.118
45	0	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	2%	344	70	LD	24	50	23	82	1	0.381	9.176	0.017	0.420	0.016	0.387
45	1	27%	21%	1%	12%	8%	4%	12%	7%	2%	1%	1%	1%	1%	0%	3%	2%	205	70	LD	25	50	22	82	1	0.372	5.344	0.018	0.251	0.016	0.231
45	2	27%	22%	0%	13%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	134	70	LD	25	50	22	83	1	0.370	3.468	0.017	0.156	0.015	0.144
45	3	27%	22%	0%	12%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	133	70	LD	25	50	22	83	1	0.371	3.450	0.017	0.156	0.015	0.144
45	4	27%	23%	0%	12%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	132	70	LD	25	50	22	83	1	0.370	3.418	0.017	0.154	0.015	0.142
45	5	27%	23%	0%	12%	8%	4%	13%	6%	2%	1%	1%	0%	0%	0%	3%	3%	132	70	LD	25	50	22	83	1	0.377	3.481	0.017	0.160	0.016	0.147
45	6	27%	22%	0%	10%	6%	5%	13%	6%	1%	1%	1%	1%	1%	0%	3%	3%	406	70	LD	23	50	22	83	1	0.409	11.611	0.019	0.528	0.017	0.487
45	7	27%	22%	0%	10%	6%	5%	13%	7%	1%	1%	0%	0%	0%	0%	3%	3%	740	70	LD	21	50	22	82	1	0.426	22.075	0.019	0.989	0.018	0.909
45	8	27%	22%	0%	10%	6%	5%	13%	6%	2%	1%	1%	0%	0%	0%	3%	4%	939	70	LD	19	50	23	79	1	0.446	29.306	0.020	1.300	0.018	1.196
45	9	27%	22%	0%	10%	6%	5%	13%	7%	1%	1%	1%	0%	0%	0%	3%	3%	806	70	LD	20	50	23	77	1	0.433	24.452	0.019	1.089	0.018	1.004
45	10	27%	22%	0%	11%	7%	4%	13%	6%	1%	1%	1%	0%	0%	0%	3%	3%	748	70	LD	21	50	24	74	1	0.422	22.105	0.019	0.992	0.017	0.912
45	11	27%	22%	0%	12%	7%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	3%	679	70	LD	21	50	25	72	1	0.408	19.407	0.018	0.873	0.017	0.803
45	12	27%	21%	0%	12%	7%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	3%	753	70	LD	21	50	25	71	1	0.413	21.775	0.018	0.971	0.017	0.893
45	13	27%	21%	0%	13%	8%	4%	12%	7%	1%	1%	0%	0%	0%	0%	3%	3%	757	70	LD	21	50	25	71	1	0.411	21.792	0.018	0.971	0.017	0.893
45	14	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	3%	761	70	LD	21	50	25	71	1	0.409	21.814	0.018	0.965	0.017	0.888
45	15	27%	20%	0%	14%	9%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	838	70	LD	20	50	25	72	1	0.410	24.032	0.018	1.057	0.017	0.975
45	16	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	844	70	LD	20	50	24	74	1	0.413	24.393	0.018	1.062	0.017	0.979
45	17	27%	19%	0%	16%	9%	4%	10%	6%	2%	1%	0%	0%	0%	0%	3%	2%	919	70	LD	19	50	24	76	1	0.422	27.154	0.018	1.171	0.017	1.077
45	18	27%	20%	0%	15%	9%	4%	10%	6%	1%	1%	0%	0%	0%	0%	3%	2%	846	70	LD	20	50	23	77	1	0.416	24.635	0.018	1.064	0.017	0.981
45	19	27%	20%	0%	15%	9%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	700	70	LD	21	50	23	78	1	0.407	18.924	0.018	0.879	0.017	0.809
45	20	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	2%	557	70	LD	22	50	23	79	1	0.401	15.637	0.018	0.688	0.016	0.634
45	21	27%	20%	0%	14%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	4%	2%	488	70	LD	22	50	23	80	1	0.401	13.697	0.018	0.603	0.016	0.555
45	22	27%	21%	0%	13%	8%	4%	11%	6%	1%	1%	0%	0%	0%	0%	3%	3%	484	70	LD	23	50	23	81	1	0.388	13.138	0.017	0.588	0.016	0.542
45	23	27%	21%	0%	13%	8%	4%	12%	6%	1%	1%	0%	0%	0%	0%	3%	3%	416	70	LD	23	50	23	81	1	0.392	11.402	0.018	0.511	0.016	0.471
46	0	20%	16%	0%	10%	5%	9%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	157	280	LD	23	50	23	82	1	0.442	19.417	0.025	1.118	0.023	1.030
46	1	21%	18%	0%	8%	4%	8%	26%	8%	2%	1%	1%	0%	0%	0%	2%	1%	90	280	LD	24	50	22	82	1	0.442	11.136	0.024	0.614	0.022	0.566
46	2	20%	18%	0%	8%	5%	8%	26%	8%	2%	2%	0%	0%	0%	0%	2%	2%	61	280	LD	25	50	22	83	1	0.429	7.323	0.024	0.404	0.022	0.372
46	3	20%	18%	0%	7%	5%	8%	27%	8%	2%	2%	0%	0%	0%	0%	3%	2%	61	280	LD	25	50	22	83	1	0.461	7.873	0.024	0.416	0.022	0.383
46	4	18%	18%	0%	7%	5%	8%	27%	8%	2%	2%	0%	0%	0%	0%	3%	2%	60	280	LD	25	50	22	83	1	0.468	7.863	0.025	0.414	0.023	0.381
46	5	18%	20%	0%	7%	3%	8%	28%	8%	2%	2%	0%	0%	0%	0%	3%	2%	61	280	LD	25	50	22	83	1	0.473	8.083	0.025	0.425	0.023	0.391
46	6	16%	19%	0%	7%	4%	10%	26%	9%	2%	2%	1%	1%	1%	0%	3%	2%	189	280	LD	23	50	22	83	1	0.488	25.809	0.026	1.391	0.024	1.280
46	7	16%	20%	0%	6%	4%	9%	26%	8%	2%	1%	1%	1%	1%	0%	3%	2%	348	280	LD	20	50	22	82	1	0.552	53.819	0.028	2.701	0.026	2.488
46	8	15%	20%	0%	6%	4%	9%	26%	8%	2%	2%	1%	1%	1%	0%	3%	3%	439	280	LD	18	50	23	79	1	0.585	71.964	0.029	3.514	0.026	3.232
46	9	16%	19%	0%	7%	4%	9%	26%	9%	2%	2%	1%	1%	1%	0%	3%	2%	378	280	LD	20	50	23	77	1	0.542	57.389	0.027	2.905	0.025	2.676
46	10	17%	19%	0%	7%	4%	9%	25%	8%	2%	1%	1%	1%	1%	0%	3%	2%	347	280	LD	20	50	24	74	1	0.534	51.837	0.028	2.685	0.025	2.473
46	11	19%	18%	0%	8%	5%	9%	25%	8%	2%	1%	1%	1%	1%	0%	3%	2%	313	280	LD	21	50	25	72	1	0.495	43.372	0.026	2.292	0.024	2.109
46	12	20%	17%	0%	8%	5%	9%	24%	8%	2%	2%	1%	1%	1%	0%	3%	2%	344	280	LD	20	50	25	71	1	0.496	47.817	0.026	2.528	0.024	2.329
46	13	21%	16%	0%	9%	6%	9%	24%	8%	2%	1%	1%	0%	0%	0%	2%	1%	345	280	LD	20	50	25	71	1	0.485	46.810	0.026	2.508	0.024	2.311
46	14	22%	15%	0%	10%	6%	9%	24%	8%	2%	1%	1%	0%	0%	0%	2%	1%	346	280	LD	20	50	25	71	1	0.472	45.708	0.026	2.498	0.024	2.301
46	15	23%	14%	0%	10%	6%	8%	24%	8%	2%	1%	1%	0%	0%	0%	2%	1%	378	280	LD	20	50	25	72	1	0.462	48.883	0.026	2.712	0.024	2.499
46	16	24%	13%	0%	11%	6%	8%	23%	7%	2%	1%	1%	0%	0%	0%	2%	1%	375	280	LD	20	50	24	74	1	0.455	47.723	0.025	2.660	0.023	2.451
46	17	25%	13%	0%	11%	7%	8%	23%	7%	2%	2%	1%	1%	0%	0%	2%	1%	409	280	LD	19	50	24	76	1	0.454	52.019	0.025	2.916	0.023	2.683
46	18	25%	13%	0%	11%	7%	8%	23%	7%	2%	2%	1%	1%	0%	0%	2%	1%	377	280	LD	20	50	23	77	1	0.455	47.999	0.025	2.670	0.023	2.461
46	19	24%	14%	0%	11%	6%	8%	24%	7%	2%	1%	0%	0%	0%	0%	2%	1%	311	280	LD	21	50	23	78	1	0.444	38.678	0.025	2.170	0.023	1.996
46	20	23%	14%	0%	10%	6%	8%	24%	8%	2%	2%	0%	0%	0%	0%	2%	1%	251	280	LD	22	50	23	79	1	0.438	30.806	0.025	1.757	0.023	1.618
46	21	22%	14%	0%	10%	6%	9%	23%	8%	2%	1%	0%	0%	0%	0%	2%	1%	223	280	LD	22	50	23	80	1	0.440	27.484	0.025	1.554	0.023	1.432
46	22	22%	15%	1%	10%	5%	9%	24%	8%	2%	1%	1%	1%	1%	0%	2%	1%	222	280	LD	22	50	23	81	1	0.447	27.766	0.025	1.582	0.023	1.457
46	23	21%	15%	0%	10%	5%	9%	24%	8%	2%	2%	1%	1%	1%	0%	2%	1%	189	280	LD	23	50	23	81	1	0.443	23.450	0.025	1.337	0.023	1.231
47	0	12%	44%	0%	11%	7%	0%	4%	21%	0%	0%	0%	0%	0%	0%	0%	0%	50	280	LD	25	50	22	82	1	0.349	4.883	0.014	0.193	0.013	0.178
47	1	14%	43%	0%	11%	7%	0%	4%	21%	0%	0%	0%	0%	0%	0%	0%	0%	28	280	LD	25	50	22	82	1	0.349	2.735	0.012	0.097	0.011	0.089
47	2	13%	38%	0%	13%	6%	0%	6%	25%	0%	0%	0%	0%	0%	0%	0%	0%	16	280	LD	25	50	22	83	1	0.365	1.636	0.015	0.067	0.014	0.062
47	3	13%	33%	0%	13%	7%	0%	7%	27%	0%	0%	0%	0%	0%	0%	0%	0%	15	280	LD	25	50	22	83	1	0.364	1.530	0.016	0.067	0.015	0.062
47	4	14%	29%	0%	14%	7%	0%	7%	29%	0%	0%	0%	0%	0%	0%	0%	0%	14	280	LD	25	50	22	83	1	0.363	1.423	0.017	0.067	0.016	0.061
47	5	17%	25%	0%	8%	8%	0%	8%	33%	0%	0%	0%	0%	0%	0%	0%	0%	12	280	LD	25	50	22	83	1	0.370	1.243	0.019	0.064	0.018	0.059
47	6	12%	19%	0%	10%	5%	2%	7%	33%	2%	2%	2%	2%	2%	0%	0%	0%	42	280	LD	25	50	22	83	1	0.401	4.714	0.026	0.310	0.024	0.285
47	7	12%	15%	0%	10%	6%	3%	8%	37%	2%	2%	3%	2%	2%	0%	0%	0%	67	280	LD	25	50	22	82	1	0.401	7.520	0.027	0.498	0.024	0.458
47	8	10%	7%	0%	10%	7%	3%	8%	43%	3%	1%	4%	3%	3%	0%	0%	0%	77	280	LD	25	50	23	79	1	0.415	8.951	0.032	0.683	0.029	0.628
47	9	13%	20%	0%	10%	6%	3%	6%	34%	1%	1%	3%	1%	3%	0%	0%	0%	80	280	LD	25	50	23	77	1	0.398	8.911	0.025	0.557	0.023	0.512
47	10	13%	28%	0%	10%	6%	2%	5%	29%	1%	1%	2%	1%	1%	0%	0%	0%	83	280	LD	25	50	24	74	1	0.370	8.600	0.021	0.484	0.019	0.445
47	11	13%	35%	0%	10%	6%	1%	5%	25%	1%	1%	1%	1%	0%	0%	0%	0%	84	280	LD	25	50	25	72	1	0.363	8.529	0.018	0.429	0.017	0.394
47	12	14%	39%	0%	10%	6%	1%	4%	22%	1%	1%	1%	1%	1%	0%	0%	0%	106	280	LD	25	50	25	71	1	0.350	10.389	0.016	0.462	0.014	0.425
47	13	14%	43%	0%	10%	6%	1%	3%	19%	1%	1%	1%	1%	1%	0%	0%	0%	118	280	LD	24	50	25	71	1	0.351	11.605	0.014	0.467	0.013	0.430
47	14	14%	47%	0%	11%	6%	1%	2%	17%	0%	0%	1%	1%	1%	0%	0%	1%	127	280	LD	24	50	25	71	1	0.347	12.329	0.013	0.452	0.012	0.416
47	15	14%	50%	0%	11%	5%	1%	2%	15%	0%	0%	1%	1%	1%	0%	0%	1%	150	280	LD	24	50	25	72	1	0.342	14.353	0.011	0.481	0.011	0.443
47	16	14%	52%	0%	10%	6%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	163	280	LD	24	50	24	74	1	0.341	15.572	0.010	0.479	0.010	0.441
47	17	14%	54%	0%	11%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	190	280	LD	24	50	24	76	1	0.336	17.879	0.010	0.512	0.009	0.471
47	18	14%	52%	0%	11%	6%	1%	2%	12%	0%	0%	1%	1%	1%	0%	0%	1%	170	280	LD	24	50	23	77	1	0.345	16.444	0.010	0.491	0.009	0.452
47	19	14%	51%	0%	11%	5%	1%	2%	13%	0%	0%	1%	1%	1%	0%	0%	1%	137	280	LD	24	50	23	78	1	0.346	13.261	0.011	0.422	0.010	0.388
47	20	14%	49%	0%	10%	6%	1%	2%	14%	0%	0%	1%	1%	1%	0%	0%	1%	106	280	LD	25	50	23	79	1	0.342	10.149	0.012	0.350	0.011	0.322
47	21	14%	49%	0%	9%	6%	1%	2%	16%	0%	0%	1%	0%	1%	0%	0%	0%	86	280	LD	25	50	23	80	1	0.345	8.302	0.012	0.288	0.011	0.265
47	22	14%	46%	0%	10%	6%	1%	3%	17%	0%	0%	1%	1%	1%	0%	0%	0%	81	280	LD	25	50	23	81	1	0.349	7.918	0.014	0.320	0.013	0.294
47	23	12%	46%	0%	9%	6%	2%	3%	19%	0%	0%	2%	0%	2%	0%	0%	0%	65	280	LD	25	50	23	81	1	0.356	6.481	0.014	0.250	0.013	0.229
48	0	4%	6%	0%	10%	6%	20%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	70	300	LD	25	50	23	82	1	0.549	11.528	0.037	0.778	0.034	0.716
48	1	5%	7%	0%	10%	5%	17%	55%	0%	0%	0%	0%	0%	0%	0%	0%	2%	42	300	LD	25	50	22	82	1	0.563	7.090	0.037	0.465	0.034	0.428
48	2	4%	7%	0%	7%	4%	18%	57%	0%	0%	0%	0%	0%	0%	0%	0%	4%	28	300	LD	25	50	22	83	1	0.577	4.847	0.038	0.320	0.035	0.294
48	3	4%	7%	0%	7%	4%	18%	57%	0%	0%	0%	0%	0%	0%	0%	0%	4%	28	300	LD	25	50	22	83	1	0.577	4.847	0.038	0.320	0.035	0.294
48	4	7%	7%	0%	7%	3%	17%	55%	0%	0%	0%	0%	0%	0%	0%	0%	3%	29	300	LD	25	50	22	83	1	0.557	4.849	0.037	0.321	0.034	0.296
48	5	7%	7%	0%	7%	3%	17%	55%	0%	0%	0%	0%	0%	0%	0%	0%	3%	29	300	LD	25	50	22	83	1	0.557	4.849	0.037	0.321	0.034	0.296
48	6	6%	9%	0%	7%	5%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	3%	89	300	LD	24	50	22	83	1	0.568	15.163	0.036	0.967	0.033	0.890
48	7	6%	11%	0%	7%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	4%	168	300	LD	23	50	22	82	1	0.585	29.467	0.037	1.869	0.034	1.720
48	8	7%	11%	0%	7%	3%	18%	51%	0%	0%	0%	1%	1%	1%	0%	0%	4%	216	300	LD	22	50	23	79	1	0.596	38.647	0.037	2.421	0.034	2.229
48	9	6%	10%	0%	8%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	3%	185	300	LD	22	50	23	77	1	0.600	33.304	0.037	2.080	0.035	1.915
48	10	6%	9%	0%	8%	4%	18%	50%	0%	0%	0%	1%	1%	1%	0%	0%	3%	168	300	LD	23	50	24	74	1	0.578	29.147	0.037	1.882	0.034	1.731
48	11	5%	8%	0%	10%	5%	18%	52%	0%	0%	0%	1%	0%	0%	0%	0%	3%	147	300	LD	23	50	25	72	1	0.575	25.376	0.037	1.632	0.034	1.501
48	12	5%	7%	0%	10%	5%	19%	52%	0%	0%	0%	1%	0%	0%	0%	0%	3%	161	300	LD	23	50	25	71	1	0.577	27.858	0.037	1.799	0.034	1.655
48	13	5%	5%	0%	11%	6%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	2%	157	300	LD	23	50	25	71	1	0.578	27.224	0.037	1.762	0.034	1.621
48	14	5%	5%	0%	12%	7%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	156	300	LD	23	50	25	71	1	0.582	27.215	0.038	1.768	0.035	1.627
48	15	5%	4%	0%	12%	7%	18%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	169	300	LD	22	50	25	72	1	0.595	30.183	0.038	1.941	0.035	1.788
48	16	4%	2%	1%	13%	8%	19%	52%	0%	0%	0%	0%	0%	0%	0%	0%	1%	168	300	LD	23	50	24	74	1	0.583	29.385	0.038	1.916	0.035	1.763
48	17	4%	1%	1%	14%	9%	18%	53%	0%	1%	0%	0%	0%	0%	0%	0%	0%	180	300	LD	22	50	24	76	1	0.597	32.223	0.039	2.096	0.036	1.930
48	18	4%	2%	1%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	166	300	LD	23	50	23	77	1	0.589	29.309	0.038	1.913	0.035	1.760
48	19	4%	2%	0%	13%	8%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	139	300	LD	23	50	23	78	1	0.588	24.505	0.038	1.600	0.035	1.472
48	20	5%	3%	0%	13%	7%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	112	300	LD	24	50	23	79	1	0.566	19.004	0.038	1.262	0.035	1.162
48	21	4%	4%	0%	12%	6%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	98	300	LD	24	50	23	80	1	0.568	16.693	0.038	1.107	0.035	1.019
48	22	5%	4%	0%	11%	6%	19%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	98	300	LD	24	50	23	81

Appendix 4.4

Calculation of Emission Factors of Travelling Vehicles within the Proposed Project for ISCST 3

Travelling Emission within Proposed Project
Methodology

1. The ultimate building design is depended on the design-and-built contractor and therefore it is assumed that the parking space and vehicle repair/ testing workshop are designed with natural ventilation through lourvres at sidewalls. Therefore, the emission is assumed to be released as volume source through each opening in proportion to the opening area.
2. Total emission within the depot is estimated by Emfac mode of EMFAC-HK V2.6.0 accompanied the following assumptions:
    - Combined diurnal traffic flow provided by the HKPF, EMSD, FEHD and GL
    - Default exhaust technology fractions in EMFAC-HK for various vehicles travelling within the depot
    - Travelling speed of 5 kph for all vehicles
    - Longest travelling distance of 1000 m for all vehicles
    - 1 cold start for each trip per vehicle
3. Total vehicular emission due to travelling is estimated as g/hour in accordance with the provided hourly traffic data. Details are shown in **Annex A**.
4. There are 45 openings in total provided at sidewalls. Emission is assumed to be diffused through these openings. Detailed area of each openings as well as their x- and y-coordinates are presented in **Annex B**, whilst the location of volume sources at each floor is shown in **Figure 4-3.** Detailed calculation of each volume sources are also shown in **Annex B.**

Scena 2018 with Project

				Vehicle Breakdown																						
Road ID	Time	Road Type	Travelling Speed (kph)	01 - Private Cars (PC)	03 - Taxi	04 - Light Goods Vehicles<= 2.5t	05 - Lt Goods Vehicles 2.5-3.5t	06 - Light Goods Vehicles> 3.5t	07 - Heavy Goods Vehicles< =15t	08 - Heavy Goods Vehicles >15t	11 - Public Light Buses	12 - Private Light Bus <=3.5t	13 - Private Light Bus >3.5t	14 - Non-franchised Bus<=6.4t	15 - Non-franchised Bus 6.4-15t	16 - Non-franchised Bus >15t	17 - Franchised Bus (SD)	18 - Franchised Bus (DD)	19 - Motorcycles (MC)	NOx E.F. (g/VKT)	PM10 E.F. (g/VKT)	PM2.5 E.F. (g/VKT)	Traveling Distance (m)	NOx E.M (g/hr)	PM10E.M (g/hr)	PM2.5 E.M (g/hr)	NOx E.M (g/s)	PM10 E.M (g/s)	PM2.5 E.M (g/s)
CWD	Hr1	LD	5	75.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.97	0.04	0.04	1000	3.900	0.1626	0.1499	0.0011	0.000045	0.000042
CWD	Hr2	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.80	0.05	0.04	1000	0.802	0.0507	0.0401	0.0002	0.000014	0.000011
CWD	Hr3	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	1000	0.000	0.0000	0.0000	0.0000	0.000000	0.000000
CWD	Hr4	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	1000	0.000	0.0000	0.0000	0.0000	0.000000	0.000000
CWD	Hr5	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.80	0.05	0.04	1000	1.598	0.1014	0.0802	0.0004	0.000028	0.000022
CWD	Hr6	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.9%	0.0%	0.0%	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.97	0.41	0.38	1000	62.704	3.6730	3.3791	0.0174	0.001020	0.000939
CWD	Hr7	LD	5	33.3%	0.0%	0.0%	0.0%	4.8%	0.0%	9.5%	0.0%	0.0%	47.6%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	2.86	0.08	0.08	1000	60.049	1.7343	1.5892	0.0167	0.000482	0.000441
CWD	Hr8	LD	5	11.6%	0.0%	0.0%	0.0%	30.2%	0.0%	0.0%	0.0%	0.0%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	2.94	0.06	0.06	1000	126.372	2.6940	2.4380	0.0351	0.000748	0.000677
CWD	Hr9	LD	5	14.8%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	37.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.8%	2.74	0.06	0.06	1000	74.107	1.7017	1.5388	0.0206	0.000473	0.000427
CWD	Hr10	LD	5	16.0%	0.0%	0.0%	0.0%	36.0%	0.0%	8.0%	0.0%	0.0%	24.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	2.93	0.10	0.09	1000	73.327	2.3947	2.1766	0.0204	0.000665	0.000605
CWD	Hr11	LD	5	16.7%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	2.69	0.05	0.05	1000	64.524	1.3172	1.1852	0.0179	0.000366	0.000329
CWD	Hr12	LD	5	13.8%	0.0%	0.0%	0.0%	27.6%	0.0%	27.6%	0.0%	0.0%	17.2%	0.0%	0.0%	0.0%	0.0%	0.0%	13.8%	3.74	0.17	0.16	1000	108.345	4.9586	4.5355	0.0301	0.001377	0.001260
CWD	Hr13	LD	5	12.0%	0.0%	0.0%	0.0%	28.0%	0.0%	16.0%	0.0%	0.0%	36.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	3.61	0.13	0.11	1000	90.167	3.1396	2.8748	0.0250	0.000872	0.000799
CWD	Hr14	LD	5	7.1%	0.0%	0.0%	0.0%	21.4%	0.0%	17.9%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%	10.7%	3.80	0.13	0.12	1000	106.382	3.6822	3.3672	0.0296	0.001023	0.000935
CWD	Hr15	LD	5	11.1%	0.0%	0.0%	0.0%	33.3%	0.0%	16.7%	0.0%	0.0%	27.8%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	3.54	0.13	0.12	1000	127.347	4.7110	4.3072	0.0354	0.001309	0.001196
CWD	Hr16	LD	5	11.1%	0.0%	0.0%	0.0%	29.6%	0.0%	0.0%	0.0%	0.0%	48.1%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	2.99	0.06	0.06	1000	80.717	1.6904	1.5347	0.0224	0.000470	0.000426
CWD	Hr17	LD	5	10.0%	0.0%	0.0%	0.0%	35.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	2.43	0.06	0.06	1000	48.566	1.2989	1.1553	0.0135	0.000361	0.000321
CWD	Hr18	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	0.0%	0.0%	42.9%	2.57	0.05	0.05	1000	17.957	0.3641	0.3151	0.0050	0.000101	0.000088
CWD	Hr19	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.96	0.05	0.05	1000	7.920	0.1060	0.0974	0.0022	0.000029	0.000027
CWD	Hr20	LD	5	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%	0.0%	0.0%	0.0%	77.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.84	0.06	0.06	1000	34.544	0.5672	0.5213	0.0096	0.000158	0.000145
CWD	Hr21	LD	5	11.8%	0.0%	0.0%	0.0%	17.6%	0.0%	17.6%	0.0%	0.0%	52.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.00	0.13	0.12	1000	68.083	2.1718	1.9976	0.0189	0.000603	0.000555
CWD	Hr22	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.29	0.45	0.42	1000	14.571	0.9050	0.8326	0.0040	0.000251	0.000231
CWD	Hr23	LD	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	2.36	0.05	0.04	1000	4.721	0.1037	0.0888	0.0013	0.000029	0.000025
CWD	Hr24	LD	5	40.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.32	0.05	0.05	1000	11.620	0.2471	0.2274	0.0032	0.000069	0.000063

					Initial Lateral Dimension (m)	Initial Vertical Dimension (m)	Max. Emission Rate (g/s)								
ID	X-Coordinate	Y-Coordinate	Elevation (mPD)	Release Height (m)	Sigma Y	Sigma Z	NOx	RSP	FSP	Opening Width (m)	Adjacant Building Height (m)	Opening Area (m2)	Bottom (mPD)	Center (mPD)	Height (m)
T01	842974.0552	814786.2832	5	2	4.47	18.60	0.000755	0.000029	0.000027	9.60	40	38.40	5	7	4
T02	843044.0772	814727.8546	5	3	6.19	18.60	0.001046	0.000041	0.000037	13.30	40	53.22	6	8	4
T03	843066.2606	814758.5471	5	2	3.26	18.60	0.000550	0.000021	0.000020	7.00	40	28.00	5	7	4
T04	842982.5233	814812.0004	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T05	842975.4551	814791.0877	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T06	842972.3573	814781.3695	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T07	842966.5771	814763.8019	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T08	842972.8701	814739.3353	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T09	842982.2538	814731.1505	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T10	842994.4653	814720.4907	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T11	843003.0149	814713.0394	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T12	843042.6412	814728.5409	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T13	843049.249	814736.2646	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T14	843055.9181	814744.0887	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T15	843066.5254	814756.5297	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T16	842985.7444	814822.0537	5	11	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	14	16	4
T17	842982.5459	814812.3681	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T18	842975.4484	814790.9463	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T19	842972.2364	814781.2652	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T20	842967.2472	814766.251	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T21	842975.2881	814736.9234	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T22	843052.5014	814740.1902	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T23	843067.486	814757.6691	5	17.2	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	20.2	22.2	4
T24	842985.6282	814821.6287	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T25	842982.3616	814811.9509	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T26	842975.5476	814791.8053	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T27	842972.0151	814781.3879	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T28	842966.0472	814763.8162	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T29	842972.1877	814739.3133	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T30	842981.5217	814731.0719	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T31	842993.6641	814720.3334	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T32	843002.1706	814712.8328	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T33	843044.4418	814731.0341	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T34	843051.3091	814738.977	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T35	843065.9536	814755.8626	5	24.9	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	27.9	29.9	4
T36	842985.6666	814821.9557	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T37	842980.1878	814805.5593	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T38	842972.0772	814781.398	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T39	842966.1583	814763.8061	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T40	842972.3881	814739.3268	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T41	842981.7459	814731.1158	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T42	842993.9308	814720.4222	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T43	843003.2886	814712.2112	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T44	843044.6624	814731.2697	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
T45	843051.5056	814739.2334	5	31.1	4.65	18.60	0.000786	0.000031	0.000028	10.00	40	40.00	34.1	36.1	4
						Total	0.035374	0.001377	0.001260						

	NOx	RSP	FSP
Hour	Operation Factor	Operation Factor	Operation Factor
0:00	0.031	0.033	0.033
1:00	0.006	0.010	0.009
2:00	0.000	0.000	0.000
3:00	0.000	0.000	0.000
4:00	0.013	0.020	0.018
5:00	0.492	0.741	0.745
6:00	0.472	0.350	0.350
7:00	0.992	0.543	0.538
8:00	0.582	0.343	0.339
9:00	0.576	0.483	0.480
10:00	0.507	0.266	0.261
11:00	0.851	1.000	1.000
12:00	0.708	0.633	0.634
13:00	0.835	0.743	0.742
14:00	1.000	0.950	0.950
15:00	0.634	0.341	0.338
16:00	0.381	0.262	0.255
17:00	0.141	0.073	0.069
18:00	0.062	0.021	0.021
19:00	0.271	0.114	0.115
20:00	0.535	0.438	0.440
21:00	0.114	0.183	0.184
22:00	0.037	0.021	0.020
23:00	0.091	0.050	0.050

Appendix 4.5

Calculation of Emission Factors of Idling Vehicles within the Proposed Project for ISCST 3

Idling Emission Factors within Proposed Project

Background

While the latest EMFAC-HK model would generate a set of accurate prediction of the travelling vehicle emission factors, it was not dedicated to the calculation of idling emissions from vehicles, which account for most of the emissions from the Depot. Other more appropriate approach to estimating the idling emissions from the Depot was therefore sought.

Appendix of the *"Road Tunnels: Vehicle Emissions and Air Demand for Ventilation"* published by the Permanent International Association of Road Congresses (PIARC) in November 2004 presents the emission factors for different Euro engine types under different traveling speeds and gradients, including idling mode (i.e. v= 0). Emission factors presented in the document was adopted for deriving the idling emission factors for the proposed Project.

Methodology

In determining the composite idling emission factors in the assessment year, it takes account of the technology fraction of different engine types. Although the existing vehicles will most likely be replaced with vehicles complying with the standards for environmental friendly (EF) petrol cars or Euro V standard or above for commercial vehicles in prevailing policy, no implementation schedule is determined at this stage of this EIA study. In this connection, it was assumed that all the vehicles within the proposed Project to be EURO II on conservative side.

As the vehicle repair/ testing works involving idling emission would be come-and-go basis, maximum engine on-time per each vehicle is assumed to be maximal **15 minutes** for conservative approach. Same assumptions were depolyed for washing activity of RCVs by using automatic vehicle washing machine. The number of vehicles under repair/ testing/ washing is assumed to be max. **20** at each time as it is limited by the number of repair/ testing/ washing bays. Although the repair/ testing period for a single vehicle may last for about 2 to 3 hours, **15-minute** idling emissions were assumed in each hour of the period for each vehicle throughout all working hours every day as conservative approach.

During water refilling of street washing vehicles and manual washing of RCVs, engine needs not to be turned on and therefore no engine on-time was assumed.

Annexes A to C presents the detailed calculations of emission rates and locations of the sources assumed. The floors that potentially emit idling emissions include Level 1, Level 3M and Level 5 where FEHD Depot, HKPF PVP&EC and EMSD Depot locate.

On average, such engine running would be repeated at an interval of two to three hours during the 10 hours of major maintenance works (i.e. 08:00 - 18:00). The operation schedule is therefore assumed to 100% from 08:00 to 18:00 every day, as shown in **Annex D.**

Table 1
Vehicle Inventory

	Vehicle Type								
	General Purpose Vehicle					Special Purpose Vehicle			
	Private Car	Motor Cycle	Light Bus/ Large Van	Medium Van	Light Truck	Refuse Collection Vehicle	Street Washing Vehicle	Grab Lorry	Total
Daily In-bound Traffic	23	23	71	32	15	16	4	2	186
Daily Out-bound Traffic	26	25	66	29	15	12	5	1	179
Total	49	48	137	61	30	28	9	3	365
%	13.4%	13.2%	37.5%	16.7%	8.2%	7.7%	2.5%	0.8%	

Equation 1
Emission Rate by Heavy Goods Vehicle

$$Q = q_{ex} \times f_m \times f_h + q_{ne}$$

where
Q = emission for NOx or particulate matter (g/hr veh)
qex = basic emission factor, depending on average speed and road gradient for a heavy duty vehicle with a total mass of 10 tonnes (m2/hr veh)
qne = emission factor for non-exhaust particulate matter
fm = mass factor
fh = altitude factor

Table 2
Idling NOx Idling Emission

Activity	*Tier* Note 1	q_{ex} Note 2	f_m Note 3	f_h Note 4	q_{ne} Note 5	*Emission Rate (g/hr)*	*Operation Time (s)*	*Corrected NOx Emission Rate (g/hr) per Vehicle*	*Corrected NOx (g/s) Emission Rate per Vehicle*	*Max. No. of Vehicles*	*Corrected NOx (g/s)*
Vehicle Washing at FEHD Depot	Euro II	40.8	2.5	1	0	102	900	25.5	0.00708	1	0.0070833
Vehicle Repair/ Testing at HKPF PVP&EC	Euro II	40.8	2.5	1	0	102	900	25.5	0.00708	5	0.0354167
Vehicle Repair/ Testing at EMSD Depot	Euro II	40.8	2.5	1	0	102	900	25.5	0.00708	14	0.0991667
										20	0.1416667

Note 1	Euro II idling emission factor from heavy good vehicles for NOx was assumed as conservative approach.
Note 2	Basic idling emission factor, Tables II.3-46 to II.3-50, Appendix 2 of Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.
Note 3	Mass correction factor, Table II.3-51, Appendix 2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.
Note 4	Altitude factor, Tables II.3-59 Appendix 2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.
Note 5	Emission factor for non-exhaust particular matter, Tables III.3-2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.

Table 3

Idling PM Idling Emission

Activity	*Tier* Note 1	q_{ex} Note 2	f_m Note 3	f_h Note 5	q_{ne} Note 6	*MIRA Correlation Factor* (m^2/g) Note4	*Emission Rate (g/hr)*	*Operation Time (s)*	*Corrected PM Emission Rate (g/hr) per Vehicle*	*Corrected PM (g/s) Emission Rate per Vehicle*	*Max. No. of Vehicles*	*Corrected PM (g/s)* Note 7
Vehicle Washing at FEHD Depot	Euro II	8.4	2.3	1	0	4.7	4.11	900	1.028	0.000285	1	0.000285
Vehicle Repair/ Testing at HKPF PVP&EC	Euro II	8.4	2.3	1	0	4.7	4.11	900	1.028	0.000285	5	0.001427
Vehicle Repair/ Testing at EMSD Depot	Euro II	8.4	2.3	1	0	4.7	4.11	900	1.028	0.000285	14	0.003996
											20	0.005709

Note 1 Euro II idling emission factor from heavy good vehicles for NOx was assumed as conservative approach.

Note 2 Basic emission factor, Tables II.3-52 to II.3-56, Appendix 2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, Nov

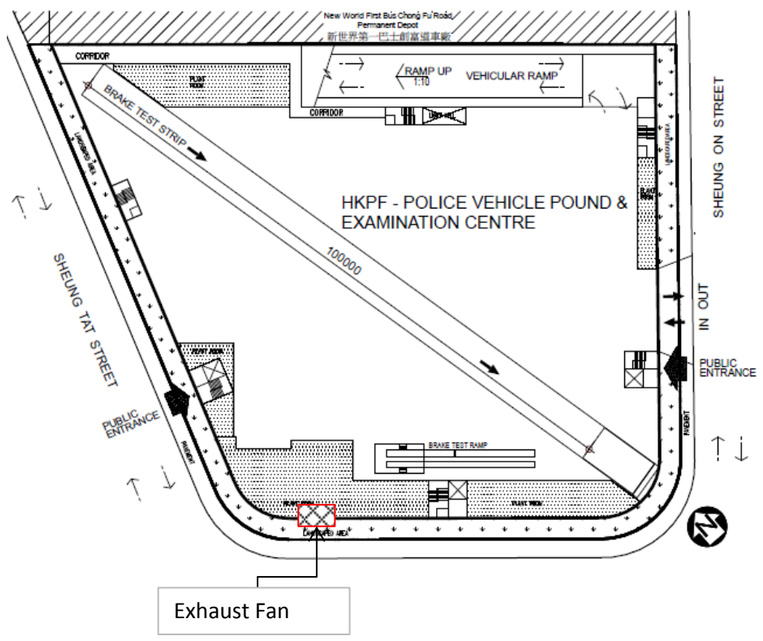
Note 3 Mass correction factor, Table II.3-57, Appendix 2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 20

Note 4 A conversion factor between particulate emission in g and turbidity is given by the MIRA-correlation factor 1g =4.7m2 (see page 25 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation").

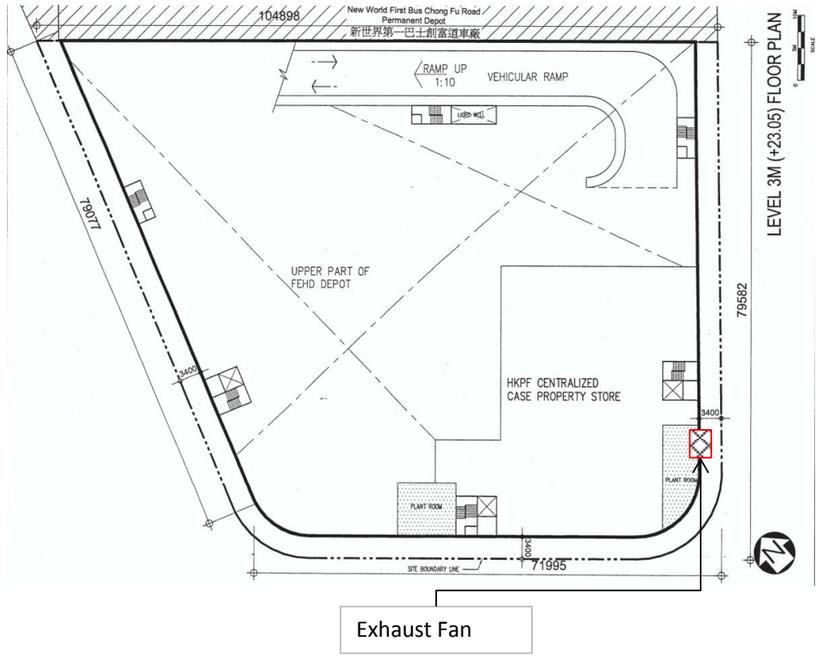
Note 5 Altitude factor, Tables II.3-59, Appendix 2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.

Note 6 Emission factor for non-exhaust particular matter, Tables III.3-2 of “Road Tunnels: Vehicle Emission and Air Demand for Ventilation", PIARC, November 2004.

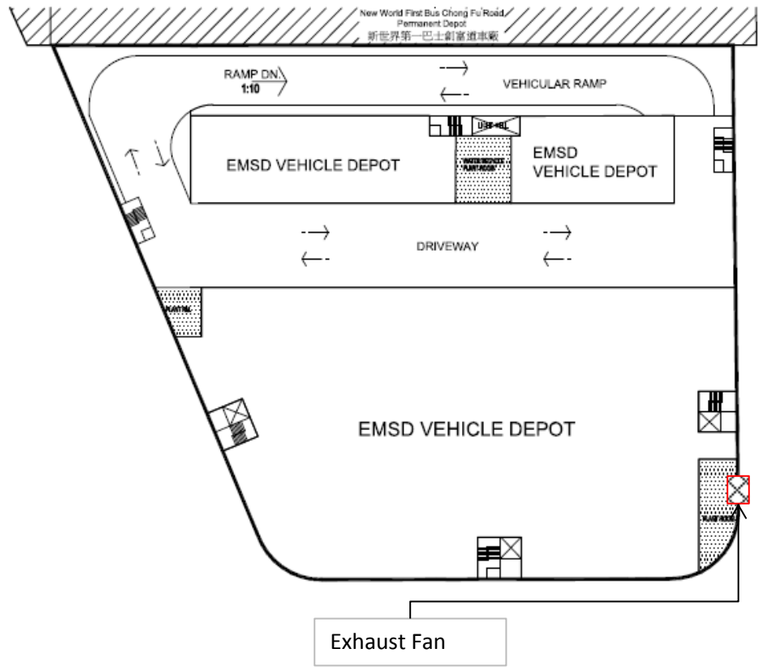
Level 1



Level 3M



Level 5



	NOx	RSP/ FSP
Hour	Operation Factor	Operation Factor
0:00	0	0
1:00	0	0
2:00	0	0
3:00	0	0
4:00	0	0
5:00	0	0
6:00	0	0
7:00	0	0
8:00	1	1
9:00	1	1
10:00	1	1
11:00	1	1
12:00	1	1
13:00	1	1
14:00	1	1
15:00	1	1
16:00	1	1
17:00	1	1
18:00	0	0
19:00	0	0
20:00	0	0
21:00	0	0
22:00	0	0
23:00	0	0

Appendix 4.6

List of Chemical Emissions from Government Laboratory

						Estimated Max. Emission Rate			Conversion					
Type of Chemical	**Name of Chemicals Involved**	**Synonym (Used in Table Z-2)**	**Mechanical Ventilation Provided (Y/N)**	**Emission Control Provided (Y/N)**	**Estimated Emission Rate [1]**	**(µg/m3/hr)**	**In 8-hour Period (µg/m3)**	**Reference Organization [2]**	**ppm**	**Molecular Weight, g/mol**	**mg/m^3**	**ug/m^3**	**Permissible Exposure Limit (PEL) (in 8-hour Time-weighted Average) (µg/m3)**	**Is it below PEL?**
Organic	Chloroethane	Ethyl chloride	Y	Y	< 0.3 µg/m^3/hr	3.00E-01	2.40E+00	USA - OSHA	-	64.51	2600.00	2600000	2.60E+06	Yes
	1,3-butadiene	-	Y	Y	< 0.3 µg/m^3/hr	3.00E-01	2.40E+00	USA - OSHA	1	54.0916	2.21	2212.34	2.21E+03	Yes
	Dichloromethane	Methylene chloride	Y	Y	< 5 µg/m^3/hr	5.00E+00	4.00E+01	USA - OSHA	25	84.93	86.84	86840	8.68E+04	Yes
	Chloroform	-	Y	Y	< 0.49 µg/m^3/hr	4.90E-01	3.92E+00	USA - OSHA	-	-	240.00	240000	2.40E+05	Yes
	1,2-dichloroethane	Ethylene dichloride	Y	Y	< 1 µg/m^3/hr	1.00E+00	8.00E+00	USA - OSHA	50	98.96	202.37	202372	2.02E+05	Yes
	Benzene	-	Y	Y	< 1 µg/m^3/hr	1.00E+00	8.00E+00	USA - OSHA	10	78.11	31.95	31947	3.19E+04	Yes
	Tetrachloromethane	Carbon tetrachloride	Y	Y	< 2 µg/m^3/hr	2.00E+00	1.60E+01	USA - OSHA	10	153.82	62.91	62912	6.29E+04	Yes
	Trichloroethene	Trichloroethylene (TCE)	Y	Y	< 0.6 µg/m^3/hr	6.00E-01	4.80E+00	USA - OSHA	100	131.39	537.38	537382	5.37E+05	Yes
	1,2-dibromoethane	Ethylene dibromide	Y	Y	< 0.8 µg/m^3/hr	8.00E-01	6.40E+00	USA - OSHA	20	187.86	153.67	153669	1.54E+05	Yes
	1,1,2,2-tetrachloroethane	-	Y	Y	< 0.7µg/m^3/hr	7.00E-01	5.60E+00	USA - ACGIH (TLV)	1	167.86	6.87	6865	6.87E+03	Yes
	Hexachlorobenzene	-	Y	Y	< 0.4 ng/m^3/hr	4.00E-04	3.20E-03	USA - ACGIH (TLV)	-	284.8	-	-	2.00E+00	Yes
	Benzo(a)pyrene	-	Y	Y	< 0.4 ng/m^3/hr	4.00E-04	3.20E-03	USA - OSHA	-	252.31	0.20	200	2.00E+02	Yes
	Chlorinated dioxins/dibenzofurans	-	Y	Y	< 3.6 fg/m^3/hr	3.60E-09	2.88E-08	USA - OEHHA	-	-	-	-	4.00E-05	Yes
	Dioxin-like PCB	-	Y	Y	< 0.4 fg/m^3/hr	4.00E-10	3.20E-09	USA - OEHHA	-	-	-	1.2	1.20E+00	Yes

						Estimated Max. Emission Rate			Conversion					
Type of Chemical	**Name of Chemicals involved**	**Synonym (Used in Table Z-2)**	**Mechanical Ventilation Provided (Y/N)**	**Emission Control Provided (Y/N)**	**Estimated Emission Rate [1]**	**(µg/m3/hr)**	**In 8-hour Period (µg/m3)**	**Reference Organization [2]**	**ppm**	**Molecular Weight, g/mol**	**mg/m^3**	**ug/m^3**	**Permissible Exposure Limit (PEL) (in 8-hour Time-weighted Average) (µg/m3)**	**Is it below PEL?**
Inorganic	Chromium VI	-	Y	Y	< 11 pg/m^3/hr	1.10E-05	8.80E-05	USA - OSHA	-	-	-	5	5.00E+00	Yes
	Arsenic	-	Y	Y	< 8.4 ng/m^3/hr	8.40E-03	6.72E-02	USA - OSHA	-	-	-	-	1.00E+01	Yes
	Beryllium	-	Y	Y	< 80 pg/m^3/hr	8.00E-05	6.40E-04	USA - OSHA	-	-	-	-	2.00E+00	Yes
	Nickel	-	Y	Y	< 21 ng/m^3/hr	2.10E-02	1.68E-01	USA - OSHA	-	-	-	-	1.00E+03	Yes

Note [1]: The data were obtained from the monitoring data collected in 2012 and 2013 under the requirements of the ISO14001 scheme operated in GL.

Note [2]: USA- OSHA stands for Occupational Safety and Health Administrative, Department of Labor, United States
USA- ACGIA (TLV) stands for American Conference of Governmental and Industrial Hygienists' threshold limit value
USA- OEHHA stands for chronic inhalation exposure limit stated by Office of Environmental Health Hazard Assessment, California, USA

Appendix 5.1

Photos of Representative Existing Noise Sensitive Receivers

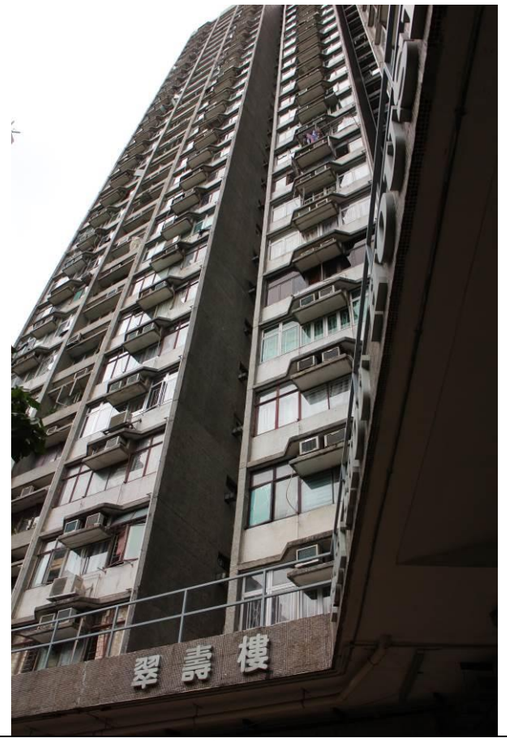
Photos of Representative Existing NSRs

NSR 1 Heng Fa Chuen Block 50

NSR 2 Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block

Photos of Representative Existing NSRs

NSR 3 Knight Court Flat C & D



NSR 4 Tsui Shou House, Tsui Wan Estate

Photos of Representative Existing NSRs

NSR 5 Endeavourers Chan Cheng Kit Wan Kindergarten

NSR 6 Tsui Fuk House, Tsui Wan Estate

Photos of Representative Existing NSRs

NSR 7 Tsui Hong House, Tsui Wan Estate

Appendix 5.2

Results of Prevailing Background Noise Surveys

NSR ID	Location	Session	Date	Session	Time	Background Noise Level (30 min), dB(A) $L_{eq(30mins)}$	Dominant Noise Source	Remarks
1	Heng Fa Chuen, Block 50	Daytime	22/9/2014	Daytime	14:00-14:30	56.5	E1, E2, E4	
		Nighttime	20/9/2014	Nighttime	00:15-00:45	54.4	E1, E2, E4	
2	Hong Kong IVE (Chai Wan) - Academic Block	Daytime	22/9/2014	Daytime	17:10-17:40	63.6	E1, E4	E1 refers to several vehicle passes-by within the campus
			16/5/2015	Daytime	10:39-11:09	65.9	E1, E4	
3	Knight Court, Flat A & B	Daytime	22/9/2014	Daytime	17:45-18:15	57.6	E1, E5	
			16/5/2015	Daytime	11:27-11:57	65.4	E1, E5	
	Beside MTR Depot entrance	Nighttime	20/9/2014	Nighttime	03:55-04:25	55.8	E1	
4	Tsui Shou House, Tsui Wan Estate	Daytime	22/9/2014	Daytime	15:51-16:21	70.1	E1	
		Nighttime	20/9/2014	Nighttime	02:12-02:42	61.9	E1	
5	Endeavourers Chan Cheng Kit Wan Kindergarten	Daytime	22/9/2014	Daytime	15:20-15:50	70.9	E1	
6	Tsui Fuk House, Tsui Wan Estate	Daytime	22/9/2014	Daytime	14:47-15:17	65.5	E1	
		Nighttime	20/9/2014	Nighttime	01:05-01:35	60.2	E1	
7	Tsui Hong House, Tsui Wan Estate	Daytime	22/9/2014	Daytime	16:25-16:55	65.3	E1	
		Nighttime	20/9/2014	Nighttime	02:45-03:15	57.5	E1	
8	Planned THEi New Campus (Pedestrian path)	Daytime	22/9/2014	Daytime	18:25-18:55	71.9	E1, E4	
			16/5/2015	Daytime	11:59-12:29	71.6	E1, E4	

Notes : (1) E1 = Road traffic noise (or vehicle noise at nighttime)
E2 = Ship vessel noise
E3 = Ventilation system noise (Citybus Depot)
E4 = Train pass-by noise
E5 = Building services (e.g. MVAC) noise within the campus
(2) The lowest measured background noise levels in the same time period were adopted fro determining the fixed plant noise assessment criteria.

Location in red refers to substitute position due to site inaccessbility of the designated NSR

Appendix 5.3

TD Endorsement Letter, Summary of Estimated Road Traffic Generation (Ingress and Egress) and Suggested Routing from the Proposed Project

運輸署
Transport Department

By Fax (2527 8490)

本署檔號 Our Ref. TD HR 146/192/SHE-8(L)
來函檔號 Your Ref. CHK50008710/GPH/L1401459/jch
電 話 Tel. 2829 5419
圖文傳真 Fax. 2824 0399

24 September 2014

MVA Hong Kong Limited
(Attn.: Mr. George LEE)

Dear Mr. LEE,

Chai Wan Goverament Complex and Vehicle Depot
at Sheung Tat Street, Chai Wan
Technical Note of Traffic Forecast for Environmental Impact Assessment Study

I refer to your letter dated 11.9.2014 regarding the captioned. I have no comment on the Technical Note of Traffic Forecast for EIA Study for the captioned project from traffic point of view.

MVA
Job No. CHK50008710
Reg. No. 00318739
Date In 25.9.2014
Initials | Action Date | Copy Date
PM/ | |
PD/ | | 25/9
DIC/ | |
Duplicate | Filing Clerk | Day File 25/9
Reply Ref.
Reply Date
File No.

Yours faithfully,

(Keith Lim-chun LAI)
for Commissioner for Transport

2

市區(香港)分區辦事處
Urban Regional Office (Hong Kong)
香港灣仔告士打道七號入境事務大樓三十七樓
37th Floor Immigration Tower 7 Gloucester Road Wan Chai Hong Kong
網址 Web Site: http://www.td.gov.hk/

1

TOTAL P.01

Year 2018 Traffic Forecast

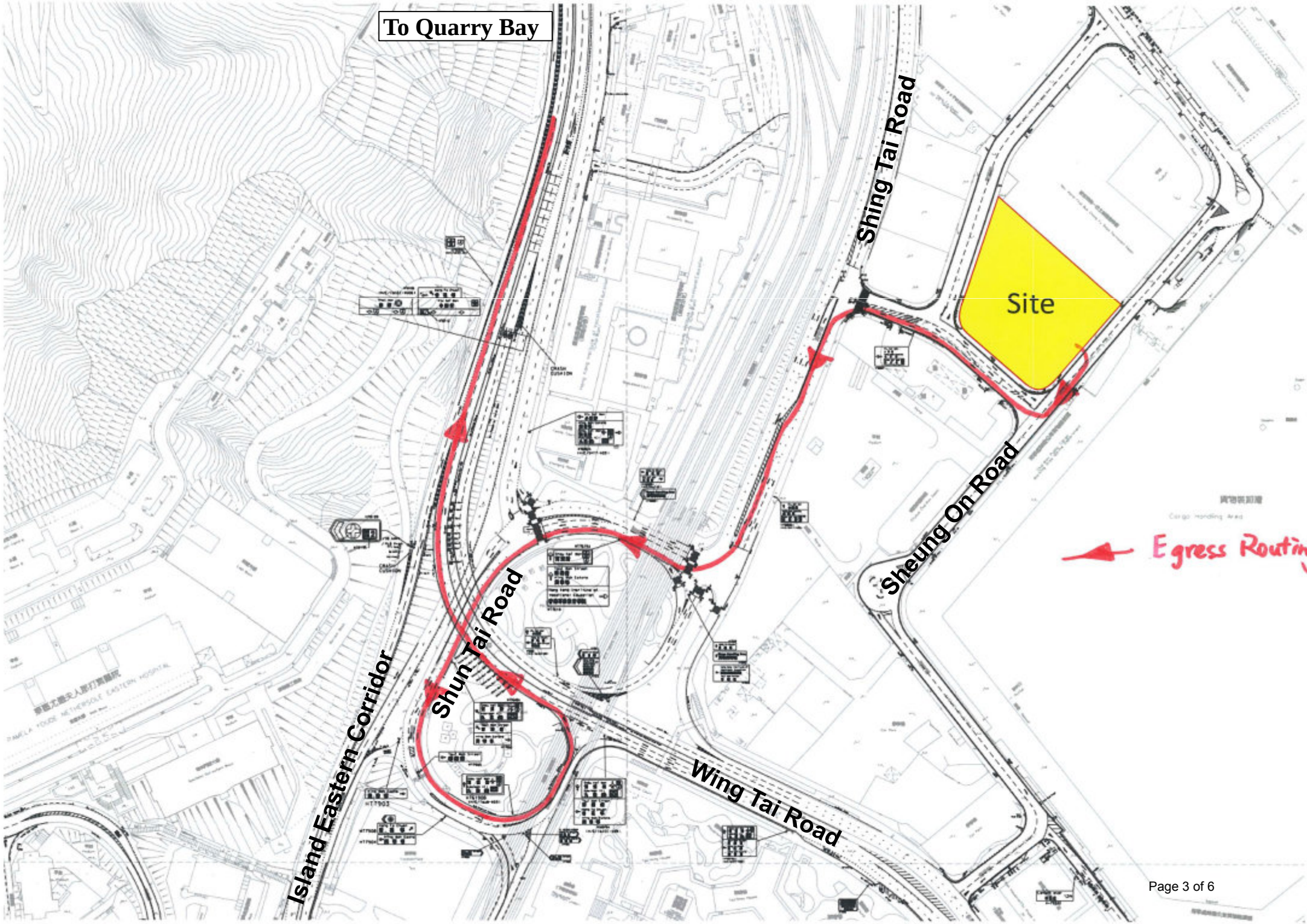
Road ID	AM Peak of Proposed Project Generated Traffic (0800-0900 hrs)				PM Peak of Proposed Project Generated Traffic (1500-1600 hrs)			
	With Project		Without Project		With Project		Without Project	
	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%
1	483	48%	483	48%	473	43%	473	43%
2	558	39%	558	39%	486	48%	486	48%
3	1980	40%	1966	40%	1720	45%	1699	44%
4	1821	45%	1792	44%	1604	42%	1589	42%
5	1335	44%	1306	43%	1110	42%	1095	42%
6	1424	40%	1410	40%	1212	43%	1191	43%
7	997	40%	997	40%	847	46%	847	46%
8	1475	44%	1475	44%	1231	43%	1231	43%
9	1117	41%	1117	41%	967	47%	967	47%
10	275	33%	275	33%	286	39%	286	39%
11	1200	47%	1200	47%	948	44%	948	44%
12	1225	44%	1225	44%	1161	46%	1161	46%
13	372	36%	372	36%	400	38%	400	38%
14	165	25%	165	25%	101	26%	101	26%
15	59	34%	59	34%	53	45%	53	45%
16	491	52%	477	52%	438	49%	417	47%
17	229	58%	200	55%	236	53%	221	52%
18	368	52%	368	52%	323	48%	323	48%
19	143	52%	143	52%	125	58%	125	58%
20	412	42%	412	42%	371	38%	371	38%
21	153	56%	153	56%	129	57%	129	57%
22	255	56%	255	56%	260	53%	260	53%
23	109	61%	80	54%	143	55%	128	52%
24	202	64%	202	64%	202	56%	202	56%
25	261	44%	232	39%	269	41%	254	39%
26	427	41%	413	41%	365	38%	344	36%
27	118	55%	118	55%	117	57%	117	57%
28	87	64%	58	55%	113	48%	98	44%
29	123	50%	109	49%	121	52%	100	46%
30	66	71%	37	62%	81	47%	66	41%
31	43	63%	29	66%	73	67%	52	62%
32	55	69%	55	69%	41	46%	41	46%
33	21	90%	21	90%	33	88%	33	88%
34	171	51%	171	51%	133	38%	133	38%
35	130	82%	130	82%	86	72%	86	72%
36	117	61%	103	61%	126	61%	105	57%
37	92	86%	63	87%	85	66%	70	64%
38	145	57%	145	57%	141	61%	141	61%
39	98	82%	98	82%	88	65%	88	65%
40	160	51%	160	51%	248	46%	248	46%
41	139	61%	139	61%	167	60%	167	60%
42	472	46%	472	46%	515	42%	515	42%
43	71	61%	71	61%	45	69%	45	69%
44	183	66%	183	66%	245	49%	245	49%
45	854	47%	854	47%	762	51%	762	51%
46	402	62%	402	62%	346	62%	346	62%
47	74	82%	74	82%	137	36%	137	36%
48	197	79%	197	79%	155	90%	155	90%
49	96	71%	96	71%	70	76%	70	76%
50	23	61%	23	61%	35	31%	35	31%
51	102	80%	102	80%	155	44%	155	44%
52	344	56%	344	56%	297	51%	297	51%

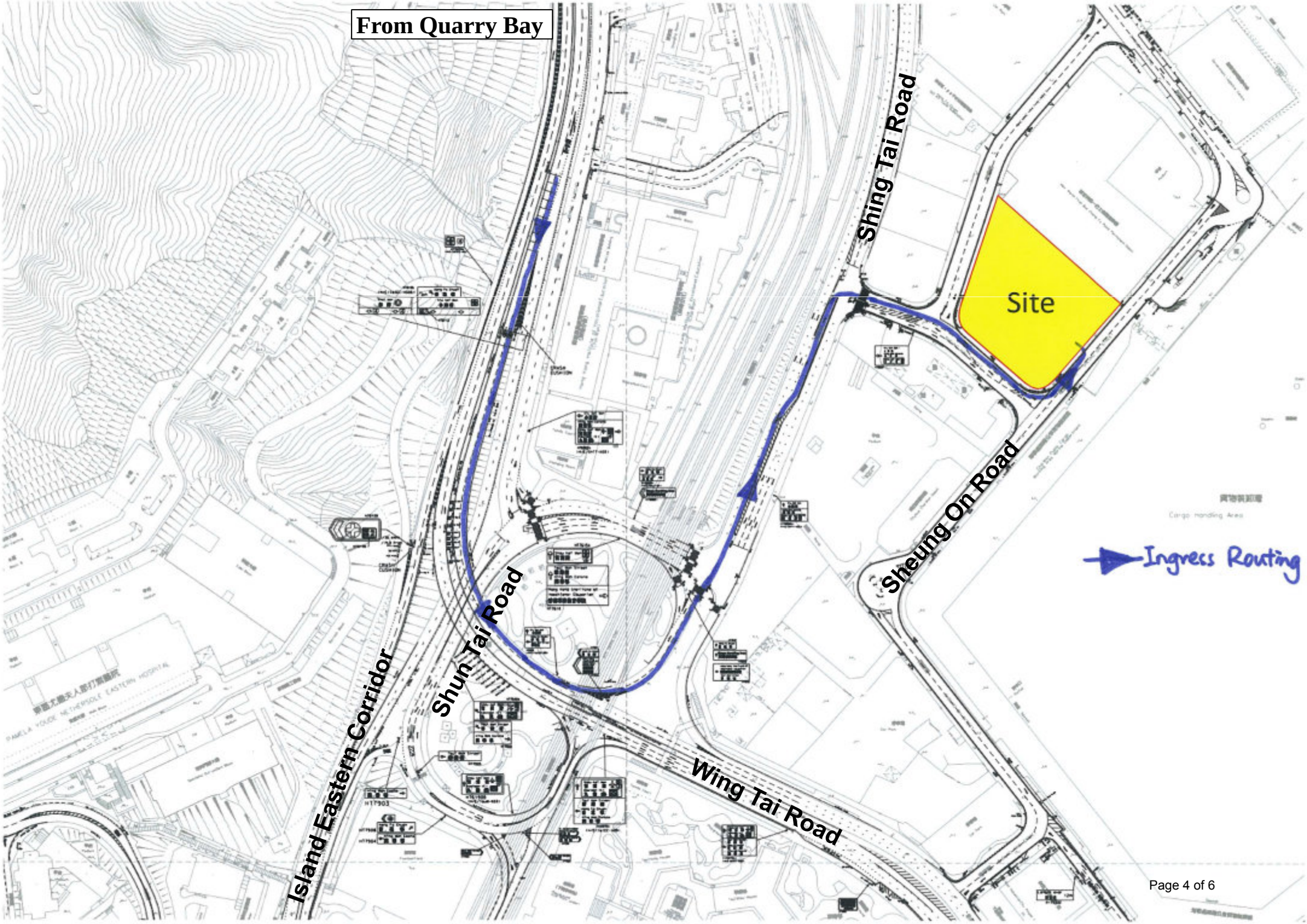
Note: HV% denotes percentage of heavy vehicles of a particular road section.

Year 2033 Traffic Forecast

Road ID	AM Peak of Proposed Project Generated Traffic (0800-0900 hrs)				PM Peak of Proposed Project Generated Traffic (1500-1600 hrs)			
	With Project		Without Project		With Project		Without Project	
	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%
1	531	48%	531	48%	518	43%	518	43%
2	611	39%	611	39%	534	47%	534	47%
3	2173	40%	2159	40%	1889	45%	1868	44%
4	1997	45%	1968	44%	1763	42%	1748	42%
5	1463	44%	1434	43%	1222	42%	1207	42%
6	1565	40%	1551	40%	1329	43%	1308	43%
7	1095	39%	1095	39%	932	46%	932	46%
8	1620	44%	1620	44%	1354	43%	1354	43%
9	1228	41%	1228	41%	1062	47%	1062	47%
10	299	32%	299	32%	316	39%	316	39%
11	1321	47%	1321	47%	1043	44%	1043	44%
12	1345	44%	1345	44%	1275	46%	1275	46%
13	409	36%	409	36%	442	38%	442	38%
14	178	24%	178	24%	108	24%	108	24%
15	63	32%	63	32%	56	43%	56	43%
16	539	52%	525	52%	476	49%	455	47%
17	246	57%	217	54%	255	53%	240	51%
18	401	52%	401	52%	355	48%	355	48%
19	156	52%	156	52%	134	57%	134	57%
20	453	43%	453	43%	408	38%	408	38%
21	166	55%	166	55%	138	57%	138	57%
22	278	56%	278	56%	283	53%	283	53%
23	114	61%	85	53%	154	54%	139	52%
24	221	64%	221	64%	222	56%	222	56%
25	280	43%	251	38%	292	40%	277	38%
26	470	41%	456	41%	399	38%	378	35%
27	127	54%	127	54%	126	56%	126	56%
28	90	63%	61	54%	121	46%	106	42%
29	130	48%	116	47%	127	50%	106	44%
30	68	71%	39	62%	85	45%	70	39%
31	43	63%	29	66%	76	66%	55	60%
32	56	68%	56	68%	43	44%	43	44%
33	21	90%	21	90%	35	89%	35	89%
34	187	50%	187	50%	144	38%	144	38%
35	142	82%	142	82%	90	71%	90	71%
36	125	60%	111	60%	135	61%	114	57%
37	97	87%	68	88%	90	66%	75	64%
38	159	57%	159	57%	153	61%	153	61%
39	107	82%	107	82%	95	64%	95	64%
40	173	51%	173	51%	272	46%	272	46%
41	150	61%	150	61%	183	60%	183	60%
42	518	46%	518	46%	566	42%	566	42%
43	75	59%	75	59%	47	68%	47	68%
44	201	66%	201	66%	266	48%	266	48%
45	939	47%	939	47%	838	51%	838	51%
46	439	62%	439	62%	378	62%	378	62%
47	77	83%	77	83%	150	35%	150	35%
48	216	79%	216	79%	169	91%	169	91%
49	105	71%	105	71%	76	76%	76	76%
50	23	61%	23	61%	37	30%	37	30%
51	111	80%	111	80%	171	44%	171	44%
52	379	55%	379	55%	324	51%	324	51%

Note: HV% denotes percentage of heavy vehicles of a particular road section.


To Quarry Bay
Shing Tai Road
Site
Sheung On Road
Egress Routing
Shun Tai Road
Island Eastern Corridor
Wing Tai Road


From Quarry Bay
Shing Tai Road
Site
Sheung On Road
Ingress Routing
Shun Tai Road
Island Eastern Corridor
Wing Tai Road

Estimation of Ingress Traffic at Proposed Chai Wan Depot (including Special Purpose Vehicles)

Time Slot	Vehicle Type									Other (Please Specify)	Total
	General Purpose Vehicle						Special Purpose Vehicle				
	Private Car	Motor Cycle	Light Bus/Large Van	Medium Van	Light Truck	Other (Please Specify)	Refuse Collection Vehicle	Street Washing Vehicle	Grab Lorry		
0600-0700	0	0	0	0	0	0	0	0	0	0	0
0700-0800	2	1	0	0	0	0	1	0	0	0	4
0800-0900	2	4	6	1	1	0	0	0	0	0	14
0900-1000	2	2	3	1	1	0	0	0	0	0	9
1000-1100	2	2	3	4	1	0	2	0	0	0	14
1100-1200	2	2	6	2	0	0	0	0	0	0	12
1200-1300	2	2	4	4	2	0	8	0	0	0	22
1300-1400	2	1	4	1	0	0	0	2	0	0	10
1400-1500	1	1	6	3	1	0	0	1	2	0	15
1500-1600	2	2	6	8	2	0	1	0	0	0	21
1600-1700	1	1	10	2	3	0	0	0	0	0	17
1700-1800	1	1	2	3	1	0	0	0	0	0	8
1800-1900	0	1	4	0	0	0	0	0	0	0	5
1900-2000	0	0	2	0	0	0	0	0	0	0	2
2000-2100	0	0	5	1	1	0	0	0	0	0	7
2100-2200	2	0	7	1	1	0	3	0	0	0	14
2200-2300	0	0	0	0	0	0	1	1	0	0	2
2300-2400	0	0	1	0	0	0	0	0	0	0	1
2400-0100	2	0	2	0	1	0	0	0	0	0	5
0100-0200	0	0	0	1	0	0	0	0	0	0	1
0200-0300	0	1	0	0	0	0	0	0	0	0	1
0300-0400	0	0	0	0	0	0	0	0	0	0	0
0400-0500	0	0	0	0	0	0	0	0	0	0	0
0500-0600	0	2	0	0	0	0	0	0	0	0	2
	23	23	71	32	15	0	16	4	2	Total	186

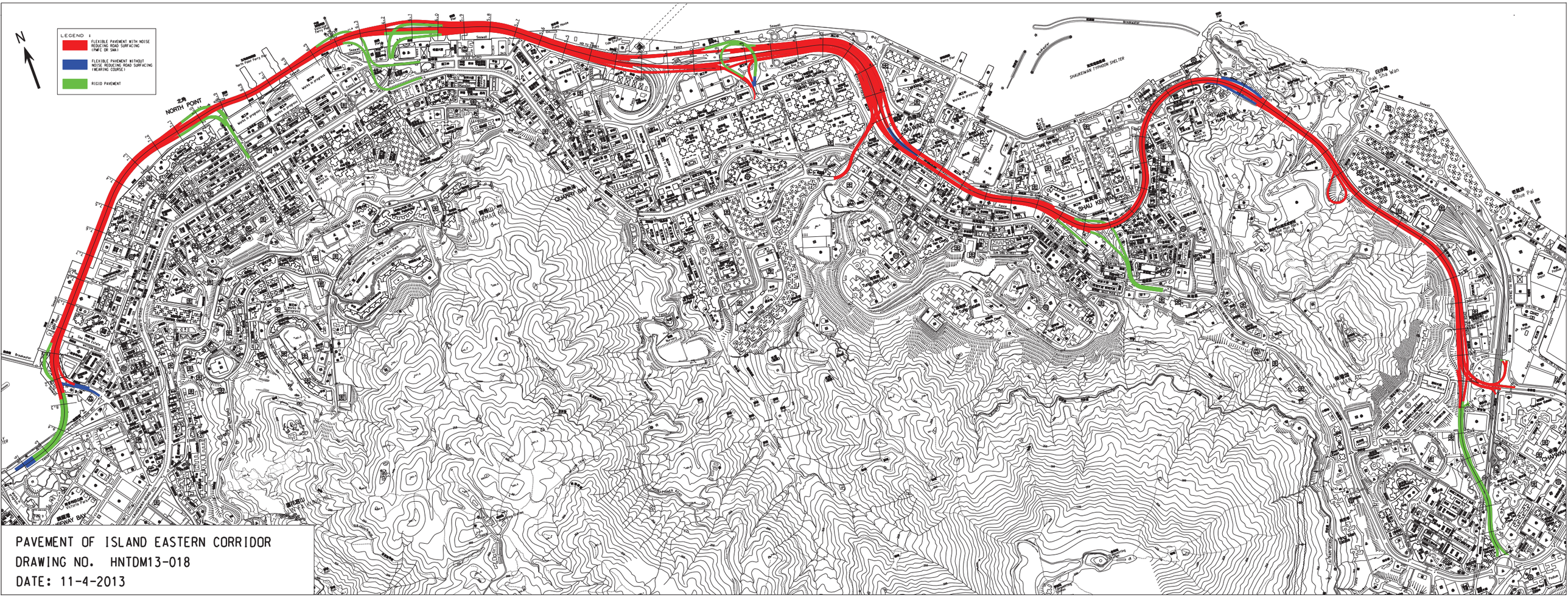
Estimation of Egress Traffic at Proposed Chai Wan Depot (including Special Purpose Vehicles)

Time Slot	Vehicle Type									Other (Please Specify)	Total
	General Purpose Vehicle						Special Purpose Vehicle				
	Private Car	Motor Cycle	Light Bus/Large Van	Medium Van	Light Truck	Other (Please Specify)	Refuse Collection Vehicle	Street Washing Vehicle	Grab Lorry		
0600-0700	0	0	1	0	0	0	7	1	0	0	9
0700-0800	5	0	10	0	1	0	0	1	0	0	17
0800-0900	3	2	13	8	3	0	0	0	0	0	29
0900-1000	2	2	7	5	2	0	0	0	0	0	18
1000-1100	2	2	3	2	2	0	0	0	0	0	11
1100-1200	2	2	6	2	0	0	0	0	0	0	12
1200-1300	2	2	1	2	0	0	0	0	0	0	7
1300-1400	1	1	5	3	3	0	1	1	0	0	15
1400-1500	1	2	6	2	0	0	0	2	0	0	13
1500-1600	2	2	4	1	1	0	4	0	1	0	15
1600-1700	2	2	3	3	0	0	0	0	0	0	10
1700-1800	1	5	3	1	2	0	0	0	0	0	12
1800-1900	0	2	0	0	0	0	0	0	0	0	2
1900-2000	0	0	0	0	0	0	0	0	0	0	0
2000-2100	0	0	2	0	0	0	0	0	0	0	2
2100-2200	0	0	2	0	1	0	0	0	0	0	3
2200-2300	0	0	0	0	0	0	0	0	0	0	0
2300-2400	0	1	0	0	0	0	0	0	0	0	1
2400-0100	0	0	0	0	0	0	0	0	0	0	0
0100-0200	3	0	0	0	0	0	0	0	0	0	3
0200-0300	0	0	0	0	0	0	0	0	0	0	0
0300-0400	0	0	0	0	0	0	0	0	0	0	0
0400-0500	0	0	0	0	0	0	0	0	0	0	0
0500-0600	0	0	0	0	0	0	0	0	0	0	0
	26	25	66	29	15	0	12	5	1	Total	179

Appendix 5.4

Location Plan Showing the Area of Island Eastern Corridor with Low Noise Road Surface

Location Plan Showing the Area of Island Eastern Corridor with Low Noise Road Surface



Appendix 5.5

Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Unmitigated Scenario)

Construction Plant Inventory for the Proposed Project (Unmitigated Scenario)

PME		TM or Other Reference	SWL, dB(A)	No. of PME	% on Time	On-Time % Correction, dB(A)	Total SWL, dB(A)		Highest SWL of Each Construction Activity, dB(A)
Activity 1 - Site Formation, Excavation and Filling									
Excavation and Filling	Air compressor, air flow > 10 m^3/min and <= 30 m^3/min	CNP 002	102	1	100%	0	102	**114**	**119**
	Excavator / loader, wheeled / tracked	CNP 081	112	1	75%	-1.2	111		
	Generator, Standard	CNP 101	108	1	100%	0	108		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	2	50%	-3.0	105		
Breaking excavated hard/ oversize materials	Breaker, hand-held, mass >= 20 kg and <= 35 kg	CNP 025	111	1	50%	-3.0	108	**115**	
	Excavator / loader, wheeled / tracked	CNP 081	112	2	75%	-1.2	114		
Ground Compression	Bulldozer	CNP 030	115	2	100%	0	118	**119**	
	Roller, vibratory	CNP 186	108	2	100%	0	111		
Activity 2 - Foundation									
General Foundation Construction	Air compressor, air flow > 30 m^3/min	CNP 003	104	1	75%	-1.2	103	**118**	**119**
	Bar bender and cutter (electric)	CNP 021	90	3	75%	-1.2	94		
	Generator	CNP 101	108	2	100%	0	111		
	Drill / grinder, hand-held (electric)	CNP 065	98	2	50%	-3.0	98		
	Saw, circular, wood	CNP 201	108	2	75%	-1.2	110		
	Water pump, submersible (electric)	CNP 283	85	3	75%	-1.2	89		
	Excavator / loader, wheeled / tracked	CNP 081	112	1	75%	-1.2	111		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		
	Lorry	CNP 141	112	1	50%	-3.0	109		
	Crane, mobile / barge mounted (diesel)	CNP 048	112	1	75%	-1.2	111		
Piling Works	Generator	CNP 101	108	1	100%	0	108	**116**	
	Piling, vibrating hammer	CNP 172	115	1	100%	0	115		
Concreting Works	Concrete lorry mixer	CNP 044	109	1	75%	-1.2	108	**119**	
	Concrete pump, stationary / lorry mounted	CNP 047	109	1	75%	-1.2	108		
	Generator	CNP 101	108	1	100%	0	108		
	Poker, vibratory, hand-held	CNP 170	113	3	100%	0.0	118		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		
	Lorry, gross vehicle weight > 38 tonne	Other [1]	112	1	50%	-3.0	109		
Activity 3 - Main Building Construction									
General construction works	Air compressor, air flow > 10 m^3/min and <= 30 m^3/min	CNP 002	102	1	75%	-1.2	101	**117**	**119**
	Bar bender and cutter (electric)	CNP 021	90	3	100%	0.0	95		
	Crane, mobile / barge mounted (diesel)	CNP 048	112	1	75%	-1.2	111		
	Crane, tower (electric)	CNP 049	95	1	100%	0.0	95		
	Drill / grinder, hand-held (electric)	CNP 065	98	1	75%	-1.2	97		
	Generator	CNP 101	108	1	100%	0	108		
	Breaker, hand-held, mass >= 20 kg and <= 35 kg	CNP 025	111	2	50%	-3.0	111		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		
	Saw, circular, wood	CNP 201	108	3	70%	-1.5	111		
Concreting works	Concrete lorry mixer	CNP 044	109	1	75%	-1.2	108	**119**	
	Concrete pump, stationary / lorry mounted	CNP 047	109	1	75%	-1.2	108		
	Generator	CNP 101	108	1	100%	0	108		
	Poker, vibratory, hand-held	CNP 170	113	3	100%	0.0	118		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		
	Lorry, gross vehicle weight > 38 tonne	Other [1]	112	1	50%	-3.0	109		
Finishing	Drill, percussive, hand-held (electric)	CNP 064	103	3	50%	-3.0	105	**118**	
	Jig-saw, hand-held wood (electric)	Other [1]	99	1	50%	-3.0	96		
	Concrete corer	CNP 042	117	2	50%	-3.0	117		
	Lorry, with crane / grab, 5.5 tonne < gross vehicle weight < 38 tonne	Other [1]	105	2	50%	-3.0	105		

Note :
[1] Reference to "Sound Power Levels of other commonly used PME"

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.5 Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Unmitigated Scenario)

Construction Plant Inventory for THEi New Campus Development

PME		TM or Other Reference	SWL, dB(A)	No. of PME	% on Time	On-Time % Correction, dB(A)	Total SWL, dB(A)		Highest SWL of Each Construction Activity, dB(A)
Activity 3 - Main Building Construction									
Interior Fitting Out and Users Moving-in	Drill, percussive, hand-held (electric)	CNP 064	103	3	50%	-3.0	105	**118**	**118**
	Jig-saw, hand-held wood (electric)	Other [1]	99	1	50%	-3.0	96		
	Concrete Corer	CNP 294	117	2	50%	-3.0	117		
	Lorry, with crane, 5.5 tonne < gross vehicle weight < 38 tonne	Other [1]	105	2	50%	-3.0	105		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		

Note :
[1] Reference to "Sound Power Levels of other commonly used PME"

Calculation of Construction Noise Level due to the proposed Project (Unmitigated Scenario)

NAP	Construction Activity	Total SWL, dB(A)	Dist. (NSR to Site Boundary) (A), m	Dist. (Site Boundary to Notional Point) (B), m	Horz. Dist. (=A+B), m	Dist. Corr., dB(A)	Façade Corr., dB(A)	Barrier Corr., dB(A) [1]	CNL, dB(A)
NAP 101	Site Formation, Excavation and Filling	119	300	36	336	-59	3	0	63
NAP 201	Site Formation, Excavation and Filling	119	145	19	164	-52	3	0	70
NAP 202	Site Formation, Excavation and Filling	119	248	2	250	-56	3	-10	56
NAP 301	Site Formation, Excavation and Filling	119	160	19	179	-53	3	-10	59
NAP 401	Site Formation, Excavation and Filling	119	345	17	362	-59	3	0	63
NAP 501	Site Formation, Excavation and Filling	119	340	19	359	-59	3	0	63
NAP 601	Site Formation, Excavation and Filling	119	375	17	392	-60	3	0	62
NAP 701	Site Formation, Excavation and Filling	119	380	17	397	-60	3	0	62
NAP 801	Site Formation, Excavation and Filling	119	200	17	217	-55	3	0	67
NAP 802	Site Formation, Excavation and Filling	119	260	17	277	-57	3	-10	55
NAP 101	Foundation	119	300	36	336	-59	3	0	63
NAP 201	Foundation	119	145	19	164	-52	3	0	70
NAP 202	Foundation	119	248	19	267	-57	3	-10	55
NAP 301	Foundation	119	160	19	179	-53	3	-10	59
NAP 401	Foundation	119	345	17	362	-59	3	0	63
NAP 501	Foundation	119	340	19	359	-59	3	0	63
NAP 601	Foundation	119	375	17	392	-60	3	0	62
NAP 701	Foundation	119	380	17	397	-60	3	0	62
NAP 801	Foundation	119	200	17	217	-55	3	0	67
NAP 802	Foundation	119	260	17	277	-57	3	-10	55
NAP 101	Main Building Construction	119	300	36	336	-59	3	0	63
NAP 201	Main Building Construction	119	145	19	164	-52	3	0	70
NAP 202	Main Building Construction	119	248	19	267	-57	3	-10	55
NAP 301	Main Building Construction	119	160	19	179	-53	3	-10	59
NAP 401	Main Building Construction	119	345	17	362	-59	3	0	63
NAP 501	Main Building Construction	119	340	19	359	-59	3	0	63
NAP 601	Main Building Construction	119	375	17	392	-60	3	0	62
NAP 701	Main Building Construction	119	380	17	397	-60	3	0	62
NAP 801	Main Building Construction	119	200	17	217	-55	3	0	67
NAP 802	Main Building Construction	119	260	17	277	-57	3	-10	55

[1] Attenuation of -10 dB(A) is applied to the NSR(s) that does not have a direct line of sight of the Project site.

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.5 Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Unmitigated Scenario)

Calculation of Construction Noise Level due to Concurrent Project - THEi New Campus Development (Unmitigated Scenario)

NAP	Construction Activity	Total SWL, dB(A)	Dist. (NSR to Site Boundary) (A), m	Dist. (Site Boundary to Notional Point) (B), m	Horz. Dist. (=A+B), m	Dist. Corr., dB(A)	Façade Corr., dB(A)	Barrier Corr., dB(A) [1]	CNL, dB(A)
NAP 101	Interior Fitting Out and Users Moving-in	118	505	23	528	-62	3	0	59
NAP 201	Interior Fitting Out and Users Moving-in	118	179	14	193	-54	3	0	67
NAP 202	Interior Fitting Out and Users Moving-in	118	213	8	221	-55	3	-10	56
NAP 301	Interior Fitting Out and Users Moving-in	118	240	14	254	-56	3	0	65
NAP 401	Interior Fitting Out and Users Moving-in	118	104	9	113	-49	3	0	72
NAP 501	Interior Fitting Out and Users Moving-in	118	121	9	130	-50	3	0	71
NAP 601	Interior Fitting Out and Users Moving-in	118	210	8	218	-55	3	0	66
NAP 701	Interior Fitting Out and Users Moving-in	118	86	15	101	-48	3	0	73

[1] Attenuation of -10 dB(A) is applied to the NSR(s) that does not have a direct line of sight of the Project site.

Predicted Monthly Construction Noise Levels due to the Proposed Project (Unmitigated Scenario)

Project	Activities/ Month/Year	2016						2017												2018										
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Chai Wan Vehicle Depot	Site formation, Excavation and Filling	■	■	■	■																									
	Foundation					■	■	■	■	■	■	■	■																	
	Main Building Construction													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
THEi New Campus	Interior Fitting Out and Users Moving-in	■	■																											

Construction Programme with Predicted Noise Level	NSR		Monthly Construction Noise Level at Each Noise Assessment Point (dB(A)) (Overall)																																Max	Min
The Project (CNL)	NAP 101	Heng Fa Chuen Block 50	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
	NAP 201	HK IVE (Chai Wan) - Academic Block	**70**	70	70	70	70	70	**70**	70	**70**	**70**	**70**	**70**	**70**	70	70	70	70	70	**70**	70	**70**	**70**	**70**	**70**	**70**	70	70	70	70	70	70	70
	NAP 202	HK IVE (Chai Wan) - Academic Block	56	56	56	56	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	56	55
	NAP 301	Knight Court Flat C & D	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
	NAP 401	Tsui Shou House, Tsui Wan Estate	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
	NAP 601	Tsui Fuk House, Tsui Wan Estate	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
	NAP 701	Tsui Hong House, Tsui Wan Estate	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
	NAP 801	Proposed THEi New Campus in Chai Wan			67	67	67	67	**67**	67	**67**	**67**	**67**	**67**	**67**	67	67	67	67	67	**67**	67	**67**	**67**	**67**	**67**	**67**	67	67	67	67	67	67	67
	NAP 802	Proposed THEi New Campus in Chai Wan			55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
THEi New Campus (CNL)	NAP 101	Heng Fa Chuen Block 50	59	59																														
	NAP 201	HK IVE (Chai Wan) - Academic Block	**67**	67																														
	NAP 202	HK IVE (Chai Wan) - Academic Block	56	56																														
	NAP 301	Knight Court Flat C & D	65	65																														
	NAP 401	Tsui Shou House, Tsui Wan Estate	72	72																														
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	**71**	**71**																														
	NAP 601	Tsui Fuk House, Tsui Wan Estate	66	66																														
	NAP 701	Tsui Hong House, Tsui Wan Estate	73	73																														
	NAP 801	Proposed THEi New Campus in Chai Wan (N/A)																																
	NAP 802	Proposed THEi New Campus in Chai Wan (N/A)																															**Max**	**Min**
Overall (CNL)	NAP 101	Heng Fa Chuen Block 50	64	64	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	64	63
	NAP 201	HK IVE (Chai Wan) - Academic Block	**72**	**72**	70	70	70	70	**70**	70	**70**	**70**	**70**	**70**	**70**	70	70	70	70	70	**70**	70	**70**	**70**	**70**	**70**	**70**	70	70	70	70	72	70
	NAP 202	HK IVE (Chai Wan) - Academic Block	59	59	56	56	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	59	55
	NAP 301	Knight Court Flat C & D	66	66	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	66	59
	NAP 401	Tsui Shou House, Tsui Wan Estate	72	72	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	72	63
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	**71**	**71**	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	71	63
	NAP 601	Tsui Fuk House, Tsui Wan Estate	67	67	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	67	62
	NAP 701	Tsui Hong House, Tsui Wan Estate	73	73	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	73	62
	NAP 801	Proposed THEi New Campus in Chai Wan			67	67	67	67	**67**	67	**67**	**67**	**67**	**67**	**67**	67	67	67	67	67	**67**	67	**67**	**67**	**67**	**67**	**67**	67	67	67	67	67	67
	NAP 802	Proposed THEi New Campus in Chai Wan			55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
CNL Standard	NAP 101	Heng Fa Chuen Block 50	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
	NAP 201	HK IVE (Chai Wan) - Academic Block	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70			
	NAP 202	HK IVE (Chai Wan) - Academic Block	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70			
	NAP 301	Knight Court Flat C & D	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
	NAP 401	Tsui Shou House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
	NAP 601	Tsui Fuk House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
	NAP 701	Tsui Hong House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
	NAP 801	Proposed THEi New Campus in Chai Wan			70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70			
	NAP 802	Proposed THEi New Campus in Chai Wan			70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70			

Note: Noise Level(s) exceeding the construction noise criteria is / are **bolded**.

NSR 8 is a planned educational institution and no examination schedule can be obtained at the time of preparation of this study. It is assumed that the examination schedules for NSR 2 and NSR 8 are the same.

Appendix 5.6

Detailed Calculation of Fixed Plant Noise Impact Assessment

Summary of Fixed Plant

						Daytime and Evening							Night-time						
Noise Type	**Source ID**	**Items**	**Plant Room ID / Activity ID**	**Plant Rooms**	**Maximum Allowable SWL, dB(A)**	**Quantity / Max concurrent works, nos.**	**Operation Frequency, nos./ 30 mins**	**Operation Duration per event**	**Percentage on-time over 30 mins**	**Correction for tonality, dB(A)**	**Correction for impulsiveness, dB(A)**	**Correction for intermittency, dB(A)**	**Quantity / Max concurrent works, nos.**	**Operation Frequency, nos./ 30 mins**	**Operation Duration per event**	**Percentage on-time over 30 mins**	**Correction for tonality, dB(A)**	**Correction for impulsiveness, dB(A)**	**Correction for intermittency, dB(A)**
MVAC and Other Fixed Noise Sources	S1	Water Pumps	1F_PR 1	Chiller Pump Room	85	2	--	--	100%	6	0	0	1	--	--	100%	6	0	0
	S2	Exhaust Fans	1F_PR 1	Chiller Pump Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S3	General Exhaust Fans	1F_PR 2	Exhaust Fan Room	85	5	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S4	Compressors	1F_PR 3	Compressor Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S5	Exhaust Fans	1F_PR 3	Compressor Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S6	Transformers	1F_PR 4	Transformer Room	85	2	--	--	100%	6	0	0	2	--	--	100%	6	0	0
	S7	Exhaust Fans	1F_PR 4	Transformer Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S8	Transferred Water Pumps	1F_PR 5	Transferred Tank Pump Room	85	2	--	--	100%	6	0	0	2	--	--	100%	6	0	0
	S9	Exhaust Fans	1F_PR 5	Transferred Tank Pump Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S10	Generator (operations during power failure / maintenance)	2F_PR 1	Generator Room	85	2	--	--	100%	0	0	0	2	--	--	100%	0	0	0
	S11	Exhaust Fans	2F_PR 1	Generator Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S12	Compressors	3F_PR 1	Compressor Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S13	Exhaust Fans	3F_PR 1	Compressor Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S14	Water Pumps	3F_PR 2	F.S. Pump Room	85	1	--	--	100%	6	0	0	1	--	--	100%	6	0	0
	S15	Exhaust Fans	3F_PR 2	F.S. Pump Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S16	General Exhaust Fans	3MF_PR 1	Exhaust Fan Room	85	5	--	--	100%	0	0	0	2	--	--	100%	0	0	0
	S17	PAU	3MF_PR 2	PAU Room 1	85	2	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S18	Exhaust Fans	3MF_PR 2	PAU Room 1	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S19	Chiller Plant	4F_PR 1	Chiller Plant Room	85	2	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S20	Exhaust Fans	4F_PR 1	Chiller Plant Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S21	Water Pumps	4F_PR 2	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	85	2	--	--	100%	6	0	0	2	--	--	100%	6	0	0
	S22	Exhaust Fans	4F_PR 2	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S23	Exhaust Fans	5F_PR 1	Battery Charging Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S24	General Exhaust Fans	5F_PR 2	Exhaust Fan Room	85	4	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S25	Welding Exhaust Fans	5F_PR 2	Exhaust Fan Room	85	2	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S26	Exhaust Fans	5F_PR 2	Exhaust Fan Room	85	3	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S27	Exhaust Fans	6F_PR 1	TBE Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S28	PAU	6F_PR 2	PAU Room 2	85	5	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S29	AHU	6F_PR 3	AHU Room	85	1	--	--	100%	0	0	0	0	--	--	0%	0	0	0
	S30	Lift Machine	RF_PR 1	Lift Machine Room	85	3	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S31	Exhaust Fans	RF_PR 1	Lift Machine Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S32	Water Pumps	RF_PR 2	Portable Flushing and Makeup Water Pump Room	85	3	--	--	100%	6	0	0	3	--	--	100%	6	0	0
	S33	Exhaust Fans	RF_PR 2	Portable Flushing and Makeup Water Pump Room	85	1	--	--	100%	0	0	0	1	--	--	100%	0	0	0
	S34	Cooling towers	RF_PR 3	Cooling Tower Plant Room	100	2	--	--	100%	0	0	0	1	--	--	100%	0	0	0
Vehicle Repair / Testing Activities	S35	Brake Test Strip	1F_Act 1	L1 HKPF	Refer to App.5.9	1	3	0.5	5%	0	0	0	1	1	0.5	2%	0	0	0
	S36	Hand-held Pneumatic Tools	1F_Act 3	L1 HKPF	100	1	4	0.5	7%	0	0	0	1	1	0.5	2%	0	0	0
	S37	Hammering Activities	1F_Act 4	L1 HKPF	113	3	1	2	7%	0	3	0	1	1	2	7%	0	3	0
	S38	Automatic Vehicle Washing Machine	4F_Act 5	FEHD	88	1	4	2	27%	0	0	0	1	4	2	27%	0	0	0
	S39	Motorcycle Speedometer Calibrator	5F_Act 6	EMSD Dept	112	1	1	1	3%	0	0	0	0	0	1	0%	0	0	0
	S40	Tyre Changer	5F_Act 7	EMSD Dept	98	1	4	2	27%	0	0	0	0	0	2	0%	0	0	0
	S41	Hammering Activities	5F_Act 8	EMSD Dept	113	4	1	2	7%	0	3	0	0	0	2	0%	0	3	0
	S42	Hand-held Pneumatic Tools	5F_Act 9	EMSD Dept	100	4	1	4	13%	0	0	0	0	0	4	0%	0	0	0
	S43	Roller Brake Tester	5F_Act 10	EMSD Dept	99	1	3	0.5	5%	0	0	0	0	0	0.5	0%	0	0	0
	S44	Motorcycle Brake Tester	5F_Act 11	EMSD Dept	99	1	3	2	20%	0	0	0	0	0	2	0%	0	0	0
	S45	Roller Brake Tester	1F_Act 12	L1 HKPF	99	1	3	2	20%	0	0	0	1	1	2	7%	0	0	0

Remark:

[1] The quantities of vehicle repair / testing facilities and fixed plant had been verified with the future users. The maximum nos. of concurrent operations of vehicle repair/ testing activities would be dictated by the quantities of facilities/ tools equipped in the proposed project.
[2] A correction of -10 dB(A) was adopted if the external louvres and fixed plant were totally screened by barriers or buildings outside the project or building structures of the project. A correction of -5 dB(A) was applied to the fixed noise sources within plant rooms (other than ventilation fans, transformers, generators, PAUs and chillers).
[3] For the correction for tonality of the plant, as information is not available, +6 dB(A) for tonality correction was applied to water pumps and transformers as a conservative assumption in this assessment.
[4] +3 dB(A) for impulsiveness correction was applied to the hammering activities in both daytime and nighttime.
[5] Sound Exposure Level (SEL) for the brake test strip (S35) is measured on site to obtain the equivalent Sound Pressure Level (Leq(30min)) for the assessment. The measurement result is shown in Appendix 5.9.
[6] SWL for the motorcycle speedometer calibrator is adopted from approved EIA report for EMSD Hong Kong Workshop at Sheung On Street, Chai Wan (AEIAR-202/2012).
[7] SWLs for hand-held pneumatic tools, hammering activities, automatic vehicle washing machine, tyre changer, roller brake tester and motocycled brake tester are adopted from approved EIA report for Reprovisioning of FEHD Sai Yee Street Environmental Hygiene Offices-cum-vehicle Depot at Yen Ming Road, West Kowloon Reclamation Area (AEIAR-216/2013)
[8] The operation duration and frequency of the vehicle repair / testing activities had been obtained from, verified with and confirmed by the future users. The on-time % had been taken into consideration of daily operation needs, time requirements for preparation and setting up of each activity.
[9] Correction Factor for quantity= 10 log (quantity)
[10] Distance correction for SWL= 20 log (distance) + 8
[11] Correction for percentage on-time over 30 mins = 10 log (on-time %)
[12] Detailed design of the plant rooms is not yet available at this stage.
[13] The maximum allowable SWLs for louvres/ equipment were determined by adopting standard acoustics principles. The following formula was used for calculating the SPLs at NSRs =
SPL= Max SWL+DC+FC+BC+OC+TC+IMC+INTC
SPL Sound Pressure Level (dB(A))
Max SWL Maximum allowable Sound Power Level (dB(A))
DC Distance Attenuation (dB(A))
FC Façade Correction (dB(A))
BC Barrier Correction (dB(A))
OC Percentage on-time Correction (dB(A))
TC Correction for Tonality (dB(A))
IMC Correction for Impulsiveness (dB(A))
INTC Correction for Intermittency (dB(A))
The SWL of the equipment shall not exceed the specified Maximum Allowable SWL in order to achieve the noise criteria. Acoustic treatment would be installed as appropriate to achieve the required SWL.
[14] All maximum allowable SWLs are rounded to the nearest whole dB(A).
[15] Hammers will be used by the vehicle examiners at the HKPF PVP&EC to test if the screw is loosen or to assist dismantling parts of the detained vehicles for testing only. No maintenance or repair services for the detained vehicles will be involved.
[16] As the maximum allowable SWLs were adopted, which the SWL of each equipment may be lower in actual case. The predicted noise level represents a conservative estimation.

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 101 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	351.8	-58.9	0	-5	-5	3	6	0	0	3.0	0	33.1	57
NAP 101 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	360.5	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 101 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	385.8	-59.7	0	-10	-10	3	0	0	0	7.0	0	25.3	
NAP 101 1F	Compressor Room	S4	Compressors	1	85	100%	402.4	-60.1	0	-10	-10	3	0	0	0	0	0	17.9	
NAP 101 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	408.7	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 101 1F	Transformer Room	S6	Transformers	2	85	100%	408.7	-60.2	0	-10	-10	3	6	0	0	3.0	0	26.8	
NAP 101 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	408.7	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 101 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	408.7	-60.2	-10	0	-10	3	6	0	0	3.0	0	26.8	
NAP 101 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	408.7	-60.2	-10	0	-10	3	0	0	0	0	0	17.8	
NAP 101 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	414.0	-60.3	0	-10	-10	3	0	0	0	3.0	0	20.7	
NAP 101 1F	Generator Room	S11	Exhaust Fans	1	85	100%	534.9	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 1F	Compressor Room	S12	Compressors	1	85	100%	389.7	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	391.1	-59.8	0	-10	-10	3	6	0	0	0	0	24.2	
NAP 101 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	393.5	-59.9	0	-10	-10	3	0	0	0	7.0	0	25.1	
NAP 101 1F	PAU Room 1	S17	PAU	2	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	415.7	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	420.6	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	420.6	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	420.6	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	337.9	-58.6	0	0	0	3	0	0	0	0	0	29.4	
NAP 101 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	420.9	-60.5	0	-10	-10	3	0	0	0	6.0	0	23.5	
NAP 101 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	420.9	-60.5	0	-10	-10	3	0	0	0	3.0	0	20.5	
NAP 101 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	420.9	-60.5	0	-10	-10	3	0	0	0	4.8	0	22.3	
NAP 101 1F	TBE Room	S27	Exhaust Fans	1	85	100%	393.4	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 1F	PAU Room 2	S28	PAU	5	85	100%	421.4	-60.5	0	-10	-10	3	0	0	0	7.0	0	24.5	
NAP 101 1F	AHU Room	S29	AHU	1	85	100%	381.9	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 101 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	351.5	-58.9	0	-5	-5	3	0	0	0	4.8	0	28.9	
NAP 101 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	355.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	392.7	-59.9	0	-10	-10	3	6	0	0	4.8	0	29.0	
NAP 101 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	392.7	-59.9	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	392.7	-59.9	0	0	0	3	0	0	0	3.0	0	46.1	
NAP 101 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	370.7	-59.4	0	0	0	3	0	0	0	0	-11.8	31.8	
NAP 101 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	375.8	-59.5	0	0	0	3	0	3	0	4.8	-11.8	52.5	
NAP 101 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	373.0	-59.4	0	0	0	3	0	0	0	0	-5.7	25.9	
NAP 101 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	403.8	-60.1	0	0	0	3	0	0	0	0	-14.8	40.1	
NAP 101 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	403.1	-60.1	0	0	0	3	0	0	0	0	-5.7	40.7	
NAP 101 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	377.6	-59.5	0	0	0	3	0	3	0	6.0	-11.8	54.1	
NAP 101 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	391.0	-59.8	0	0	0	3	0	0	0	6.0	-8.8	40.5	
NAP 101 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	340.2	-58.6	0	0	0	3	0	0	0	0	-13.0	30.4	
NAP 101 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	391.0	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 101 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	376.0	-59.5	0	0	0	3	0	0	0	0	-7.0	35.5	
NAP 101 10F	Chiller Pump Room	S1	Water Pumps	2	85	100%	353.1	-59.0	0	-5	-5	3	6	0	0	3.0	0	33.0	57
NAP 101 10F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	361.8	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 101 10F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	387.0	-59.8	0	-10	-10	3	0	0	0	7.0	0	25.2	
NAP 101 10F	Compressor Room	S4	Compressors	1	85	100%	403.6	-60.1	0	-10	-10	3	0	0	0	0	0	17.9	
NAP 101 10F	Compressor Room	S5	Exhaust Fans	1	85	100%	409.9	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 10F	Transformer Room	S6	Transformers	2	85	100%	409.9	-60.3	0	-10	-10	3	6	0	0	3.0	0	26.7	
NAP 101 10F	Transformer Room	S7	Exhaust Fans	1	85	100%	409.9	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 10F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	409.9	-60.3	-10	0	-10	3	6	0	0	3.0	0	26.7	
NAP 101 10F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	409.9	-60.3	-10	0	-10	3	0	0	0	0	0	17.7	
NAP 101 10F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	414.6	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 10F	Generator Room	S11	Exhaust Fans	1	85	100%	535.7	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 10F	Compressor Room	S12	Compressors	1	85	100%	389.9	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 10F	Compressor Room	S13	Exhaust Fans	1	85	100%	391.4	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 10F	F.S. Pump Room	S14	Water Pumps	1	85	100%	391.4	-59.9	0	-10	-10	3	6	0	0	0	0	24.1	
NAP 101 10F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	391.4	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 10F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	393.4	-59.9	0	-10	-10	3	0	0	0	7.0	0	25.1	
NAP 101 10F	PAU Room 1	S17	PAU	2	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 10F	PAU Room 1	S18	Exhaust Fans	1	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 10F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	415.4	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 10F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	420.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 10F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	420.3	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 10F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	420.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 10F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	337.0	-58.6	0	0	0	3	0	0	0	0	0	29.4	
NAP 101 10F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	420.2	-60.5	0	-10	-10	3	0	0	0	6.0	0	23.5	
NAP 101 10F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	420.2	-60.5	0	-10	-10	3	0	0	0	3.0	0	20.5	
NAP 101 10F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	420.2	-60.5	0	-10	-10	3	0	0	0	4.8	0	22.3	
NAP 101 10F	TBE Room	S27	Exhaust Fans	1	85	100%	392.2	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 10F	PAU Room 2	S28	PAU	5	85	100%	420.2	-60.5	0	-10	-10	3	0	0	0	7.0	0	24.5	
NAP 101 10F	AHU Room	S29	AHU	1	85	100%	380.6	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 101 10F	Lift Machine Room	S30	Lift Machine	3	85	100%	349.8	-58.9	0	-5	-5	3	0	0	0	4.8	0	28.9	
NAP 101 10F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	353.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 10F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	391.1	-59.8	0	-10	-10	3	6	0	0	4.8	0	29.0	
NAP 101 10F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 10F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	391.1	-59.8	0	0	0	3	0	0	0	3.0	0	46.2	
NAP 101 10F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	371.9	-59.4	0	0	0	3	0	0	0	0	-11.8	31.8	
NAP 101 10F	L1 HKPF	S37	Hammering Activities	3	113	7%	377.0	-59.5	0	0	0	3	0	3	0	4.8	-11.8	52.5	
NAP 101 10F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	372.6	-59.4	0	0	0	3	0	0	0	0	-5.7	25.9	
NAP 101 10F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	403.1	-60.1	0	0	0	3	0	0	0	0	-14.8	40.1	
NAP 101 10F	EMSD Dept	S40	Tyre Changer	1	98	27%	377.6	-59.5	0	0	0	3	0	0	0	0	-5.7	35.8	
NAP 101 10F	EMSD Dept	S41	Hammering Activities	4	113	7%	362.3	-59.2	0	0	0	3	0	3	0	6.0	-11.8	54.1	
NAP 101 10F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	389.4	-59.8	0	0	0	3	0	0	0	6.0	-8.8	40.5	
NAP 101 10F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	338.3	-58.6	0	0	0	3	0	0	0	0	-13.0	30.4	
NAP 101 10F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	389.4	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 101 10F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	374.4	-59.5	0	0	0	3	0	0	0	0	-7.0	35.5	
NAP 101 21F	Chiller Pump Room	S1	Water Pumps	2	85	100%	357.5	-59.1	0	-5	-5	3	6	0	0	3.0	0	32.9	57
NAP 101 21F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	366.0	-59.3	0	0	0	3	0	0	0	0	0	28.7	
NAP 101 21F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	391.0	-59.8	0	-10	-10	3	0	0	0	7.0	0	25.2	
NAP 101 21F	Compressor Room	S4	Compressors	1	85	100%	407.4	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 101 21F	Compressor Room	S5	Exhaust Fans	1	85	100%	413.6	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 21F	Transformer Room	S6	Transformers	2	85	100%	413.6	-60.3	0	-10	-10	3	6	0	0	3.0	0	26.7	
NAP 101 21F	Transformer Room	S7	Exhaust Fans	1	85	100%	413.6	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 21F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	413.6	-60.3	-10	0	-10	3	6	0	0	3.0	0	26.7	
NAP 101 21F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	413.6	-60.3	-10	0	-10	3	0	0	0	0	0	17.7	
NAP 101 21F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	417.7	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 21F	Generator Room	S11	Exhaust Fans	1	85	100%	538.5	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 21F	Compressor Room	S12	Compressors	1	85	100%	392.7	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	Compressor Room	S13	Exhaust Fans	1	85	100%	394.1	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	F.S. Pump Room	S14	Water Pumps	1	85	100%	394.1	-59.9	0	-10	-10	3	6	0	0	0	0	24.1	
NAP 101 21F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	394.1	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	395.9	-60.0	0	-10	-10	3	0	0	0	7.0	0	25.0	
NAP 101 21F	PAU Room 1	S17	PAU	2	85	100%	418.1	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 21F	PAU Room 1	S18	Exhaust Fans	1	85	100%	418.1	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 21F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	417.4	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 21F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	422.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 21F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	422.3	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 21F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	422.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 21F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	338.9	-58.6	0	0	0	3	0	0	0	0	0	29.4	
NAP 101 21F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	421.7	-60.5	0	-10	-10	3	0	0	0	6.0	0	23.5	
NAP 101 21F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	421.7	-60.5	0	-10	-10	3	0	0	0	3.0	0	20.5	
NAP 101 21F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	421.7	-60.5	0	-10	-10	3	0	0	0	4.8	0	22.3	
NAP 101 21F	TBE Room	S27	Exhaust Fans	1	85	100%	393.2	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	PAU Room 2	S28	PAU	5	85	100%	421.2	-60.5	0	-10	-10	3	0	0	0	7.0	0	24.5	
NAP 101 21F	AHU Room	S29	AHU	1	85	100%	381.6	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 101 21F	Lift Machine Room	S30	Lift Machine	3	85	100%	350.4	-58.9	0	-5	-5	3	0	0	0	4.8	0	28.9	
NAP 101 21F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	354.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 21F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	391.7	-59.9	0	-10	-10	3	6	0	0	4.8	0	28.9	
NAP 101 21F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	391.7	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	391.7	-59.9	0	0	0	3	0	0	0	3.0	0	46.1	
NAP 101 21F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	376.1	-59.5	0	0	0	3	0	0	0	0	-11.8	31.7	
NAP 101 21F	L1 HKPF	S37	Hammering Activities	3	113	7%	381.1	-59.6	0	0	0	3	0	3	0	4.8	-11.8	52.4	
NAP 101 21F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	374.9	-59.5	0	0	0	3	0	0	0	0	-5.7	25.8	
NAP 101 21F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	404.6	-60.1	0	0	0	3	0	0	0	0	-14.8	40.1	
NAP 101 21F	EMSD Dept	S40	Tyre Changer	1	98	27%	379.3	-59.6	0	0	0	3	0	0	0	0	-5.7	35.7	
NAP 101 21F	EMSD Dept	S41	Hammering Activities	4	113	7%	364.0	-59.2	0	0	0	3	0	3	0	6.0	-11.8	54.1	
NAP 101 21F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	391.0	-59.8	0	0	0	3	0	0	0	6.0	-8.8	40.5	
NAP 101 21F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	340.2	-58.6	0	0	0	3	0	0	0	0	-13.0	30.4	
NAP 101 21F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	391.0	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 101 21F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	376.0	-59.5	0	0	0	3	0	0	0	0	-7.0	35.5	

(Night-time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 101 1F	Chiller Pump Room	S1	Water Pumps	1	85	100%	351.8	-58.9	0	-5	-5	3	6	0	0	0	0	30.1	49
NAP 101 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	360.5	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 101 1F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	385.8	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 101 1F	Compressor Room	S4	Compressors	0	85	0%	402.4	-60.1	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Compressor Room	S5	Exhaust Fans	0	85	0%	408.7	-60.2	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Transformer Room	S6	Transformers	2	85	100%	408.7	-60.2	0	-10	-10	3	6	0	0	3.0	0	26.8	
NAP 101 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	408.7	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 101 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	408.7	-60.2	-10	0	-10	3	6	0	0	3.0	0	26.8	
NAP 101 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	408.7	-60.2	-10	0	-10	3	0	0	0	0	0	17.8	
NAP 101 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	414.0	-60.3	0	-10	-10	3	0	0	0	3.0	0	20.7	
NAP 101 1F	Generator Room	S11	Exhaust Fans	1	85	100%	534.9	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 1F	Compressor Room	S12	Compressors	0	85	0%	389.7	-59.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Compressor Room	S13	Exhaust Fans	0	85	0%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	391.1	-59.8	0	-10	-10	3	6	0	0	0	0	24.2	
NAP 101 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 1F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	393.5	-59.9	0	-10	-10	3	0	0	0	3.0	0	21.1	
NAP 101 1F	PAU Room 1	S17	PAU	1	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 1F	PAU Room 1	S18	Exhaust Fans	0	85	0%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	415.7	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	420.6	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	420.6	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	420.6	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 1F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	337.9	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	420.9	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	420.9	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	420.9	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	TBE Room	S27	Exhaust Fans	0	85	0%	393.4	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	PAU Room 2	S28	PAU	0	85	0%	421.4	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	AHU Room	S29	AHU	0	85	0%	381.9	-59.6	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 1F	Lift Machine Room	S30	Lift Machine	1	85	100%	351.5	-58.9	0	-5	-5	3	0	0	0	0	0	24.1	
NAP 101 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	355.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	2	85	100%	392.7	-59.9	0	-10	-10	3	6	0	0	3.0	0	26.7	
NAP 101 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	392.7	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 1F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	392.7	-59.9	0	0	0	3	0	0	0	0	0	43.1	
NAP 101 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	370.7	-59.4	0	0	0	3	0	0	0	0	-17.8	25.8	
NAP 101 1F	L1 HKPF	S37	Hammering Activities	1	113	7%	375.8	-59.5	0	0	0	3	0	3	0	0	-11.8	47.7	
NAP 101 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	373.0	-59.4	0	0	0	3	0	0	0	0	-6	25.9	
NAP 101 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	403.1	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	EMSD Dept	S40	Tyre Changer	0	98	0%	377.6	-59.5	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	EMSD Dept	S41	Hammering Activities	0	113	0%	362.3	-59.2	0	0	0	3	0	3	0	0	0	0.0	
NAP 101 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	389.4	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	338.3	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	389.4	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 1F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	374.4	-59.5	0	0	0	3	0	0	0	0	-11.8	30.7	
NAP 101 10F	Chiller Pump Room	S1	Water Pumps	1	85	100%	353.1	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	49
NAP 101 10F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	361.8	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 101 10F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	387.0	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 10F	Compressor Room	S4	Compressors	0	85	0%	403.6	-60.1	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Compressor Room	S5	Exhaust Fans	0	85	0%	409.9	-60.3	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Transformer Room	S6	Transformers	2	85	100%	409.9	-60.3	0	-10	-10	3	6	0	0	3.0	0	26.7	
NAP 101 10F	Transformer Room	S7	Exhaust Fans	1	85	100%	409.9	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 10F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	409.9	-60.3	-10	0	-10	3	6	0	0	3.0	0	26.7	
NAP 101 10F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	409.9	-60.3	-10	0	-10	3	0	0	0	0	0	17.7	
NAP 101 10F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	414.6	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 10F	Generator Room	S11	Exhaust Fans	1	85	100%	535.7	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 10F	Compressor Room	S12	Compressors	0	85	0%	389.9	-59.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Compressor Room	S13	Exhaust Fans	0	85	0%	391.4	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	F.S. Pump Room	S14	Water Pumps	1	85	100%	391.4	-59.9	0	-10	-10	3	6	0	0	0	0	24.1	
NAP 101 10F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	391.4	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 10F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	393.4	-59.9	0	-10	-10	3	0	0	0	3.0	0	21.1	
NAP 101 10F	PAU Room 1	S17	PAU	1	85	100%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 10F	PAU Room 1	S18	Exhaust Fans	0	85	0%	415.8	-60.4	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	415.4	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 10F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	420.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 10F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	420.3	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 10F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	420.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 10F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	337.0	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	420.2	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	420.2	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	420.2	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	TBE Room	S27	Exhaust Fans	0	85	0%	392.2	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	PAU Room 2	S28	PAU	0	85	0%	420.2	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	AHU Room	S29	AHU	0	85	0%	380.6	-59.6	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 10F	Lift Machine Room	S30	Lift Machine	1	85	100%	349.8	-58.9	0	-5	-5	3	0	0	0	0	0	24.1	
NAP 101 10F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	353.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 10F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	391.1	-59.8	0	-10	-10	3	6	0	0	4.8	0	29.0	
NAP 101 10F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	391.1	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 10F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	391.1	-59.8	0	0	0	3	0	0	0	0	0	43.2	
NAP 101 10F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	371.9	-59.4	0	0	0	3	0	0	0	0	-17.8	25.8	
NAP 101 10F	L1 HKPF	S37	Hammering Activities	1	113	7%	377.0	-59.5	0	0	0	3	0	3	0	0	-11.8	47.7	
NAP 101 10F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	372.6	-59.4	0	0	0	3	0	0	0	0	-6	25.9	
NAP 101 10F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	403.1	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	EMSD Dept	S40	Tyre Changer	0	98	0%	377.6	-59.5	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	EMSD Dept	S41	Hammering Activities	0	113	0%	362.3	-59.2	0	0	0	3	0	3	0	0	0	0.0	
NAP 101 10F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	389.4	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	338.3	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	389.4	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 10F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	374.4	-59.5	0	0	0	3	0	0	0	0	-11.8	30.7	
NAP 101 21F	Chiller Pump Room	S1	Water Pumps	1	85	100%	357.5	-59.1	0	-5	-5	3	6	0	0	0	0	29.9	49
NAP 101 21F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	366.0	-59.3	0	0	0	3	0	0	0	0	0	28.7	
NAP 101 21F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	391.0	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 101 21F	Compressor Room	S4	Compressors	0	85	0%	407.4	-60.2	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Compressor Room	S5	Exhaust Fans	0	85	0%	413.6	-60.3	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Transformer Room	S6	Transformers	2	85	100%	413.6	-60.3	0	-10	-10	3	6	0	0	3.0	0	26.7	
NAP 101 21F	Transformer Room	S7	Exhaust Fans	1	85	100%	413.6	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 101 21F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	413.6	-60.3	-10	0	-10	3	6	0	0	3.0	0	26.7	
NAP 101 21F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	413.6	-60.3	-10	0	-10	3	0	0	0	0	0	17.7	
NAP 101 21F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	417.7	-60.4	0	-10	-10	3	0	0	0	3.0	0	20.6	
NAP 101 21F	Generator Room	S11	Exhaust Fans	1	85	100%	538.5	-62.6	0	-10	-10	3	0	0	0	0	0	15.4	
NAP 101 21F	Compressor Room	S12	Compressors	0	85	0%	392.7	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Compressor Room	S13	Exhaust Fans	0	85	0%	394.1	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	F.S. Pump Room	S14	Water Pumps	1	85	100%	394.1	-59.9	0	-10	-10	3	6	0	0	0	0	24.1	
NAP 101 21F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	394.1	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	395.9	-60.0	0	-10	-10	3	0	0	0	3.0	0	21.0	
NAP 101 21F	PAU Room 1	S17	PAU	1	85	100%	418.1	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 21F	PAU Room 1	S18	Exhaust Fans	0	85	0%	418.1	-60.4	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	417.4	-60.4	0	-10	-10	3	0	0	0	0	0	17.6	
NAP 101 21F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	422.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 21F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	422.3	-60.5	0	-10	-10	3	6	0	0	3.0	0	26.5	
NAP 101 21F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	422.3	-60.5	0	-10	-10	3	0	0	0	0	0	17.5	
NAP 101 21F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	338.9	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	421.7	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	421.7	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	421.7	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	TBE Room	S27	Exhaust Fans	0	85	0%	393.2	-59.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	PAU Room 2	S28	PAU	0	85	0%	421.2	-60.5	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	AHU Room	S29	AHU	0	85	0%	381.6	-59.6	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 101 21F	Lift Machine Room	S30	Lift Machine	1	85	100%	350.4	-58.9	0	-5	-5	3	0	0	0	0	0	24.1	
NAP 101 21F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	354.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 101 21F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	391.7	-59.9	0	-10	-10	3	6	0	0	4.8	0	28.9	
NAP 101 21F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	391.7	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 101 21F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	391.7	-59.9	0	0	0	3	0	0	0	0	0	43.1	
NAP 101 21F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	376.1	-59.5	0	0	0	3	0	0	0	0	-17.8	25.7	
NAP 101 21F	L1 HKPF	S37	Hammering Activities	1	113	7%	381.1	-59.6	0	0	0	3	0	3	0	0	-11.8	47.6	
NAP 101 21F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	374.9	-59.5	0	0	0	3	0	0	0	0	-6	25.8	
NAP 101 21F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	404.6	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	EMSD Dept	S40	Tyre Changer	0	98	0%	379.3	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	EMSD Dept	S41	Hammering Activities	0	113	0%	364.0	-59.2	0	0	0	3	0	3	0	0	0	0.0	
NAP 101 21F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	391.0	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	340.2	-58.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	391.0	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 101 21F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	376.0	-59.5	0	0	0	3	0	0	0	0	-11.8	30.7	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 201 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	148.9	-51.5	0	-5	-5	3	6	0	0	3.0	0	40.5	63
NAP 201 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	146.7	-51.3	0	0	0	3	0	0	0	0	0	36.7	
NAP 201 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	161.9	-52.2	0	0	0	3	0	0	0	7.0	0	42.8	
NAP 201 1F	Compressor Room	S4	Compressors	1	85	100%	186.5	-53.4	0	-5	-5	3	0	0	0	0	0	29.6	
NAP 201 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	192.0	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 1F	Transformer Room	S6	Transformers	2	85	100%	192.0	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	192.0	-53.7	0	-10	-10	3	0	0	0	0	0	24.3	
NAP 201 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	192.0	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	192.0	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	213.4	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 1F	Generator Room	S11	Exhaust Fans	1	85	100%	252.9	-56.1	0	0	0	3	0	0	0	0	0	31.9	
NAP 201 1F	Compressor Room	S12	Compressors	1	85	100%	173.6	-52.8	0	-5	-5	3	0	0	0	0	0	30.2	
NAP 201 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	168.2	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	168.2	-52.5	0	-5	-5	3	6	0	0	0	0	36.5	
NAP 201 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	168.2	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	172.1	-52.7	0	0	0	3	0	0	0	7.0	0	42.3	
NAP 201 1F	PAU Room 1	S17	PAU	2	85	100%	213.1	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	213.1	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	211.7	-54.5	0	0	0	3	0	0	0	3.0	0	36.5	
NAP 201 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	214.0	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	214.0	-54.6	0	-10	-10	3	6	0	0	3.0	0	32.4	
NAP 201 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	214.0	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	151.2	-51.6	0	0	0	3	0	0	0	0	0	36.4	
NAP 201 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	214.7	-54.6	0	0	0	3	0	0	0	6.0	0	39.4	
NAP 201 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	214.7	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	214.7	-54.6	0	0	0	3	0	0	0	4.8	0	38.2	
NAP 201 1F	TBE Room	S27	Exhaust Fans	1	85	100%	173.3	-52.8	0	0	0	3	0	0	0	0	0	35.2	
NAP 201 1F	PAU Room 2	S28	PAU	5	85	100%	215.7	-54.7	0	0	0	3	0	0	0	7.0	0	40.3	
NAP 201 1F	AHU Room	S29	AHU	1	85	100%	227.4	-55.1	0	-10	-10	3	0	0	0	0	0	22.9	
NAP 201 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	151.5	-51.6	0	-5	-5	3	0	0	0	4.8	0	36.2	
NAP 201 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	151.6	-51.6	0	0	0	3	0	0	0	0	0	36.4	
NAP 201 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	172.1	-52.7	0	-5	-5	3	6	0	0	4.8	0	41.1	
NAP 201 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	172.1	-52.7	0	0	0	3	0	0	0	0	0	35.3	
NAP 201 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	172.1	-52.7	0	0	0	3	0	0	0	3.0	0	53.3	
NAP 201 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	165.8	-52.4	0	0	0	3	0	0	0	0	-11.8	38.8	
NAP 201 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	212.7	-54.6	0	0	0	3	0	3	0	4.8	-11.8	57.4	
NAP 201 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	188.4	-53.5	0	0	0	3	0	0	0	0	-6	31.8	
NAP 201 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	199.5	-54.0	0	0	0	3	0	0	0	0	-14.8	46.2	
NAP 201 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	158.0	-52.0	0	0	0	3	0	0	0	0	-5.7	43.3	
NAP 201 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	204.0	-54.2	0	0	0	3	0	3	0	6.0	-11.8	59.1	
NAP 201 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	173.4	-52.8	0	0	0	3	0	0	0	6.0	-8.8	47.5	
NAP 201 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	178.3	-53.0	0	0	0	3	0	0	0	0	-13.0	36.0	
NAP 201 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	173.4	-52.8	0	0	0	3	0	0	0	0	-7.0	42.2	
NAP 201 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	152.3	-51.7	0	0	0	3	0	0	0	0	-7.0	43.3	
NAP 201 3F	Chiller Pump Room	S1	Water Pumps	2	85	100%	149.1	-51.5	0	-5	-5	3	6	0	0	3.0	0	40.5	63
NAP 201 3F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	146.9	-51.3	0	0	0	3	0	0	0	0	0	36.7	
NAP 201 3F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	162.1	-52.2	0	0	0	3	0	0	0	7.0	0	42.8	
NAP 201 3F	Compressor Room	S4	Compressors	1	85	100%	186.7	-53.4	0	-5	-5	3	0	0	0	0	0	29.6	
NAP 201 3F	Compressor Room	S5	Exhaust Fans	1	85	100%	192.2	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 3F	Transformer Room	S6	Transformers	2	85	100%	192.2	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 3F	Transformer Room	S7	Exhaust Fans	1	85	100%	192.2	-53.7	0	-10	-10	3	0	0	0	0	0	24.3	
NAP 201 3F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	192.2	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 3F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	192.2	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 3F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	213.3	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 3F	Generator Room	S11	Exhaust Fans	1	85	100%	253.0	-56.1	0	0	0	3	0	0	0	0	0	31.9	
NAP 201 3F	Compressor Room	S12	Compressors	1	85	100%	173.2	-52.8	0	-5	-5	3	0	0	0	0	0	30.2	
NAP 201 3F	Compressor Room	S13	Exhaust Fans	1	85	100%	167.9	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 3F	F.S. Pump Room	S14	Water Pumps	1	85	100%	167.9	-52.5	0	-5	-5	3	6	0	0	0	0	36.5	
NAP 201 3F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	167.9	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 3F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	171.6	-52.7	0	0	0	3	0	0	0	7.0	0	42.3	
NAP 201 3F	PAU Room 1	S17	PAU	2	85	100%	212.7	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 3F	PAU Room 1	S18	Exhaust Fans	1	85	100%	212.7	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 3F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	211.2	-54.5	0	0	0	3	0	0	0	3.0	0	36.5	
NAP 201 3F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	213.5	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 3F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	213.5	-54.6	0	-10	-10	3	6	0	0	3.0	0	32.4	
NAP 201 3F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	213.5	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 3F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	150.2	-51.5	0	0	0	3	0	0	0	0	0	36.5	
NAP 201 3F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	214.0	-54.6	0	0	0	3	0	0	0	6.0	0	39.4	
NAP 201 3F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	214.0	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 3F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	214.0	-54.6	0	0	0	3	0	0	0	4.8	0	38.2	
NAP 201 3F	TBE Room	S27	Exhaust Fans	1	85	100%	172.2	-52.7	0	0	0	3	0	0	0	0	0	35.3	
NAP 201 3F	PAU Room 2	S28	PAU	5	85	100%	214.8	-54.6	0	0	0	3	0	0	0	7.0	0	40.4	
NAP 201 3F	AHU Room	S29	AHU	1	85	100%	226.6	-55.1	0	-10	-10	3	0	0	0	0	0	22.9	
NAP 201 3F	Lift Machine Room	S30	Lift Machine	3	85	100%	150.1	-51.5	0	-5	-5	3	0	0	0	4.8	0	36.3	
NAP 201 3F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	150.1	-51.5	0	0	0	3	0	0	0	0	0	36.5	
NAP 201 3F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	170.9	-52.7	0	-5	-5	3	6	0	0	4.8	0	41.1	
NAP 201 3F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	170.9	-52.7	0	0	0	3	0	0	0	0	0	35.3	
NAP 201 3F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	170.9	-52.7	0	0	0	3	0	0	0	3.0	0	53.3	
NAP 201 3F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	165.9	-52.4	0	0	0	3	0	0	0	0	-11.8	38.8	
NAP 201 3F	L1 HKPF	S37	Hammering Activities	3	113	7%	212.8	-54.6	0	0	0	3	0	3	0	4.8	-11.8	57.4	
NAP 201 3F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	187.8	-53.5	0	0	0	3	0	0	0	0	-6	31.8	
NAP 201 3F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	198.8	-54.0	0	0	0	3	0	0	0	0	-14.8	46.2	
NAP 201 3F	EMSD Dept	S40	Tyre Changer	1	98	27%	157.1	-51.9	0	0	0	3	0	0	0	0	-5.7	43.4	
NAP 201 3F	EMSD Dept	S41	Hammering Activities	4	113	7%	203.3	-54.2	0	0	0	3	0	3	0	6.0	-11.8	59.1	
NAP 201 3F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	172.5	-52.7	0	0	0	3	0	0	0	6.0	-8.8	47.6	
NAP 201 3F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	177.5	-53.0	0	0	0	3	0	0	0	0	-13.0	36.0	
NAP 201 3F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	172.5	-52.7	0	0	0	3	0	0	0	0	-7.0	42.3	
NAP 201 3F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	151.4	-51.6	0	0	0	3	0	0	0	0	-7.0	43.4	
NAP 201 6F	Chiller Pump Room	S1	Water Pumps	2	85	100%	149.8	-51.5	0	-5	-5	3	6	0	0	3.0	0	40.5	63
NAP 201 6F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	147.6	-51.4	0	0	0	3	0	0	0	0	0	36.6	
NAP 201 6F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	162.7	-52.2	0	0	0	3	0	0	0	7.0	0	42.8	
NAP 201 6F	Compressor Room	S4	Compressors	1	85	100%	187.3	-53.5	0	-5	-5	3	0	0	0	0	0	29.5	
NAP 201 6F	Compressor Room	S5	Exhaust Fans	1	85	100%	192.7	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 6F	Transformer Room	S6	Transformers	2	85	100%	192.7	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 6F	Transformer Room	S7	Exhaust Fans	1	85	100%	192.7	-53.7	0	-10	-10	3	0	0	0	0	0	24.3	
NAP 201 6F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	192.7	-53.7	0	-10	-10	3	6	0	0	3.0	0	33.3	
NAP 201 6F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	192.7	-53.7	0	0	0	3	0	0	0	0	0	34.3	
NAP 201 6F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	213.5	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 6F	Generator Room	S11	Exhaust Fans	1	85	100%	253.4	-56.1	0	0	0	3	0	0	0	0	0	31.9	
NAP 201 6F	Compressor Room	S12	Compressors	1	85	100%	173.1	-52.8	0	-5	-5	3	0	0	0	0	0	30.2	
NAP 201 6F	Compressor Room	S13	Exhaust Fans	1	85	100%	167.7	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 6F	F.S. Pump Room	S14	Water Pumps	1	85	100%	167.7	-52.5	0	-5	-5	3	6	0	0	0	0	36.5	
NAP 201 6F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	167.7	-52.5	0	0	0	3	0	0	0	0	0	35.5	
NAP 201 6F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	171.3	-52.7	0	0	0	3	0	0	0	7.0	0	42.3	
NAP 201 6F	PAU Room 1	S17	PAU	2	85	100%	212.4	-54.5	0	0	0	3	0	0	0	3.0	0	36.5	
NAP 201 6F	PAU Room 1	S18	Exhaust Fans	1	85	100%	212.4	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 201 6F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	210.7	-54.5	0	0	0	3	0	0	0	3.0	0	36.5	
NAP 201 6F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	213.1	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 6F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	213.1	-54.6	0	-10	-10	3	6	0	0	3.0	0	32.4	
NAP 201 6F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	213.1	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 201 6F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	149.2	-51.5	0	0	0	3	0	0	0	0	0	36.5	
NAP 201 6F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	213.3	-54.6	0	0	0	3	0	0	0	6.0	0	39.4	
NAP 201 6F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	213.3	-54.6	0	0	0	3	0	0	0	3.0	0	36.4	
NAP 201 6F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	213.3	-54.6	0	0	0	3	0	0	0	4.8	0	38.2	
NAP 201 6F	TBE Room	S27	Exhaust Fans	1	85	100%	171.0	-52.7	0	0	0	3	0	0	0	0	0	35.3	
NAP 201 6F	PAU Room 2	S28	PAU	5	85	100%	213.8	-54.6	0	0	0	3	0	0	0	7.0	0	40.4	
NAP 201 6F	AHU Room	S29	AHU	1	85	100%	225.6	-55.1	0	-10	-10	3	0	0	0	0	0	22.9	
NAP 201 6F	Lift Machine Room	S30	Lift Machine	3	85	100%	148.4	-51.4	0	-5	-5	3	0	0	0	4.8	0	36.4	
NAP 201 6F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	148.5	-51.4	0	0	0	3	0	0	0	0	0	36.6	
NAP 201 6F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	169.4	-52.6	0	-5	-5	3	6	0	0	4.8	0	41.2	
NAP 201 6F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	169.4	-52.6	0	0	0	3	0	0	0	0	0	35.4	
NAP 201 6F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	169.4	-52.6	0	0	0	3	0	0	0	3.0	0	53.4	
NAP 201 6F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	166.6	-52.4	0	0	0	3	0	0	0	0	-11.8	38.8	
NAP 201 6F	L1 HKPF	S37	Hammering Activities	3	113	7%	213.3	-54.6	0	0	0	3	0	3	0	4.8	-11.8	57.4	
NAP 201 6F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	187.3	-53.5	0	0	0	3	0	0	0	0	-6	31.8	
NAP 201 6F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	198.0	-53.9	0	0	0	3	0	0	0	0	-14.8	46.3	
NAP 201 6F	EMSD Dept	S40	Tyre Changer	1	98	27%	156.2	-51.9	0	0	0	3	0	0	0	0	-5.7	43.4	
NAP 201 6F	EMSD Dept	S41	Hammering Activities	4	113	7%	202.5	-54.1	0	0	0	3	0	3	0	6.0	-11.8	59.2	
NAP 201 6F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	171.7	-52.7	0	0	0	3	0	0	0	6.0	-8.8	47.6	
NAP 201 6F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	176.6	-52.9	0	0	0	3	0	0	0	0	-13.0	36.1	
NAP 201 6F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	171.7	-52.7	0	0	0	3	0	0	0	0	-7.0	42.3	
NAP 201 6F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	150.4	-51.5	0	0	0	3	0	0	0	0	-7.0	43.5	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 202 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	254.9	-56.1	-10	0	-10	3	6	0	0	3.0	0	30.9	49
NAP 202 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	251.2	-56.0	-10	0	-10	3	0	0	0	0	0	22.0	
NAP 202 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	262.2	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 202 1F	Compressor Room	S4	Compressors	1	85	100%	285.4	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 202 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	290.0	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 202 1F	Transformer Room	S6	Transformers	2	85	100%	290.0	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 202 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	290.0	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 202 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	290.0	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 202 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	290.0	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 202 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	312.7	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 1F	Generator Room	S11	Exhaust Fans	1	85	100%	395.3	-59.9	-10	0	-10	3	0	0	0	0	0	18.1	
NAP 202 1F	Compressor Room	S12	Compressors	1	85	100%	273.9	-56.8	-10	0	-10	3	0	0	0	0	0	21.2	
NAP 202 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	267.6	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	267.6	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 202 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	267.6	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	271.3	-56.7	-10	0	-10	3	0	0	0	7.0	0	28.3	
NAP 202 1F	PAU Room 1	S17	PAU	2	85	100%	311.7	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	311.7	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	310.1	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 202 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	311.5	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	311.5	-57.9	-10	0	-10	3	6	0	0	3.0	0	29.1	
NAP 202 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	311.5	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	257.9	-56.2	-10	0	-10	3	0	0	0	0	0	21.8	
NAP 202 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	312.0	-57.9	-10	0	-10	3	0	0	0	6.0	0	26.1	
NAP 202 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	312.0	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	312.0	-57.9	-10	0	-10	3	0	0	0	4.8	0	24.9	
NAP 202 1F	TBE Room	S27	Exhaust Fans	1	85	100%	271.6	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 202 1F	PAU Room 2	S28	PAU	5	85	100%	312.7	-57.9	-10	0	-10	3	0	0	0	7.0	0	27.1	
NAP 202 1F	AHU Room	S29	AHU	1	85	100%	332.2	-58.4	-10	0	-10	3	0	0	0	0	0	19.6	
NAP 202 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	255.6	-56.2	-10	0	-10	3	0	0	0	4.8	0	26.6	
NAP 202 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	255.1	-56.1	-10	0	-10	3	0	0	0	0	0	21.9	
NAP 202 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	270.1	-56.6	-10	0	-10	3	6	0	0	4.8	0	32.2	
NAP 202 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	270.1	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 202 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	270.1	-56.6	-10	0	-10	3	0	0	0	3.0	0	39.4	
NAP 202 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	269.5	-56.6	-10	0	-10	3	0	0	0	0	-11.8	24.6	
NAP 202 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	318.3	-58.1	-10	0	-10	3	0	3	0	4.8	-11.8	43.9	
NAP 202 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	292.7	-57.3	-10	0	-10	3	0	0	0	0	-5.7	18.0	
NAP 202 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	298	-57.5	-10	0	-10	3	0	0	0	0	-14.8	32.7	
NAP 202 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	258.2	-56.2	-10	0	-10	3	0	0	0	0	-5.7	29.1	
NAP 202 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	309.1	-57.8	-10	0	-10	3	0	3	0	6.0	-11.8	45.5	
NAP 202 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	271.9	-56.7	-10	0	-10	3	0	0	0	6.0	-8.8	33.6	
NAP 202 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	285.1	-57.1	-10	0	-10	3	0	0	0	0	-13.0	21.9	
NAP 202 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	272.1	-56.7	-10	0	-10	3	0	0	0	0	-7.0	28.3	
NAP 202 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	253.3	-56.1	-10	0	-10	3	0	0	0	0	-7.0	28.9	
NAP 202 3F	Chiller Pump Room	S1	Water Pumps	2	85	100%	255	-56.1	-10	0	-10	3	6	0	0	3.0	0	30.9	49
NAP 202 3F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	251	-56.0	-10	0	-10	3	0	0	0	0	0	22.0	
NAP 202 3F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	262	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 202 3F	Compressor Room	S4	Compressors	1	85	100%	286	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 202 3F	Compressor Room	S5	Exhaust Fans	1	85	100%	290	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 3F	Transformer Room	S6	Transformers	2	85	100%	290	-57.3	-10	0	-10	3	6	0	0	3.0	0	29.7	
NAP 202 3F	Transformer Room	S7	Exhaust Fans	1	85	100%	290	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 3F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	290	-57.3	-10	0	-10	3	6	0	0	3.0	0	29.7	
NAP 202 3F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	290	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 3F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	313	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 3F	Generator Room	S11	Exhaust Fans	1	85	100%	395	-59.9	-10	0	-10	3	0	0	0	0	0	18.1	
NAP 202 3F	Compressor Room	S12	Compressors	1	85	100%	274	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 202 3F	Compressor Room	S13	Exhaust Fans	1	85	100%	267	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 3F	F.S. Pump Room	S14	Water Pumps	1	85	100%	267	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 202 3F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	267	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 3F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	271	-56.7	-10	0	-10	3	0	0	0	7.0	0	28.3	
NAP 202 3F	PAU Room 1	S17	PAU	2	85	100%	312	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 3F	PAU Room 1	S18	Exhaust Fans	1	85	100%	312	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 3F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	310	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 202 3F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	311	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 3F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	311	-57.9	-10	0	-10	3	6	0	0	3.0	0	29.1	
NAP 202 3F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	311	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 3F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	257	-56.2	-10	0	-10	3	0	0	0	0	0	21.8	
NAP 202 3F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	312	-57.9	-10	0	-10	3	0	0	0	6.0	0	26.1	
NAP 202 3F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	312	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 3F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	312	-57.9	-10	0	-10	3	0	0	0	4.8	0	24.9	
NAP 202 3F	TBE Room	S27	Exhaust Fans	1	85	100%	271	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 202 3F	PAU Room 2	S28	PAU	5	85	100%	312	-57.9	-10	0	-10	3	0	0	0	7.0	0	27.1	
NAP 202 3F	AHU Room	S29	AHU	1	85	100%	332	-58.4	-10	0	-10	3	0	0	0	0	0	19.6	
NAP 202 3F	Lift Machine Room	S30	Lift Machine	3	85	100%	255	-56.1	-10	0	-10	3	0	0	0	4.8	0	26.7	
NAP 202 3F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	254	-56.1	-10	0	-10	3	0	0	0	0	0	21.9	
NAP 202 3F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	269	-56.6	-10	0	-10	3	6	0	0	4.8	0	32.2	
NAP 202 3F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	269	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 202 3F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	269	-56.6	-10	0	-10	3	0	0	0	3.0	0	39.4	
NAP 202 3F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	270	-56.6	-10	0	-10	3	0	0	0	0	-11.8	24.6	
NAP 202 3F	L1 HKPF	S37	Hammering Activities	3	113	7%	318	-58.1	-10	0	-10	3	0	3	0	4.8	-11.8	43.9	
NAP 202 3F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	292	-57.3	-10	0	-10	3	0	0	0	0	-5.7	18.0	
NAP 202 3F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	298	-57.5	-10	0	-10	3	0	0	0	0	-14.8	32.7	
NAP 202 3F	EMSD Dept	S40	Tyre Changer	1	98	27%	258	-56.2	-10	0	-10	3	0	0	0	0	-5.7	29.1	
NAP 202 3F	EMSD Dept	S41	Hammering Activities	4	113	7%	310	-57.8	-10	0	-10	3	0	3	0	6.0	-11.8	45.5	
NAP 202 3F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	272	-56.7	-10	0	-10	3	0	0	0	6.0	-8.8	33.6	
NAP 202 3F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	285	-57.1	-10	0	-10	3	0	0	0	0	-13.0	21.9	
NAP 202 3F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	272	-56.7	-10	0	-10	3	0	0	0	0	-7.0	28.3	
NAP 202 3F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	253	-56.1	-10	0	-10	3	0	0	0	0	-7.0	28.9	
NAP 202 6F	Chiller Pump Room	S1	Water Pumps	2	85	100%	255	-56.1	-10	0	-10	3	6	0	0	3.0	0	30.9	49
NAP 202 6F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	252	-56.0	-10	0	-10	3	0	0	0	0	0	22.0	
NAP 202 6F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	263	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 202 6F	Compressor Room	S4	Compressors	1	85	100%	286	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 202 6F	Compressor Room	S5	Exhaust Fans	1	85	100%	291	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 6F	Transformer Room	S6	Transformers	2	85	100%	291	-57.3	-10	0	-10	3	6	0	0	3.0	0	29.7	
NAP 202 6F	Transformer Room	S7	Exhaust Fans	1	85	100%	291	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 6F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	291	-57.3	-10	0	-10	3	6	0	0	3.0	0	29.7	
NAP 202 6F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	291	-57.3	-10	0	-10	3	0	0	0	0	0	20.7	
NAP 202 6F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	313	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 6F	Generator Room	S11	Exhaust Fans	1	85	100%	396	-59.9	-10	0	-10	3	0	0	0	0	0	18.1	
NAP 202 6F	Compressor Room	S12	Compressors	1	85	100%	274	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 202 6F	Compressor Room	S13	Exhaust Fans	1	85	100%	267	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 6F	F.S. Pump Room	S14	Water Pumps	1	85	100%	267	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 202 6F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	267	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 202 6F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	271	-56.7	-10	0	-10	3	0	0	0	7.0	0	28.3	
NAP 202 6F	PAU Room 1	S17	PAU	2	85	100%	311	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 6F	PAU Room 1	S18	Exhaust Fans	1	85	100%	311	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 6F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	309	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 202 6F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	311	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 6F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	311	-57.9	-10	0	-10	3	6	0	0	3.0	0	29.1	
NAP 202 6F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	311	-57.9	-10	0	-10	3	0	0	0	0	0	20.1	
NAP 202 6F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	257	-56.2	-10	0	-10	3	0	0	0	0	0	21.8	
NAP 202 6F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	311	-57.9	-10	0	-10	3	0	0	0	6.0	0	26.1	
NAP 202 6F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	311	-57.9	-10	0	-10	3	0	0	0	3.0	0	23.1	
NAP 202 6F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	311	-57.9	-10	0	-10	3	0	0	0	4.8	0	24.9	
NAP 202 6F	TBE Room	S27	Exhaust Fans	1	85	100%	270	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 202 6F	PAU Room 2	S28	PAU	5	85	100%	311	-57.9	-10	0	-10	3	0	0	0	7.0	0	27.1	
NAP 202 6F	AHU Room	S29	AHU	1	85	100%	331	-58.4	-10	0	-10	3	0	0	0	0	0	19.6	
NAP 202 6F	Lift Machine Room	S30	Lift Machine	3	85	100%	254	-56.1	-10	0	-10	3	0	0	0	4.8	0	26.7	
NAP 202 6F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	253	-56.1	-10	0	-10	3	0	0	0	0	0	21.9	
NAP 202 6F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	268	-56.6	-10	0	-10	3	6	0	0	4.8	0	32.2	
NAP 202 6F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	268	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 202 6F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	268	-56.6	-10	0	-10	3	0	0	0	3.0	0	39.4	
NAP 202 6F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	270	-56.6	-10	0	-10	3	0	0	0	0	-11.8	24.6	
NAP 202 6F	L1 HKPF	S37	Hammering Activities	3	113	7%	319	-58.1	-10	0	-10	3	0	3	0	4.8	-11.8	43.9	
NAP 202 6F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	292	-57.3	-10	0	-10	3	0	0	0	0	-5.7	18.0	
NAP 202 6F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	298	-57.5	-10	0	-10	3	0	0	0	0	-14.8	32.7	
NAP 202 6F	EMSD Dept	S40	Tyre Changer	1	98	27%	258	-56.2	-10	0	-10	3	0	0	0	0	-5.7	29.1	
NAP 202 6F	EMSD Dept	S41	Hammering Activities	4	113	7%	309	-57.8	-10	0	-10	3	0	3	0	6.0	-11.8	45.5	
NAP 202 6F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	272	-56.7	-10	0	-10	3	0	0	0	6.0	-8.8	33.6	
NAP 202 6F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	285	-57.1	-10	0	-10	3	0	0	0	0	-13.0	21.9	
NAP 202 6F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	272	-56.7	-10	0	-10	3	0	0	0	0	-7.0	28.3	
NAP 202 6F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	252	-56.0	-10	0	-10	3	0	0	0	0	-7.0	29.0	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 301 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	229.8	-55.2	-10	0	-10	3	6	0	0	3.0	0	31.8	50
NAP 301 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	232.1	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	254.0	-56.1	-10	0	-10	3	0	0	0	7.0	0	28.9	
NAP 301 1F	Compressor Room	S4	Compressors	1	85	100%	278.7	-56.9	-10	0	-10	3	0	0	0	0	0	21.1	
NAP 301 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 301 1F	Transformer Room	S6	Transformers	2	85	100%	285.1	-57.1	-10	0	-10	3	6	0	0	3.0	0	29.9	
NAP 301 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 301 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	285.1	-57.1	-10	0	-10	3	6	0	0	3.0	0	29.9	
NAP 301 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 301 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	302.8	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 1F	Generator Room	S11	Exhaust Fans	1	85	100%	372.4	-59.4	-10	0	-10	3	0	0	0	0	0	18.6	
NAP 301 1F	Compressor Room	S12	Compressors	1	85	100%	263.9	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	260.5	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	260.5	-56.3	-10	0	-10	3	6	0	0	0	0	27.7	
NAP 301 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	260.5	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	264.1	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 301 1F	PAU Room 1	S17	PAU	2	85	100%	303.0	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	303.0	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	301.7	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	305.2	-57.7	-10	0	-10	3	6	0	0	3.0	0	29.3	
NAP 301 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	223.8	-55.0	-10	0	-10	3	0	0	0	0	0	23.0	
NAP 301 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	305.6	-57.7	-10	0	-10	3	0	0	0	6.0	0	26.3	
NAP 301 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	305.6	-57.7	-10	0	-10	3	0	0	0	3.0	0	23.3	
NAP 301 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	305.6	-57.7	-10	0	-10	3	0	0	0	4.8	0	25.1	
NAP 301 1F	TBE Room	S27	Exhaust Fans	1	85	100%	264.1	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 1F	PAU Room 2	S28	PAU	5	85	100%	306.3	-57.7	-10	0	-10	3	0	0	0	7.0	0	27.3	
NAP 301 1F	AHU Room	S29	AHU	1	85	100%	300.5	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	229.6	-55.2	-10	0	-10	3	0	0	0	4.8	0	27.6	
NAP 301 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	231.4	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	262.6	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 301 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	262.6	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	262.6	-56.4	-10	0	-10	3	0	0	0	3.0	0	39.6	
NAP 301 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	250.7	-56.0	-10	0	-10	3	0	0	0	0	-11.8	25.2	
NAP 301 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	288.0	-57.2	-10	0	-10	3	0	3	0	4.8	-11.8	44.8	
NAP 301 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	268.0	-56.6	-10	0	-10	3	0	0	0	0	-5.7	18.7	
NAP 301 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	288.1	-57.2	-10	0	-10	3	0	0	0	0	-14.8	33.0	
NAP 301 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	247.2	-55.9	-10	0	-10	3	0	0	0	0	-5.7	29.4	
NAP 301 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	275.5	-56.8	-10	0	-10	3	0	3	0	6.0	-11.8	46.5	
NAP 301 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	263.3	-56.4	-10	0	-10	3	0	0	0	6.0	-8.8	33.9	
NAP 301 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	245.4	-55.8	-10	0	-10	3	0	0	0	0	-13.0	23.2	
NAP 301 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	245.4	-55.8	-10	0	-10	3	0	0	0	0	-7.0	29.3	
NAP 301 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	241.5	-55.7	-10	0	-10	3	0	0	0	0	-7.0	29.3	
NAP 301 12F	Chiller Pump Room	S1	Water Pumps	2	85	100%	232.9	-55.3	-10	0	-10	3	6	0	0	3.0	0	31.7	50
NAP 301 12F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	235.2	-55.4	-10	0	-10	3	0	0	0	0	0	22.6	
NAP 301 12F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	256.8	-56.2	-10	0	-10	3	0	0	0	7.0	0	28.8	
NAP 301 12F	Compressor Room	S4	Compressors	1	85	100%	281.2	-57.0	-10	0	-10	3	0	0	0	0	0	21.0	
NAP 301 12F	Compressor Room	S5	Exhaust Fans	1	85	100%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 12F	Transformer Room	S6	Transformers	2	85	100%	287.6	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 301 12F	Transformer Room	S7	Exhaust Fans	1	85	100%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 12F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	287.6	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 301 12F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 12F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	304.3	-57.7	-10	0	-10	3	0	0	0	3.0	0	23.3	
NAP 301 12F	Generator Room	S11	Exhaust Fans	1	85	100%	374.2	-59.5	-10	0	-10	3	0	0	0	0	0	18.5	
NAP 301 12F	Compressor Room	S12	Compressors	1	85	100%	264.8	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 301 12F	Compressor Room	S13	Exhaust Fans	1	85	100%	261.4	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 12F	F.S. Pump Room	S14	Water Pumps	1	85	100%	261.4	-56.3	-10	0	-10	3	6	0	0	0	0	27.7	
NAP 301 12F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	261.4	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 12F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	264.6	-56.5	-10	0	-10	3	0	0	0	7.0	0	28.5	
NAP 301 12F	PAU Room 1	S17	PAU	2	85	100%	303.4	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 12F	PAU Room 1	S18	Exhaust Fans	1	85	100%	303.4	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 12F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	301.7	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 12F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 12F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	305.2	-57.7	-10	0	-10	3	6	0	0	3.0	0	29.3	
NAP 301 12F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 12F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	222.8	-55.0	-10	0	-10	3	0	0	0	0	0	23.0	
NAP 301 12F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	304.9	-57.7	-10	0	-10	3	0	0	0	6.0	0	26.3	
NAP 301 12F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	304.9	-57.7	-10	0	-10	3	0	0	0	3.0	0	23.3	
NAP 301 12F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	304.9	-57.7	-10	0	-10	3	0	0	0	4.8	0	25.1	
NAP 301 12F	TBE Room	S27	Exhaust Fans	1	85	100%	262.4	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 12F	PAU Room 2	S28	PAU	5	85	100%	304.8	-57.7	-10	0	-10	3	0	0	0	7.0	0	27.3	
NAP 301 12F	AHU Room	S29	AHU	1	85	100%	299.0	-57.5	-10	0	-10	3	0	0	0	0	0	20.5	
NAP 301 12F	Lift Machine Room	S30	Lift Machine	3	85	100%	226.9	-55.1	-10	0	-10	3	0	0	0	4.8	0	27.7	
NAP 301 12F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	228.8	-55.2	-10	0	-10	3	0	0	0	0	0	22.8	
NAP 301 12F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	260.3	-56.3	-10	0	-10	3	6	0	0	4.8	0	32.5	
NAP 301 12F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	260.3	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 12F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	260.3	-56.3	-10	0	-10	3	0	0	0	3.0	0	39.7	
NAP 301 12F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	253.5	-56.1	-10	0	-10	3	0	0	0	0	-11.8	25.1	
NAP 301 12F	L1 HKPF	S37	Hammering Activities	3	113	7%	290.5	-57.3	-10	0	-10	3	0	3	0	4.8	-11.8	44.7	
NAP 301 12F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	268.0	-56.6	-10	0	-10	3	0	0	0	0	-5.7	18.7	
NAP 301 12F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	287.3	-57.2	-10	0	-10	3	0	0	0	0	-14.8	33.0	
NAP 301 12F	EMSD Dept	S40	Tyre Changer	1	98	27%	246.3	-55.8	-10	0	-10	3	0	0	0	0	-5.7	29.5	
NAP 301 12F	EMSD Dept	S41	Hammering Activities	4	113	7%	274.8	-56.8	-10	0	-10	3	0	3	0	6.0	-11.8	46.5	
NAP 301 12F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	262.5	-56.4	-10	0	-10	3	0	0	0	6.0	-8.8	33.9	
NAP 301 12F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	244.6	-55.8	-10	0	-10	3	0	0	0	0	-13.0	23.2	
NAP 301 12F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	262.5	-56.4	-10	0	-10	3	0	0	0	0	-7.0	28.6	
NAP 301 12F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	240.7	-55.6	-10	0	-10	3	0	0	0	0	-7.0	29.4	
NAP 301 24F	Chiller Pump Room	S1	Water Pumps	2	85	100%	241.4	-55.7	-10	0	-10	3	6	0	0	3.0	0	31.3	50
NAP 301 24F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	243.6	-55.7	-10	0	-10	3	0	0	0	0	0	22.3	
NAP 301 24F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	264.5	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 301 24F	Compressor Room	S4	Compressors	1	85	100%	288.3	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 24F	Compressor Room	S5	Exhaust Fans	1	85	100%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	20.6	
NAP 301 24F	Transformer Room	S6	Transformers	2	85	100%	294.5	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	
NAP 301 24F	Transformer Room	S7	Exhaust Fans	1	85	100%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	20.6	
NAP 301 24F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	294.5	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	
NAP 301 24F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	20.6	
NAP 301 24F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	310.0	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 301 24F	Generator Room	S11	Exhaust Fans	1	85	100%	379.3	-59.6	-10	0	-10	3	0	0	0	0	0	18.4	
NAP 301 24F	Compressor Room	S12	Compressors	1	85	100%	270.5	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 301 24F	Compressor Room	S13	Exhaust Fans	1	85	100%	267.1	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 301 24F	F.S. Pump Room	S14	Water Pumps	1	85	100%	267.1	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 301 24F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	267.1	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 301 24F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	269.7	-56.6	-10	0	-10	3	0	0	0	7.0	0	28.4	
NAP 301 24F	PAU Room 1	S17	PAU	2	85	100%	307.9	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 301 24F	PAU Room 1	S18	Exhaust Fans	1	85	100%	307.9	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	305.8	-57.7	-10	0	-10	3	0	0	0	3.0	0	23.3	
NAP 301 24F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	309.2	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	309.2	-57.8	-10	0	-10	3	6	0	0	3.0	0	29.2	
NAP 301 24F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	309.2	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	227.3	-55.1	-10	0	-10	3	0	0	0	0	0	22.9	
NAP 301 24F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	308.2	-57.8	-10	0	-10	3	0	0	0	6.0	0	26.2	
NAP 301 24F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	308.2	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 301 24F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	308.2	-57.8	-10	0	-10	3	0	0	0	4.8	0	25.0	
NAP 301 24F	TBE Room	S27	Exhaust Fans	1	85	100%	265.3	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 301 24F	PAU Room 2	S28	PAU	5	85	100%	307.2	-57.7	-10	0	-10	3	0	0	0	7.0	0	27.3	
NAP 301 24F	AHU Room	S29	AHU	1	85	100%	301.5	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 24F	Lift Machine Room	S30	Lift Machine	3	85	100%	229.5	-55.2	-10	0	-10	3	0	0	0	4.8	0	27.6	
NAP 301 24F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	231.3	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 24F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	262.5	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 301 24F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 24F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	262.5	-56.4	-10	0	-10	3	0	0	0	3.0	0	39.6	
NAP 301 24F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	261.4	-56.3	-10	0	-10	3	0	0	0	0	-11.8	24.9	
NAP 301 24F	L1 HKPF	S37	Hammering Activities	3	113	7%	297.4	-57.5	-10	0	-10	3	0	3	0	4.8	-11.8	44.5	
NAP 301 24F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	272.6	-56.7	-10	0	-10	3	0	0	0	0	-5.7	18.6	
NAP 301 24F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	290.8	-57.3	-10	0	-10	3	0	0	0	0	-14.8	32.9	
NAP 301 24F	EMSD Dept	S40	Tyre Changer	1	98	27%	250.4	-56.0	-10	0	-10	3	0	0	0	0	-5.7	29.3	
NAP 301 24F	EMSD Dept	S41	Hammering Activities	4	113	7%	278.4	-56.9	-10	0	-10	3	0	3	0	6.0	-11.8	46.4	
NAP 301 24F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	266.4	-56.5	-10	0	-10	3	0	0	0	6.0	-8.8	33.8	
NAP 301 24F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	248.7	-55.9	-10	0	-10	3	0	0	0	0	-13.0	23.1	
NAP 301 24F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	266.4	-56.5	-10	0	-10	3	0	0	0	0	-7.0	28.5	
NAP 301 24F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	244.8	-55.8	-10	0	-10	3	0	0	0	0	-7.0	29.2	

(Night-time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 301 1F	Chiller Pump Room	S1	Water Pumps	1	85	100%	229.8	-55.2	-10	0	-10	3	6	0	0	0	0	28.8	44
NAP 301 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	232.1	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 1F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	254.0	-56.1	-10	0	-10	3	0	0	0	0	0	21.9	
NAP 301 1F	Compressor Room	S4	Compressors	0	85	0%	278.7	-56.9	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Compressor Room	S5	Exhaust Fans	0	85	0%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Transformer Room	S6	Transformers	2	85	100%	285.1	-57.1	-10	0	-10	3	6	0	0	3.0	0	29.9	
NAP 301 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 301 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	285.1	-57.1	-10	0	-10	3	6	0	0	3.0	0	29.9	
NAP 301 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	285.1	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 301 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	302.8	-57.6	-10	0	-10	3	0	0	0	3.0	0	23.4	
NAP 301 1F	Generator Room	S11	Exhaust Fans	1	85	100%	372.4	-59.4	-10	0	-10	3	0	0	0	0	0	18.6	
NAP 301 1F	Compressor Room	S12	Compressors	0	85	0%	263.9	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Compressor Room	S13	Exhaust Fans	0	85	0%	260.5	-56.3	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	260.5	-56.3	-10	0	-10	3	6	0	0	0	0	27.7	
NAP 301 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	260.5	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 1F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	264.1	-56.4	-10	0	-10	3	0	0	0	3.0	0	24.6	
NAP 301 1F	PAU Room 1	S17	PAU	1	85	100%	303.0	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 1F	PAU Room 1	S18	Exhaust Fans	0	85	0%	303.0	-57.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	301.7	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	305.2	-57.7	-10	0	-10	3	6	0	0	3.0	0	29.3	
NAP 301 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 1F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	223.8	-55.0	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	305.6	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	305.6	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	305.6	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	TBE Room	S27	Exhaust Fans	0	85	0%	264.1	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	PAU Room 2	S28	PAU	0	85	0%	306.3	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	AHU Room	S29	AHU	0	85	0%	300.5	-57.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	Lift Machine Room	S30	Lift Machine	1	85	100%	229.6	-55.2	-10	0	-10	3	0	0	0	0	0	22.8	
NAP 301 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	231.4	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	262.6	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 301 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	262.6	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 1F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	262.6	-56.4	-10	0	-10	3	0	0	0	0	0	36.6	
NAP 301 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	250.7	-56.0	-10	0	-10	3	0	0	0	0	-17.8	19.2	
NAP 301 1F	L1 HKPF	S37	Hammering Activities	1	113	7%	288.0	-57.2	-10	0	-10	3	0	3	0	0	-11.8	40.0	
NAP 301 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	268.0	-56.6	-10	0	-10	3	0	0	0	0	-6	18.7	
NAP 301 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	288.1	-57.2	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	EMSD Dept	S40	Tyre Changer	0	98	0%	247.2	-55.9	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	EMSD Dept	S41	Hammering Activities	0	113	0%	275.5	-56.8	-10	0	-10	3	0	3	0	0	0	0.0	
NAP 301 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	263.3	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	245.4	-55.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	263.3	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 1F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	241.5	-55.7	-10	0	-10	3	0	0	0	0	-11.8	24.5	
NAP 301 12F	Chiller Pump Room	S1	Water Pumps	1	85	100%	232.9	-55.3	-10	0	-10	3	6	0	0	0	0	28.7	44
NAP 301 12F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	235.2	-55.4	-10	0	-10	3	0	0	0	0	0	22.6	
NAP 301 12F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	256.8	-56.2	-10	0	-10	3	0	0	0	0	0	21.8	
NAP 301 12F	Compressor Room	S4	Compressors	0	85	0%	281.2	-57.0	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Compressor Room	S5	Exhaust Fans	0	85	0%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Transformer Room	S6	Transformers	2	85	100%	287.6	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 301 12F	Transformer Room	S7	Exhaust Fans	1	85	100%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 12F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	287.6	-57.2	-10	0	-10	3	6	0	0	3.0	0	29.8	
NAP 301 12F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	287.6	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 301 12F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	304.3	-57.7	-10	0	-10	3	0	0	0	3.0	0	23.3	
NAP 301 12F	Generator Room	S11	Exhaust Fans	1	85	100%	374.2	-59.5	-10	0	-10	3	0	0	0	0	0	18.5	
NAP 301 12F	Compressor Room	S12	Compressors	0	85	0%	264.8	-56.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Compressor Room	S13	Exhaust Fans	0	85	0%	261.4	-56.3	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	F.S. Pump Room	S14	Water Pumps	1	85	100%	261.4	-56.3	-10	0	-10	3	6	0	0	0	0	27.7	
NAP 301 12F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	261.4	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 12F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	264.6	-56.5	-10	0	-10	3	0	0	0	3.0	0	24.5	
NAP 301 12F	PAU Room 1	S17	PAU	1	85	100%	303.4	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 12F	PAU Room 1	S18	Exhaust Fans	0	85	0%	303.4	-57.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	301.7	-57.6	-10	0	-10	3	0	0	0	0	0	20.4	
NAP 301 12F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 12F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	305.2	-57.7	-10	0	-10	3	6	0	0	3.0	0	29.3	
NAP 301 12F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	305.2	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 12F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	222.8	-55.0	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	304.9	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	304.9	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	304.9	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	TBE Room	S27	Exhaust Fans	0	85	0%	262.4	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	PAU Room 2	S28	PAU	0	85	0%	304.8	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	AHU Room	S29	AHU	0	85	0%	299.0	-57.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	Lift Machine Room	S30	Lift Machine	1	85	100%	226.9	-55.1	-10	0	-10	3	0	0	0	0	0	22.9	
NAP 301 12F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	228.8	-55.2	-10	0	-10	3	0	0	0	0	0	22.8	
NAP 301 12F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	260.3	-56.3	-10	0	-10	3	6	0	0	4.8	0	32.5	
NAP 301 12F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	260.3	-56.3	-10	0	-10	3	0	0	0	0	0	21.7	
NAP 301 12F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	260.3	-56.3	-10	0	-10	3	0	0	0	0	0	36.7	
NAP 301 12F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	253.5	-56.1	-10	0	-10	3	0	0	0	0	-17.8	19.1	
NAP 301 12F	L1 HKPF	S37	Hammering Activities	1	113	7%	290.5	-57.3	-10	0	-10	3	0	3	0	0	-11.8	39.9	
NAP 301 12F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	268.0	-56.6	-10	0	-10	3	0	0	0	0	-6	18.7	
NAP 301 12F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	287.3	-57.2	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	EMSD Dept	S40	Tyre Changer	0	98	0%	246.3	-55.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	EMSD Dept	S41	Hammering Activities	0	113	0%	274.8	-56.8	-10	0	-10	3	0	3	0	0	0	0.0	
NAP 301 12F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	244.6	-55.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 12F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	240.7	-55.6	-10	0	-10	3	0	0	0	0	-11.8	24.6	
NAP 301 24F	Chiller Pump Room	S1	Water Pumps	1	85	100%	241.4	-55.7	-10	0	-10	3	6	0	0	0	0	28.3	43
NAP 301 24F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	243.6	-55.7	-10	0	-10	3	0	0	0	0	0	22.3	
NAP 301 24F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	264.5	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 24F	Compressor Room	S4	Compressors	0	85	0%	288.3	-57.2	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Compressor Room	S5	Exhaust Fans	0	85	0%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Transformer Room	S6	Transformers	2	85	100%	294.5	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	
NAP 301 24F	Transformer Room	S7	Exhaust Fans	1	85	100%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	20.6	
NAP 301 24F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	294.5	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	
NAP 301 24F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	294.5	-57.4	-10	0	-10	3	0	0	0	0	0	20.6	
NAP 301 24F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	310.0	-57.8	-10	0	-10	3	0	0	0	3.0	0	23.2	
NAP 301 24F	Generator Room	S11	Exhaust Fans	1	85	100%	379.3	-59.6	-10	0	-10	3	0	0	0	0	0	18.4	
NAP 301 24F	Compressor Room	S12	Compressors	0	85	0%	270.5	-56.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Compressor Room	S13	Exhaust Fans	0	85	0%	267.1	-56.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	F.S. Pump Room	S14	Water Pumps	1	85	100%	267.1	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 301 24F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	267.1	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 301 24F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	269.7	-56.6	-10	0	-10	3	0	0	0	3.0	0	24.4	
NAP 301 24F	PAU Room 1	S17	PAU	1	85	100%	307.9	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	PAU Room 1	S18	Exhaust Fans	0	85	0%	307.9	-57.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	305.8	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 301 24F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	309.2	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	309.2	-57.8	-10	0	-10	3	6	0	0	3.0	0	29.2	
NAP 301 24F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	309.2	-57.8	-10	0	-10	3	0	0	0	0	0	20.2	
NAP 301 24F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	227.3	-55.1	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	308.2	-57.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	308.2	-57.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	308.2	-57.8	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	TBE Room	S27	Exhaust Fans	0	85	0%	265.3	-56.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	PAU Room 2	S28	PAU	0	85	0%	307.2	-57.7	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	AHU Room	S29	AHU	0	85	0%	301.5	-57.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	Lift Machine Room	S30	Lift Machine	1	85	100%	229.5	-55.2	-10	0	-10	3	0	0	0	0	0	22.8	
NAP 301 24F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	231.3	-55.3	-10	0	-10	3	0	0	0	0	0	22.7	
NAP 301 24F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	262.5	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 301 24F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 301 24F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	36.6	
NAP 301 24F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	261.4	-56.3	-10	0	-10	3	0	0	0	0	-17.8	18.9	
NAP 301 24F	L1 HKPF	S37	Hammering Activities	1	113	7%	297.4	-57.5	-10	0	-10	3	0	3	0	0	-11.8	39.7	
NAP 301 24F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	272.6	-56.7	-10	0	-10	3	0	0	0	0	-6	18.6	
NAP 301 24F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	290.8	-57.3	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	EMSD Dept	S40	Tyre Changer	0	98	0%	250.4	-56.0	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	EMSD Dept	S41	Hammering Activities	0	113	0%	278.4	-56.9	-10	0	-10	3	0	3	0	0	0	0.0	
NAP 301 24F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	266.4	-56.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	248.7	-55.9	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	266.4	-56.5	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 301 24F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	244.8	-55.8	-10	0	-10	3	0	0	0	0	-11.8	24.4	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 401 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	389.3	-59.8	0	-5	-5	3	6	0	0	3.0	0	32.2	57
NAP 401 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	379.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 401 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	358.1	-59.1	0	0	0	3	0	0	0	7.0	0	35.9	
NAP 401 1F	Compressor Room	S4	Compressors	1	85	100%	352.9	-59.0	0	-5	-5	3	0	0	0	0	0	24.0	
NAP 401 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	348.9	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 1F	Transformer Room	S6	Transformers	2	85	100%	348.9	-58.9	0	0	0	3	6	0	0	3.0	0	38.1	
NAP 401 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	348.9	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	348.9	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	348.9	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	358.5	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 401 1F	Generator Room	S11	Exhaust Fans	1	85	100%	519.7	-62.3	0	0	0	3	0	0	0	0	0	25.7	
NAP 401 1F	Compressor Room	S12	Compressors	1	85	100%	359.9	-59.1	0	-5	-5	3	0	0	0	0	0	23.9	
NAP 401 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	355.2	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	355.2	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	
NAP 401 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	355.2	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	354.8	-59.0	0	0	0	3	0	0	0	7.0	0	36.0	
NAP 401 1F	PAU Room 1	S17	PAU	2	85	100%	356.0	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	356.0	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	355.1	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	350.9	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	350.9	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	350.9	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	405.1	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 401 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	351.2	-58.9	0	0	0	3	0	0	0	6.0	0	35.1	
NAP 401 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	351.2	-58.9	0	0	0	3	0	0	0	3.0	0	32.1	
NAP 401 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	351.2	-58.9	0	0	0	3	0	0	0	4.8	0	33.9	
NAP 401 1F	TBE Room	S27	Exhaust Fans	1	85	100%	356.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	PAU Room 2	S28	PAU	5	85	100%	351.8	-58.9	0	0	0	3	0	0	0	7.0	0	36.1	
NAP 401 1F	AHU Room	S29	AHU	1	85	100%	407.9	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 401 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	392.2	-59.9	0	-5	-5	3	0	0	0	4.8	0	27.9	
NAP 401 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	388.1	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	357.0	-59.1	0	-5	-5	3	6	0	0	4.8	0	34.7	
NAP 401 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	357.0	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	357.0	-59.1	0	0	0	3	0	0	0	3.0	0	46.9	
NAP 401 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	377.1	-59.5	0	0	0	3	0	0	0	0	-11.8	31.7	
NAP 401 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	402.3	-60.1	0	0	0	3	0	3	0	4.8	-11.8	51.9	
NAP 401 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	388.2	-59.8	0	0	0	3	0	0	0	0	-5.7	25.5	
NAP 401 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	360.6	-59.1	0	0	0	3	0	0	0	0	-14.8	41.1	
NAP 401 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	364.7	-59.2	0	0	0	3	0	0	0	0	-5.7	36.1	
NAP 401 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	409.2	-60.2	0	0	0	3	0	3	0	6.0	-11.8	53.1	
NAP 401 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	359.3	-59.1	0	0	0	3	0	0	0	6.0	-8.8	41.2	
NAP 401 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	417.2	-60.4	0	0	0	3	0	0	0	0	-13.0	28.6	
NAP 401 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	359.3	-59.1	0	0	0	3	0	0	0	0	-7.0	35.9	
NAP 401 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	365.7	-59.3	0	0	0	3	0	0	0	0	-7.0	35.7	
NAP 401 15F	Chiller Pump Room	S1	Water Pumps	2	85	100%	391.9	-59.9	0	-5	-5	3	6	0	0	3.0	0	32.1	57
NAP 401 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	381.8	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 401 15F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	360.9	-59.1	0	0	0	3	0	0	0	7.0	0	35.9	
NAP 401 15F	Compressor Room	S4	Compressors	1	85	100%	355.8	-59.0	0	-5	-5	3	0	0	0	0	0	24.0	
NAP 401 15F	Compressor Room	S5	Exhaust Fans	1	85	100%	351.8	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 15F	Transformer Room	S6	Transformers	2	85	100%	351.8	-58.9	0	0	0	3	6	0	0	3.0	0	38.1	
NAP 401 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	351.8	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	351.8	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	351.8	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	360.4	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 401 15F	Generator Room	S11	Exhaust Fans	1	85	100%	521.6	-62.3	0	0	0	3	0	0	0	0	0	25.7	
NAP 401 15F	Compressor Room	S12	Compressors	1	85	100%	361.1	-59.2	0	-5	-5	3	0	0	0	0	0	23.8	
NAP 401 15F	Compressor Room	S13	Exhaust Fans	1	85	100%	356.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	356.4	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	
NAP 401 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	356.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	355.5	-59.0	0	0	0	3	0	0	0	7.0	0	36.0	
NAP 401 15F	PAU Room 1	S17	PAU	2	85	100%	356.7	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 15F	PAU Room 1	S18	Exhaust Fans	1	85	100%	356.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	355.4	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	351.2	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	351.2	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	351.2	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 15F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	404.7	-60.1	0	0	0	3	0	0	0	0	0	27.9	
NAP 401 15F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	350.8	-58.9	0	0	0	3	0	0	0	6.0	0	35.1	
NAP 401 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	350.8	-58.9	0	0	0	3	0	0	0	3.0	0	32.1	
NAP 401 15F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	350.8	-58.9	0	0	0	3	0	0	0	4.8	0	33.9	
NAP 401 15F	TBE Room	S27	Exhaust Fans	1	85	100%	355.1	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	PAU Room 2	S28	PAU	5	85	100%	350.5	-58.9	0	0	0	3	0	0	0	7.0	0	36.1	
NAP 401 15F	AHU Room	S29	AHU	1	85	100%	406.8	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 401 15F	Lift Machine Room	S30	Lift Machine	3	85	100%	390.5	-59.8	0	-5	-5	3	0	0	0	4.8	0	28.0	
NAP 401 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	386.4	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 401 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	355.1	-59.0	0	-5	-5	3	6	0	0	4.8	0	34.8	
NAP 401 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	355.1	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	355.1	-59.0	0	0	0	3	0	0	0	3.0	0	47.0	
NAP 401 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	379.8	-59.6	0	0	0	3	0	0	0	0	-11.8	31.6	
NAP 401 15F	L1 HKPF	S37	Hammering Activities	3	113	7%	404.8	-60.1	0	0	0	3	0	3	0	4.8	-11.8	51.9	
NAP 401 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	388.4	-59.8	0	0	0	3	0	0	0	0	-5.7	25.5	
NAP 401 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	360.2	-59.1	0	0	0	3	0	0	0	0	-14.8	41.1	
NAP 401 15F	EMSD Dept	S40	Tyre Changer	1	98	27%	364.7	-59.2	0	0	0	3	0	0	0	0	-5.7	36.1	
NAP 401 15F	EMSD Dept	S41	Hammering Activities	4	113	7%	409.2	-60.2	0	0	0	3	0	3	0	6.0	-11.8	53.1	
NAP 401 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	359.3	-59.1	0	0	0	3	0	0	0	6.0	-8.8	41.2	
NAP 401 15F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	417.2	-60.4	0	0	0	3	0	0	0	0	-13.0	28.6	
NAP 401 15F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	359.3	-59.1	0	0	0	3	0	0	0	0	-7.0	35.9	
NAP 401 15F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	365.7	-59.3	0	0	0	3	0	0	0	0	-7.0	35.7	
NAP 401 30F	Chiller Pump Room	S1	Water Pumps	2	85	100%	399.6	-60.0	0	-5	-5	3	6	0	0	3.0	0	32.0	57
NAP 401 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	389.7	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 30F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	369.3	-59.3	0	0	0	3	0	0	0	7.0	0	35.7	
NAP 401 30F	Compressor Room	S4	Compressors	1	85	100%	364.3	-59.2	0	-5	-5	3	0	0	0	0	0	23.8	
NAP 401 30F	Compressor Room	S5	Exhaust Fans	1	85	100%	360.4	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Transformer Room	S6	Transformers	2	85	100%	360.4	-59.1	0	0	0	3	6	0	0	3.0	0	37.9	
NAP 401 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	360.4	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	360.4	-59.1	0	-10	-10	3	6	0	0	3.0	0	27.9	
NAP 401 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	360.4	-59.1	0	-10	-10	3	0	0	0	0	0	18.9	
NAP 401 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	367.8	-59.3	0	0	0	3	0	0	0	3.0	0	31.7	
NAP 401 30F	Generator Room	S11	Exhaust Fans	1	85	100%	527.2	-62.4	0	0	0	3	0	0	0	0	0	25.6	
NAP 401 30F	Compressor Room	S12	Compressors	1	85	100%	367.7	-59.3	0	-5	-5	3	0	0	0	0	0	23.7	
NAP 401 30F	Compressor Room	S13	Exhaust Fans	1	85	100%	363.2	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	363.2	-59.2	0	-5	-5	3	6	0	0	0	0	29.8	
NAP 401 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	363.2	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	358.6	-59.1	0	0	0	3	0	0	0	7.0	0	35.9	
NAP 401 30F	PAU Room 1	S17	PAU	2	85	100%	363.0	-59.2	0	0	0	3	0	0	0	3.0	0	31.8	
NAP 401 30F	PAU Room 1	S18	Exhaust Fans	1	85	100%	363.0	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	361.2	-59.2	0	0	0	3	0	0	0	3.0	0	31.8	
NAP 401 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	357.0	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	357.0	-59.1	0	-10	-10	3	6	0	0	3.0	0	27.9	
NAP 401 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	357.0	-59.1	0	-10	-10	3	0	0	0	0	0	18.9	
NAP 401 30F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	409.1	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 401 30F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	355.9	-59.0	0	0	0	3	0	0	0	6.0	0	35.0	
NAP 401 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	355.9	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 30F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	355.9	-59.0	0	0	0	3	0	0	0	4.8	0	33.8	
NAP 401 30F	TBE Room	S27	Exhaust Fans	1	85	100%	359.2	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	PAU Room 2	S28	PAU	5	85	100%	354.7	-59.0	0	0	0	3	0	0	0	7.0	0	36.0	
NAP 401 30F	AHU Room	S29	AHU	1	85	100%	410.4	-60.3	0	-10	-10	3	0	0	0	0	0	17.7	
NAP 401 30F	Lift Machine Room	S30	Lift Machine	3	85	100%	393.7	-59.9	0	-5	-5	3	0	0	0	4.8	0	27.9	
NAP 401 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	389.6	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	358.6	-59.1	0	-5	-5	3	6	0	0	4.8	0	34.7	
NAP 401 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	358.6	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	358.6	-59.1	0	0	0	3	0	0	0	3.0	0	46.9	
NAP 401 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	387.8	-59.8	0	0	0	3	0	0	0	0	-11.8	31.4	
NAP 401 30F	L1 HKPF	S37	Hammering Activities	3	113	7%	412.3	-60.3	0	0	0	3	0	3	0	4.8	-11.8	51.7	
NAP 401 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	393.7	-59.9	0	0	0	3	0	0	0	0	-5.7	25.4	
NAP 401 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	365.1	-59.2	0	0	0	3	0	0	0	0	-14.8	41.0	
NAP 401 30F	EMSD Dept	S40	Tyre Changer	1	98	27%	369.6	-59.4	0	0	0	3	0	0	0	0	-5.7	35.9	
NAP 401 30F	EMSD Dept	S41	Hammering Activities	4	113	7%	413.6	-60.3	0	0	0	3	0	3	0	6.0	-11.8	53.0	
NAP 401 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	364.3	-59.2	0	0	0	3	0	0	0	6.0	-8.8	41.1	
NAP 401 30F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	421.4	-60.5	0	0	0	3	0	0	0	0	-13.0	28.5	
NAP 401 30F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	364.3	-59.2	0	0	0	3	0	0	0	0	-7.0	35.8	
NAP 401 30F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	370.6	-59.4	0	0	0	3	0	0	0	0	-7.0	35.6	

(Night-time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 401 1F	Chiller Pump Room	S1	Water Pumps	1	85	100%	389.3	-59.8	0	-5	-5	3	6	0	0	0	0	29.2	50
NAP 401 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	379.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 401 1F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	358.1	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 1F	Compressor Room	S4	Compressors	0	85	0%	352.9	-59.0	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 1F	Compressor Room	S5	Exhaust Fans	0	85	0%	348.9	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	Transformer Room	S6	Transformers	2	85	100%	348.9	-58.9	0	0	0	3	6	0	0	3.0	0	38.1	
NAP 401 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	348.9	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	348.9	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	348.9	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	358.5	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 401 1F	Generator Room	S11	Exhaust Fans	1	85	100%	519.7	-62.3	0	0	0	3	0	0	0	0	0	25.7	
NAP 401 1F	Compressor Room	S12	Compressors	0	85	0%	359.9	-59.1	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 1F	Compressor Room	S13	Exhaust Fans	0	85	0%	355.2	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	355.2	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	
NAP 401 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	355.2	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	354.8	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 1F	PAU Room 1	S17	PAU	1	85	100%	356.0	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	PAU Room 1	S18	Exhaust Fans	0	85	0%	356.0	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	355.1	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	350.9	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	350.9	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	350.9	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 1F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	405.1	-60.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	351.2	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	351.2	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	351.2	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	TBE Room	S27	Exhaust Fans	0	85	0%	356.4	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	PAU Room 2	S28	PAU	0	85	0%	351.8	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	AHU Room	S29	AHU	0	85	0%	407.9	-60.2	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 401 1F	Lift Machine Room	S30	Lift Machine	1	85	100%	392.2	-59.9	0	-5	-5	3	0	0	0	0	0	23.1	
NAP 401 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	388.1	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	2	85	100%	357.0	-59.1	0	-5	-5	3	6	0	0	4.8	0	34.7	
NAP 401 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	357.0	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 1F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	357.0	-59.1	0	0	0	3	0	0	0	0	0	43.9	
NAP 401 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	377.1	-59.5	0	0	0	3	0	0	0	0	0	-17.8	25.7
NAP 401 1F	L1 HKPF	S37	Hammering Activities	1	113	7%	402.3	-60.1	0	0	0	3	0	3	0	0	0	-11.8	47.1
NAP 401 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	388.2	-59.8	0	0	0	3	0	0	0	0	0	-6	25.5
NAP 401 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	360.6	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	EMSD Dept	S40	Tyre Changer	0	98	0%	409.6	-60.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	EMSD Dept	S41	Hammering Activities	0	113	0%	360.2	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	364.7	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	359.8	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	417.2	-60.4	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 1F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	359.3	-59.1	0	0	0	3	0	0	0	0	0	-11.8	30.9
NAP 401 15F	Chiller Pump Room	S1	Water Pumps	1	85	100%	391.9	-59.9	0	-5	-5	3	6	0	0	0	0	29.1	50
NAP 401 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	381.8	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 401 15F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	360.9	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 15F	Compressor Room	S4	Compressors	0	85	0%	355.8	-59.0	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 15F	Compressor Room	S5	Exhaust Fans	0	85	0%	351.8	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	Transformer Room	S6	Transformers	2	85	100%	351.8	-58.9	0	0	0	3	6	0	0	3.0	0	38.1	
NAP 401 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	351.8	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	351.8	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	351.8	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	360.4	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 401 15F	Generator Room	S11	Exhaust Fans	1	85	100%	521.6	-62.3	0	0	0	3	0	0	0	0	0	25.7	
NAP 401 15F	Compressor Room	S12	Compressors	0	85	0%	361.1	-59.2	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 15F	Compressor Room	S13	Exhaust Fans	0	85	0%	356.4	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	356.4	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	
NAP 401 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	356.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	355.5	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 401 15F	PAU Room 1	S17	PAU	1	85	100%	356.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	PAU Room 1	S18	Exhaust Fans	0	85	0%	356.7	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	355.4	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	351.2	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 401 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	351.2	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 401 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	351.2	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 401 15F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	404.7	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	350.8	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	350.8	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	350.8	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	TBE Room	S27	Exhaust Fans	0	85	0%	355.1	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	PAU Room 2	S28	PAU	0	85	0%	350.5	-58.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	AHU Room	S29	AHU	0	85	0%	406.8	-60.2	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 401 15F	Lift Machine Room	S30	Lift Machine	1	85	100%	390.5	-59.8	0	-5	-5	3	0	0	0	0	0	23.2	
NAP 401 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	386.4	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 401 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	355.1	-59.0	0	-5	-5	3	6	0	0	4.8	0	34.8	
NAP 401 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	355.1	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 401 15F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	355.1	-59.0	0	0	0	3	0	0	0	0	0	44.0	
NAP 401 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	379.8	-59.6	0	0	0	3	0	0	0	0	0	-17.8	25.6
NAP 401 15F	L1 HKPF	S37	Hammering Activities	1	113	7%	404.8	-60.1	0	0	0	3	0	3	0	0	0	-11.8	47.1
NAP 401 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	388.4	-59.8	0	0	0	3	0	0	0	0	0	-6	25.5
NAP 401 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	360.2	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	EMSD Dept	S40	Tyre Changer	0	98	0%	364.7	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	EMSD Dept	S41	Hammering Activities	0	113	0%	409.2	-60.2	0	0	0	3	0	3	0	0	0	0.0	
NAP 401 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	359.3	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	417.2	-60.4	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	359.3	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 15F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	365.7	-59.3	0	0	0	3	0	0	0	0	0	-11.8	30.9
NAP 401 30F	Chiller Pump Room	S1	Water Pumps	1	85	100%	399.6	-60.0	0	-5	-5	3	6	0	0	0	0	29.0	50
NAP 401 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	389.7	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 30F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	369.3	-59.3	0	0	0	3	0	0	0	0	0	28.7	
NAP 401 30F	Compressor Room	S4	Compressors	0	85	0%	364.3	-59.2	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 30F	Compressor Room	S5	Exhaust Fans	0	85	0%	360.4	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	Transformer Room	S6	Transformers	2	85	100%	360.4	-59.1	0	0	0	3	6	0	0	3.0	0	37.9	
NAP 401 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	360.4	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	360.4	-59.1	0	-10	-10	3	6	0	0	3.0	0	27.9	
NAP 401 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	360.4	-59.1	0	-10	-10	3	0	0	0	0	0	18.9	
NAP 401 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	367.8	-59.3	0	0	0	3	0	0	0	3.0	0	31.7	
NAP 401 30F	Generator Room	S11	Exhaust Fans	1	85	100%	527.2	-62.4	0	0	0	3	0	0	0	0	0	25.6	
NAP 401 30F	Compressor Room	S12	Compressors	0	85	0%	367.7	-59.3	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 401 30F	Compressor Room	S13	Exhaust Fans	0	85	0%	363.2	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	363.2	-59.2	0	-5	-5	3	6	0	0	0	0	29.8	
NAP 401 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	363.2	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	358.6	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 401 30F	PAU Room 1	S17	PAU	1	85	100%	363.0	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	PAU Room 1	S18	Exhaust Fans	0	85	0%	363.0	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	361.2	-59.2	0	0	0	3	0	0	0	0	0	28.8	
NAP 401 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	357.0	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	357.0	-59.1	0	-10	-10	3	6	0	0	3.0	0	27.9	
NAP 401 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	357.0	-59.1	0	-10	-10	3	0	0	0	0	0	18.9	
NAP 401 30F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	409.1	-60.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	355.9	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	355.9	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	355.9	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	TBE Room	S27	Exhaust Fans	0	85	0%	359.2	-59.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	PAU Room 2	S28	PAU	0	85	0%	354.7	-59.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	AHU Room	S29	AHU	0	85	0%	410.4	-60.3	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 401 30F	Lift Machine Room	S30	Lift Machine	1	85	100%	393.7	-59.9	0	-5	-5	3	0	0	0	0	0	23.1	
NAP 401 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	389.6	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 401 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	358.6	-59.1	0	-5	-5	3	6	0	0	4.8	0	34.7	
NAP 401 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	358.6	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 401 30F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	358.6	-59.1	0	0	0	3	0	0	0	0	0	43.9	
NAP 401 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	387.8	-59.8	0	0	0	3	0	0	0	0	0	-17.8	25.4
NAP 401 30F	L1 HKPF	S37	Hammering Activities	1	113	7%	412.3	-60.3	0	0	0	3	0	3	0	0	0	-11.8	46.9
NAP 401 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	393.7	-59.9	0	0	0	3	0	0	0	0	0	-6	25.4
NAP 401 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	365.1	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	EMSD Dept	S40	Tyre Changer	0	98	0%	369.6	-59.4	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	EMSD Dept	S41	Hammering Activities	0	113	0%	413.6	-60.3	0	0	0	3	0	3	0	0	0	0.0	
NAP 401 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	364.3	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	421.4	-60.5	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	364.3	-59.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 401 30F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	370.6	-59.4	0	0	0	3	0	0	0	0	0	-11.8	30.8

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 501 GF	Chiller Pump Room	S1	Water Pumps	2	85	100%	391.5	-59.9	0	-5	-5	3	6	0	0	3.0	0	32.1	57
NAP 501 GF	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	381.4	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 501 GF	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	359.7	-59.1	0	0	0	3	0	0	0	7.0	0	35.9	
NAP 501 GF	Compressor Room	S4	Compressors	1	85	100%	353.2	-59.0	0	-5	-5	3	0	0	0	0	0	24.0	
NAP 501 GF	Compressor Room	S5	Exhaust Fans	1	85	100%	349.0	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 501 GF	Transformer Room	S6	Transformers	2	85	100%	349.0	-58.9	0	0	0	3	6	0	0	3.0	0	38.1	
NAP 501 GF	Transformer Room	S7	Exhaust Fans	1	85	100%	349.0	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 501 GF	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	349.0	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 501 GF	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	349.0	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 501 GF	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	357.6	-59.1	0	0	0	3	0	0	0	3.0	0	31.9	
NAP 501 GF	Generator Room	S11	Exhaust Fans	1	85	100%	520.6	-62.3	0	0	0	3	0	0	0	0	0	25.7	
NAP 501 GF	Compressor Room	S12	Compressors	1	85	100%	361.1	-59.2	0	-5	-5	3	0	0	0	0	0	23.8	
NAP 501 GF	Compressor Room	S13	Exhaust Fans	1	85	100%	356.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 501 GF	F.S. Pump Room	S14	Water Pumps	1	85	100%	356.7	-59.0	0	-5	-5	3	6	0	0	0	0	30.0	
NAP 501 GF	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	356.7	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 501 GF	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	356.1	-59.0	0	0	0	3	0	0	0	7.0	0	36.0	
NAP 501 GF	PAU Room 1	S17	PAU	2	85	100%	355.2	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 501 GF	PAU Room 1	S18	Exhaust Fans	1	85	100%	355.2	-59.0	0	0	0	3	0	0	0	0	0	29.0	
NAP 501 GF	Chiller Plant Room	S19	Chiller Plant	2	85	100%	354.5	-59.0	0	0	0	3	0	0	0	3.0	0	32.0	
NAP 501 GF	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	350.1	-58.9	0	0	0	3	0	0	0	0	0	29.1	
NAP 501 GF	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	350.1	-58.9	0	-10	-10	3	6	0	0	3.0	0	28.1	
NAP 501 GF	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	350.1	-58.9	0	-10	-10	3	0	0	0	0	0	19.1	
NAP 501 GF	Battery Charging Room	S23	Exhaust Fans	1	85	100%	407.6	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 501 GF	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	350.5	-58.9	0	0	0	3	0	0	0	6.0	0	35.1	
NAP 501 GF	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	350.5	-58.9	0	0	0	3	0	0	0	3.0	0	32.1	
NAP 501 GF	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	350.5	-58.9	0	0	0	3	0	0	0	4.8	0	33.9	
NAP 501 GF	TBE Room	S27	Exhaust Fans	1	85	100%	357.9	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 501 GF	PAU Room 2	S28	PAU	5	85	100%	351.2	-58.9	0	0	0	3	0	0	0	7.0	0	36.1	
NAP 501 GF	AHU Room	S29	AHU	1	85	100%	407.0	-60.2	0	-10	-10	3	0	0	0	0	0	17.8	
NAP 501 GF	Lift Machine Room	S30	Lift Machine	3	85	100%	394.8	-59.9	0	-5	-5	3	0	0	0	4.8	0	27.9	
NAP 501 GF	Lift Machine Room	S31	Exhaust Fans	1	85	100%	390.7	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 501 GF	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	358.6	-59.1	0	-5	-5	3	6	0	0	4.8	0	34.7	
NAP 501 GF	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	358.6	-59.1	0	0	0	3	0	0	0	0	0	28.9	
NAP 501 GF	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	358.6	-59.1	0	0	0	3	0	0	0	3.0	0	46.9	
NAP 501 GF	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	378.5	-59.6	0	0	0	3	0	0	0	0	-11.8	31.6	
NAP 501 GF	L1 HKPF	S37	Hammering Activities	3	113	7%	401.6	-60.1	0	0	0	3	0	3	0	4.8	-11.8	51.9	
NAP 501 GF	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	388.8	-59.8	0	0	0	3	0	0	0	0	-5.7	25.5	
NAP 501 GF	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	360.7	-59.1	0	0	0	3	0	0	0	0	-14.8	41.1	
NAP 501 GF	EMSD Dept	S40	Tyre Changer	1	98	27%	367.3	-59.3	0	0	0	3	0	0	0	0	-5.7	36.0	
NAP 501 GF	EMSD Dept	S41	Hammering Activities	4	113	7%	409.8	-60.3	0	0	0	3	0	3	0	6.0	-11.8	53.0	
NAP 501 GF	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	361.1	-59.2	0	0	0	3	0	0	0	6.0	-8.8	41.1	
NAP 501 GF	EMSD Dept	S43	Roller Brake Tester	1	99	5%	418.9	-60.4	0	0	0	3	0	0	0	0	-13.0	28.6	
NAP 501 GF	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	361.1	-59.2	0	0	0	3	0	0	0	0	-7.0	35.8	
NAP 501 GF	L1 HKPF	S45	Roller Brake Tester	1	99	20%	368.5	-59.3	0	0	0	3	0	0	0	0	-7.0	35.7	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 601 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	429.3	-60.7	0	-5	-5	3	6	0	0	3.0	0	31.3	56
NAP 601 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	419.5	-60.5	0	0	0	3	0	0	0	0	0	27.5	
NAP 601 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	396.4	-60.0	0	0	0	3	0	0	0	7.0	0	35.0	
NAP 601 1F	Compressor Room	S4	Compressors	1	85	100%	387.0	-59.8	0	-5	-5	3	0	0	0	0	0	23.2	
NAP 601 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	382.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 1F	Transformer Room	S6	Transformers	2	85	100%	382.1	-59.6	0	0	0	3	6	0	0	3.0	0	37.4	
NAP 601 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	382.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	382.1	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	382.1	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	387.7	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 1F	Generator Room	S11	Exhaust Fans	1	85	100%	568.9	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 601 1F	Compressor Room	S12	Compressors	1	85	100%	396.2	-60.0	0	-5	-5	3	0	0	0	0	0	23.0	
NAP 601 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	392.6	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	392.6	-59.9	0	-5	-5	3	6	0	0	0	0	29.1	
NAP 601 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	392.6	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	391.5	-59.9	0	0	0	3	0	0	0	7.0	0	35.1	
NAP 601 1F	PAU Room 1	S17	PAU	2	85	100%	385.3	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 601 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	385.3	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	384.8	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 601 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	380.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	380.1	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	380.1	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	445.3	-61.0	0	0	0	3	0	0	0	0	0	27.0	
NAP 601 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	380.5	-59.6	0	0	0	3	0	0	0	6.0	0	34.4	
NAP 601 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	380.5	-59.6	0	0	0	3	0	0	0	3.0	0	31.4	
NAP 601 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	380.5	-59.6	0	0	0	3	0	0	0	4.8	0	33.2	
NAP 601 1F	TBE Room	S27	Exhaust Fans	1	85	100%	393.2	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	PAU Room 2	S28	PAU	5	85	100%	381.0	-59.6	0	0	0	3	0	0	0	7.0	0	35.4	
NAP 601 1F	AHU Room	S29	AHU	1	85	100%	435.8	-60.8	0	-10	-10	3	0	0	0	0	0	17.2	
NAP 601 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	432.4	-60.7	0	-5	-5	3	0	0	0	4.8	0	27.1	
NAP 601 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	428.3	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 601 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	394.1	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	394.1	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	394.1	-59.9	0	0	0	3	0	0	0	3.0	0	46.1	
NAP 601 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	414.5	-60.4	0	0	0	3	0	0	0	0	-11.8	30.8	
NAP 601 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	432.3	-60.7	0	0	0	3	0	3	0	4.8	-11.8	51.3	
NAP 601 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.0	-60.5	0	0	0	3	0	0	0	0	-5.7	24.8	
NAP 601 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	392.6	-59.9	0	0	0	3	0	0	0	0	-14.8	40.3	
NAP 601 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	403.9	-60.1	0	0	0	3	0	0	0	0	-5.7	35.2	
NAP 601 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	441.2	-60.9	0	0	0	3	0	3	0	6.0	-11.8	52.4	
NAP 601 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	396.0	-60.0	0	0	0	3	0	0	0	6.0	-8.8	40.3	
NAP 601 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	453.5	-61.1	0	0	0	3	0	0	0	0	-13.0	27.9	
NAP 601 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	396.0	-60.0	0	0	0	3	0	0	0	0	-7.0	35.0	
NAP 601 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	405.8	-60.2	0	0	0	3	0	0	0	0	-7.0	34.8	
NAP 601 15F	Chiller Pump Room	S1	Water Pumps	2	85	100%	431.8	-60.7	0	-5	-5	3	6	0	0	3.0	0	31.3	56
NAP 601 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	422.0	-60.5	0	0	0	3	0	0	0	0	0	27.5	
NAP 601 15F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	399.0	-60.0	0	0	0	3	0	0	0	7.0	0	35.0	
NAP 601 15F	Compressor Room	S4	Compressors	1	85	100%	389.7	-59.8	0	-5	-5	3	0	0	0	0	0	23.2	
NAP 601 15F	Compressor Room	S5	Exhaust Fans	1	85	100%	384.8	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	Transformer Room	S6	Transformers	2	85	100%	384.8	-59.7	0	0	0	3	6	0	0	3.0	0	37.3	
NAP 601 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	384.8	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	384.8	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 601 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	384.8	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 601 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	389.5	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 15F	Generator Room	S11	Exhaust Fans	1	85	100%	570.6	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 601 15F	Compressor Room	S12	Compressors	1	85	100%	397.4	-60.0	0	-5	-5	3	0	0	0	0	0	23.0	
NAP 601 15F	Compressor Room	S13	Exhaust Fans	1	85	100%	393.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	393.7	-59.9	0	-5	-5	3	6	0	0	0	0	29.1	
NAP 601 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	393.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	392.2	-59.9	0	0	0	3	0	0	0	7.0	0	35.1	
NAP 601 15F	PAU Room 1	S17	PAU	2	85	100%	386.1	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 601 15F	PAU Room 1	S18	Exhaust Fans	1	85	100%	386.1	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	385.1	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 601 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	380.4	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	380.4	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	380.4	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 15F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	445.0	-61.0	0	0	0	3	0	0	0	0	0	27.0	
NAP 601 15F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	380.1	-59.6	0	0	0	3	0	0	0	6.0	0	34.4	
NAP 601 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	380.1	-59.6	0	0	0	3	0	0	0	3.0	0	31.4	
NAP 601 15F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	380.1	-59.6	0	0	0	3	0	0	0	4.8	0	33.2	
NAP 601 15F	TBE Room	S27	Exhaust Fans	1	85	100%	392.1	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	PAU Room 2	S28	PAU	5	85	100%	379.8	-59.6	0	0	0	3	0	0	0	7.0	0	35.4	
NAP 601 15F	AHU Room	S29	AHU	1	85	100%	434.8	-60.8	0	-10	-10	3	0	0	0	0	0	17.2	
NAP 601 15F	Lift Machine Room	S30	Lift Machine	3	85	100%	430.9	-60.7	0	-5	-5	3	0	0	0	4.8	0	27.1	
NAP 601 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	426.8	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 601 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	392.5	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	392.5	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	392.5	-59.9	0	0	0	3	0	0	0	3.0	0	46.1	
NAP 601 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	417.0	-60.4	0	0	0	3	0	0	0	0	-11.8	30.8	
NAP 601 15F	L1 HKPF	S37	Hammering Activities	3	113	7%	434.7	-60.8	0	0	0	3	0	3	0	4.8	-11.8	51.2	
NAP 601 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.3	-60.5	0	0	0	3	0	0	0	0	-5.7	24.8	
NAP 601 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	392.2	-59.9	0	0	0	3	0	0	0	0	-14.8	40.3	
NAP 601 15F	EMSD Dept	S40	Tyre Changer	1	98	27%	403.9	-60.1	0	0	0	3	0	0	0	0	-5.7	35.2	
NAP 601 15F	EMSD Dept	S41	Hammering Activities	4	113	7%	441.2	-60.9	0	0	0	3	0	3	0	6.0	-11.8	52.4	
NAP 601 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	396.0	-60.0	0	0	0	3	0	0	0	6.0	-8.8	40.3	
NAP 601 15F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	453.5	-61.1	0	0	0	3	0	0	0	0	-13.0	27.9	
NAP 601 15F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	396.0	-60.0	0	0	0	3	0	0	0	0	-7.0	35.0	
NAP 601 15F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	405.8	-60.2	0	0	0	3	0	0	0	0	-7.0	34.8	
NAP 601 30F	Chiller Pump Room	S1	Water Pumps	2	85	100%	438.8	-60.8	0	-5	-5	3	6	0	0	3.0	0	31.2	56
NAP 601 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	429.2	-60.7	0	0	0	3	0	0	0	0	0	27.3	
NAP 601 30F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	406.6	-60.2	0	0	0	3	0	0	0	7.0	0	34.8	
NAP 601 30F	Compressor Room	S4	Compressors	1	85	100%	397.5	-60.0	0	-5	-5	3	0	0	0	0	0	23.0	
NAP 601 30F	Compressor Room	S5	Exhaust Fans	1	85	100%	392.8	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 30F	Transformer Room	S6	Transformers	2	85	100%	392.8	-59.9	0	0	0	3	6	0	0	3.0	0	37.1	
NAP 601 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	392.8	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	392.8	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 601 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	392.8	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 601 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	396.4	-60.0	0	0	0	3	0	0	0	3.0	0	31.0	
NAP 601 30F	Generator Room	S11	Exhaust Fans	1	85	100%	575.9	-63.2	0	0	0	3	0	0	0	0	0	24.8	
NAP 601 30F	Compressor Room	S12	Compressors	1	85	100%	403.5	-60.1	0	-5	-5	3	0	0	0	0	0	22.9	
NAP 601 30F	Compressor Room	S13	Exhaust Fans	1	85	100%	399.8	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	399.8	-60.0	0	-5	-5	3	6	0	0	0	0	29.0	
NAP 601 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	399.8	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 30F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	395.0	-59.9	0	0	0	3	0	0	0	7.0	0	35.1	
NAP 601 30F	PAU Room 1	S17	PAU	2	85	100%	389.0	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 30F	PAU Room 1	S18	Exhaust Fans	1	85	100%	389.0	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 601 30F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	390.5	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	385.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	385.9	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 601 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	385.9	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 601 30F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	449.0	-61.0	0	0	0	3	0	0	0	0	0	27.0	
NAP 601 30F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	384.8	-59.7	0	0	0	3	0	0	0	6.0	0	34.3	
NAP 601 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	384.8	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 601 30F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	384.8	-59.7	0	0	0	3	0	0	0	4.8	0	33.1	
NAP 601 30F	TBE Room	S27	Exhaust Fans	1	85	100%	395.9	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 30F	PAU Room 2	S28	PAU	5	85	100%	383.7	-59.7	0	0	0	3	0	0	0	7.0	0	35.3	
NAP 601 30F	AHU Room	S29	AHU	1	85	100%	438.3	-60.8	0	-10	-10	3	0	0	0	0	0	17.2	
NAP 601 30F	Lift Machine Room	S30	Lift Machine	3	85	100%	433.9	-60.7	0	-5	-5	3	0	0	0	4.8	0	27.1	
NAP 601 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	429.8	-60.7	0	0	0	3	0	0	0	0	0	27.3	
NAP 601 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	395.7	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	395.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 30F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	395.7	-59.9	0	0	0	3	0	0	0	3.0	0	46.1	
NAP 601 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	424.3	-60.6	0	0	0	3	0	0	0	0	-11.8	30.6	
NAP 601 30F	L1 HKPF	S37	Hammering Activities	3	113	7%	441.7	-60.9	0	0	0	3	0	3	0	4.8	-11.8	51.1	
NAP 601 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	427.3	-60.6	0	0	0	3	0	0	0	0	-5.7	24.7	
NAP 601 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	396.8	-60.0	0	0	0	3	0	0	0	0	-14.8	40.2	
NAP 601 30F	EMSD Dept	S40	Tyre Changer	1	98	27%	408.3	-60.2	0	0	0	3	0	0	0	0	-5.7	35.1	
NAP 601 30F	EMSD Dept	S41	Hammering Activities	4	113	7%	445.3	-61.0	0	0	0	3	0	3	0	6.0	-11.8	52.3	
NAP 601 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	400.5	-60.1	0	0	0	3	0	0	0	6.0	-8.8	40.2	
NAP 601 30F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	457.5	-61.2	0	0	0	3	0	0	0	0	-13.0	27.8	
NAP 601 30F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	400.5	-60.1	0	0	0	3	0	0	0	0	-7.0	34.9	
NAP 601 30F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	410.2	-60.3	0	0	0	3	0	0	0	0	-7.0	34.7	

(Night-time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 601 1F	Chiller Pump Room	S1	Water Pumps	1	85	100%	429.3	-60.7	0	-5	-5	3	6	0	0	0	0	28.3	49
NAP 601 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	419.5	-60.5	0	0	0	3	0	0	0	0	0	27.5	
NAP 601 1F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	396.4	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 1F	Compressor Room	S4	Compressors	0	85	0%	387.0	-59.8	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 1F	Compressor Room	S5	Exhaust Fans	0	85	0%	382.1	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	Transformer Room	S6	Transformers	2	85	100%	382.1	-59.6	0	0	0	3	6	0	0	3.0	0	37.4	
NAP 601 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	382.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	382.1	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	382.1	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	387.7	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 1F	Generator Room	S11	Exhaust Fans	1	85	100%	568.9	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 601 1F	Compressor Room	S12	Compressors	0	85	0%	396.2	-60.0	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 1F	Compressor Room	S13	Exhaust Fans	0	85	0%	392.6	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	392.6	-59.9	0	-5	-5	3	6	0	0	0	0	29.1	
NAP 601 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	392.6	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	391.5	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 601 1F	PAU Room 1	S17	PAU	1	85	100%	385.3	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 1F	PAU Room 1	S18	Exhaust Fans	0	85	0%	385.3	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	384.8	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	380.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	380.1	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	380.1	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 1F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	445.3	-61.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	380.5	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	380.5	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	380.5	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	TBE Room	S27	Exhaust Fans	0	85	0%	393.2	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	PAU Room 2	S28	PAU	0	85	0%	381.0	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	AHU Room	S29	AHU	0	85	0%	435.8	-60.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 601 1F	Lift Machine Room	S30	Lift Machine	1	85	100%	432.4	-60.7	0	-5	-5	3	0	0	0	0	0	22.3	
NAP 601 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	428.3	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 601 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	394.1	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	394.1	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 1F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	394.1	-59.9	0	0	0	3	0	0	0	0	0	43.1	
NAP 601 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	414.5	-60.4	0	0	0	3	0	0	0	0	0	-17.8	24.8
NAP 601 1F	L1 HKPF	S37	Hammering Activities	1	113	7%	432.3	-60.7	0	0	0	3	0	3	0	0	0	-11.8	46.5
NAP 601 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.0	-60.5	0	0	0	3	0	0	0	0	0	-6	24.8
NAP 601 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	392.6	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	EMSD Dept	S40	Tyre Changer	0	98	0%	403.9	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	EMSD Dept	S41	Hammering Activities	0	113	0%	441.2	-60.9	0	0	0	3	0	3	0	0	0	0.0	
NAP 601 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	396.0	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	453.5	-61.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	396.0	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 1F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	405.8	-60.2	0	0	0	3	0	0	0	0	0	-11.8	30.0
NAP 601 15F	Chiller Pump Room	S1	Water Pumps	1	85	100%	431.8	-60.7	0	-5	-5	3	6	0	0	0	0	28.3	49
NAP 601 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	422.0	-60.5	0	0	0	3	0	0	0	0	0	27.5	
NAP 601 15F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	399.0	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 15F	Compressor Room	S4	Compressors	0	85	0%	389.7	-59.8	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 15F	Compressor Room	S5	Exhaust Fans	0	85	0%	384.8	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	Transformer Room	S6	Transformers	2	85	100%	384.8	-59.7	0	0	0	3	6	0	0	3.0	0	37.3	
NAP 601 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	384.8	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	384.8	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 601 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	384.8	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 601 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	389.5	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 601 15F	Generator Room	S11	Exhaust Fans	1	85	100%	570.6	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 601 15F	Compressor Room	S12	Compressors	0	85	0%	397.4	-60.0	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 15F	Compressor Room	S13	Exhaust Fans	0	85	0%	393.7	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	393.7	-59.9	0	-5	-5	3	6	0	0	0	0	29.1	
NAP 601 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	393.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	392.2	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 601 15F	PAU Room 1	S17	PAU	1	85	100%	386.1	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	PAU Room 1	S18	Exhaust Fans	0	85	0%	386.1	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	385.1	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	380.4	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 601 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	380.4	-59.6	0	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 601 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	380.4	-59.6	0	-10	-10	3	0	0	0	0	0	18.4	
NAP 601 15F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	445.0	-61.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	380.1	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	380.1	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	380.1	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	TBE Room	S27	Exhaust Fans	0	85	0%	392.1	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	PAU Room 2	S28	PAU	0	85	0%	379.8	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	AHU Room	S29	AHU	0	85	0%	434.8	-60.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 601 15F	Lift Machine Room	S30	Lift Machine	1	85	100%	430.9	-60.7	0	-5	-5	3	0	0	0	0	0	22.3	
NAP 601 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	426.8	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 601 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	392.5	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	392.5	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 15F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	392.5	-59.9	0	0	0	3	0	0	0	0	0	43.1	
NAP 601 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	417.0	-60.4	0	0	0	3	0	0	0	0	0	-17.8	24.8
NAP 601 15F	L1 HKPF	S37	Hammering Activities	1	113	7%	434.7	-60.8	0	0	0	3	0	3	0	0	0	-11.8	46.4
NAP 601 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.3	-60.5	0	0	0	3	0	0	0	0	0	-6	24.8
NAP 601 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	392.2	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	EMSD Dept	S40	Tyre Changer	0	98	0%	403.9	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	EMSD Dept	S41	Hammering Activities	0	113	0%	441.2	-60.9	0	0	0	3	0	3	0	0	0	0.0	
NAP 601 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	396.0	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	453.5	-61.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	396.0	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 15F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	405.8	-60.2	0	0	0	3	0	0	0	0	0	-11.8	30.0
NAP 601 30F	Chiller Pump Room	S1	Water Pumps	1	85	100%	438.8	-60.8	0	-5	-5	3	6	0	0	0	0	28.2	49
NAP 601 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	429.2	-60.7	0	0	0	3	0	0	0	0	0	27.3	
NAP 601 30F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	406.6	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 601 30F	Compressor Room	S4	Compressors	0	85	0%	397.5	-60.0	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 30F	Compressor Room	S5	Exhaust Fans	0	85	0%	392.8	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	Transformer Room	S6	Transformers	2	85	100%	392.8	-59.9	0	0	0	3	6	0	0	3.0	0	37.1	
NAP 601 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	392.8	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	392.8	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 601 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	392.8	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 601 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	396.4	-60.0	0	0	0	3	0	0	0	3.0	0	31.0	
NAP 601 30F	Generator Room	S11	Exhaust Fans	1	85	100%	575.9	-63.2	0	0	0	3	0	0	0	0	0	24.8	
NAP 601 30F	Compressor Room	S12	Compressors	0	85	0%	403.5	-60.1	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 601 30F	Compressor Room	S13	Exhaust Fans	0	85	0%	399.8	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	399.8	-60.0	0	-5	-5	3	6	0	0	0	0	29.0	
NAP 601 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	399.8	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 601 30F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	395.0	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 601 30F	PAU Room 1	S17	PAU	1	85	100%	389.0	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 601 30F	PAU Room 1	S18	Exhaust Fans	0	85	0%	389.0	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	390.5	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 601 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	385.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 601 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	385.9	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 601 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	385.9	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 601 30F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	449.0	-61.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	384.8	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	384.8	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	384.8	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	TBE Room	S27	Exhaust Fans	0	85	0%	395.9	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	PAU Room 2	S28	PAU	0	85	0%	383.7	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	AHU Room	S29	AHU	0	85	0%	438.3	-60.8	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 601 30F	Lift Machine Room	S30	Lift Machine	1	85	100%	433.9	-60.7	0	-5	-5	3	0	0	0	0	0	22.3	
NAP 601 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	429.8	-60.7	0	0	0	3	0	0	0	0	0	27.3	
NAP 601 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	395.7	-59.9	0	-5	-5	3	6	0	0	4.8	0	33.9	
NAP 601 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	395.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 601 30F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	395.7	-59.9	0	0	0	3	0	0	0	0	0	43.1	
NAP 601 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	424.3	-60.6	0	0	0	3	0	0	0	0	0	-17.8	24.6
NAP 601 30F	L1 HKPF	S37	Hammering Activities	1	113	7%	441.7	-60.9	0	0	0	3	0	3	0	0	0	-11.8	46.3
NAP 601 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	427.3	-60.6	0	0	0	3	0	0	0	0	0	-6	24.7
NAP 601 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	396.8	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	EMSD Dept	S40	Tyre Changer	0	98	0%	408.3	-60.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	EMSD Dept	S41	Hammering Activities	0	113	0%	445.3	-61.0	0	0	0	3	0	3	0	0	0	0.0	
NAP 601 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	400.5	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	457.5	-61.2	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	400.5	-60.1	0	0	0	3	0	0	0	0	0	0.0	
NAP 601 30F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	410.2	-60.3	0	0	0	3	0	0	0	0	0	-11.8	29.9

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 701 1F	Chiller Pump Room	S1	Water Pumps	2	85	100%	410.8	-60.3	-10	-5	-10	3	6	0	0	3.0	0	26.7	56
NAP 701 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	400.5	-60.1	-10	0	-10	3	0	0	0	0	0	17.9	
NAP 701 1F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	383.3	-59.7	-10	0	-10	3	0	0	0	7.0	0	25.3	
NAP 701 1F	Compressor Room	S4	Compressors	1	85	100%	383.6	-59.7	-10	-5	-10	3	0	0	0	0	0	18.3	
NAP 701 1F	Compressor Room	S5	Exhaust Fans	1	85	100%	380.9	-59.6	-10	0	-10	3	0	0	0	0	0	18.4	
NAP 701 1F	Transformer Room	S6	Transformers	2	85	100%	380.9	-59.6	-10	0	-10	3	6	0	0	3.0	0	27.4	
NAP 701 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	380.9	-59.6	-10	0	-10	3	0	0	0	0	0	18.4	
NAP 701 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	380.9	-59.6	-10	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 701 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	380.9	-59.6	-10	-10	-10	3	0	0	0	0	0	18.4	
NAP 701 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	394.8	-59.9	-10	0	-10	3	0	0	0	3.0	0	21.1	
NAP 701 1F	Generator Room	S11	Exhaust Fans	1	85	100%	560.4	-63.0	0	0	0	3	0	0	0	0	0	25.0	
NAP 701 1F	Compressor Room	S12	Compressors	1	85	100%	387.6	-59.8	0	-5	-5	3	0	0	0	0	0	23.2	
NAP 701 1F	Compressor Room	S13	Exhaust Fans	1	85	100%	381.8	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	381.8	-59.6	0	-5	-5	3	6	0	0	0	0	29.4	
NAP 701 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	381.8	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 1F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	382.1	-59.6	0	0	0	3	0	0	0	7.0	0	35.4	
NAP 701 1F	PAU Room 1	S17	PAU	2	85	100%	392.2	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 701 1F	PAU Room 1	S18	Exhaust Fans	1	85	100%	392.2	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 1F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	391.0	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 701 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	387.4	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	387.4	-59.8	0	-10	-10	3	6	0	0	3.0	0	27.2	
NAP 701 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	387.4	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 701 1F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	425.8	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 701 1F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	387.7	-59.8	0	0	0	3	0	0	0	6.0	0	34.2	
NAP 701 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	387.7	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 701 1F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	387.7	-59.8	0	0	0	3	0	0	0	4.8	0	33.0	
NAP 701 1F	TBE Room	S27	Exhaust Fans	1	85	100%	383.3	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 1F	PAU Room 2	S28	PAU	5	85	100%	388.2	-59.8	0	0	0	3	0	0	0	7.0	0	35.2	
NAP 701 1F	AHU Room	S29	AHU	1	85	100%	443.6	-60.9	0	-10	-10	3	0	0	0	0	0	17.1	
NAP 701 1F	Lift Machine Room	S30	Lift Machine	3	85	100%	413.0	-60.3	0	-5	-5	3	0	0	0	4.8	0	27.5	
NAP 701 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	409.1	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 701 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	383.4	-59.7	0	-5	-5	3	6	0	0	4.8	0	34.1	
NAP 701 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	383.4	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 1F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	383.4	-59.7	-10	0	-10	3	0	0	0	3.0	0	36.3	
NAP 701 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	402.7	-60.1	-10	0	-10	3	0	0	0	0	-11.8	21.1	
NAP 701 1F	L1 HKPF	S37	Hammering Activities	3	113	7%	436.0	-60.8	0	0	0	3	0	3	0	4.8	-11.8	51.2	
NAP 701 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	417.7	-60.4	0	0	0	3	0	0	0	0	-5.7	24.9	
NAP 701 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	393.5	-59.9	0	0	0	3	0	0	0	0	-14.8	40.3	
NAP 701 1F	EMSD Dept	S40	Tyre Changer	1	98	27%	388.5	-59.8	0	0	0	3	0	0	0	0	-5.7	35.5	
NAP 701 1F	EMSD Dept	S41	Hammering Activities	4	113	7%	440.4	-60.9	0	0	0	3	0	3	0	6.0	-11.8	52.4	
NAP 701 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	386.6	-59.7	0	0	0	3	0	0	0	6.0	-8.8	40.6	
NAP 701 1F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	442.6	-60.9	0	0	0	3	0	0	0	0	-13.0	28.1	
NAP 701 1F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	386.6	-59.7	0	0	0	3	0	0	0	0	-7.0	35.3	
NAP 701 1F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	388.1	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 701 15F	Chiller Pump Room	S1	Water Pumps	2	85	100%	413.3	-60.3	0	-5	-5	3	6	0	0	3.0	0	31.7	56
NAP 701 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	403.1	-60.1	0	0	0	3	0	0	0	0	0	27.9	
NAP 701 15F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	386.0	-59.7	0	0	0	3	0	0	0	7.0	0	35.3	
NAP 701 15F	Compressor Room	S4	Compressors	1	85	100%	386.3	-59.7	0	-5	-5	3	0	0	0	0	0	23.3	
NAP 701 15F	Compressor Room	S5	Exhaust Fans	1	85	100%	383.6	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Transformer Room	S6	Transformers	2	85	100%	383.6	-59.7	0	0	0	3	6	0	0	3.0	0	37.3	
NAP 701 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	383.6	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	383.6	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 701 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	383.6	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 701 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	396.5	-60.0	0	0	0	3	0	0	0	3.0	0	31.0	
NAP 701 15F	Generator Room	S11	Exhaust Fans	1	85	100%	562.2	-63.0	0	0	0	3	0	0	0	0	0	25.0	
NAP 701 15F	Compressor Room	S12	Compressors	1	85	100%	388.7	-59.8	0	-5	-5	3	0	0	0	0	0	23.2	
NAP 701 15F	Compressor Room	S13	Exhaust Fans	1	85	100%	382.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	382.9	-59.7	0	-5	-5	3	6	0	0	0	0	29.3	
NAP 701 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	382.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	382.8	-59.7	0	0	0	3	0	0	0	7.0	0	35.3	
NAP 701 15F	PAU Room 1	S17	PAU	2	85	100%	392.9	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 701 15F	PAU Room 1	S18	Exhaust Fans	1	85	100%	392.9	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 15F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	391.3	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 701 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	387.6	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	387.6	-59.8	0	-10	-10	3	6	0	0	3.0	0	27.2	
NAP 701 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	387.6	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 701 15F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	425.4	-60.6	0	0	0	3	0	0	0	0	0	27.4	
NAP 701 15F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	387.3	-59.8	0	0	0	3	0	0	0	6.0	0	34.2	
NAP 701 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	387.3	-59.8	0	0	0	3	0	0	0	3.0	0	31.2	
NAP 701 15F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	387.3	-59.8	0	0	0	3	0	0	0	4.8	0	33.0	
NAP 701 15F	TBE Room	S27	Exhaust Fans	1	85	100%	382.1	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 15F	PAU Room 2	S28	PAU	5	85	100%	387.1	-59.8	0	0	0	3	0	0	0	7.0	0	35.2	
NAP 701 15F	AHU Room	S29	AHU	1	85	100%	442.6	-60.9	0	-10	-10	3	0	0	0	0	0	17.1	
NAP 701 15F	Lift Machine Room	S30	Lift Machine	3	85	100%	411.4	-60.3	0	-5	-5	3	0	0	0	4.8	0	27.5	
NAP 701 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	407.5	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 701 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	381.6	-59.6	0	-5	-5	3	6	0	0	4.8	0	34.2	
NAP 701 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	381.6	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 15F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	381.6	-59.6	0	0	0	3	0	0	0	3.0	0	46.4	
NAP 701 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	405.2	-60.2	0	0	0	3	0	0	0	0	-11.8	31.0	
NAP 701 15F	L1 HKPF	S37	Hammering Activities	3	113	7%	438.4	-60.8	0	0	0	3	0	3	0	4.8	-11.8	51.2	
NAP 701 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	418.0	-60.4	0	0	0	3	0	0	0	0	-5.7	24.9	
NAP 701 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	393.1	-59.9	0	0	0	3	0	0	0	0	-14.8	40.3	
NAP 701 15F	EMSD Dept	S40	Tyre Changer	1	98	27%	388.5	-59.8	0	0	0	3	0	0	0	0	-5.7	35.5	
NAP 701 15F	EMSD Dept	S41	Hammering Activities	4	113	7%	440.4	-60.9	0	0	0	3	0	3	0	6.0	-11.8	52.4	
NAP 701 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	386.6	-59.7	0	0	0	3	0	0	0	6.0	-8.8	40.6	
NAP 701 15F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	442.6	-60.9	0	0	0	3	0	0	0	0	-13.0	28.1	
NAP 701 15F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	386.6	-59.7	0	0	0	3	0	0	0	0	-7.0	35.3	
NAP 701 15F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	388.1	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 701 30F	Chiller Pump Room	S1	Water Pumps	2	85	100%	420.6	-60.5	0	-5	-5	3	6	0	0	3.0	0	31.5	56
NAP 701 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	410.6	-60.3	0	0	0	3	0	0	0	0	0	27.7	
NAP 701 30F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	393.8	-59.9	0	0	0	3	0	0	0	7.0	0	35.1	
NAP 701 30F	Compressor Room	S4	Compressors	1	85	100%	394.1	-59.9	0	-5	-5	3	0	0	0	0	0	23.1	
NAP 701 30F	Compressor Room	S5	Exhaust Fans	1	85	100%	391.5	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Transformer Room	S6	Transformers	2	85	100%	391.5	-59.9	0	0	0	3	6	0	0	3.0	0	37.1	
NAP 701 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	391.5	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	391.5	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 701 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	391.5	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 701 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	403.3	-60.1	0	0	0	3	0	0	0	3.0	0	30.9	
NAP 701 30F	Generator Room	S11	Exhaust Fans	1	85	100%	567.5	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 701 30F	Compressor Room	S12	Compressors	1	85	100%	394.8	-59.9	0	-5	-5	3	0	0	0	0	0	23.1	
NAP 701 30F	Compressor Room	S13	Exhaust Fans	1	85	100%	389.1	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	389.1	-59.8	0	-5	-5	3	6	0	0	0	0	29.2	
NAP 701 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	389.1	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 30F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	385.7	-59.7	0	0	0	3	0	0	0	7.0	0	35.3	
NAP 701 30F	PAU Room 1	S17	PAU	2	85	100%	395.7	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 701 30F	PAU Room 1	S18	Exhaust Fans	1	85	100%	395.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	396.5	-60.0	0	0	0	3	0	0	0	3.0	0	31.0	
NAP 701 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	392.9	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	392.9	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 701 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	392.9	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 701 30F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	429.6	-60.7	0	0	0	3	0	0	0	0	0	27.3	
NAP 701 30F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	391.9	-59.9	0	0	0	3	0	0	0	6.0	0	34.1	
NAP 701 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	391.9	-59.9	0	0	0	3	0	0	0	3.0	0	31.1	
NAP 701 30F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	391.9	-59.9	0	0	0	3	0	0	0	4.8	0	32.9	
NAP 701 30F	TBE Room	S27	Exhaust Fans	1	85	100%	386.0	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 30F	PAU Room 2	S28	PAU	5	85	100%	390.8	-59.8	0	0	0	3	0	0	0	7.0	0	35.2	
NAP 701 30F	AHU Room	S29	AHU	1	85	100%	445.9	-61.0	0	-10	-10	3	0	0	0	0	0	17.0	
NAP 701 30F	Lift Machine Room	S30	Lift Machine	3	85	100%	414.5	-60.4	0	-5	-5	3	0	0	0	4.8	0	27.4	
NAP 701 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	410.6	-60.3	0	0	0	3	0	0	0	0	0	27.7	
NAP 701 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	384.9	-59.7	0	-5	-5	3	6	0	0	4.8	0	34.1	
NAP 701 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	384.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 30F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	384.9	-59.7	0	0	0	3	0	0	0	3.0	0	46.3	
NAP 701 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	412.7	-60.3	0	0	0	3	0	0	0	0	-11.8	30.9	
NAP 701 30F	L1 HKPF	S37	Hammering Activities	3	113	7%	445.3	-61.0	0	0	0	3	0	3	0	4.8	-11.8	51.0	
NAP 701 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.9	-60.5	0	0	0	3	0	0	0	0	-5.7	24.8	
NAP 701 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	397.7	-60.0	0	0	0	3	0	0	0	0	-14.8	40.2	
NAP 701 30F	EMSD Dept	S40	Tyre Changer	1	98	27%	393.0	-59.9	0	0	0	3	0	0	0	0	-5.7	35.4	
NAP 701 30F	EMSD Dept	S41	Hammering Activities	4	113	7%	444.5	-61.0	0	0	0	3	0	3	0	6.0	-11.8	52.3	
NAP 701 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	391.2	-59.8	0	0	0	3	0	0	0	6.0	-8.8	40.5	
NAP 701 30F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	446.6	-61.0	0	0	0	3	0	0	0	0	-13.0	28.0	
NAP 701 30F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	391.2	-59.8	0	0	0	3	0	0	0	0	-7.0	35.2	
NAP 701 30F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	392.7	-59.9	0	0	0	3	0	0	0	0	-7.0	35.1	

(Night-time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 701 1F	Chiller Pump Room	S1	Water Pumps	1	85	100%	410.8	-60.3	-10	-5	-10	3	6	0	0	0	0	23.7	48
NAP 701 1F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	400.5	-60.1	-10	0	-10	3	0	0	0	0	0	17.9	
NAP 701 1F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	383.3	-59.7	-10	0	-10	3	0	0	0	0	0	18.3	
NAP 701 1F	Compressor Room	S4	Compressors	0	85	0%	383.6	-59.7	-10	-5	-10	3	0	0	0	0	0	0.0	
NAP 701 1F	Compressor Room	S5	Exhaust Fans	0	85	0%	380.9	-59.6	-10	0	-10	3	0	0	0	0	0	0.0	
NAP 701 1F	Transformer Room	S6	Transformers	2	85	100%	380.9	-59.6	-10	0	-10	3	6	0	0	3.0	0	27.4	
NAP 701 1F	Transformer Room	S7	Exhaust Fans	1	85	100%	380.9	-59.6	-10	0	-10	3	0	0	0	0	0	18.4	
NAP 701 1F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	380.9	-59.6	-10	-10	-10	3	6	0	0	3.0	0	27.4	
NAP 701 1F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	380.9	-59.6	-10	-10	-10	3	0	0	0	0	0	18.4	
NAP 701 1F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	394.8	-59.9	-10	0	-10	3	0	0	0	3.0	0	21.1	
NAP 701 1F	Generator Room	S11	Exhaust Fans	1	85	100%	560.4	-63.0	0	0	0	3	0	0	0	0	0	25.0	
NAP 701 1F	Compressor Room	S12	Compressors	0	85	0%	387.6	-59.8	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 701 1F	Compressor Room	S13	Exhaust Fans	0	85	0%	381.8	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	F.S. Pump Room	S14	Water Pumps	1	85	100%	381.8	-59.6	0	-5	-5	3	6	0	0	0	0	29.4	
NAP 701 1F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	381.8	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 1F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	382.1	-59.6	0	0	0	3	0	0	0	3.0	0	31.4	
NAP 701 1F	PAU Room 1	S17	PAU	1	85	100%	392.2	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 1F	PAU Room 1	S18	Exhaust Fans	0	85	0%	392.2	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	391.0	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 1F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	387.4	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	387.4	-59.8	0	-10	-10	3	6	0	0	3.0	0	27.2	
NAP 701 1F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	387.4	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 701 1F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	425.8	-60.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	387.7	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	387.7	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	387.7	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	TBE Room	S27	Exhaust Fans	0	85	0%	383.3	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	PAU Room 2	S28	PAU	0	85	0%	388.2	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	AHU Room	S29	AHU	0	85	0%	443.6	-60.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 701 1F	Lift Machine Room	S30	Lift Machine	1	85	100%	413.0	-60.3	0	-5	-5	3	0	0	0	0	0	22.7	
NAP 701 1F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	409.1	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 701 1F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	383.4	-59.7	0	-5	-5	3	6	0	0	4.8	0	34.1	
NAP 701 1F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	383.4	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 1F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	383.4	-59.7	-10	0	-10	3	0	0	0	0	0	33.3	
NAP 701 1F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	402.7	-60.1	-10	0	-10	3	0	0	0	0	-17.8	15.1	
NAP 701 1F	L1 HKPF	S37	Hammering Activities	1	113	7%	436.0	-60.8	0	0	0	3	0	3	0	0	-11.8	46.4	
NAP 701 1F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	417.7	-60.4	0	0	0	3	0	0	0	0	-6	24.9	
NAP 701 1F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	393.1	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	EMSD Dept	S40	Tyre Changer	0	98	0%	388.5	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	EMSD Dept	S41	Hammering Activities	0	113	0%	440.4	-60.9	0	0	0	3	0	3	0	0	0	0.0	
NAP 701 1F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	386.6	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	442.6	-60.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	386.6	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 1F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	388.1	-59.8	0	0	0	3	0	0	0	0	-11.8	30.4	
NAP 701 15F	Chiller Pump Room	S1	Water Pumps	1	85	100%	413.3	-60.3	0	-5	-5	3	6	0	0	0	0	28.7	49
NAP 701 15F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	403.1	-60.1	0	0	0	3	0	0	0	0	0	27.9	
NAP 701 15F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	386.0	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Compressor Room	S4	Compressors	0	85	0%	386.3	-59.7	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 701 15F	Compressor Room	S5	Exhaust Fans	0	85	0%	383.6	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	Transformer Room	S6	Transformers	2	85	100%	383.6	-59.7	0	0	0	3	6	0	0	3.0	0	37.3	
NAP 701 15F	Transformer Room	S7	Exhaust Fans	1	85	100%	383.6	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	383.6	-59.7	0	-10	-10	3	6	0	0	3.0	0	27.3	
NAP 701 15F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	383.6	-59.7	0	-10	-10	3	0	0	0	0	0	18.3	
NAP 701 15F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	396.5	-60.0	0	0	0	3	0	0	0	3.0	0	31.0	
NAP 701 15F	Generator Room	S11	Exhaust Fans	1	85	100%	562.2	-63.0	0	0	0	3	0	0	0	0	0	25.0	
NAP 701 15F	Compressor Room	S12	Compressors	0	85	0%	388.7	-59.8	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 701 15F	Compressor Room	S13	Exhaust Fans	0	85	0%	382.9	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	F.S. Pump Room	S14	Water Pumps	1	85	100%	382.9	-59.7	0	-5	-5	3	6	0	0	0	0	29.3	
NAP 701 15F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	382.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 15F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	382.8	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 701 15F	PAU Room 1	S17	PAU	1	85	100%	392.9	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 15F	PAU Room 1	S18	Exhaust Fans	0	85	0%	392.9	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	391.3	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 15F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	387.6	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	387.6	-59.8	0	-10	-10	3	6	0	0	3.0	0	27.2	
NAP 701 15F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	387.6	-59.8	0	-10	-10	3	0	0	0	0	0	18.2	
NAP 701 15F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	425.4	-60.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	387.3	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	387.3	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	387.3	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	TBE Room	S27	Exhaust Fans	0	85	0%	382.1	-59.6	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	PAU Room 2	S28	PAU	0	85	0%	387.1	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	AHU Room	S29	AHU	0	85	0%	442.6	-60.9	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 701 15F	Lift Machine Room	S30	Lift Machine	1	85	100%	411.4	-60.3	0	-5	-5	3	0	0	0	0	0	22.7	
NAP 701 15F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	407.5	-60.2	0	0	0	3	0	0	0	0	0	27.8	
NAP 701 15F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	381.6	-59.6	0	-5	-5	3	6	0	0	4.8	0	34.2	
NAP 701 15F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	381.6	-59.6	0	0	0	3	0	0	0	0	0	28.4	
NAP 701 15F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	381.6	-59.6	0	0	0	3	0	0	0	0	0	43.4	
NAP 701 15F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	405.2	-60.2	0	0	0	3	0	0	0	0	-17.8	25.0	
NAP 701 15F	L1 HKPF	S37	Hammering Activities	1	113	7%	438.4	-60.8	0	0	0	3	0	3	0	0	-11.8	46.4	
NAP 701 15F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	418.0	-60.4	0	0	0	3	0	0	0	0	-6	24.9	
NAP 701 15F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	393.1	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	EMSD Dept	S40	Tyre Changer	0	98	0%	388.5	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	EMSD Dept	S41	Hammering Activities	0	113	0%	440.4	-60.9	0	0	0	3	0	3	0	0	0	0.0	
NAP 701 15F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	386.6	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	442.6	-60.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	386.6	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 15F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	388.1	-59.8	0	0	0	3	0	0	0	0	-11.8	30.4	
NAP 701 30F	Chiller Pump Room	S1	Water Pumps	1	85	100%	420.6	-60.5	0	-5	-5	3	6	0	0	0	0	28.5	49
NAP 701 30F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	410.6	-60.3	0	0	0	3	0	0	0	0	0	27.7	
NAP 701 30F	Exhaust Fan Room	S3	General Exhaust Fans	1	85	100%	393.8	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Compressor Room	S4	Compressors	0	85	0%	394.1	-59.9	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 701 30F	Compressor Room	S5	Exhaust Fans	0	85	0%	391.5	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	Transformer Room	S6	Transformers	2	85	100%	391.5	-59.9	0	0	0	3	6	0	0	3.0	0	37.1	
NAP 701 30F	Transformer Room	S7	Exhaust Fans	1	85	100%	391.5	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	391.5	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 701 30F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	391.5	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 701 30F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	403.3	-60.1	0	0	0	3	0	0	0	3.0	0	30.9	
NAP 701 30F	Generator Room	S11	Exhaust Fans	1	85	100%	567.5	-63.1	0	0	0	3	0	0	0	0	0	24.9	
NAP 701 30F	Compressor Room	S12	Compressors	0	85	0%	394.8	-59.9	0	-5	-5	3	0	0	0	0	0	0.0	
NAP 701 30F	Compressor Room	S13	Exhaust Fans	0	85	0%	389.1	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	F.S. Pump Room	S14	Water Pumps	1	85	100%	389.1	-59.8	0	-5	-5	3	6	0	0	0	0	29.2	
NAP 701 30F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	389.1	-59.8	0	0	0	3	0	0	0	0	0	28.2	
NAP 701 30F	Exhaust Fan Room	S16	General Exhaust Fans	2	85	100%	385.7	-59.7	0	0	0	3	0	0	0	3.0	0	31.3	
NAP 701 30F	PAU Room 1	S17	PAU	1	85	100%	395.7	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	PAU Room 1	S18	Exhaust Fans	0	85	0%	395.7	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	Chiller Plant Room	S19	Chiller Plant	1	85	100%	396.5	-60.0	0	0	0	3	0	0	0	0	0	28.0	
NAP 701 30F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	392.9	-59.9	0	0	0	3	0	0	0	0	0	28.1	
NAP 701 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	392.9	-59.9	0	-10	-10	3	6	0	0	3.0	0	27.1	
NAP 701 30F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	392.9	-59.9	0	-10	-10	3	0	0	0	0	0	18.1	
NAP 701 30F	Battery Charging Room	S23	Exhaust Fans	0	85	0%	429.6	-60.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	Exhaust Fan Room	S24	General Exhaust Fans	0	85	0%	391.9	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	Exhaust Fan Room	S25	Welding Exhaust Fans	0	85	0%	391.9	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	Exhaust Fan Room	S26	Exhaust Fans	0	85	0%	391.9	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	TBE Room	S27	Exhaust Fans	0	85	0%	386.0	-59.7	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	PAU Room 2	S28	PAU	0	85	0%	390.8	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	AHU Room	S29	AHU	0	85	0%	445.9	-61.0	0	-10	-10	3	0	0	0	0	0	0.0	
NAP 701 30F	Lift Machine Room	S30	Lift Machine	1	85	100%	414.5	-60.4	0	-5	-5	3	0	0	0	0	0	22.6	
NAP 701 30F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	410.6	-60.3	0	0	0	3	0	0	0	0	0	27.7	
NAP 701 30F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	384.9	-59.7	0	-5	-5	3	6	0	0	4.8	0	34.1	
NAP 701 30F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	384.9	-59.7	0	0	0	3	0	0	0	0	0	28.3	
NAP 701 30F	Cooling Tower Plant Room	S34	Cooling towers	1	100	100%	384.9	-59.7	0	0	0	3	0	0	0	0	0	43.3	
NAP 701 30F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	2%	412.7	-60.3	0	0	0	3	0	0	0	0	-17.8	24.9	
NAP 701 30F	L1 HKPF	S37	Hammering Activities	1	113	7%	445.3	-61.0	0	0	0	3	0	3	0	0	-11.8	46.2	
NAP 701 30F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	422.9	-60.5	0	0	0	3	0	0	0	0	-6	24.8	
NAP 701 30F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	0	112	0%	397.7	-60.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	EMSD Dept	S40	Tyre Changer	0	98	0%	393.0	-59.9	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	EMSD Dept	S41	Hammering Activities	0	113	0%	444.5	-61.0	0	0	0	3	0	3	0	0	0	0.0	
NAP 701 30F	EMSD Dept	S42	Hand-held Pneumatic Tools	0	100	0%	391.2	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	EMSD Dept	S43	Roller Brake Tester	0	99	0%	446.6	-61.0	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	EMSD Dept	S44	Motorcycle Brake Tester	0	99	0%	391.2	-59.8	0	0	0	3	0	0	0	0	0	0.0	
NAP 701 30F	L1 HKPF	S45	Roller Brake Tester	1	99	7%	392.7	-59.9	0	0	0	3	0	0	0	0	-11.8	30.3	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 801 5F	Chiller Pump Room	S1	Water Pumps	2	85	100%	237.9	-55.5	0	-5	-5	3	6	0	0	3.0	0	36.5	61
NAP 801 5F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	227.7	-55.1	0	0	0	3	0	0	0	0	0	32.9	
NAP 801 5F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	211.4	-54.5	0	0	0	3	0	0	0	7.0	0	40.5	
NAP 801 5F	Compressor Room	S4	Compressors	1	85	100%	214.0	-54.6	0	-5	-5	3	0	0	0	0	0	28.4	
NAP 801 5F	Compressor Room	S5	Exhaust Fans	1	85	100%	212.1	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 801 5F	Transformer Room	S6	Transformers	2	85	100%	212.1	-54.5	0	0	0	3	6	0	0	3.0	0	42.5	
NAP 801 5F	Transformer Room	S7	Exhaust Fans	1	85	100%	212.1	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 801 5F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	212.1	-54.5	0	-10	-10	3	6	0	0	3.0	0	32.5	
NAP 801 5F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	212.1	-54.5	0	-10	-10	3	0	0	0	0	0	23.5	
NAP 801 5F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	227.8	-55.2	0	0	0	3	0	0	0	3.0	0	35.8	
NAP 801 5F	Generator Room	S11	Exhaust Fans	1	85	100%	319.8	-58.1	0	0	0	3	0	0	0	0	0	29.9	
NAP 801 5F	Compressor Room	S12	Compressors	1	85	100%	215.3	-54.7	0	-5	-5	3	0	0	0	0	0	28.3	
NAP 801 5F	Compressor Room	S13	Exhaust Fans	1	85	100%	209.2	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 801 5F	F.S. Pump Room	S14	Water Pumps	1	85	100%	209.2	-54.4	0	-5	-5	3	6	0	0	0	0	34.6	
NAP 801 5F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	209.2	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 801 5F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	209.6	-54.4	0	0	0	3	0	0	0	7.0	0	40.6	
NAP 801 5F	PAU Room 1	S17	PAU	2	85	100%	224.6	-55.0	0	0	0	3	0	0	0	3.0	0	36.0	
NAP 801 5F	PAU Room 1	S18	Exhaust Fans	1	85	100%	224.6	-55.0	0	0	0	3	0	0	0	0	0	33.0	
NAP 801 5F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	223.0	-55.0	0	0	0	3	0	0	0	3.0	0	36.0	
NAP 801 5F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	220.0	-54.8	0	0	0	3	0	0	0	0	0	33.2	
NAP 801 5F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	220.0	-54.8	0	-10	-10	3	6	0	0	3.0	0	32.2	
NAP 801 5F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	220.0	-54.8	0	-10	-10	3	0	0	0	0	0	23.2	
NAP 801 5F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	251.1	-56.0	0	0	0	3	0	0	0	0	0	32.0	
NAP 801 5F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	220.1	-54.9	0	0	0	3	0	0	0	6.0	0	39.1	
NAP 801 5F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	220.1	-54.9	0	0	0	3	0	0	0	3.0	0	36.1	
NAP 801 5F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	220.1	-54.9	0	0	0	3	0	0	0	4.8	0	37.9	
NAP 801 5F	TBE Room	S27	Exhaust Fans	1	85	100%	210.0	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 801 5F	PAU Room 2	S28	PAU	5	85	100%	220.4	-54.9	0	0	0	3	0	0	0	7.0	0	40.1	
NAP 801 5F	Lift Machine Room	S30	Lift Machine	3	85	100%	274.0	-56.8	0	-10	-10	3	0	0	0	0	0	21.2	
NAP 801 5F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	238.1	-55.5	0	-5	-5	3	0	0	0	4.8	0	32.3	
NAP 801 5F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	234.2	-55.4	0	0	0	3	0	0	0	0	0	32.6	
NAP 801 5F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	209.8	-54.4	0	-5	-5	3	6	0	0	4.8	0	39.4	
NAP 801 5F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	209.8	-54.4	0	0	0	3	0	0	0	3.0	0	51.6	
NAP 801 5F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	230.6	-55.3	0	0	0	3	0	0	0	0	-11.8	35.9	
NAP 801 5F	L1 HKPF	S37	Hammering Activities	3	113	7%	266.9	-56.5	0	0	0	3	0	3	0	4.8	-11.8	55.5	
NAP 801 5F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	245.5	-55.8	0	0	0	3	0	0	0	0	-5.7	29.5	
NAP 801 5F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	223.2	-55.0	0	0	0	3	0	0	0	0	-14.8	45.2	
NAP 801 5F	EMSD Dept	S40	Tyre Changer	1	98	27%	214.7	-54.6	0	0	0	3	0	0	0	0	-5.7	40.7	
NAP 801 5F	EMSD Dept	S41	Hammering Activities	4	113	7%	268.8	-56.6	0	0	0	3	0	3	0	6.0	-11.8	56.7	
NAP 801 5F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	215.6	-54.7	0	0	0	3	0	0	0	6.0	-8.8	45.6	
NAP 801 5F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	270.2	-56.6	0	0	0	3	0	0	0	0	-13.0	32.4	
NAP 801 5F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	215.6	-54.7	0	0	0	3	0	0	0	0	-7.0	40.3	
NAP 801 5F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	215.7	-54.7	0	0	0	3	0	0	0	0	-7.0	40.3	
NAP 8019F	Chiller Pump Room	S1	Water Pumps	2	85	100%	240.0	-55.6	0	-5	-5	3	6	0	0	3.0	0	36.4	61
NAP 8019F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	229.9	-55.2	0	0	0	3	0	0	0	0	0	32.8	
NAP 8019F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	213.8	-54.6	0	0	0	3	0	0	0	7.0	0	40.4	
NAP 8019F	Compressor Room	S4	Compressors	1	85	100%	216.4	-54.7	0	-5	-5	3	0	0	0	0	0	28.3	
NAP 8019F	Compressor Room	S5	Exhaust Fans	1	85	100%	214.5	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 8019F	Transformer Room	S6	Transformers	2	85	100%	214.5	-54.6	0	0	0	3	6	0	0	3.0	0	42.4	
NAP 8019F	Transformer Room	S7	Exhaust Fans	1	85	100%	214.5	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 8019F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	214.5	-54.6	0	-10	-10	3	6	0	0	3.0	0	32.4	
NAP 8019F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	214.5	-54.6	0	-10	-10	3	0	0	0	0	0	23.4	
NAP 8019F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	229.5	-55.2	0	0	0	3	0	0	0	3.0	0	35.8	
NAP 8019F	Generator Room	S11	Exhaust Fans	1	85	100%	321.3	-58.1	0	0	0	3	0	0	0	0	0	29.9	
NAP 8019F	Compressor Room	S12	Compressors	1	85	100%	216.6	-54.7	0	-5	-5	3	0	0	0	0	0	28.3	
NAP 8019F	Compressor Room	S13	Exhaust Fans	1	85	100%	210.4	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 8019F	F.S. Pump Room	S14	Water Pumps	1	85	100%	210.4	-54.5	0	-5	-5	3	6	0	0	0	0	34.5	
NAP 8019F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	210.4	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 8019F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	210.5	-54.5	0	0	0	3	0	0	0	7.0	0	40.5	
NAP 8019F	PAU Room 1	S17	PAU	2	85	100%	225.6	-55.1	0	0	0	3	0	0	0	3.0	0	35.9	
NAP 8019F	PAU Room 1	S18	Exhaust Fans	1	85	100%	225.6	-55.1	0	0	0	3	0	0	0	0	0	32.9	
NAP 8019F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	223.7	-55.0	0	0	0	3	0	0	0	3.0	0	36.0	
NAP 8019F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	220.6	-54.9	0	0	0	3	0	0	0	0	0	33.1	
NAP 8019F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	220.6	-54.9	0	-10	-10	3	6	0	0	3.0	0	32.1	
NAP 8019F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	220.6	-54.9	0	-10	-10	3	0	0	0	0	0	23.1	
NAP 8019F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	251.3	-56.0	0	0	0	3	0	0	0	0	0	32.0	
NAP 8019F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	220.3	-54.9	0	0	0	3	0	0	0	6.0	0	39.1	
NAP 8019F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	220.3	-54.9	0	0	0	3	0	0	0	3.0	0	36.1	
NAP 8019F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	220.3	-54.9	0	0	0	3	0	0	0	4.8	0	37.9	
NAP 8019F	TBE Room	S27	Exhaust Fans	1	85	100%	209.6	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 8019F	PAU Room 2	S28	PAU	5	85	100%	220.0	-54.8	0	0	0	3	0	0	0	7.0	0	40.2	
NAP 8019F	AHU Room	S29	AHU	1	85	100%	273.7	-56.7	0	-10	-10	3	0	0	0	0	0	21.3	
NAP 8019F	Lift Machine Room	S30	Lift Machine	3	85	100%	237.4	-55.5	0	-5	-5	3	0	0	0	4.8	0	32.3	
NAP 8019F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	233.5	-55.4	0	0	0	3	0	0	0	0	0	32.6	
NAP 8019F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	209.0	-54.4	0	-5	-5	3	6	0	0	4.8	0	39.4	
NAP 8019F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	209.0	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 8019F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	209.0	-54.4	0	0	0	3	0	0	0	3.0	0	51.6	
NAP 8019F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	232.8	-55.3	0	0	0	3	0	0	0	0	-11.8	35.9	
NAP 8019F	L1 HKPF	S37	Hammering Activities	3	113	7%	268.8	-56.6	0	0	0	3	0	3	0	4.8	-11.8	55.4	
NAP 8019F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	246.1	-55.8	0	0	0	3	0	0	0	0	-5.7	29.5	
NAP 8019F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	223.4	-55.0	0	0	0	3	0	0	0	0	-14.8	45.2	
NAP 8019F	EMSD Dept	S40	Tyre Changer	1	98	27%	214.9	-54.6	0	0	0	3	0	0	0	0	-5.7	40.7	
NAP 8019F	EMSD Dept	S41	Hammering Activities	4	113	7%	268.9	-56.6	0	0	0	3	0	3	0	6.0	-11.8	56.7	
NAP 8019F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	214.1	-54.6	0	0	0	3	0	0	0	6.0	-8.8	45.7	
NAP 8019F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	269.0	-56.6	0	0	0	3	0	0	0	0	-13.0	32.4	
NAP 8019F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	214.1	-54.6	0	0	0	3	0	0	0	0	-7.0	40.4	
NAP 8019F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	214.3	-54.6	0	0	0	3	0	0	0	0	-7.0	40.4	
NAP 80113F	Chiller Pump Room	S1	Water Pumps	2	85	100%	243.2	-55.7	0	-5	-5	3	6	0	0	3.0	0	36.3	61
NAP 80113F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	233.2	-55.4	0	0	0	3	0	0	0	0	0	32.6	
NAP 80113F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	217.4	-54.7	0	0	0	3	0	0	0	7.0	0	40.3	
NAP 80113F	Compressor Room	S4	Compressors	1	85	100%	219.9	-54.8	0	-5	-5	3	0	0	0	0	0	28.2	
NAP 80113F	Compressor Room	S5	Exhaust Fans	1	85	100%	218.1	-54.8	0	0	0	3	0	0	0	0	0	33.2	
NAP 80113F	Transformer Room	S6	Transformers	2	85	100%	218.1	-54.8	0	0	0	3	6	0	0	3.0	0	42.2	
NAP 80113F	Transformer Room	S7	Exhaust Fans	1	85	100%	218.1	-54.8	0	0	0	3	0	0	0	0	0	33.2	
NAP 80113F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	218.1	-54.8	0	-10	-10	3	6	0	0	3.0	0	32.2	
NAP 80113F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	218.1	-54.8	0	-10	-10	3	0	0	0	0	0	23.2	
NAP 80113F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	232.3	-55.3	0	0	0	3	0	0	0	3.0	0	35.7	
NAP 80113F	Generator Room	S11	Exhaust Fans	1	85	100%	323.6	-58.2	0	0	0	3	0	0	0	0	0	29.8	
NAP 80113F	Compressor Room	S12	Compressors	1	85	100%	219.1	-54.8	0	-5	-5	3	0	0	0	0	0	28.2	
NAP 80113F	Compressor Room	S13	Exhaust Fans	1	85	100%	213.0	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 80113F	F.S. Pump Room	S14	Water Pumps	1	85	100%	213.0	-54.6	0	-5	-5	3	6	0	0	0	0	34.4	
NAP 80113F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	213.0	-54.6	0	0	0	3	0	0	0	0	0	33.4	
NAP 80113F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	212.8	-54.6	0	0	0	3	0	0	0	7.0	0	40.4	
NAP 80113F	PAU Room 1	S17	PAU	2	85	100%	227.7	-55.1	0	0	0	3	0	0	0	3.0	0	35.9	
NAP 80113F	PAU Room 1	S18	Exhaust Fans	1	85	100%	227.7	-55.1	0	0	0	3	0	0	0	0	0	32.9	
NAP 80113F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	225.5	-55.1	0	0	0	3	0	0	0	3.0	0	35.9	
NAP 80113F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	222.5	-54.9	0	0	0	3	0	0	0	0	0	33.1	
NAP 80113F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	222.5	-54.9	0	-10	-10	3	6	0	0	3.0	0	32.1	
NAP 80113F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	222.5	-54.9	0	-10	-10	3	0	0	0	0	0	23.1	
NAP 80113F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	252.5	-56.0	0	0	0	3	0	0	0	0	0	32.0	
NAP 80113F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	221.7	-54.9	0	0	0	3	0	0	0	6.0	0	39.1	
NAP 80113F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	221.7	-54.9	0	0	0	3	0	0	0	3.0	0	36.1	
NAP 80113F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	221.7	-54.9	0	0	0	3	0	0	0	4.8	0	37.9	
NAP 80113F	TBE Room	S27	Exhaust Fans	1	85	100%	210.6	-54.5	0	0	0	3	0	0	0	0	0	33.5	
NAP 80113F	PAU Room 2	S28	PAU	5	85	100%	220.9	-54.9	0	0	0	3	0	0	0	7.0	0	40.1	
NAP 80113F	AHU Room	S29	AHU	1	85	100%	274.4	-56.8	0	-10	-10	3	0	0	0	0	0	21.2	
NAP 80113F	Lift Machine Room	S30	Lift Machine	3	85	100%	237.9	-55.5	0	-5	-5	3	0	0	0	4.8	0	32.3	
NAP 80113F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	234.0	-55.4	0	0	0	3	0	0	0	0	0	32.6	
NAP 80113F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	209.6	-54.4	0	-5	-5	3	6	0	0	4.8	0	39.4	
NAP 80113F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	209.6	-54.4	0	0	0	3	0	0	0	0	0	33.6	
NAP 80113F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	209.6	-54.4	0	0	0	3	0	0	0	3.0	0	51.6	
NAP 80113F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	236.1	-55.5	0	0	0	3	0	0	0	0	-11.8	35.7	
NAP 80113F	L1 HKPF	S37	Hammering Activities	3	113	7%	271.7	-56.7	0	0	0	3	0	3	0	4.8	-11.8	55.3	
NAP 80113F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	247.7	-55.9	0	0	0	3	0	0	0	0	-5.7	29.4	
NAP 80113F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	224.8	-55.0	0	0	0	3	0	0	0	0	-14.8	45.2	
NAP 80113F	EMSD Dept	S40	Tyre Changer	1	98	27%	216.3	-54.7	0	0	0	3	0	0	0	0	-5.7	40.6	
NAP 80113F	EMSD Dept	S41	Hammering Activities	4	113	7%	270.1	-56.6	0	0	0	3	0	3	0	6.0	-11.8	56.7	
NAP 80113F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	215.6	-54.7	0	0	0	3	0	0	0	6.0	-8.8	45.6	
NAP 80113F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	270.2	-56.6	0	0	0	3	0	0	0	0	-13.0	32.4	
NAP 80113F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	215.6	-54.7	0	0	0	3	0	0	0	0	-7.0	40.3	
NAP 80113F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	215.7	-54.7	0	0	0	3	0	0	0	0	-7.0	40.3	

(Day / Evening Time)

NAP ID	Room	Source ID	Identified Noise Sources	Quantity / Max concurrent works, nos.	Maximum Allowable SWL, dB(A)	Percentage on-time over 30 mins	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Percentage On-time Correction, dB(A)	Predicted Noise Level, dB(A)	Resultant SPL, Leq(30mins), dB(A)
NAP 802 5F	Chiller Pump Room	S1	Water Pumps	2	85	100%	292.0	-57.3	-10	0	-10	3	6	0	0	3.0	0	29.7	49
NAP 802 5F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	281.8	-57.0	-10	0	-10	3	0	0	0	0	0	21.0	
NAP 802 5F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	264.9	-56.5	-10	0	-10	3	0	0	0	7.0	0	28.5	
NAP 802 5F	Compressor Room	S4	Compressors	1	85	100%	266.3	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 802 5F	Compressor Room	S5	Exhaust Fans	1	85	100%	264.0	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	Transformer Room	S6	Transformers	2	85	100%	264.0	-56.4	-10	0	-10	3	6	0	0	3.0	0	30.6	
NAP 802 5F	Transformer Room	S7	Exhaust Fans	1	85	100%	264.0	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	264.0	-56.4	-10	0	-10	3	6	0	0	3.0	0	30.6	
NAP 802 5F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	264.0	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	278.6	-56.9	-10	0	-10	3	0	0	0	3.0	0	24.1	
NAP 802 5F	Generator Room	S11	Exhaust Fans	1	85	100%	394.0	-59.9	-10	0	-10	3	0	0	0	0	0	18.1	
NAP 802 5F	Compressor Room	S12	Compressors	1	85	100%	268.6	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 802 5F	Compressor Room	S13	Exhaust Fans	1	85	100%	262.6	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	F.S. Pump Room	S14	Water Pumps	1	85	100%	262.6	-56.4	-10	0	-10	3	6	0	0	0	0	27.6	
NAP 802 5F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	262.6	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	262.9	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 802 5F	PAU Room 1	S17	PAU	2	85	100%	275.4	-56.8	-10	0	-10	3	0	0	0	3.0	0	24.2	
NAP 802 5F	PAU Room 1	S18	Exhaust Fans	1	85	100%	275.4	-56.8	-10	0	-10	3	0	0	0	0	0	21.2	
NAP 802 5F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	273.9	-56.8	-10	0	-10	3	0	0	0	3.0	0	24.2	
NAP 802 5F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 802 5F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	270.6	-56.6	-10	0	-10	3	6	0	0	3.0	0	30.4	
NAP 802 5F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 802 5F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	305.6	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 802 5F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	6.0	0	27.4	
NAP 802 5F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	3.0	0	24.4	
NAP 802 5F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	4.8	0	26.2	
NAP 802 5F	TBE Room	S27	Exhaust Fans	1	85	100%	263.4	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 802 5F	PAU Room 2	S28	PAU	5	85	100%	270.9	-56.7	-10	0	-10	3	0	0	0	7.0	0	28.3	
NAP 802 5F	AHU Room	S29	AHU	1	85	100%	325.6	-58.3	-10	0	-10	3	0	0	0	0	0	19.7	
NAP 802 5F	Lift Machine Room	S30	Lift Machine	3	85	100%	292.4	-57.3	-10	0	-10	3	0	0	0	4.8	0	25.5	
NAP 802 5F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	288.3	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 802 5F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	275.4	-56.8	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 802 5F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	275.4	-56.8	-10	0	-10	3	0	0	0	0	0	21.2	
NAP 802 5F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	273.9	-56.8	-10	0	-10	3	0	0	0	3.0	0	27.2	
NAP 802 5F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	284.2	-57.1	-10	0	-10	3	0	0	0	0	-11.8	24.1	
NAP 802 5F	L1 HKPF	S37	Hammering Activities	3	113	7%	319.0	-58.1	-10	0	-10	3	0	3	0	4.8	-11.8	43.9	
NAP 802 5F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	298.6	-57.5	-10	0	-10	3	0	0	0	0	-5.7	17.8	
NAP 802 5F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	275.1	-56.8	-10	0	-10	3	0	0	0	0	-14.8	33.4	
NAP 802 5F	EMSD Dept	S40	Tyre Changer	1	98	27%	268.7	-56.6	-10	0	-10	3	0	0	0	0	-5.7	28.7	
NAP 802 5F	EMSD Dept	S41	Hammering Activities	4	113	7%	321.8	-58.2	-10	0	-10	3	0	3	0	6.0	-11.8	45.1	
NAP 802 5F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	268.2	-56.6	-10	0	-10	3	0	0	0	6.0	-8.8	33.8	
NAP 802 5F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	275.1	-56.8	-10	0	-10	3	0	0	0	0	-13.0	20.8	
NAP 802 5F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	263.0	-56.4	-10	0	-10	3	0	0	0	0	-7.0	28.4	
NAP 802 5F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	263.0	-56.4	-10	0	-10	3	0	0	0	0	-7.0	28.4	
NAP 8029F	Chiller Pump Room	S1	Water Pumps	2	85	100%	293.8	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	49
NAP 8029F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	283.6	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 8029F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	266.8	-56.5	-10	0	-10	3	0	0	0	7.0	0	28.5	
NAP 8029F	Compressor Room	S4	Compressors	1	85	100%	268.2	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 8029F	Compressor Room	S5	Exhaust Fans	1	85	100%	265.9	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 8029F	Transformer Room	S6	Transformers	2	85	100%	265.9	-56.5	-10	0	-10	3	6	0	0	3.0	0	30.5	
NAP 8029F	Transformer Room	S7	Exhaust Fans	1	85	100%	265.9	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 8029F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	265.9	-56.5	-10	0	-10	3	6	0	0	3.0	0	30.5	
NAP 8029F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	265.9	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 8029F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	279.9	-56.9	-10	0	-10	3	0	0	0	3.0	0	24.1	
NAP 8029F	Generator Room	S11	Exhaust Fans	1	85	100%	395.3	-59.9	-10	0	-10	3	0	0	0	0	0	18.1	
NAP 8029F	Compressor Room	S12	Compressors	1	85	100%	269.6	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 8029F	Compressor Room	S13	Exhaust Fans	1	85	100%	263.7	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 8029F	F.S. Pump Room	S14	Water Pumps	1	85	100%	263.7	-56.4	-10	0	-10	3	6	0	0	0	0	27.6	
NAP 8029F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	263.7	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 8029F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	263.7	-56.4	-10	0	-10	3	0	0	0	7.0	0	28.6	
NAP 8029F	PAU Room 1	S17	PAU	2	85	100%	276.2	-56.8	-10	0	-10	3	0	0	0	3.0	0	24.2	
NAP 8029F	PAU Room 1	S18	Exhaust Fans	1	85	100%	276.2	-56.8	-10	0	-10	3	0	0	0	0	0	21.2	
NAP 8029F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	274.4	-56.8	-10	0	-10	3	0	0	0	3.0	0	24.2	
NAP 8029F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	271.1	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 8029F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	271.1	-56.7	-10	0	-10	3	6	0	0	3.0	0	30.3	
NAP 8029F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	271.1	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 8029F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	305.7	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 8029F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	270.8	-56.7	-10	0	-10	3	0	0	0	6.0	0	27.3	
NAP 8029F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	270.8	-56.7	-10	0	-10	3	0	0	0	3.0	0	24.3	
NAP 8029F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	270.8	-56.7	-10	0	-10	3	0	0	0	4.8	0	26.1	
NAP 8029F	TBE Room	S27	Exhaust Fans	1	85	100%	263.0	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 8029F	PAU Room 2	S28	PAU	5	85	100%	270.6	-56.6	-10	0	-10	3	0	0	0	7.0	0	28.4	
NAP 8029F	AHU Room	S29	AHU	1	85	100%	325.3	-58.2	-10	0	-10	3	0	0	0	0	0	19.8	
NAP 8029F	Lift Machine Room	S30	Lift Machine	3	85	100%	291.8	-57.3	-10	0	-10	3	0	0	0	4.8	0	25.5	
NAP 8029F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	287.9	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 8029F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	262.5	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 8029F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	262.5	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 8029F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	262.5	-56.4	-10	0	-10	3	0	0	0	3.0	0	39.6	
NAP 8029F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	286.0	-57.1	-10	0	-10	3	0	0	0	0	-11.8	24.1	
NAP 8029F	L1 HKPF	S37	Hammering Activities	3	113	7%	320.6	-58.1	-10	0	-10	3	0	3	0	4.8	-11.8	43.9	
NAP 8029F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	299.1	-57.5	-10	0	-10	3	0	0	0	0	-5.7	17.8	
NAP 8029F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	275.3	-56.8	-10	0	-10	3	0	0	0	0	-14.8	33.4	
NAP 8029F	EMSD Dept	S40	Tyre Changer	1	98	27%	268.9	-56.6	-10	0	-10	3	0	0	0	0	-5.7	28.7	
NAP 8029F	EMSD Dept	S41	Hammering Activities	4	113	7%	321.8	-58.2	-10	0	-10	3	0	3	0	6.0	-11.8	45.1	
NAP 8029F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	267.4	-56.5	-10	0	-10	3	0	0	0	6.0	-8.8	33.8	
NAP 8029F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	323.0	-58.2	-10	0	-10	3	0	0	0	0	-13.0	20.8	
NAP 8029F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	267.4	-56.5	-10	0	-10	3	0	0	0	0	-7.0	28.5	
NAP 8029F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	268.4	-56.6	-10	0	-10	3	0	0	0	0	-7.0	28.4	
NAP 80213F	Chiller Pump Room	S1	Water Pumps	2	85	100%	296.4	-57.4	-10	0	-10	3	6	0	0	3.0	0	29.6	49
NAP 80213F	Chiller Pump Room	S2	Exhaust Fans	1	85	100%	286.3	-57.1	-10	0	-10	3	0	0	0	0	0	20.9	
NAP 80213F	Exhaust Fan Room	S3	General Exhaust Fans	5	85	100%	269.7	-56.6	-10	0	-10	3	0	0	0	7.0	0	28.4	
NAP 80213F	Compressor Room	S4	Compressors	1	85	100%	271.1	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 80213F	Compressor Room	S5	Exhaust Fans	1	85	100%	268.8	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 80213F	Transformer Room	S6	Transformers	2	85	100%	268.8	-56.6	-10	0	-10	3	6	0	0	3.0	0	30.4	
NAP 80213F	Transformer Room	S7	Exhaust Fans	1	85	100%	268.8	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 80213F	Transferred Tank Pump Room	S8	Transferred Water Pumps	2	85	100%	268.8	-56.6	-10	0	-10	3	6	0	0	3.0	0	30.4	
NAP 80213F	Transferred Tank Pump Room	S9	Exhaust Fans	1	85	100%	268.8	-56.6	-10	0	-10	3	0	0	0	0	0	21.4	
NAP 80213F	Generator Room	S10	Generator (operations during power failure / maintenance)	2	85	100%	282.2	-57.0	-10	0	-10	3	0	0	0	3.0	0	24.0	
NAP 80213F	Generator Room	S11	Exhaust Fans	1	85	100%	397.2	-60.0	-10	0	-10	3	0	0	0	0	0	18.0	
NAP 80213F	Compressor Room	S12	Compressors	1	85	100%	271.6	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 80213F	Compressor Room	S13	Exhaust Fans	1	85	100%	265.7	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 80213F	F.S. Pump Room	S14	Water Pumps	1	85	100%	265.7	-56.5	-10	0	-10	3	6	0	0	0	0	27.5	
NAP 80213F	F.S. Pump Room	S15	Exhaust Fans	1	85	100%	265.7	-56.5	-10	0	-10	3	0	0	0	0	0	21.5	
NAP 80213F	Exhaust Fan Room	S16	General Exhaust Fans	5	85	100%	265.5	-56.5	-10	0	-10	3	0	0	0	7.0	0	28.5	
NAP 80213F	PAU Room 1	S17	PAU	2	85	100%	277.9	-56.9	-10	0	-10	3	0	0	0	3.0	0	24.1	
NAP 80213F	PAU Room 1	S18	Exhaust Fans	1	85	100%	277.9	-56.9	-10	0	-10	3	0	0	0	0	0	21.1	
NAP 80213F	Chiller Plant Room	S19	Chiller Plant	2	85	100%	275.9	-56.8	-10	0	-10	3	0	0	0	3.0	0	24.2	
NAP 80213F	Chiller Plant Room	S20	Exhaust Fans	1	85	100%	272.6	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 80213F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S21	Water Pumps	2	85	100%	272.6	-56.7	-10	0	-10	3	6	0	0	3.0	0	30.3	
NAP 80213F	Water Vehicle Filing and Automatic Vehicle Washing System Water Tank and Water Pump Room	S22	Exhaust Fans	1	85	100%	272.6	-56.7	-10	0	-10	3	0	0	0	0	0	21.3	
NAP 80213F	Battery Charging Room	S23	Exhaust Fans	1	85	100%	306.7	-57.7	-10	0	-10	3	0	0	0	0	0	20.3	
NAP 80213F	Exhaust Fan Room	S24	General Exhaust Fans	4	85	100%	271.9	-56.7	-10	0	-10	3	0	0	0	6.0	0	27.3	
NAP 80213F	Exhaust Fan Room	S25	Welding Exhaust Fans	2	85	100%	271.9	-56.7	-10	0	-10	3	0	0	0	3.0	0	24.3	
NAP 80213F	Exhaust Fan Room	S26	Exhaust Fans	3	85	100%	271.9	-56.7	-10	0	-10	3	0	0	0	4.8	0	26.1	
NAP 80213F	TBE Room	S27	Exhaust Fans	1	85	100%	263.8	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 80213F	PAU Room 2	S28	PAU	5	85	100%	271.3	-56.7	-10	0	-10	3	0	0	0	7.0	0	28.3	
NAP 80213F	AHU Room	S29	AHU	1	85	100%	325.9	-58.3	-10	0	-10	3	0	0	0	0	0	19.7	
NAP 80213F	Lift Machine Room	S30	Lift Machine	3	85	100%	292.2	-57.3	-10	0	-10	3	0	0	0	4.8	0	25.5	
NAP 80213F	Lift Machine Room	S31	Exhaust Fans	1	85	100%	288.3	-57.2	-10	0	-10	3	0	0	0	0	0	20.8	
NAP 80213F	Portable Flushing and Makeup Water Pump Room	S32	Water Pumps	3	85	100%	263.0	-56.4	-10	0	-10	3	6	0	0	4.8	0	32.4	
NAP 80213F	Portable Flushing and Makeup Water Pump Room	S33	Exhaust Fans	1	85	100%	263.0	-56.4	-10	0	-10	3	0	0	0	0	0	21.6	
NAP 80213F	Cooling Tower Plant Room	S34	Cooling towers	2	100	100%	263.0	-56.4	-10	0	-10	3	0	0	0	3.0	0	39.6	
NAP 80213F	L1 HKPF	S36	Hand-held Pneumatic Tools	1	100	7%	288.7	-57.2	-10	0	-10	3	0	0	0	0	-11.8	24.0	
NAP 80213F	L1 HKPF	S37	Hammering Activities	3	113	7%	323.0	-58.2	-10	0	-10	3	0	3	0	4.8	-11.8	43.8	
NAP 80213F	FEHD	S38	Automatic Vehicle Washing Machine	1	88	27%	300.5	-57.6	-10	0	-10	3	0	0	0	0	-5.7	17.7	
NAP 80213F	EMSD Dept	S39	Motorcycle Speedometer Calibrator	1	112	3%	276.4	-56.8	-10	0	-10	3	0	0	0	0	-14.8	33.4	
NAP 80213F	EMSD Dept	S40	Tyre Changer	1	98	27%	270.0	-56.6	-10	0	-10	3	0	0	0	0	-5.7	28.7	
NAP 80213F	EMSD Dept	S41	Hammering Activities	4	113	7%	322.8	-58.2	-10	0	-10	3	0	3	0	6.0	-11.8	45.1	
NAP 80213F	EMSD Dept	S42	Hand-held Pneumatic Tools	4	100	13%	268.6	-56.6	-10	0	-10	3	0	0	0	6.0	-8.8	33.7	
NAP 80213F	EMSD Dept	S43	Roller Brake Tester	1	99	5%	324.0	-58.2	-10	0	-10	3	0	0	0	0	-13.0	20.8	
NAP 80213F	EMSD Dept	S44	Motorcycle Brake Tester	1	99	20%	268.6	-56.6	-10	0	-10	3	0	0	0	0	-7.0	28.4	
NAP 80213F	L1 HKPF	S45	Roller Brake Tester	1	99	20%	269.6	-56.6	-10	0	-10	3	0	0	0	0	-7.0	28.4	

				Day/ Evening Time												
NAP ID	Room	Source ID	Identified Noise Sources	Max no. of events in 30 mins, nos.	$L_{eq(30min)}$, dB(A)	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Predicted Noise Level, dB(A)
NAP 101 1F	L1 HKPF	S35	Brake Test Strip	1	62	350.3	-16.7	-10	0	-10	3	0	0	0	0	38.3
NAP 101 10F	L1 HKPF	S35	Brake Test Strip	1	62	351.6	-16.7	-10	0	-10	3	0	0	0	0	38.3
NAP 101 21F	L1 HKPF	S35	Brake Test Strip	1	62	356.0	-16.8	-10	0	-10	3	0	0	0	0	38.2
NAP 201 1F	L1 HKPF	S35	Brake Test Strip	1	62	172.4	-13.6	0	0	0	3	0	0	0	0	51.4
NAP 201 3F	L1 HKPF	S35	Brake Test Strip	1	62	172.5	-13.6	0	0	0	3	0	0	0	0	51.4
NAP 201 6F	L1 HKPF	S35	Brake Test Strip	1	62	173.2	-13.6	0	0	0	3	0	0	0	0	51.4
NAP 202 1F	L1 HKPF	S35	Brake Test Strip	1	62	279.3	-15.7	-10	0	-10	3	0	0	0	0	39.3
NAP 202 3F	L1 HKPF	S35	Brake Test Strip	1	62	279	-15.7	-10	0	-10	3	0	0	0	0	39.3
NAP 202 6F	L1 HKPF	S35	Brake Test Strip	1	62	280	-15.7	-10	0	-10	3	0	0	0	0	39.3
NAP 301 1F	L1 HKPF	S35	Brake Test Strip	1	62	246.9	-15.2	-10	0	-10	3	0	0	0	0	39.8
NAP 301 12F	L1 HKPF	S35	Brake Test Strip	1	62	249.8	-15.2	-10	0	-10	3	0	0	0	0	39.8
NAP 301 24F	L1 HKPF	S35	Brake Test Strip	1	62	257.7	-15.4	-10	0	-10	3	0	0	0	0	39.6
NAP 401 1F	L1 HKPF	S35	Brake Test Strip	1	62	402.5	-17.3	0	0	0	3	0	0	0	0	47.7
NAP 401 15F	L1 HKPF	S35	Brake Test Strip	1	62	405.0	-17.3	0	0	0	3	0	0	0	0	47.7
NAP 401 30F	L1 HKPF	S35	Brake Test Strip	1	62	412.5	-17.4	0	0	0	3	0	0	0	0	47.6
NAP 501 GF	L1 HKPF	S35	Brake Test Strip	1	62	403.7	-17.3	0	0	0	3	0	0	0	0	47.7
NAP 601 1F	L1 HKPF	S35	Brake Test Strip	1	62	439.1	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 601 15F	L1 HKPF	S35	Brake Test Strip	1	62	441.5	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 601 30F	L1 HKPF	S35	Brake Test Strip	1	62	448.4	-17.8	0	0	0	3	0	0	0	0	47.2
NAP 701 1F	L1 HKPF	S35	Brake Test Strip	1	62	428.2	-17.6	-10	0	-10	3	0	0	0	0	37.4
NAP 701 15F	L1 HKPF	S35	Brake Test Strip	1	62	430.5	-17.6	0	0	0	3	0	0	0	0	47.4
NAP 701 30F	L1 HKPF	S35	Brake Test Strip	1	62	437.6	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 801 5F	L1 HKPF	S35	Brake Test Strip	1	62	255.8	-15.3	0	0	0	3	0	0	0	0	49.7
NAP 8019F	L1 HKPF	S35	Brake Test Strip	1	62	257.8	-15.4	0	0	0	3	0	0	0	0	49.6
NAP 80113F	L1 HKPF	S35	Brake Test Strip	1	62	260.8	-15.4	0	0	0	3	0	0	0	0	49.6
NAP 802 5F	L1 HKPF	S35	Brake Test Strip	1	62	309.6	-16.2	-10	0	-10	3	0	0	0	0	38.8
NAP 8029F	L1 HKPF	S35	Brake Test Strip	1	62	311.2	-16.2	-10	0	-10	3	0	0	0	0	38.8
NAP 80213F	L1 HKPF	S35	Brake Test Strip	1	62	313.7	-16.2	-10	0	-10	3	0	0	0	0	38.8

Remark:

[1] The building design shall ensure that NSR 1 will not have direct line-of-sight to the brake test strip at Level 1. A correction of -10 dB(A) was adopted.

				Night Time												
NAP ID	Room	Source ID	Identified Noise Sources	Max no. of events in 30 mins, nos.	$L_{eq(30min)}$, dB(A)	Slant Distance, m	Distance Attenuation, dB(A)	Barrier Correction due to Surrounding Buildings, dB(A)	Barrier Correction due to Interior Structure, dB(A)	Overall Barrier Correction, dB(A)	Façade Correction, dB(A)	Correction for Tonality, dB(A)	Correction for Impulsiveness, dB(A)	Correction for Intermittency, dB(A)	Correction for Quantity, dB(A)	Predicted Noise Level, dB(A)
NAP 101 1F	L1 HKPF	S35	Brake Test Strip	1	62	350.3	-16.7	-10	0	-10	3	0	0	0	0	38.3
NAP 101 10F	L1 HKPF	S35	Brake Test Strip	1	62	351.6	-16.7	-10	0	-10	3	0	0	0	0	38.3
NAP 101 21F	L1 HKPF	S35	Brake Test Strip	1	62	356.0	-16.8	-10	0	-10	3	0	0	0	0	38.2
NAP 201 1F	L1 HKPF	S35	Brake Test Strip	No night time operation												
NAP 201 3F	L1 HKPF	S35	Brake Test Strip													
NAP 201 6F	L1 HKPF	S35	Brake Test Strip													
NAP 202 1F	L1 HKPF	S35	Brake Test Strip	No night time operation												
NAP 202 3F	L1 HKPF	S35	Brake Test Strip													
NAP 202 6F	L1 HKPF	S35	Brake Test Strip													
NAP 301 1F	L1 HKPF	S35	Brake Test Strip	1	62	246.9	-15.2	-10	0	-10	3	0	0	0	0	39.8
NAP 301 12F	L1 HKPF	S35	Brake Test Strip	1	62	249.8	-15.2	-10	0	-10	3	0	0	0	0	39.8
NAP 301 24F	L1 HKPF	S35	Brake Test Strip	1	62	257.7	-15.4	-10	0	-10	3	0	0	0	0	39.6
NAP 401 1F	L1 HKPF	S35	Brake Test Strip	1	62	402.5	-17.3	0	0	0	3	0	0	0	0	47.7
NAP 401 15F	L1 HKPF	S35	Brake Test Strip	1	62	405.0	-17.3	0	0	0	3	0	0	0	0	47.7
NAP 401 30F	L1 HKPF	S35	Brake Test Strip	1	62	412.5	-17.4	0	0	0	3	0	0	0	0	47.6
NAP 501 GF	L1 HKPF	S35	Brake Test Strip	No night time operation												
NAP 601 1F	L1 HKPF	S35	Brake Test Strip	1	62	439.1	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 601 15F	L1 HKPF	S35	Brake Test Strip	1	62	441.5	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 601 30F	L1 HKPF	S35	Brake Test Strip	1	62	448.4	-17.8	0	0	0	3	0	0	0	0	47.2
NAP 701 1F	L1 HKPF	S35	Brake Test Strip	1	62	428.2	-17.6	-10	0	-10	3	0	0	0	0	37.4
NAP 701 15F	L1 HKPF	S35	Brake Test Strip	1	62	430.5	-17.6	0	0	0	3	0	0	0	0	47.4
NAP 701 30F	L1 HKPF	S35	Brake Test Strip	1	62	437.6	-17.7	0	0	0	3	0	0	0	0	47.3
NAP 801 5F	L1 HKPF	S35	Brake Test Strip	No night time operation												
NAP 8019F	L1 HKPF	S35	Brake Test Strip													
NAP 80113F	L1 HKPF	S35	Brake Test Strip													
NAP 802 5F	L1 HKPF	S35	Brake Test Strip	No night time operation												
NAP 8029F	L1 HKPF	S35	Brake Test Strip													
NAP 80213F	L1 HKPF	S35	Brake Test Strip													

Remark:

[1] The building design shall ensure that NSR 1 will not have direct line-of-sight to the brake test strip at Level 1. A correction of -10 dB(A) was adopted.

NAP ID	Level	Daytime and Eveningtime				Nighttime			
		Predicted Fixed Noise	Predicted Event Noise (S35)	Cumulative Noise Level (dB(A))	Criteria (dB(A))	Predicted Fixed Noise	Predicted Event Noise (S35)	Cumulative Noise Level (dB(A))	Criteria (dB(A))
NAP 101	1/F	57	38	57	57	49	38	49	50
	10/F	57	38	57		49	38	49	
	21/F	57	38	57		49	38	49	
NAP 201	1/F	63	51	63	64	No operation in night-time			
	3/F	63	51	63					
	6/F	63	51	63					
NAP 202	1/F	49	39	49	64	No operation in night-time			
	3/F	49	39	49					
	6/F	49	39	49					
NAP 301	1/F	50	40	50	58	44	40	45	55
	12/F	50	40	50		44	40	45	
	24/F	50	40	50		43	40	45	
NAP 401	1/F	57	48	57	65	50	48	52	55
	15/F	57	48	57		50	48	52	
	30/F	57	48	57		50	48	52	
NAP 501	G/F	57	48	57	65	No operation in night-time			
NAP 601	1/F	56	47	57	65	49	47	51	55
	15/F	56	47	57		49	47	51	
	30/F	56	47	57		49	47	51	
NAP 701	1/F	56	37	56	65	48	37	48	55
	15/F	56	47	57		49	47	51	
	30/F	56	47	57		49	47	51	
NAP 801	5/F	61	50	61	65	No operation in night-time			
	9/F	61	50	61					
	13/F	61	50	61					
NAP 802	5/F	49	39	49	65	No operation in night-time			
	9/F	49	39	49					
	13/F	49	39	49					

Remark:
According to the result above, which has not taken into account noise in the 10-second preparation time period, the highest fixed source noise level at the worst affected NSR (i.e. NSR 1) at nighttime would be 49dB(A). Assuming noise from the preparation was similar to that of the test itself, a sensitivity has been conducted and the results revealed that the highest fixed source noise level would still not exceed the 50dB(A) criterion.

Appendix 5.7

Result Summary of Traffic Noise Impact Assessment

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.7 Result Summary of Traffic Noise Impact Assessment
Predicted noise levels for "with proposed Project" and "without proposed Project" scenarios during AM and PM peak in Year 2033

				AM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)			PM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)		
ID	NAP ID	Floor	mPD	Without proposed Project	With proposed Project	Difference	Without proposed Project	With proposed Project	Difference
1	NAP 101	1F	8.7	70.8	70.8	0	69.9	69.9	0
1	NAP 101	2F	11.7	70.8	70.8	0	69.9	69.9	0
1	NAP 101	3F	14.7	70.7	70.7	0	69.8	69.8	0
1	NAP 101	4F	17.7	70.6	70.7	0.1	69.7	69.8	0.1
1	NAP 101	5F	20.7	70.5	70.5	0	69.6	69.7	0.1
1	NAP 101	6F	23.7	70.4	70.4	0	69.5	69.6	0.1
1	NAP 101	7F	26.7	70.3	70.3	0	69.4	69.4	0
1	NAP 101	8F	29.7	70.2	70.2	0	69.3	69.3	0
1	NAP 101	9F	32.7	70.0	70.1	0.1	69.2	69.2	0
1	NAP 101	10F	35.7	69.9	70.0	0.1	69.1	69.1	0
1	NAP 101	11F	38.7	69.8	69.9	0.1	69.0	69.0	0
1	NAP 101	12F	41.7	69.7	69.8	0.1	68.9	68.9	0
1	NAP 101	13F	44.7	69.6	69.7	0.1	68.8	68.8	0
1	NAP 101	14F	47.7	69.5	69.6	0.1	68.7	68.7	0
1	NAP 101	15F	50.7	69.4	69.5	0.1	68.6	68.6	0
1	NAP 101	16F	53.7	69.3	69.4	0.1	68.5	68.6	0.1
1	NAP 101	17F	56.7	69.2	69.3	0.1	68.4	68.5	0.1
1	NAP 101	18F	59.7	69.2	69.2	0	68.4	68.4	0
1	NAP 101	19F	62.7	69.1	69.2	0.1	68.3	68.3	0
1	NAP 101	20F	65.7	69.0	69.1	0.1	68.2	68.3	0.1
1	NAP 101	21F	68.7	69.0	69.0	0	68.1	68.2	0.1
2	NAP 201	1F	6.3	71.0	71.2	0.2	70.4	70.6	0.2
2	NAP 201	2F	9.3	71.0	71.2	0.2	70.4	70.6	0.2
2	NAP 201	3F	12.3	71.0	71.2	0.2	70.4	70.6	0.2
2	NAP 201	4F	15.3	71.0	71.2	0.2	70.4	70.6	0.2
2	NAP 201	5F	18.3	71.0	71.1	0.1	70.4	70.6	0.2
2	NAP 201	6F	21.3	70.9	71.1	0.2	70.3	70.5	0.2
3	NAP 202	1F	7.4	78.8	78.9	0.1	78.3	78.4	0.1
3	NAP 202	2F	10.4	79.1	79.2	0.1	78.5	78.6	0.1
3	NAP 202	3F	13.4	79.3	79.4	0.1	78.8	78.9	0.1
3	NAP 202	4F	16.4	79.4	79.5	0.1	78.9	79.0	0.1
3	NAP 202	5F	19.4	79.4	79.5	0.1	78.9	79.0	0.1
3	NAP 202	6F	22.4	79.3	79.4	0.1	78.8	78.9	0.1

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.7 Result Summary of Traffic Noise Impact Assessment
Predicted noise levels for "with proposed Project" and "without proposed Project" scenarios during AM and PM peak in Year 2033

				AM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)			PM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)		
ID	NAP ID	Floor	mPD	Without proposed Project	With proposed Project	Difference	Without proposed Project	With proposed Project	Difference
4	NAP 301	1F	10.2	70.7	70.9	0.2	70.1	70.2	0.1
4	NAP 301	2F	13.2	71.0	71.1	0.1	70.4	70.5	0.1
4	NAP 301	3F	16.2	71.2	71.4	0.2	70.7	70.8	0.1
4	NAP 301	4F	19.2	71.5	71.6	0.1	71.0	71.1	0.1
4	NAP 301	5F	22.2	71.7	71.9	0.2	71.2	71.3	0.1
4	NAP 301	6F	25.2	71.9	72.0	0.1	71.4	71.5	0.1
4	NAP 301	7F	28.2	72.0	72.1	0.1	71.5	71.6	0.1
4	NAP 301	8F	31.2	72.2	72.3	0.1	71.7	71.8	0.1
4	NAP 301	9F	34.2	72.6	72.8	0.2	72.1	72.2	0.1
4	NAP 301	10F	37.2	73.0	73.1	0.1	72.5	72.6	0.1
4	NAP 301	11F	40.2	73.3	73.4	0.1	72.8	72.9	0.1
4	NAP 301	12F	43.2	73.4	73.5	0.1	72.9	73.0	0.1
4	NAP 301	13F	46.2	73.4	73.6	0.2	73.0	73.1	0.1
4	NAP 301	14F	49.2	73.4	73.6	0.2	72.9	73.1	0.2
4	NAP 301	15F	52.2	73.4	73.5	0.1	72.9	73.1	0.2
4	NAP 301	16F	55.2	73.4	73.5	0.1	72.9	73.1	0.2
4	NAP 301	17F	58.2	73.4	73.5	0.1	72.9	73.0	0.1
4	NAP 301	18F	61.2	73.3	73.4	0.1	72.8	72.9	0.1
4	NAP 301	19F	64.2	73.2	73.4	0.2	72.7	72.9	0.2
4	NAP 301	20F	67.2	73.2	73.3	0.1	72.7	72.8	0.1
4	NAP 301	21F	70.2	73.1	73.2	0.1	72.6	72.7	0.1
4	NAP 301	22F	73.2	73.0	73.2	0.2	72.6	72.7	0.1
4	NAP 301	23F	76.2	73.0	73.1	0.1	72.5	72.6	0.1
4	NAP 301	24F	79.2	72.9	73.0	0.1	72.4	72.6	0.2
5	NAP 401	1F	8.4	79.8	79.8	0	79.2	79.2	0
5	NAP 401	2F	11.4	79.7	79.7	0	79.1	79.1	0
5	NAP 401	3F	14.4	79.6	79.6	0	79.0	79.0	0
5	NAP 401	4F	17.4	79.4	79.4	0	78.8	78.8	0
5	NAP 401	5F	20.4	79.2	79.2	0	78.6	78.6	0
5	NAP 401	6F	23.4	79.0	79.0	0	78.4	78.4	0
5	NAP 401	7F	26.4	78.8	78.8	0	78.2	78.2	0
5	NAP 401	8F	29.4	78.5	78.5	0	77.9	78.0	0.1
5	NAP 401	9F	32.4	78.3	78.3	0	77.7	77.8	0.1
5	NAP 401	10F	35.4	78.1	78.1	0	77.5	77.5	0
5	NAP 401	11F	38.4	77.9	77.9	0	77.3	77.3	0
5	NAP 401	12F	41.4	77.7	77.7	0	77.1	77.2	0.1
5	NAP 401	13F	44.4	77.5	77.5	0	76.9	76.9	0
5	NAP 401	14F	47.4	77.3	77.3	0	76.8	76.8	0
5	NAP 401	15F	50.4	77.1	77.1	0	76.6	76.6	0
5	NAP 401	16F	53.4	77.0	77.0	0	76.4	76.4	0
5	NAP 401	17F	56.4	76.8	76.8	0	76.3	76.3	0
5	NAP 401	18F	59.4	76.6	76.7	0.1	76.1	76.1	0
5	NAP 401	19F	62.4	76.5	76.5	0	75.9	75.9	0
5	NAP 401	20F	65.4	76.3	76.3	0	75.8	75.8	0
5	NAP 401	21F	68.4	76.2	76.2	0	75.6	75.7	0.1
5	NAP 401	22F	71.4	76.0	76.1	0.1	75.5	75.5	0
5	NAP 401	23F	74.4	75.9	75.9	0	75.3	75.4	0.1
5	NAP 401	24F	77.4	75.7	75.8	0.1	75.2	75.2	0
5	NAP 401	25F	80.4	75.6	75.7	0.1	75.1	75.1	0
5	NAP 401	26F	83.4	75.5	75.5	0	75.0	75.0	0
5	NAP 401	27F	86.4	75.4	75.4	0	74.9	74.9	0
5	NAP 401	28F	89.4	75.3	75.3	0	74.7	74.8	0.1
5	NAP 401	29F	92.4	75.2	75.2	0	74.6	74.7	0.1
5	NAP 401	30F	95.4	75.0	75.1	0.1	74.5	74.5	0

				AM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)			PM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)		
ID	NAP ID	Floor	mPD	Without proposed Project	With proposed Project	Difference	Without proposed Project	With proposed Project	Difference
6	NAP 501	1F	5.4	80.0	80.0	0	79.4	79.4	0
7	NAP 601	1F	8.9	76.2	76.2	0	75.7	75.7	0
7	NAP 601	2F	11.9	76.2	76.2	0	75.6	75.6	0
7	NAP 601	3F	14.9	76.2	76.2	0	75.6	75.6	0
7	NAP 601	4F	17.9	76.1	76.1	0	75.6	75.6	0
7	NAP 601	5F	20.9	76.1	76.1	0	75.5	75.5	0
7	NAP 601	6F	23.9	76.0	76.0	0	75.5	75.5	0
7	NAP 601	7F	26.9	75.9	75.9	0	75.4	75.4	0
7	NAP 601	8F	29.9	75.8	75.8	0	75.3	75.3	0
7	NAP 601	9F	32.9	75.8	75.8	0	75.2	75.2	0
7	NAP 601	10F	35.9	75.7	75.7	0	75.1	75.1	0
7	NAP 601	11F	38.9	75.6	75.6	0	75.0	75.0	0
7	NAP 601	12F	41.9	75.5	75.5	0	74.9	74.9	0
7	NAP 601	13F	44.9	75.4	75.4	0	74.8	74.8	0
7	NAP 601	14F	47.9	75.3	75.3	0	74.7	74.8	0.1
7	NAP 601	15F	50.9	75.2	75.2	0	74.6	74.6	0
7	NAP 601	16F	53.9	75.1	75.1	0	74.5	74.5	0
7	NAP 601	17F	56.9	75.0	75.0	0	74.4	74.4	0
7	NAP 601	18F	59.9	74.9	74.9	0	74.3	74.3	0
7	NAP 601	19F	62.9	74.8	74.8	0	74.2	74.2	0
7	NAP 601	20F	65.9	74.7	74.7	0	74.1	74.1	0
7	NAP 601	21F	68.9	74.5	74.5	0	74.0	74.0	0
7	NAP 601	22F	71.9	74.4	74.4	0	73.9	73.9	0
7	NAP 601	23F	74.9	74.3	74.4	0.1	73.8	73.8	0
7	NAP 601	24F	77.9	74.2	74.3	0.1	73.7	73.7	0
7	NAP 601	25F	80.9	74.1	74.1	0	73.6	73.6	0
7	NAP 601	26F	83.9	74.0	74.1	0.1	73.5	73.5	0
7	NAP 601	27F	86.9	74.0	74.0	0	73.4	73.4	0
7	NAP 601	28F	89.9	73.9	73.9	0	73.3	73.4	0.1
7	NAP 601	29F	92.9	73.8	73.8	0	73.2	73.2	0
7	NAP 601	30F	95.9	73.7	73.7	0	73.2	73.2	0

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.7 Result Summary of Traffic Noise Impact Assessment
Predicted noise levels for "with proposed Project" and "without proposed Project" scenarios during AM and PM peak in Year 2033

				AM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)			PM Peak Road Traffic Noise in Year 2033 $L_{10(1\ hr)}$ dB(A)		
ID	NAP ID	Floor	mPD	Without proposed Project	With proposed Project	Difference	Without proposed Project	With proposed Project	Difference
8	NAP 701	1F	8.4	77.1	77.2	0.1	76.6	76.6	0
8	NAP 701	2F	11.4	77.2	77.2	0	76.6	76.7	0.1
8	NAP 701	3F	14.4	77.1	77.2	0.1	76.6	76.7	0.1
8	NAP 701	4F	17.4	77.1	77.2	0.1	76.6	76.7	0.1
8	NAP 701	5F	20.4	77.1	77.2	0.1	76.6	76.6	0
8	NAP 701	6F	23.4	77.0	77.1	0.1	76.5	76.5	0
8	NAP 701	7F	26.4	77.0	77.0	0	76.4	76.5	0.1
8	NAP 701	8F	29.4	76.8	76.9	0.1	76.3	76.4	0.1
8	NAP 701	9F	32.4	76.8	76.8	0	76.2	76.3	0.1
8	NAP 701	10F	35.4	76.6	76.7	0.1	76.1	76.2	0.1
8	NAP 701	11F	38.4	76.6	76.6	0	76.0	76.1	0.1
8	NAP 701	12F	41.4	76.4	76.5	0.1	75.9	76.0	0.1
8	NAP 701	13F	44.4	76.4	76.4	0	75.8	75.9	0.1
8	NAP 701	14F	47.4	76.2	76.3	0.1	75.7	75.8	0.1
8	NAP 701	15F	50.4	76.1	76.2	0.1	75.6	75.7	0.1
8	NAP 701	16F	53.4	76.0	76.1	0.1	75.5	75.6	0.1
8	NAP 701	17F	56.4	75.9	76.0	0.1	75.4	75.4	0
8	NAP 701	18F	59.4	75.8	75.9	0.1	75.3	75.3	0
8	NAP 701	19F	62.4	75.7	75.8	0.1	75.2	75.2	0
8	NAP 701	20F	65.4	75.6	75.6	0	75.1	75.1	0
8	NAP 701	21F	68.4	75.5	75.5	0	75.0	75.0	0
8	NAP 701	22F	71.4	75.3	75.4	0.1	74.8	74.9	0.1
8	NAP 701	23F	74.4	75.2	75.3	0.1	74.7	74.8	0.1
8	NAP 701	24F	77.4	75.1	75.2	0.1	74.6	74.7	0.1
8	NAP 701	25F	80.4	75.0	75.1	0.1	74.5	74.6	0.1
8	NAP 701	26F	83.4	74.9	75.0	0.1	74.4	74.5	0.1
8	NAP 701	27F	86.4	74.8	74.9	0.1	74.3	74.4	0.1
8	NAP 701	28F	89.4	74.7	74.8	0.1	74.2	74.3	0.1
8	NAP 701	29F	92.4	74.6	74.7	0.1	74.2	74.2	0
8	NAP 701	30F	95.4	74.5	74.6	0.1	74.1	74.1	0
9	NAP 801	5F	26.9	67.1	67.3	0.2	66.7	66.8	0.1
9	NAP 801	6F	30.9	67.1	67.2	0.1	66.6	66.8	0.2
9	NAP 801	7F	34.9	67.0	67.2	0.2	66.5	66.7	0.2
9	NAP 801	8F	38.9	67.0	67.2	0.2	66.5	66.7	0.2
9	NAP 801	9F	42.9	67.1	67.2	0.1	66.6	66.7	0.1
9	NAP 801	10F	46.9	67.1	67.2	0.1	66.6	66.8	0.2
9	NAP 801	11F	50.9	67.1	67.2	0.1	66.5	66.7	0.2
9	NAP 801	12F	54.9	67.0	67.2	0.2	66.5	66.7	0.2
9	NAP 801	13F	58.9	67.0	67.2	0.2	66.5	66.7	0.2
10	NAP 802	5F	26.9	74.6	74.6	0	74.1	74.2	0.1
10	NAP 802	6F	30.9	74.5	74.6	0.1	74.1	74.1	0
10	NAP 802	7F	34.9	74.5	74.6	0.1	74.1	74.1	0
10	NAP 802	8F	38.9	74.5	74.6	0.1	74.0	74.1	0.1
10	NAP 802	9F	42.9	74.5	74.5	0	74.0	74.1	0.1
10	NAP 802	10F	46.9	74.5	74.5	0	74.0	74.1	0.1
10	NAP 802	11F	50.9	74.4	74.5	0.1	74.0	74.0	0
10	NAP 802	12F	54.9	74.4	74.5	0.1	73.9	74.0	0.1
10	NAP 802	13F	58.9	74.4	74.4	0	73.9	74.0	0.1

Appendix 5.8

Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Mitigated Scenario)

Construction Plant Inventory for the Proposed Project (Mitigated Scenario)

PME		TM or Other Reference	SWL, dB(A)	No. of PME	% on Time	On-Time % Correction, dB(A)	Noise Barrier Correction, dB(A)	Total SWL, dB(A)		Highest SWL of Each Construction Activity, dB(A)
Activity 1 - Site Formation, Excavation and Filling										
Excavation and Filling	Air compressor, air flow > 10 m^3/min and <= 30 m^3/min	CNP 002	102	1	100%	0	0	102	**107**	**118**
	Excavator / loader, wheeled / tracked	EPD-02383 [2]	92	1	75%	-1.2	0	91		
	Generator, Standard	EPD-00668 [2]	79	1	100%	0	-5	74		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	2	50%	-3.0	0	105		
Breaking excavated hard/ oversize materials	Breaker, hand-held, mass >= 20 kg and <= 35 kg	CNP 025	111	1	50%	-3.0	-5	103	**103**	
	Excavator / loader, wheeled / tracked	EPD-02383 [2]	92	2	75%	-1.2	0	94		
Ground Compression	Bulldozer	CNP 030	115	2	100%	0	0	118	**118**	
	Roller, vibratory	EPD-00509 [2]	95	2	100%	0	0	98		
Activity 2 - Foundation										
General Foundation Construction	Air compressor, air flow > 30 m^3/min	CNP 003	104	1	75%	-1.2	0	103	**112**	**114**
	Bar bender and cutter (electric)	CNP 021	90	3	75%	-1.2	0	94		
	Generator	EPD-00668 [2]	79	2	100%	0	-5	77		
	Drill / grinder, hand-held (electric)	Other [1]	89	2	50%	-3.0	0	89		
	Saw, circular, wood	CNP 201	108	2	75%	-1.2	-5	105		
	Water pump, submersible (electric)	CNP 283	85	3	75%	-1.2	0	89		
	Excavator / loader, wheeled / tracked	EPD-02383 [2]	92	1	75%	-1.2	0	91		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	0	102		
	Lorry	CNP 141	112	1	50%	-3.0	0	109		
	Crane, mobile / barge mounted (diesel)	EPD-02602 [2]	102	1	75%	-1.2	0	101		
Piling Works	Generator	EPD-00668 [2]	79	1	100%	0	-5	74	**110**	
	Piling, vibrating hammer	CNP 172	115	1	100%	0	-5	110		
Concreting Works	Concrete lorry mixer	CNP 044	109	1	75%	-1.2	0	108	**114**	
	Concrete pump, stationary / lorry mounted	CNP 047	109	1	75%	-1.2	0	108		
	Generator	EPD-00668 [2]	79	1	100%	0	-5	74		
	Poker, vibratory, hand-held	Other [1]	102	1	100%	0.0	0	102		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	0	102		
	Lorry, gross vehicle weight > 38 tonne	Other [1]	112	1	50%	-3.0	0	109		
Activity 3 - Main Building Construction										
General construction works	Air compressor, air flow > 10 m^3/min and <= 30 m^3/min	CNP 002	102	1	75%	-1.2	0	101	**113**	**114**
	Bar bender and cutter (electric)	CNP 021	90	3	100%	0.0	0	95		
	Crane, mobile / barge mounted (diesel)	EPD-02602 [2]	102	1	75%	-1.2	0	101		
	Crane, tower (electric)	CNP 049	95	1	100%	0.0	0	95		
	Drill / grinder, hand-held (electric)	Other [1]	89	1	75%	-1.2	0	88		
	Generator	EPD-00668 [2]	79	1	100%	0	-5	74		
	Breaker, hand-held, mass >= 20 kg and <= 35 kg	CNP 025	111	2	50%	-3.0	-5	106		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	0	102		
	Saw, circular, wood	CNP 201	108	3	70%	-1.5	0	111		
Concreting works	Concrete lorry mixer	CNP 044	109	1	75%	-1.2	0	108	**114**	
	Concrete pump, stationary / lorry mounted	CNP 047	109	1	75%	-1.2	0	108		
	Generator	EPD-00668 [2]	79	1	100%	0	-5	74		
	Poker, vibratory, hand-held	Other [1]	102	1	100%	0.0	0	102		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	0	102		
	Lorry, gross vehicle weight > 38 tonne	Other [1]	112	1	50%	-3.0	0	109		
Finishing	Drill, percussive, hand-held (electric)	CNP 064	103	3	50%	-3.0	0	105	**114**	
	Jig-saw, hand-held wood (electric)	Other [1]	99	1	50%	-3.0	0	96		
	Concrete corer	CNP 042	117	2	50%	-3.0	-5	112		
	Lorry, with crane / grab, 5.5 tonne < gross vehicle weight < 38 tonne	Other [1]	105	2	50%	-3.0	0	105		

Note :
[1] Reference to "Sound Power Levels of other commonly used PME"
[2] Reference to list of Quality Powered Mechanical Equipment Label (valid), as of 30th Jan 2015

Construction Plant Inventory for THEi New Campus Development

PME		TM or Other Reference	SWL, dB(A)	No. of PME	% on Time	On-Time % Correction, dB(A)	Total SWL, dB(A)		Highest SWL of Each Construction Activity, dB(A)
Activity 3 - Main Building Construction									
Interior Fitting Out and Users Moving-in	Drill, percussive, hand-held (electric)	CNP 064	103	3	50%	-3.0	105	**118**	**118**
	Jig-saw, hand-held wood (electric)	Other [1]	99	1	50%	-3.0	96		
	Concrete corer	CNP 042	117	2	50%	-3.0	117		
	Lorry, with crane, 5.5 tonne < gross vehicle weight < 38 tonne	Other [1]	105	2	50%	-3.0	105		
	Dump truck, 5.5 tonne < gross vehicle weight =< 38 tonne	Other [1]	105	1	50%	-3.0	102		

Note :
[1] Reference to "Sound Power Levels of other commonly used PME"

Calculation of Construction Noise Level due to the Proposed Project (Mitigated Scenario)

NAP	Construction Activity	Total SWL, dB(A)	Dist. (NSR to Site Boundary) (A), m	Dist. (Site Boundary to Notional Point) (B), m	Horz. Dist. (=A+B), m	Dist. Corr., dB(A)	Façade Corr., dB(A)	Barrier Corr., dB(A) [1]	CNL, dB(A)
NAP 101	Site Formation, Excavation and Filling	118	300	36	336	-59	3	0	62
NAP 201	Site Formation, Excavation and Filling	118	145	19	164	-52	3	0	69
NAP 202	Site Formation, Excavation and Filling	118	248	2	250	-56	3	-10	55
NAP 301	Site Formation, Excavation and Filling	118	160	19	179	-53	3	-10	58
NAP 401	Site Formation, Excavation and Filling	118	345	17	362	-59	3	0	62
NAP 501	Site Formation, Excavation and Filling	118	340	19	359	-59	3	0	62
NAP 601	Site Formation, Excavation and Filling	118	375	17	392	-60	3	0	61
NAP 701	Site Formation, Excavation and Filling	118	380	17	397	-60	3	0	61
NAP 801	Site Formation, Excavation and Filling	118	200	17	217	-55	3	0	66
NAP 802	Site Formation, Excavation and Filling	118	260	17	277	-57	3	-10	54
NAP 101	Foundation	114	300	36	336	-59	3	0	58
NAP 201	Foundation	114	145	19	164	-52	3	0	65
NAP 202	Foundation	114	248	19	267	-57	3	-10	50
NAP 301	Foundation	114	160	19	179	-53	3	-10	54
NAP 401	Foundation	114	345	17	362	-59	3	0	58
NAP 501	Foundation	114	340	19	359	-59	3	0	58
NAP 601	Foundation	114	375	17	392	-60	3	0	57
NAP 701	Foundation	114	380	17	397	-60	3	0	57
NAP 801	Foundation	114	200	17	217	-55	3	0	62
NAP 802	Foundation	114	260	17	277	-57	3	-10	50
NAP 101	Main Building Construction	114	300	36	336	-59	3	0	58
NAP 201	Main Building Construction	114	145	19	164	-52	3	0	65
NAP 202	Main Building Construction	114	248	19	267	-57	3	-10	50
NAP 301	Main Building Construction	114	160	19	179	-53	3	-10	54
NAP 401	Main Building Construction	114	345	17	362	-59	3	0	58
NAP 501	Main Building Construction	114	340	19	359	-59	3	0	58
NAP 601	Main Building Construction	114	375	17	392	-60	3	0	57
NAP 701	Main Building Construction	114	380	17	397	-60	3	0	57
NAP 801	Main Building Construction	114	200	17	217	-55	3	0	62
NAP 802	Main Building Construction	114	260	17	277	-57	3	-10	50

[1] Attenuation of -10 dB(A) is applied to the NSR(s) that does not have a direct line of sight of the Project site.

Chai Wan Government Complex and Vehicle Depot
Environmental Impact Assessment
Appendix 5.8 Detailed Calculation of Construction Noise Impact Assessment and Construction Plant Inventory (Mitigated Scenario)

Calculation of Construction Noise Level due to Concurrent Project - THEi New Campus Development (Mitigated Scenario)

NAP	Construction Activity	Total SWL, dB(A)	Dist. (NSR to Site Boundary) (A), m	Dist. (Site Boundary to Notional Point) (B), m	Horz. Dist. (=A+B), m	Dist. Corr., dB(A)	Façade Corr., dB(A)	Barrier Corr., dB(A) [1]	CNL, dB(A)
NAP 101	Interior Fitting Out and Users Moving-in	118	505	23	528	-62	3	0	59
NAP 201	Interior Fitting Out and Users Moving-in	118	179	14	193	-54	3	0	67
NAP 202	Interior Fitting Out and Users Moving-in	118	213	8	221	-55	3	-10	56
NAP 301	Interior Fitting Out and Users Moving-in	118	240	14	254	-56	3	0	65
NAP 401	Interior Fitting Out and Users Moving-in	118	104	9	113	-49	3	0	72
NAP 501	Interior Fitting Out and Users Moving-in	118	121	9	130	-50	3	0	71
NAP 601	Interior Fitting Out and Users Moving-in	118	210	8	218	-55	3	0	66
NAP 701	Interior Fitting Out and Users Moving-in	118	86	15	101	-48	3	0	73

[1] Attenuation of -10 dB(A) is applied to the NSR(s) that does not have a direct line of sight of the Project site.

Predicted Monthly Construction Noise Level at NSRs due to the Proposed Project (Mitigated Scenario)

Project	Activities/ Month/Year	2016						2017												2018										
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Chai Wan Vehicle Depot	Site formation, Excavation and Filling	■	■	■	■																									
	Foundation					■	■	■	■	■	■	■	■																	
	Main Building Construction													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
THEi New Campus	Interior Fitting Out and Users Moving-in	■	■																											

Construction Programme with Predicted Noise Level	NSR		Monthly Construction Noise Level at Each Noise Assessment Point (dB(A)) (Overall)																														Max	Min
The Project (CNL)	NAP 101	Heng Fa Chuen Block 50	62	62	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	62	58
	NAP 201	HK IVE (Chai Wan) - Academic Block	**69**	69	69	69	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	69	65
	NAP 202	HK IVE (Chai Wan) - Academic Block	55	55	55	55	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	55	50
	NAP 301	Knight Court Flat C & D	58	58	58	58	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	58	54
	NAP 401	Tsui Shou House, Tsui Wan Estate	62	62	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	62	58
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	62	62	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	62	58
	NAP 601	Tsui Fuk House, Tsui Wan Estate	61	61	61	61	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	61	57
	NAP 701	Tsui Hong House, Tsui Wan Estate	61	61	61	61	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	61	57
	NAP 801	Proposed THEi New Campus in Chai Wan			66	66	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	66	62
	NAP 802	Proposed THEi New Campus in Chai Wan			54	54	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	54	50
THEi New Campus (CNL)	NAP 101	Heng Fa Chuen Block 50	59	59																												
	NAP 201	HK IVE (Chai Wan) - Academic Block	**67**	67																												
	NAP 202	HK IVE (Chai Wan) - Academic Block	56	56																												
	NAP 301	Knight Court Flat C & D	65	65																												
	NAP 401	Tsui Shou House, Tsui Wan Estate	72	72																												
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	71	71																												
	NAP 601	Tsui Fuk House, Tsui Wan Estate	66	66																												
	NAP 701	Tsui Hong House, Tsui Wan Estate	73	73																												
	NAP 801	Proposed THEi New Campus in Chai Wan (N/A)																														
	NAP 802	Proposed THEi New Campus in Chai Wan (N/A)																													**Max**	**Min**
Overall (CNL)	NAP 101	Heng Fa Chuen Block 50	64	64	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	64	58
	NAP 201	HK IVE (Chai Wan) - Academic Block	**71**	**71**	69	69	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	71	65
	NAP 202	HK IVE (Chai Wan) - Academic Block	58	58	55	55	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	58	50
	NAP 301	Knight Court Flat C & D	66	66	58	58	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	66	54
	NAP 401	Tsui Shou House, Tsui Wan Estate	72	72	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	72	58
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	71	71	62	62	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	71	58
	NAP 601	Tsui Fuk House, Tsui Wan Estate	67	67	61	61	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	67	57
	NAP 701	Tsui Hong House, Tsui Wan Estate	73	73	61	61	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	73	57
	NAP 801	Proposed THEi New Campus in Chai Wan			66	66	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	66	62
	NAP 802	Proposed THEi New Campus in Chai Wan			54	54	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	54	50
CNL Standard	NAP 101	Heng Fa Chuen Block 50	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75		
	NAP 201	HK IVE (Chai Wan) - Academic Block	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	
	NAP 202	HK IVE (Chai Wan) - Academic Block	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	
	NAP 301	Knight Court Flat C & D	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
	NAP 401	Tsui Shou House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
	NAP 601	Tsui Fuk House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
	NAP 701	Tsui Hong House, Tsui Wan Estate	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
	NAP 801	Proposed THEi New Campus in Chai Wan			70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	
	NAP 802	Proposed THEi New Campus in Chai Wan			70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	70	65	70	65	65	65	65	65	70	70	70	70	

Note: Noise Level(s) exceeding the construction noise criteria is / are **bolded**.

NSR 8 is a planned educational institution and no examination schedule can be obtained at the time of preparation of this study. It is assumed that the examination schedules for NSR 2 and NSR 8 are the same.

Appendix 5.9

Methodology and Noise Measurement Results of Noise emitted by Brake Test Strip

1. DESCRIPTION OF THE OPERATION OF THE BRAKE TEST STRIP

1.1. During the brake test, the operator runs the vehicle under test on the strip and then applies the brake at around the midpoint of the test strip to investigate if the car braking system functions normally. The vehicle runs at a maximum speed of 30 km/hr before braking and the duration of each test on the brake test strip would take around 20 seconds. As confirmed by the Hong Kong Police Force (HKPF), the maximum number of use is 5 times per day and no more than 1 time in 30 minutes. The main noise sources of the operation of the brake test strip are the engine, exhaust and braking system of the vehicle under test, and tyre/ road surface interaction. The noise from activities before and after the test such as driving the vehicle slowly to the starting point will last around 10 seconds and the noise will be insignificant as compared with the noise from the test.

1.2. Based on the on-site observation, noise emission from the operation of the brake test strip was not steady but had a varying pattern. The noise generated from its operation would increase after the test started, reach its peak at the braking point and die down afterwards. The noise emitting characteristics of the brake test strip would be different from other fixed plant which involves stationary noise source emitting noise in a steady manner. In view of the nature of the noise emission from the brake test strip operation, Sound Exposure Level (SEL), i.e. L_{eq} normalized to 1 second, was measured to determine the noise emission level from the event. The equivalent sound pressure level ($L_{eq30min}$) from the brake strip test operation at the NSRs was calculated taking into account the corrections for distance attenuation, barrier effect and façade reflection.

2. INSTRUMENTS

2.1. Sound level meters meeting the requirements of Class 1 instruments defined in IEC 61672-1 were used.

3. METEOROLOGICAL CONDITIONS

3.1. The measurements were made when the ambient air temperature was within the range from 5°C to 40 ^{o}C. The tests would not be carried out if the wind speed, including gusts, at microphone height exceeded 5m/s during the sound measurement interval.

4. BACKGROUND NOISE

4.1. The noise measurement was conducted at the HKPF Quarry Bay Police Vehicle Pound at 33 Hoi Chak Street, Quarry Bay. It was relatively remote with low pedestrian and traffic flows. The background noise level was steady and it was measured for the duration of 1 minute immediately before and after a series of vehicle tests. The measurements were made with the same microphones and microphone locations used during the test. The lowest background noise level was adopted. During the background noise measurement, no vehicle examination

Project No.: 1158
Chai Wan Government Complex and Vehicle Depot
Appendix 5.9 Noise Measurement for determination of Noise Level of Brake Test Strip

activities in the vehicle pound were conducted. The measured background noise level was shown in ***Table 2***.

5. MICROPHONE POSITIONS

5.1. The distance from the microphone positions on the microphone line PP' to the perpendicular reference line CC on the brake test strip was maintained at 7.5m.

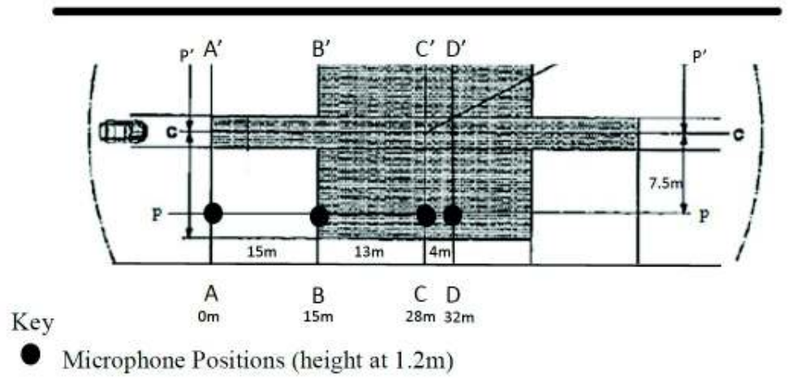
5.2. The microphone set-up was shown in ***Figure 1*** and the measurement was conducted on 24 June 2015. The total length and the width of the test strip were around 100m and 5m respectively. Based on the site observation, it was noticed that in general, the actual length used for the braking test would be around 30m from the starting point of the brake test strip and it was the concerned length for the noise measurement for determining the noise level of the brake test strip. The microphones were positioned along the strip within the applicable length of the braking test. Noise emission from the braking test including the engine noise at the starting point, acceleration noise within the acceleration zone and braking noise at the braking point was measured.

5.3. To measure the noise emission from the braking test, 4 microphones were positioned along the strip as detailed in ***Table 1*** below and they were located at 1.2m above the ground level.

Table 1 Details of the microphone positions

Position ID	Description	Predominant noise component
AA'	Starting point of the braking test.	To capture the engine noise and the acceleration noise.
BB'	Midpoint between the starting point and the braking point which will be located at 15m from the starting point of the braking test.	To capture the acceleration noise and engine noise.
CC'	Braking point will be located at 28m from the starting point. The operator will apply the brake at about this point.	To capture the braking noise.
DD'	End point of the braking test where the vehicle will stop.	To capture the braking noise.

Figure 1 The test site dimensions



5.4. Before the test, noise measurements were conducted at the both sides of the vehicle to be tested and the difference in the noise levels at the both sides of the vehicle was less than 1.0 dB and was considered insignificant. During the trials, noise measurements were conducted on the left side of the vehicle.

5.5. Immediately prior to and following the test, the accuracy of the sound level meters was checked using an acoustic calibrator. Measurements were accepted as valid as the calibration levels before and after the test agreed to within 1.0dB.

6. CONDITION OF THE VEHICLE

6.1. A 24 tonne heavy vehicle was used in the test to obtain the noise level under the worst case scenario.

6.2. Before the measurements started, the vehicle was brought to its normal operating condition. There was a 1-min wait, at idle with engine on, between runs to reduce the variation of results.

7. SPEED

7.1. The maximum test speed for test strip was 30km/ hour. The maximum speed was reached at the middle of the test track, which was also the braking point during the measurement.

8. DETERMINATION OF SOUND EXPOSURE LEVEL (SEL) AND EQUIVALENT SOUND PRESSURE LEVEL ($L_{EQ(30MIN)}$)

8.1. The highest measured A-weighted Sound Pressure Level ($L_{eq(20sec)}$) was adopted to determine the noise level of the operation of the brake test strip. The Sound Exposure Level (SEL), L_{eq} normalized to 1 sec interval, during the event which lasted for 20 seconds was

Project No.: 1158
Chai Wan Government Complex and Vehicle Depot
Appendix 5.9 Noise Measurement for determination of Noise Level of Brake Test Strip

determined. The highest measurement result from the four microphones in each second was adopted to determine the $L_{eq(20sec)(max)}$ in Step 1 in Section 11. The highest SEL obtained from the 3 trials was adopted and it was then converted into the Equivalent Sound Pressure Level ($L_{eq(30min)}$) taken into account the maximum number of events which would occur within a 30-minute assessment period. Corrections for distance attenuation, barrier effect and façade reflection were applied in the determination of the noise level at NSRs due to the operation of the brake test strip.

9. RESULT

Date:	24 June 2015
Time:	10:30 – 12:00 (a.m.)
Location:	HKPF Quarry Bay Police Vehicle Pound
Measurement Equipment:	Sound Level Meter 1: Brüel and Kjær 2250
	Sound Level Meter 2: Solo-Slm 01dB
	Sound Level Meter 3: Brüel and Kjær 2270
	Sound level Meter 4: Brüel and Kjær 2260
	Sound Level Calibrator: Rion NC-73
Measurement duration of Each Test	Around 20 seconds

Table 2 Background noise level

	Background Noise ($L_{eq\ (1min)}$), dB(A)			
Position	**AA'**	**BB'**	**CC'**	**DD'**
Before the trials	62.5	63.1	63.9	63.8
After the Trials	63.2	63.8	63.5	63.3
Lowest background noise	62.5			

Table 3 Noise measurement results of the operation of the brake test strip

	$L_{eq\ (20sec)}$, dB(A)				
Position	**AA'**	**BB'**	**CC'**	**DD'**	**Max**
Trial 1	77.8	80.5	79.1	79.3	81.6
Trial 2	78.4	77.9	78.6	79.3	81.5
Trial 3	78.6	77.9	76.4	74.8	79.7

10. EVALUATION OF THE NOISE PROFILE OF THE OPERATION OF THE BRAKE TEST STRIP

10.1. The highest maximum $L_{eq(20sec)}$ from the three trials as shown in ***Table 3*** was adopted to determine the noise level of the brake test strip as a conservative approach. It is observed that the vehicle under test took about 20 seconds to reach position DD' from position AA' during the braking test. The noise measurement data is shown in ***Annex***.

11. SAMPLE CALCULATION OF OPERATIONAL NOISE LEVEL FROM BRAKE TEST STRIP

Step 1 - Conversion of Leq to SEL

SEL is Leq normalized to 1 second. The equation for calculating SEL is:

$$SEL = L_{eq(20s)(max)} + 10\log(Time)$$

Leq (20 sec)(max) =	81.6	dB(A)
Time =	20	Sec
SEL =	94.6	dB(A)

Step 2- Determination of Noise Source Strength, $Leq_{(30min)}$

Taken into account the number of events which will occur within the 30min assessment period, the operation noise level of the brake test strip, $Leq_{(30min)}$ is:

$$Leq_{(30min)} = SEL - 10\log(T) + 10\log(N)$$

Assessment Period (T) =	1800	Sec
Number of event within the assessment period (N) =	1	
Leq(30min) at 7.5m from the strip =	62	dB(A)

Step 3- Calculation of Operational Noise Level at NSR, $Leq_{(30min)}$

The length of the brake test strip is finite. As a conservative approach, infinite line source distance attenuation is applied. Barrier correction where appropriate and façade correction were considered in determining the noise level from the brake test strip at the NSR.

$Leq_{(30min)}$ at NSR = $Leq_{(30min)}$ at 7.5m from the strip – 10 log (d/7.5) + barrier correction + façade correction

Project No.: 1158
Chai Wan Government Complex and Vehicle Depot
Appendix 5.9 Noise Measurement for determination of Noise Level of Brake Test Strip

Distance between NSR and the brake test strip (d) =	Refer to Appendix 5.6	
Barrier correction (for NSR facing away from the Depot) =	-10	dB(A)
Façade correction =	3	dB(A)

Annex: Noise measurement data

	Trial 1					Trial 2					Trial 3				
Position	**AA'**	**BB'**	**CC'**	**DD'**	**Max**	**AA'**	**BB'**	**CC'**	**DD'**	**Max**	**AA'**	**BB'**	**CC'**	**DD'**	**Max**
Time (sec.)	**$L_{eq\ (1sec)}$**					**$L_{eq\ (1sec)}$**					**$L_{eq\ (1sec)}$**				
1	66.6	67.2	65.8	65.2	67.2	64.2	65.8	66.2	65.6	66.2	64.1	63.9	65.2	64.4	65.2
2	65.5	66.5	66.1	66.6	66.6	65.5	65.1	65.8	65.2	65.8	64.9	64.0	65.3	65.0	65.3
3	66.1	66.2	66.2	65.2	66.2	65.8	66.2	64.9	64.8	66.2	66.0	65.0	64.9	65.2	66.0
4	66.8	67.8	66.5	65.0	67.8	66.6	65.8	65.3	64.7	66.6	65.2	64.9	64.4	63.8	65.2
5	67.5	68.5	67.1	66.8	68.5	68.2	65.6	65.5	64.1	68.2	67.8	64.7	66.2	65.6	67.8
6	71.5	69.6	68.1	68.4	71.5	72.4	68.5	67.1	64.3	72.4	73.2	68.6	68.1	67.8	73.2
7	74.8	75.3	74.3	73.8	75.3	75.6	71.5	68.1	65.9	75.6	76.2	70.5	71.5	69.7	76.2
8	80.1	85.8	81.0	80.8	85.8	84.9	76.1	74.3	68.2	84.9	86.2	77.8	78.8	78.4	86.2
9	85.8	86.3	78.4	73.1	86.3	84.3	82.3	81.0	71.9	84.3	85.3	86.5	78.8	80.6	86.5
10	82.9	78.4	75.3	75.0	82.9	81.2	77.8	78.4	79.7	81.2	81.0	78.1	74.1	73.1	81.0
11	78.5	81.4	77.7	79.6	81.4	81.3	77.8	75.3	80.7	81.3	81.2	79.1	78.6	75.5	81.2
12	80.5	83.2	80.6	83.5	83.5	79.6	82.4	77.7	76.8	82.4	80.7	82.3	83.1	78.1	83.1
13	79.5	80.7	87.7	87.5	87.7	78.8	83.4	80.6	78.6	83.4	78.2	82.0	79.6	78.5	82.0
14	77.4	86.4	85.3	85.8	86.4	82.9	79.7	87.7	85.8	87.7	81.0	81.2	83.1	81.3	83.1
15	78.3	85.1	82.8	83.1	85.1	79.2	85.1	85.3	89.4	89.4	76.5	78.2	78.0	75.0	78.2
16	77.6	76.1	74.0	67.0	77.6	72.0	75.1	77.0	77.5	77.5	67.7	68.7	68.4	72.4	72.4
17	69.8	68.0	69.2	67.1	69.8	67.0	68.2	69.2	68.8	69.2	64.8	67.4	67.0	67.1	67.4
18	64.6	67.2	68.9	67.6	68.9	66.5	65.5	65.8	66.3	66.5	64.5	65.1	67.0	67.0	67.0
19	65.1	66.5	67.2	67.1	67.2	64.6	65.2	65.9	66.6	66.6	64.6	67.2	66.9	65.6	67.2
20	65.4	65.9	66.9	66.5	66.9	66.1	66.0	65.8	67.3	67.3	64.5	65.4	66.6	67.0	67.0

Project No.: 1158
Chai Wan Government Complex and Vehicle Depot
Appendix 5.9 Noise Measurement for determination of Noise Level of Brake Test Strip

	Trial 1					Trial 2					Trial 3				
Position	**AA'**	**BB'**	**CC'**	**DD'**	**Max**	**AA'**	**BB'**	**CC'**	**DD'**	**Max**	**AA'**	**BB'**	**CC'**	**DD'**	**Max**
Time (sec.)	**$L_{eq\ (1sec)}$**					**$L_{eq\ (1sec)}$**					**$L_{eq\ (1sec)}$**				
$L_{eq\ (20sec)}$	77.8	80.5	79.1	79.3	81.6	78.4	77.9	78.6	79.3	81.5	78.6	77.9	76.4	74.8	79.7

Appendix 6.1

Hydraulic Assessment

Estimation of Sewage Generation (from the Proposed Project)

Sewage Source	Approx. Number	Unit Flow Factor (m^3/d/ person)	Estimated Consumption (m^3/wash)	Average Dry Weather Flow (m^3/d)	References
HKPF's Population	30	0.18	/	5.40	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transportation trade activities according to Table T-2 of GESF
FEHD's Population	127	0.18	/	22.86	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transportation trade activities according to Table T-2 of GESF
EMSD's Population	33	0.18	/	5.94	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transportation trade activities according to Table T-2 of GESF
GL's Population	36	0.18	/	6.48	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for storage trade activities according to Table T-2 of GESF
Daily vehicle washing from EMSD's workshop (Manual Wash)	2	/	0.12	0.24	- No. of vehicles to be washed: estimated by user - Estimated consumption: estimated by user
Daily vehicle washing from FEHD's depot (Automated Vehicle Washing Machine)	33	/	1.00	33.00	- No. of vehicles to be washed: estimated by user - Estimated consumption: estimated by user
Daily vehicle washing from FEHD's depot (Manual Wash)	17	/	8.00	136.00	- No. of vehicles to be washed: estimated by user - Estimated consumption: estimated by user
Total Average Dry Weather Flow (ADWF) (m^3/d)				209.92	
Peaking Factor				8	Table T-5 of GESF
Catchment Inflow Factor (P_{CIF})				1.1	Table T-4 of GESF
Peak Wet Weather Flow (PWWF) (m^3/d)				1847.30	
Peak Wet Weather Flow (PWWF) (m^3/s)				0.0214	

Estimation of Sewage Generation (from Surrounding Developments)

Sewage Source	Sewer Manhole Number	Population	Unit Flow Factor (m^3/d/ person)	Peaking Factor	Catchment Inflow Factor (P_{CIF})	Peak Wet Weather Flow (PWWF) (m^3/s)	References
Government Logistics Centre	FMH7034178	180	0.18	8	1.1	0.0033	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transport, storage and communication activities according to Table T-2 of GESF
New World First Bus Depot	FMH7034178	700	0.18	8	1.1	0.0128	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transportation trade activities according to Table T-2 of GESF
Citybus Chai Wan Depot	FMH7034208	385	0.18	8	1.1	0.0071	- Population: estimated by user - Unit Flow Factor: 0.08 for employee and 0.1 for transportation trade activities according to Table T-2 of GESF

Estimation of Sewerage Hydraulic

Upstream Manhole	Downstream Manhole	Pipe Size (mm)	Length (m) [1]	Upstream invert level (mPD) [1]	Downstream invert level (mPD) [1]	Gradient (1:x)	Slope, *S* (m/m)	Colebrook-White roughness coefficient (mm) [2]	Velocity, *V* (m/s) [3]	Pipe Capacity, *Q* (m^3/s) [4]	Contribution by the proposed Project (%)	Total Flow from Proposed Project and Surrounding Developments (m^3/s)	Total Capacity Taken (%)	Sufficient Capacity?
FMH7034177	FMH7034178	225	8	3.23	3.15	100.0	0.0100	6.0	0.8983	0.0357	59.9%	0.0214	59.9%	Yes
FMH7034178	FMH7034180	400	53	2.64	2.58	883.3	0.0011	6.0	0.4491	0.0564	37.9%	0.0375	66.5%	Yes
FMH7034180	FMH7034216	400	24	2.58	2.44	171.9	0.0058	6.0	1.0204	0.1282	16.7%	0.0375	29.3%	Yes
FMH7034216	FMH7034205	400	31	2.44	2.26	171.9	0.0058	6.0	1.0204	0.1282	16.7%	0.0375	29.3%	Yes
FMH7034205	FMH7034206	400	11	2.26	2.22	275.0	0.0036	6.0	0.8063	0.1013	21.1%	0.0375	37.0%	Yes
FMH7034206	FMH7034208	600	56	2.22	1.63	94.9	0.0105	6.0	1.8068	0.5109	4.2%	0.0375	7.3%	Yes
FMH7034208	FMH7034210	600	62	1.63	1.43	310.0	0.0032	6.0	0.9990	0.2825	7.6%	0.0446	15.8%	Yes
FMH7034210	FMH7034212	600	52	1.41	1.38	1733.3	0.0006	6.0	0.4215	0.1192	17.9%	0.0446	37.4%	Yes
FMH7034212	FMH7034213	600	49	1.37	1.12	196.0	0.0051	6.0	1.2568	0.3554	6.0%	0.0446	12.5%	Yes
FMH7034213	FMH7034200	600	80	1.10	1.07	2325.0	0.0004	6.0	0.3637	0.1028	20.8%	0.0446	43.3%	Yes
FMH7034200	FMH7034199	600	13	1.07	1.06	2325.0	0.0004	6.0	0.3637	0.1028	20.8%	0.0446	43.3%	Yes
FMH7034199	FMH7034198	600	23	1.04	1.00	575.0	0.0017	6.0	0.7331	0.2073	10.3%	0.0446	21.5%	Yes
FMH7034197	FMH7034198	1200	62	1.51	1.40	563.6	0.0018	6.0	1.1709	1.3242	0.0%	1.3242	100.0% [5]	Yes
FMH7034198	FSH7001100	2100	9	0.85	0.81	225.0	0.0044	6.0	2.6614	9.2181	0.2%	1.3688	14.8%	Yes

Note:

1) Information from DSD's Drainage Layout Plan.

2) Reference to Table 5 of DSD's Sewerage Manual Part 1.

3) Velocity is calculated using Colebrook-White Equation:

$$V = -2(2gDS)^{0.5} \log\left(\frac{k}{3.7D} + \frac{2.5\boldsymbol{\nu}}{D(2gDS)^{0.5}}\right)$$

k = Colebrook-White roughness coefficient, in metres
V = velocity, in metres per second
D = circular cross-section pipe, inside diameter, in metres
S = slope, in metres per metre
ν = kinematic viscosity of water, in square metres per second.

4) Pipe capacity is calculated from: $Q = V \times A$

5) The discharge is assumed to be at full capacity as a worst-case scenario.

Appendix 7.1

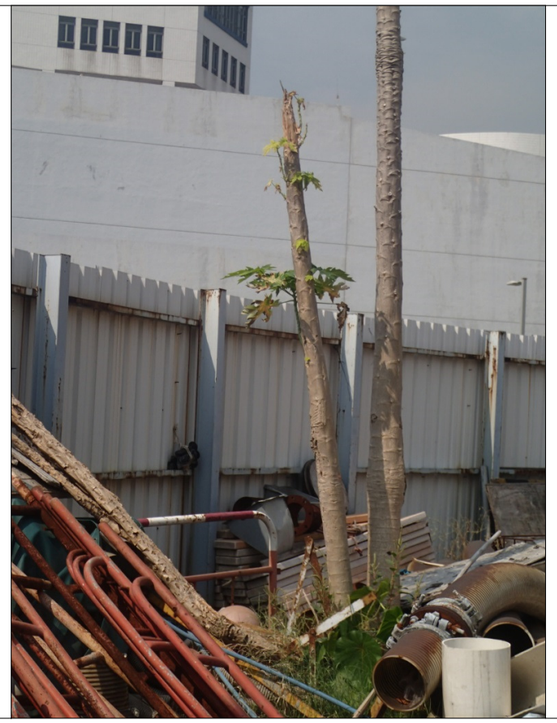
Tree Assessment Schedule

Tree No.	Scientific Name	Chinese Common Name	Species Origin	Size (m)			Form (Good/ Fair/ Poor)	Health (Good/ Fair/ Poor)	Amenity Value (High/ Med/ Low)	Survival Rate after Transplanting (High/Med/Low)	Recommended Treatment	Justification for Treatment	Remarks
				Overall Height	Trunk Diameter	Crown Spread							
T01	Broussonetia papyrifera	構樹	Native	3.0	0.16	4.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 5	Restricted crown by adjacent building structure; construction equipments stacking around trunk
T02	Carica papaya	木瓜	Exotic	1.0	0.12	1.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 5	Common fruit trees; trunk was trimmed
T03	Carica papaya	木瓜	Exotic	5.0	0.17	2.0	Poor	Fair	Low	Low	Fell	1, 2, 3, 5	Common fruit trees
T04	Carica papaya	木瓜	Exotic	3.0	0.10	2.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 5	Common fruit trees; leaning
T05	Carica papaya	木瓜	Exotic	4.0	0.14	1.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 5	Common fruit trees; leaning; damaged trunk
T06	Carica papaya	木瓜	Exotic	7.0	0.18	3.0	Poor	Fair	Low	Med	Fell	1, 2, 4	Common fruit trees; leaning; restricted crown by adjacent building structure
T07	Carica papaya	木瓜	Exotic	4.0	0.10	2.0	Poor	Fair	Low	Med	Fell	1, 2, 4	Common fruit trees; leaning; restricted crown by adjacent building structure
T08	Bombax ceiba	木棉	Exotic	4.0	0.11	3.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 4	Restricted crown by adjacent building structure
T09	Bombax ceiba	木棉	Exotic	3.0	0.10	3.0	Poor	Poor	Low	Low	Fell	1, 2, 3, 4	Restricted crown by adjacent building structure
T10	Callistemon viminalis	串錢柳	Exotic	3.0	0.11	3.0	Poor	Poor	Med	Med	Retain & Prune		Poor form not rectifiable after transplanting; split trunk anticipated; potential danger to passerby
T11	Spathodea campanulata	火焰木	Exotic	6.0	0.33	5.0	Fair	Fair	Med	Med	Retain & Prune		Deformed tree form; rootball restricted by existing tree pit leading to low survival rate
T12	Spathodea campanulata	火焰木	Exotic	5.0	0.13	3.0	Poor	Fair	Low	Med	Fell	1, 2	Leaning; canopy protruding into the Project site
T13	Spathodea campanulata	火焰木	Exotic	5.0	0.20	5.0	Poor	Fair	Low	Med	Fell	1, 2	Leaning; canopy protruding into the Project site
T14	Spathodea campanulata	火焰木	Exotic	4.0	0.13	4.0	Poor	Poor	Low	Low	Fell	1, 2, 3	Leaning; canopy protruding into the Project site
T15	Spathodea campanulata	火焰木	Exotic	4.0	0.17	4.0	Poor	Fair	Low	Med	Retain & Prune		Leaning; canopy protruding into the Project site
T16	Spathodea campanulata	火焰木	Exotic	3.0	0.10	2.0	Poor	Poor	Low	Low	Retain		Low-branching
T17	Spathodea campanulata	火焰木	Exotic	4.0	0.11	5.0	Fair	Fair	Med	Med	Retain & Prune		Trunk and canopy protruding into the Project site
T18	Bombax ceiba	木棉	Exotic	13.0	0.36	8.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T19	Bombax ceiba	木棉	Exotic	8.0	0.30	7.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T20	Bombax ceiba	木棉	Exotic	9.0	0.46	10.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T21	Bombax ceiba	木棉	Exotic	10.0	0.41	9.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T22	Bombax ceiba	木棉	Exotic	11.0	0.48	10.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T23	Bombax ceiba	木棉	Exotic	11.0	0.30	8.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T24	Bombax ceiba	木棉	Exotic	10.0	0.38	10.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T25	Bombax ceiba	木棉	Exotic	10.0	0.39	9.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T26	Bombax ceiba	木棉	Exotic	10.0	0.42	7.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T27	Bombax ceiba	木棉	Exotic	11.0	0.48	10.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T28	Bombax ceiba	木棉	Exotic	10.0	0.31	7.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T29	Bombax ceiba	木棉	Exotic	9.0	0.30	6.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T30	Bombax ceiba	木棉	Exotic	9.0	0.39	7.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T31	Melaleuca quinquenervia	白千層	Exotic	6.0	0.17	4.0	Fair	Fair	Med	Low	Retain & Prune		Canopy protruding into the Project site
T32	Bombax ceiba	木棉	Exotic	8.0	0.30	9.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T33	Bombax ceiba	木棉	Exotic	8.0	0.36	9.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T34	Bombax ceiba	木棉	Exotic	8.0	0.33	7.0	Good	Good	Med	Low	Retain & Prune		Trunk and canopy protruding into the Project site
T35	Melaleuca quinquenervia	白千層	Exotic	6.0	0.17	3.0	Fair	Fair	Med	Low	Retain & Prune		
T36	Melaleuca quinquenervia	白千層	Exotic	6.0	0.17	4.0	Fair	Fair	Med	Low	Retain		
T37	Melaleuca quinquenervia	白千層	Exotic	5.0	0.15	4.0	Fair	Fair	Med	Low	Retain		

Justification Note:

1) Direct conflict with the proposed development
2) Poor health or form that does not support transplanting
3) Species of low survival rate after transplanting
4) Impractical for transplanting due to restriction of the formation size of rootball
5) Species of low landscape or ecological value that can be compensated easily

T01



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NOTES :

Consultant

Allied Environmental Consultants Limited
ACOUSTICIANS & ENVIROMENTAL ENGINEERS

Project No. :	1158
File Name :	
Project :	Chai Wan Government Complex and Vehicle Depot
Drawing Title :	Tree Assessment Schedule
Drawing No : Appendix 7.1	Revision : 1
Scale : NTS	Date : September 2014

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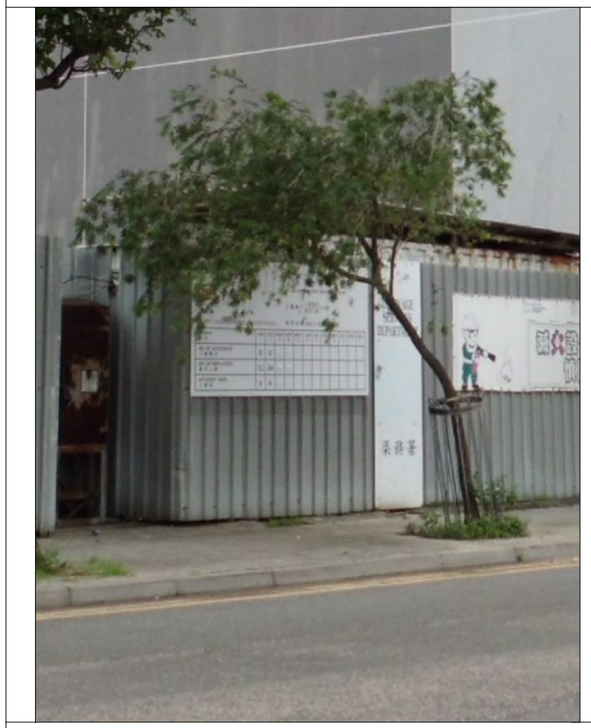

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NOTES :

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File Name :	
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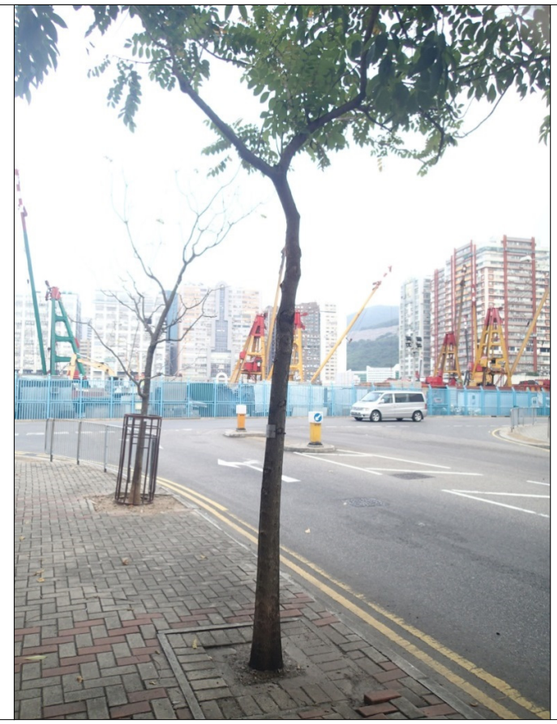

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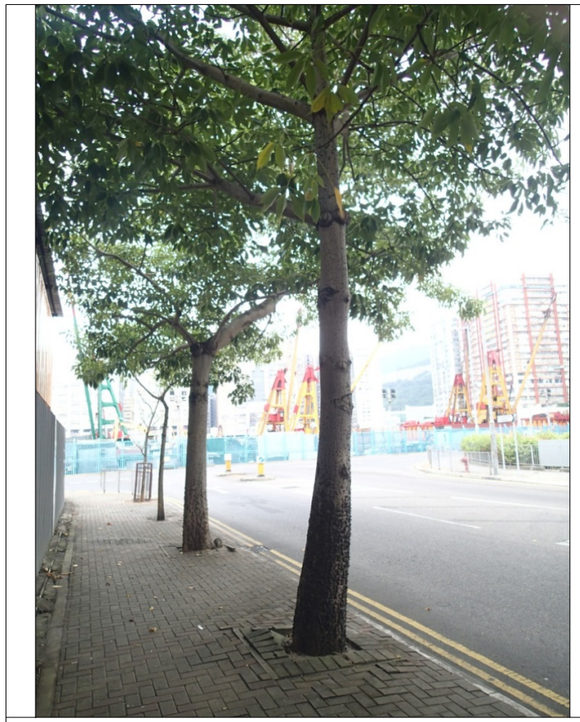

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NOTES :

Consultant

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ACOUSTICIANS & ENVIROMENTAL ENGINEERS

Project No. :	1158
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ACOUSTICIANS & ENVIROMENTAL ENGINEERS

Project No. :	1158
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A3 420 x 297

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ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

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A3 420 x 297

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A3 420 x 297

Appendix 9.1

Correspondence with Local Authorities on Record Request

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0008

28 March 2014

By Letter

Environmental Protection Department
Environmental Compliance Division
Regional Office (South)
Eastern
2/F, Chinachem Exchange Square,
1 Hoi Wan Street, Quarry Bay,
Hong Kong

Dear Sir / Madam,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: RECORDS OF REGISTERED CHEMICAL WASTE PRODUCERS AND HISTORICAL RECORDS OF CHEMICAL SPILLAGE / LEAKAGE

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014 (copy attached), a land contamination assessment at the Project site is required.

We understand that the Project site is currently used by Drainage Services Department (DSD) as works and staging area. In order to facilitate our land contamination assessment for the EIA study, we would be grateful if the following information concerning the Project site can be provided:

(i) Current and past registration of registered chemical waste producer; and
(ii) Historical records of chemical spillage / leakage.

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Grace KWOK
Director
Allied Environmental Consultants Limited

Encl.
ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

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來函檔案 YOUR REF: 71158/14-0008
電話 TEL NO: 2516 1818
圖文傳真 FAX NO: 2960 1760
網址 HOMEPAGE: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (South)
2/F., Chinachem Exchange Square
1 Hoi Wan Street
Quarry Bay, Hong Kong

環境保護署
環保法規管理科
區域辦事處(南)
香港鰂魚涌
海灣街一號
華懋交易廣場二樓

10 April 2014
(By Post & Fax: 2815 5399)

To: Allied Environmental Consultants Limited,
19/F, Kwan Chart Tower, 6 Tonnchy Road,
Wan Chai, Hong Kong
Attn: Grace KWOK, Director

Dear Ms Kwok,

Chai Wan Government Complex & Vehicle Depot at Sheung Tat Street, Chain Wan (Programme No. 184GK)
Request for Information – Record of Registered Chemical Waste Producers and Historical Records of Chemical Spillage / Leakage

I refer to your letter referenced above dated 28 March 2014, requesting the following information –
(1) Current & Past Registration of registered chemical waste producers;
(2) Historical records of chemical spillage / leakage

According to our records in the Regional Office (South), there are no registered chemical waste producers at the captioned address. Nevertheless, you may like to visit our territory-wide register maintained at the Territory Control Office (in Wan Chai). Please contact our Chief Environmental Protection Inspector, Mr. DO Yuen Tung (Tel: 2835 1087) to make an appointment for the access to the register.

Finally, we do not have any records of chemical leakage or spillage, or any land contamination at the above site within the past 5 years. You are reminded that this information is not exhaustive and you are advised to check with other concerned parties/authorities responsible for handling chemical leakage/spillage incidents. You may also consider taking samples for your study of land contamination, if necessary.

Yours sincerely,

(Rita F.M. LAM)
for Director of Environmental Protection

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers
19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

AEC 沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0007

28 March 2014

By Letter and Email

Fire Services Department
Licensing & Certification Command
Dangerous Goods Division
4th Floor, FSD Kwai Chung Office Building,
86 Hing Shing Road, Kwai Chung, New Territories

Attn: Mr. LAM Yau Wing

Dear Sir,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: REGISTRATION OF DANGEROUS GOODS RECORDS AND HISTORICAL RECORDS OF DANGEROUS GOODS SPILLAGE / LEAKAGE

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014 (copy attached), a land contamination assessment at the Project site is required.

We understand that the Project site is currently used by Drainage Services Department (DSD) as works and staging area. In order to facilitate our land contamination assessment for the EIA study, we would be grateful if the following information concerning the Project site can be provided:

(i) Current and past registration of dangerous goods records; and
(ii) Historical records of dangerous goods spillage / leakage.

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Grace KWOK
Director
Allied Environmental Consultants Limited

Encl.
ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

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消防處
香港九龍尖沙咀東部康莊道1號
消防總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS
BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 OUR REF. : (63) in FSD GR 6-5/4 R Pt. 6
來函檔號 YOUR REF. : 1158/14-0007
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk
圖文傳真 FAX NO. : 2739 5879
電 話 TEL NO. : 2733 7741

29 April 2014

Allied Environmental Consultants Limited
19/F.,
Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai, Hong Kong.
(Attn: Ms. Grace KWOK)

Dear Ms. KWOK,

Chai Wan Government Complex and
Vehicle Depot at Sheung Tak Street, Chai Wan
Request for Information of Dangerous Goods & Incident Record

I refer to your letter which was received by this office on 17.4.2014 regarding the captioned request.

Please be advised that neither records of dangerous goods license nor incidents of spillage / leakage of dangerous goods were found in connection with the given conditions of your request at the subject location.

Should you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(Derek Armstrong CHAN)
for Director of Fire Services

Ref. number and date should be quoted in reference to this letter
凡提及本信時請引述編號及日期

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0009

28 March 2014

By Letter & Email

Lands Department
Lands Administration Office
District Lands Office, Hong Kong East
3/F & 19/F, Southorn Centre,
130 Hennessy Road, Wan Chai, Hong Kong

Attn: Ms. CHAN Yin Ling, Yolanda

Dear Madam,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: CURRENT AND PAST LAND USES

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014 (copy attached), a land contamination assessment at the Project site is required.

In order to facilitate our land contamination assessment for the EIA study, we would be grateful if the following information concerning the Project site can be provided:

(i) Current and past land uses of the site detailed with duration;
(ii) Reported land contamination issues, if any (e.g. spillage or leakage of chemical / dangerous good, etc.); and
(iii) Requirement on site clearance and / or decontamination of the Project site upon termination of current land use as works area by Drainage Services Department.

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Grace KWOK
Director
Allied Environmental Consultants Limited

Encl.

ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

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港島東區地政處
DISTRICT LANDS OFFICE/
HONG KONG EAST
LANDS DEPARTMENT

我們矢志努力不懈，提供盡善盡美的土地行政服務。
We strive to achieve excellence in land administration.

香港灣仔軒尼詩道修領中心三、十九樓
3/F, 19/F, SOUTHORN CENTRE, 130 HENNESSY ROAD,
WAN CHAI, HONG KONG

網址 Web Site: www.landsd.gov.hk

Allied Environmental Consultants Limited
19/F Kwan Chart Tower
6 Tonnochy Road
Wan Chai
Hong Kong

By Fax 2815 5399

15 May 2014

Attn: Ms Grace Kwok

Dear Sirs

Chai Wan Government Complex and Vehicle Depot at Sheung Tak Street, Chai Wan (Programme No 184GK) Request for Information: Current and Past Land Uses

I refer to your letter dated 28 March 2014 and the subsequent telephone conversation (Chan/Chan) and would advise as follows:

(i) Current and Past Land Uses of the Site

Period	Previous/Existing Use	Allocatee/Tenant
1.1.1988 - 4.9.1997	Sheung On Temporary Housing Area (TGLA No GLA-THK 615)	Director of Housing
1.2.2001 - 4.10.2002	Temporary works area for road construction project in Chai Wan Reclamation Area (Contract No HY/2000/17) (TGLA No GLA-THK 1419)	Director of Highways
14.7.2003 - 30.9.2004	A fee-paying public carpark (STT No EHX-328)	Kai Hing Trading Company
1.9.2005 - Present	Temporary works area for Drainage Term Contract for Drainage Maintenance and Construction in Hong Kong Islands and Islands Districts (TGLA No GLA-THK 1700)	Director of Drainage Services

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You may also note from the enclosed site plan that there is a 132KV cable (EH0034) in the south-western corner of the site which is held under the Block Licence dated 6 April 1990 by the Hongkong Electric Co Ltd and nearly the whole site is within the sewage tunnel protection boundary.

(ii) Reported Land Contamination Issues

Nil.

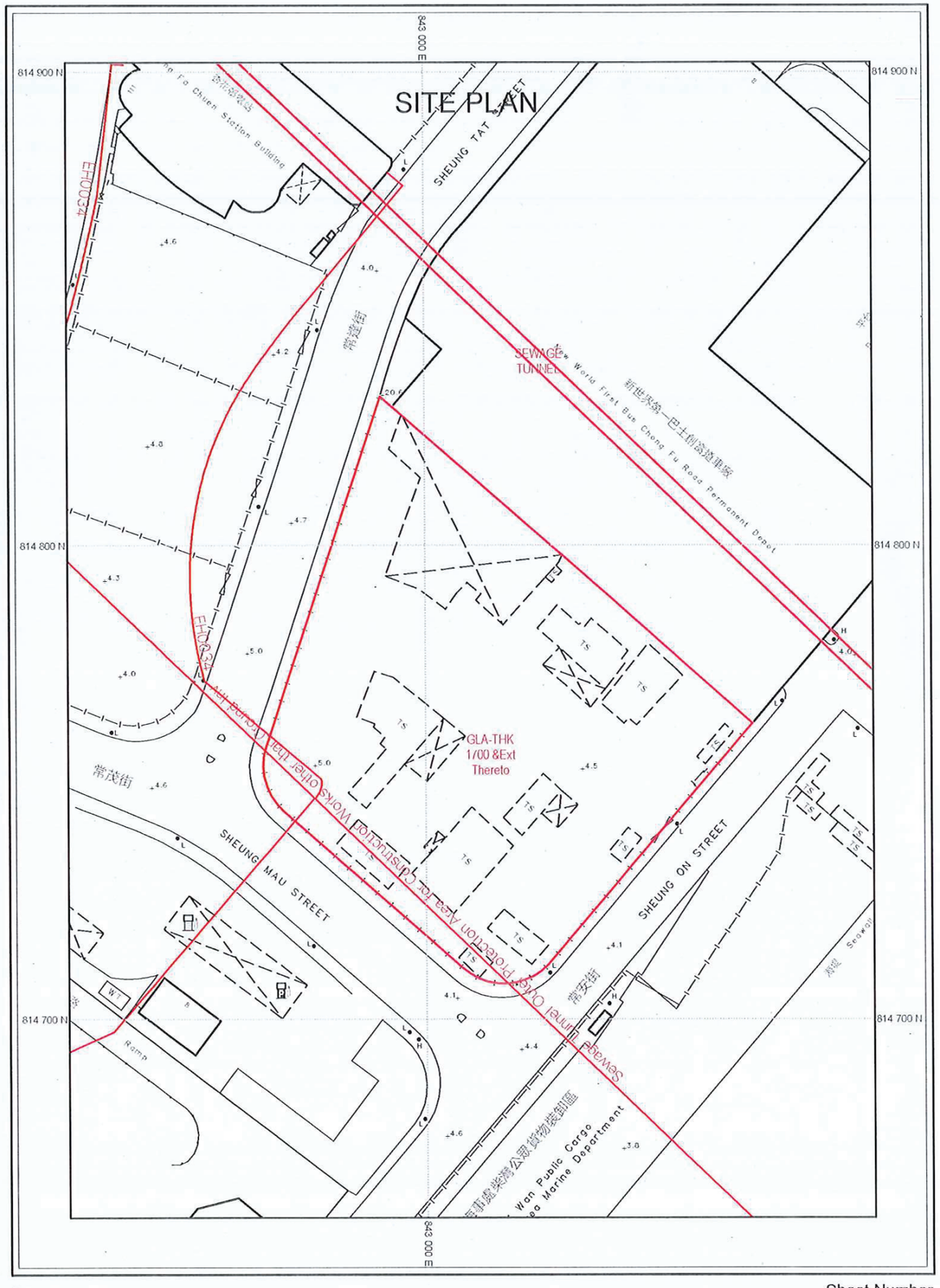
(iii) Requirement on Site Clearance and/or Decontamination of the Site upon Termination of Current Land Use as Works Area by Drainage Services Department

At the expiration or early determination of TGLA No GLA-THK 1700, the Director of Drainage Services is required to reinstate the site and hand back the site to this office free of structures and debris and cleared of all occupation. There is no requirement for decontamination of the site under the Engineering Conditions of the said TGLA.

Yours faithfully

(Yolanda Chan)
for District Lands Officer/Hong Kong East

Enc



Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

AEC 沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0012

28 March 2014

By Letter & Email

New World First Bus Services Ltd.
8 Chong Fu Road
Chai Wan, Hong Kong

Dear Sir / Madam,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: REPORTED LAND CONTAMINATION ISSUES ARISING FROM THE OPERATION OF NEW WORLD FIRST BUS CHONG FU ROAD PERMANENT DEPOT

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014 (copy attached), a land contamination assessment at the Project site is required.

We understand that the New World First Bus Chong Fu Road Permanent Depot is located adjacent to the Project site. In order to facilitate our land contamination assessment for the EIA study, we would be grateful if the following information concerning the Project site can be provided:

(i) Reported land contamination issues arising from the operation of New World First Bus Chong Fu Road Permanent Depot to the Project site, if any (e.g. spillage or leakage of, gasoline, diesel, chemical, dangerous goods, etc.)

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Grace KWOK
Director
Allied Environmental Consultants Limited

Encl.

ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

Recycled Paper

新巴 FIRST BUS
周大福企業及新創建集團成員
Member of Chow Tai Fook Enterprises and NWS Holdings

Your Ref : 1158/14-0012
Our Ref : BS/CFR/L/20140408

Date : 8 April 2014

By Email

Allied Environmental Consultants Limited
19/F., Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai,
Hong Kong

Dear Grace,

Chai Wan Government Complex and Vehicle Depot at Sheung Tak Street, Chai Wan (Programe No. 184GK)
Request for information : Reported Land Contamination issues arising from the operation of New World First Bus Chong Fu Road Permanent Depot

We would like to inform you that there is no reported land contamination issues arising from the operation of our Bus Depot since 12 July 2001 up to this moment.

If you have any further enquiries, please do not hesitate to contact the undersigned at telephone number 2136 2204.

Yours faithfully,
For and on behalf of
New World First Bus Services Ltd.

Alfee Au
Senior Building Services Engineer

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0085

28 October 2014

By Letter

Citybus Limited
8 Chong Fu Road
Chai Wan, Hong Kong

Dear Sir/Madam,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: REPORTED LAND CONTAMINATION ISSUES ARISING FROM THE OPERATION OF CITYBUS CHAI WAN DEPOT

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014, a land contamination assessment at the Project site is required.

We understand that the Citybus Chai Wan Depot is located adjacent to the Project site. In order to facilitate our land contamination assessment for the EIA study, we would be grateful if the following information concerning the Project site can be provided:

(i) Reported land contamination issues arising from the operation of Citybus Chai Wan Depot to the Project site, if any (e.g. spillage or leakage of, gasoline, diesel, chemical, dangerous goods, etc.)

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Carol Chan
Senior Consultant
Allied Environmental Consultants Limited

Encl.

ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

CITYBUS 城巴
周大福企業及新創建集團成員
Member of Chow Tai Fook Enterprises and NWS Holdings

Your Ref : 1158/14-0085
Our Ref : BS/CWD/L/20141107

Date : 7 Nov 2014

By Email

Allied Environmental Consultants Limited
19/F., Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai,
Hong Kong

Dear Carol,

Chai Wan Government Complex and Vehicle Depot at Sheung Tak Street, Chai Wan (Programe No. 184GK)
Request for information : Reported Land Contamination issues arising from the operation of Citybus Chai Wan Depot

We would like to inform you that there are no reported land contamination issues arising from the operation of our Bus Depot since April 2004 up to this moment.

If you have any further enquiries, please do not hesitate to contact the undersigned at telephone number 2136 2204.

Yours faithfully,
For and on behalf of
New World First Bus Services Ltd.

Alfee Au
Senior Building Services Engineer

城巴有限公司 Citybus Limited
香港柴灣創富道8號 8 Chong Fu Road, Chai Wan, Hong Kong
電話 Tel (852) 2963 4888 傳真 Fax (852) 2579 0202 網址 Website www.citybus.com.hk

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0087

29 October 2014

By Letter

Environmental Protection Department
Environmental Compliance Division
Regional Office (South)
Eastern
2/F, Chinachem Exchange Square,
1 Hoi Wan Street, Quarry Bay,
Hong Kong

Attn: Ms. Rita F.M. Lam

Dear Madam,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: RECORDS OF REGISTERED CHEMICAL WASTE PRODUCERS AND HISTORICAL RECORDS OF CHEMICAL SPILLAGE / LEAKAGE

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014, a land contamination assessment at the Project site is required.

Further to your reply dated 10 April 2014 (Your ref: EP/RS/0000365048), we would be grateful if the following information concerning nearby facilities, namely (i) Citybus Chai Wan Depot at 38 Sheung On Street, (ii) New World First Bus Chong Fu Road Depot at 8 Chong Fu Road and (iii) Petrol Filling Station at 8 Sheung Mau Street, can also be provided:

(i) Current and past registration of registered chemical waste producer; and
(ii) Historical records of chemical spillage / leakage.

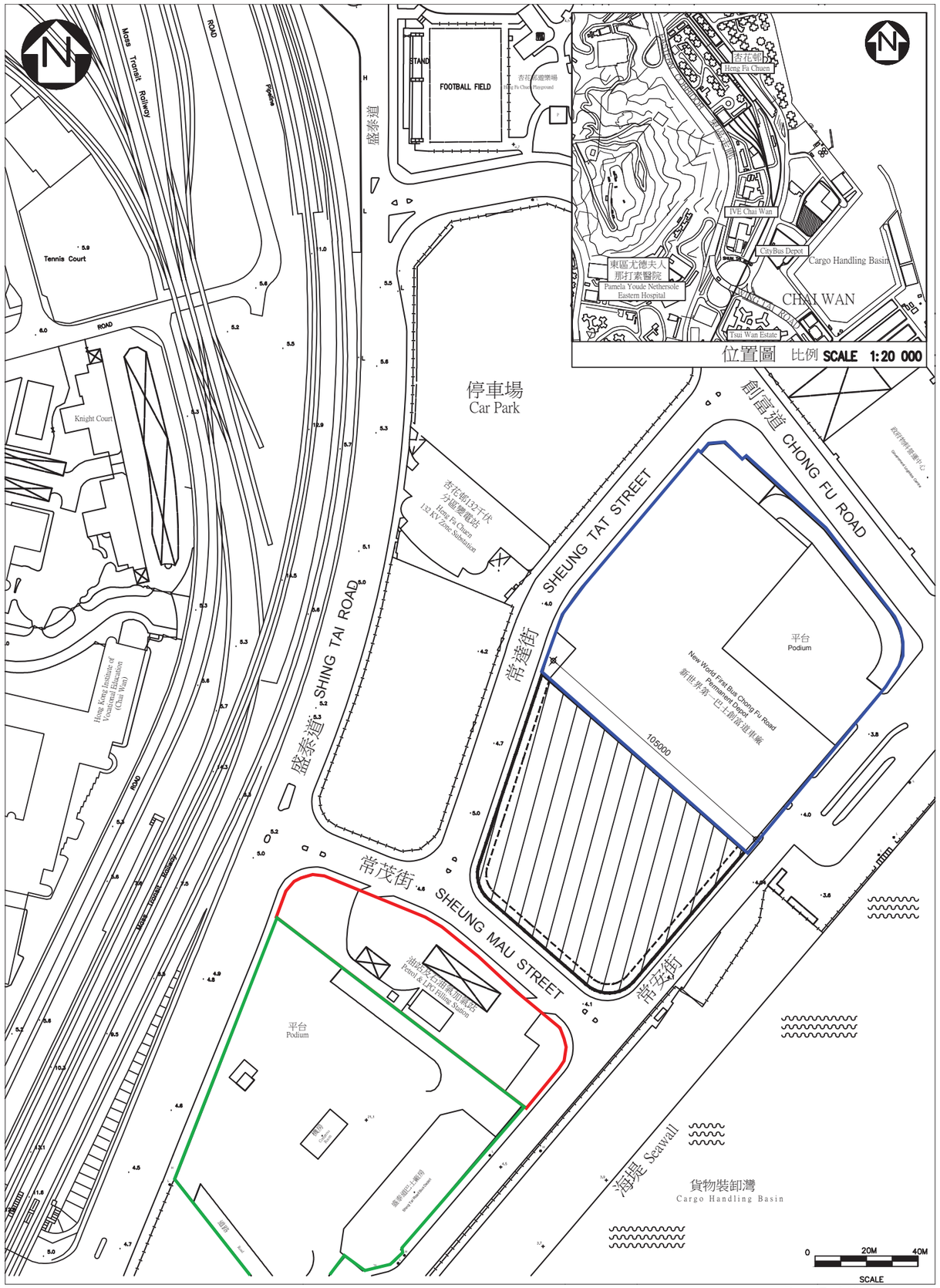
Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Carol Chan
Senior Consultant
Allied Environmental Consultants Limited

Encl.
ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

Recycled Paper



本署檔案 (4) in EP/RS/0000365048
OUR REF:
來函檔案 1158/14-0087
YOUR REF:
電　話 2516 1818
TEL NO:
圖文傳真 2960 1760
FAX NO:
網　址
HOMEPAGE: http://www.epd.gov.hk/

Environmental Protection Department
Environmental Compliance Division
Regional Office (South)
2/F., Chinachem Exchange Square
1 Hoi Wan Street
Quarry Bay, Hong Kong

環境保護署
環保法規管理科
區域辦事處(南)
香港鰂魚涌
海灣街一號
華懋交易廣場二樓

2 December 2014
(By Post & Email: <cc@aechk.com>)

To: Allied Environmental Consultants Limited,
19/F, Kwan Chart Tower, 6 Tonnochy Road,
Wan Chai, Hong Kong
Attn: Carol CHAN, Senior Consultant

Dear Ms Chan,

Chai Wan Government Complex & Vehicle Depot at
Sheung Tat Street, Chain Wan (Programme No. 184GK)
Request for Information – Record of Registered Chemical Waste Producers and Historical Records of Chemical Spillage / Leakage

I refer to your letter referenced above dated 29 October 2014, requesting the following information with respect to the two bus depots and one petrol filling station next to the above site –

(1) Current & Past Registration of registered chemical waste producers;
(2) Historical records of chemical spillage / leakage

According to our records in the Regional Office (South), the above three facilities are registered chemical waste producers. Nevertheless, you may like to visit our territory-wide register maintained at the Territory Control Office (in Wan Chai). Please contact our Chief Environmental Protection Inspector, Mr. DO Yuen Tung (Tel: 2835 1017) to make an appointment for the access to the register.

Finally, we do not have any records of chemical leakage or spillage, or any land contamination at the above facilities within the past 5 years. You are reminded that this information is not exhaustive and you are advised to check with other concerned parties/authorities responsible for handling chemical leakage/spillage incidents. You may also consider taking samples for your study of land contamination, if necessary.

Yours sincerely,

(Rita F.M. LAM)
for Director of Environmental Protection

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers
19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

AEC 沛然環境評估工程顧問有限公司

Our Ref: 1158/14-0086

29 October 2014

By Letter

Fire Services Department
9th Floor, Fire Services HQ Building,
1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon

Attn: Mr. Derek Armstrong CHAN

Dear Sir,

CHAI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAK STREET, CHAI WAN (PROGRAMME NO. 184GK)
REQUEST FOR INFORMATION: REGISTRATION OF DANGEROUS GOODS RECORDS AND HISTORICAL RECORDS OF DANGEROUS GOODS SPILLAGE / LEAKAGE AT NEARBY FACILITIES

We are commissioned by the Architectural Services Department (ArchSD) to conduct an Environmental Impact Assessment (EIA) for a development project at the captioned location (as shown in the enclosed location plan). In accordance with the EIA Study Brief (ESB-267/2014) issued by Environmental Protection Department (EPD) on 5 March 2014, a land contamination assessment at the Project site is required.

Further to your reply dated 17 April 2014 (Your ref: (58) in FSD GR 6-5/4 R Pt. 6), we would be grateful if the following information concerning nearby facilities, namely (i) Citybus Chai Wan Depot at 38 Sheung On Street, (ii) New World First Bus Chong Fu Road Depot at 8 Chong Fu Road and (iii) Petrol Filling Station at 8 Sheung Mau Street, can also be provided:

(i) Current and past registration of dangerous goods records; and
(ii) Historical records of dangerous goods spillage / leakage.

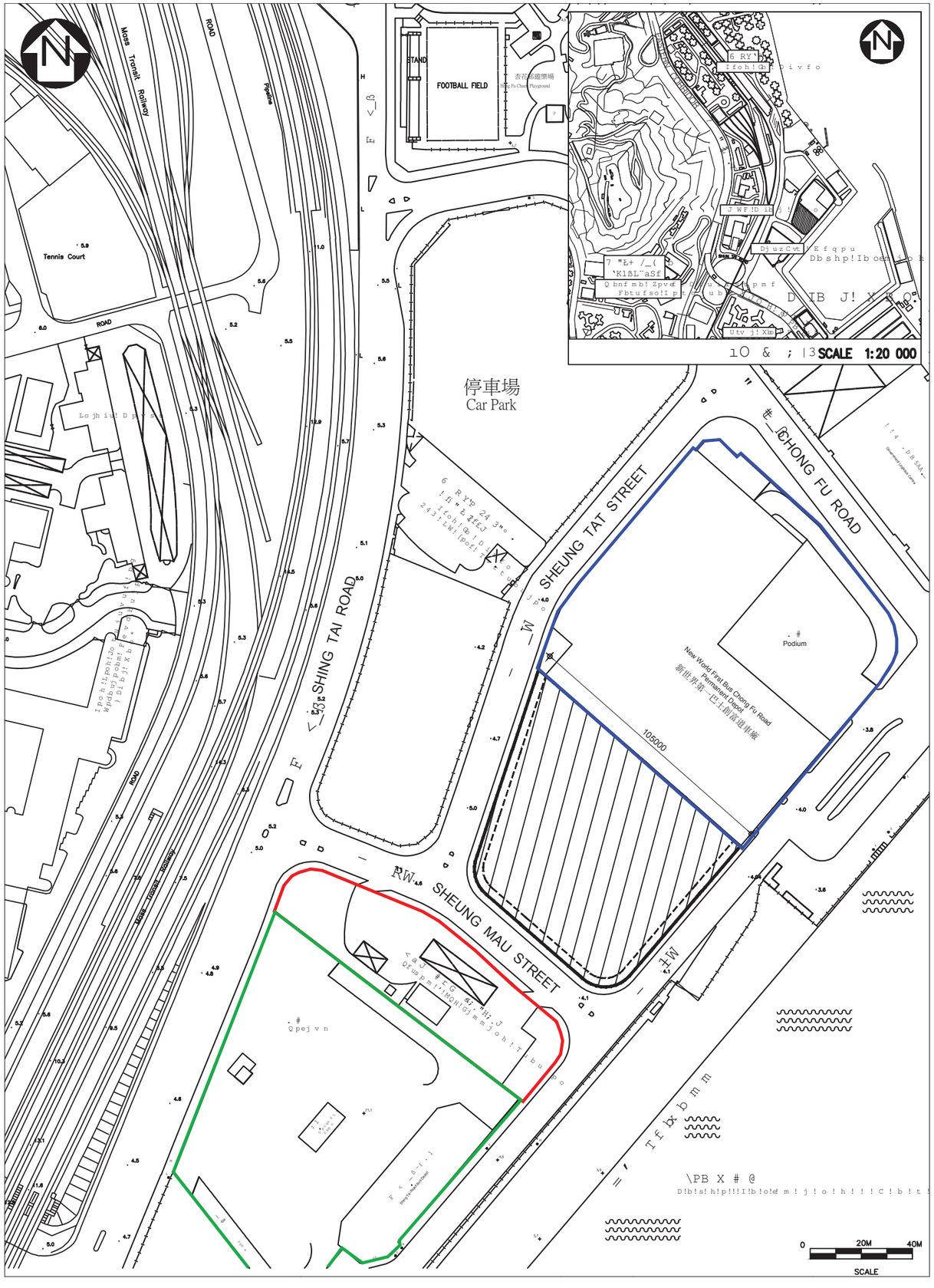
Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Carol Chan at 2815-7028.

Yours sincerely,

Carol Chan
Senior Consultant
Allied Environmental Consultants Limited

Encl.
ArchSD (Attn: Mr. Lawrence KWAN / SPM225 & Mr. Chester CHAN / PM254)
GK/cc

Recycled Paper



消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 OUR REF. : (174) in FSD GR 6-5/4 R Pt. 7
來函檔號 YOUR REF. : 1158/14-0086
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk
圖文傳真 FAX NO. : 2739 5879
電 話 TEL NO. : 2733 7743

12 November 2014

Allied Environmental Consultants Limited
19/F.,
Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai, Hong Kong.
(Attn: Ms. Carol CHAN, Senior Consultant)

Dear Ms. CHAN,

Chai Wan Government Complex and Vehicle Depot at Sheung Tak Street, Chai Wan
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 3.11.2014 regarding the captioned request and reply below in response to your questions seriatim:-

1. Dangerous goods approval has been granted in respect of the captioned address. Please refer to **Appendix A** for details.

2. No record of incidents of spillage / leakage of dangerous goods was found at the aforesaid location with your given conditions.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(SHEN Ka-wai)
for Director of Fire Services

Ref. number and date should be quoted in reference to this letter
凡 提 及 本 信 時 請 引 述 編 號 及 日 期

Appendix A

Chai Wan Government Complex and Vehicle Depot at Sheung Tak Street, Chai Wan

Request for Information of Dangerous Goods & Incident Records

	Item	Types	Quantity	Storage Method
PFS at 8 Sheung Mau Street	1	Diesel	22,750L	U/G Tank
	2	Diesel	22,750L	U/G Tank
	3	Petrol	22,750L	U/G Tank
	4	Petrol	22,750L	U/G Tank
Citybus	5	Diesel	45,460L	U/G Tank
	6	Diesel	45,460L	U/G Tank
	7	Diesel	45,460L	U/G Tank
NWFB	8	Diesel	4,300L	FTRs on G/F
	9	Diesel	22,500L	Fuel tank on G/F at refueling area
	10	Diesel	22,500L	Fuel tank on G/F at refueling area
	11	Diesel	22,500L	Fuel tank on G/F at refueling area
	12	Diesel	22,500L	Fuel tank on G/F at refueling area
	13	Diesel	22,500L	Fuel tank on G/F at refueling area
	14	Diesel	22,500L	Fuel tank on G/F at refueling area
	15	Diesel	22,500L	Fuel tank on G/F at refueling area
	16	Diesel	22,500L	Fuel tank on G/F at refueling area
	17	Diesel	22,500L	Fuel tank on G/F at refueling area
	18	Diesel	22,500L	Fuel tank on G/F at refueling area
	19	Methyl Ethyl Ketone Peroxide (Cat.10)	176L	DG Store on 1/F
	20	Lacquer Thinner (Cat.5)	216L	DG Store on 1/F
	21	Acetone (Cat. 5)	251L	DG Store on 1/F
	22	Paint (Cat.5)	704L	DG Store on 1/F
	23	Sulphuric Acid (Cat.3)	360L	DG Store on G/F
	24	Oxygen (Cat.2)	6.8 m^3 X 12 cylinders	DG Store on G/F
	25	Acetylene	6.2 m^3 X 12 cylinders	DG Store on G/F
	26	Refrigerant	1.75 m^3 X 8 cylinders	DG Store on G/F

Appendix 9.2

Relevant Ground Investigation Records

14183

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

BACHY SOLETANCHE GROUP
HONG KONG

C.E.S.D. TERM CONTRACT NO. GC/89/03
****

WORKS ORDER NO. PW7/2/27.142

GROUND INVESTIGATION:
PWP ITEM NO. 15BA IN CATEGORY B
CHAI WAN AMBULANCE DEPOT

DATA BANK

GEOTECHNICAL
INFORMATION UNIT
Report No. 14183
AREA 1/SE14D2
Ref.

CONTENTS
****

I. CONTRACT DATA SUMMARY

II. DESCRIPTION OF SITE WORKS

III. LEGEND

IV. DRILLHOLE LOGS AND PHOTOGRAPHS

V. TRIAL PIT LOGS AND PHOTOGRAPHS

VI. SURVEY RECORDS

VII. LOCATION PLAN

BACHY SOLETANCHE GROUP
HONG KONG

I. CONTRACT DATA SUMMARY

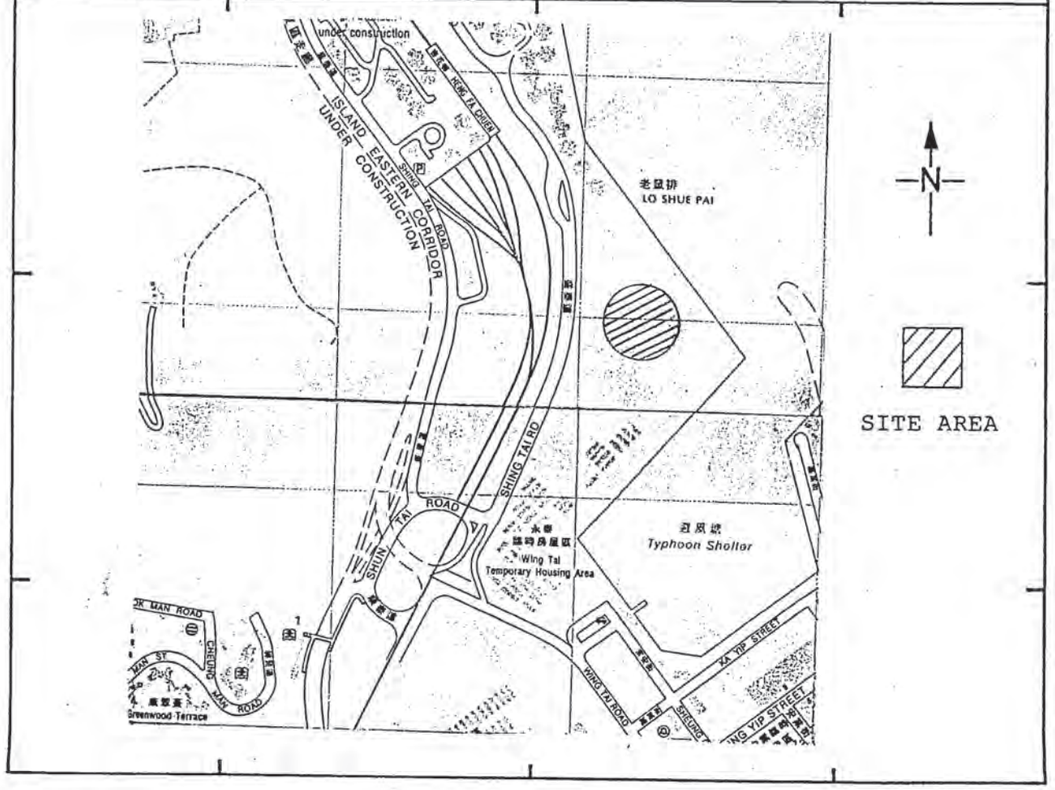
CONTRACT DATA SUMMARY

Project Name: PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT	Site Name: CATEGORY B CHAI WAN AMBULANCE DEPOT	Date: 8/10/90 to 8/3/91
		Official only
S.I. Contractor B.S.G.	Client: G.C.O.	G.C.O. Data Bank No.
Contractor Job No. W260	Job Ref. No. PW7/2/27.142	File Ref.

FIELDWORK SUMMARY

Boreholes Total No. 5	Method: ROTARY WATER FLUSH	Date 8/10/90 to 7/11/90
Pits/Trenches/Caissons : No. 2		
Probes : No.		
Piezometers : No.		
Insitu Tests: No. 135	Types SPT	
Geophysics : Traverses	Type	

Location Plan SCALE 1: 10000 Derived from : 10000 Sheet ..... Sheet .....



CIVIL ENGINEERING SERVICES DEPARTMENT
GEOTECHNICAL CONTROL OFFICE

BACHY SOLETANCHE GROUP
HONG KONG

II. DESCRIPTION OF SITE WORKS

Description of Site Works

1. Introduction

A ground investigation for PWP Item No. 15BA in Categroy B Chai Wan Ambulance Depot was carried out on the instructions of Geotechnical Control Office.

The works comprised mainly the following activities:

a) Forming 5 vertical drillholes.

b) Excavation of 2 trial pits.

C) Taking disturbed and undisturbed soil samples.

d) Carrying out standard penetration tests.

Locations of the drillholes and trial pits were shown on the attached drawing.

2. Description of Site and Location

The site is located beside Shing Tai Road near Shing Tai Temporary Housing Area in Chai Wan as shown on the attached drawing.

3. Geology

According to the 1 : 20000 scale geological map sheet 11, Hong Kong and Kowloon Area (GCO 1986), prepared by the Hong Kong Geological Survey, rock outcrops comprise fish ash to coarse ash tuff.

The general sequence of strata revealed by the drillholes was fill, marine deposit/alluvium overlying C.D.Tuff.The fill ranged in thickness from 13m to 16m, whilst the marine deposit/ alluvium layer ranged from 30.00m to 33.30m. Bedrock, consisting of coarse ash tuff was encountered in DH1 and DH3 at 64.90m and 59.95m with reduced level of -60.58mPD and -55.61mPD. S.D. Tuff at DH3 was inter-bedded with C.D. TUFF.

4. Field Work

The fieldwork was carried out between 8/10/90 and 7/11/90.

4.1 Drilling and Sampling

Five drillholes were drilled. The maximum depth of vertical holes drilled was 69.92m below ground level.

Two rigs were engaged in the works. The models of the rigs used were CMC 33 and CMC 41.

The holes were sunk by rotary drilling using water flush.

Liner samples were taken at intervals of 2.0m in all soil strata. Small disturbed samples were obtained from the split spoon sampler employed in the standard penetration test.

The drillholes were backfilled with bentonite/cement grout after completion of all tests. The drillhole logs show in detail final casing depths and diameter in addition to core barrel type used to advance the hole.

4.2 Field Tests

4.2.1 Standard Penetration Tests

Standard Penetration Tests were carried out in accordance with BS 1377 using an automatic release trip hammer. The 'N' value is recorded on the logs and is the number of blows required to drive the split spoon through 300mm. Where full penetration was not obtained the blows and the corresponding penetration are indicated in the logs.

4.3 Logging and Photography

Rock core and soil samples were logged by the Contractor's geologist, in accordance with the Geoguide 3 "Guide to Rock and Soil Descriptions", GCO, 1988.

Colour photographs of the cores and samples were taken by a Pentax SF7 camera. Photographs of cores and samples are included with the appropriate logs.

4.4 Surveying

Surveying was carried out by the Contractor's surveyor.

III. LEGEND

BACHY SOLETANCHE GROUP
HONG KONG

IV. DRILLHOLE LOGS AND PHOTOGRAPHS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 15/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 1 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
8/10/90	SX								INSPECTION PIT		1.30				
				93					HX		3.00				
	4.00m SX PX							N=14	1		3.45				Medium dense, yellowish brown and grey, silty sandy GRAVEL & COBBLES with some concrete fragments & traces of wood & red brick fragments. (FILL)
				17							4.00				
									HX		5.00				
				25							6.00				
								N=12	2		6.45				
				44					HX		7.90				
								N=16	3		8.50				
	PX										8.95				
											10.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 15/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 2 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	PX										10.30				
8/10/90				0					HX		11.50				
				44				N=27	4		12.50				
	13.00m PX HX										13.00				See sheet 1 of 7
				23					HX		14.50				
								N=35	5		14.95				
										-11.18	15.50				
9/10/90								N=6	6		16.50				
											16.95				Loose to medium dense, dark grey very clayey fine SAND with a little shell fragments. (MARINE DEPOSIT)
								N=14	7		18.50				
	HX										18.95				
											20.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 5/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 3 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	HX														
21								N=8	8		20.50				See sheet 2 of 7
										-17.18	20.95				
22											21.50				
23								N=7	9		22.50				Firm to stiff, dark grey silty CLAY with traces of shell fragments.
24											22.95				
25 9/10/90								N=9	10		24.50				(MARINE DEPOSIT)
										-25.50	24.95				
26											25.50				
27								N=9	11		26.50				Stiff, brownish yellow dappled red, silty CLAY with occasionally fine sand.
28											26.95				
29 10/10/90								N=13	12		28.50				(ALLUVIUM)
										-25.18	28.95				
30	HX										29.50				See sheet 4 of 7
											30.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 5/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 4 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	HX														
31								N=29	13		30.50				Medium dense, light yellow, slightly silty fine to medium SAND.
										-27.18	30.95				
32											31.50				(ALLUVIUM)
33								N=14	14		32.50				Medium dense to dense, grey, very clayey fine to medium SAND with a little shell fragments.
34 10/10/90											32.95				
									15		34.50				(MARINE DEPOSIT)
35								N=68			34.95				
36				22						-31.53	35.85				Dense, yellowish light grey sandy GRAVEL with some cobbles.
									T2-101						
37								N=34	16		37.00				(ALLUVIUM)
38										-33.68	37.45				
39 11/10/90											38.00				See sheet 5 of 7
									17		39.00				
40	HX							N=45			39.45				
											40.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 15/10/90

PROJECT: PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 5 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
41	HX										41.00				Very stiff, yellowish brown clayey SILT with some sand & traces of fine to medium gravel. (ALLUVIUM)
42								N=203 / 0.25m	18		41.45				
43								N=36	19		43.00				
44											43.45				
45	45.00m HX NX	11/10/90						N=75	20		-41.68				
46											46.00				
47								N=56	21		47.00		V		See sheet 6 of 7
48											47.45				
49											49.00				
50	12/10 NX							N=45	22		49.45				
											50.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 15/10/90

PROJECT: PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 6 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
51	NX										51.00				Extremely weak, yellow & yellowish light grey, completely decomposed, coarse ash TUFF (clayey SILT) (C.D. TUFF)
52								N=57	23		51.45				
53								N=49	24		53.00				
54											53.45		V		
55		12/10/90						N=94	25		55.00				
56											-51.68				
57											56.00				
58								N=200 / 0.25m	26		57.00				Very weak, yellowish light grey, completely decomposed coarse ash TUFF (clayey SILT) with relict manganese stained joints. (C.D. TUFF)
59											57.45		V		
60	NX							N=172	27		59.00				
											59.45				
											60.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP, SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-1

CONTRACT GC/89/03 OF C.E.S.D DATE from 8/10/90 to 15/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 7 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843069.73	HX, T2-101 & T-76
MACHINE & No.	N 814918.25	HOLE DIA. 0.00m-4.00m SX; 4.00m-13.00m PX; 13.00m-45.00m HX; 45.00m-64.90m NX
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.32mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
61 12/10/90	NX							N=204 / 0.28m	28		61.00				See sheet 6 of 7
62											61.45				
63								N=206 / 0.10m	29		63.00		V		
64 13/10/90	64.90m NX										63.45				
65			100	100	0	11				-60.58	64.90				
66			100	87	64	8					65.28				
			100	75	58	10					66.14				
			100	100	100	3					66.54				
67			100	100	89	7					66.86				Strong, grey to dark grey spotted white, slightly decomposed coarse ash TUFF. Joints are closely spaced smooth planar, narrow to very narrow, brown stained, dip 20°-30°, 40°-50°, 60°-70° & occasionally 80°. (S.D. TUFF)
			100	92	92	8		T-76			67.40		II		
68 15/10/90			100	100	100	4					67.77				
											68.56				
69			100	100	82	6					69.52				
70			100	100	80	8				-65.60	69.92				End of drillhole at 69.93m.

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27.142

HOLE No.	DH-1	BOX No.	2 OF 3
DEPTH FROM	39.00M	To	67.77M
DRILLED DATE	8-10-90	To	15-10-90
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

39.00 64.90 65.28 65.28 66.14 66.54 66.86 66.86 67.40 67.77

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27.142

HOLE No.	DH-1	BOX No.	3 OF 3
DEPTH FROM	67.77M	To	69.92M
DRILLED DATE	8-10-90	To	15-10-90
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

67.77 68.56 68.56 69.52 69.52 69.92

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 1 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843062.02	PX, HX & T2-101
MACHINE & No.	N 814913.77	HOLE DIA. 0.00m-4.50m SX; 4.50m-15.00m PX; 15.00m-47.00m HX; 47.00m-63.00m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
1/11/90	SX								INSPECTION PIT		1.50				GRAVEL, COBBLES & BOULDERS with some grey and greyish brown silty fine to coarse sand and a little concrete fragments & traces of wood, steel bar and red brick fragments. Boulders encountered at 2.00m-2.20m, 3.90m-4.30m. (FILL)
				40					PX		3.00				
				21							3.60				
				61							4.50				
	4.50m SX / PX			64							5.20				
2/11/90				31					HX		6.50				
								N=16	1	-2.13	6.95				Loose to medium dense, dark greyish brown, silty fine to coarse SAND with some angular gravel & cobbles and traces of steel bar and red brick fragments. (FILL)
				40					HX		8.50				
3/11/90								N=5	2		9.00				
	PX										9.45				
											10.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 2 OF 7

METHOD: ROTARY

CO-ORDINATES: E 843062.02, N 814913.77

ROCK COREBIT: PX, HX & T2-101

MACHINE & No.: CMC-33

HOLE DIA. 0.00m-4.50m SX; 4.50m-15.00m PX; 15.00m-47.00m HX; 47.00m-63.00m NX

FLUSHING MEDIUM: WATER

ORIENTATION: VERTICAL

GROUND-LEVEL: +4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	PX										11.00				See sheet 1 of 7
								N=19	3		11.45				
										-8.63	13.00				
								N=4	4		13.45				
3/11/90	15.00m PX / HX										15.00				
								N=7	5		15.45				Firm to stiff, greenish dark grey fine sandy CLAY with trace of shell fragments. (MARINE DEPOSIT)
											17.00				
								N=9	6		17.45				
											19.00				
								N=11	7		19.45				
	HX										20.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 3 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843062.02	PX, HX & T2-101
MACHINE & No.	N 814913.77	HOLE DIA. 0.00m–4.50m SX; 4.50m–15.00m PX; 15.00m–47.00m HX; 47.00m–63.00m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
21	HX										21.00				See sheet 2 of 7
22 3/11/90								N=10	8	-17.63	21.45				
23								N=9	9		22.00				Stiff, dark grey silty CLAY with traces of shell fragments. (MARINE DEPOSIT)
24											23.00				
25								N=10	10		23.45				
26 5/11/90										-21.63	25.00				
27								N=9	11		25.45				Stiff, brownish yellow silty CLAY with a little fine sand. (ALLUVIUM)
28											26.00				
29								N=12	12		27.00				
30	HX									-25.63	27.45				
											29.00				
											29.45				
											30.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 4 OF 7

METHOD: ROTARY

MACHINE & No.: CMC-33

CO-ORDINATES: E 843062.02; N 814913.77

ROCK COREBIT: PX, HX & T2-101

HOLE DIA. 0.00m–4.50m SX; 4.50m–15.00m PX; 15.00m–47.00m HX; 47.00m–63.00m NX

FLUSHING MEDIUM: WATER

ORIENTATION: VERTICAL

GROUND-LEVEL: +4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
31	HX										31.00				Stiff, dark gery silty CLAY. (MARINE DEPOSIT)
32								N=13	13		31.45				
33 5/11/90								N=13	14		33.00				
34											33.45				
35									43	-30.63	35.00				GRAVEL & COBBLES with some brownish yellow silty sand. (ALLUVIUM)
36								T2-101	63		35.70				
37										-32.13	36.50				See sheet 5 of 7
38 6/11/90								N=40	15		37.00				
39											37.45				
40	HX							N=51	16		39.00				
											39.45				
											40.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 5 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843062.02	PX, HX & T2-101
MACHINE & No.	N 814913.77	HOLE DIA. 0.00m-4.50m SX; 4.50m-15.00m PX; 15.00m-47.00m HX; 47.00m-63.00m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	HX							N=141	17		41.00				Dense to very dense, grey and brownish yellow silty fine to coarse SAND with a little gravel. (ALLUVIUM)
								N=40	18		43.00				
8/11/90											43.45				
				89						-40.43	44.80				GRAVEL & BOULDERS with some brownish yellow silty sand. (ALLUVIUM)
								T2-101		-41.23	45.00				
											45.40				
											45.60				
	47.00m HX NX							N=34	19		47.00	V			See sheet 6 of 7
7/11/90											47.45				
											49.00				
								N=92	20		49.45				
	NX										50.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-2

CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 6 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843062.02	PX, HX & T2-101
MACHINE & No.	N 814913.77	HOLE DIA. 0.00m-4.50m SX; 4.50m-15.00m PX; 15.00m-47.00m HX; 47.00m-63.00m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.37mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	NX							N=34	21		51.00				
											51.45				
								N=30	22		53.00				
7/11/90											53.45				
								N=83	23		55.00	V			Extremely weak to very weak, yellowish red, completely decomposed coarse ash TUFF (Fine sandy SILT) (C.D. TUFF)
											55.45				
								N=81	24		57.00				
											57.45				
								N=207	25		59.00				
	NX										59.45				
											60.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142
HOLE No. DH-2
CONTRACT GC/89/03 OF C.E.S.D DATE from 1/11/90 to 7/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT SHEET 7 OF 7

METHOD: ROTARY — ROCK COREBIT
MACHINE & No.: CMC-33 — HOLE DIA.: PX, HX & T2-101 (0.00m–4.50m SX; 4.50m–15.00m PX; 15.00m–47.00m HX; 47.00m–63.00m NX)
FLUSHING MEDIUM: WATER — ORIENTATION: VERTICAL — GROUND-LEVEL: +4.37mPD

CO-ORDINATES: E 843062.02, N 814913.77

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
7/11/90	NX							N=206 0.27m	26		61.00				See sheet 6 of 7
	63.00m NX							N=212 0.27m	27	-59.05	61.45		V		
											63.00				
											63.42				End of drillhole at 63.42m.

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

- ▪ SMALL DISTURBED SAMPLE
- ↕ BULK DISTURBED SAMPLE
- ■ S.P.T. LINER SAMPLE
- ▯ U 100 UNDISTURBED SAMPLE
- ▮ U 76 UNDISTURBED SAMPLE
- ▨ MAZIER SAMPLE (76mm)
- ▲ WATER SAMPLE
- ▼ WATER LEVEL
- ↓ STANDARD PENETRATION TEST
- ▯ PISTON SAMPLE
- ⌶ PERMEABILITY TEST

LOGGED KEI DATE 14/11/90
CHECKED G.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142
HOLE No. DH-3
CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT:
PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT
SHEET 1 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No.	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
CMC-33		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
16/10/90	SX								INSPECTION PIT		1.30				
				79							2.00				
	3.00m SX			35					PX		3.00				
	PX			30				N=8	HX 1		4.00				
17/10/90								N=9	HX 2		4.45				Loose to medium dense, yellowish brown and greyish black, silty sandy GRAVEL & COBBLES with a little boulders and red brick fragments. Boulders encountered at 1.80m-2.00m, 13.98m-14.20m. (FILL)
				30							6.00				
								N=10	HX 3		6.45				
											7.50				
											8.50				
	PX										8.95				
											10.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90
CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 2 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No. CMC-33	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
FLUSHING MEDIUM: WATER	ORIENTATION: VERTICAL	GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
11 17/10/90	PX			32				N=53	4		10.50				See sheet 1 of 7
12				53					HX		11.00				
13								N=7	5		11.50				
14				55					HX		12.50				
	14.50m PX HX									-9.86	12.85				
15 18/10/90								N=5	6		13.20				
16											14.20				Loose, dark grey very clayey silty fine SAND with traces of shell fragments. (MARINE DEPOSIT)
17								N=7	7		14.50				
18											14.95				
19								N=10	8		16.50				
20	HX									-15.16	16.95				
											18.50				
											18.95				
											19.50				See sheet 3 of 7
											20.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 3 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No. CMC-33	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
FLUSHING MEDIUM: WATER	ORIENTATION: VERTICAL	GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
21 18/10/90	HX							N=13	9		20.50				Firm to stiff, greenish dark grey silty CLAY with traces of shell fragments. (MARINE DEPOSIT)
22											20.95				
23								N=9	10		22.50				
24											22.95				
25								N=7	11		24.50				
26											24.95				
27 19/10/90								N=12	12	-21.16	25.50				
28											26.50				Stiff to very stiff, light greyish yellow dappled red, silty CLAY with occasionally fine sand. (ALLUVIUM)
29								N=18	13		26.95				
30	HX										28.50				
											28.95				
											30.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 4 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No. CMC-33	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
FLUSHING MEDIUM: WATER	ORIENTATION: VERTICAL	GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	HX										30.50				See sheet 3 of 7
19/10/90								N=13	14		30.95				
										-27.16	31.50				Medium dense, dark grey very clayey fine to medium SAND with traces of shell fragments. (MARINE DEPOSIT)
											32.50				
								N=13	15		32.95				
										-29.16	33.50				Subrounded GRAVEL & COBBLES with some light grey clayey silty sand. (ALLUVIUM)
											34.50				
								N=69	16		34.95				
20/10/90											35.00				
								86			35.70				
								50			36.50				
								50			37.00				
								35			38.00				
										-33.66	38.45				See sheet 5 of 7
								N=40	17						
	HX										40.00				

T2-101

- ● SMALL DISTURBED SAMPLE
- ↕ BULK DISTURBED SAMPLE
- ▮ S.P.T. LINER SAMPLE
- ▯ U 100 UNDISTURBED SAMPLE
- ▯ U 76 UNDISTURBED SAMPLE
- ▨ MAZIER SAMPLE (76mm)
- ▲ WATER SAMPLE
- ▼ WATER LEVEL
- ↓ STANDARD PENETRATION TEST
- ▯ PISTON SAMPLE
- ⊥ PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 5 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No. CMC-33	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
FLUSHING MEDIUM: WATER	ORIENTATION: VERTICAL	GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	HX										40.45				Dense to very dense, light grey and yellowish brown very silty fine SAND with a little gravel. (ALLUVIUM)
								N=83	18		41.00				
											42.00				
								N=45	19		42.45				
22/10/90											44.00				
									20		44.45				
								N=59			46.00				
									21	-42.16	46.45				Subrounded COBBLES and GRAVEL with some brownish yellow silty sand. (ALLUVIUM)
								N=88			48.50				
										-43.16	47.50				
23/10/90	48.00m HX / NX							N=6	22		48.00				See sheet 6 of 7
											48.45	V			
	NX										50.00				

T2-101

- ● SMALL DISTURBED SAMPLE
- ↕ BULK DISTURBED SAMPLE
- ▮ S.P.T. LINER SAMPLE
- ▯ U 100 UNDISTURBED SAMPLE
- ▯ U 76 UNDISTURBED SAMPLE
- ▨ MAZIER SAMPLE (76mm)
- ▲ WATER SAMPLE
- ▼ WATER LEVEL
- ↓ STANDARD PENETRATION TEST
- ▯ PISTON SAMPLE
- ⊥ PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 6 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843072.39	PX, HX, T2-101 & T-76
MACHINE & No. CMC-33	N 814904.86	HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX
FLUSHING MEDIUM: WATER	ORIENTATION: VERTICAL	GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
23/10/90	NX							N=28	23		50.45				Extremely weak, red, yellowish brown and light grey, completely decomposed coarse ash TUFF. (clayey SILT) (C.D. TUFF)
								N=55	24		52.00				
								N=37	25		52.45				
											54.00				
											54.45		V		
								N=61	26		56.00				
24/10/90											56.45				
								N=78	27		58.00				
											58.42				
	NX							T-76		-55.61	59.95		II		

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-3

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 31/10/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 7 OF 7

METHOD: ROTARY

CO-ORDINATES: E 843072.39, N 814904.86

ROCK COREBIT: PX, HX, T2-101 & T-76

MACHINE & No.: CMC-33

HOLE DIA. 0.00m-3.00m SX; 3.00m-14.50m PX; 14.50m-48.00m HX; 48.00m-88.22m NX

FLUSHING MEDIUM: WATER

ORIENTATION: VERTICAL

GROUND-LEVEL: +4.34mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
24/10/90	NX			100	90	33	8	T-76			60.44		II		Strong, dark grey spotted white, slightly decomposed coarse ash TUFF with very weak, yellowish light grey completely decompsed zone (fine sandy SILT) at : 60.44m-60.93m, 61.83m-62.80m, 63.06m-65.00m, 65.35m-66.77m, 67.27m-68.22m, 68.97m-69.02m. Joints are closely to medium spaced, rough planar, brown-stained & moderately narrow, dip 30°-40° & 70°-80°. (S.D. TUFF with C.D. TUFF)
											60.93		V		
				100	100	100	0				61.10				
25/10/90				100	100	100	0	T-76			61.40		II		
				100	100	100	0				61.83				
								N=178	28		61.90		V		
											62.35				
				100	100	100	0				62.80				
								T-76			63.06		II		
30/10/90								N=77	28		63.10				
											63.55		V		
											65.00				
				100	100	57	6	T-76			65.35		II		
											65.50				
								N=203	30		65.95		V		
											66.77				
				100	100	100	4	T-76			67.27		II		
											68.22		V		
31/10/90	68.22m NX			100	90	67	10				68.52		II		
				100	78	0	9				68.97				
				0				T-76			69.02		V		
				100	100	100	2				69.49		II		
				100	82	0	11			-65.43	69.77				
															End of drillhole at 60.77m

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	1 OF 4
DEPTH FROM	0.00M	To	18.95M
DRILLED DATE	17-10-90.	To	31-10-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	2 OF 4
DEPTH FROM	20.50M	To	54.45M
DRILLED DATE	17-10-90.	To	31-10-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	3 OF 4
DEPTH FROM	56.00M	To	69.49M
DRILLED DATE	17-10-90.	To	31-10-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	4 OF 4
DEPTH FROM	69.49M	To	69.77M
DRILLED DATE	17-10-90.	To	31-10-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 1 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
16/10/90	SX								INSPECTION PIT		1.50				Loose to medium dense, angular GRAVEL, COBBLES and BOULDERS with some yellowish brown & greyish black silty sand & a little wood & red brick fragments.
	3.00m SX / PX			59				T6-131			2.50				
				83							3.00				
											4.50				
17/10/90				48					HX		6.00				Boulders encountered at 2.76m-3.00m, 5.27m-5.50m, 6.00m-6.22m, 12.26m-12.50m.
				44							6.50				
				47							8.00				(FILL)
				60							9.00				
								N=14	1		9.45				
	PX										10.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 2 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
	PX			18					HX		10.50				See sheet 1 of 7
				19				N=7	2		11.00				
											12.50				
											13.00				
										-9.67	13.45				
18/10/90											14.00				
	15.00m PX / HX							N=4	U		15.00				
											15.45				Loose, dark grey, very clayey/silty fine SAND with traces of shell fragments.
								N=6	4		17.00				(MARINE DEPOSIT)
											17.45				
											19.00				
								N=9	5		19.45				
	HX									-15.67	20.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 3 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
18/10/90	HX							N=7	6		21.00				Firm, greyish dark grey silty CLAY with traces of shell fragments. (MARINE DEPOSIT)
								N=6	7	-19.67	21.45 23.00 23.45 24.00				Medium dense, yellowish light grey, very clayey medium to coarse SAND with a little fine gravel. (ALLUVIUM)
19/10/90								N=17	8	-21.67	25.00 25.45 26.00				
								N=11	9		27.00 27.45				Stiff, light greyish yellow dappled red, silty CLAY. (ALLUVIUM)
								N=10	10	-25.67	29.00 29.45 30.00				
	HX														

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 4 OF 7

METHOD: ROTARY

CO-ORDINATES: E 843084.60; N 814901.52

ROCK COREBIT: T6-131, HX, T2-101 & T-76

HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX

MACHINE & No.: CMC-41

FLUSHING MEDIUM: WATER

ORIENTATION: VERTICAL

GROUND-LEVEL: +4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
19/10/90	HX							N=13	11	-30.37	31.00 31.45 33.00 33.45 34.70				Stiff, dark grey, silty CLAY with traces of shell fragments. (MARINE DEPOSIT)
								N=12	12						
									35		36.00				Medium dense, light grey, sandy GRAVEL & COBBLES. (ALLUVIUM)
20/10/90								T2-101	30	-32.67	37.00 37.45				
								N=14	13						Medium dense to dense, light grey, very clayey fine to coarse SAND. (ALLUVIUM)
								N=44	14		39.00 39.45 40.00				
	HX														

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 5 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
41 20/10/90	HX									-36.37	40.70				See sheet 4 of 7
42				33							41.60				GRAVEL, COBBLES & BOULDERS with some light grey silty sand & rounded fine gravel. Boulders encountered at 43.00m-43.23m, 43.48m-43.80m, 44.70m-44.93m. (ALLUVIUM)
43 22/10/90				33					T2-101		42.50				
44				62							43.00				
45				0							43.23				
				32							43.48				
											43.80				
											44.00				
											44.30				
											44.70				
											44.93				
	45.80m HX NX									-41.47	45.80				
46								N=79	15		47.00	V			See sheet 6 of 7
47 23/10/90											47.45				
48															
49								N=34	16		49.00				
50	NX										49.45				
											50.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 6 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
51	NX							N=39	17		51.00				Extremely weak, greenish yellow and greenish grey mottled white, completely decomposed coarse ash TUFF (clayey SILT with occasionally fine to medium sand) (C.D. TUFF)
52											51.45				
53 23/10/90								N=35	18		53.00				
54											53.45				
55								N=108	19		55.00	V			
56											55.45				
57								N=62	20		57.00				
58 24/10/90											57.45				
59											59.00				
60	NX			100	74	31	9	N=203 / 0.15m	21 T-76	-55.17	59.50		II		See sheet 7 of 7
											60.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP, SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-4

CONTRACT GC/89/03 OF C.E.S.D DATE from 16/10/90 to 25/10/90

PROJECT:

PWP ITEM NO. 15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 7 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843084.60	T6-131, HX, T2-101 & T-76
MACHINE & No.	N 814901.52	HOLE DIA. 0.00m-3.00m SX; 3.00m-15.00m PX; 15.00m-45.80m HX; 45.80m-67.00m NX
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.33mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
24/10/90	NX			100	100	68	8	N=42	T-76	-56.10	60.18 / 60.43		II		Moderately strong light grey spotted black, slightly decomposed coarse ash TUFF with closely spaced, rough planar, manganese stained joints, dipping 35°-45° & 50°-60°. (CORESTONE)
									22		61.00 / 61.45				
								N=204 / 0.25m	23		63.00 / 63.25				
25/10/90	67.00m NX							N=221	24		65.00 / 65.45		V		Extremely weak to very weak, brownish yellow & light grey mottled white, completely decomposed coarse ash TUFF (clayey SILT with occasionally fine sand) (C.D. TUFF)
								N=208 / 0.20m	25	-62.92	67.00 / 67.25				End of drillhole at 67.25m.

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 31/10/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27.142

HOLE No.	DH-4	BOX No.	2 OF 3
DEPTH FROM	8.00M	To	42.50M
DRILLED DATE	16-10-90	To	25-10-90
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

8.00 9.00 9.50 11.00 11.00 12.50 34.70 36.00 37.00 40.70 41.60 42.50

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27.142

HOLE No.	DH-4	BOX No.	3 OF 3
DEPTH FROM	42.50M	To	67.25M
DRILLED DATE	16-10-90	To	25-10-90
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

42.50 44.00 44.30 45.80 59.50 60.10 60.43 67.25

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-5

CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:

PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 1 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX; 4.80m-14.60m PX; 14.60m-40.00m HX; 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
27/10/90	SX			100					INSPECTION PIT		1.70				
29/10/90				73					T6-131		2.50				Loose to medium dense, angular GRAVEL & COBBLES with a little boulders & traces of wood & red brick fragments. Boulders encountered at 6.20m-6.58m. (FILL)
	4.80m SX			95							3.80				
	PX			75							4.80				
30/10/90				60					HX		6.00				
				27				N=4	1		7.50				
											9.00				
	PX										9.45				
											10.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-5

CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:

PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 2 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX; 4.80m-14.60m PX; 14.60m-40.00m HX; 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
30/10/90	PX										11.00				
								N=4	2		11.45				
				17							12.00				See sheet 1 of 7
											13.50				
				0					HX		14.60				
	14.60m PX HX										16.00				
31/10/90				29						-11.71	17.00				
								N=3	3		17.45				Soft to firm, greenish dark grey, very fine sandy CLAY with traces of shell fragments. (MARINE DEPOSIT)
											19.00				
								N=5	4		19.45				
	HX										20.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-5

CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:

PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 3 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX; 4.80m-14.80m PX; 14.60m-40.00m HX; 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
21 31/10/90	HX														See sheet 2 of 7
								N=6	5		21.00				
											21.45				
										-17.71	22.00				
23								N=6	6		23.00				Firm, dark grey silty CLAY with traces of shell fragments. (MARINE DEPOSIT)
											23.45				
25 1/11/90								N=8	7		25.00				
											25.45				
								N=12	8	-22.91	27.00				
											27.20				
											27.45				Stiff, brownish yellow and red dappled grey, silty CLAY with traces of fine sand. (ALLUVIUM)
29								N=14	9		29.00				
											29.45				
30	HX									-25.71	30.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142

HOLE No. DH-5

CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:

PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 4 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX; 4.80m-14.80m PX; 14.60m-40.00m HX; 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
31 1/11/90	HX							N=11	10		31.00				Stiff, dark grey silty CLAY with traces of fine sand & shell fragments. (MARINE DEPOSIT)
											31.45				
33								N=10	11	-29.71	33.00				
											33.45				
35								N=77	12	-31.21	34.00				Very dense, light grey silty fine to coarse SAND with a little fine gravel. (ALLUVIUM)
											35.00				
37 2/11/90								53	T2-101		35.45				
								90			35.50				GRAVEL, COBBLES & BOULDERS with some light grey clayey sand. Boulders encountered at 41.20m-41.70m. (ALLUVIUM)
39								40			37.00				
											38.00				
											39.50				
40	40.00m HX								NX		40.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90

CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142
HOLE No. DH-5
CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:
PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 5 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX 4.80m-14.60m PX 14.60m-40.00m HX 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
3/11/90	NX			67					NX		41.00				See sheet 4 of 7
				75					T-76	-37.71	41.20 41.70 42.00				
5/11/90								N=205 / 0.23m	13		43.00 43.45				Very dense, brownish yellow, very clayey fine to coarse SAND with some gravel. (ALLUVIUM)
								N=201	14	-41.71	45.00 45.45 46.00				
								N=55	15		47.00 47.45	V			See sheet 6 of 7
	NX							N=84	16		49.00 49.45 50.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90
CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE — BACHY SOLETANCHE GROUP — SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142
HOLE No. DH-5
CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 6/11/90

PROJECT:
PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT

SHEET 6 OF 7

METHOD	CO-ORDINATES	ROCK COREBIT
ROTARY	E 843076.58	HX, NX, T6-131, T2-101 & T-76
MACHINE & No.	N 814895.22	HOLE DIA. 0.00m-4.80m SX 4.80m-14.60m PX 14.60m-40.00m HX 40.00m-65.00m NX
CMC-41		
FLUSHING MEDIUM	ORIENTATION	GROUND-LEVEL
WATER	VERTICAL	+4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
5/11/90	NX							N=39	17		51.00 51.45				
								N=49	18		53.00 53.45				
6/11/90								N=62	19		55.00 55.45	V			Extremely weak to very weak, light greyish yellow, completely decomposed coarse ash TUFF. (fine sandy SILT) (C.D. TUFF)
								N=60	20		57.00 57.45				
	NX							N=62	21		59.00 59.45 60.00				

- SMALL DISTURBED SAMPLE
- BULK DISTURBED SAMPLE
- S.P.T. LINER SAMPLE
- U 100 UNDISTURBED SAMPLE
- U 76 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- WATER SAMPLE
- WATER LEVEL
- STANDARD PENETRATION TEST
- PISTON SAMPLE
- PERMEABILITY TEST

LOGGED KEI DATE 14/11/90
CHECKED C.LUN DATE 1/12/90

REMARKS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

DRILLHOLE RECORD

W. O. PW7/2/27.142
HOLE No. DH-5
CONTRACT GC/89/03 OF C.E.S.D DATE from 27/10/90 to 5/11/90

PROJECT: PWP ITEM NO.15BA IN CATEGORY B CHAI WAN AMBULANCE DEPOT SHEET 7 OF 7

METHOD: ROTARY
MACHINE & No.: CMC-41
FLUSHING MEDIUM: WATER

CO-ORDINATES: E 843076.58, N 814895.22
ORIENTATION: VERTICAL

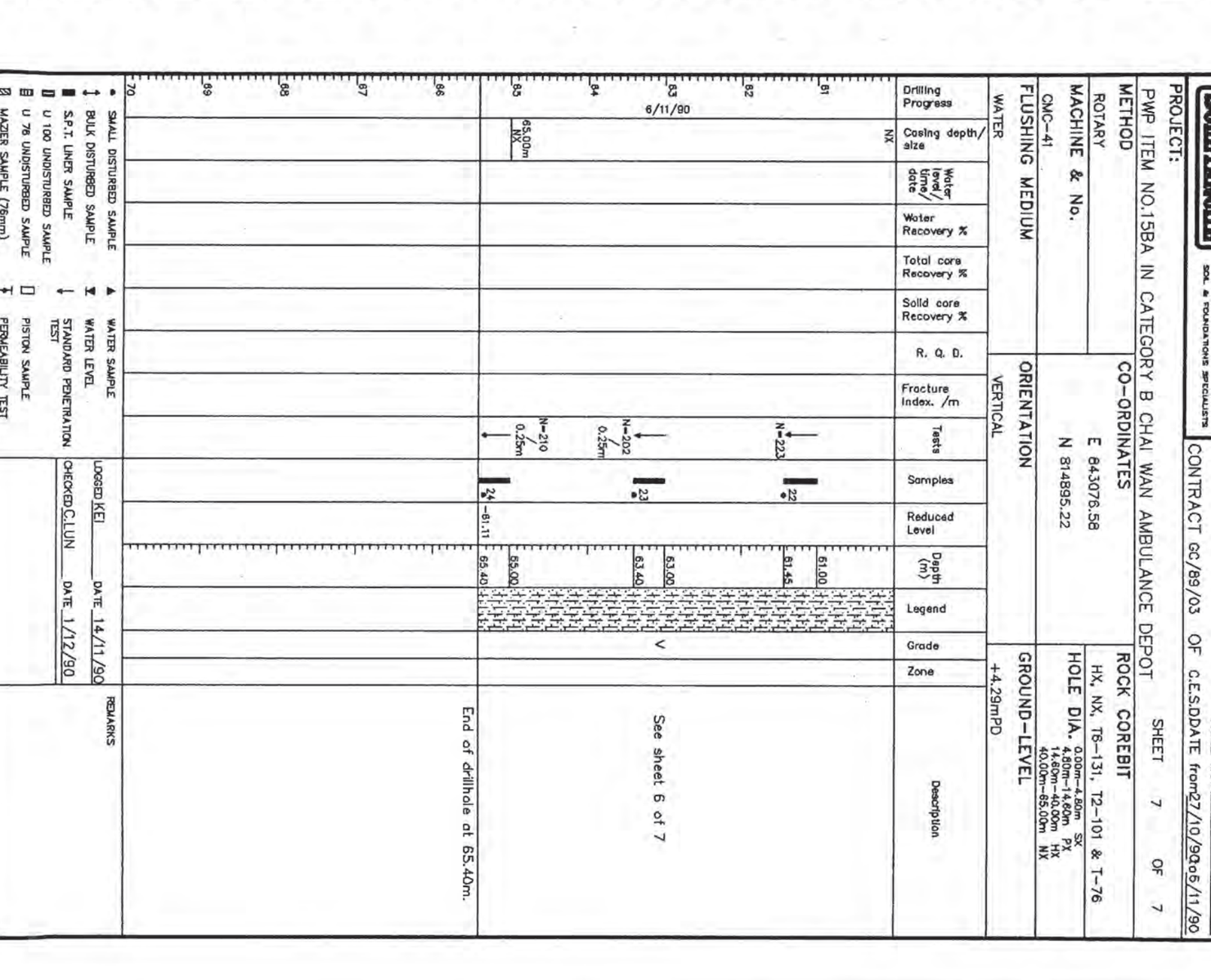
ROCK COREBIT: HX, NX, T6-131, T2-101 & T-76
HOLE DIA.: 0.00m-4.80m SX; 4.80m-14.60m PX; 14.60m-40.00m HX; 40.00m-65.00m NX
GROUND-LEVEL: +4.29mPD

Drilling Progress	Casing depth/ size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
6/11/90	NX							N=223	22		61.00				
											61.45				See sheet 6 of 7
	65.00m NX							N=202 0.25m	23		63.00		V		
											63.40				
								N=210 0.25m	24	-81.11	65.00				
											65.40				End of drillhole at 65.40m.

REMARKS

LOGGED KEI DATE 14/11/90
CHECKED C.LUN DATE 1/12/90

- ● SMALL DISTURBED SAMPLE
- ↕ BULK DISTURBED SAMPLE
- ■ S.P.T. LINER SAMPLE
- ▯ U 100 UNDISTURBED SAMPLE
- ▤ U 76 UNDISTURBED SAMPLE
- ▨ MAZIER SAMPLE (76mm)
- ▲ WATER SAMPLE
- ▼ WATER LEVEL
- ↓ STANDARD PENETRATION TEST
- □ PISTON SAMPLE
- ⧗ PERMEABILITY TEST



BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	2 OF 3
DEPTH FROM	6.00M	To	37.00M
DRILLED DATE	27-10-90.	To	6-11-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
Chi Wo Commercial Building 3rd-4th Floor
20, Saigon Street Kowloon Hong Kong
TEL: 3-322401 (8 Lines)

CESD TERM CONTRACT GC/89/03
GROUND INVESTIGATION
WORKS ORDER No. PW 7/2/27/42

HOLE No.	DH-3	BOX No.	3 OF 3
DEPTH FROM	37.00 M	To	45.45M
DRILLED DATE	27-10-90.	To	6-11-90.
SITE LOCATION	CHAI WAN		

0 10 20 30 70 80 90 100

V. TRIAL PIT LOGS AND PHOTOGRAPHS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

TRIAL PIT RECORD

T.P. 1

SHEET 1 OF 1

PIT No.: TP-1
LOCATION: Chai Wan

CO-ORDINATES: E 843054.02 N 814893.83
EXCAVATION DATES: 11/10/90

GRADE	LEGEND	DESCRIPTION
		0.00
		0.05 Concrete
		Loose to medium dense, grey, pinkish brown & yellowish brown clayey silty fine to coarse SAND with some angular gravel, cobbles & boulders & traces of red brick & wood. (Fill)
		2.00 (End of trial pit at 2.00m)

Remarks:
No water seepage.

SAMPLES/TESTS/WATER
- Small dist. sample
- Large dist. sample
- Undist. sample hori. ( )
- Undist. sample vert. ( )
- Block sample
- Plate bearing test
- Insitu density test
- Moisture content test
- Water sample
- Seepage

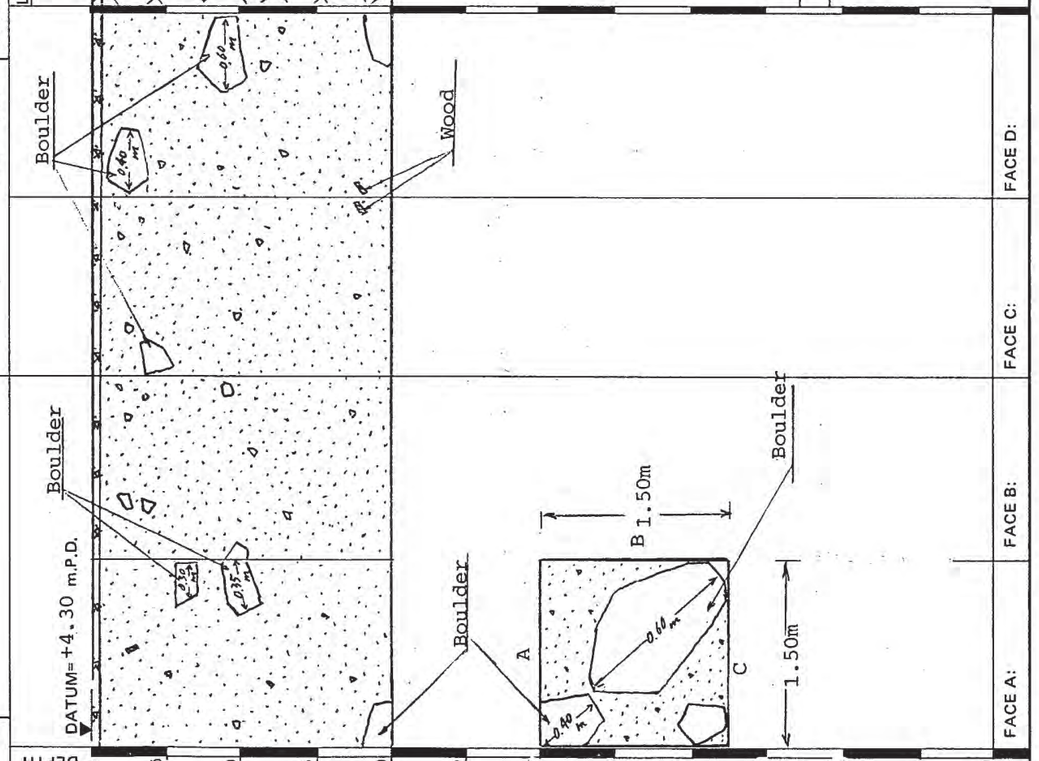
PLAN (not to scale)

CONTRACTOR: B.S.G.
WORKS ORDER No. PW7/2/27.142

SHORING: NIL
LOGGED BY: KEI
DATE: 10/11/90

G. C. O.
C. E. S. D.

DATUM= +4.30 m.P.D.



BACHY
SOLETANCHE
CESD CONTRACT NO. GC/89/03
H.K. & KLN (TERM CONTRACT)
GROUND INVESTIGATION
TP1 A

BACHY
SOLETANCHE
CESD CONTRACT NO. GC/89/03
H.K. & KLN (TERM CONTRACT)
GROUND INVESTIGATION
TP1 B

BACHY
SOLETANCHE
CESD CONTRACT NO GC(R)03
(HK & KLN TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. PW/7142
TRIAL PIT NO. SIDE ORIENTATION
TP1 C N

BACHY
SOLETANCHE
CESD CONTRACT NO GC(R)03
(HK & KLN TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. PW/7142
TRIAL PIT NO. SIDE ORIENTATION
TP1 D N

G. C. O.
C. E. S. D.

CONTRACTOR: B.S.G.
WORKS ORDER No. PW7/2/27.142

SHORING: NIL
LOGGED BY: KEI
DATE: 11/10/90

CO-ORDINATES: E 843080.92 N 814886.33
EXCAVATION DATES: 11/10/90

PIT No.: TP-2
LOCATION: Chai Wan

BACHY SOLETANCHE
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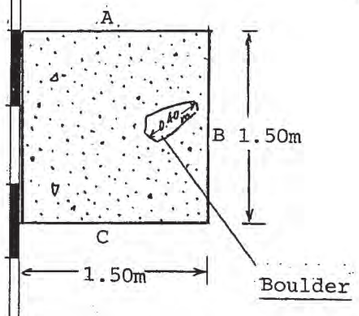
SOIL & FOUNDATIONS SPECIALISTS

TRIAL PIT RECORD

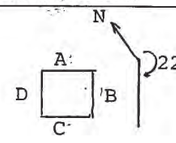
SAMPLES & TESTS	DEPTH	LEGEND	DESCRIPTION	GRADE
	DATUM +4.25 m.P.D.			
	0		0.17 Asphalt surface	
	0.5		Medium dense, yellowish brown silty sandy fine to coarse GRAVEL with a little angular cobbles & boulders.	
	1.0		(FILL)	
	1.5		1.50 End of trial pit at 1.50m.	
	2.0		Remark : Ground water level : 0.82m.	
	2.5			
	(M)			



FACE A: | FACE B: | FACE C: | FACE D:

SAMPLES/TESTS/WATER	
●	Small dist. sample
◆	Large dist. sample
▬	Undist. sample hori. ( )
■	Undist. sample vert. ( )
⊠	Block sample
⊥	Plate bearing test
⊔	Insitu density test
⊞	Moisture content test
▲	Water sample
↓	Seepage

PLAN (not to scale)



SHEET 1 OF 1

T.P. 2

BACHY
SOLETANCHE
CESD CONTRACT NO. GC/89/03
H.K. & KLN (TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. PW7/2/27.142
TRIAL PIT NO.
SIDE
ORIENTATION
TP2
A

BACHY
SOLETANCHE
CESD CONTRACT NO. GC/89/03
H.K. & KLN (TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. PW7/2/27.142
TRIAL PIT NO.
SIDE
ORIENTATION
TP2
B

BACHY
SOLETANCHE
CESD CONTRACT NO.GC/89/03
H.K. & KLN.(TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. - PW/P/7142
TRIAL PIT NO.
SIDE
ORIENTATION
TP2
C

BACHY
SOLETANCHE
CESD CONTRACT NO.GC/89/03
H.K. & KLN.(TERM CONTRACT)
GROUND INVESTIGATION
Works Order No. - PW/P/7142
TRIAL PIT NO.
SIDE
ORIENTATION
TP2
D

BACHY SOLETANCHE GROUP
HONG KONG

VI. SURVEY RECORDS

BACHY SOLETANCHE

BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS

Page No.

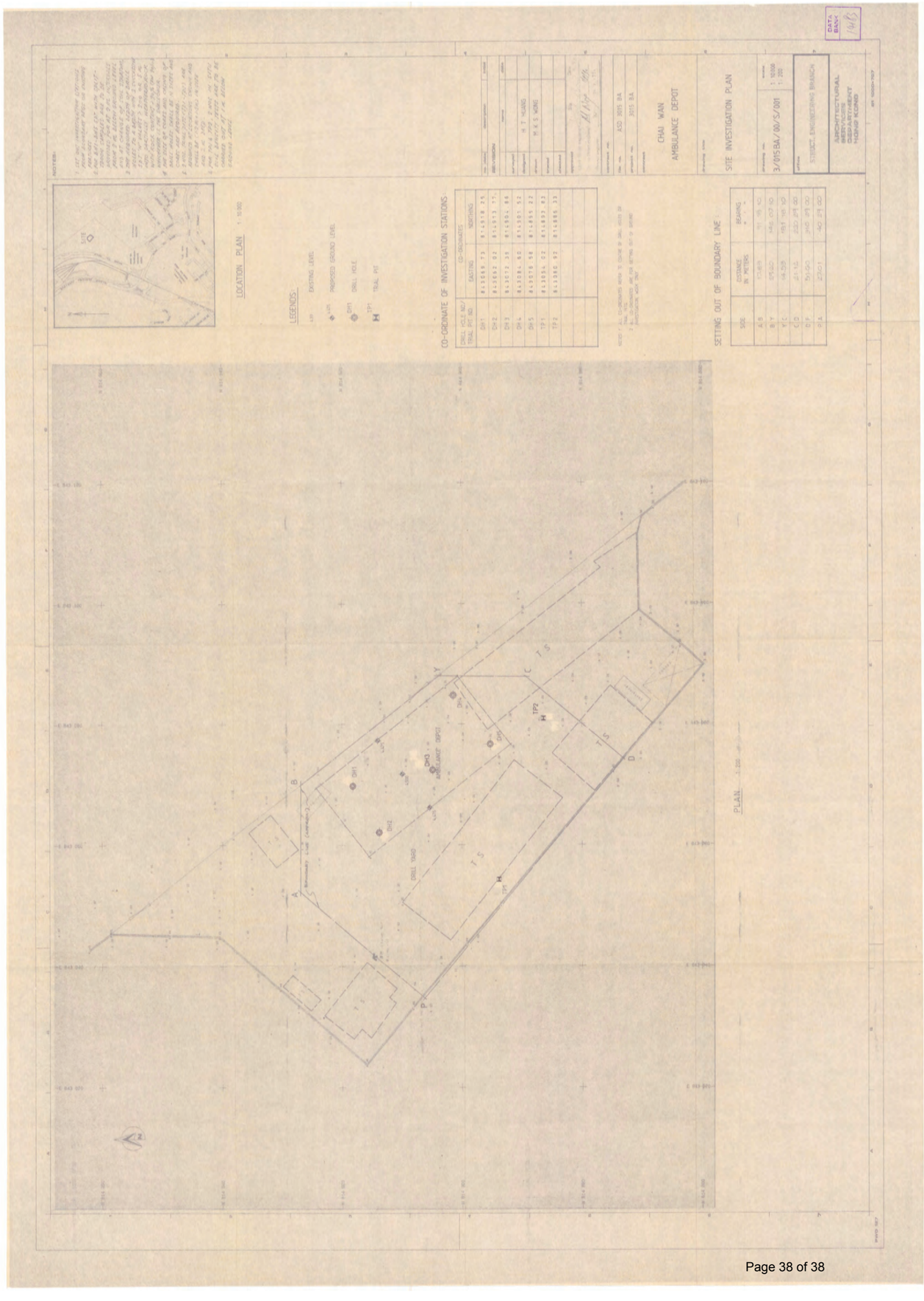
Date

COORDINATES AND LEVEL OF BOREHOLES

BOREHOLE NOS.	COORDINATES		LEVEL
	EAST	NORTH	
	11SE 14 D2		
DH 1	843069.73	814918.25	+4.32mPD
DH 2	843062.02	814913.77	+4.37mPD
DH 3	843072.39	814904.86	+4.34mPD
DH 4	843084.60	814901.52	+4.33mPD
DH 5	843076.58	814895.22	+4.29mPD
TP 1	843054.02	814893.83	+4.30mPD
TP 2	843080.92	814886.33	+4.25mPD

BACHY SOLETANCHE GROUP
HONG KONG

VII. LOCATION PLAN



Appendix 9.3

Site Walkover Checklist

Annex C1
Site Walkover Checklist

GENERAL SITE DETAILS

SITE OWNER/CLIENT: Drainage Services Department (DSD)

PROPERTY ADDRESS: Sheung Tak Street, Chai Wan, Hong Kong

PERSON CONDUCTING THE QUESTIONNAIRE

NAME: Carol Chan

POSITION: Environmental Consultant, Allied Environmental Consultants Limited

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME: P.N. Sum

POSITION: Senior Site Agent at Welcome Construction Co., Ltd. (Term Contractor of DSD)

TELEPHONE: 2682 3823

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. **Obtain a flow schematic if possible.**

Number of employees: Full-time: _____

Part-time: _____

Temporary/Seasonal: _____

Maximum no. of people on site at any time: Max. 50

Typical hours of operation: 24-hr

Number of shifts: 2

Days per week: 7

Weeks per year: 52

Scheduled plant shut-down: Not applicable

Detail the main sources of energy at the site:

Gas	Yes/(No)
Electricity	(Yes)/No
Coal	Yes/(No)
Oil	Yes/(No)
Other	Yes/(No)

SITE DESCRIPTION

This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.

What is the total site area: Approx. 7,000m^2

What area of the site is covered by buildings (%): 10% (Temporary building only)

Please list all current and previous owners/occupiers if possible. Housing Department, Kai Hing Trading Company, Highway Department, Drainage Service Department / Welcome Construction Co., Ltd

Is a site plan available? If yes, please attach. (Yes)/No

Are there any other parties on site as tenants or sub-tenants? Yes/(No)

If yes, identify those parties: Not applicable

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.

North: New World First Bus Chong Fu Road Permanent Depot (Industrial)

South: Chai Wan Public Cargo Working Area (Industrial), Citybus Chai Wan Depot (Industrial), Esso Petrol cum LPG Filling Station

East: Chai Wan Public Cargo Working Area (Industrial)

West: Hong Kong Institute of Vocational Education (Chai Wan) (Institutional), Knight Court (Residential)

Annex C1
Site Walkover Checklist

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).

Flat terrain with scattered vegetation and no water body.

State the size and location of the nearest residential communities.

Knight Court (approx. 150m to the northwest of the Project site)

Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?

The nearest sensitive habitat nearby is Heng Fa Chuen Playground, which is approximately 200m to the northeast of the Project site.

Questionnaire with Existing/Previous Site Owner or Occupier

		Yes/No	Notes
1.	What are the main activities/operations at the above address?		Vehicle parking and material storage
2.	How long have you been occupying the site?		7-8 years
3.	Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	No	
4.	Prior to your occupancy, who occupied the site?		Fee-paying carpark
5.	What were the main activities/operations during their occupancy?		Vehicle parking
6.	Have there been any major changes in operations carried out at the site in the last 10 years?		No change since being occupied by DSD term contractor
7.	Have any polluting activities been carried out in the vicinity of the site in the past?	No	
8.	To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	No	
9.	Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	No	
10.	Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	No	
11.	Are any chemicals used in your daily operations? (If yes, please provide details.)	No	
	• Where do you store these chemicals?		N/A
12.	Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	
13.	Has the facility produced a separate hazardous substance inventory?	Yes	Storage of 2 to 3 drums of diesel / gasoline were recorded in the past
14.	Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	
15.	How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	See Note	Construction materials such as aggregate, drainage pipes, manhole covers, cement, milled asphalt, etc. are received by vehicles and stored in sealed containers (e.g. liquid) & covered by impervious sheeting (solid)
16.	Do you have any underground storage tanks? (If yes, please provide details.)	No	
	• How many underground storage tanks do you have on site?		N/A
	• What are the tanks constructed of?		N/A
	• What are the contents of these tanks?		N/A
	• Are the pipelines above or below ground?		N/A
	• If the pipelines are below ground, has any leak and integrity testing been performed?		N/A
	• Have there been any spills associated with these tanks?		N/A
17.	Are there any disused underground storage tanks?	No	
18.	Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	Yes	Every 6 months
19.	How are the wastes disposed of?	See Note	C&D waste to sorting facility/ landfill
20.	Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	No	
21.	Have any spills occurred on site? (If yes, please provide details.)	No	
	• When did the spill occur?		N/A
	• What were the substances spilled?		N/A
	• What was the quantity of material spilled?		N/A
	• Did you notify the relevant departments of the spill?		N/A
	• What were the actions taken to clean up the spill?		N/A
	• What were the areas affected?		N/A
22.	Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	No	
23.	Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	
24.	Are there any known contaminations on site? (If yes, please provide details.)	No	
25.	Has the site ever been remediated? (If yes, please provide details.)	No	

Annex C1
Site Walkover Checklist

Observations

		Yes/No	Notes
1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?		N/A
2.	What are the conditions of the bund walls and floors?		N/A
3.	Are any surface water drains located near to drum storage and unloading areas?		N/A
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	Yes	General refuse
5.	Is there a storage site for the wastes?	Yes	Only for a max. of 24 hours
6.	Is there an on-site landfill?	No	
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	
9.	Are there any potential off-site sources of contamination?	No	
10.	Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	No	
12.	Any noticeable odours during site walkover?	No	
13.	Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	See Note	No storage of diesel and oils except a few sealed containers with lubricant were identified within the site boundary

Annex C2
Potential Information Sources for Site Appraisal

1. Aerial photographs from the Lands Department of Hong Kong
2. Public Records Office – For obtaining old maps and photos
3. Local Libraries – Public libraries and/or Universities Libraries
4. Antiquities and Monuments Office – For obtaining old maps and historical information
5. Topographic Maps from the Survey and Mapping Office – Lands Department
6. Land title searches from the Land Registry
7. Site plans obtained from site contacts
8. Building layout drawings from current and previous site owners
9. Previous assessments completed by site owners
10. Consultation with authorities for obtaining information such as underground utilities, sensitive areas, previous site investigation, zoning and spill records:
    a. Planning Department
    b. Agriculture, Fisheries and Conservation Department
    c. Lands Department
    d. Buildings Department
    e. Environmental Protection Department
    f. Fire Services Department
    g. Drainage Services Department
    h. Civil Engineering and Development Department
    i. Geotechnical Engineering Office, Civil Engineering and Development Department

Annex D

Health, Safety and Environmental Controls during Site Appraisal, Site Investigation and Remediation

	Site Appraisal	Site Investigation	Remediation
Health and Safety (H&S)			
Identify potential health and safety risks and determine control measures	✓	✓	✓
Potential Risks			
• Exposure to hazardous materials on site	✓	✓	✓
• Exposure to contaminated soil & groundwater		✓	✓
• Exposure to volatile / toxic vapours	✓	✓	✓
• Exposure to sample preservative chemicals		✓	✓
• Exposure to chemicals used in remediation			✓
• Possible presence of underground services and utilities		✓	✓
• Machines / equipment on site	✓	✓	✓
• Machines / equipment used in site investigation and remediation		✓	✓
• Manual handling and repetitive motions		✓	✓
• Confined space		✓	✓
• Moving vehicles	✓	✓	✓
• Falling and flying objects	✓	✓	✓
• Dust	✓	✓	✓
• Noise	✓	✓	✓
• Slip and trip	✓	✓	✓
• Fall from height	✓	✓	✓
• Fire and explosion	✓	✓	✓
• Poisonous plants and animals	✓	✓	✓
• Heat stress	✓	✓	✓
H&S Control Measures			
• Prepare site H&S plan		✓	✓
• Appoint site safety personnel		✓	✓
• Works designed and supervised by competent persons		✓	✓
• Personal protective equipment (PPE), for example:			
• Safety shoes	✓	✓	✓
• Helmet	✓	✓	✓
• Respiratory protection	✓	✓	✓
• Breathing apparatus			✓
• Hearing protection	✓	✓	✓
• Goggles	✓	✓	✓
• Face mask		✓	✓
• Gloves		✓	✓
• Coverall		✓	✓
• Barricade the site		✓	✓
• Communicate with other working on site		✓	✓
• Check for explosive/flammable gases		✓	✓
• Confined space entry procedure		✓	✓
• Subsurface utility survey		✓	✓
• Compressed gas procedure		✓	✓
• Chemical handling procedure		✓	✓
• Provide decontamination facilities		✓	✓
• Use mechanical tools to reduce manual handling		✓	✓
Environment			
• Identify potential environmental impacts and determine control measures		✓	✓
Potential Environmental Impacts			
• Handling and storage of potentially contaminated soil and groundwater		✓	✓
• Disposal of contaminated wastes arising from the on-site activities		✓	✓
• Discharge of potentially contaminated wastewater		✓	✓
Environmental Control Measures			
• Segregate potentially contaminated soil and groundwater		✓	✓
• Stockpile of potentially contaminated materials should be contained and covered		✓	✓
• Collect potentially contaminated water recovered for appropriate treatment and disposal		✓	✓
• Segregate contaminated waste for disposal in accordance with the requirements of the Waste Disposal Ordinance		✓	✓
• Discharge to the storm water drainage, sewer or surface water shall comply with the requirements of the Water Pollution Control Ordinance		✓	✓
• Comply with noise and vibration limits		✓	✓
• Comply with Air Pollution Control Ordinance		✓	✓

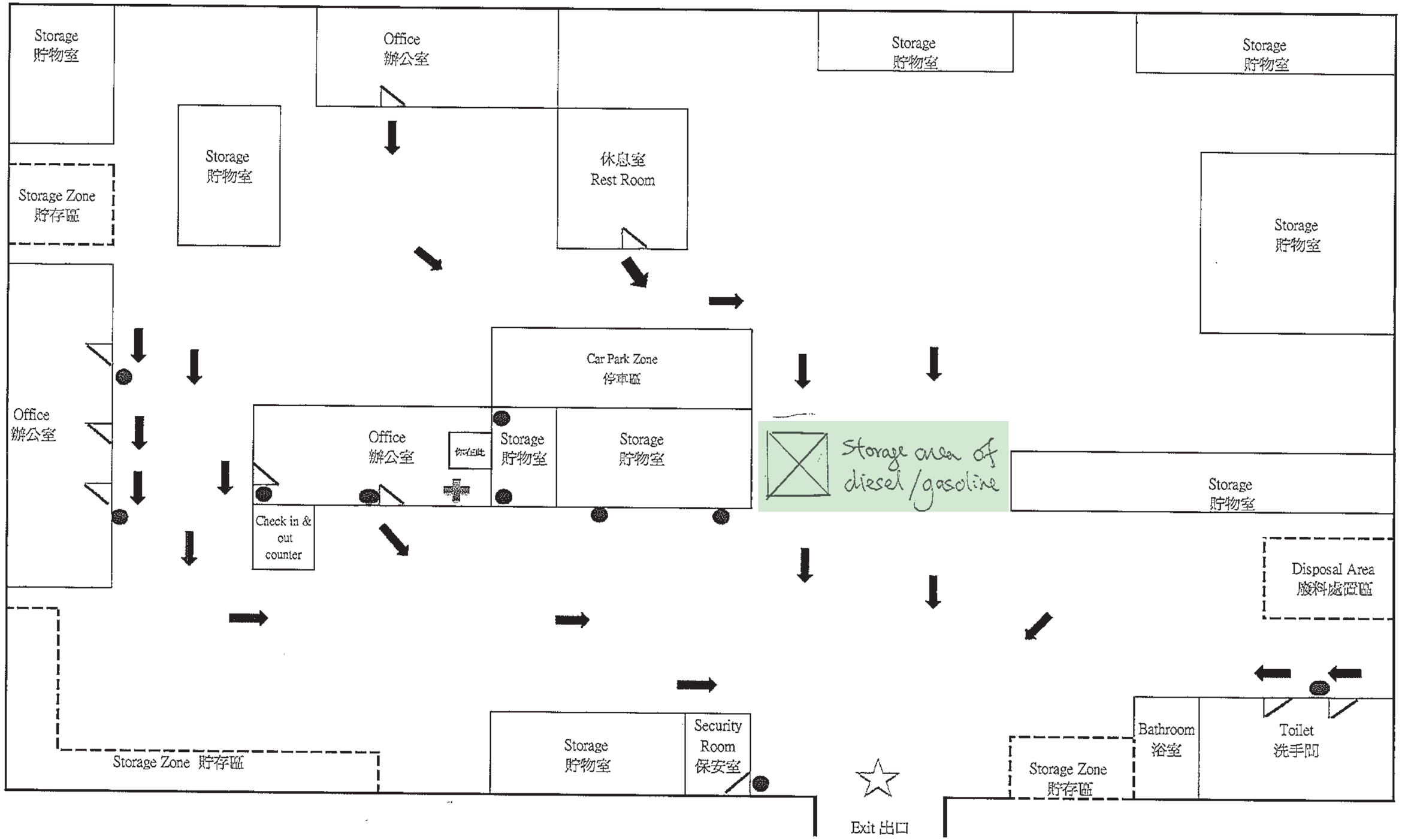
Notes: This table is provided as a guide for identification of potential health, safety and environmental risks and control measures associated with site appraisal, site investigation and remediation activities. Potential risks and control measures listed here are those typically found and implemented in Hong Kong. Risks should be reviewed for each individual site and site-specific control measures should be identified and implemented accordingly. Reference should be made to relevant legislation and guidelines relating to the protection of H&S of personnel such as the *Factories and Industrial Undertakings Ordinance* and the *Occupational Safety and Health Ordinance* and their associated regulations and relevant environmental legislations.

Appendix 9.4

On-site Storage Location of Diesel in the Past

偉金建築有限公司
Welcome Construction Co., Ltd.
(偉金企業成員)
(A member of Welcome Enterprises)

Contract No.
合約編號 :
DC/2009/04



Legend

Emergency Assemble Area 緊急事故集合點
Fire Extinguisher 滅火筒
First Aid's Box 急救箱
Emergency Direction 緊急途生方向

Revised Date:
更新日期:2/9/2013

Appendix 9.5

Site Photos of Current Land Use Activities

Photo 1: Building Entrance (Taken at Sheung On Street)

Photo 2: Overview of the Project Site (Taken at Building Entrance)

Photo 3: Northeast Boundary of the Project Site facing New World First Bus Services Ltd.

Photo 4: Stockpiling Areas with the Project Site

Photo 5: Designated Storage Area of Manhole Cover

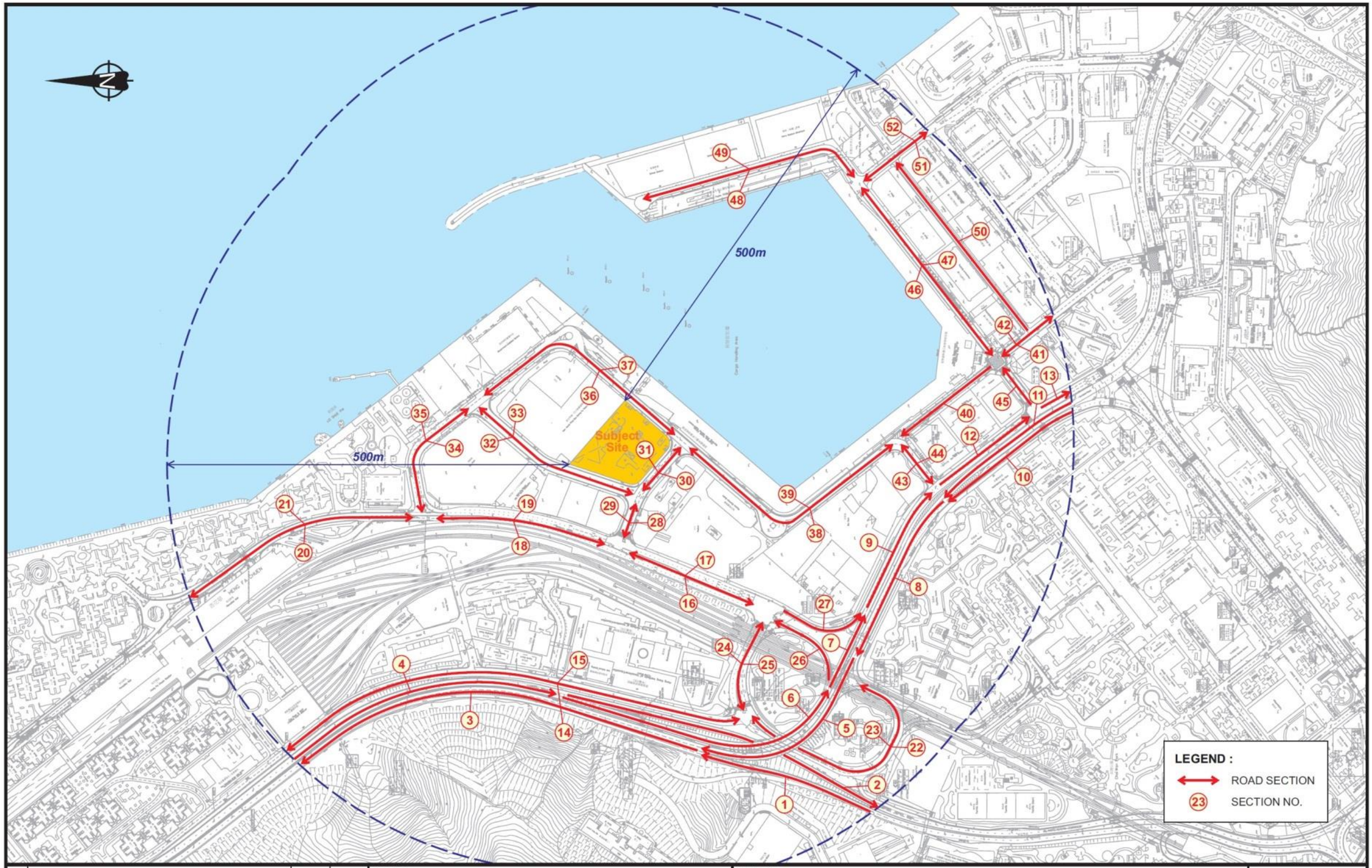
Photo 6: Designated Storage Area of Drainage Pipe

Photo 7: On-Site Parking of Asphalt Road Maintenance Vehicle

Photo 8: Overview of the Project Site (Taken at the Centre of the Project Site facing Sheung On Street)

Appendix 10.1

Traffic Data



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Project Title

CHI WAN GOVERNMENT COMPLEX AND VEHICLE DEPOT AT SHEUNG TAT STREET

Drawing Title

KEY PLAN FOR EIA TRAFFIC FORECAST

Designed	Checked	Scale	Date	Drawing No.	Rev.
YKP	GPH	NTS	JUL 2014	1	-

MVA SYSTRA GROUP

YEAR 2018 HOURLY TRAFFIC FORECAST

	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)	Total (veh/hr)
Road Name	**Chong Fu Road**	**Chong Fu Road**	**Sheung Tat Street**	**Sheung Tat Street**	**Sheung Mau Street**	**Sheung Mau Street**	**Shing Tai Road**	**Shing Tai Road**	**Sheung On Street**		**Sheung Ping Street**		**Wing Tai Road**	
Road ID	**34**	**35**	**32**	**33**	**28**	**29**	**16**	**17**	**36**	**37**	**43**	**44**	**8**	**9**
DIR	**WB**	**EB**	**NB**	**SB**	**WB**	**EB**	**NB**	**SB**	**NB**	**SB**	**EB**	**WB**	**WB**	**EB**
00:00 ~ 01:00	57	38	12	36	12	36	171	85	37	27	18	91	517	400
01:00 ~ 02:00	36	25	7	17	7	17	103	52	23	14	12	51	312	241
02:00 ~ 03:00	24	18	3	12	3	12	67	32	16	9	8	34	208	160
03:00 ~ 04:00	24	18	2	10	2	10	67	32	15	8	8	33	209	159
04:00 ~ 05:00	24	18	1	10	1	10	69	30	15	9	8	32	209	157
05:00 ~ 06:00	23	18	1	10	1	10	68	28	15	9	8	31	211	157
06:00 ~ 07:00	71	51	9	33	9	33	205	88	46	28	28	86	629	477
07:00 ~ 08:00	135	99	15	50	15	50	375	161	80	50	56	148	1157	875
08:00 ~ 09:00	171	130	21	58	21	58	477	200	103	63	71	183	1475	1117
09:00 ~ 10:00	146	108	21	57	21	57	408	181	89	58	60	170	1260	959
10:00 ~ 11:00	127	94	19	60	19	60	378	170	83	54	51	166	1149	880
11:00 ~ 12:00	117	83	20	60	20	60	343	161	79	51	45	162	1042	799
12:00 ~ 13:00	125	86	24	72	24	72	376	183	89	59	48	191	1144	883
13:00 ~ 14:00	125	86	25	78	25	78	379	189	92	59	45	203	1139	883
14:00 ~ 15:00	126	81	28	85	28	85	379	192	94	62	43	213	1132	882
15:00 ~ 16:00	133	86	33	98	33	98	417	221	105	70	45	245	1231	967
16:00 ~ 17:00	130	83	37	108	37	108	417	226	109	71	42	258	1228	971
17:00 ~ 18:00	140	85	44	122	44	122	454	251	121	79	44	294	1327	1052
18:00 ~ 19:00	130	79	37	110	37	110	417	231	109	70	42	262	1225	969
19:00 ~ 20:00	110	69	30	87	30	87	347	187	89	58	36	214	1023	809
20:00 ~ 21:00	87	56	23	67	23	67	276	146	72	46	31	165	821	644
21:00 ~ 22:00	78	49	18	56	18	56	243	126	60	41	28	139	722	560
22:00 ~ 23:00	78	52	18	54	18	54	242	124	61	41	30	136	723	561
23:00 ~ 00:00	67	46	15	45	15	45	207	104	49	34	26	111	620	483
AM (Max)	171	130	55	44	55	44	477	251	121	79	71	294	1475	1117
PM (Max)	87	69	36	30	36	30	347	187	89	58	36	214	1023	809

SUMMARY OF TRAFFIC FLOW AND POPULATION

	Year 2016	Year 2016	Year 2018	Year 2018	Year 2016	Year 2016	Year 2018	Year 2018		
	Traffic Flow (veh/hr)	Traffic Flow (veh/hr)	Traffic Flow (veh/hr)	Traffic Flow (veh/hr)	Population WDD/WED	Population WDN/WEN	Population WDD/WED	Population WDN/WEN	Speed (km/hr)	Road length (km)
Road Name	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**		
Chong Fu Road	301	179	301	179	5	3	5	3	50	0.29
Sheung Tat Street	99	66	99	66	2	1	2	1	50	0.23
Sheung Mau Street	232	172	232	172	3	2	3	2	50	0.16
Shing Tai Road	728	534	728	534	30	22	30	22	50	0.75
Sheung On Street	200	147	200	147	8	6	8	6	50	0.70
Sheung Ping Street	365	250	365	250	2	2	2	2	50	0.08
Wing Tai Road	2592	1832	2592	1832	57	40	57	40	50	0.40

Note:

1. The traffic flows of Year 2016 are assumed to be identical to the traffic flows of Year 2018.
2. Average occupancy of 2.7 ppl/veh is estimated from Station 2215 of Hong Kong Annual Traffic Census 2013.
   Traffic flow of Chung Fu Road in am period = 171 + 130 = 301 veh/hr
   Population of Chung Fu Road in am period = $301 \times 0.29 \times 2.7 / 50 \approx 5$ ppl
3. Apply AM traffic flow for both weekday day(WDD) and weekend day and apply PM traffic flow for both weekday night (WDN) and weekend nigh (WEN).
4. Refer to Figure 10.4 for ID of roads

Coverage (B) Station 2215
Year 2013

4. Vehicle classification and occupancy - Monday to Friday

Time		Class of vehicle									
		Motor Cycle	Private Car	Taxi	Private LB	PLB	Goods veh. Light	Goods veh. M & H	Non Fr. Bus	Fr. Bus SD	Fr. Bus DD
0700-0800	Pro	6.7	29.7	24.2	2.2	0.0	22.6	5.9	3.9	0.2	4.6
	Ocp	1.2	1.3	1.8	9.5	0.0	1.5	1.4	15.0	1.0	46.2
0800-0900	Pro	2.7	37.4	24.4	2.2	0.0	19.3	7.6	2.8	0.0	3.5
	Ocp	1.2	1.2	1.8	4.9	0.0	1.6	1.3	16.2	0.0	52.7
0900-1000	Pro	2.7	28.6	21.6	2.4	0.0	26.7	11.2	3.1	0.1	3.6
	Ocp	1.1	1.4	1.8	3.5	0.0	1.6	1.3	1.8	1.0	23.5
1000-1100	Pro	1.7	32.2	16.5	0.5	0.0	35.2	7.9	1.2	0.1	4.7
	Ocp	1.0	1.3	1.5	1.0	0.0	1.5	1.2	6.7	1.0	15.7
1100-1200	Pro	4.1	29.4	16.7	2.2	0.0	32.7	9.1	3.2	0.1	2.6
	Ocp	1.1	1.2	1.7	1.8	0.0	1.5	1.4	3.8	1.0	23.3
1200-1300	Pro	2.8	30.8	15.1	2.5	0.0	33.6	8.5	3.9	0.1	2.7
	Ocp	1.2	1.3	1.7	4.9	0.0	1.5	1.4	9.6	1.0	24.1
1300-1400	Pro	1.9	27.4	16.1	2.6	0.0	36.6	9.9	3.1	0.1	2.5
	Ocp	1.1	1.3	1.5	4.2	0.0	1.6	1.2	6.8	1.0	24.8
1400-1500	Pro	1.5	28.7	19.3	1.1	0.0	32.2	11.7	2.6	0.1	2.9
	Ocp	1.0	1.5	1.8	1.9	0.0	1.6	1.3	2.3	1.0	21.7
1500-1600	Pro	3.4	33.4	17.0	2.6	0.0	29.1	9.6	1.8	0.1	3.1
	Ocp	1.1	1.4	1.4	4.9	0.0	1.5	1.4	15.8	1.0	18.8
1600-1700	Pro	2.5	31.5	22.9	2.0	0.0	27.7	7.8	2.3	0.1	3.2
Peak hour	Ocp	1.1	1.3	1.3	3.8	0.0	1.5	1.2	7.3	1.0	24.2
1700-1800	Pro	6.1	36.4	20.9	2.9	0.0	22.2	5.1	2.2	0.0	4.2
	Ocp	1.1	1.3	1.8	2.3	0.0	1.5	1.3	2.9	0.0	29.4
1800-1900	Pro	3.9	48.1	18.9	0.9	0.0	19.7	2.9	2.0	0.1	3.6
	Ocp	1.0	1.3	1.8	2.5	0.0	1.4	1.6	9.6	1.0	55.3
1900-2000	Pro	6.1	57.5	17.1	0.3	0.0	10.5	2.7	2.0	0.0	3.8
	Ocp	1.1	1.4	2.0	1.0	0.0	1.6	1.5	1.7	0.0	41.4
2000-2100	Pro	4.6	44.5	29.9	0.2	0.0	8.1	2.6	2.4	0.5	7.3
	Ocp	1.1	1.4	2.1	2.0	0.0	1.5	1.5	2.4	1.0	18.0
2100-2200	Pro	4.1	38.6	38.0	0.6	0.0	9.6	2.1	0.8	0.3	5.9
	Ocp	1.2	1.4	1.9	2.0	0.0	1.6	1.3	1.3	1.0	19.1
2200-2300	Pro	3.9	43.1	39.9	0.0	0.0	4.8	0.7	1.0	0.2	6.4
	Ocp	1.2	1.6	1.7	0.0	0.0	1.2	1.0	1.3	1.0	19.3
16 hours	Pro	3.5	35.2	21.5	1.7	0.0	24.5	7.2	2.5	0.1	3.8
	Ocp	1.1	1.3	1.7	3.9	0.0	1.5	1.3	7.3	1.0	28.3

Legend

Pro.	Proportion of vehicles in % (Sum may not add up to 100% due to figure rounding)
Ocp.	Average occupancy of vehicles
M&H	Medium and Heavy

Appendix 10.2

MTR Train Population (Between Hang Fa Chuen and Chai Wan Station)

INFORMATION RECEIVED FROM MTR

MTR Corporation Limited
香港鐵路有限公司
www.mtr.com.hk

MTR

Your Ref : ( ) in 9125.E4.HK/L/0003
Our Ref : 220 -152880 in O/TRT/01/V02

BMT Asia Pacific
IN 12 7 AUG 2014
Ref: 9125.E4.HK/0009
Circ. | Note | Act | Sign | Date
GRC | | | | 26/8/2014
Copy:
File:

25 August 2014

By Fax & Post
Fax No. 2815 3377

BMT Asia Pacific Ltd
5/ F, FWD Financial Centre
308 Des Voeux Road Central
Hong Kong

Attn : Mr Gary Chow,

Dear Gary ,

Re: Request for Information of Traffic Population of Island Line between Heng Fa Chuen Station and Chai Wan Station and Population Data of MTR Chai Wai Depot

I refer to your letter dated 8 July 2014 on the captioned subject, please find the required information as follows:

Traffic Population	
Information Required	**Average**
1. Speed of the train along the line between Heng Fa Chuen Station and Chai Wan Station	50 – 60 kph
2. Number of passenger per hour in the train between Heng Fa Chuen Station and Chai Wan Station in the following time periods (total of up and down):	
a) Weekday – Peak hour	a) 13,245
b) Weekday – Non-peak hour	b) 3,973
c) Weekend – Peak hour	c) 7,678
d) Weekend – Non-peak hour	d) 8,072

MTR Headquarters Building, Telford Plaza, Kowloon Bay, Kowloon, Hong Kong. GPO Box 9916, Hong Kong
Tel (852) 2993 2111 Fax (852) 2798 8822

香港九龍灣德福廣場港鐵總部大樓
香港郵政總局信箱9916號
電話 (852) 2993 2111 傳真 (852) 2798 8822

MTR Corporation Limited
香港鐵路有限公司
www.mtr.com.hk

MTR

Population of MTR Chai Wan Depot	
Information Required	
1. Number of people working in the MTR Chai Wan Depot in day time and night time:	Day time:100 (Approximately) Night time:20 (Approximately)

Should you have any question, please feel free to contact Edwin Lee, Manager-Train Services Planning at 2993 3730.

Yours sincerely,

Wan Siu Keung
Service Planning and Support Manager

ST/EL/ew

MTR Headquarters Building, Telford Plaza, Kowloon Bay, Kowloon, Hong Kong. GPO Box 9916, Hong Kong
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TIME FRACTION DISTRIBUTION

Time Period		**Day Time (Hrs)**	**Night Time (Hrs)**	**Day Fraction**	**Night Fraction**	**Passenger Flow (psg/hr)**
Weekday peak hour	Mon-Fri	3	3	0.50	0.50	13245
Weekday non-peak hour	Mon-Fri	8	5	0.62	0.38	3973
Weekend peak hour	Sat-Sun	3	3	0.50	0.50	7678
Weekend non-peak hour	Sat-Sun	8	5	0.62	0.38	8072

Note:
1. Service hour of MTR is between 0600-0100 (19 hours)
2. Assume day time peak hour is between 0600-0900 and night time peak hour between 1700-2000
3. Assume day time non-peak hour is between 0900-1700 and night time non-peak hour is between 2000-0100

MTR TRAIN POPULATION

Time Period	**Passenger Flow (psg/hr)**	**Average Speed (km/hr)**	**Length of track (km)**	**No. of passenger (psg)**
Weekday day [(1)]	13245	60	0.74	406
Weekday night [(1)]	3973	60	0.74	454
Weekend day [(1)]	7678	60	0.74	351
Weekend night [(1)]	8072	60	0.74	448

Note:
1. Weekday day passenger flow = 13245 / 0.5 + 3973 / 0.62 = 32946 psg/hr
   Weekday night passenger flow = 13245 / 0.5 + 3973 / 0.38 = 36820 psg/hr
   Weekend day passenger flow = 7678 / 0.5 + 8072 / 0.62 = 28473 psg/hr
   Weekend night passenger flow = 7678 / 0.5 + 8072 / 0.38 = 32343 psg/hr

MTR ANNUAL PASSENGER GROWTH RATE

Year	**2004**	**2005**	**2006**	**2007**	**2008**
No. of passenger [(1)]	~~NA~~833550	857954	866754	915755	1205448
Annual Growth rate	NA	2.9%	1.0%	5.7%	31.6%
Year	**2009**	**2010**	**2011**	**2012**	**2013**
No. of passenger [(1)]	1218796	1298714	1366587	1431040	1474659
Annual Growth rate	1.1%	6.6%	5.2%	4.7%	3.0%

Note:
1. No. of passenger according to Annual Report 2013, MTR Corporation Ltd.
2. An average annual passenger growth rate of 6.9% is calculated based on past 10-year data (2004-2013)

Appendix 10.3

HAZID Workshop Meeting Minutes and Worksheets

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	25-Aug-14
Project Reference Nos.:		**Venue:**	**EMSD Vehicle Depot**

HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	S	P	RR	Existing Safeguard	Recommendation	Remark
H.1	Fire	Leakage of gasoline or lubricating oil from vehicles	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	2	A	L	Isolation from source by staff Drip container to collect lubricating oil Spilled oil removed by spillage toolkit Fire extinguisher	No smoking should be allowed near the vehicle maintenance area. Isolated area from vehicle repairing area in future design Oil-interceptor to collect the dip of lube/fuel from vehicle to confine the spread of fuel in future design	Since lubricating oil has a high flash point (about 177°C), it is not easily ignited. No offsite fire hazard of lubricating oil is considered in the study. Heat radiation of 4kW/m^{2} from 50L petrol pool fire reaches 18.7m which does not impose offsite risk.
H.2	Source of ignition	Spark producing equipment and heat source	Fire hazards, personnel injury	1	A	L	No hot works and welding works within the depot. Vehicle battery is isolated before carrying out inspection.	N/A	N/A
H.3	Storage	Improper storage of flammables and combustibles	Fire hazards, personnel injury	1	A	L	Sufficient air ventilation is provided at the storage room	N/A	Waste lubricating oil has a high flash point (about 177°C), it is not easily ignited. No offsite fire hazard of lubricating oil is considered in the study.
H.4	Fire	Fire at oil interceptor and drains	Fire hazards, personnel injury	2	A	L	No smoking, hot works and welding within the depot Oil in the interceptor to be cleaned up in a regular interval Oil interceptor in an open area	Explosion proof equipment in the oil interceptor zone Sufficient ventilation to avoid accumulation of volatile compound Prohibit smoking in oil interceptor zone	Heat radiation of 4kW/m^{2} from a typical oil interceptor jet fire reaches 18.4m which does not impose offsite risk.
H.5	Fire	Spillage of waste oil during transfer to storage room	Fire hazards, personnel injury	1	A	L	Transfer to waste oil drum with the aid of trolley Spillage toolkit	N/A	Since waste oil has high flash point (about 177°C), it is not easily ignited. No offsite fire hazard of waste oil is considered in the study.
H.6	Fire	Overheating of compressors and ignition of oil vapour	Fire hazards, personnel injury	3	B	M	Air compressors installed in a separated room from vehicle maintenance area Sufficient air ventilation is provided in the air compressor room	Regular inspection of performance of air compressors	Compressors are placed indoor. Fire hazard is confined in compressor house and no offsite hazard is considered in the study.

QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact				
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact	MEDIUM RISK			
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact				
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact		HIGH RISK		

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	12-Aug-14
Project Reference Nos.:		**Venue:**	**HKPF Vehicle Pound**

HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	S	P	RR	Existing Safeguard	Recommendation	Remark
H.1	Fire	Leakage of gasoline from damaged vehicles	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	3	A	M	Isolation from source by maintenance force Fire extinguisher	No smoking should be allowed near the vehicle maintenance area. Isolated area from Vehicle Examination Area in future design Drain with Oil-interceptor – to collect the dip of lube/fuel from vehicle to confine the spread of fuel in future design	Heat radiation of 4kW/m^2 from 50L petrol pool fire reaches 18.7m which does not impose offsite risk.
H.2	Source of ignition	Spark producing vehicle and equipment	Fire hazards, personnel injury	1	A	L	No spark producing equipment is used. Car battery is isolated before carrying out inspection.	N/A	N/A
H.3	Storage	Improper Storage and handling of flammables and combustibles	Fire hazards, personnel injury	1	A	L	There is no chemical storage in the vehicle pound	N/A	N/A
H.4	Car crash	Car crash due to brake fail during brake test	Personnel injury	2	A	L	Crash barrier Entry restriction to concern area	N/A	Crash barrier prevents the car running off the depot. No offsite hazard is considered in the study.
H.5	Fire	Fire at oil interceptor and drains	Fire hazards, personnel injury	3	A	M	Not available	Explosion proof equipment in the oil interceptor zone Sufficient ventilation to avoid accumulation of volatile compound Prohibit smoking in oil interceptor zone	Heat radiation of 4kW/m^2 from a typical oil interceptor jet fire reaches 18.4m which does not impose offsite risk.

QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact				
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact	MEDIUM RISK			
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact				
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact		HIGH RISK		

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	**Government Laboratory**

HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	S	P	RR	Existing Safeguard	Recommendation	Remark
H.1	Fire	Chemical solvent catch fire due to overheating	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	2	A	L	Well trained / staff Fire extinguishers, fire sprinklers and smoke detectors	N/A	Methanol is a common solvent used in laboratory. Heat radiation of 4kW/m^2 from 5L methanol pool fire inside a typical 6 feet fume hood reaches 1.94m which does not impose offsite risk.
H.2	Fugitive emission	Release of toxic gas through air extraction system to the public	Toxic hazards, personal injury	1	A	L	Exhaust gas from fume cupboard is treated with activated carbon and scrubber before discharge No highly toxic chemical (e.g. chlorine gas) is handled in the Government Laboratory Exhaust gas emission rate is monitored continuously	N/A	No gas with acute toxicity is used and discharged from the government laboratory.
H.3	Source of ignition	Spark producing equipment	Fire hazards, personnel injury	2	A	L	Explosion proof equipment in DG store	N/A	N/A
H.4	Fire	Spilled chemical catches fire	Fire hazards, personnel injury	2	A	L	Lack of ignition source in the laboratory Chemical spills removed by absorption mat	N/A	Methanol is a common solvent used in laboratory. Heat radiation of 4kW/m^2 from 5L methanol pool fire inside a typical 6 feet fume hood reaches 1.94m which does not impose offsite risk.
H.5	Storage	Improper storage and handling of flammables	Fire hazards, personnel injury	2	A	L	Spillage contained within bunded storage room Supervised by safety officer	Adequate ventilation system should be considered for further DG store to avoid accumulation of flammable vapor	Methanol is a common solvent used in laboratory. Heat radiation of 4kW/m^2 from 5L methanol pool fire inside a typical 6 feet fume hood reaches 1.94m which does not impose offsite risk.
H.6	Fire	Flammable substances discharged to public mains through sinks/drains and catch fire	Fire hazards, personnel injury, Water Contamination	1	A	L	Any unwanted chemicals are stored in chemical waste drums Discharge through drains are monitored regularly Lack of ignition source	N/A	No offsite risk is considered in the study, considering low ignition source in the public main and low concentration of flammable substances diluted by sewage.
H.7	Emergency	Ignition of volatile vapour due to fume cupboard failure	Fire hazards, personnel injury Limited risk to on-site population only in the future depot.	1	A	L	Emergency power available Lack of ignition source	N/A	Assuming fume hood can contain 0.5m^3 methane vapor gas which is commonly used as fuel in laboratory, flash fire envelope of 0.5m^3 methane covers 5m inside the building which does not impose offsite risk.
H.8	Chemical container	Rupture of compressed gas cylinders and damaged chemical containers	Cause of fire, personnel injury	2	A	L	Gas containers are regularly inspected by licensed contractor. Emergency toolkit to handle chemical spillage. Drills to prepare for emergency situations. Smoking is prohibited in DG store. DG store with explosion proof equipment. Ignition is very unlikely.	Loading and unloading are carried out within the premises	Indoor release of pressurized gas is confined in the government laboratory. No offsite risk is considered in the study.

QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact				
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact	MEDIUM RISK			
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact				
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact		HIGH RISK		

BMT Asia Pacific

HAZID Workshop

12 August 2014
Our Ref: 9125

Meeting: HAZID Workshop – HKPF Vehicle Depot

Venue: Hong Kong Police Force Vehicle Pound, Hoi Tai Street, Quarry Bay
Date: 12 August, 2014
Time: 9:30 a.m.

Prepared by Gary Chow
Direct Tel: (852) 2241 9865
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Status Revision 0

Present Chester Chan (ArchSD)
Ko Chun Kit (HKPF)
T.K. Ho (AEC)
Michael Lee (BMT)
Gary Chow (BMT)

Item	Proceedings	Action
1.0	**Introduction**	
1.1	Michael explained to the Project Team that the purpose of the workshop was to understand the normal operation of the existing HKPF vehicle pound and identify potential hazards which could induce off-site risks.	Noted
2.0	**Site Walk**	
2.1	The Representative of HKPF led a site walk and introduced the function of the vehicle pound was to examine defective vehicles through inspection on the street by HKPF and damaged vehicles from car accidents.	Noted
2.2	The Project Team visited the areas of vehicle inspection for both defective and damaged car.	Noted
3.0	**Hazard Identification**	
3.1	The following potential hazards and the corresponding handling procedures were identified through interviews by BMT with the maintenance force: • Leakage of gasoline will be isolated from source by blocking the pipework • Leakage of lubricant oil will be of small amount and absorbed by absorbent pads for disposal • Possible spark from vehicle battery will be eliminated by cutting off cables before car examination • Cutting disc / hot tools, which may generate spark, will not be used	Noted

MINUTES OF MEETING (continuation sheet)

Meeting: HAZID Workshop – HKPF Vehicle Depot
Venue: Hong Kong Police Force Vehicle Pound, Hoi Tai Street, Quarry Bay
Date: 12 August 2014

Item	Proceedings	Action
3.2	There is no dangerous goods store in the vehicle pound as confirmed by HKPF.	Noted
3.3	There is no oil interceptor in the existing vehicle pound.	Noted
3.4	Same as petrol vehicles, batteries from electric powered / hybrid car will be isolated before conducting inspection to avoid sparks.	
4.0	**Conclusion**	
4.1	Discussion was carried out amongst the Project Team and BMT suggested few possible improvements for the future vehicle depot: • More signage to suggest a non-smoking practice within vehicle maintenance area • Standby fire extinguisher to be placed near vehicle maintenance area so fire could be put out immediately • Sufficient air ventilation should be provided to avoid vapour cloud formation within enclosed area	Noted
5.0	**Adjournment**	
5.1	The workshop was finished at 11:00 a.m.	Noted
6.0	**Post Meeting Notes**	
6.1	HAZID worksheet has been prepared as a record and enclosed with this minutes.	Noted

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	12-Aug-14
Project Reference Nos.:		**Venue:**	HKPF Vehicle Pound

HAZID Zone			**H.1**	**Fire**													**Ref. Document:**		
Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**		
H.1	Fire	Leakage of gasoline from damaged vehicles	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	3	A	M										Isolation from source by maintenance force Fire extinguisher	No smoking should be allowed near the vehicle maintenance area. Isolated area from Vehicle Examination Area in future design Drain with Oil-interceptor – to collect the dip of lube/fuel from vehicle to confine the spread of fuel in future design
H.2	Source of ignition	Spark producing vehicle and equipment	Fire hazards, personnel injury	1	A	L										No spark producing equipment is used. Car battery is isolated before carrying out inspection.	NA

Meeting: HAZID Workshop – HKPF Vehicle Depot

Venue: Hong Kong Police Force Vehicle Pound, Hoi Tai Street, Quarry Bay

Date: 12 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	12-Aug-14
Project Reference Nos.:		**Venue:**	HKPF Vehicle Pound
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	P			E			A			R			Existing Safeguard	Recommendation
				S	P	RR	S	P	RR	S	P	RR	S	P	RR		
H.3	Storage	Improper Storage and handling of flammables and combustibles	Fire hazards, personnel injury	1	A	L										There is no chemical storage in the vehicle pound	NA
H.4	Car crash	Car crash due to brake fail during brake test	Personnel injury	2	A	L										Crash barrier Entry restriction to concern area	NA
H.5	Fire	Fire at oil interceptor and drains	Fire hazards, personnel injury	3	A	M										Not available	Explosion proof equipment in the oil interceptor zone Sufficient ventilation to avoid accumulation of

Meeting: HAZID Workshop – HKPF Vehicle Depot

Venue: Hong Kong Police Force Vehicle Pound, Hoi Tai Street, Quarry Bay

Date: 12 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	12-Aug-14
Project Reference Nos.:		**Venue:**	HKPF Vehicle Pound
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**		
																	volatile compound Prohibit smoking in oil interceptor zone

Note: Assets, Environment and Reputation are not applicable

QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact		MEDIUM RISK		
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact				
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact			HIGH RISK	
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact				

25 August 2014
Our Ref: 9125

Meeting: HAZID Workshop – HKPF Vehicle Depot

Venue: EMSD Vehicle Depot, Sheung On Street, Chai Wan
Date: 25 August, 2014
Time: 9:30 a.m.

Prepared by Gary Chow
Direct Tel: (852) 2241 9865
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Status Revision 0

Present Chester Chan (ArchSD)
Ko Chun Kit (HKPF)
Wong Kai Chung (EMSD)
Yung Yin Hing, Ricky (EMSD)
T.K. Ho (AEC)
Viann Lau (AEC)
Michael Lee (BMT)
Gary Chow (BMT)

Item	Proceedings	Action
1.0	**Introduction**	
1.1	Michael briefly introduced the background the Project and the approach of the workshop. He explained to the Project Team that the purpose of the workshop was to understand the normal operation of the existing EMSD vehicle depot and identify potential hazards which could induce off-site risks.	Noted
1.2	T.K.added that a Hazard to Life Assessment is required for the Project since the location of the proposed building is in the vicinity of oil terminal and petrol cum LPG filling stations.	Noted
1.3	Ricky presented to the Project team that the routine activities of the existing depot involved mechanical repairing and general maintenance of government vehicles. He said the depot had been operating for about 3 months and currently serves around 700 vehicles per month. There would be no LPG and electrical vehicles repaired in the depot due to site constraints.	Noted
1.4	Ricky further described that waste oil, lubricating oil, refrigerants and vehicle batteries were being stored in the depot	Noted
1.5	Ricky responded to T.K. that an oil interceptor was installed to collect fugitive oil flowing into storm drains inside the depot.	Noted
2.0	**Site Walk**	
2.1	Ricky led a site walk and introduced the function at different area of the vehicle depot.	Noted

MINUTES OF MEETING

(continuation sheet)

Meeting: HAZID Workshop – EMSD Vehicle Depot
Venue: EMSD Vehicle Depot, Sheung On Street, Chai Wan
Date: 25 August 2014

Item	Proceedings	Action
2.2	The Project Team visited the vehicle maintenance area, air compressor room, waste oil and lubricant oil storage area, vehicle battery storage area and the location of the oil interceptor.	Noted
2.3	The oil interceptor was scheduled to be cleaned up by sub-contractor after a year of operation.	Noted
2.4	No smoking was allowed within the depot.	Noted
3.0	**Hazard Identification**	
3.1	The following potential hazards and the corresponding handling procedures were identified through site walk and interview with EMSD staff: • drained lubricating oil from repairing vehicles was collected by drip container and later transferred to designated waste oil storage room; • leakage of lubricant oil will be of small amount and absorbed by absorbent pads for disposal; • any spilled oil would be cleaned up by spilling tool kit. And there were standard procedures for the maintenance team to remove spilled oil; • possible fire from vehicle battery will be eliminated by removing/ disconnect the vehicle battery before car maintenance; • fire from oil interceptor was very unlikely due to lack of ignition sources within the depot; and • accumulation of combustible vapour cloud within the storage room would be of very low chance as there was no storage of volatile chemical compound and sufficient ventilation was provided.	Noted
3.2	There was no hot work and welding works in the depot.	Noted
3.3	Maintenance of fire service provisions at the depot follow statutory regulations.	Noted
3.4	Ricky commended there was no known fire incident happened in the existing depot or similar depot with similar functions.	Noted
4.0	**Conclusion**	
4.1	Michael concludes the workshop with the Project Team. Based on the current operational activities, the Project Team agreed the vehicle depot would not cause off-site risk	Noted
5.0	**Adjournment**	
5.1	The workshop was finished at 10:30 a.m.	Noted
6.0	**Post Meeting Notes**	
6.1	HAZID worksheet has been prepared and enclosed as a record.	Noted

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	25-Aug-14
Project Reference Nos.:		**Venue:**	EMSD Vehicle Depot

HAZID Zone	**H.1**	**Fire**	**Ref. Document:**	

Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**		
H.1	Fire	Leakage of gasoline or lubricating oil from vehicles	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	2	A	L										Isolation from source by staff Drip container to collect lubricating oil Spilled oil removed by spillage toolkit Fire extinguisher	No smoking should be allowed near the vehicle maintenance area. Isolated area from vehicle repairing area in future design Oil-interceptor to collect the dip of lube/fuel from vehicle to confine the spread of fuel in future design
H.2	Source of ignition	Spark producing equipment and heat source	Fire hazards, personnel injury	1	A	L										No hot works and welding works within the depot. Vehicle battery is isolated before carrying out inspection.	NA

Meeting: HAZID Workshop – EMSD Vehicle Depot

Venue: EMSD Vehicle Depot, Sheung On Street, Chai Wan

Date: 25 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	25-Aug-14
Project Reference Nos.:		**Venue:**	EMSD Vehicle Depot
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	P			E			A			R			Existing Safeguard	Recommendation
				S	P	RR	S	P	RR	S	P	RR	S	P	RR		
H.3	Storage	Improper storage of flammables and combustibles	Fire hazards, personnel injury	1	A	L										Sufficient air ventilation is provided at the storage room	NA
H.4	Fire	Fire at oil interceptor and drains	Fire hazards, personnel injury	2	A	L										No smoking, hot works and welding within the depot Oil in the interceptor to be cleaned up in a regular interval Oil interceptor in an open area	Explosion proof equipment in the oil interceptor zone Sufficient ventilation to avoid accumulation of volatile compound Prohibit smoking in oil interceptor zone

Meeting: HAZID Workshop – EMSD Vehicle Depot

Venue: EMSD Vehicle Depot, Sheung On Street, Chai Wan

Date: 25 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	25-Aug-14
Project Reference Nos.:		**Venue:**	EMSD Vehicle Depot
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	P			E			A			R			Existing Safeguard	Recommendation
				S	P	RR	S	P	RR	S	P	RR	S	P	RR		
H.5	Fire	Spillage of waste oil during transfer to storage room	Fire hazards, personnel injury	1	A	L										Transfer to waste oil drum with the aid of trolley Spillage toolkit	NA
H.6	Fire	Overheating of compressors and ignition of oil vapour	Fire hazards, personnel injury	3	B	M										Air compressors installed in a separated room from vehicle maintenance area Sufficient air ventilation is provided in the air compressor room	Regular inspection of performance of air compressors

Note: Assets, Environment and Reputation are not applicable

QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact		MEDIUM RISK		
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact				
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact			HIGH RISK	
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact				

BMT Asia Pacific

HAZID Workshop

27 August 2014
Our Ref: 9125

Meeting: HAZID Workshop – Government Laboratory

Venue: Government Laboratory, 7/F, Ho Man Tin Government Offices
Date: 26 August, 2014
Time: 2:30 p.m.

Prepared by Gary Chow
Direct Tel: (852) 2241 9865
Email: gac@bmtasia.com.hk

Status Revision 0

Present Chester Chan (ArchSD)
Ko Chun Kit (HKPF)
Tang Po On (GL)
Viann Lau (AEC)
Michael Lee (BMT)
Gary Chow (BMT)

Item	Proceedings	Action
1.0	**Introduction**	
1.1	Michael explained to the Project Team that the purpose of the workshop was to understand the normal operation of the existing Government Laboratory and identify potential hazards which could induce off-site risks.	Noted
1.2	Michael briefed to the Project Team on the rundown of workshop and the technique of HAZID.	Noted
1.3	The Representative of the Government Laboratory (GL), Mr. Tang, introduced the main purpose of GL at the proposed site was to provide chemical testing service for other government departments. The testing handled including environmental, food, medical / Chinese Medicine and commercial products.	Noted
1.4	The chemical tests in the GL mainly involved wet chemistry (sample preparation, digestion, solvent extraction) and analytical chemistry using (GC, LC, IC & ICP), as further explained by Mr. Tang	Noted
2.0	**Site Walk**	
2.1	Mr. Tang led a site walk in the laboratory and introduced the function of different sections, which included acid digestion and trace organics etc.	Noted
2.2	Compressed gas cylinders such as helium and hydrogen were stored in cupboards that equipped with flow regulators. Gas cylinders were normally stored in pairs, one for duty and one for standby. The flowrate of gases were normally in ml/min. Hydrogen and nitrogen generators were also used in analytical equipment. Those generators are equipped with gas detector and auto-shutoff device to	Noted

MINUTES OF MEETING (continuation sheet)

Meeting: HAZID Workshop – Government Laboratory
Venue: Government Laboratory, 7F, Ho Man Tin Governmental Offices
Date: 26 August 2014

Item	Proceedings	Action
	prevent leakage in abnormal conditions.	
2.3	All extracted gas from the fumehood within the laboratory was treated with activated carbon and scrubber before release to open air. The performance of activated carbon and scrubber were monitoring of emission concentration from the exhaust gas according to ISO9000/ISO14000 management system.	Noted
2.4	Chemical wastes were stored in drums under fumehood and collected by licenced sub-contractor every week.	Noted
2.5	The Project team visited the Dangerous Goods store in the basement of the building.	Noted
3.0	**Hazard Identification**	
3.1	The following potential hazards were discussed in the workshop: • Heating plates were used in the laboratory, open flame was not used. • No toxic chemicals with acute fatality effect were handled by the laboratory. • There were standard procedures in the laboratory to handle chemical spillage. The Laboratory Safety Officer would take part in the coordination of spillage handling. The spilled chemicals would be cleaned up by absorption mats and disposed of as chemical waste. • In case of electricity failure, fumehood operation would be maintained by emergency power. • Chemicals discharged through drains would be very unlikely according to the standard procedures to handle chemical waste and there were regular monitoring of discharge from drains. • Flammable material storage room in the DG store is bunded. Any spillage would be contained within the storage room. • Sparks within the DG store was eliminated by the installation of explosion proof equipment. • The compressed gas cylinder is equipped with protection cap and regular inspection.	Noted
3.2	Mr. Tang did not know any occurrence of fire within the Government Laboratory before and did not recall any incidents in the Government Laboratory that had caused fatality to off-site population.	Noted
3.3	There had not been incident with injuries involving spillage during transportation of chemical in the Government Laboratory as commented by Mr. Tang.	Noted
3.4	Drills on fire and chemical spillage are carried out in the regular interval to increase the safety awareness amongst staff according to ISO9000 management system.	Noted
3.5	Accident in the Government Laboratory usually involved broken glass and general office injuries only.	Noted

MINUTES OF MEETING

(continuation sheet)

Meeting: HAZID Workshop – Government Laboratory

Venue: Government Laboratory, 7F, Ho Man Tin Governmental Offices

Date: 26 August 2014

Item	Proceedings	Action
3.6	Unloading of chemical containers and gas cylinders were carried out within the basement that off-site population was not affected. Design of unloading bay of future government complex should follow similar approach.	ArchSD
4.0	**Conclusion**	
4.1	Michael concluded the meeting by summarizing the findings in the HAZID workshop. The Project Team agreed the operation of the Government Laboratory would not cause off-site risk.	Noted
5.0	**Adjournment**	
5.1	The workshop was finished at 4:00 p.m.	Noted
6.0	**Post Meeting Notes**	
6.1	HAZID worksheet has been prepared as a record and enclosed with this meeting minutes.	Noted

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	Government Laboratory

HAZID Zone			**H.1**	**Fire**												**Ref. Document:**			
Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**		
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**				
H.1	Fire	Chemical solvent catch fire due to overheating	Fire hazards, personnel injury Limited risk to on-site population as indoor in the future depot.	2	A	L										Well trained / staff Fire extinguishers, fire sprinklers and smoke detectors	NA		
H.2	Fugitive emission	Release of toxic gas through air extraction system to the public	Toxic hazards, personal injury	1	A	L	1	A	L							Exhaust gas from fume cupboard is treated with activated carbon and scrubber before discharge No highly toxic chemical (e.g. chlorine gas) is handled in the Government Laboratory Exhaust gas emission	NA		

Meeting: HAZID Workshop – Government Laboratory
Venue: Government Laboratory, 7F, Ho Man Tin Governmental Offices
Date: 26 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	Government Laboratory

HAZID Zone			**H.1**	**Fire**												**Ref. Document:**	
Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**		
																rate is monitored continuously	
H.3	Source of ignition	Spark producing equipment	Fire hazards, personnel injury	2	A	L										Explosion proof equipment in DG store	NA

Meeting: HAZID Workshop – Government Laboratory
Venue: Government Laboratory, 7F, Ho Man Tin Governmental Offices
Date: 26 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	Government Laboratory
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	**Guidewords / Hazards**	**Causes / Activities**	**Threats and Consequences**	**P**			**E**			**A**			**R**			**Existing Safeguard**	**Recommendation**
				S	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**	**S**	**P**	**RR**		
H4.	Fire	Spilled chemical catches fire	Fire hazards, personnel injury	2	A	L										Lack of ignition source in the laboratory Chemical spills removed by absorption mat	NA
H.5	Storage	Improper storage and handling of flammables	Fire hazards, personnel injury	2	A	L										Spillage contained within bunded storage room Supervised by safety officer	Adequate ventilation system should be considered for further DG store to avoid accumulation of flammable vapor
H.6	Fire	Flammable substances discharged to public mains through	Fire hazards, personnel injury, Water Contamination	1	A	L	1	A	L							Any unwanted chemicals are stored in chemical waste drums	NA

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	Government Laboratory
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	P			E			A			R			Existing Safeguard	Recommendation
				S	P	RR	S	P	RR	S	P	RR	S	P	RR		
		sinks/drains and catch fire														Discharge through drains are monitored regularly Lack of ignition source	
H.7	Emergency	Ignition of volatile vapour due to fume cupboard failure	Fire hazards, personnel injury Limited risk to on-site population only in the future depot.	1	A	L										Emergency power available Lack of ignition source	NA
H.8	Chemical container	Rupture of compressed gas cylinders and damaged chemical containers	Cause of fire, personnel injury	2	A	L										Gas containers are regularly inspected by licensed contractor. Emergency toolkit to handle chemical	Loading and unloading are carried out within the premises

Meeting: HAZID Workshop – Government Laboratory **Venue:** Government Laboratory, 7F, Ho Man Tin Governmental Offices

Date: 26 August 2014

Hazards Identification (HAZID)

Project Name:	Chai Wan Government Complex and Vehicle Depot	**Date:**	26-Aug-14
Project Reference Nos.:		**Venue:**	Government Laboratory
HAZID Zone	**H.1**	**Fire**	**Ref. Document:**

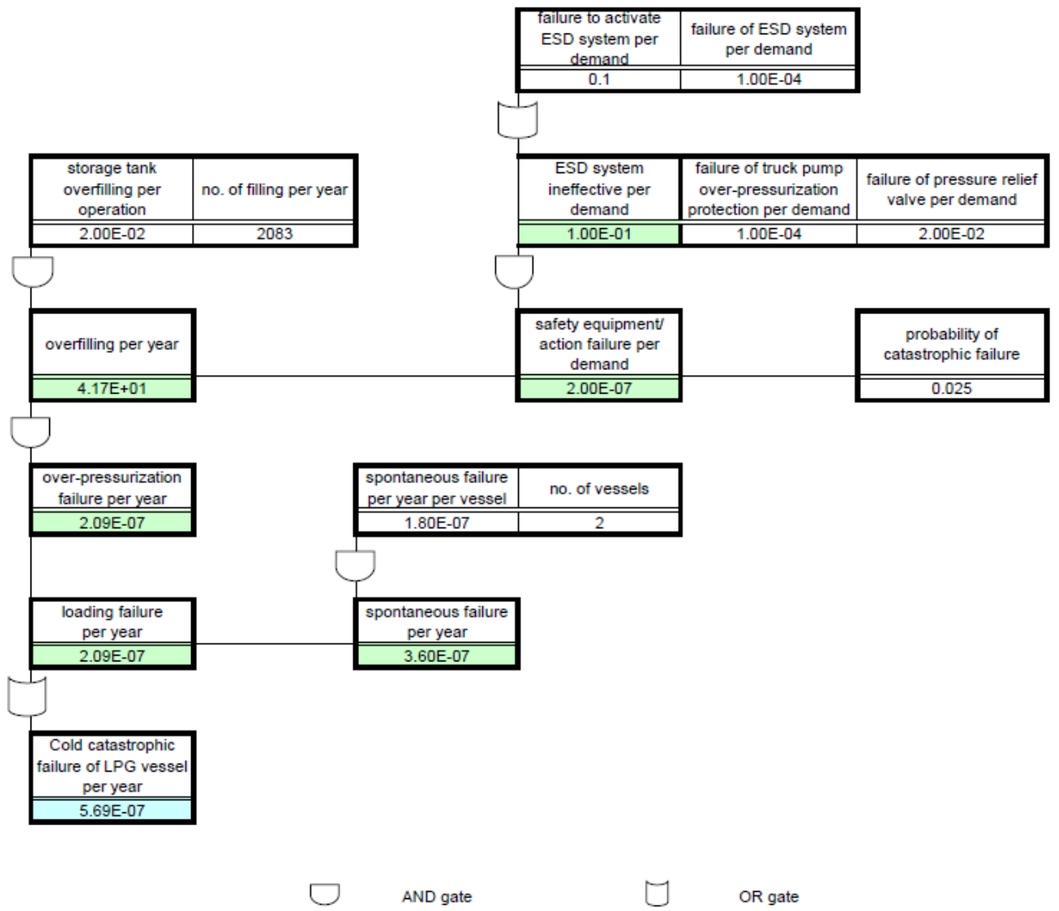
Sr. No.	Guidewords / Hazards	Causes / Activities	Threats and Consequences	P			E			A			R			Existing Safeguard	Recommendation
				S	P	RR	S	P	RR	S	P	RR	S	P	RR		
																spillage. Drills to prepare for emergency situations. Smoking is prohibited in DG store. DG store with explosion proof equipment. Ignition is very unlikely.	

Note: Assets, Environment and Reputation are not applicable

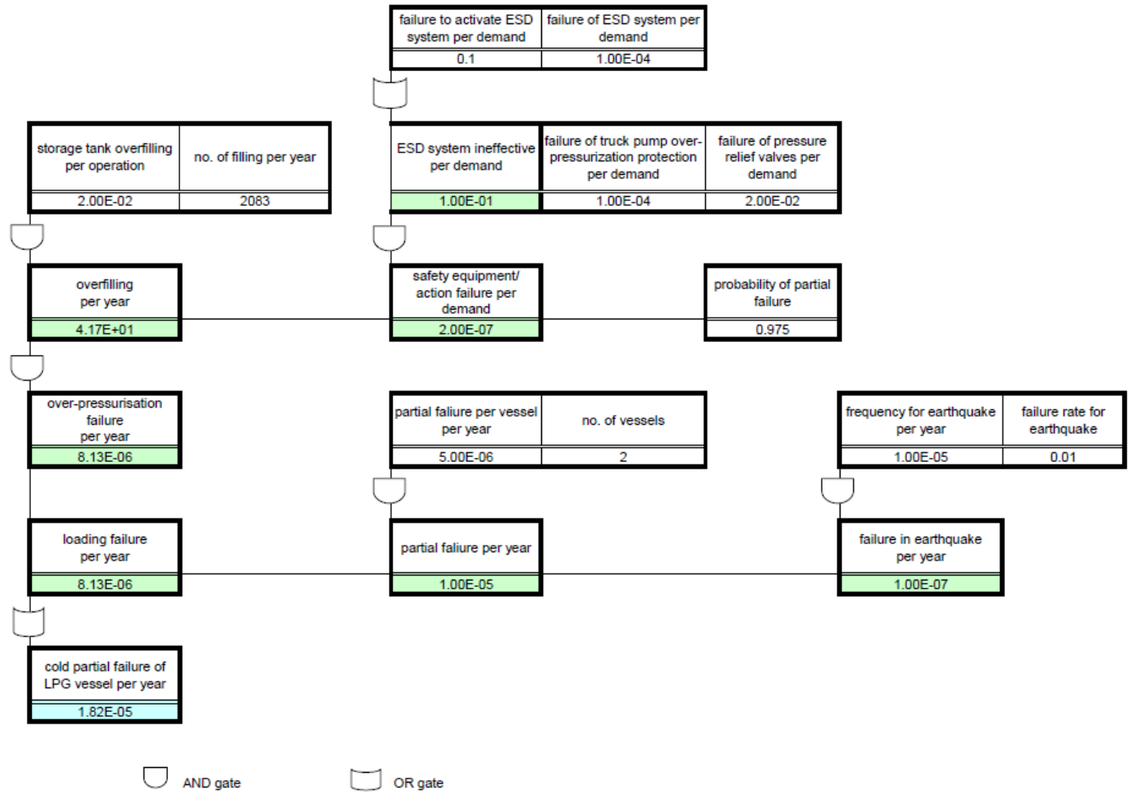
QUALITATIVE RISK ASSESSMENT MATRIX (RAM)									
CONSEQUENCES						Probability (P)			
						A	B	C	D
Severity		People	Assets	Environment	Reputation	Team does not know of any occurance in industry	Has occurred in the industry	Has occurred within the operating company	Happens several time per year in operating company
1	Negligible	Slight injury or health effects	Slight damage	Slight effect	Slight impact	LOW RISK			
2	Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact		MEDIUM RISK		
3	Critical	Major injury or health effects	Local damage	Localized effect	Considerable impact				
4	Severe	Single fatality or permanent disability	Major damage	Major effect	National impact				
5	Catastrophic	Multiple fatalities	Extensive damage	Massive effect	International impact		HIGH RISK		

Appendix 10.4

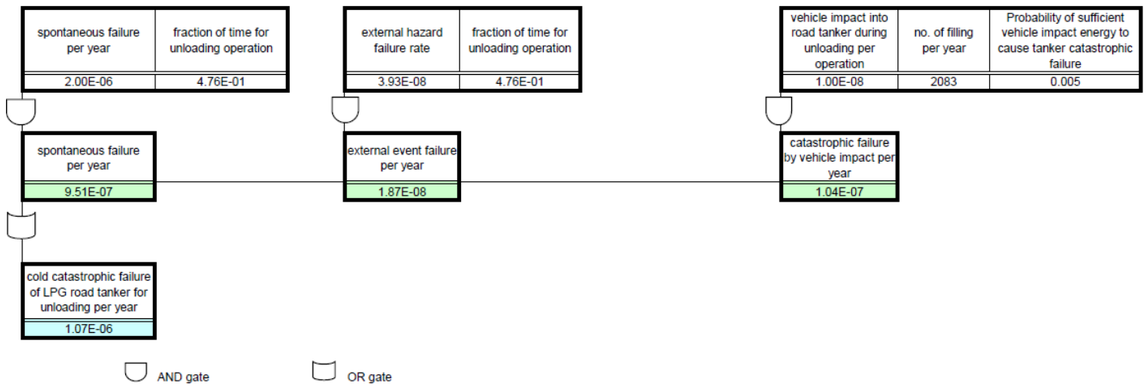
Fault Trees for ExxonMobil Petrol cum LPG Filling Stations



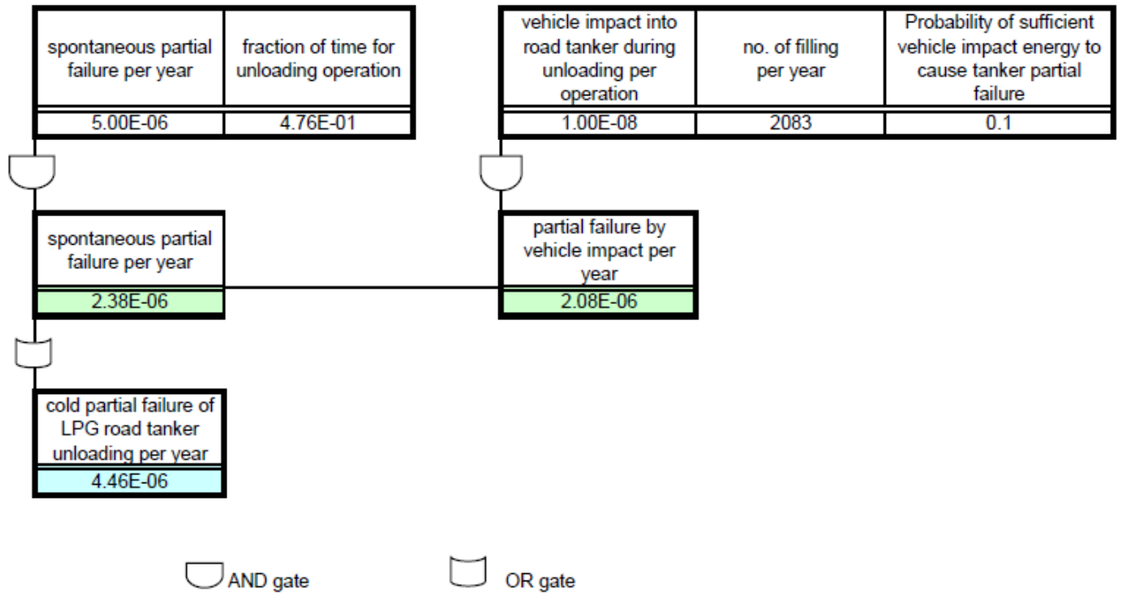
Cold Catastrophic Failure of LPG Vessel (ExxonMobil Petrol cum LPG Filling Station)



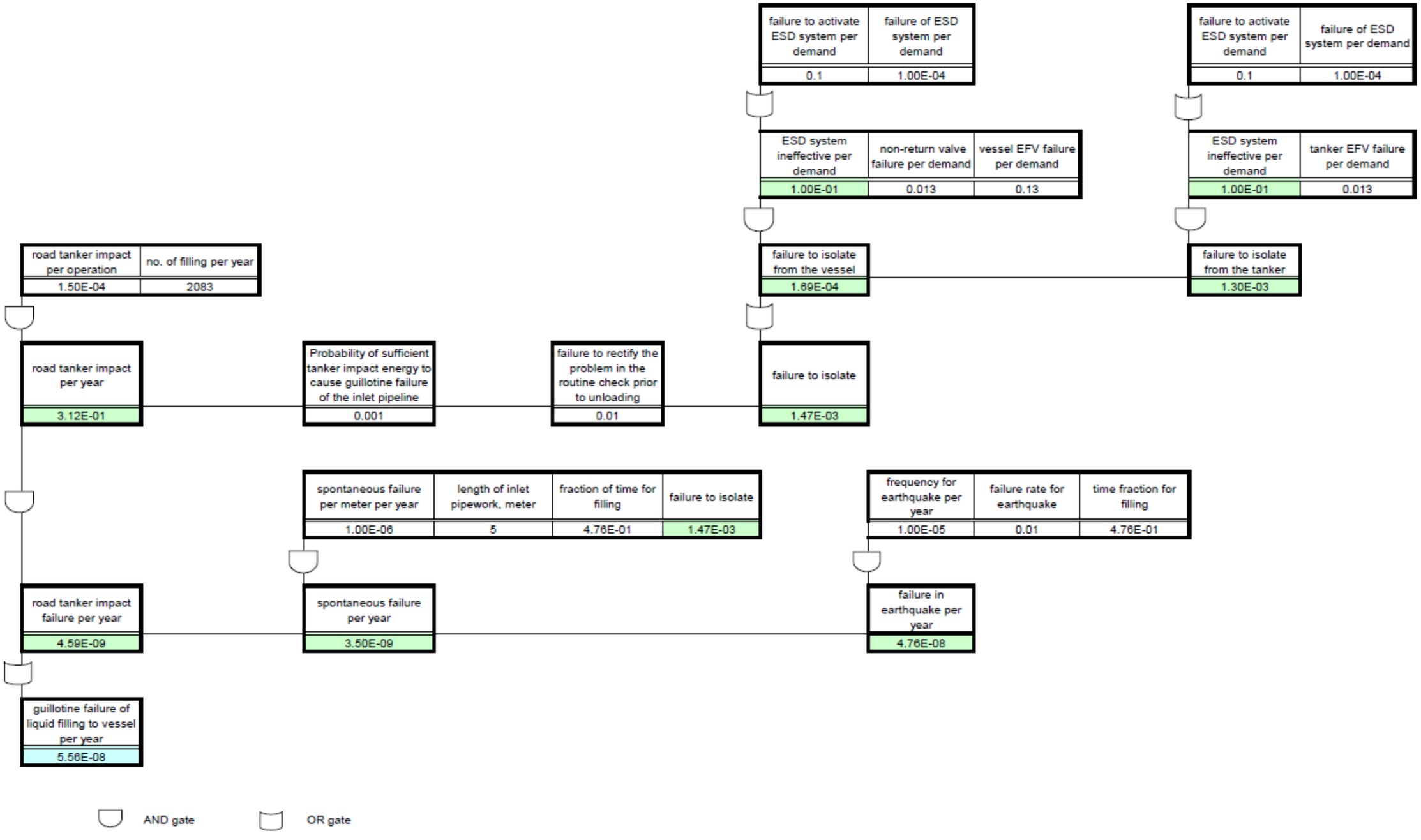
Partial Failure of LPG Vessel (ExxonMobil Petrol cum LPG Filling Station)



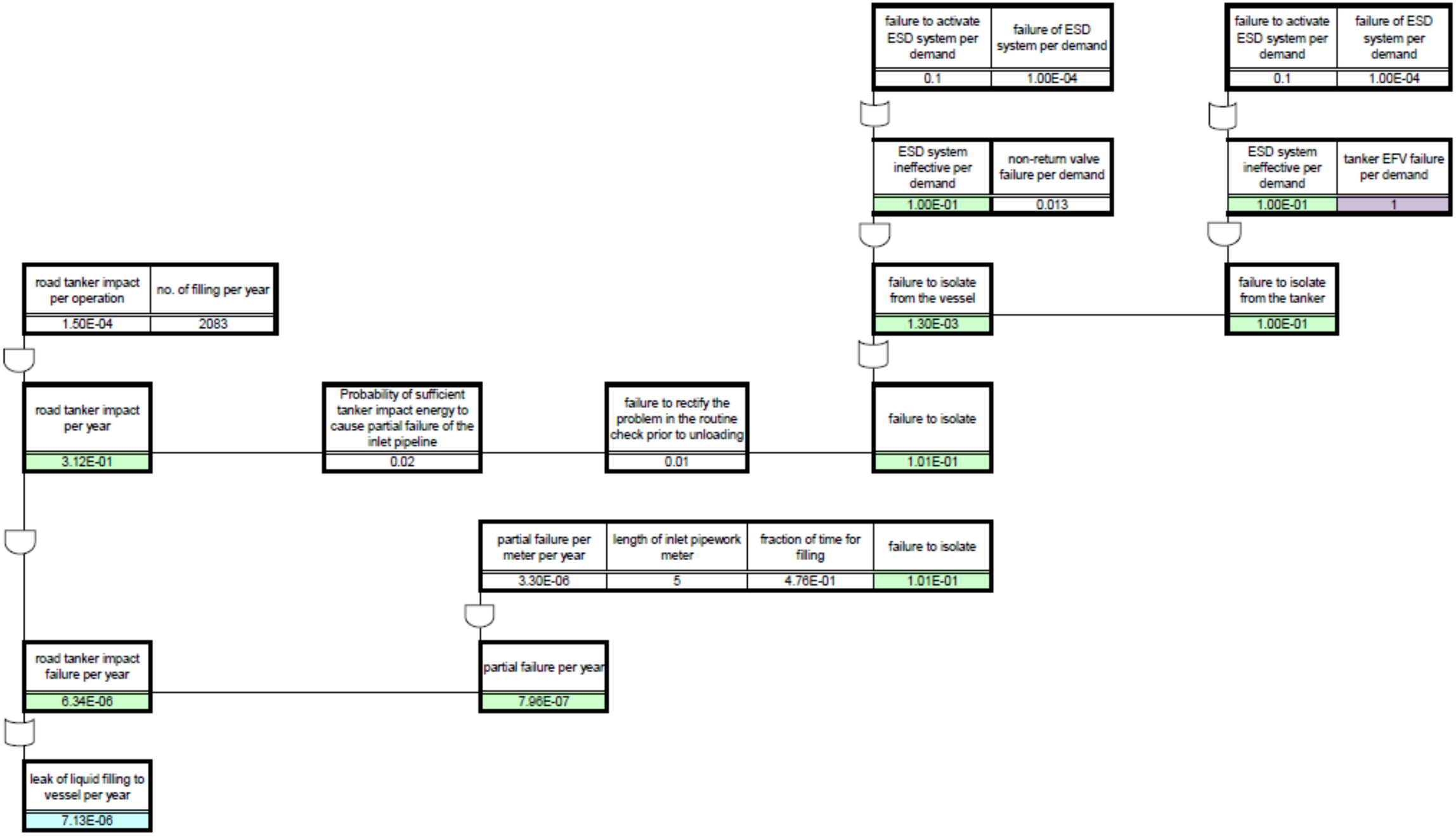
Cold Catastrophic failure of Road Tanker (ExxonMobil Petrol cum LPG Filling Station)



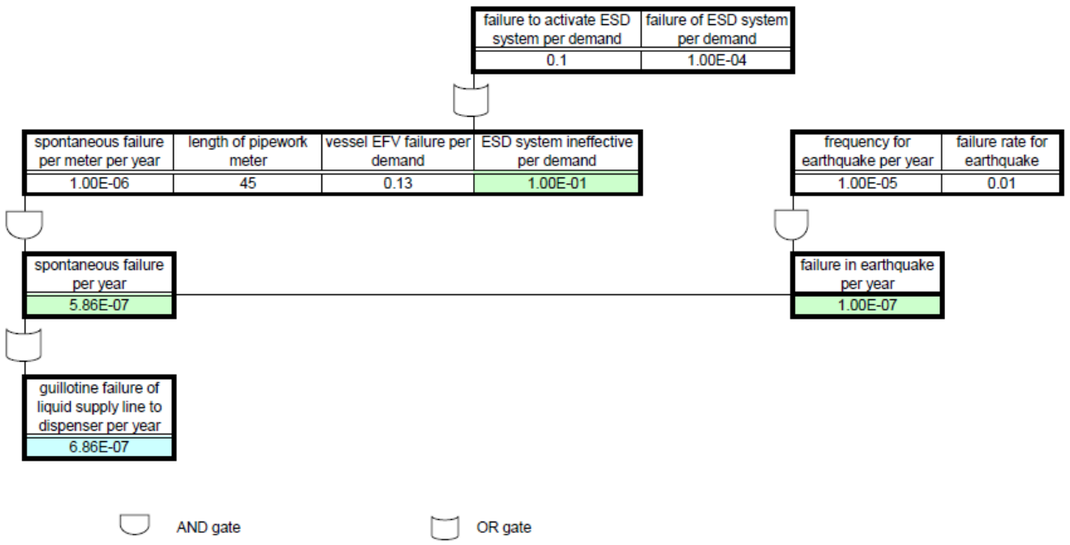
Partial failure of Road Tanker (ExxonMobil Petrol cum LPG Filling Station)



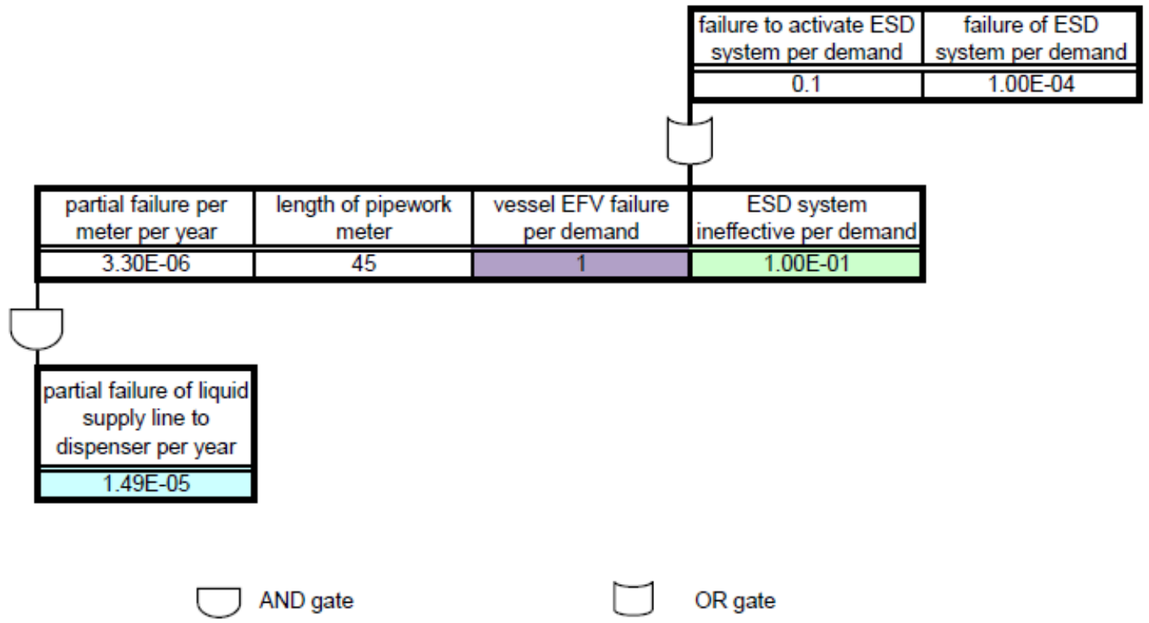
Guillotine failure of Inlet Pipeline (ExxonMobil Petrol cum LPG Filling Station)



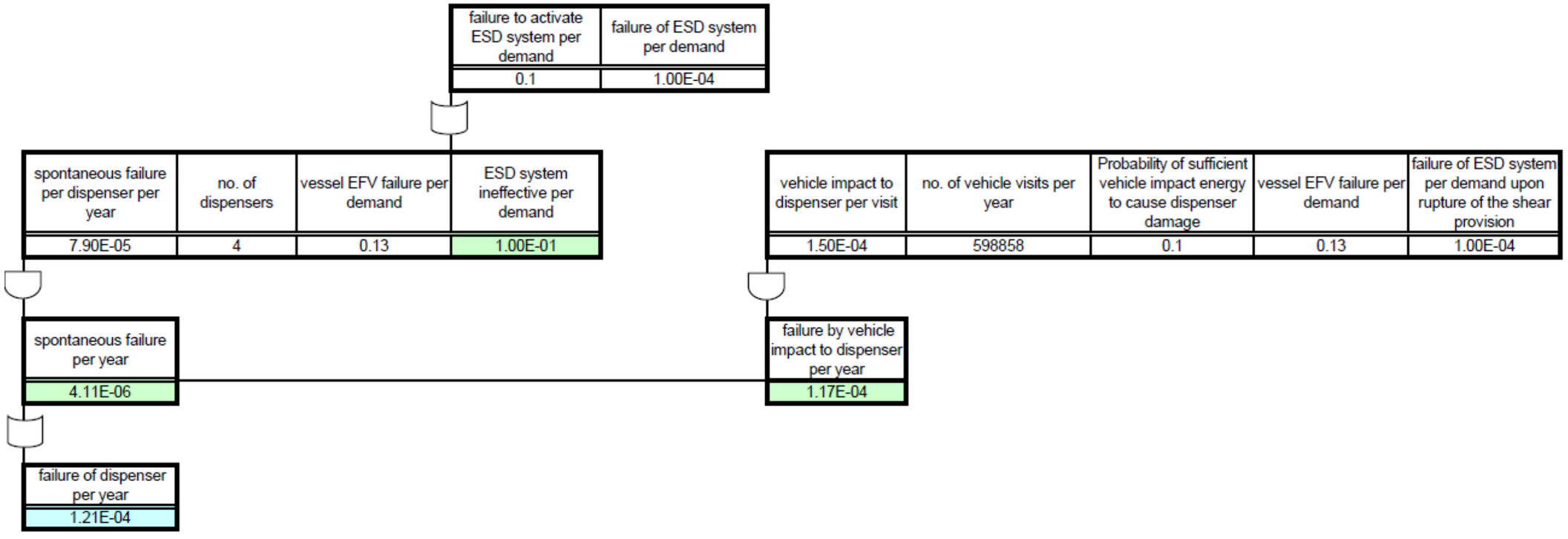
Partial failure of Inlet Pipeline (ExxonMobil Petrol cum LPG Filling Station)



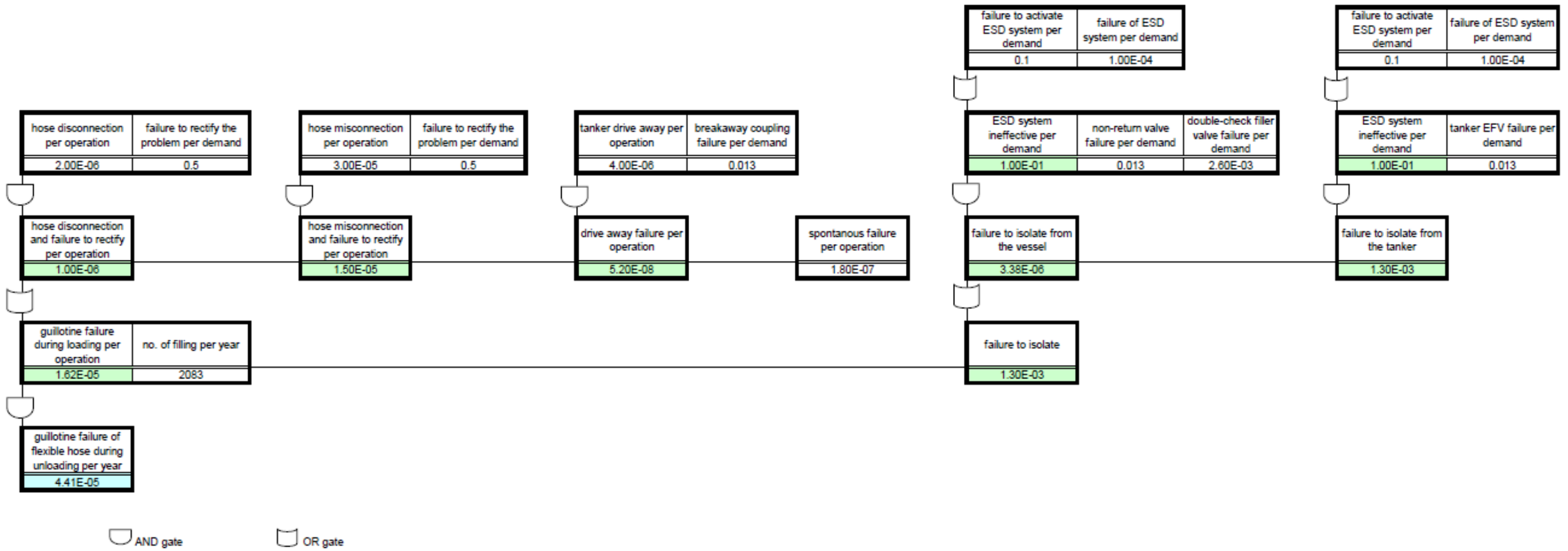
Guillotine failure of the Liquid Supply Pipeline to the Dispenser (ExxonMobil Petrol cum LPG Filling Station)



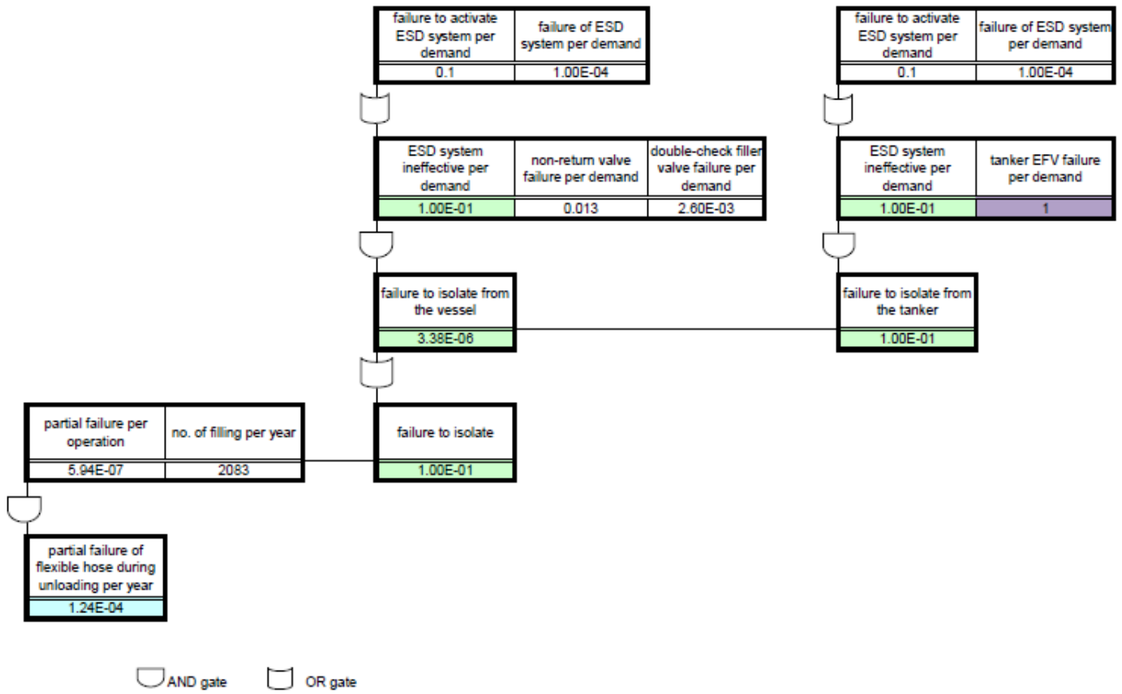
Partial failure of the Liquid Supply Pipeline to the Dispenser (ExxonMobil Petrol cum LPG Filling Station)



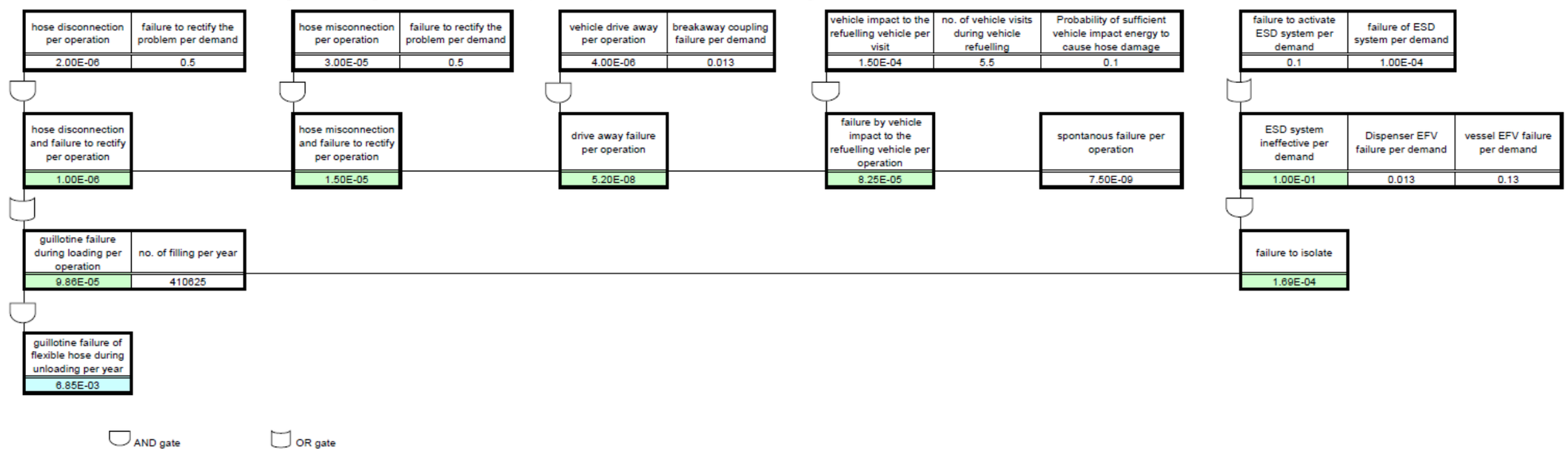
Failure of the Dispenser (ExxonMobil Petrol cum LPG Filling Station)



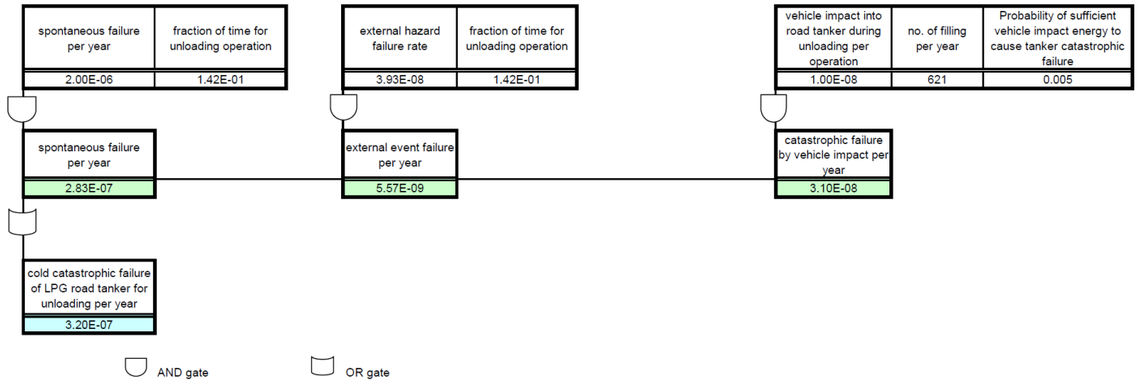
Guillotine failure of Flexible Hose during Unloading to the LPG vessel (ExxonMobil Petrol cum LPG Filling Station)



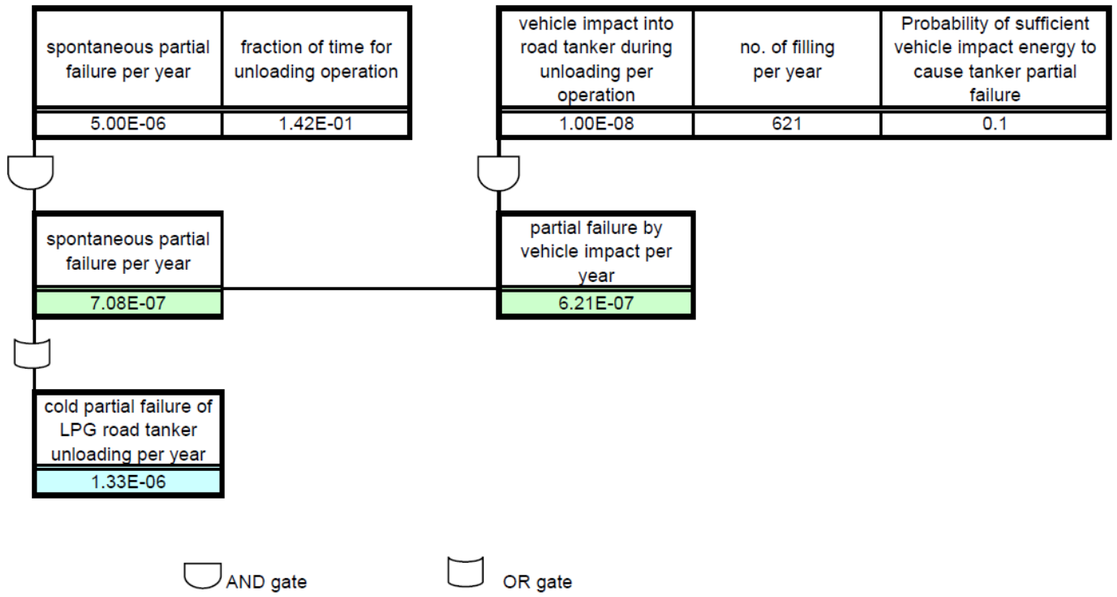
Partial failure of Flexible Hose during Unloading to the LPG vessel (ExxonMobil Petrol cum LPG Filling Station)



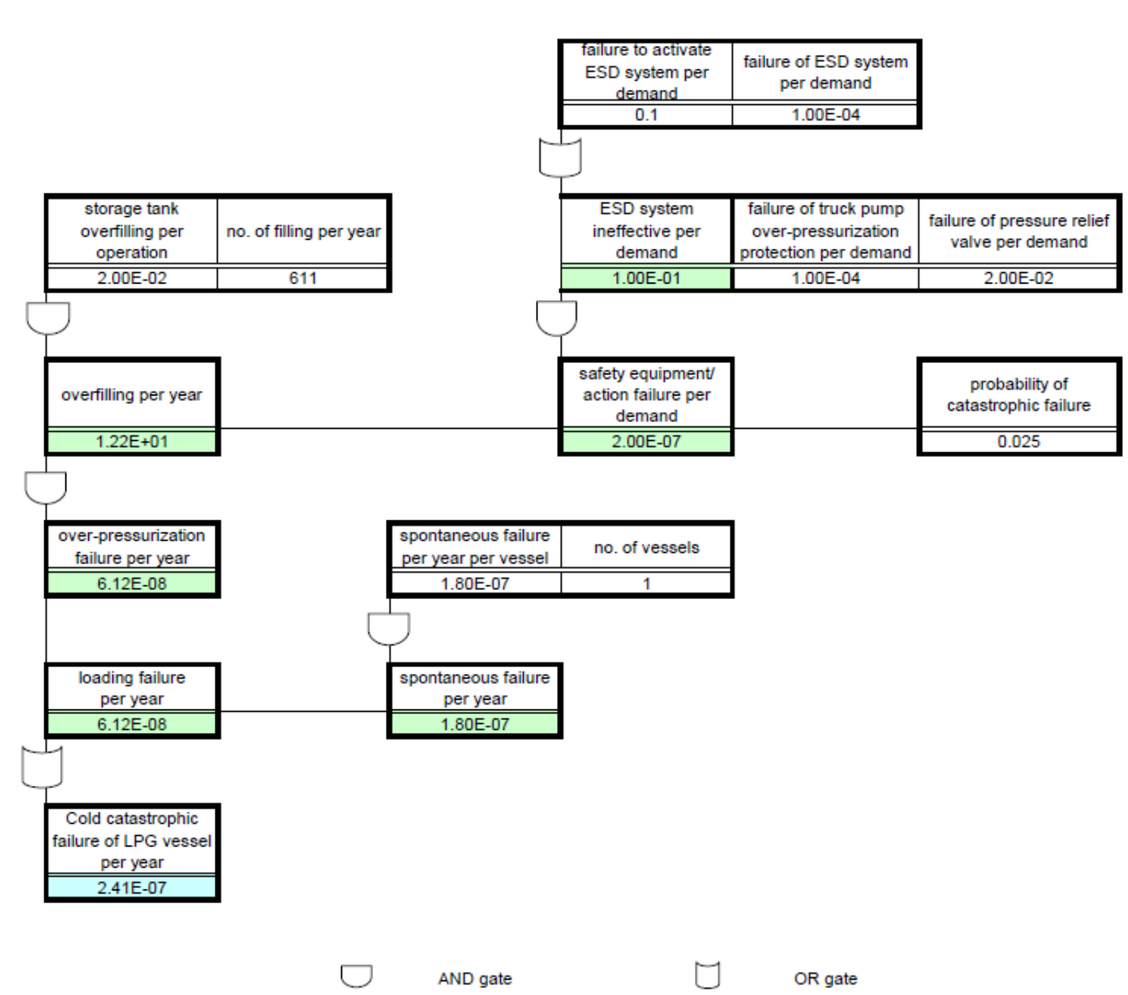
Guillotine failure of Flexible Hose during Filling to the LPG Vehicle (ExxonMobil Petrol cum LPG Filling Station)



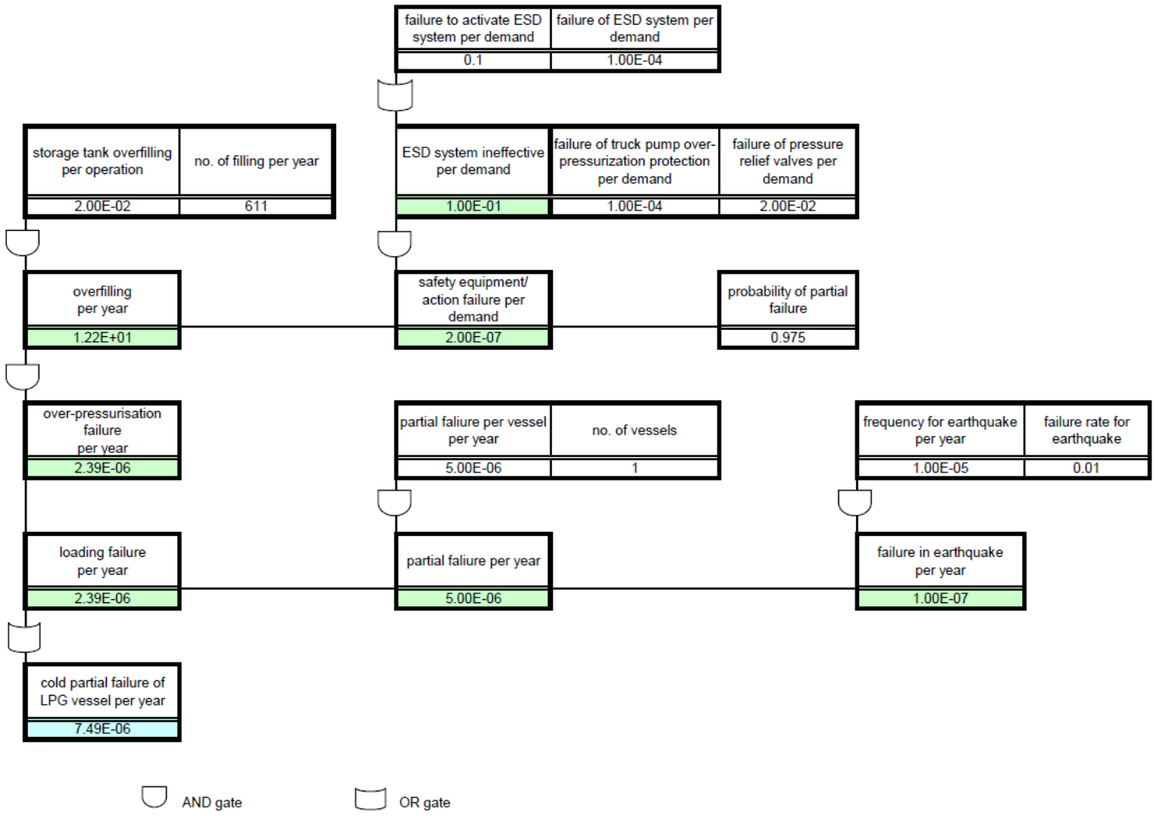
Cold Catastrophic failure of Petrol Road Tanker (ExxonMobil Petrol cum LPG Filling Station)



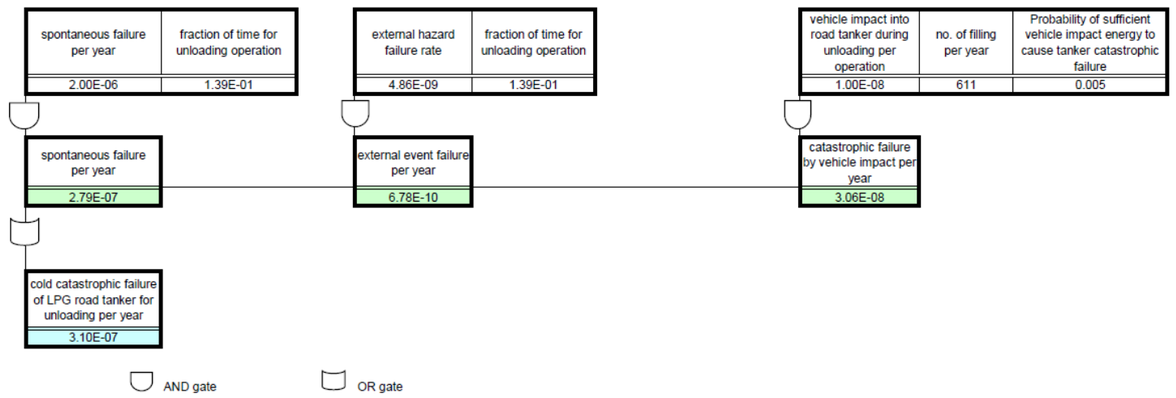
Partial failure of Petrol Road Tanker (ExxonMobil Petrol cum LPG Filling Station)



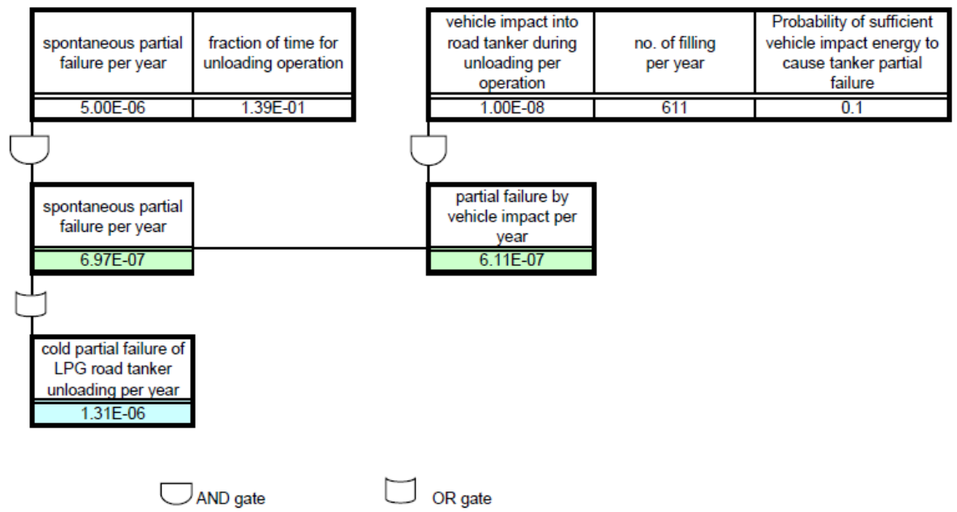
Cold Catastrophic Failure of LPG Vessel (Sinopec Petrol cum LPG Filling Station)



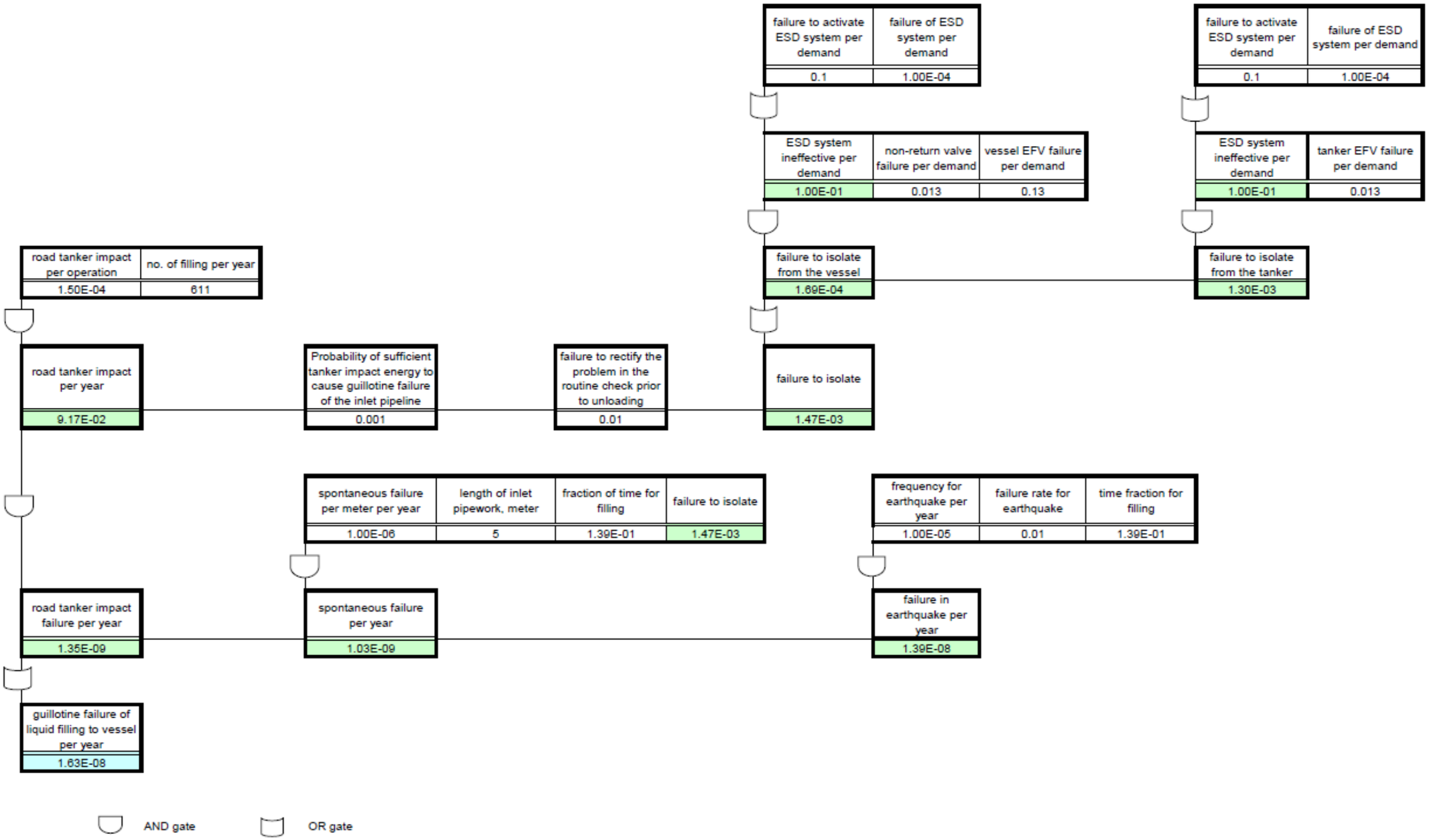
Partial Failure of LPG Vessel (Sinopec Petrol cum LPG Filling Station)



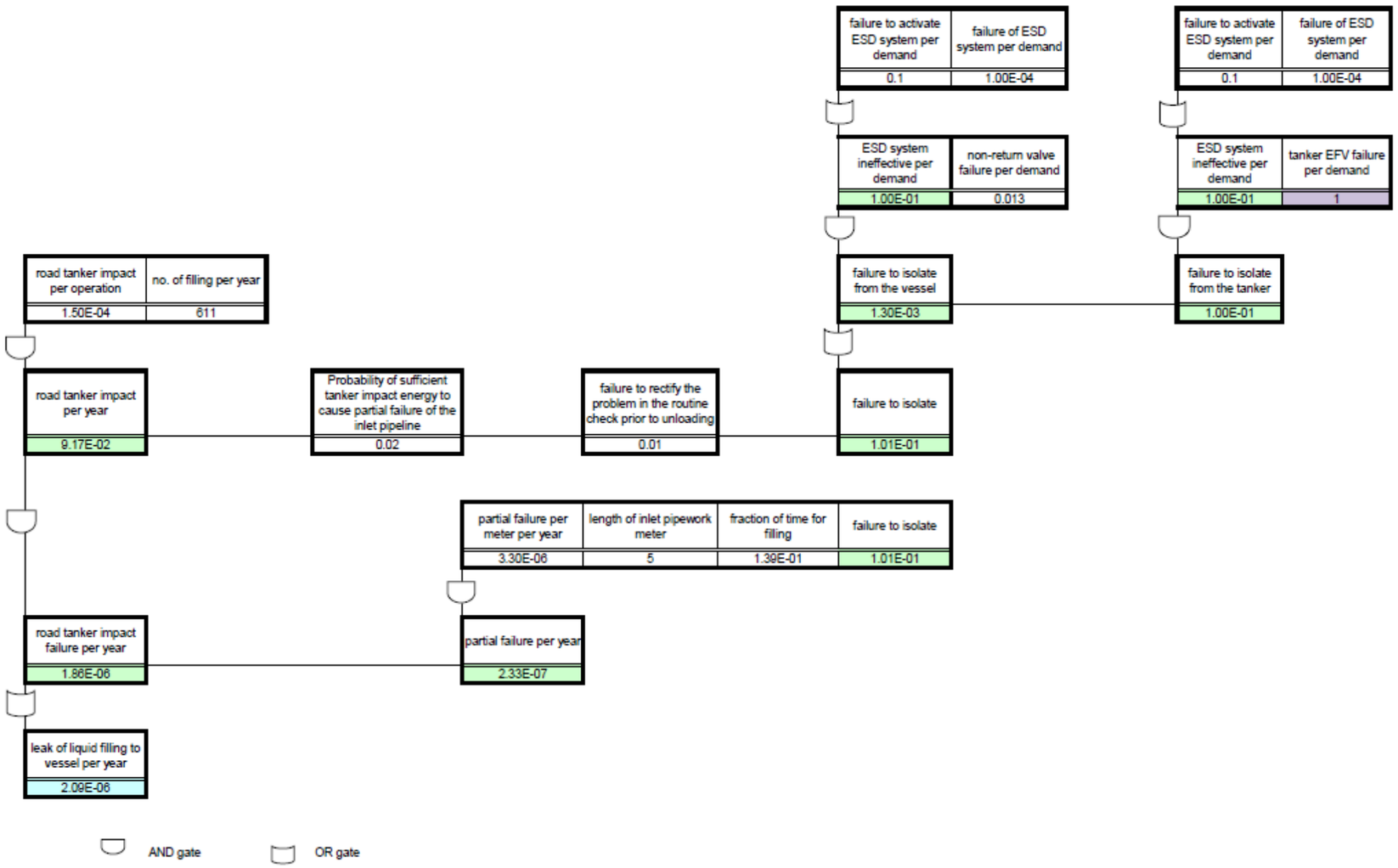
Cold Catastrophic failure of Road Tanker (Sinopec Petrol cum LPG Filling Station)



Partial failure of Road Tanker (Sinopec Petrol cum LPG Filling Station)

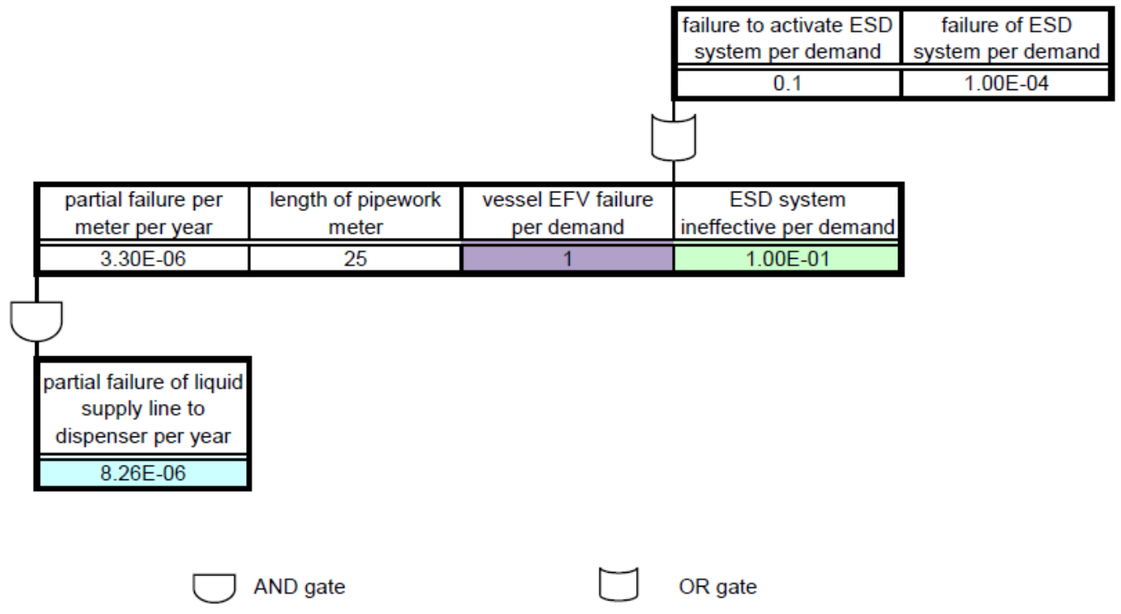


Guillotine failure of Inlet Pipeline (Sinopec Petrol cum LPG Filling Station)

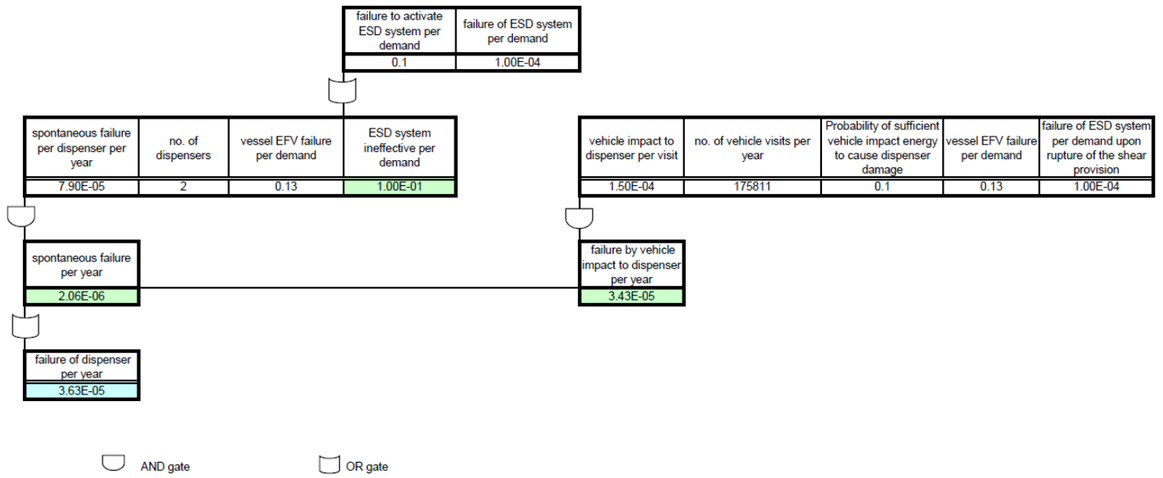


Partial failure of Inlet Pipeline (Sinopec Petrol cum LPG Filling Station)

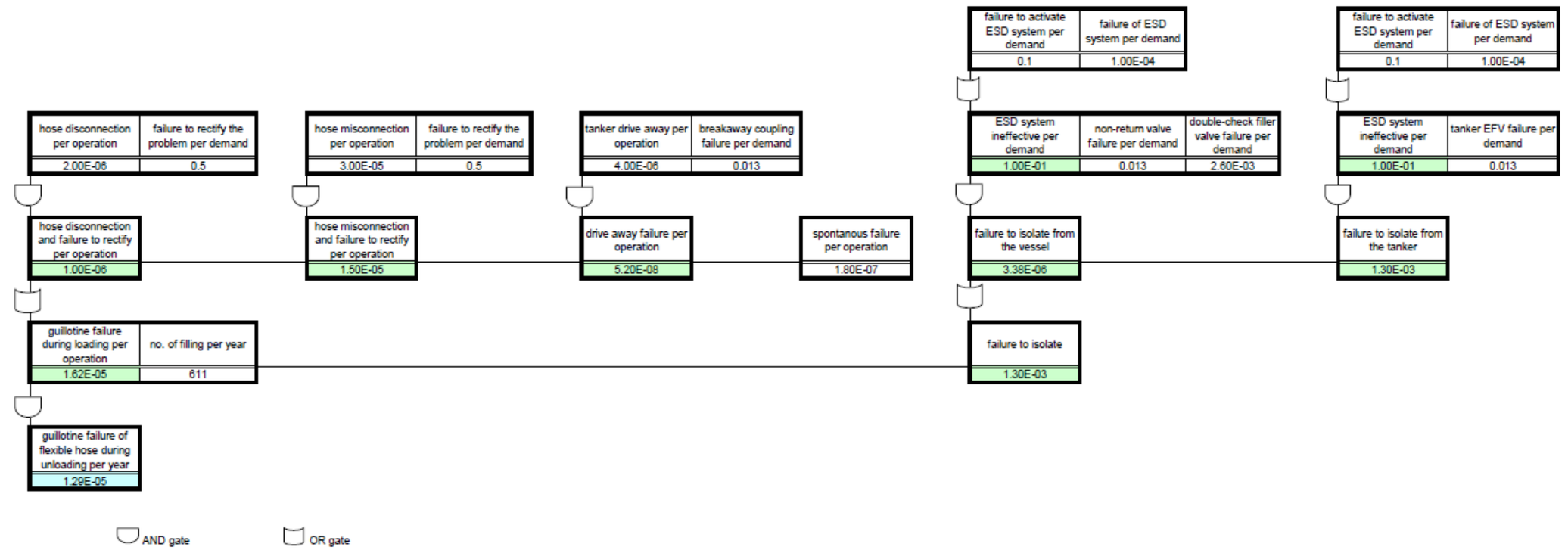
Guillotine failure of the Liquid Supply Pipeline to the Dispenser (Sinopec Petrol cum LPG Filling Station)



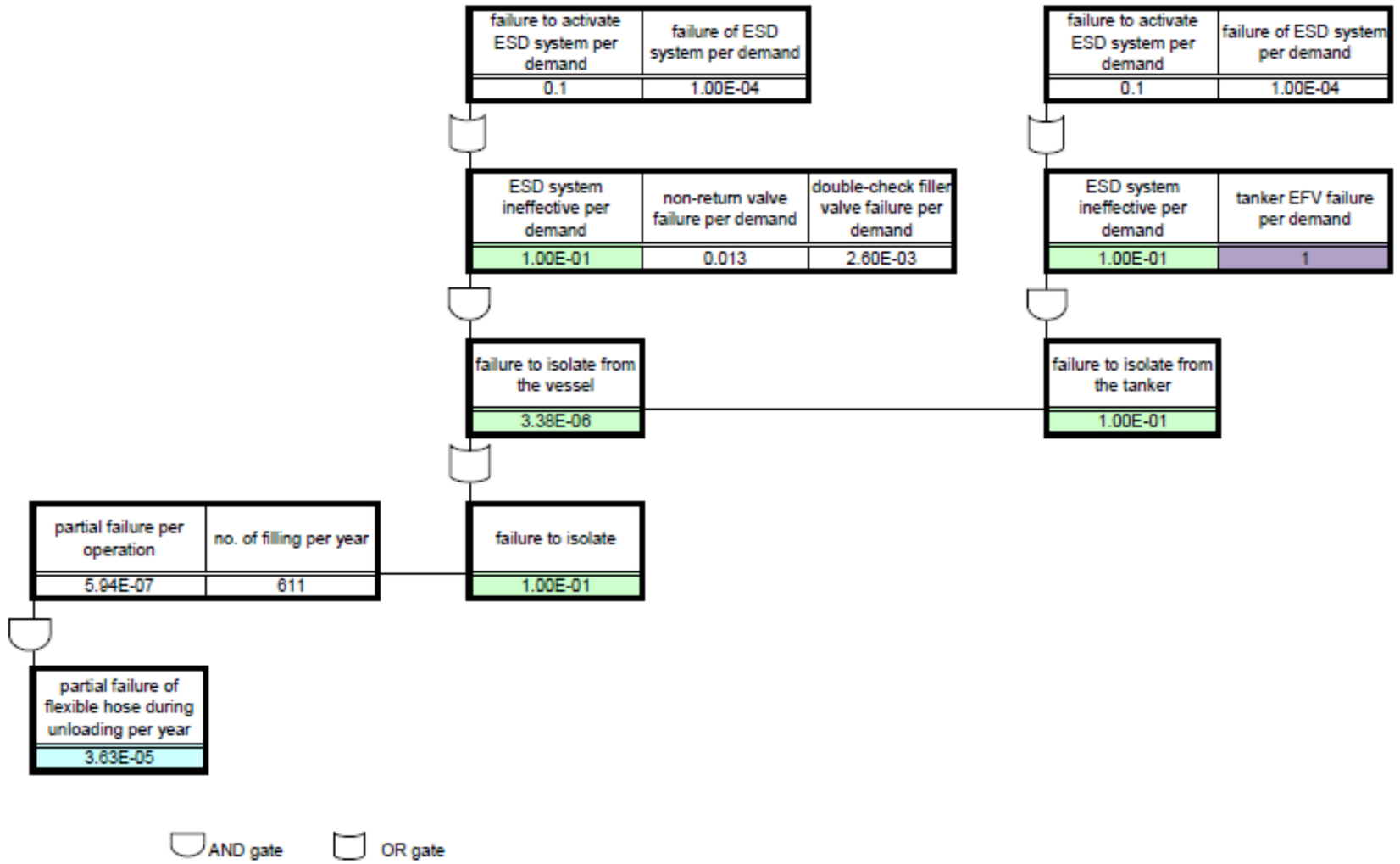
Partial failure of the Liquid Supply Pipeline to the Dispenser (Sinopec Petrol cum LPG Filling Station)



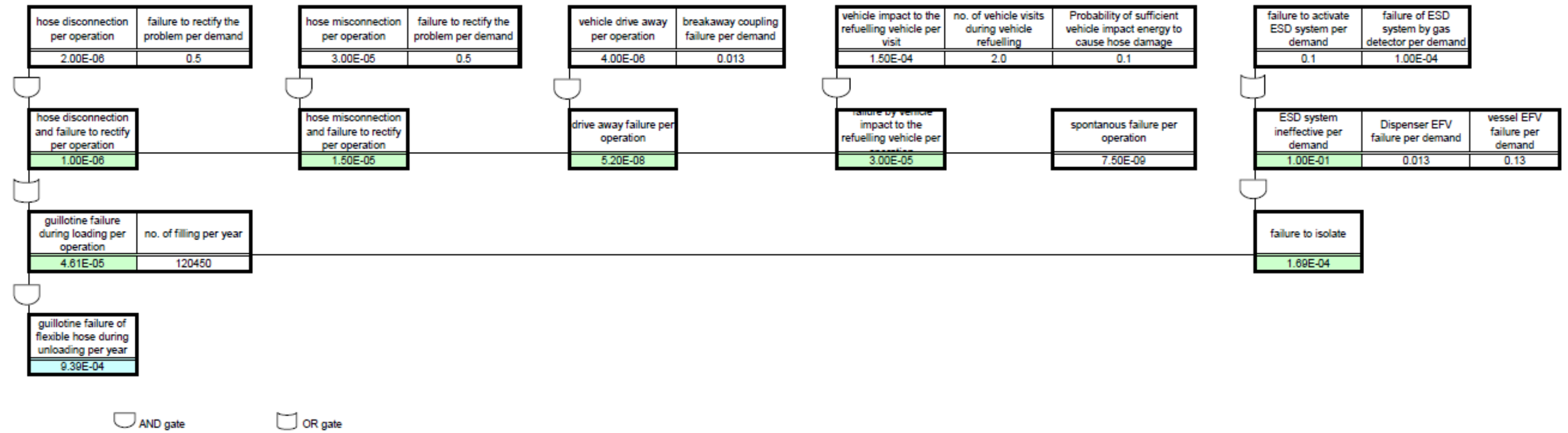
Failure of the Dispenser (Sinopec Petrol cum LPG Filling Station)



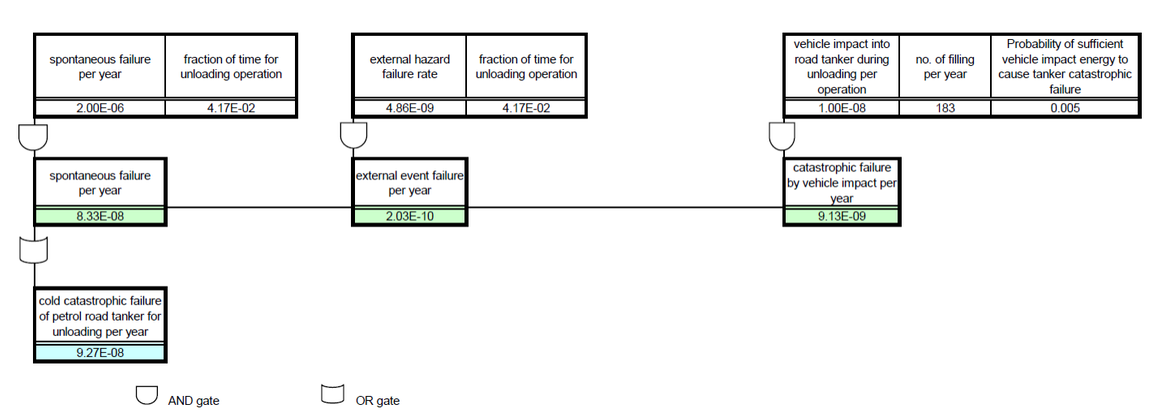
Guillotine failure of Flexible Hose during Unloading to the LPG vessel (Sinopec Petrol cum LPG Filling Station)



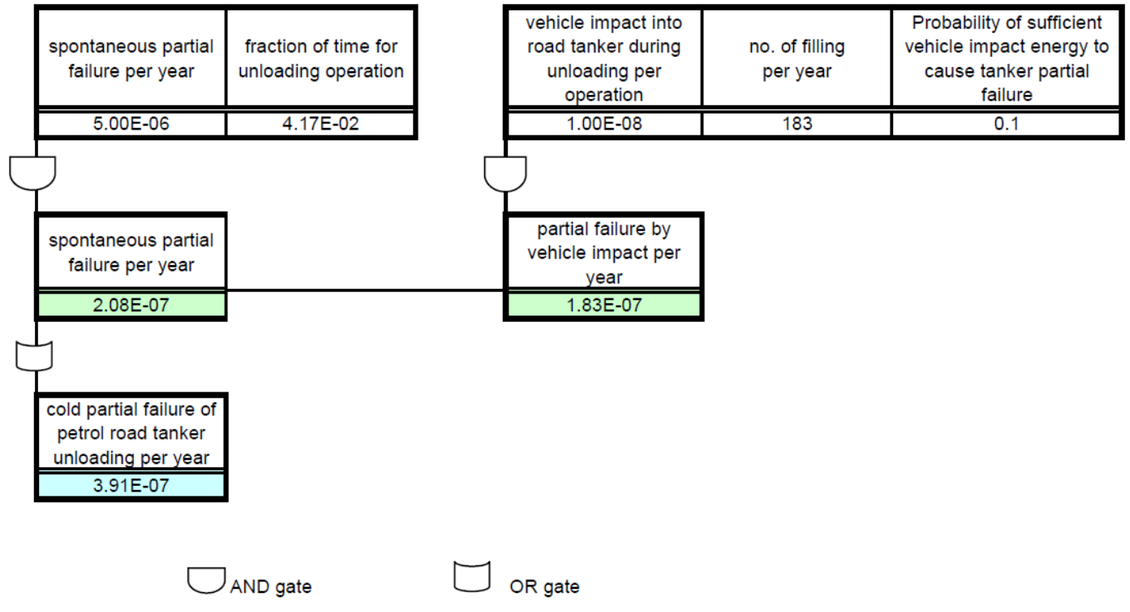
Partial failure of Flexible Hose during Unloading to the LPG vessel (Sinopec Petrol cum LPG Filling Station)



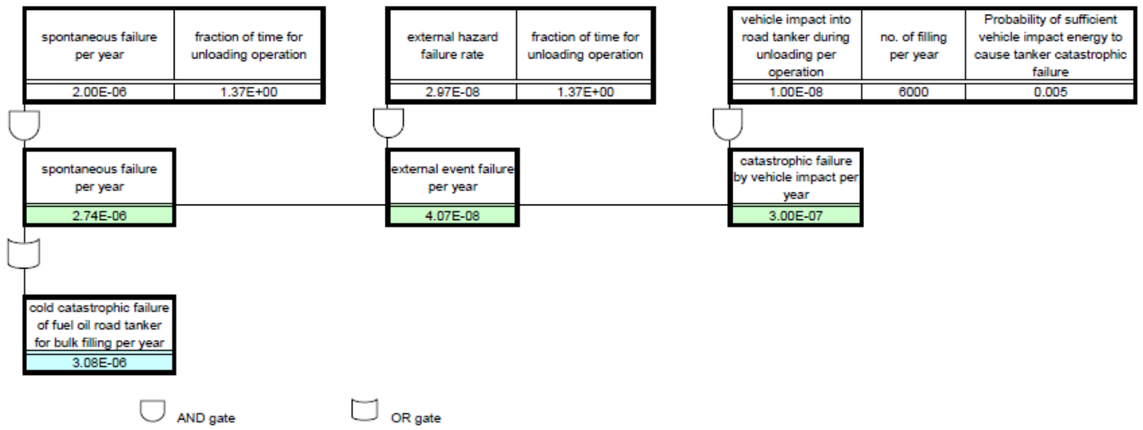
Guillotine failure of Flexible Hose during Filling to the LPG Vehicle (Sinopec Petrol cum LPG Filling Station)



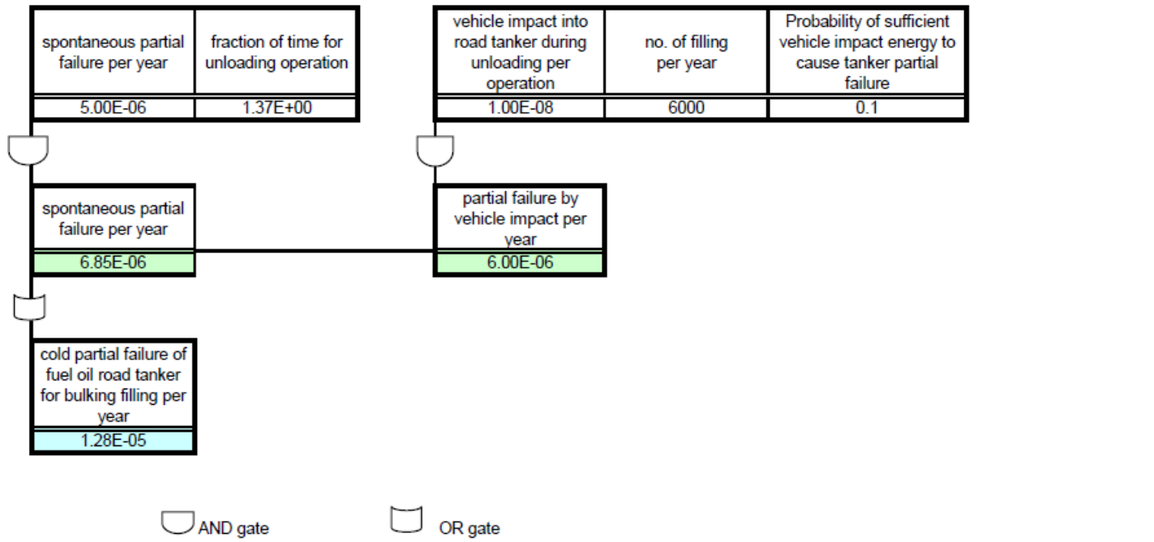
Cold Catastrophic failure of Petrol Road Tanker (Sinopec Petrol cum LPG Filling Station)



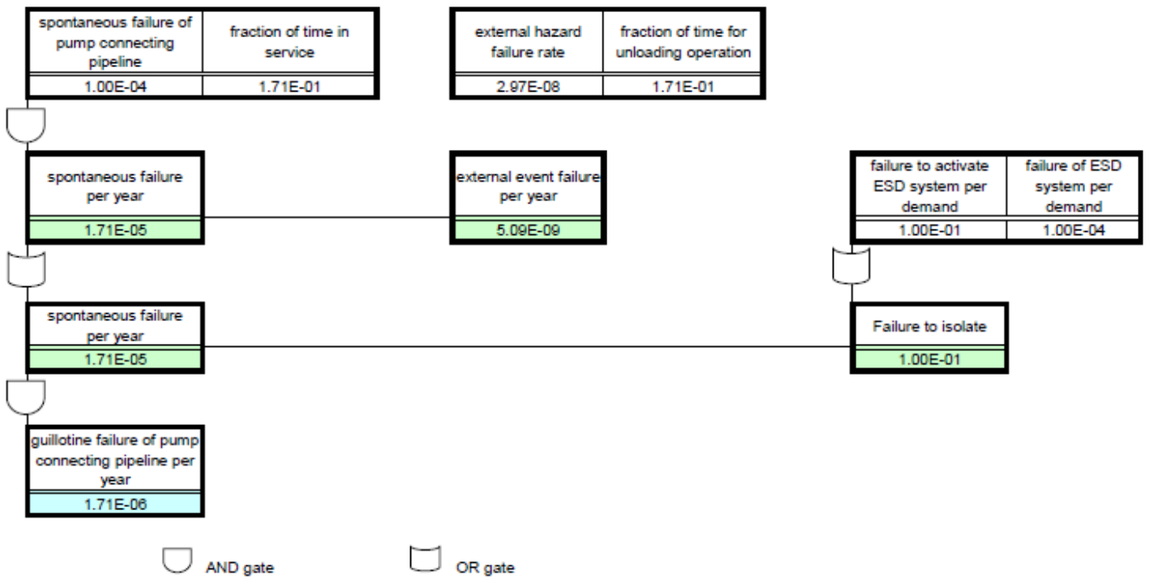
Partial failure of Petrol Road Tanker (Sinopec Petrol cum LPG Filling Station)



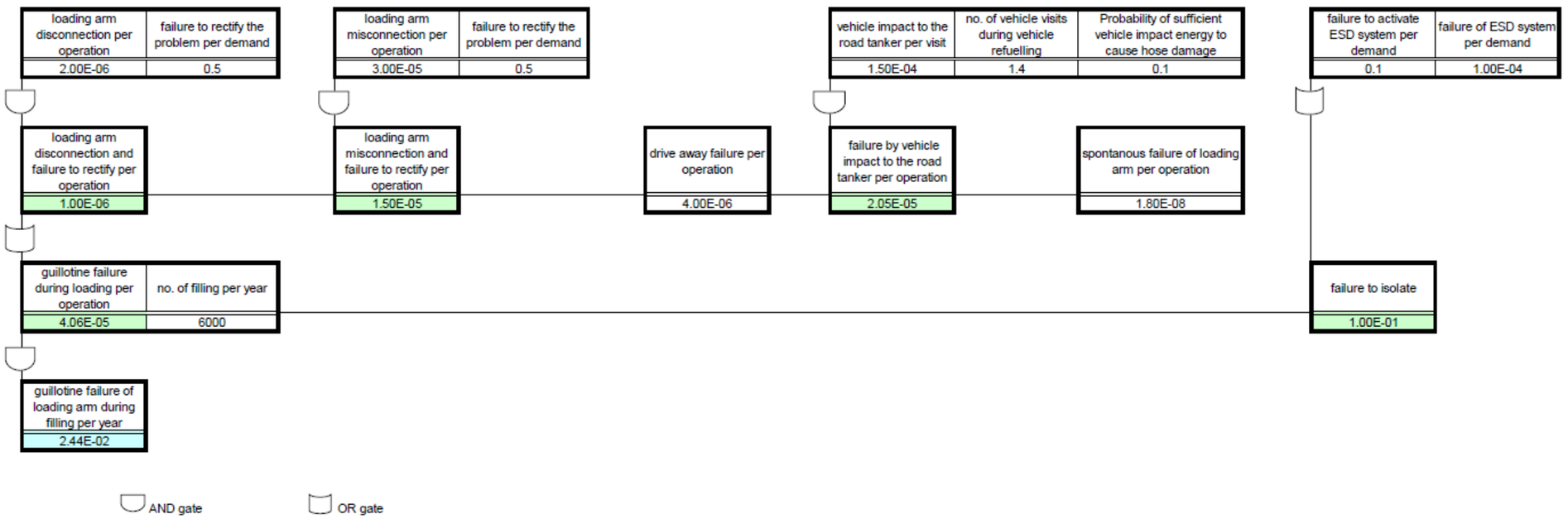
Cold Catastrophic Failure of Fuel Oil Road Tanker (Sinopec HK Oil Terminal Chai Wan)



Partial Failure of Fuel Oil Road Tanker (Sinopec HK Oil Terminal Chai Wan)

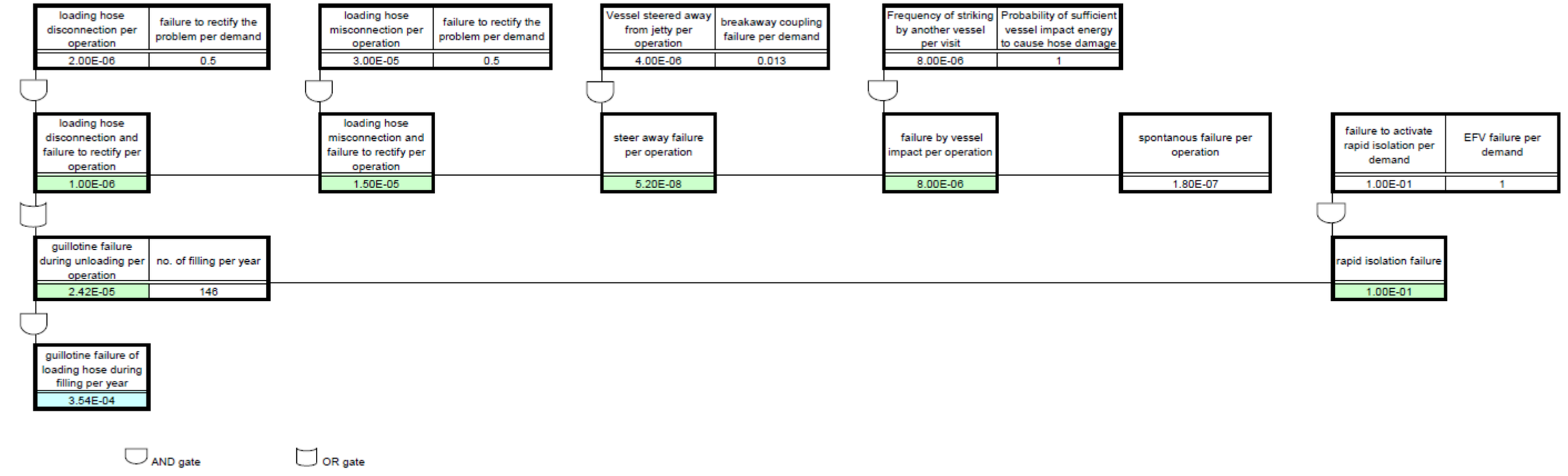


Guillotine Failure of Pump Connecting Pipeine in Pump Farm (Sinopec HK Oil Terminal Chai Wan)

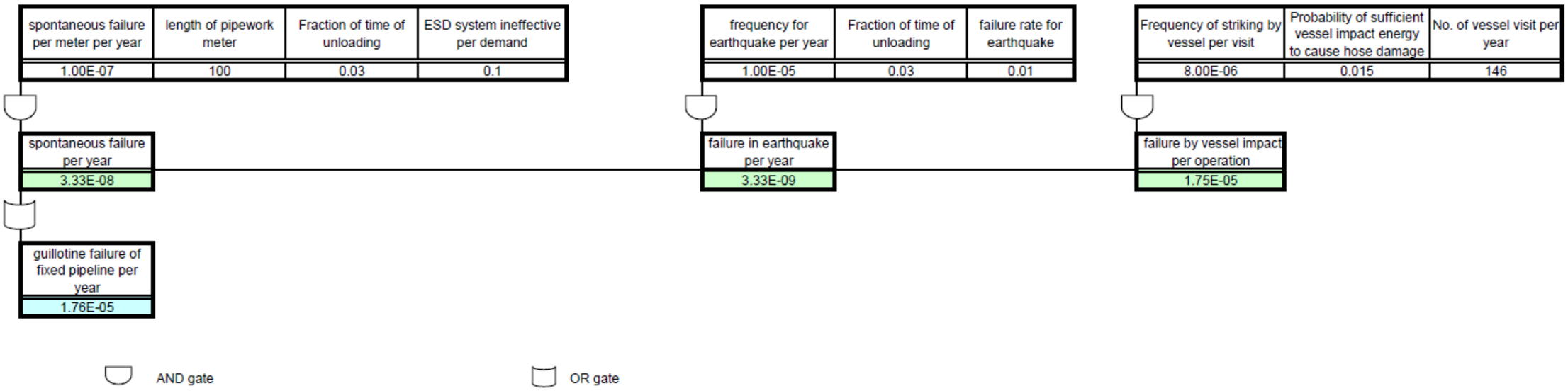


Guillotine Failure of Loading Arm During Bulk Filling to Road Tanker (Sinopec HK Oil Terminal Chai Wan)

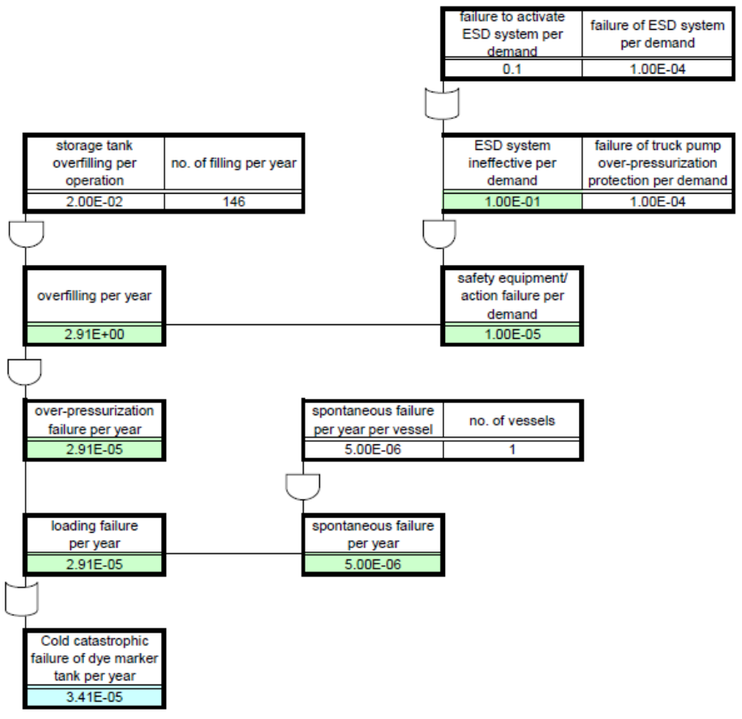
Guillotine Failure of Flexible Hose During Drum Filling (Sinopec HK Oil Terminal Chai Wan)



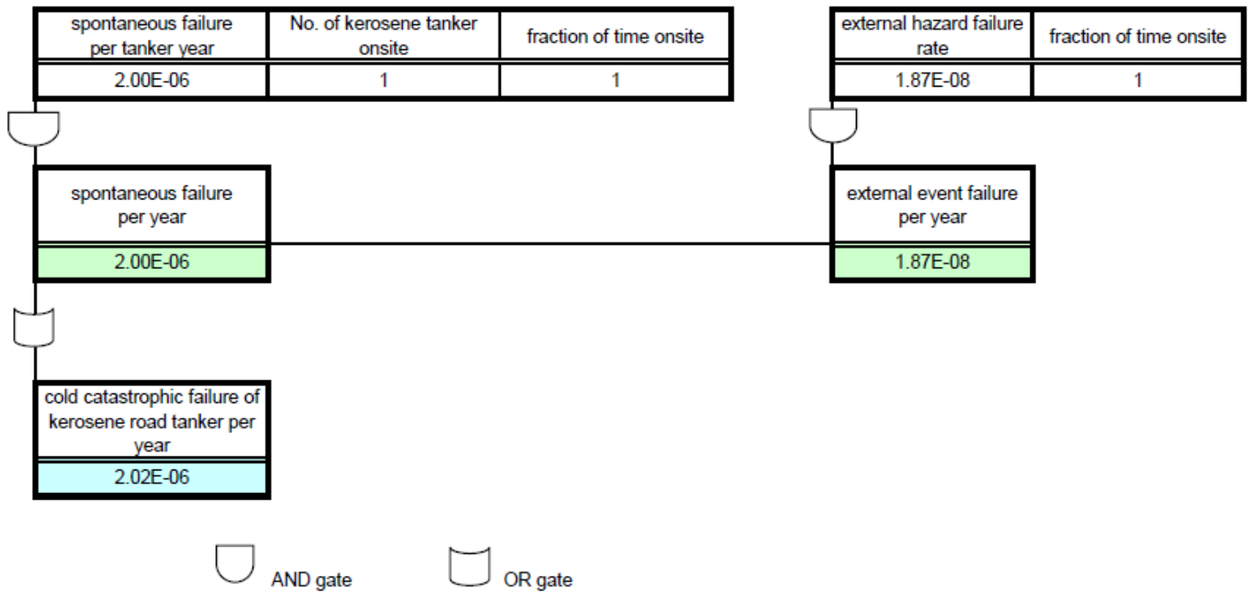
Guillotine Failure of Jetty Loading Hose During Unloading at Jetty (Sinopec HK Oil Terminal Chai Wan)



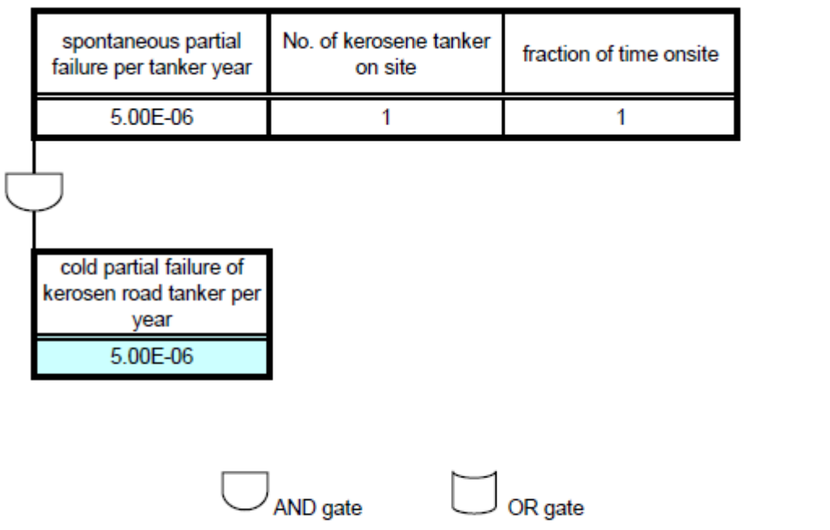
Guillotine failure of Fixed Pipeline from Tank to Jetty (Sinopec HK Oil Terminal Chai Wan)



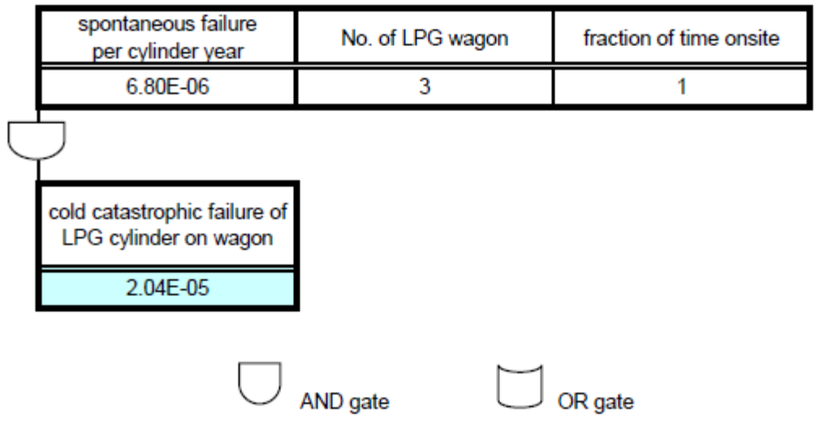
Cold Catastrophic Failure of Dye Marker Tank (Sinopec HK Oil Terminal Chai Wan)



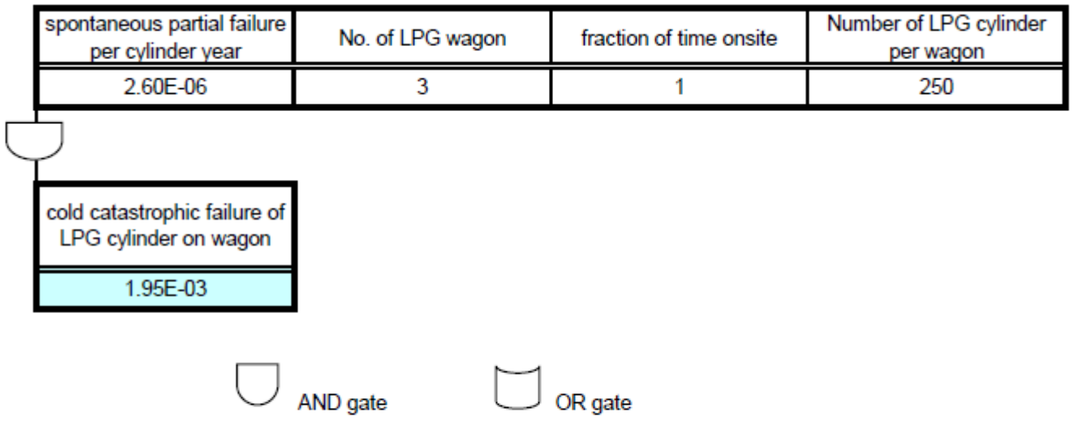
Cold Catastrophic Failure of Kerosen Road Tanker (LPG Wagon Parking Site)



Partial failure of Kerosen Road Tanker (LPG Wagon Parking Site)



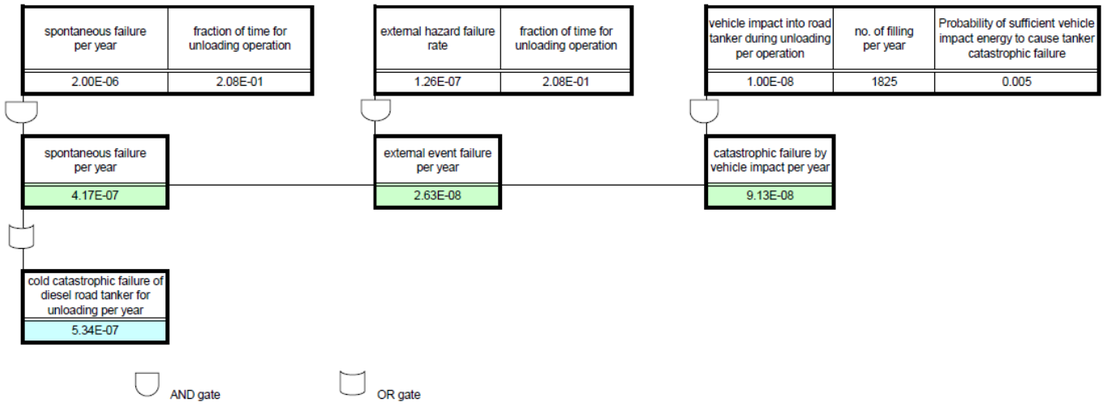
Cold Catastrophic Failure of LPG Cylinder (LPG Wagon Parking Site)



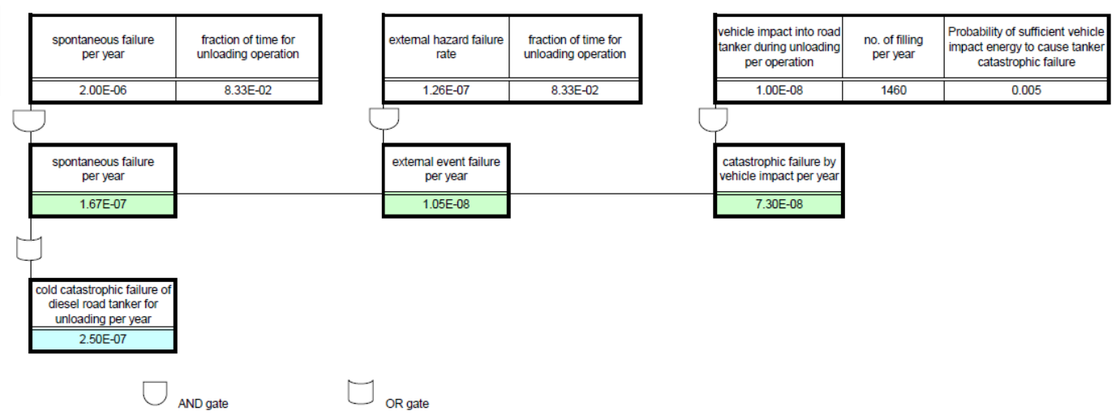
Partial failure of of LPG Cylinder (LPG Wagon Parking Site)

Appendix 10.5

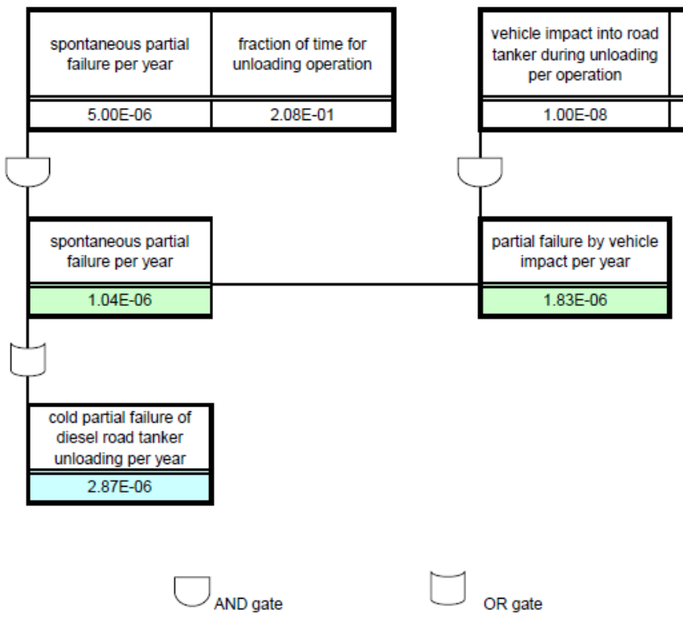
Fault Trees for Diesel Refilling in Bus Depots



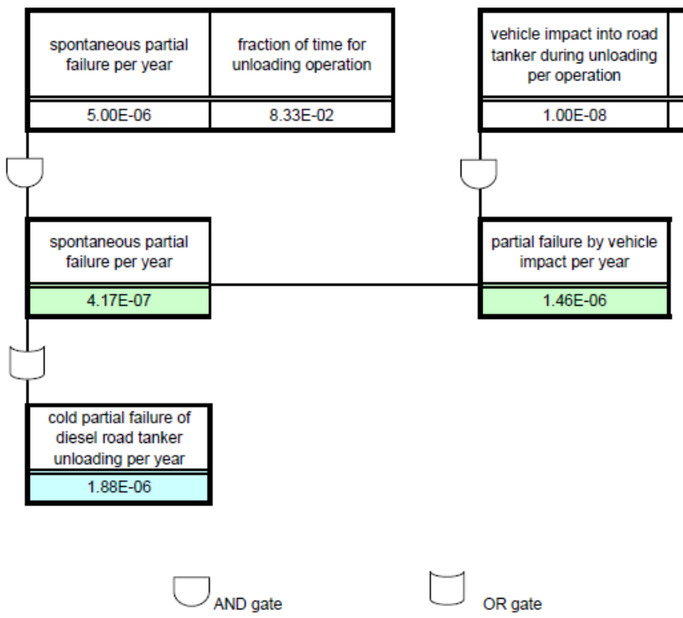
Cold Catastrophic failure of Diesel Road Tanker (New World First Bus Depot)



Cold Catastrophic failure of Diesel Road Tanker (Citybus Chai Wan Depot)



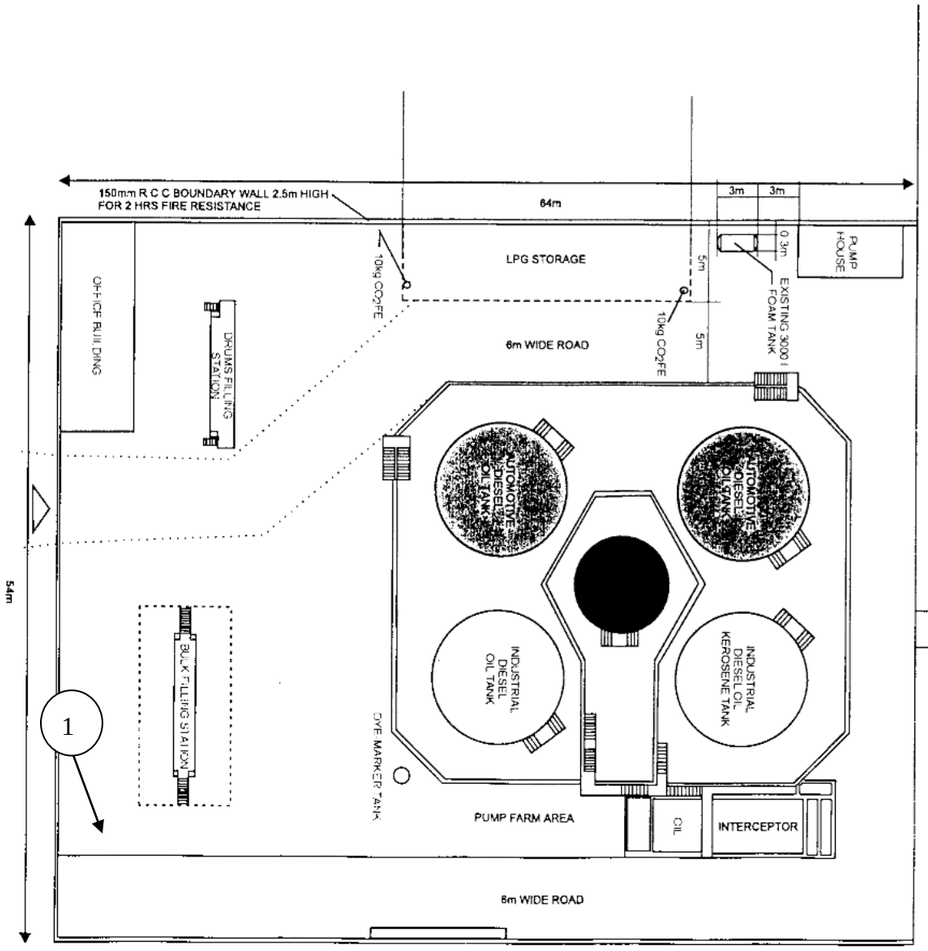
Partial failure of Diesel Road Tanker (New World First Bus Depot)

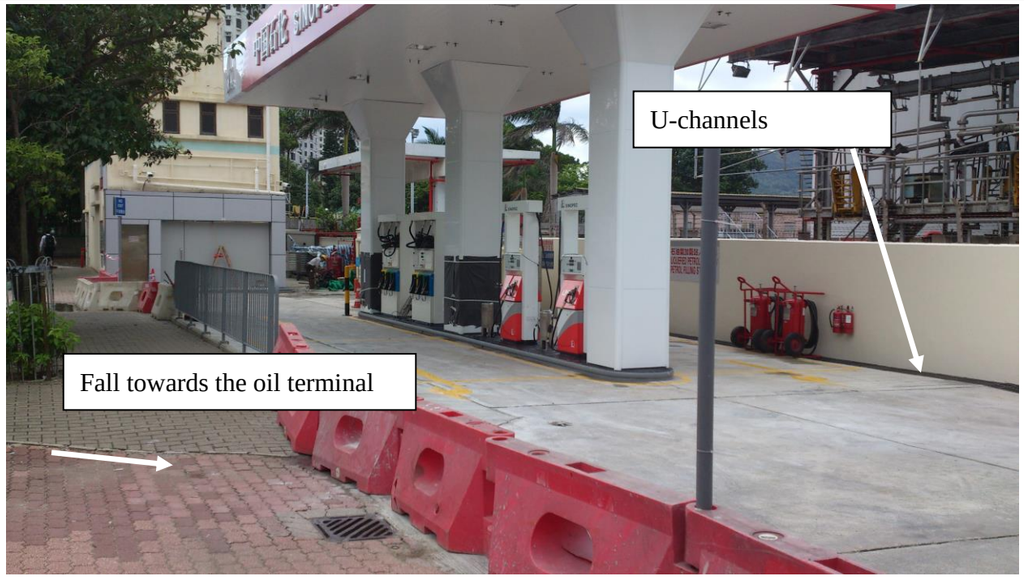


Partial failure of Diesel Road Tanker (Citybus Chai Wan Depot)

Appendix 10.6

Illustration of Falls and U-Channels of the Oil Terminal


150m/m R C C BOUNDARY WALL 2.5m HIGH FOR 2 HRS FIRE RESISTANCE
64m
3m
3m
LPG STORAGE
10kg CO2/FE
5m
0.3m
EXISTING 3000 l FOAM TANK
PUMP HOUSE
OFFICE BUILDING
DRUMS FILLING STATION
6m WIDE ROAD
10kg CO2/FE
5m
AUTOMOTIVE DIESEL OIL TANK
AUTOMOTIVE DIESEL OIL TANK
INDUSTRIAL DIESEL OIL TANK
INDUSTRIAL DIESEL OIL KEROSENE TANK
54m
BULK FILLING STATION
DYE MARKER TANK
PUMP FARM AREA
OIL
INTERCEPTOR
6m WIDE ROAD
1
2
N

	
Photo 1	Photo 2

Appendix 11.1

Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and Related Prior Agreement(s) with Director

Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and Related Prior Agreement(s) with Director

Note #: N/A = Not applicable

Assessment Methodologies	Key Assessment Assumptions	Limitations of Assessment Methodologies/ Assumptions	Prior Agreements with EPD/ Other Authorities #	
			EIA Study Brief Clause Ref.	Relevant Documentation
Air Quality				
Construction Phase • Annexes 4 and 12 of the EIAO-TM • EIA Study Brief (No. ESB-267/2014) • Guidelines on Assessing the 'TOTAL' Air Quality Impacts • Guidelines on Choice of Models and Model Parameters • Guidelines on Estimating Height Restriction and Position of Fresh Air Intake Using Gaussian Plume Models • Guidelines on the Estimation of 10-minute Average SO_2 Concentration for Air Quality Assessment in Hong Kong • Guidelines on the Estimation of PM2.5 for Air Quality Assessment in Hong Kong • Guidelines on the Use of Alternative Computer Models in Air Quality Assessment	Details of the construction programme, plant inventories and working hours and days used are subject to changes in detailed design stage. The current construction programme which is verified by the authority is a preliminary one and was made reference to other building projects with similar scale. No major earthworks will be required for site formation works because no construction of basement structure in place. Good site practices are assumed to be implemented accordingly.	N/A	Not required	N/A
Operation Phase • Annexes 4 and 12 of the EIAO-TM • EIA Study Brief (No. ESB-267/2014) • Guidelines on Assessing the 'TOTAL' Air Quality Impacts • Guidelines on Choice of Models and Model Parameters • Guidelines on Estimating Height Restriction and Position of Fresh Air Intake Using Gaussian Plume Models • Guidelines on the Estimation of 10-minute Average SO_2 Concentration for Air Quality Assessment in Hong Kong • Guidelines on the Estimation of PM2.5 for Air Quality Assessment in Hong Kong • Guidelines on the Use of Alternative Computer Models in Air Quality Assessment • A near-field dispersion model was used, i.e. CALINE4, for line sources to quantify the air quality impacts at local scale from open road emission. Another near-field model ISCST3 was used to assess point and volume sources to quantify the air quality impacts at local scale from volume sources induced by the activities within the proposed depot. Year 2020 of PATH model was selected as the background concentrations.	**Emissions due to Vehicular Movement** Emission factors referenced from EMFAC-HK V2.6.0 and the Road Tunnels: Vehicle Emissions and Air Demand for Ventilation published by PIARC Technical Committee on Road Tunnel Operation in November 2004. Ozone limiting method was used to estimate the conversion ratio of NOx to NO_2 for vehicular emissions. Hourly meteorological data in 2010 as extracted from grids PATH grids (33,25), (33,24), (34,25) and (34,24) was adopted for modelling. In view of the constraints of elevated roads higher than 10m, the road heights of elevated road sections in excess of 10 m high above local ground or water surface has been set to 10m in CALINE 4 modelling. Assessment heights of 1.5 m, 5 m and 10 m (where applicable) above local the ground level have been modelled at the representative ASRs. Surface roughness of 370 cm was adopted. The travelling distance of the vehicles within the proposed Project was assumed as the longest travelling distance of 1000 m. Travelling at speed of 5 kph within the proposed Project was assumed. Vehicle breakdown followed the in and out traffic data obtained from user departments. Vehicular emission from vehicle movement within the proposed Project is assumed to be emitted from the openings of the proposed Project by natural ventilation. The size of the opening was assumed to follow the minimum requirements of permeability of building as recommended by the Buildings Department. Conservative formulae in the Guidelines on the Estimation of $PM_{2.5}$ for Air Quality Assessment in Hong Kong were adopted to determine the ambient annual and daily concentration for $PM_{2.5}$ from PM_{10}. **Emissions due to Vehicle Repair / Testing**	The representative ASRs were identified based on the site visit on 20 May 2014 and the best available information at the time of preparation of this study. There will be double accounting of emissions in the total simulation as PATH's concentrations were used unadjusted. The adopted ambient air quality level may a bit overestimate the future baseline conditions, which is considered as a conservative approach. 3 particular years within the next 15 years upon commissioning of the proposed Project were selected for assessment in order to provide a spectrum of emission inventories over time within the study area. Gaussian models are designed for use in simple terrain under uniform flow, in which CALINE 4 has a limitation of source height between - 10 m and +10m.	Not required	N/A

Assessment Methodologies	Key Assessment Assumptions	Limitations of Assessment Methodologies/ Assumptions	Prior Agreements with EPD/ Other Authorities #	
			EIA Study Brief Clause Ref.	Relevant Documentation
	Idling emissions from the EMSD Depot, HKPF PVP&EC and FEHD Depot were assumed to be exhausted through forced mechanical ventilation at designated plant rooms at various floors. All the planned vehicle repair / testing activities will be limited to the normal working hours (0800 to 1800 hours). Vehicle breakdown followed the ingress and egress traffic data obtained from future users. Idling activity per vehicle lasted for maximum 900 seconds (15 minute) in 1 hour. Maximum 20 idling vehicles were being repaired/ tested in 1 hour.			
Noise				
Fixed Noise Sources The noise impact assessment for the project follows Annex 5 and Annex 13 of the EIAO-TM as well as the requirements given in EIA Study Brief (No. ESB-267/2014) and TM for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites under Noise Control Ordinance For project fixed noise sources, in the absence of any detailed information and noise specification for the proposed fixed plant, the maximum allowable SWL of the fixed plant was determined for future detailed design of the fixed plant. This was determined by adopting standard acoustics principles. For those existing fixed plant noise sources, the design information were made reference to the relevant approved EIA Reports. Noise measurement was carried out to determine the SWL of the fixed sources where information was not available. The noise impact from these sources would then be assessed with the use of the same methodology as stated above for the project fixed noise sources.	The noise level of planned fixed noise sources was referenced from relevant EIA studies or the best available information from the future users. It was assumed that the noise levels presented in those EIA reports would be maximum allowable SWL. The locations of fixed plants, louvers and openings are assumed based on best available information and engineering judgement.	The locations of fixed plants, louvers and openings may be refined in detailed design. The actual noise levels emitted from the fixed plants within the proposed Project will be determined in later detailed design stage. As the maximum allowable SWLs are adopted, which the SWL of each equipment may be lower in actual case, overestimation is considered.	Determination of Assessment area; Location of representative noise sensitive receivers.	N/A
Construction Noise The noise impact assessment for the project follows Annex 5 and Annex 13 of the EIAO-TM as well as the requirements given in EIA Study Brief (No. ESB-267/2014) Assessment approach to the noise impact is in line with the Guidance Note titled "Preparation of Construction Noise Impact Assessment under the Environmental Impact Assessment Ordinance" (GN 9/2010). The assessment of construction noise impact was based on standard acoustic principles, and the guidelines given in GW-TM issued under the NCO where appropriate. Where no sound power level (SWL) could be found in the relevant TM, reference was made to BS 5228 Part 1:2009.	Details of the construction programme, plant inventories and working hours and days used are subject to changes in detailed design stage. The current construction programme which is verified by the authority is a preliminary one and was made reference to other building projects with similar scale. The type and quantity of PME were estimated based on best available information and engineering judgement. The assumption of all PME items required for a particular construction activity would be located at the notional source position where the activity is to be performed. The planned NSRs included for construction noise impact assessment are selected by assuming the construction programme and phasing of development is strictly followed.	The prediction of construction noise impact was based on the methodology described in the GW-TM under the NCO. There would be limitations of the methodology such as the accuracy of the predictive base data for future (e.g. plant inventory for proposed construction works). With the latest technology, the actual SWLs of PME may be lower than the SWLs adopted, overestimation is considered.	Determination of Assessment area; Location of representative noise sensitive receivers.	N/A
Traffic Noise The noise impact assessment for the project follows Annex 5 and Annex 13 of the EIAO-TM as well as the requirements given in EIA Study Brief (No. ESB-267/2014) Road traffic noise levels at the NAPs have been calculated based on the AM and PM peak hour traffic flow within a 15 years period upon commencement of the operation of the proposed Project.	The traffic flow of assessment year is predicted based on the best available data.	N/A	Determination of Assessment area; Location of representative noise sensitive receivers.	N/A

Assessment Methodologies	Key Assessment Assumptions	Limitations of Assessment Methodologies/ Assumptions	Prior Agreements with EPD/ Other Authorities #	
			EIA Study Brief Clause Ref.	Relevant Documentation
Traffic noise has been predicted using the model "RoadNoise".				
Water Quality & Sewerage				
The water quality impact assessment has been prepared in accordance with EIAO-TM Annexes 6 & 14 and Section 3.4.6, Appendix D1, Appendix D2 of the EIA Study Brief.	N/A	N/A	N/A	N/A
Desktop study has been carried out to collect relevant information for the assessment of sewerage and sewage treatment implication. The capacity of the existing public sewerage networks and sewage treatment facilities in the vicinity of the Project site have been investigated and reviewed based on the Drainage Record Plans within the vicinity of the Project site from Drainage Services Department (DSD).	N/A	N/A	N/A	N/A
The impacts of discharging sewage arising from the Project to the existing public sewerage system along Sheung On Street has been studied and assessed based on the maximum sewerage flow to be generated by the Project.	The load on the existing sewerage network from the Project is assessed based on the sewage generation estimated by users; and The existing load on the public sewerage network is estimated based on the best available data.	N/A	N/A	N/A
Landscape & Visual				
The landscape and visual impact assessment has been prepared based on existing available information and in accordance with EIAO-TM Annexes 10 & 18 and EIAO GN No. 8/2010.	At the time of preparation of the LVIA, specific details on various aspects of the development are subject to revising during detail design, such as the precise form and appearance of the buildings, the location of the compensatory planting and the tree species of landscape planting. It is assumed that the proposed landscape and visual mitigation measures will be considered during detail design stage and be implemented.	Assessment of the sensitivity of receivers and the magnitude of change of the Project works are inherently subjective. Additional mitigation measures introduced during detail design stage may assist in the reduction of residual impacts. No detail data exists for future planned projects. Changes to these or the identified concurrent Project may affect the evaluated impacts of the proposed Project.	N/A	N/A
Waste Management				
The waste management implication assessment for the project follows Annex 7 and Annex 15 of the EIAO-TM as well as the requirements given in EIA Study Brief (No. ESB-267/2014). Analysis of activities and waste generation; and Development of proposals for waste management.	The amount of waste to be generated were estimated based on best available data, relevant studies or engineering judgement. No sediment to be excavated according to foundation method and engineering design.	N/A	N/A	N/A
Land Contamination				
The waste management implication assessment for the project follows Annex 19 of the EIAO-TM as well as the requirements given in EIA Study Brief (No. ESB-267/2014) Review of aerial photographs; Review of relevant information acquired from government departments; Review of ground investigation records near the Project site; and Review of records and photographs from site walkover.	The study area was designed to ensure 100% coverage of any areas with potential impact.	N/A	N/A	N/A
Hazard to Life				
The assessment of construction and operation phases hazard to life for the Project followed the EIAO (Cap. 499), Chapter 12 of HKPSG, Chapter 4 and Annexes 4 of the EIAO-TM as well as the requirements given in Section 3.4.4 and Appendix B of the EIA Study Brief (No. ESB-267/2014). Other	Hazardous installations identified included Sinopec Hong Kong Oil Terminal (Chai Wan), Sinopec petrol cum LPG filling station, Esso petrol cum LPG, filling station, New World First Bus Permanent Depot, Citybus Chai Wan Depot and a LPG Wagon Parking Site.	The characteristics of the potential hazardous installations were based on the best available information on site surveys conducted in July, September 2014 and February 2015 as well as information requests from the corresponding operators.	N/A	N/A

Assessment Methodologies	Key Assessment Assumptions	Limitations of Assessment Methodologies/ Assumptions	Prior Agreements with EPD/ Other Authorities #	
			EIA Study Brief Clause Ref.	Relevant Documentation
guidelines including the following were also referred to where appropriate: • Gas Safety Ordinance (Chapter 51); and • Dangerous Goods Ordinance (Chapter 295).		Operational data of Sinopec Hong Kong Oil Terminal Chai Wan, Sinopec and ExxonMobil petrol cum LPG filling station were not available from their corresponding operators. Sinopec Hong Kong Oil Terminal Chai Wan was closed during the time in the 3 site surveys. Dangerous goods considered were made reference to the pervious EIA-034/1999 that information could be not up-to-date. The Authorities that manage the LPG Wagon Parking Site had no record on the LPG storage quantity and on the number of wagon in and out of the parking site.		
Buildings were assumed to provide protection for persons indoor from flash fire and fireball due to the failure events of the petrol cum LPG filling station.	The indoor fatality rate for flash fire was assumed to be 10%. For persons indoor within the fireball radius, the probability of death was assumed 50%.	N/A	N/A	N/A