


**Proposed Data Centre at No. 7-11 Wing
Kin Road, Kwai Chung (K.C.T.L. 145)**

**Air Quality Impact
Assessment (V1.0)**

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Approved By 
(Project Manager: K.S. Lee)

REMARKS:

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1 INTRODUCTION

1.1 Background

- 1.1.1 OXO YW Limited (“the Project Proponent”) has proposed to develop a data centre located at No. 7-11 Wing Kin Road, Kwai Chung.
- 1.1.2 Cinotech Consultants Limited was commissioned by OXO YW Limited to carry out an Air Quality Impact Assessment (AQIA) to assess and envisage any potential air quality impact on the implementation of the Project and to recommend air quality mitigation measures when necessary.
- 1.1.3 This AQIA is prepared to support a planning permission from the Town Planning Board (TPB) under Section 16 of the Town Planning Ordinance (CAP. 131) for a data centre with minor relaxation of plot ratio restriction from 9.5 to 11.4, and height restriction from 105mPD to 109.55 mPD.

2 THE PROPOSED DEVELOPMENT AND THE ENVIRONMENT

2.1 The Site

2.1.1 The Application Site (the "Site") is located in an industrial area in Kwai Chung, bordered by Wing Chong Road to the west, Wing Kin Road to the east, Global Trade Centre to the north, and Hou Feng Industrial Building to the south (see **Figure 2-1**). The Site and its surroundings fall within the industrial zone, as per the Approved Kwai Chung Outline Zoning Plan (OZP) No. S/KC/32 (see **Figure 2-2**).

2.1.2 The Site covers approximately 964 m² (about 929 m² excluding the additional area) and is currently occupied by a 2-storey industrial building. Planning applications have been submitted and approved with conditions in 2020 (Application No.: A/KC/457) and 2023 (Application No.: A/KC/496) for Offensive Trades use (Lard Boiling Factory) and Industrial use (Warehouse), respectively.

2.2 The Proposed Development

2.2.1 The Applicant proposes to redevelop the Application Site into a 17-storey data centre with a height of 109.55 mPD and a plot ratio of 11.4. The tentative layout of the proposed development is shown in **Appendix 2-1**, with a planned completion date of 2029.

2.2.2 The proposed development is intended solely for data centre use and is not expected to generate air pollutants. In the current design, all equipment, including data servers and chillers, will be housed in fully enclosed spaces, except for the water-cooling towers, which will be located on the rooftop.

2.2.3 Although the data centre is generally expected to be unmanned, staff will occasionally need to enter the data halls for maintenance. Therefore, the data halls in the proposed development are considered Air Sensitive Receivers (ASRs) during the operational phase. The developer plans to provide fresh air intakes for the entire development.

2.3 Existing Environment in the Vicinity

Existing Developments

Industrial Chimneys

2.3.1 The existing developments in the vicinity are primarily industrial. Multiple industrial chimneys have been identified within 200 m of the site boundary. The chimneys with potential impacts are listed in **Table 2-1**, illustrated in **Figure 2-3**, and detailed in **Appendix 2-2**.

2.3.2 It is noted that a chimney-like structure was present on the roof of the Mei Kei Industrial Building according to a 3D map from Google. However, based on the latest information, there is currently no chimney on the roof of the Mei Kei Industrial Building.

2.3.3 Additionally, chimneys are identified at the Citic Telecom Tower. However, no potential impact is anticipated, as Citic Telecom Tower is used for data centre and office purposes, with no significant emissions expected. The chimneys serve backup generators to provide

N+1 resilience¹. Furthermore, the height of Citic Telecom Tower is approximately 140 mPD, located about 200 m to the northeast of the Site. Given that the emission height is more than 20 m above the roof of the Site, with over 100 m of horizontal separation, no adverse impact is anticipated even when the backup generators are operational.

Table 2-1 Identified Industrial Chimneys in the Vicinity

ID	Building	Height [1]	Horizontal Distance from Site Boundary
CH01a & CH01b	Wing Loi Industrial Building	85 mPD	64 m
CH01c & CH01d		81 mPD	85 m
CH02	Kwai Chung Crematorium	52 mPD	196 m
CH03a & CH03b	Wing Kin Industrial Building	99 mPD	23 m
CH03c		103 mPD	40 m

Note:

[i] Estimated Valves

Air Sensitive Receivers (ASRs)

- 2.3.4 The nearest non-industrial development with air-sensitive uses is the office of the Wing Hau Street Driving Test Centre, located approximately 110m northwest of the Site.
- 2.3.5 Most developments with air-sensitive uses are situated in the northeast of the Site, including PCCW, CNEC Lee I Yao Memorial Secondary School, and Kwai Shing West Estate Block 8, located about 180m, 190m, and 290m from the Site, respectively.
- 2.3.6 The existing developments in the vicinity generally conform to the Outline Zoning Plan (OZP), indicating that no changes in land use are anticipated in the near future.

Road Traffic

- 2.3.7 The Site is bordered by Wing Kin Road and Wing Chong Street, which are minor roads (local distributors). According to the Annual Traffic Census 2023 (ATC 2023) by the Transport Department, the nearest major road is Tsuen Wan Road (Station 5604), an expressway located approximately 90 m to the northeast of the Site, with an Average Annual Daily Traffic (AADT) of 122,780.

2.4 Key Sources of Potential Air Quality Impact

- 2.4.1 Although there is heavy traffic on roads near the Site, the major vehicular source, Tsuen Wan Road, is located away from the Site. Therefore, no significant air quality impacts from road traffic are anticipated. The primary concern for the air quality of the proposed development stems from the nearby industrial chimneys.

¹ CITIC Telecom CPC – <https://www.citictel-cpc.com/Content/Uploads/IDC1404EN-843d1b2d-fa48-414a-8182-a255a2e90d70.pdf>

3 LEGISLATION, STANDARDS & GUIDELINES

3.1.1 The air quality impact assessment criteria were made reference to the HKPSG and the Air Pollution Control Ordinance (Cap.311) (APCO).

3.2 Minimum Buffer Distances

3.2.1 HKPSG recommends minimum buffer distances from the various road emission sources and industrial chimney for planning purpose, which are summarized **Table 3-1**.

Table 3-1 Guidelines on Usage of Open Space Site

Pollution Source	Parameter	Buffer Distance ⁽ⁱ⁾	Permitted Uses
Road and Highways	<i>Type of Road</i>		
	Trunk Road and Primary Distributor	>20m	Active and passive recreational uses
		3-20m	Passive recreational uses
		<3m	Amenity areas
	District Distributor	>10m	Active and passive recreational uses
		<10m	Passive recreational uses
	Local Distributor	>5m	Active and passive recreational uses
<5m		Passive recreational uses	
Industrial Area	<i>Difference in Height between Industrial Chimney Exit and the Site</i>		
	<20m	>200m	Active and passive recreational uses
		5-200m	Passive recreational uses
	20-30m	>100m	Active and passive recreational uses
		5-100m	Passive recreational uses
	30-40m	>50m	Active and passive recreational uses
		5-50m	Passive recreational uses
>40m	>10m	Active and passive recreational uses	

Note:

- (i) The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.

3.3 Air Quality Objectives (AQO)

3.3.1 The Air Pollution Control Ordinance (APCO) provides the statutory authority for controlling air pollutants from a variety of sources. The Hong Kong Air Quality Objectives (AQO) stipulate the maximum allowable concentrations over specific periods for the criteria pollutants (**Table 3-2**).

Table 3-2 Hong Kong Air Quality Objectives

Pollutant	Averaging time	Concentration limit [i] ($\mu\text{g}/\text{m}^3$)	Number of exceedances allowed
Sulphur Dioxide (SO_2)	10-minute	500	3
	24-hour	50	3
Respirable Suspended Particulates (RSP) [ii]	24-hour	100	9
	Annual	50	Not applicable
Fine Suspended Particulates (FSP) [iii]	24-hour	50	35
	Annual	25	Not applicable
Nitrogen Dioxide (NO_2)	1-hour	200	18
	Annual	40	Not applicable
Ozone (O_3)	8-hour	160	9
Carbon Monoxide (CO)	1-hour	30,000	0
	8-hour	10,000	0
Lead (Pb)	Annual	0.5	Not applicable

Note:

- [i] All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.
- [ii] Respirable suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 10 μm or less.
- [iii] Fine suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less.

3.4 Air Pollution Control (Construction Dust) Regulation

3.4.1 The regulation defines notifiable and regulatory works activities that are subject to construction dust control.

3.5 Air Pollution Control (Smoke) Regulations

3.5.1 The regulations stipulate that dark smoke emission from any chimney or relevant plant must not exceed 6 minutes in any period of 4 hours; or 3 minutes continuously at any one time.

3.6 The Air Pollution Control (Fuel Restriction) Regulations

3.6.1 The regulation provides a statutory minimum requirement to restrict commercial and industrial processes to use ULSD (Ultra Low Sulphur Diesel) with a sulphur content of only 0.005%.

3.7 Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

3.7.1 According to the regulation, Non-road Mobile Machinery (NRMMS) must adhere to the prescribed emission standards. Only NRMMS that have been approved or exempted and bear the appropriate label are permitted for use in specified activities and locations. These include construction sites, container terminals and backup facilities, restricted areas of the airport, designated waste disposal facilities, and specified processes.

3.8 Recommended Pollution Control Clauses for Construction Contracts

3.8.1 This guideline includes a list of relevant regulations/guidelines for contractors and general engineering practices aimed at minimizing inconvenience and environmental nuisance to nearby residents and other sensitive receivers.

4 BACKGROUND AIR QUALITY AND KEY CRITERIA POLLUTANTS

4.1 Background Air Quality

- 4.1.1 EPD has been closely monitoring air quality in Hong Kong through its air quality monitoring stations (AQMS). The Kwai Chung Monitoring Station is the closest AQMS to the site, while the nearest roadside station is located in Mong Kok.
- 4.1.2 It is important to note that measurement results at the roadside station are generally higher than those at regular sensitive receivers, such as residential flats, due to proximity to road traffic. Therefore, measurements at the roadside station should be considered a worst-case scenario, while those at the Kwai Chung Monitoring Station should be regarded as representative.
- 4.1.3 The monitoring results for the Mong Kok Roadside Station and Kwai Chung Monitoring Station from 2019 to 2023 are summarized in **Table 4-1 & Table 4-2**, respectively. For both stations, the measured concentrations of NO₂, RSP, and FSPs show a decreasing trend from 2019 to 2023.
- 4.1.4 The parameters of particular concern in recent years have been the annual average and hourly NO₂ concentrations, which consistently exceeded the AQO's criteria at the Mong Kok Roadside Station from 2019 to 2023. Although NO₂ concentrations at the Kwai Chung Monitoring Station are much lower than those at Mong Kok, the annual average still consistently exceeded the AQO criteria during the same period.

Table 4-1 Average Concentrations of Pollutants in the Recent Five Years (Year 2019 - 2023) at Mong Kok Air Quality Monitoring Station

Pollutant	Averaging Time	AQO [i]	Pollutant Concentration (µg/m ³) [ii]				
			2019	2020	2021	2022	2023
Sulphur Dioxide (SO ₂)	10-minute (4th Max)	500 (3)	39	45	30	28	39
	24-hour (4th Max)	50 (3)	10	10	10	7	9
Respirable Suspended Particulates (RSP)	24-hour (10th Max)	100 (9)	74	63	69	56	58
	Annual	50	35	29	30	26	29
Fine Suspended Particulates (FSP)	24-hour (36th Max)	50 (35)	38	32	32	30	29
	Annual	25	24	18	18	16	18
Nitrogen Dioxide (NO ₂)	1-hour (19th Max)	200 (18)	248	214	201	224	212
	Annual	40	78	74	70	64	68
Ozone (O ₃)	8-hour (10th Max)	160 (9)	125	96	97	101	104
Carbon Monoxide (CO)	1-hour (1st Max)	30,000	2280	1810	2130	1670	1340
	8-hour (1st Max)	10,000	2103	1580	1719	1493	1138

Note:

- [i] The numbers in brackets () refer to number of exceedance allowed per year.
 [ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
 [iii] Exceedances has been highlighted in orange.

Table 4-2 Average Concentrations of Pollutants in the Recent Five Years (Year 2019 - 2023) at Kwai Chung Air Quality Monitoring Stations

Pollutant	Averaging Time	AQO [i]	Pollutant Concentration ($\mu\text{g}/\text{m}^3$) [ii]				
			2019	2020	2021	2022	2023
Sulphur Dioxide (SO ₂)	10-minute (4th Max)	500 (3)	53	43	45	59	48
	24-hour (4th Max)	50 (3)	18	12	14	17	13
Respirable Suspended Particulates (RSP)	24-hour (10th Max)	100 (9)	59	46	56	53	54
	Annual	50	29	23	26	23	25
Fine Suspended Particulates (FSP)	24-hour (36th Max)	50 (35)	29	24	27	28	26
	Annual	25	18	14	16	15	16
Nitrogen Dioxide (NO ₂)	1-hour (19th Max)	200 (18)	184	184	180	168	182
	Annual	40	54	48	52	44	50
Ozone (O ₃)	8-hour (10th Max)	160 (9)	143	124	124	139	128
Carbon Monoxide (CO)	1-hour (1st Max)	30,000	-	-	-	-	-
	8-hour (1st Max)	10,000	-	-	-	-	-

Note:

- [i] The numbers in brackets () refer to number of exceedance allowed per year.
 [ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
 [iii] Exceedances has been highlighted in orange.

4.2 PATH Background

- 4.2.1 PATH is a regional-scale air quality model developed by the EPD to predict future air quality of Hong Kong. The PATH v3.0 grids corresponding to the Site are [34,37] and [35,37], as shown in **Figure 4-1**. **Table 4-3** presents the predicted background air quality for the Site and its adjacent areas (Grids [34,37], [34,38], [35,37] and [35,38]) for the year 2029.
- 4.2.2 Generally, the PATH background for the Site and adjacent areas in 2029 meet the relevant Air Quality Objectives (AQOs) with a significant margin, except for Ozone concentrations.

Table 4-3 Background Ground Level Air Quality of PATH on Year 2029

Pollutant	Averaging Time	AQOs [$\mu\text{g}/\text{m}^3$] [i]	PATH Model Concentration [$\mu\text{g}/\text{m}^3$] on Year 2029			
			Grid [34,37] L1 (0-17m)	Grid [34,38] L1 (0-17m)	Grid [35,37] L1 (0-17m)	Grid [35,38] L1 (0-17m)
Sulphur Dioxide (SO ₂)	10-minute (4th Max)	500 (3)	21.2	23.3	23.6	23.7
	24-hour (4th Max)	50 (3)	6.8	7.2	7.3	7.3
Respirable Suspended Particulates (RSP)	24-hour (10th Max)	100 (9)	54.7	55.5	55.1	55.2
	Annual	50	20.9	21.3	21.1	21.3
Fine Suspended Particulates (FSP)	24-hour (36th Max)	50 (35)	27.3	28.3	28.0	28.5
	Annual	25	13.3	13.5	13.4	13.6
Nitrogen Dioxide (NO ₂)	1-hour (19th Max)	200 (18)	112.2	101.2	104.5	99.9
	Annual	40	29.7	24.6	23.9	22.8
Ozone (O ₃)	8-hour (10th Max)	160 (9)	173.0	176.0	172.2	172.9
Carbon Monoxide (CO)	1-hour (1st Max)	30,000	594.5	592.9	591.2	590.7
	8-hour (1st Max)	10,000	571.5	571.0	564.2	565.1

Note:

- [i] The numbers in brackets () refer to number of exceedances allowed per year.
 [ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
 [iii] Exceedance has been highlighted in orange.

4.3 Identification of Key Criteria Pollutants – Construction Phase

Gaseous Pollutants

- 4.3.1 Operation of Powered Mechanical Equipment (PME) and/or Non-road Mobile Machinery (NRMMs) during construction work would emit dark smoke and gaseous air pollutants such as nitrogen dioxide (NO₂) via fuel burning.
- 4.3.2 Emission of dark smoke is regulated by Air Pollution Control (Smoke) Regulations. By providing routine maintenance and using of ULSD, the potential impact can be significantly suppressed.
- 4.3.3 According to Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted Non-Road Mobile Machinery (NRMM) with a proper label are allowed to be used in specified activities and locations including construction sites. Supportive information and documents (e.g. third-party emission certificates, model and serial numbers of machines and engines, etc.) for each NRMM would be provided to EPD to prove that the concerned NRMM is in line with the prescribed emission standards.
- 4.3.4 As only limited number of PME and/or NRMMs are expected to be used on-site due to the small site area (<1000 m²), and the PME and/or NRMMs are required to fulfil the relevant emission standards. As a result, no significant impact is anticipated.

Particulates (RSP & FSP)

- 4.3.5 The air pollutants of concern during the construction phase are construction dust, which includes Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) generated from the construction activities of the proposed development.
- 4.3.6 In accordance with the Air Pollution Control (Construction Dust) Regulation, contractors and site agents are obligated to inform the EPD and implement dust reduction measures to minimize dust emissions before commencing construction activities such as demolition, site formation, foundation construction, and superstructure construction.

4.4 Identification of Key Criteria Pollutants – Operation Phase

Sulphur Dioxide (SO₂)

- 4.4.1 In Hong Kong, Sulphur Dioxide (SO₂) is primarily from the combustion of Sulphur-containing fossil fuels in power stations and marine vessels.
- 4.4.2 The Air Pollution Control (Fuel Restriction) Regulations restrict commercial and industrial processes to use ULSD with a sulphur content of only 0.005%. In December 2007, the Government offered a concessionary duty rate for Euro V diesel for motor vehicles which has a sulphur content of 0.001%. Since then, all petrol filling stations in Hong Kong provide only Euro V diesel, which has a sulphur content of 0.001%. Reference to the *2022 Hong Kong Emission Inventory Report*², SO₂ emission from the road traffic contribute less than 1% of the total SO₂ emissions, thus SO₂ from road traffic emissions is not considered as key air pollutant. On the other hand, although the SO₂ emission from the industrial sources contribute little to the total SO₂ emissions, due to the proximity, SO₂ emission from the industrial chimneys is considered as key air pollutant.

Particulates (RSP & FSP)

- 4.4.3 The emission source during the operational phase of the Project would be the vehicular emission on the roads and industrial emission from industrial chimneys.

Nitrogen Dioxide (NO₂)

- 4.4.4 NO₂ is the major air pollutant in concern during operation phase of the Project. NO₂ could be emitted directly via combustion, or generated from the reaction between nitrogen oxides (NO_x) and ozone (O₃).
- 4.4.5 The major emission source of NO_x and NO₂ during the operational phase of the Scheme would be the vehicular emission on the roads and industrial emission from industrial chimneys.

Ozone

- 4.4.6 Ozone (O₃) is formed from dioxygen by the action of ultraviolet light and also atmospheric electrical discharges. It is not a primary pollutant emitted from vehicular emission & industrial emission thus is not considered as key criteria pollutants for the Project.

² 2022 Hong Kong Emission Inventory Report
https://www.epd.gov.hk/epd/sites/default/files/epd/data/2022_Emission_Inventory_Report_Eng.pdf

Carbon Monoxide

- 4.4.7 Road transportation is the dominant source of CO emissions. However, considering the low CO concentration measured in the roadside air quality monitoring station (**Table 4-1**) as compared to the respective AQO criteria, the emission of CO from road transportation is unlikely to cause a significant air quality impact to the proposed development.

Lead

- 4.4.8 Leaded petrol has been banned in Hong Kong since 1999. It is not considered concerned pollutants for vehicular emission.

Summary

- 4.4.9 During the operation phase, the primary sources of pollutants will be traffic and industrial emissions, specifically SO₂, NO₂, RSP and FSP. These pollutants have been identified as the key criteria pollutants for the project's operation.

5 CONSTRUCTION PHASE AIR QUALITY IMPACT ASSESSMENT

5.1 Dust Source of the Project

5.1.1 Major dust-emitting construction activities will include the demolition of existing structures, excavation for basement construction, foundation works, and other construction activities (e.g., superstructure construction). A summary of the construction works is provided in **Table 5-1**.

5.1.2 Due to the small site area (< 1,000 m²), the scale of construction activities for the Project will be limited. The Site currently houses a 2-storey industrial building, and the demolition works are considered small since only a single low-rise development is involved. It is important to note that excavation for the basement is required under the current design.

Table 5-1 Summary of the Construction Works

Site Area (m ²)	Structures to be demolished	Excavating for Basement	Construction of Superstructure	Number of Concurrent PME [1]
< 1000	A 2-storey industrial building	Yes	Yes	8

Note:

[1] Excluding small plants such as water pump and fan. Estimated numbers based on projects in similar scales.

5.2 Concurrent Projects

5.2.1 No planned and/or committed developments in the vicinity of the Site has been identified.

5.3 Air Sensitive Receivers in the Vicinity

5.3.1 The representative ASRs for the construction phase of the proposed development are illustrated in **Figure 5-1** and listed in **Table 5-2**. It is important to note that the Site is surrounded by existing industrial developments, and therefore, all ASRs are located away from the Site.

Table 5-2 Representative Air Sensitive Receivers (Construction Phase)

ID	Building/Location	Type	Building Height (mPD) ^[1]	Horizontal Distance from Site Boundary (m) ^[1]
ASR01	Wing Hau Street Driving Test Centre	Office	25	110
ASR02	PCCW	Utility and Offices	80	180
ASR03	CNEC Lee I Yao Memorial Secondary School	Education	50	195
ASR04	Kwai Shing West Estate Block 8	Residential	125	290

Note:

[1] Estimated values.

[2] The windows do not face the Site.

5.4 Identification of the Major Pollutant Sources and of Potential Impacts

Emission from PME & Non-road Mobile Machinery

- 5.4.1 As stated in **Section 4.3.1**, operation of Powered Mechanical Equipment (PME) during construction work would emit gaseous air pollutants such as nitrogen dioxide (NO₂) via fuel burning. A number of Powered Mobile Equipment (PME), such as excavators, can be utilized for the construction works of the Site. However, the number of PME expected to be used on-site will be limited. As a result, no significant impact is anticipated from the operation of PME.
- 5.4.2 According to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted Non-Road Mobile Machinery (NRMM) with proper labelling are allowed to be utilized in the construction site. Supportive information and documents, such as third-party emission certificates, model and serial numbers of machines and engines, will be provided to the EPD to demonstrate that the concerned NRMM complies with the prescribed emission standards. As a result, no significant impact is anticipated from the operation of NRMM.

Construction Dust

- 5.4.3 Fugitive dust would be generated and the concerned air pollutants during the construction phase are the Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) arising from the construction work of the Project. One of the major dust sources during the construction phase is the demolition of existing structures. Despite the small scale of demolition works, mitigation measures shall be necessary to eliminate the potential impact arising from the demolition works.
- 5.4.4 Movement of dump trucks is also considered a potential dust source if not mitigated properly. A rough estimation of 5 trips per day shall be required during the demolition period.

5.5 Mitigation Measures

- 5.5.1 Dust control measures under the Air Pollution Control (Construction Dust) Regulation (Cap. 311R) and good site practice shall be implemented to mitigate dust impact arising from demolition work by preventing dust generation and/or by screening, suppressing and removing dust generated:
- Enclose the whole wall of the building to a height of at least 1m higher than the highest level of the structure to be demolished with impervious dust screens or sheeting on façade abutting or fronting upon a street
 - Existing structures are proposed to be demolished by non-percussive equipment such as hydraulic crusher to reduce dust emission; no blasting will be involved.
 - Water or a dust suppression chemical shall be sprayed immediate prior to, during and immediately after demolition/excavation works
 - Cover stockpile or dusty materials with tarpaulin to prevent wind erosion
 - Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads or streets

- Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the construction site
 - Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle
 - Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags
 - Maintain a reasonable height when dropping excavated materials to limit dust generation
 - Limit vehicle speed within Site to 10 km/h and confine vehicle movement in haul road
 - Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating or soil compacting
 - Cover materials on trucks before leaving the Site to prevent dropping or being blown away by wind
 - Regular maintenance of plant equipment to prevent black smoke emission
 - Throttle down or switch off unused machines or machine in intermittent use
 - Plan the Site layout so that machineries, dust causing activities and stockpilings are away from receptors as far as possible.
 - Site hoarding higher than 2.4m should be implemented where there are receptors at close proximity to the construction site and dusty activities.
 - Haul road shall be away from the project boundary as much as possible
- 5.5.2 No adverse dust impact on the surrounding air sensitive receivers (ASRs) is expected with proper implementation of mitigation measures.
- 5.5.3 As the project is still in planning stage, the necessary of EM&A program shall be determined in detailed design stage.

6 OPERATION PHASE AIR QUALITY IMPACT ASSESSMENT

6.1 Air Sensitive Receivers

6.1.1 During the operational phase, no emissions are anticipated from the proposed development. However, the data halls of the project are considered ASRs that require assessment. The developer intends to provide fresh air intakes for the entire development, and these intakes for the data halls will be located in areas with no adverse air quality impacts.

6.2 Buffer Distance Recommended by HKPSG

6.2.1 The suggested buffer distances from the Hong Kong Planning Standards and Guidelines (HKPSG) outlined in **Table 3-1** shall be adhered to in order to avoid potential air quality impacts.

6.2.2 The adjoining Wing Kin Road and Wing Chong Road are classified as Local Distributors according to Appendix G of the Annual Traffic Census 2023 (ATC 2023), requiring a buffer distance of 5 m, as shown in **Figure 6-1**. Since the buffer zones for roads are independent of elevation, the fresh air intake for the data hall should be located outside these buffer regions, irrespective of elevation.

6.2.3 For the industrial chimneys in the vicinity, a buffer distance of 10 to 200 meters is required, depending on the elevation difference between the emission point and the receiver. The required buffer regions for the identified chimneys are illustrated in **Figures 6-2a to 6-2e**. Please note that the buffer regions of the more distant chimneys with higher emission heights have been omitted for clarity in presentation.

- At or below 32 mPD (**Figure 6-2b**)
 - The Site is not within the buffer region of any chimney; thus, the only constraint for fresh air intakes is from the nearby roads.
- Between 32 mPD and 51 mPD (**Figure 6-2c**)
 - A small portion of the Site at the southwest corner falls within the buffer region of the chimney at Kwai Chung Crematorium (CH02).
- Between 51 mPD and 55 mPD (**Figure 6-2d**)
 - The southern portion of the Site is within the buffer region of the chimney at Wing Loi Industrial Building (CH01c).
- Between 55 mPD and 59 mPD (**Figure 6-2e**)
 - Most of the Site is within the buffer region of the chimney at Kwai Chung Crematorium (CH01b).
- Above 59 mPD (**Figure 6-2a**)
 - The Site is entirely within the buffer distance of the chimneys at Wing Kin Industrial Building (CH03a, CH03b, and CH03c).

6.3 Suitable Locations for Fresh Air Intakes for Areas with Sensitive Uses

6.3.1 The proposed façades for fresh air intakes are illustrated in **Figures 6-3a to 6-3g**. Please note that the buffer regions of the more distant chimneys with higher emission heights have been omitted for clarity in presentation. It is important to note that the proposed fresh air locations are designated only for areas with air-sensitive uses (e.g., data halls and other normally

occupied areas). For non-normally occupied areas, such as plant rooms, there are no restrictions on ventilation concerning air quality.

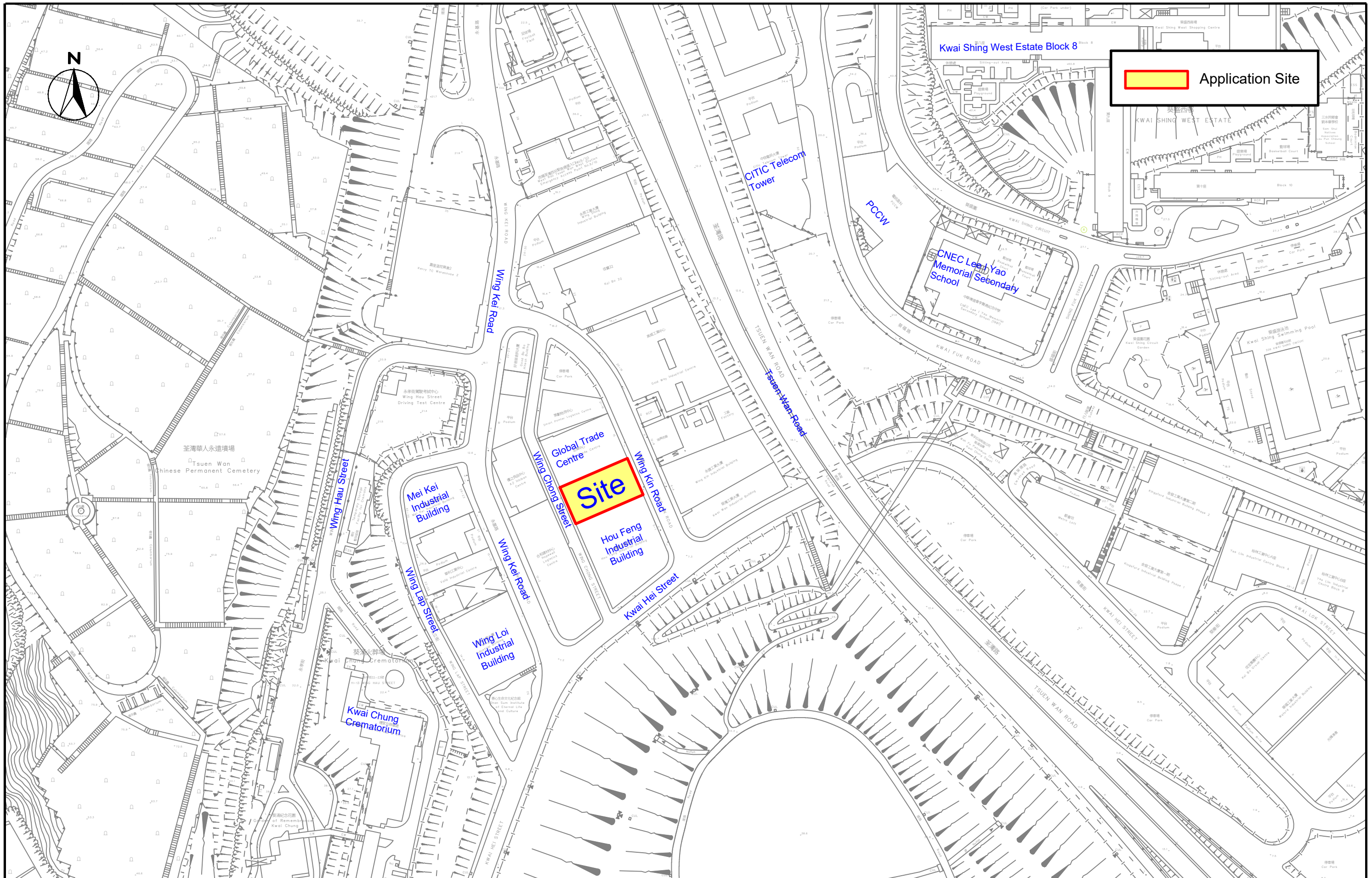
- G/F to 2/F (**Figures 6-3a to 6-3c**)
 - The entire eastern façade is suitable for fresh air intake.
 - The western façade is within the buffer region of Wing Chong Road.
- 3/F to 6/F (**Figures 6-3d to 6-3f**)
 - The entire eastern façade is suitable for fresh air intake.
 - A small portion of the western façade is outside the buffer region of Wing Chong Road and suitable for fresh air intake.
- 7/F (**Figure 6-3g**)
 - The majority of the Site is within the buffer region of the chimney at Wing Loi Industrial Building (CH01b).
 - Only the northern half of the eastern façade is suitable for fresh air intake.
- 8/F & above
 - No suitable locations for fresh air intake.

6.3.2 With the fresh air intakes for areas with air-sensitive uses positioned at the proposed locations, no air quality impacts during the operation of the project are anticipated.

7 CONCLUSION

- 7.1.1 The air quality impact from the construction of the proposed development on the surrounding area, as well as the impact from the surrounding area on the proposed development, has been assessed. With the implementation of dust suppression measures as outlined in the Air Pollution Control (Construction Dust) Regulation and adherence to good site practices, no adverse air quality impacts associated with the construction works are expected.
- 7.1.2 The proposed development is not considered an air pollution source during its operation. A qualitative assessment indicates that vehicular and industrial emissions are not expected to constrain the proposed development, provided that the locations of the fresh air intakes are carefully designed.

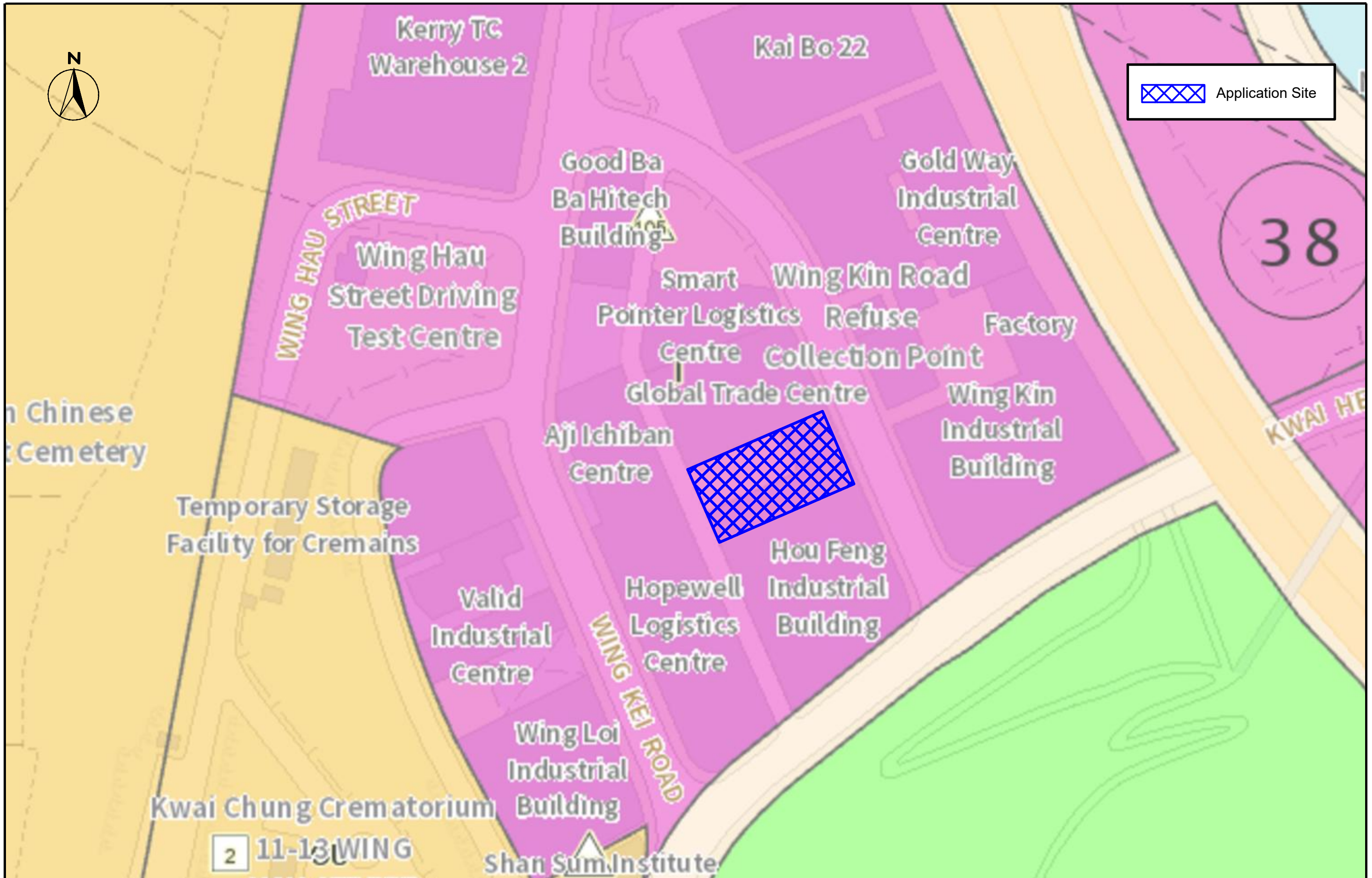
FIGURES



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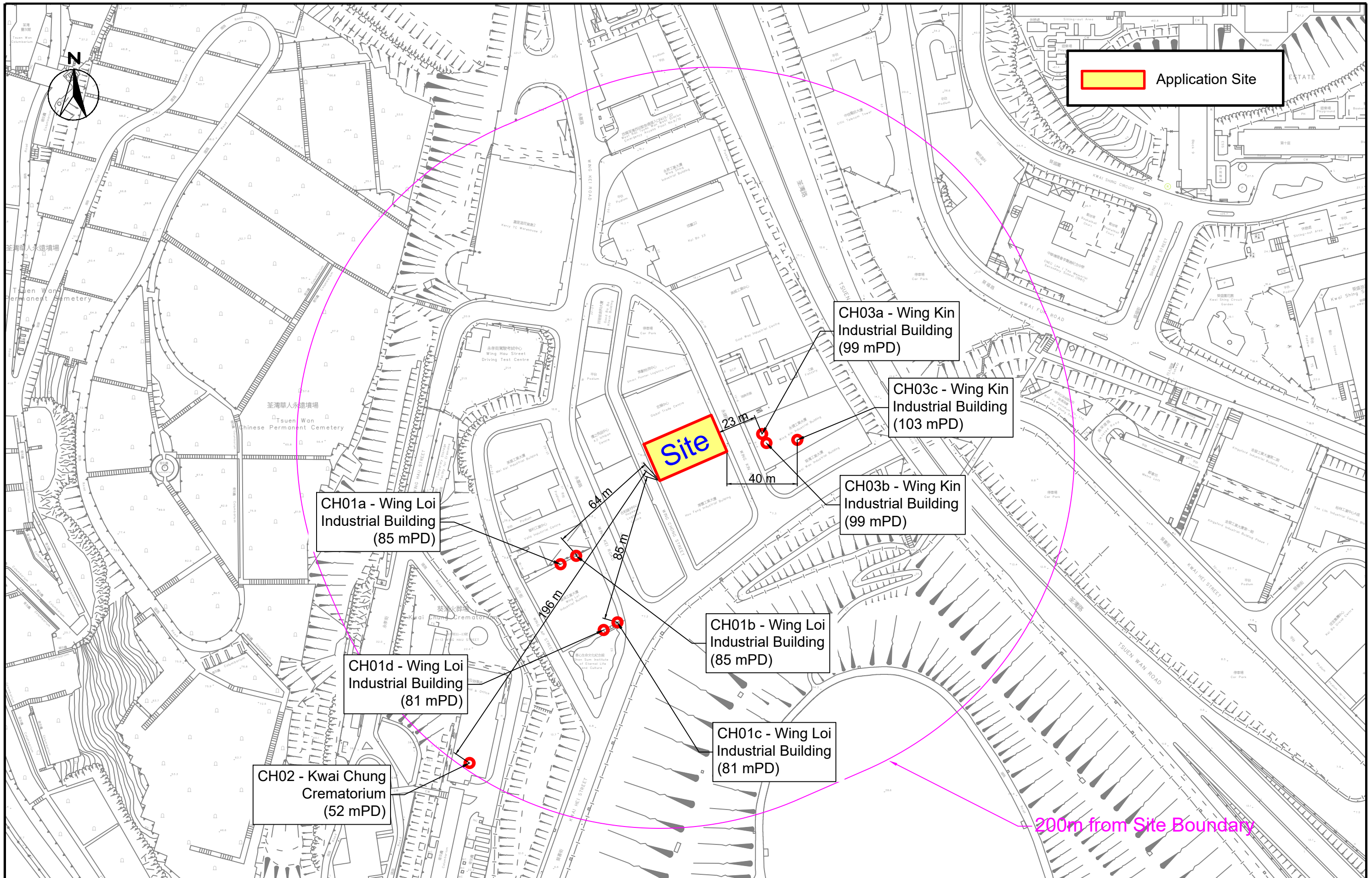
 Application Site



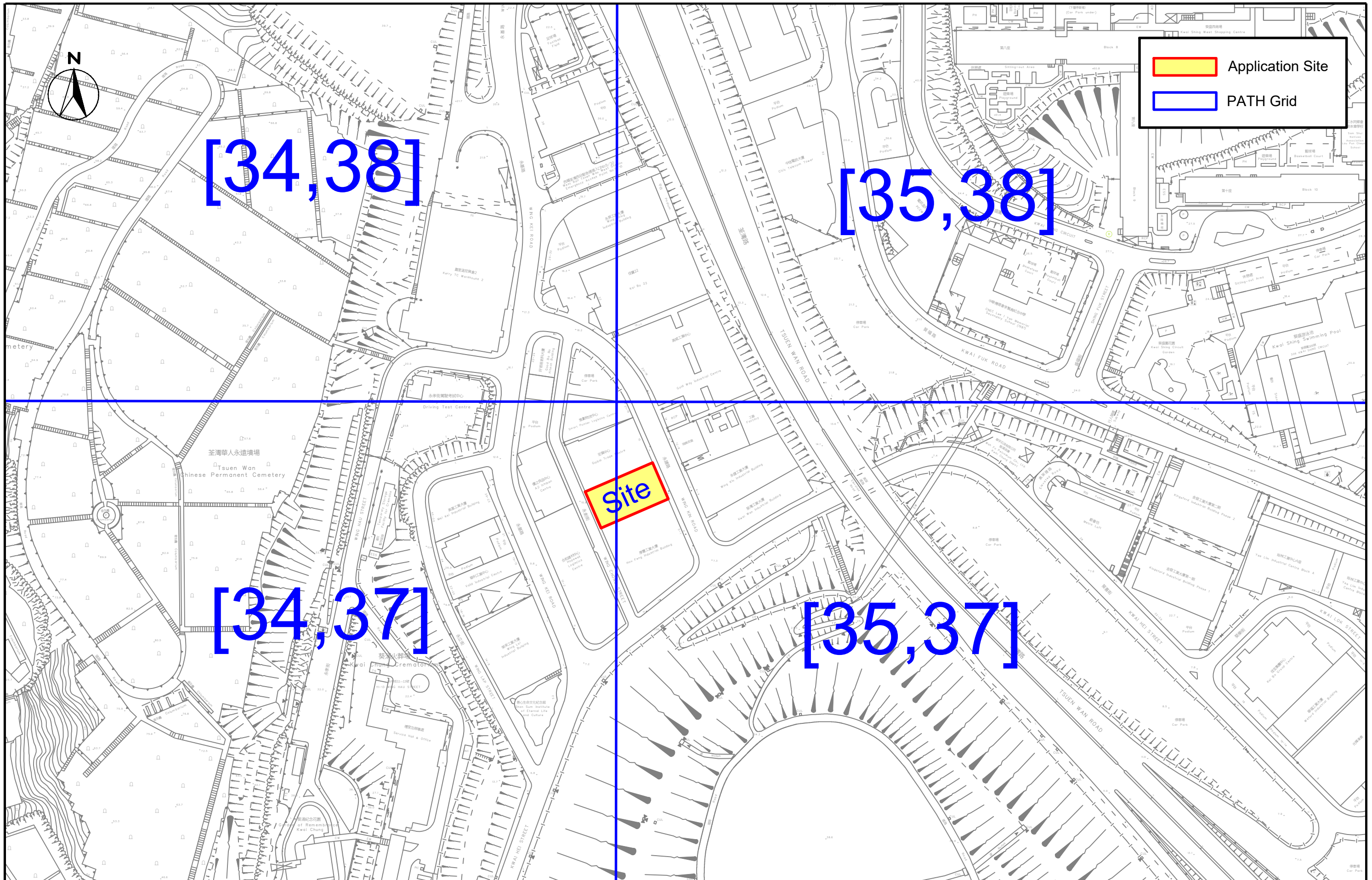
Proposed Data Centre at No. 7-11 Wing Kin Road, Kwai Chung (K.C.T.L. 145)

Outline Zoning Plan

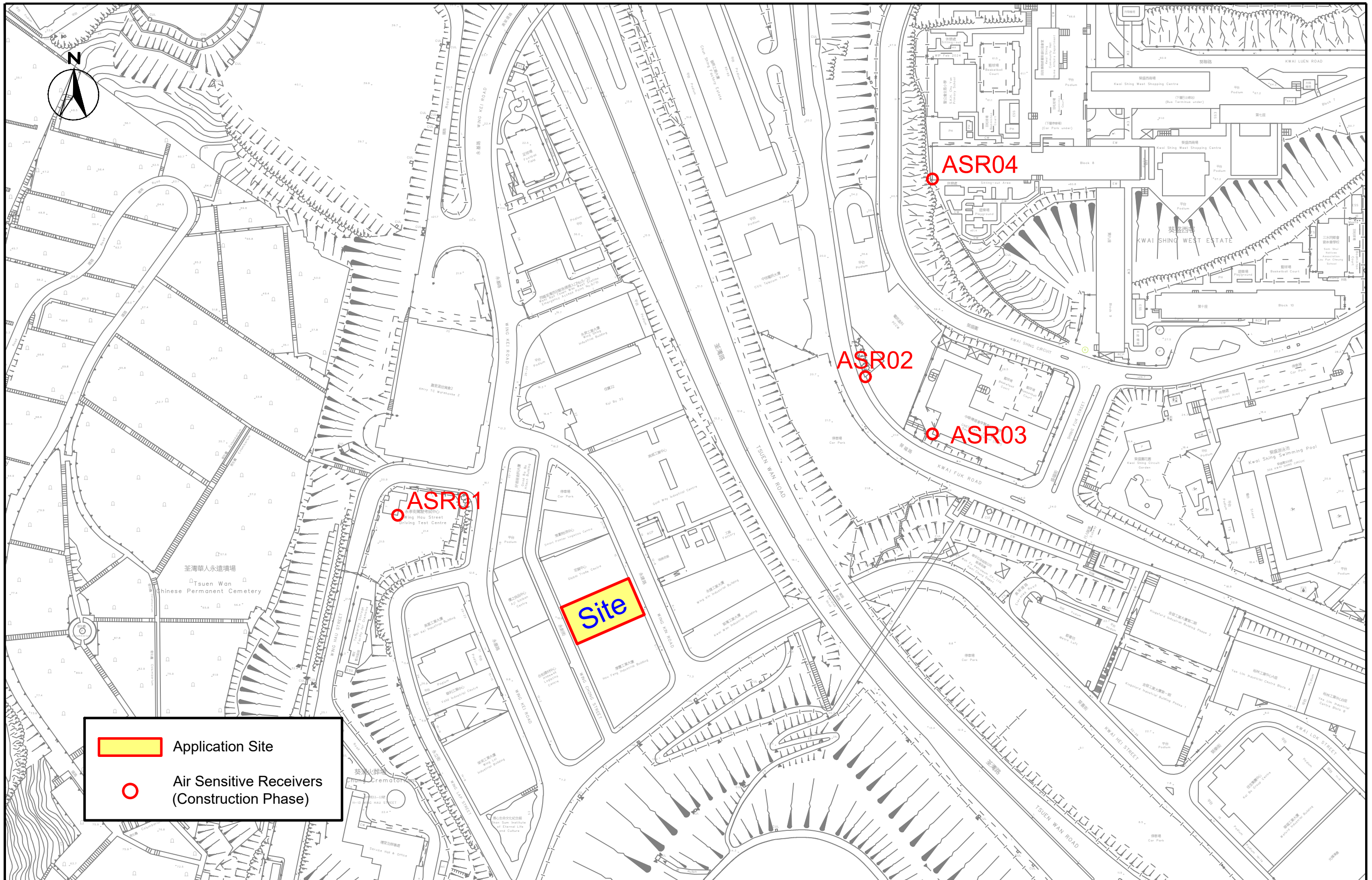
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JOB No.	IA23170	DRAWING No.	2-3
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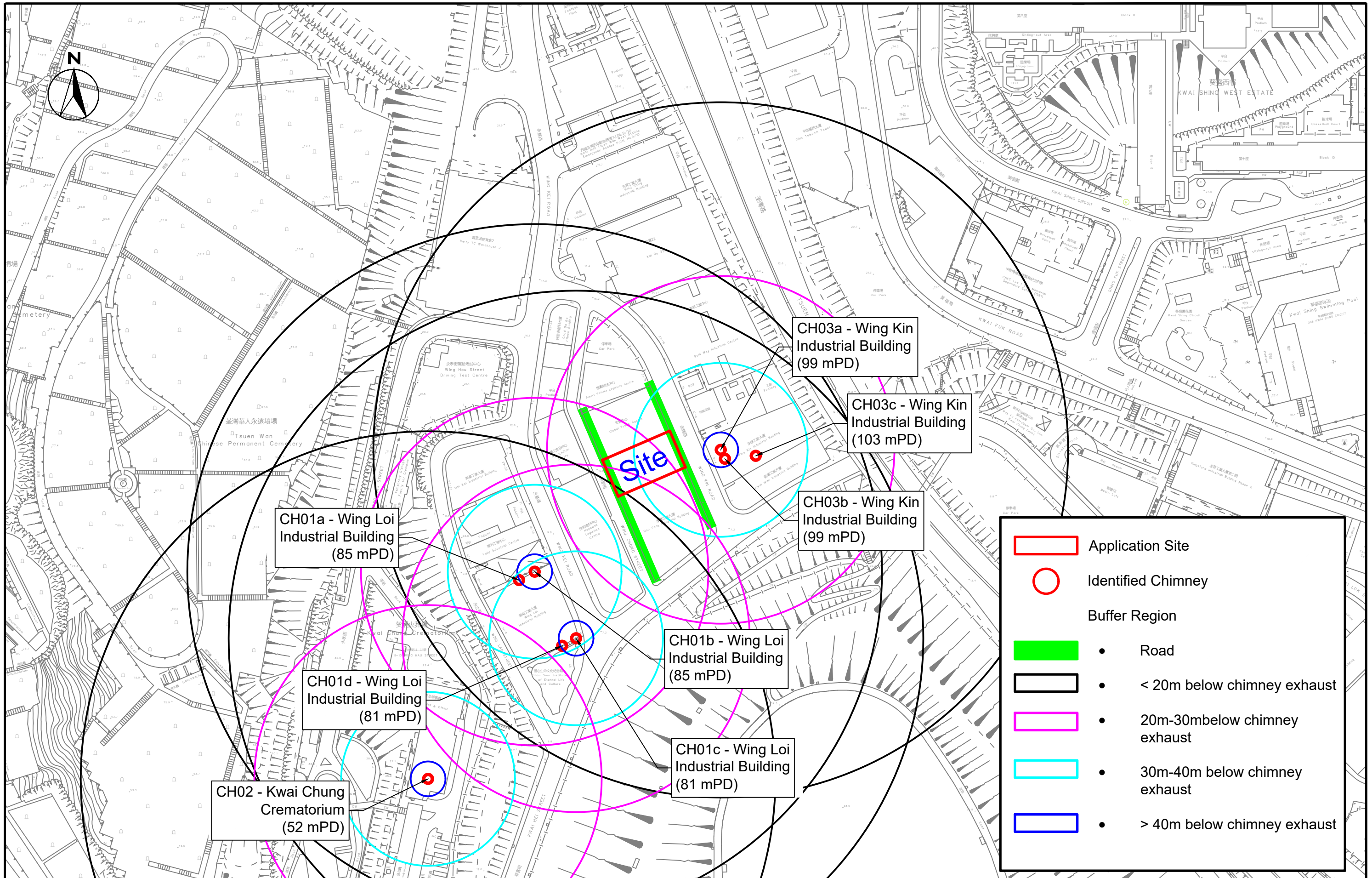


	Application Site
	Air Sensitive Receivers (Construction Phase)

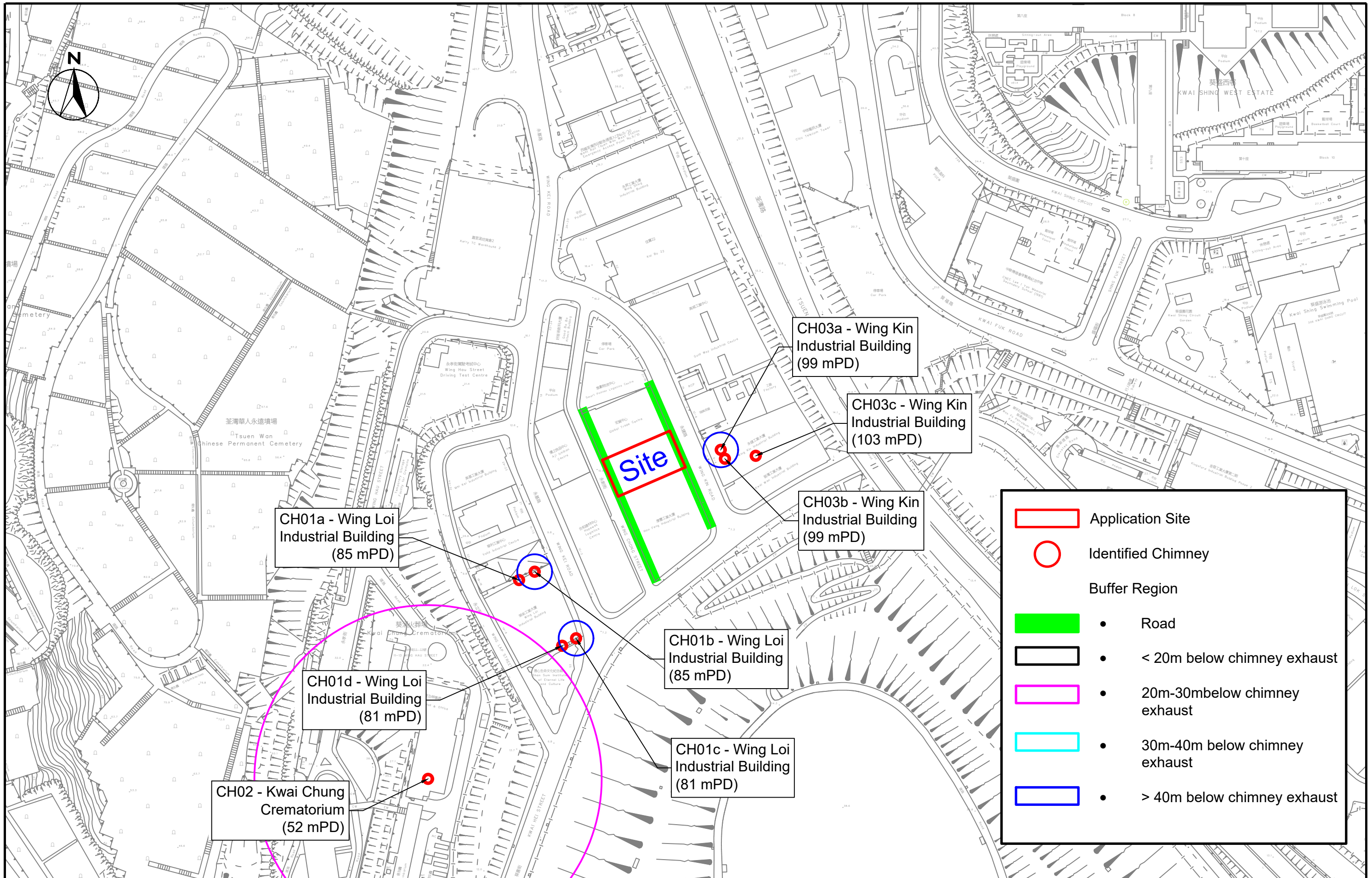
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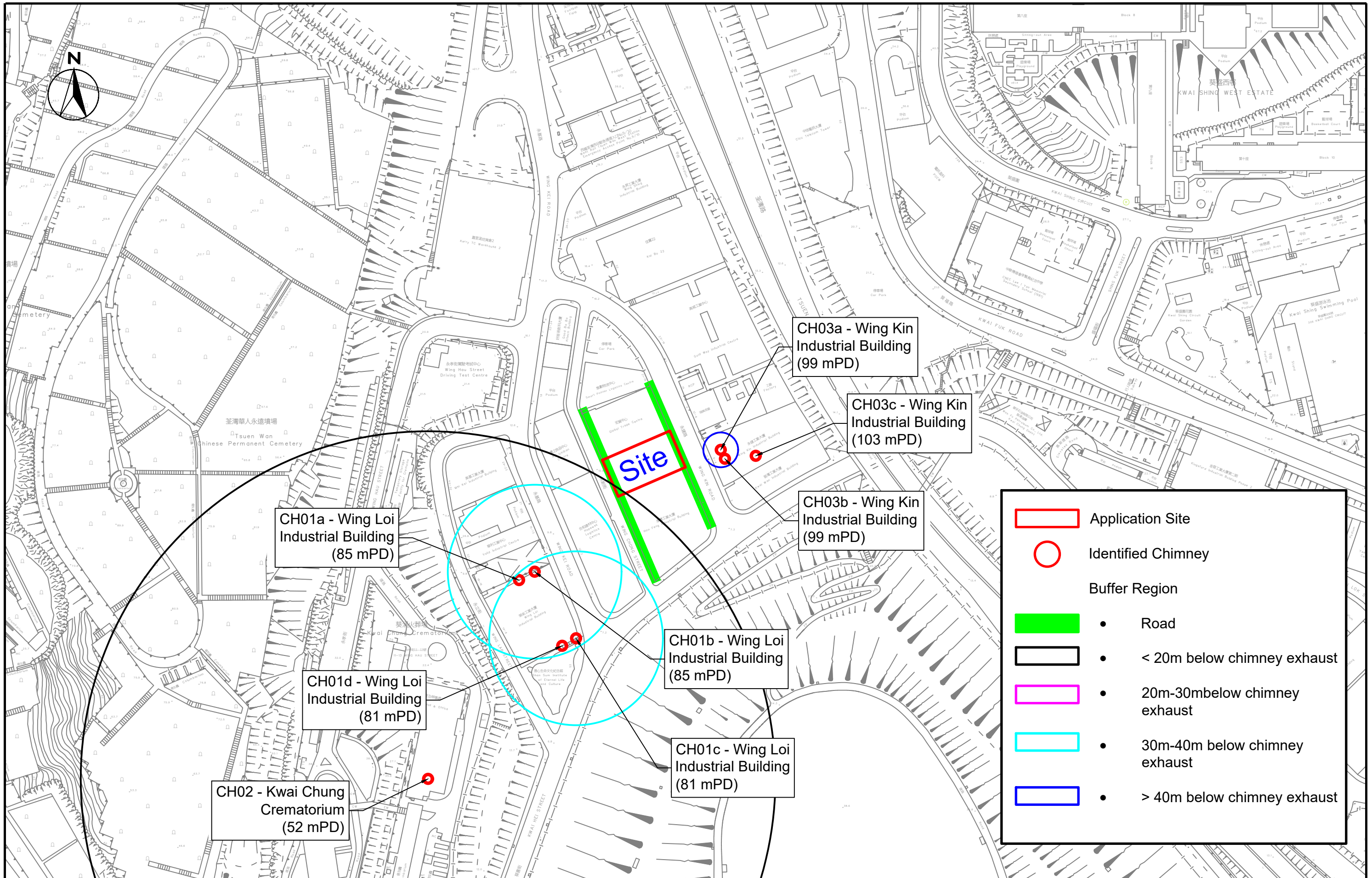


Proposed Data Centre at No. 7-11 Wing Kin Road, Kwai Chung (K.C.T.L. 145)

Required Buffer Regions (Below 32mPD)



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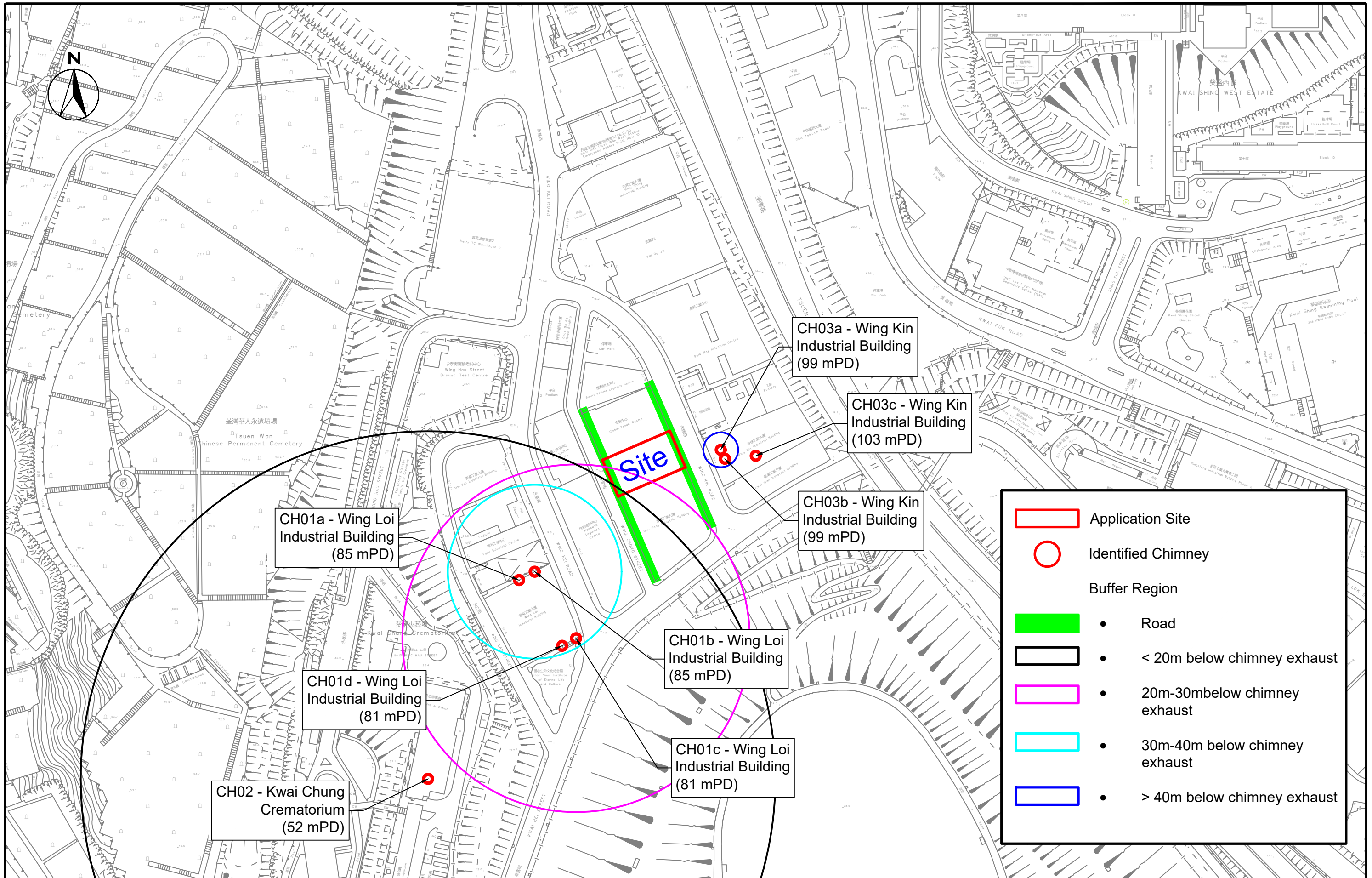
Application Site

Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust

SCALE	1:2000 @ A3	DATE	NOV 2024
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JOB No.	IA23170	DRAWING No.	6-2c
		REV	-



CH01a - Wing Loi Industrial Building (85 mPD)

CH03a - Wing Kin Industrial Building (99 mPD)

CH03c - Wing Kin Industrial Building (103 mPD)

CH03b - Wing Kin Industrial Building (99 mPD)

CH01b - Wing Loi Industrial Building (85 mPD)

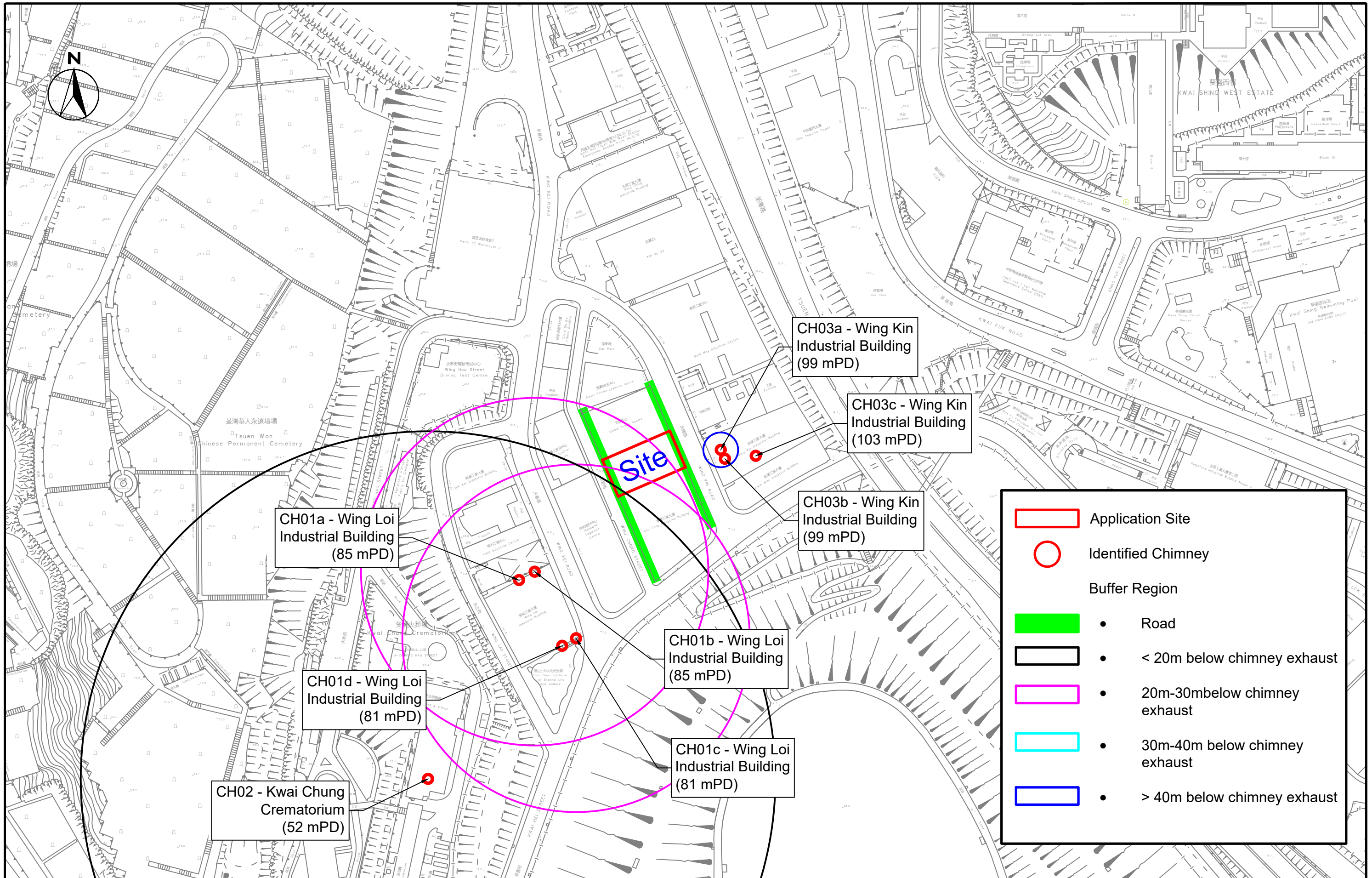
CH01d - Wing Loi Industrial Building (81 mPD)

CH01c - Wing Loi Industrial Building (81 mPD)

CH02 - Kwai Chung Crematorium (52 mPD)

	Application Site
	Identified Chimney
Buffer Region	
	• Road
	• < 20m below chimney exhaust
	• 20m-30m below chimney exhaust
	• 30m-40m below chimney exhaust
	• > 40m below chimney exhaust

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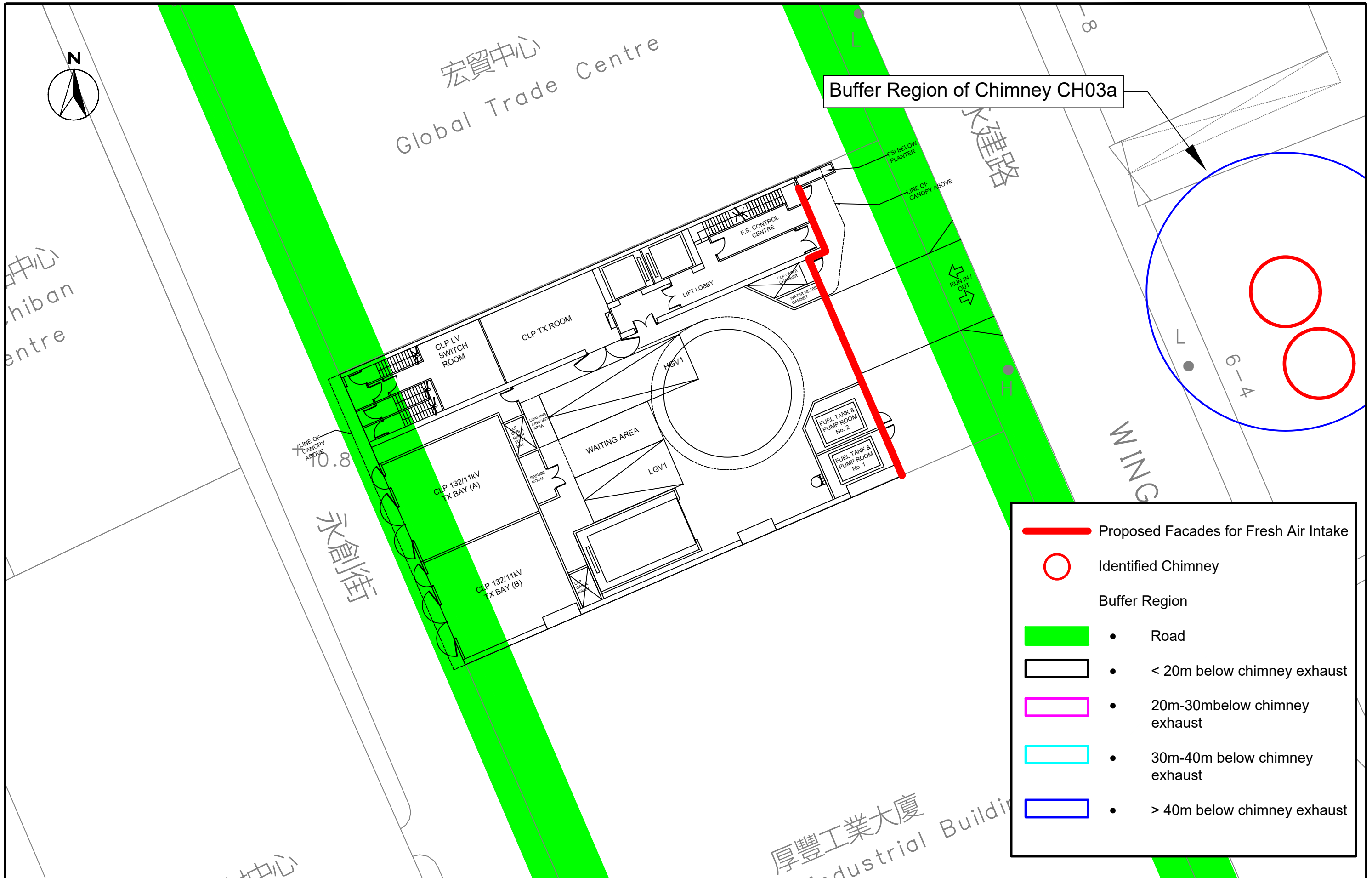
Application Site

Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust

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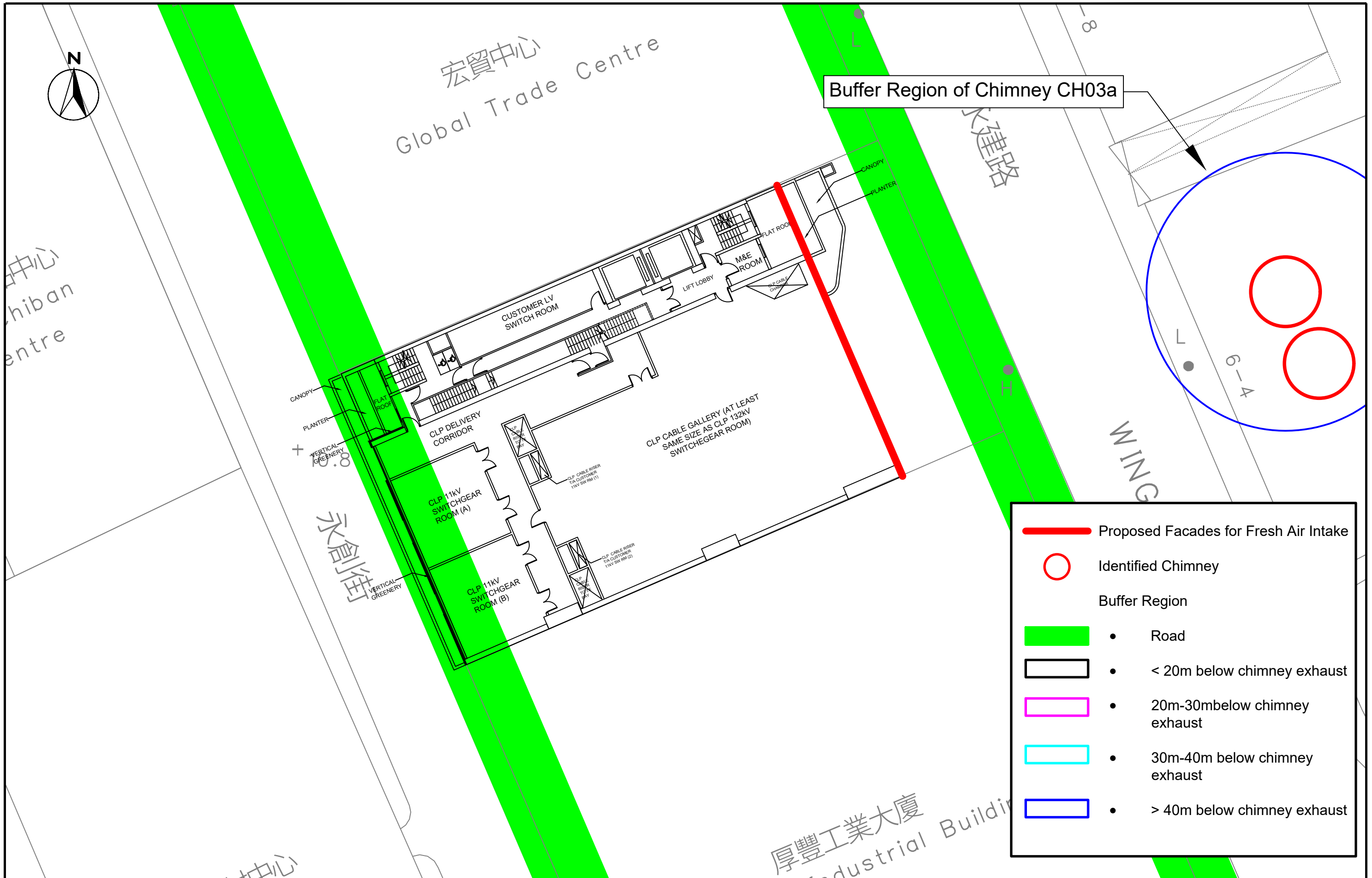
Buffer Region of Chimney CH03a

— Proposed Facades for Fresh Air Intake
○ Identified Chimney
 Buffer Region
 • Road
 • < 20m below chimney exhaust
 • 20m-30m below chimney exhaust
 • 30m-40m below chimney exhaust
 • > 40m below chimney exhaust



Proposed Data Centre at No. 7-11 Wing Kin Road, Kwai Chung (K.C.T.L. 145)
Proposed Facades for Fresh Air Intake (G/F)

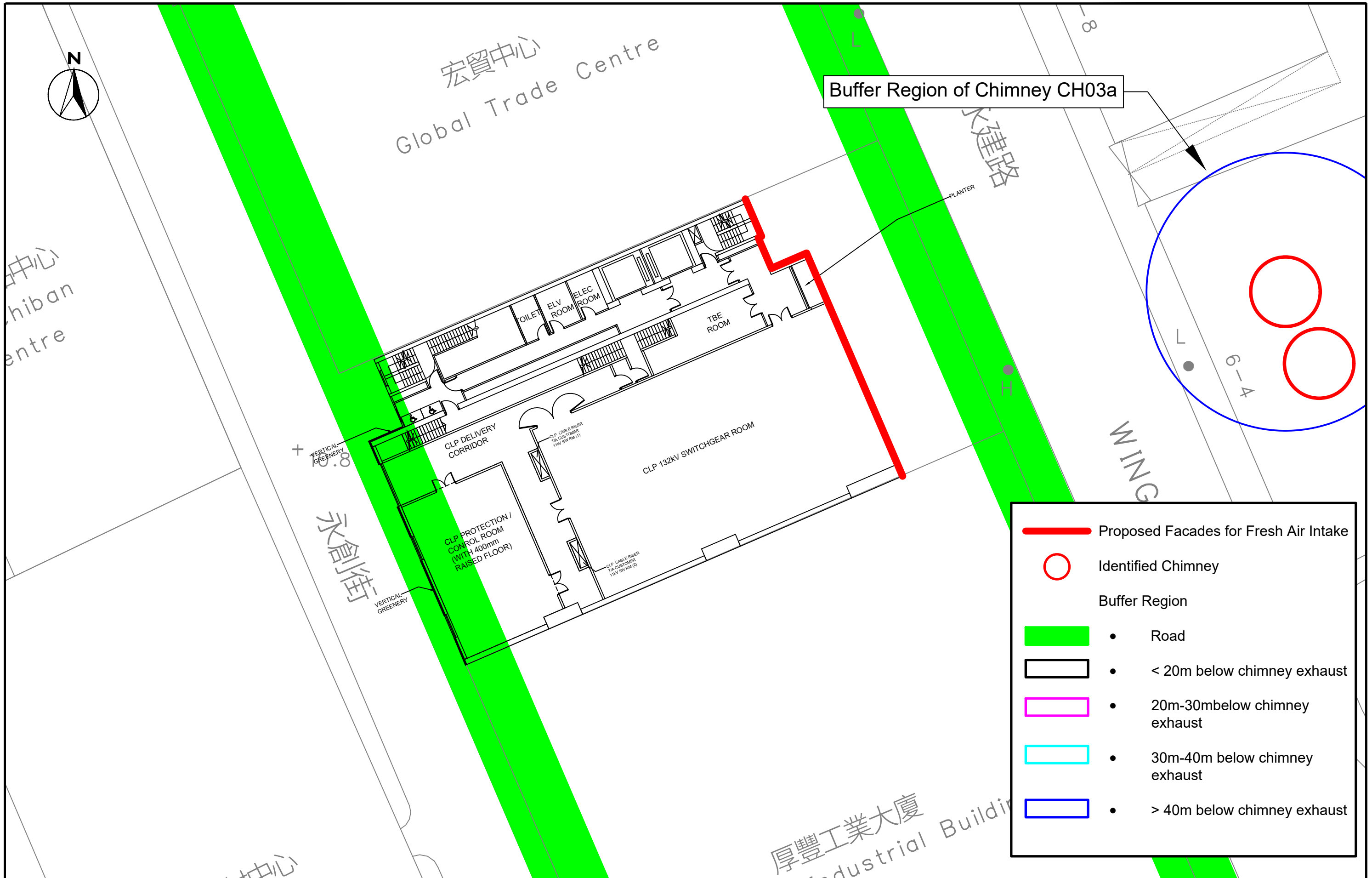
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JOB No.	IA23170	DRAWING No.	6-3a
		REV	-



Buffer Region of Chimney CH03a

— Proposed Facades for Fresh Air Intake
○ Identified Chimney
Buffer Region
 • Road
 • < 20m below chimney exhaust
 • 20m-30m below chimney exhaust
 • 30m-40m below chimney exhaust
 • > 40m below chimney exhaust

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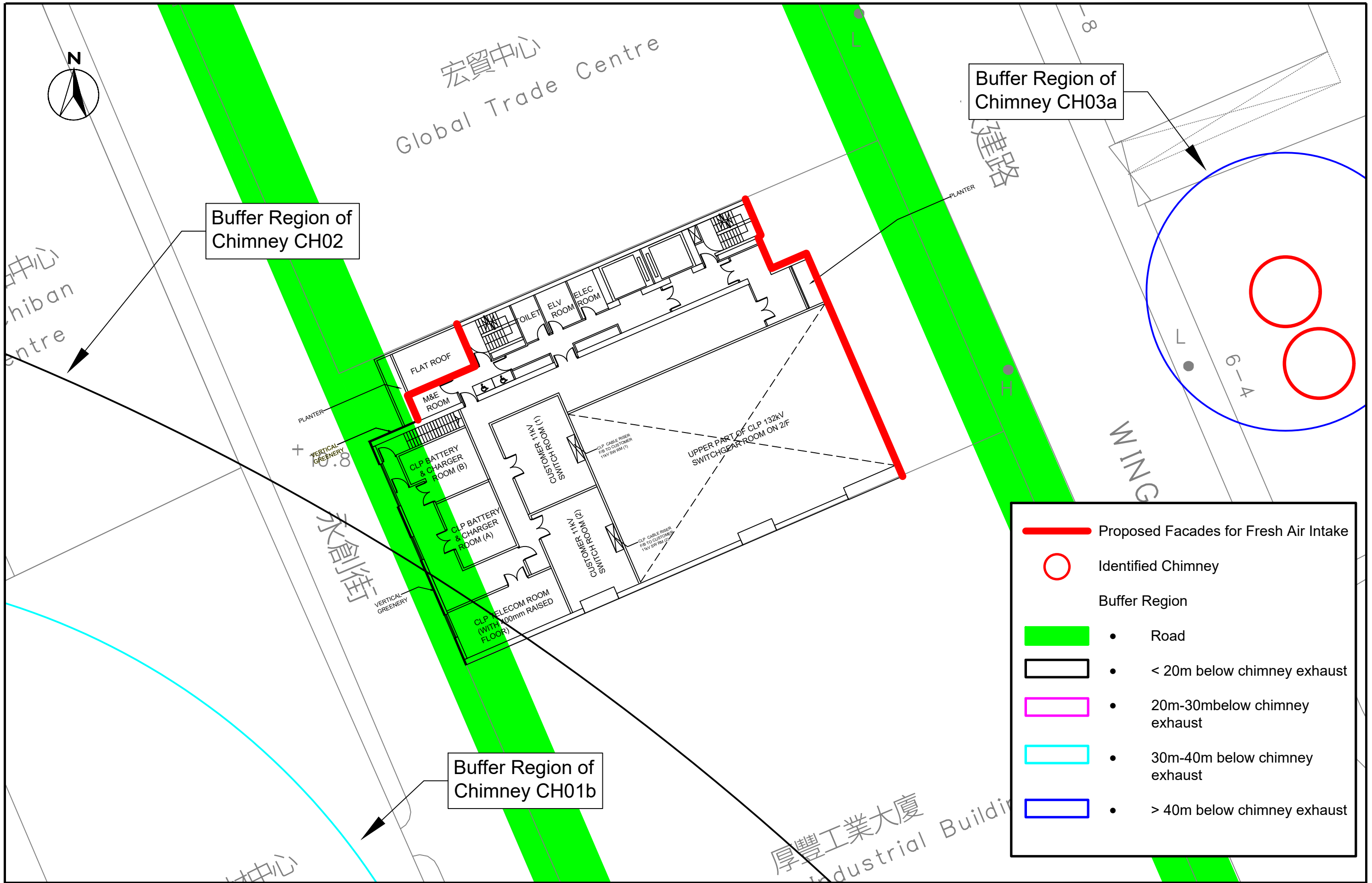


Proposed Facades for Fresh Air Intake

○ Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust



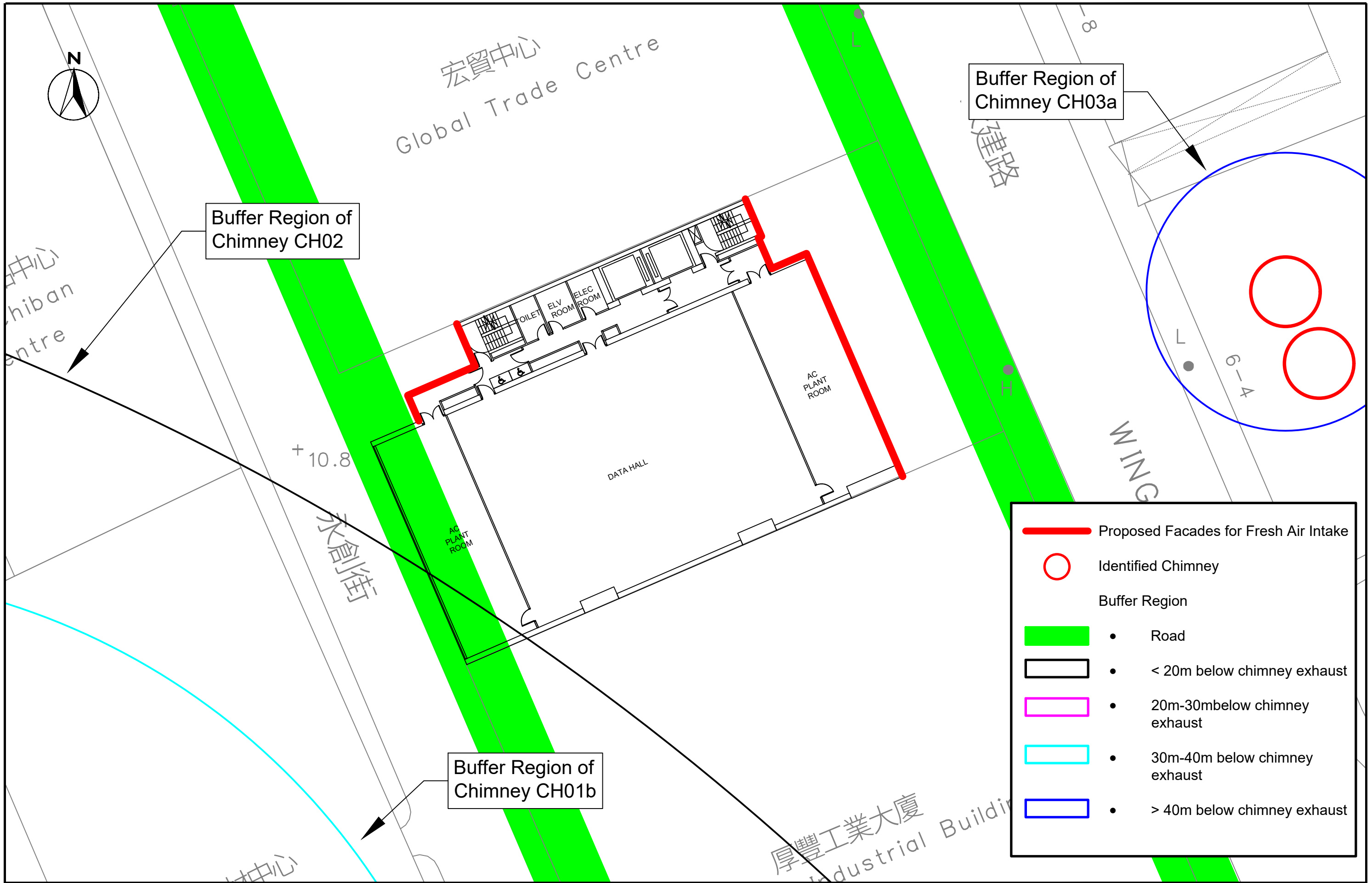
— Proposed Facades for Fresh Air Intake

○ Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust

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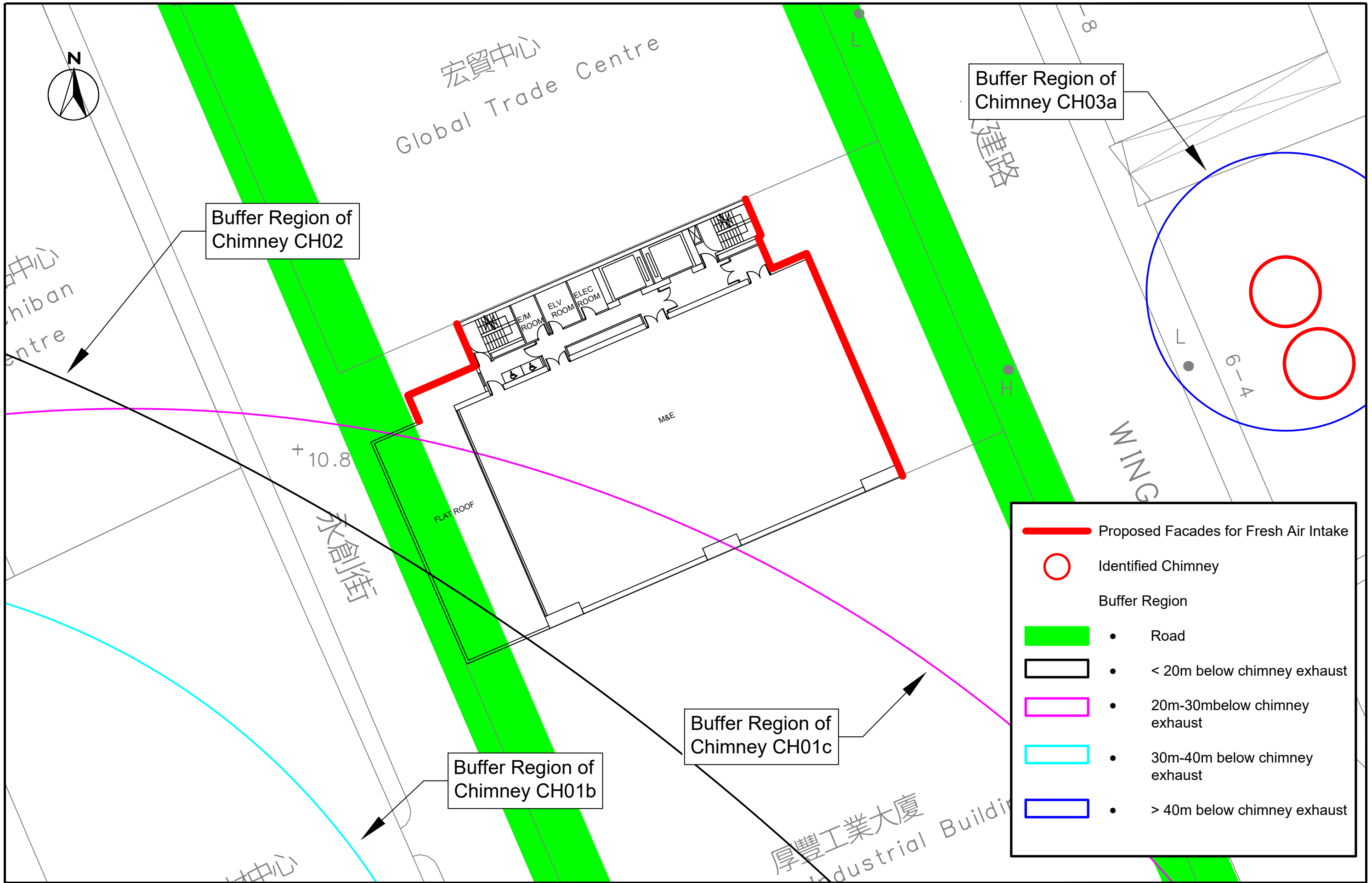
Buffer Region of Chimney CH02

Buffer Region of Chimney CH03a

Buffer Region of Chimney CH01b

— Proposed Facades for Fresh Air Intake
○ Identified Chimney
 Buffer Region
 • Road
 • < 20m below chimney exhaust
 • 20m-30m below chimney exhaust
 • 30m-40m below chimney exhaust
 • > 40m below chimney exhaust

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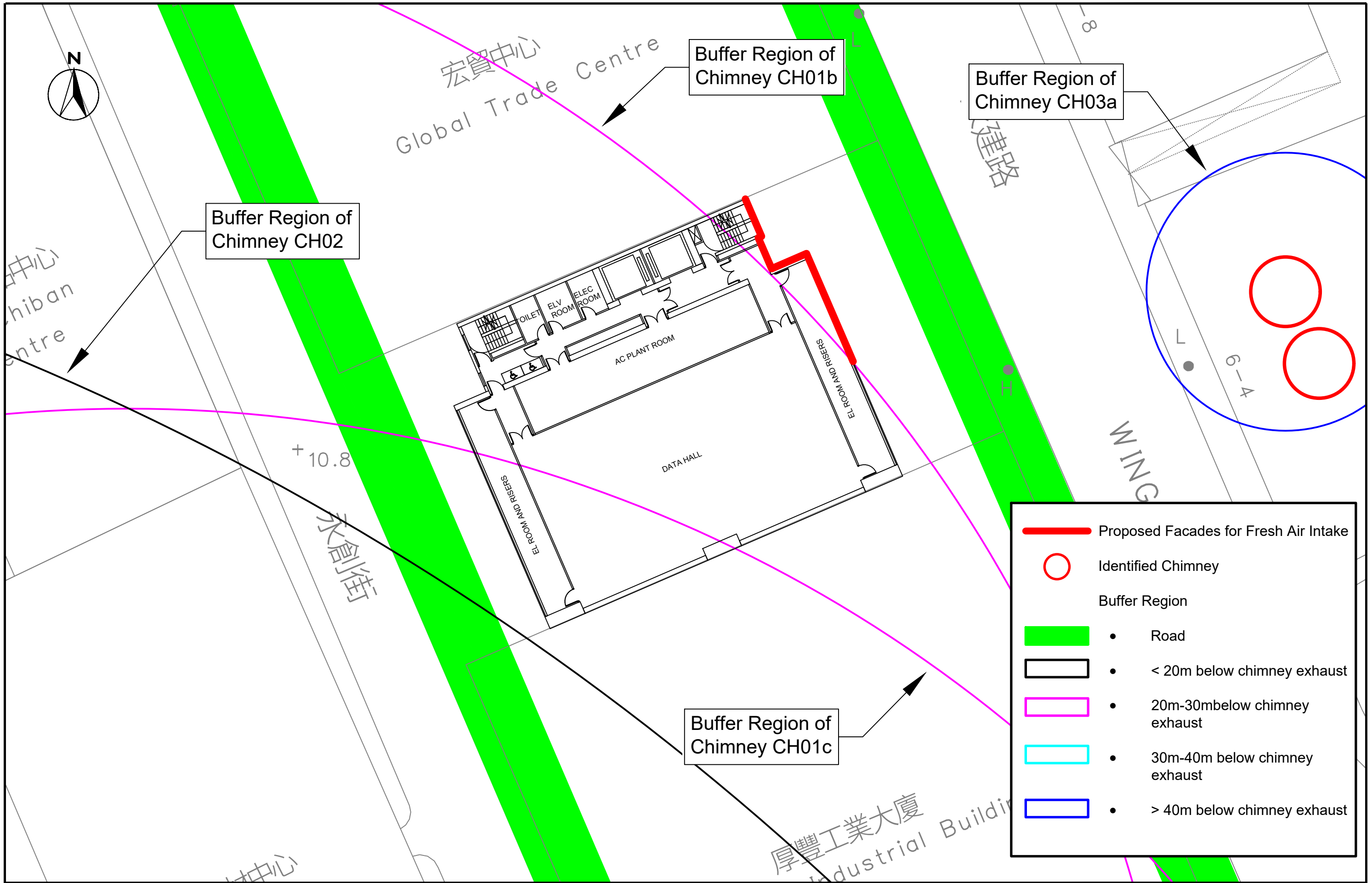
Proposed Facades for Fresh Air Intake

Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust

SCALE	1:250 @ A3	DATE	Jan 2025
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Proposed Facades for Fresh Air Intake

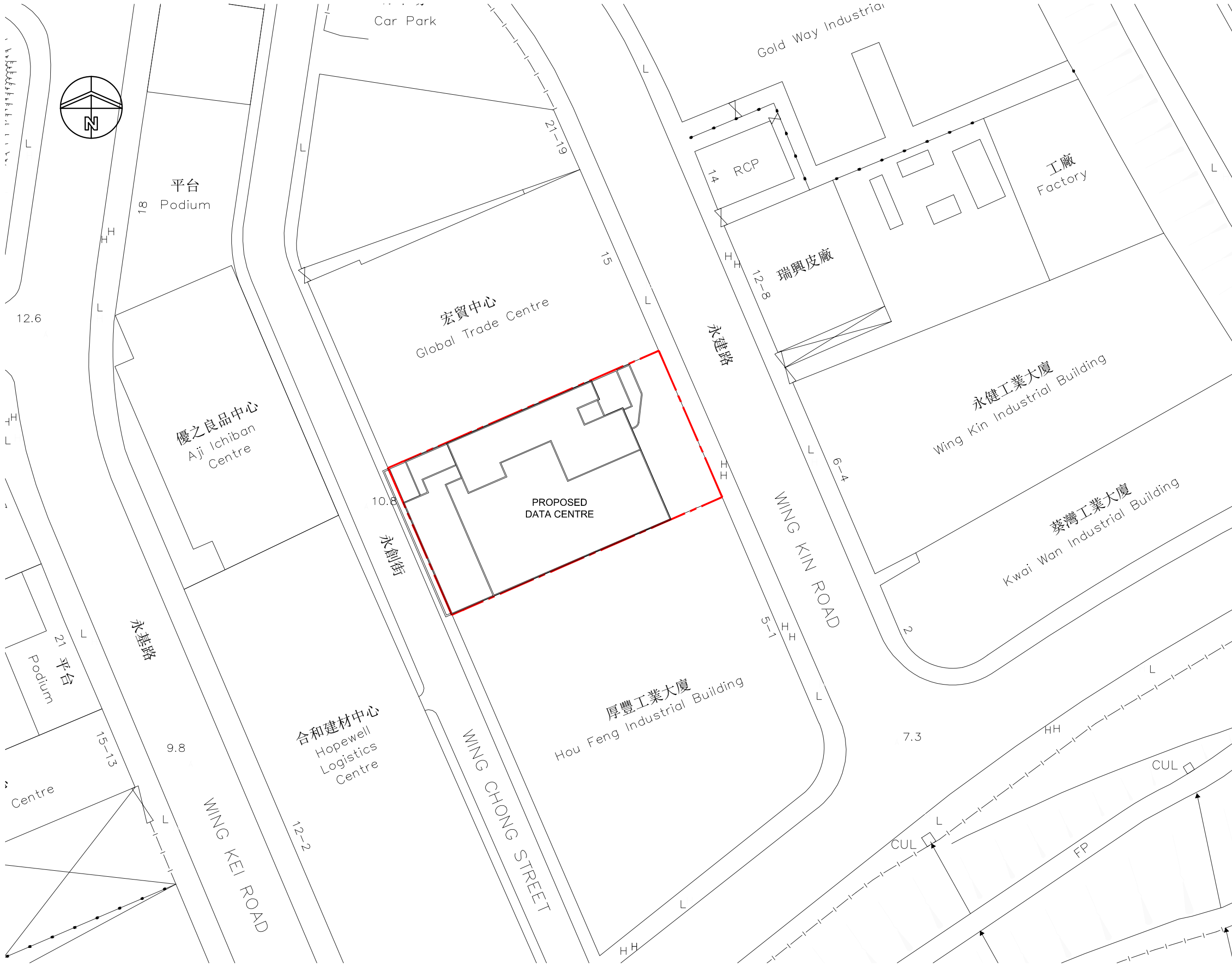
○ Identified Chimney

Buffer Region

- Road
- < 20m below chimney exhaust
- 20m-30m below chimney exhaust
- 30m-40m below chimney exhaust
- > 40m below chimney exhaust

SCALE	1:250 @ A3	DATE	Jan 2025
CHECK	CC	DRAWN	DK
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**APPENDIX 2-1
TENTATIVE LAYOUT OF THE
PROPOSED DEVELOPMENT**



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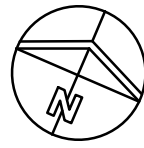
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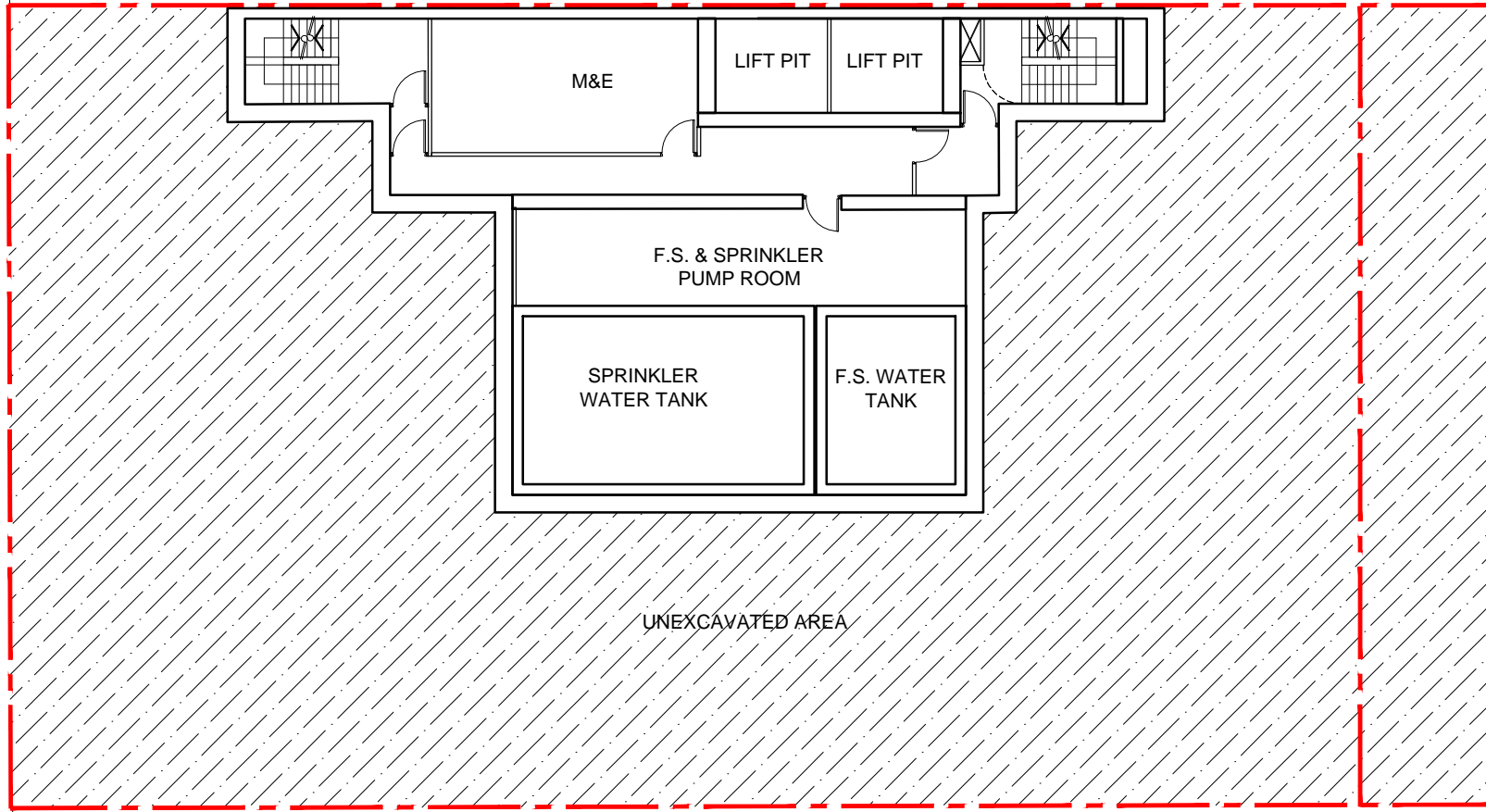
PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 BLOCK PLAN

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SCALE	1:500	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-01



WING CHONG STREET
(9.142m WIDE)



GLOBAL TRADE CENTRE

15

UNEXCAVATED AREA

HOU FENG INDUSTRIAL BUILDING

1-5

WING KIN ROAD
(15.84m WIDE)

12-8

6-4

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NO	DATE	DESCRIPTION

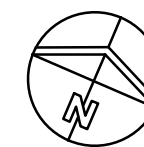
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Email: mail@studiorca.com

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PROJECT NAME
PROPOSED DATA CENTRE
7-11 WING KIN ROAD
KWAI CHUNG, N.T.

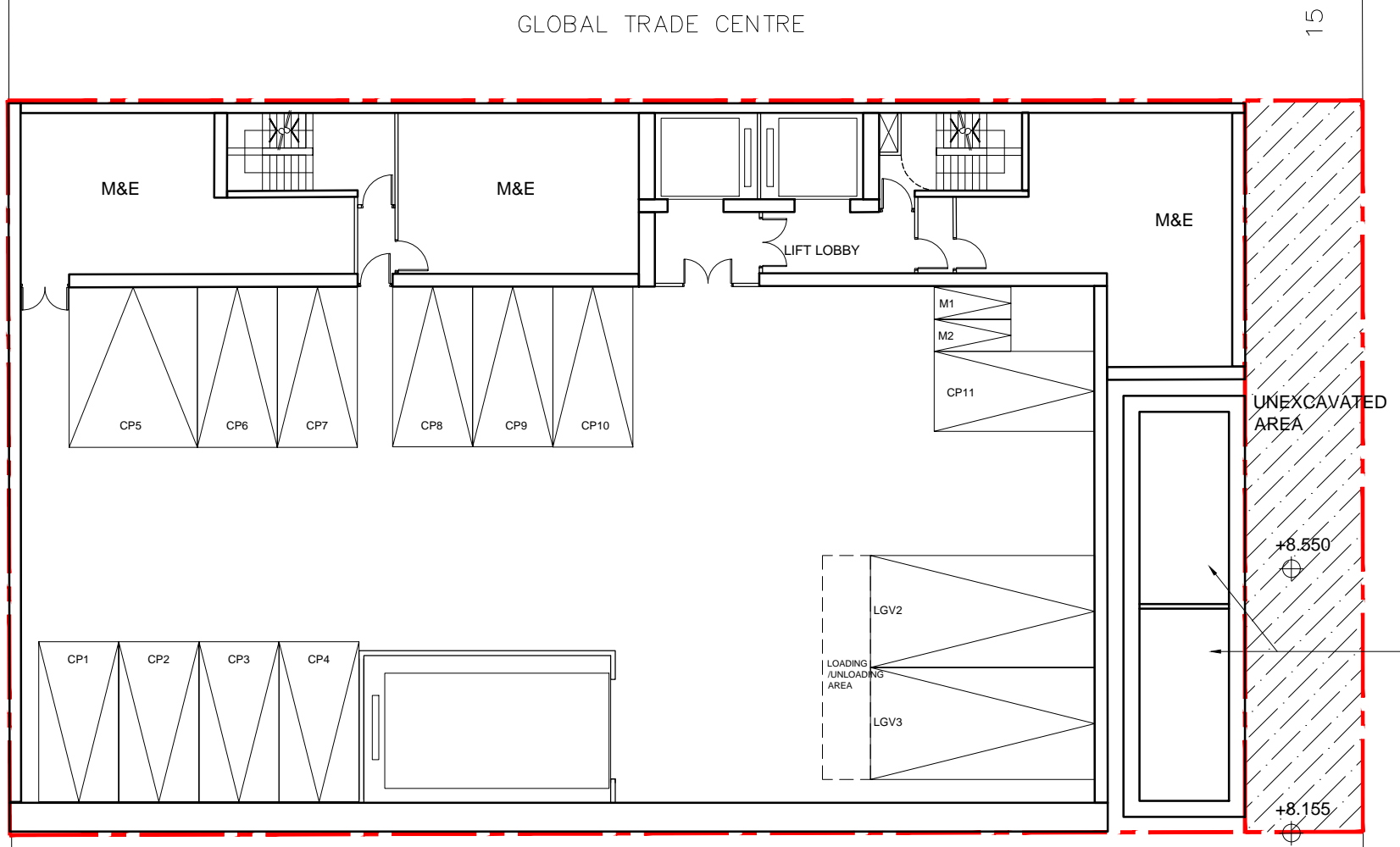
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B2/F PLAN

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JOB No.	2208	DRAWING No.	A-02



WING CHONG STREET
(9.142m WIDE)

WING KIN ROAD
(15.84m WIDE)



GLOBAL TRADE CENTRE

HOU FENG INDUSTRIAL BUILDING

12-8

6-4

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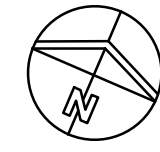
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PROJECT NAME
**PROPOSED DATA CENTRE
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KWAI CHUNG, N.T.**

DRAWING TITLE
B1/F PLAN

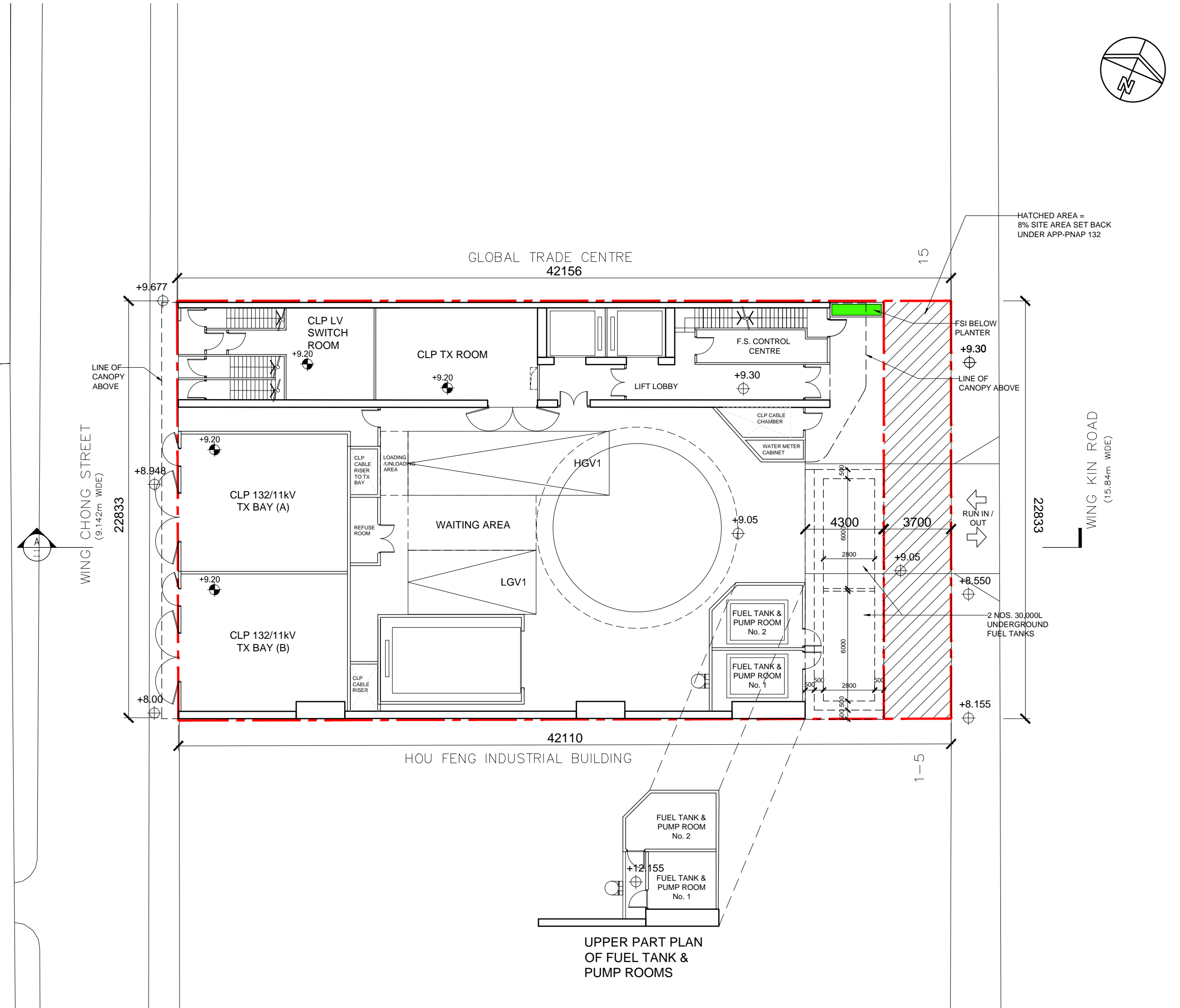
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12-8

6-4



HATCHED AREA = 8% SITE AREA SET BACK UNDER APP-PNAP 132

FSI BELOW PLANTER
 +9.30
 LINE OF CANOPY ABOVE

RUN IN / OUT

2 NOS. 30,000L UNDERGROUND FUEL TANKS

UPPER PART PLAN OF FUEL TANK & PUMP ROOMS

REVISION		
NO.	DATE	DESCRIPTION

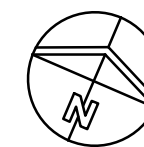
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PROJECT NAME
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 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 G/F PLAN

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PROJECT NAME
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 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

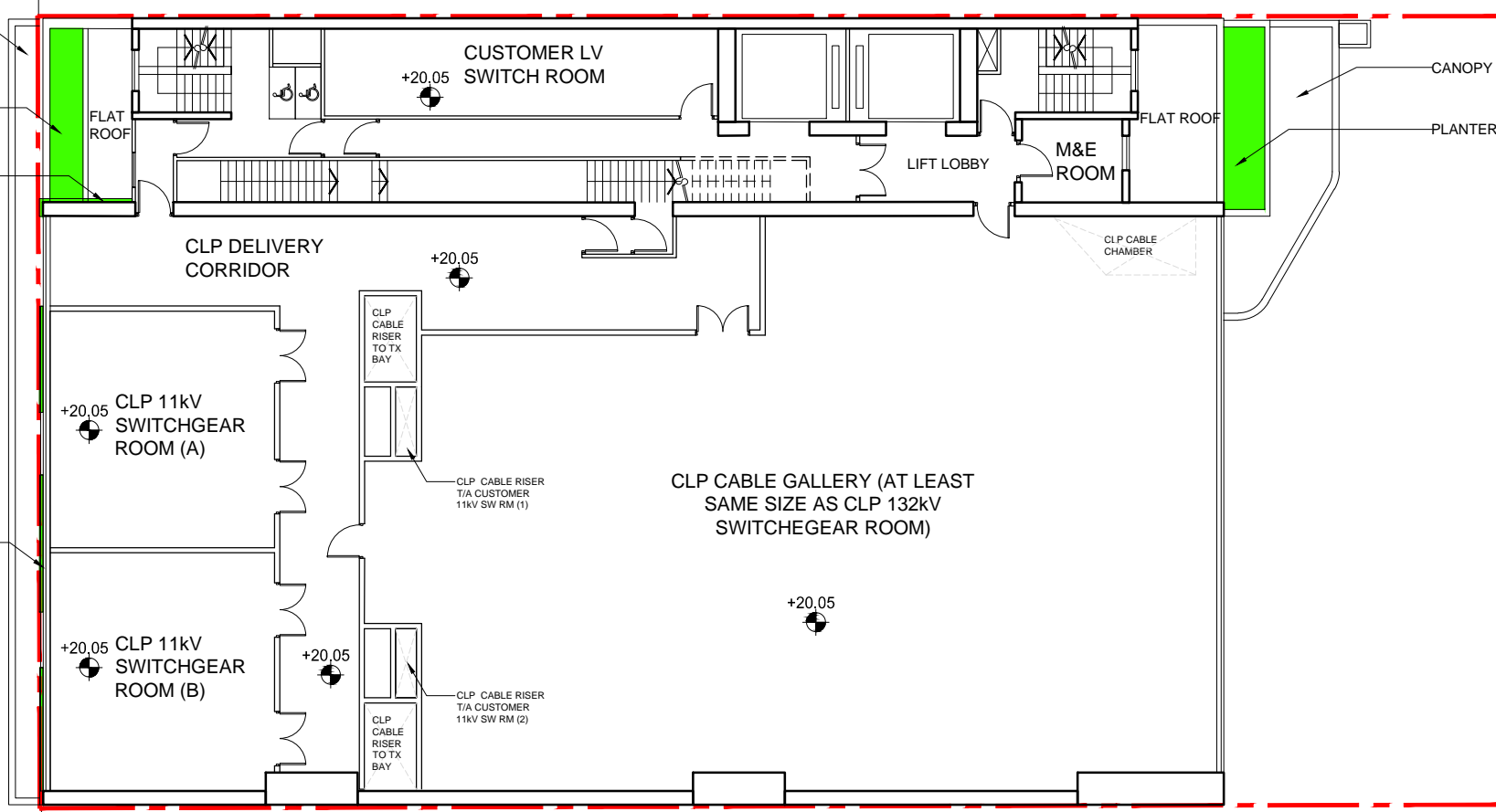
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 1/F PLAN

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WING KIN ROAD
 (15.84m WIDE)

GLOBAL TRADE CENTRE

15

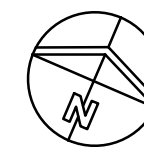


HOU FENG INDUSTRIAL BUILDING

1-5

WING CHONG STREET
 (9.142m WIDE)

6-4



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REVISION		
NO	DATE	DESCRIPTION

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 Tel: 3583-2000 | Fax: 8143-1130
 Email: mail@studiorca.com

STUDIO | RAYMOND CHAU | ARCHITECTURE | LIMITED

PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

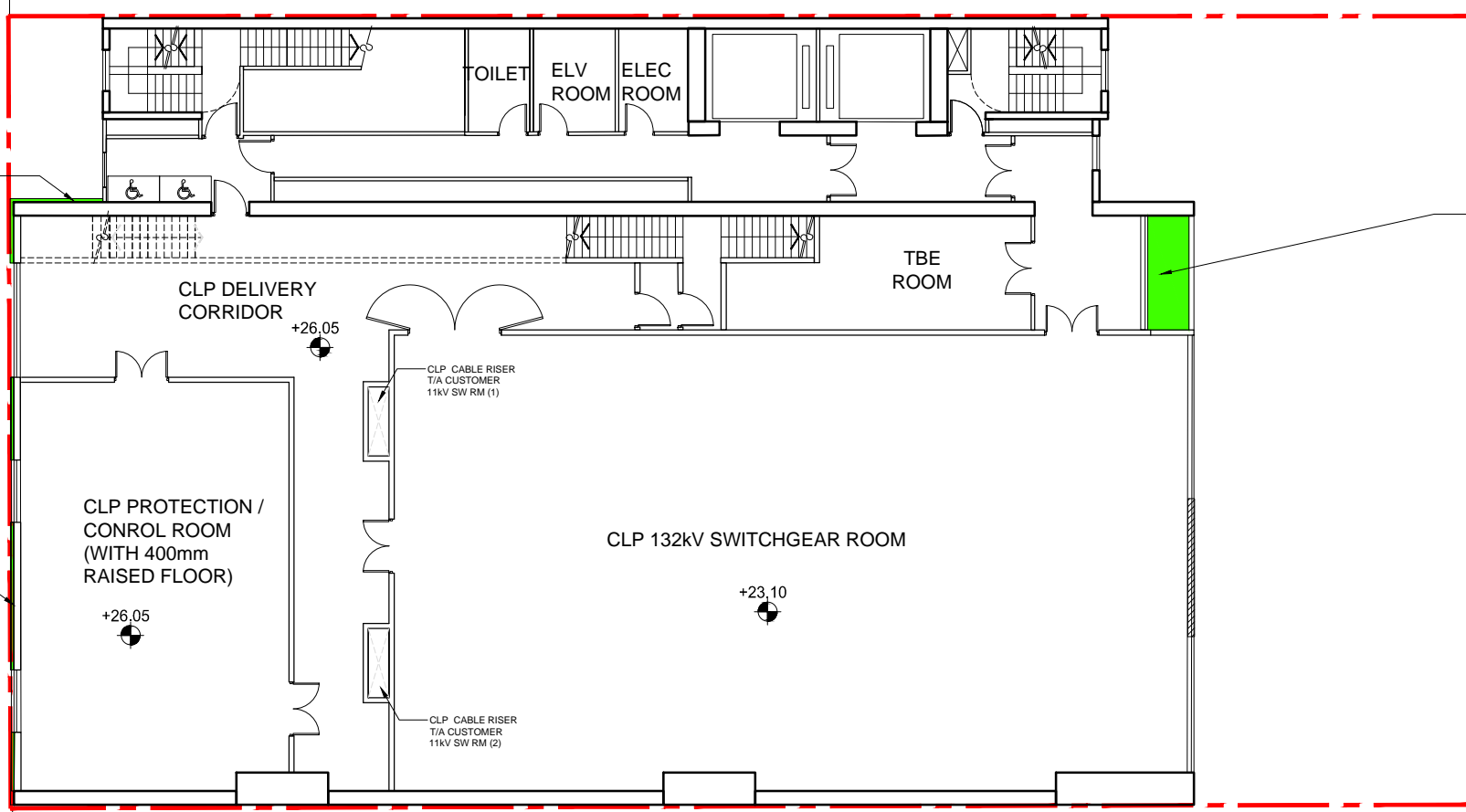
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 2/F PLAN

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SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-06

6-4

GLOBAL TRADE CENTRE

15

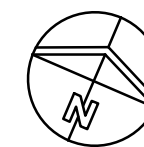


WING CHONG STREET
 (9.142m WIDE)

WING KIN ROAD
 (15.84m WIDE)

HOU FENG INDUSTRIAL BUILDING

1-5



NOTES:
 DO NOT SCALE DRAWINGS.
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12-8

6-4

REVISION		
NO	DATE	DESCRIPTION

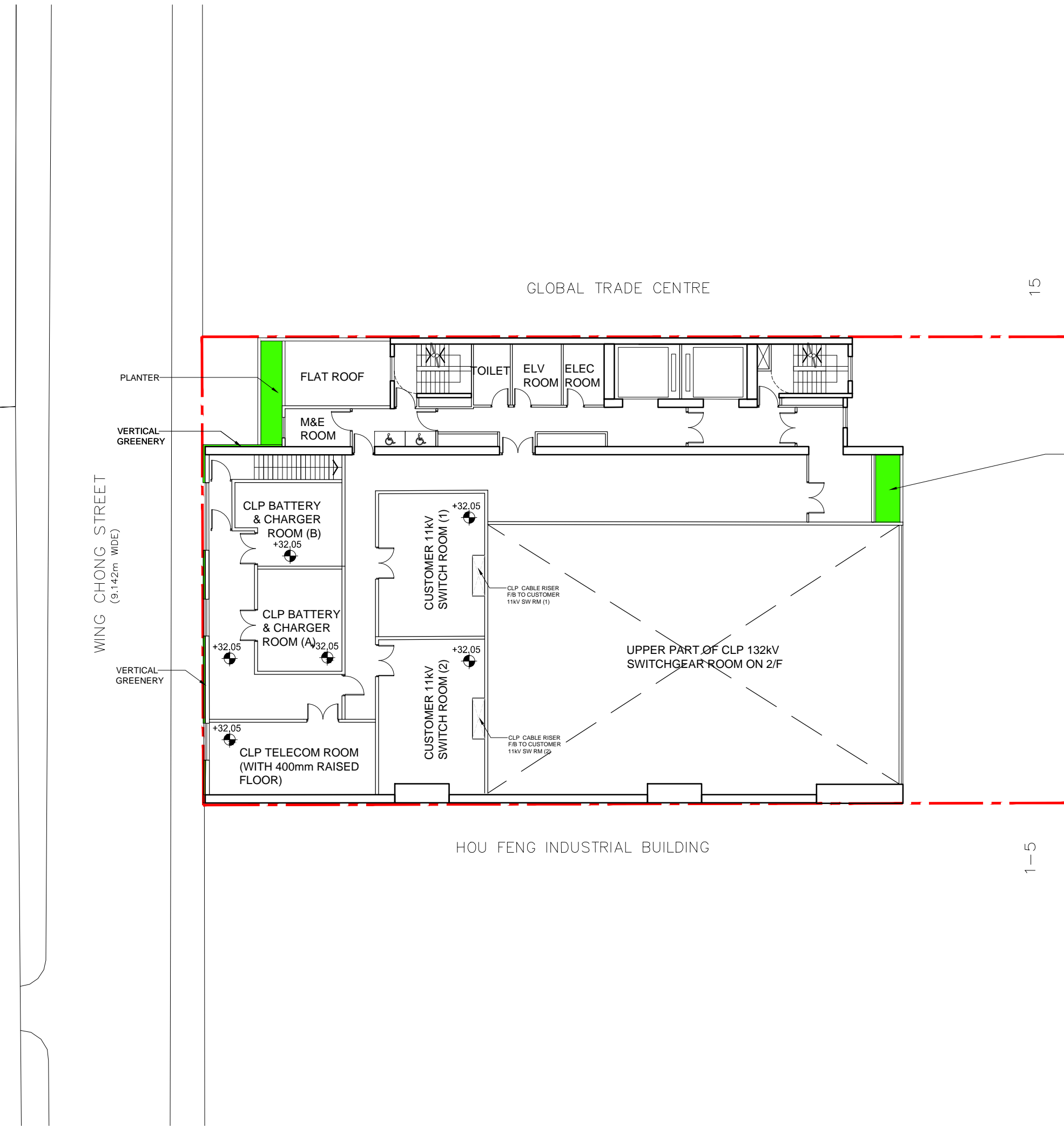
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 18/F | Xiu Hua Commercial Building
 211-213 Jaffe Road | Wan Chai | HK
 Tel: 3583-2000 | Fax: 8143-1130
 Email: mail@studiorca.com

STUDIO | RAYMOND CHAU | ARCHITECTURE | LIMITED

PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 3/F PLAN

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-07



GLOBAL TRADE CENTRE

15

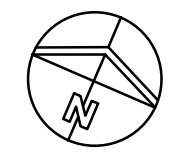
WING CHONG STREET
 (9.142m WIDE)

WING KIN ROAD
 (15.84m WIDE)

HOU FENG INDUSTRIAL BUILDING

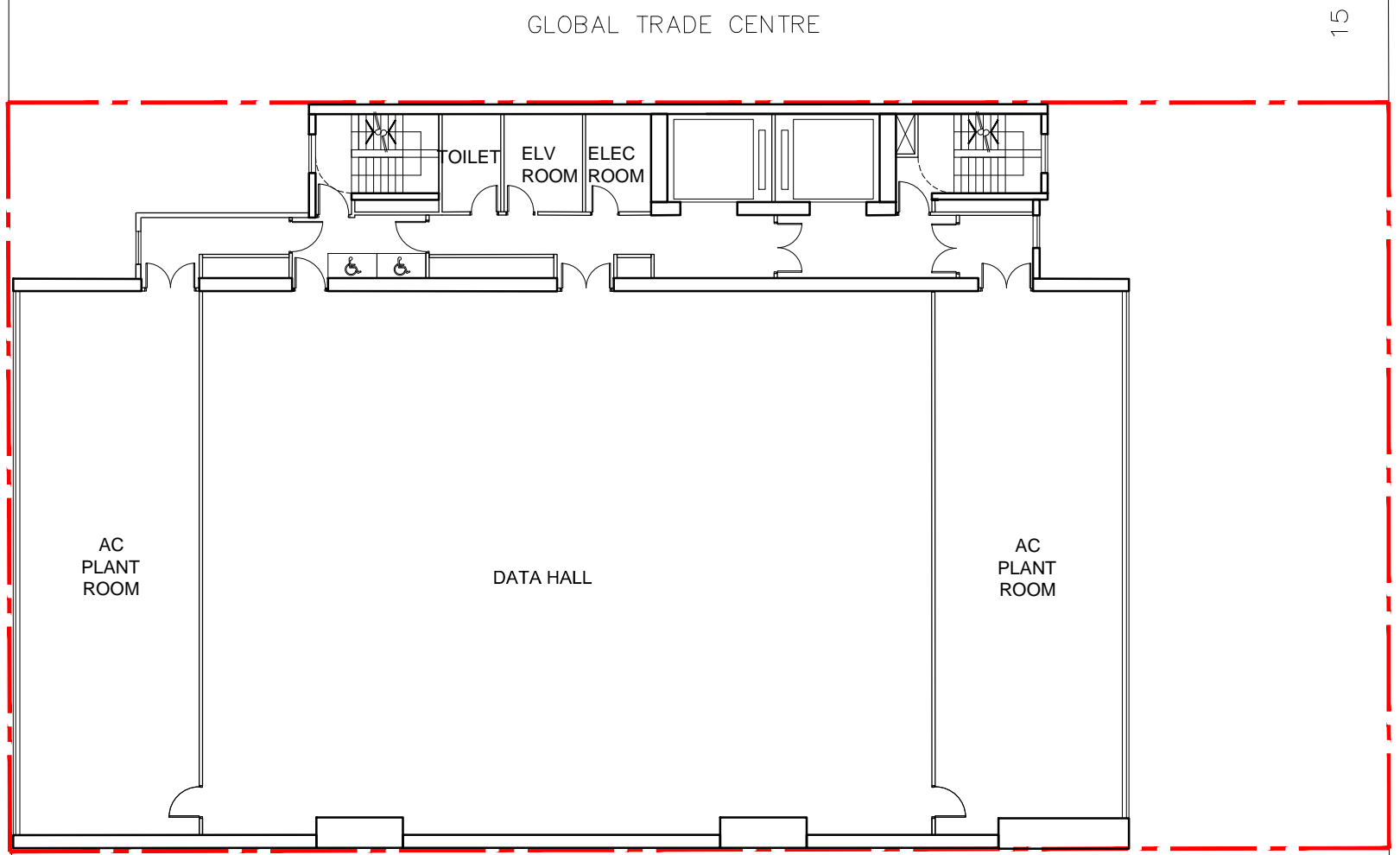
1-5

6-4



WING CHONG STREET
(9.142m WIDE)

WING KIN ROAD
(15.84m WIDE)



GLOBAL TRADE CENTRE

15

HOU FENG INDUSTRIAL BUILDING

1-5

12-8

6-4

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REVISION		
NO	DATE	DESCRIPTION

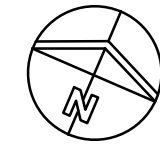
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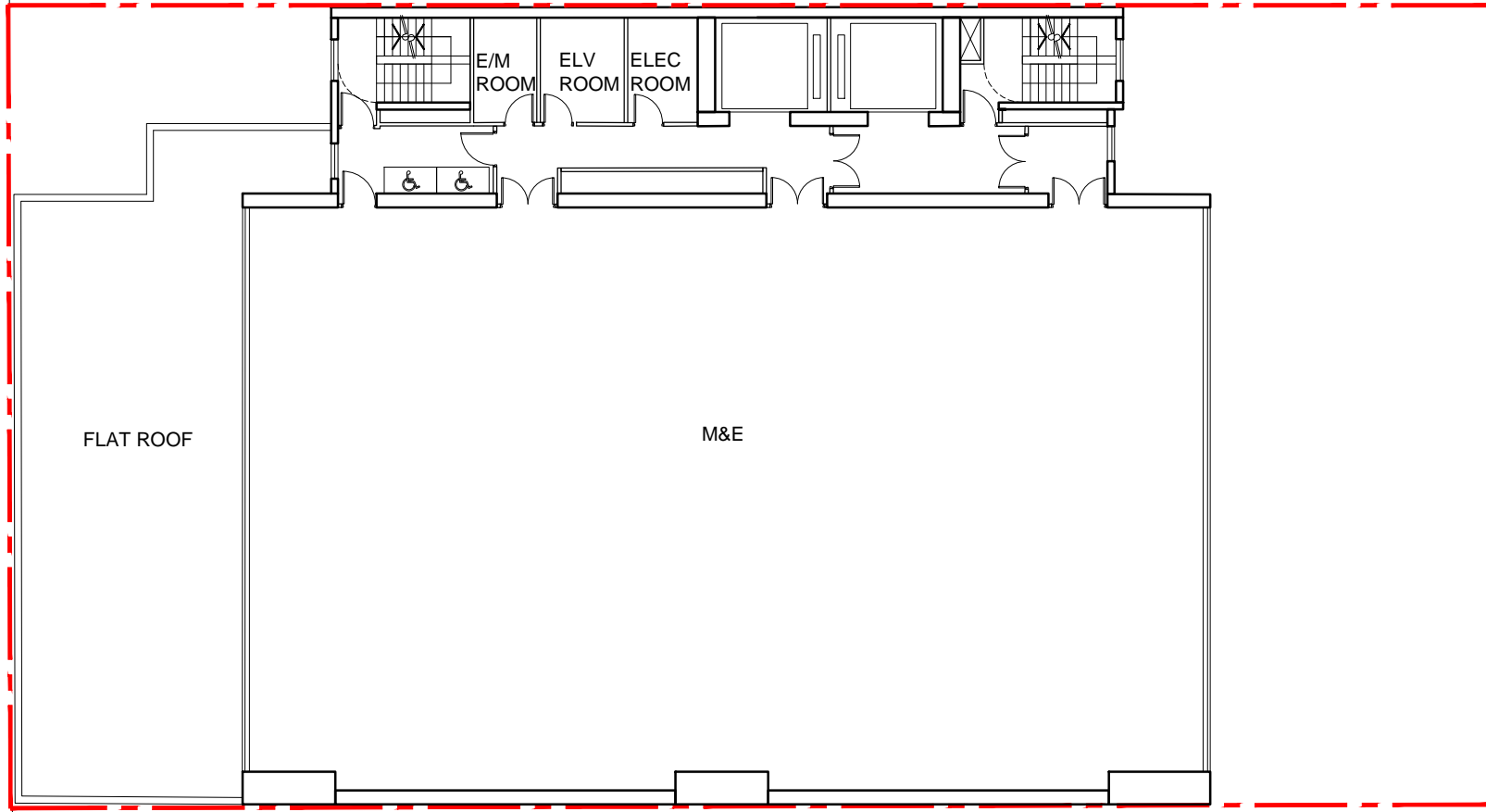
PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 4/F-5/F PLAN (DATA HALL)

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-08



WING CHONG STREET
(9.142m WIDE)



GLOBAL TRADE CENTRE

15

WING KIN ROAD
(15.84m WIDE)

FLAT ROOF

M&E

HOU FENG INDUSTRIAL BUILDING

1-5

12-8

6-4

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REVISION		
NO	DATE	DESCRIPTION

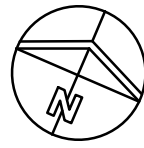
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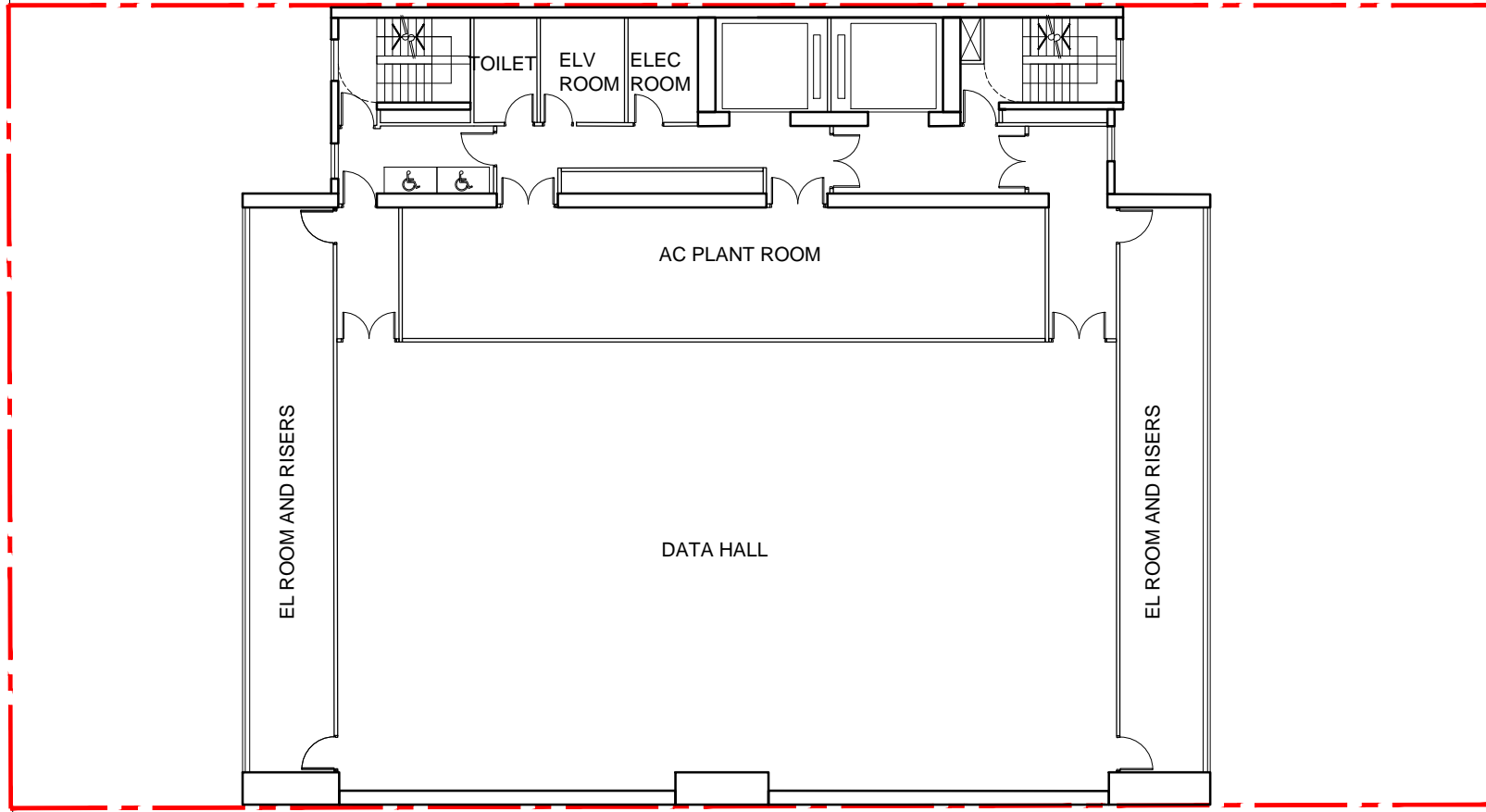
PROJECT NAME
PROPOSED DATA CENTRE
7-11 WING KIN ROAD
KWAI CHUNG, N.T.

DRAWING TITLE
6/F PLAN (M&E)

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-09



WING CHONG STREET
(9.142m WIDE)



GLOBAL TRADE CENTRE

15

HOU FENG INDUSTRIAL BUILDING

1-5

WING KIN ROAD
(15.84m WIDE)

12-8

6-4

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REVISION		
NO	DATE	DESCRIPTION

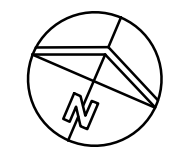
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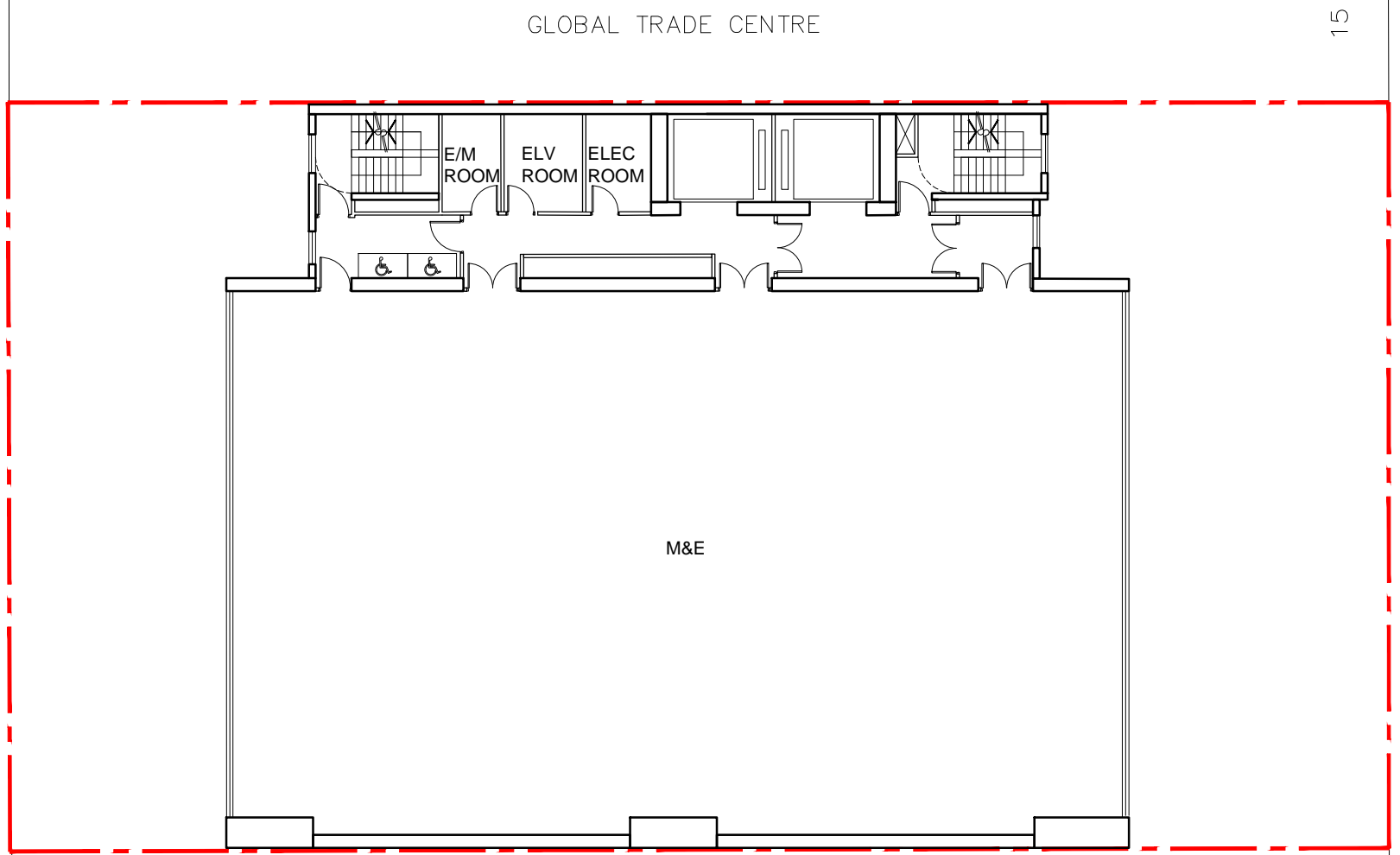
PROJECT NAME
PROPOSED DATA CENTRE
7-11 WING KIN ROAD
KWAI CHUNG, N.T.

DRAWING TITLE
7/F-9/F, 11/F-13/F &
15/F-16/F PLANS (TYPICAL
DATA HALL FLOOR PLANS)

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-10



WING CHONG STREET
(9.142m WIDE)



GLOBAL TRADE CENTRE

15

HOU FENG INDUSTRIAL BUILDING

1-5

WING KIN ROAD
(15.84m WIDE)

12-8

6-4

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REVISION		
NO	DATE	DESCRIPTION

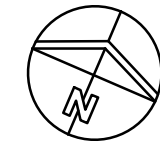
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PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 10/F & 14/F PLANS
 (TYPICAL M&E FLOOR PLANS)

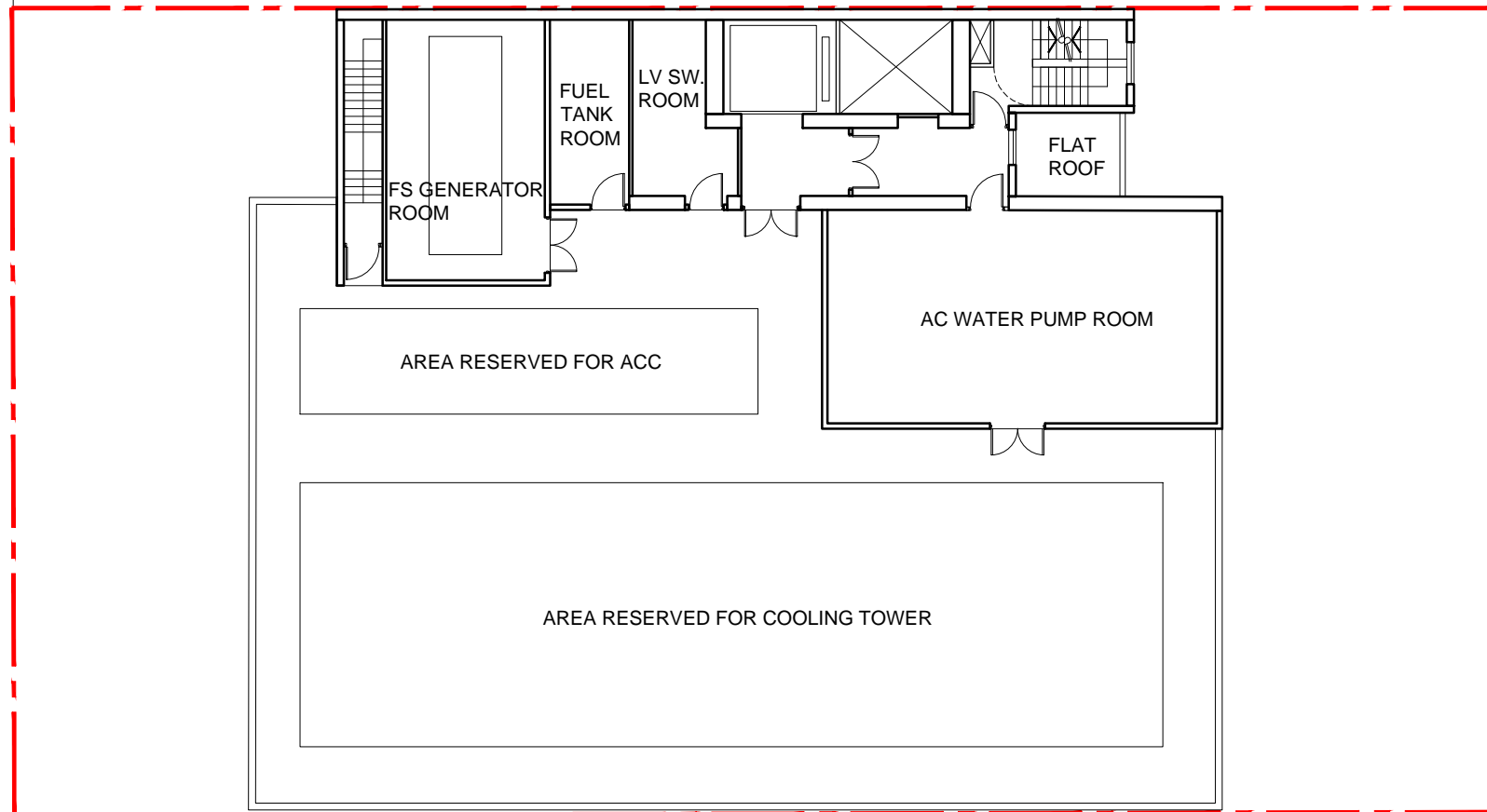
DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-11



WING CHONG STREET
(9.142m WIDE)

GLOBAL TRADE CENTRE

15



FS GENERATOR ROOM

FUEL TANK ROOM

LV SW. ROOM

FLAT ROOF

AC WATER PUMP ROOM

AREA RESERVED FOR ACC

AREA RESERVED FOR COOLING TOWER

WING KIN ROAD
(15.84m WIDE)

12-8

6-4

HOU FENG INDUSTRIAL BUILDING

1-5

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REVISION		
NO	DATE	DESCRIPTION

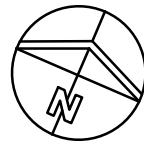
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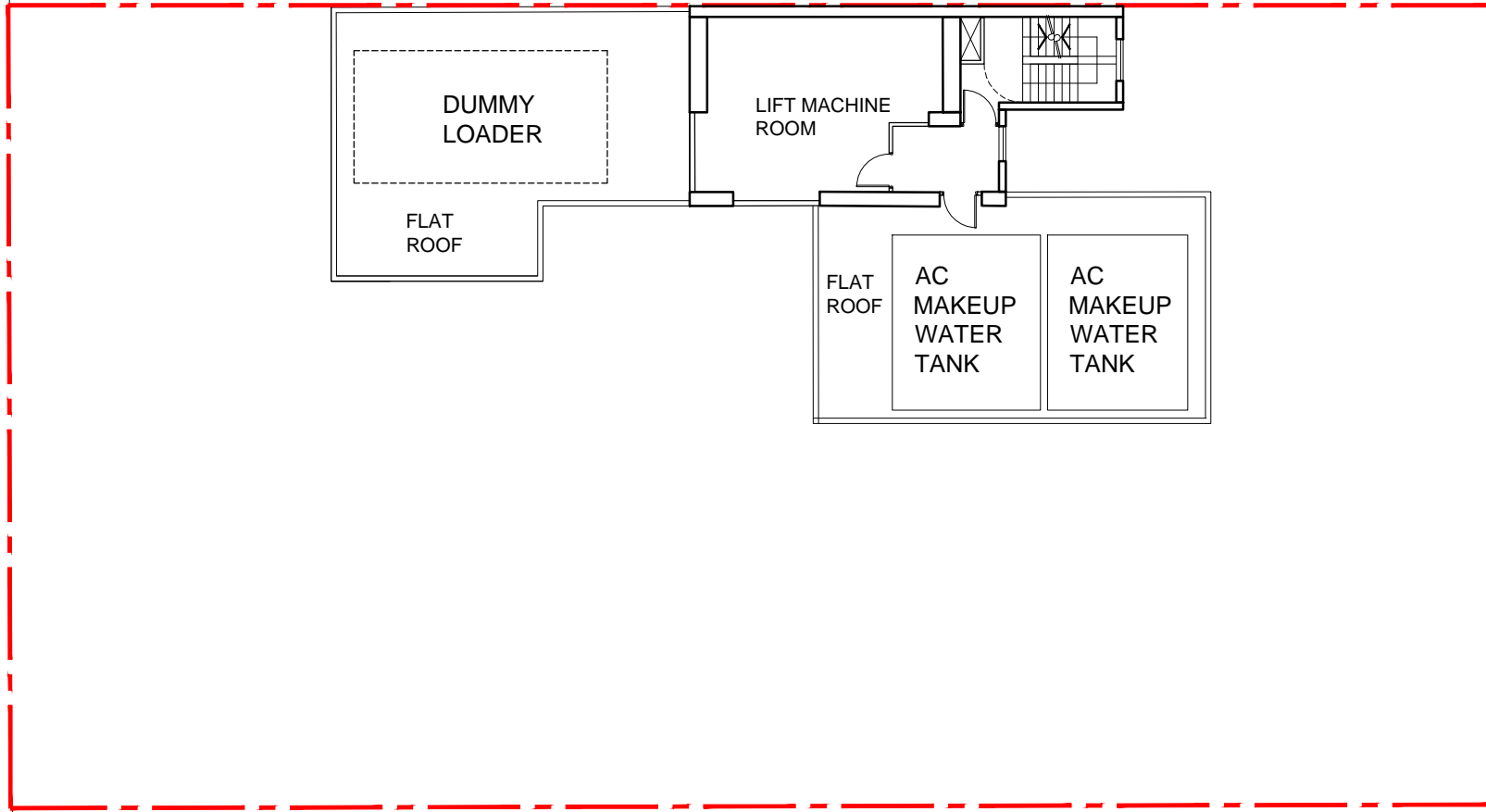
PROJECT NAME
PROPOSED DATA CENTRE
7-11 WING KIN ROAD
KWAI CHUNG, N.T.

DRAWING TITLE
R/F PLAN

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-12



WING CHONG STREET
(9.142m WIDE)



GLOBAL TRADE CENTRE

15

DUMMY
LOADER

FLAT
ROOF

LIFT MACHINE
ROOM

FLAT
ROOF

AC
MAKEUP
WATER
TANK

AC
MAKEUP
WATER
TANK

HOU FENG INDUSTRIAL BUILDING

1-5

WING KIN ROAD
(15.84m WIDE)

12-8

6-4

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NO	DATE	DESCRIPTION

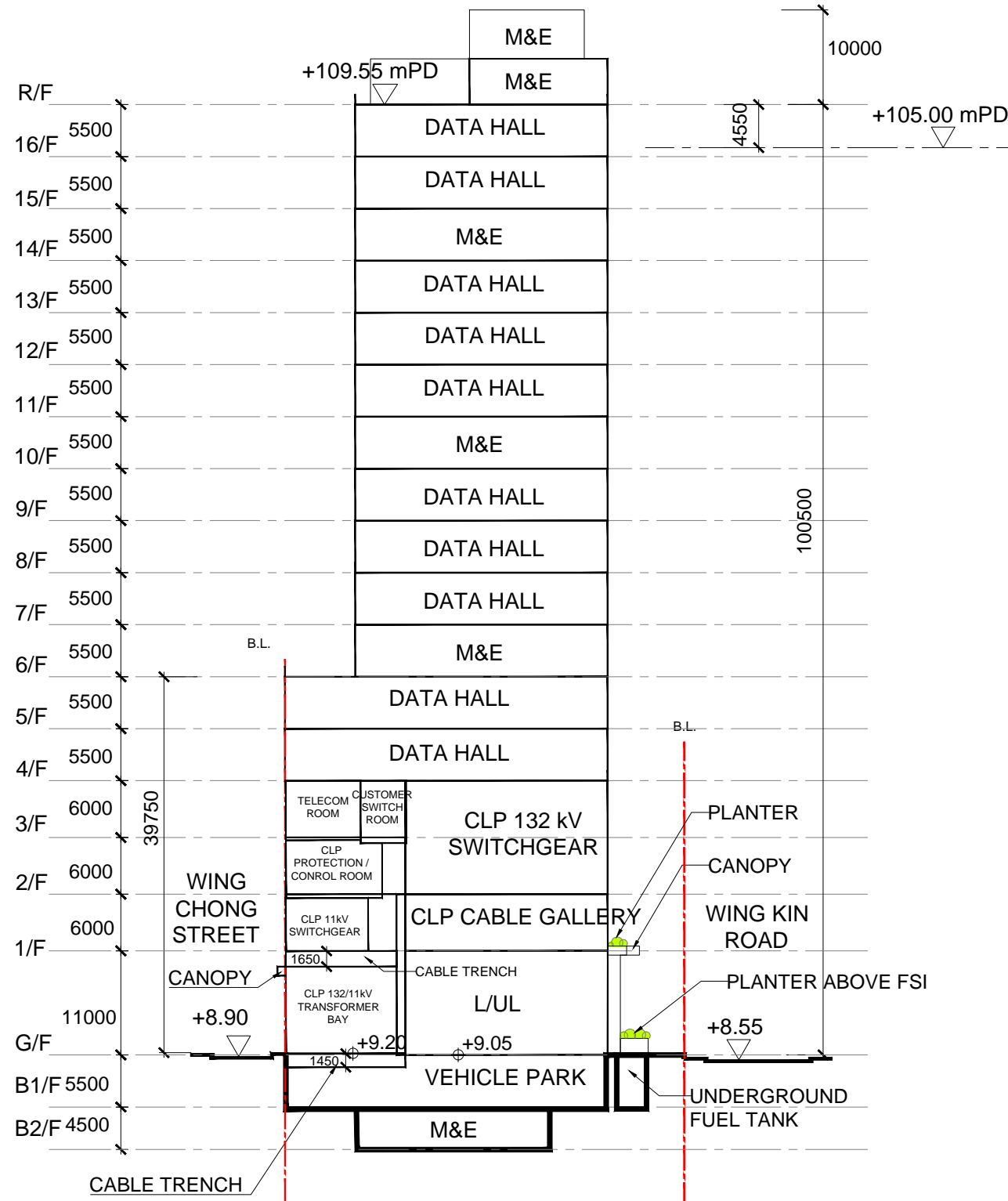
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Email: mail@studiorca.com

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PROJECT NAME
PROPOSED DATA CENTRE
7-11 WING KIN ROAD
KWAI CHUNG, N.T.

DRAWING TITLE
UR/F PLAN

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:200	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-13



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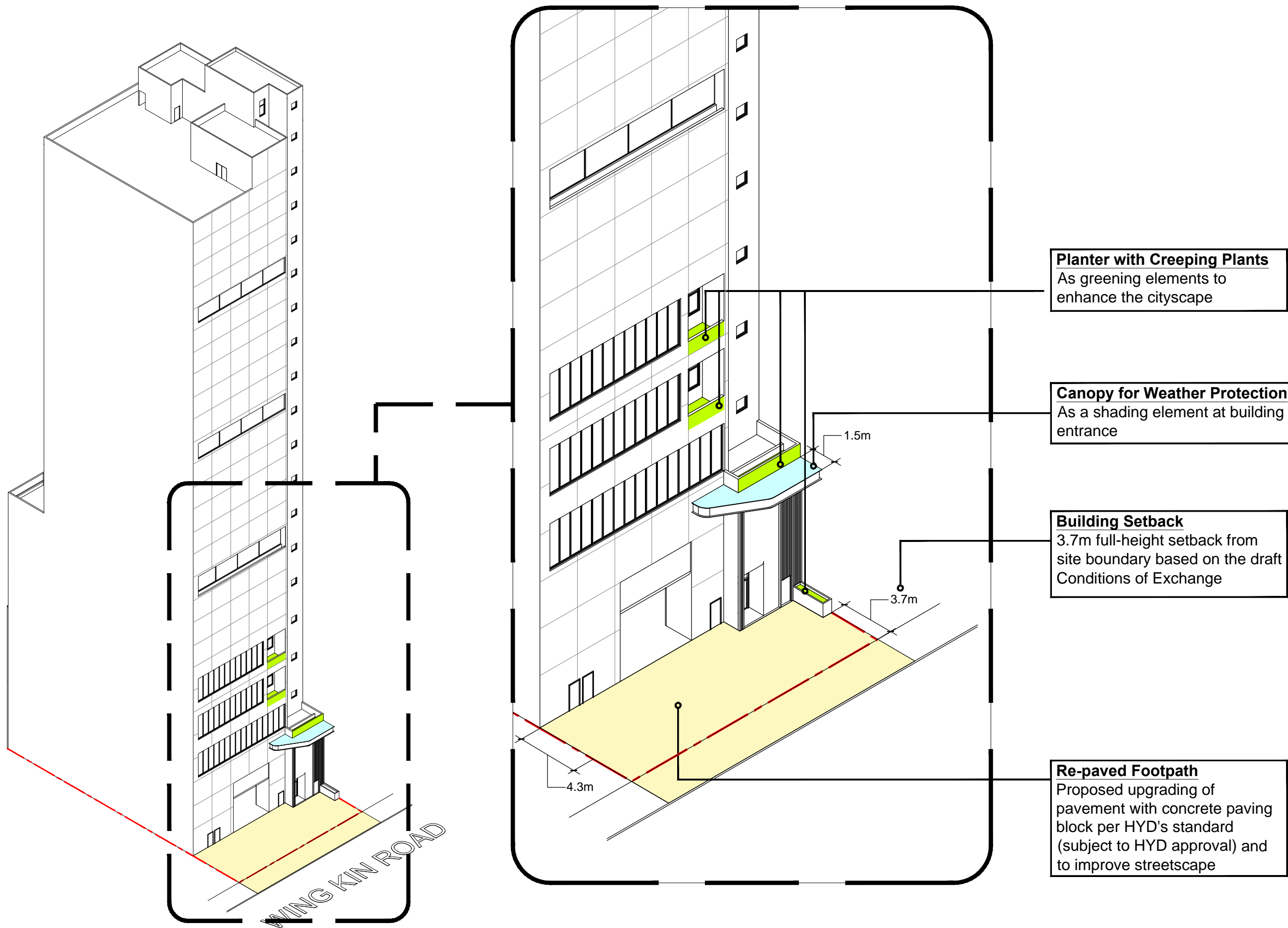
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NO	DATE	DESCRIPTION

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PROJECT NAME
 PROPOSED DATA CENTRE
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 SECTION A-A

DRAWN BY	TK	CHECKED BY	RC
SCALE	1:750	DATE	2025.02.14
JOB No.	2208	DRAWING No.	A-14



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REVISION		
NO	DATE	DESCRIPTION

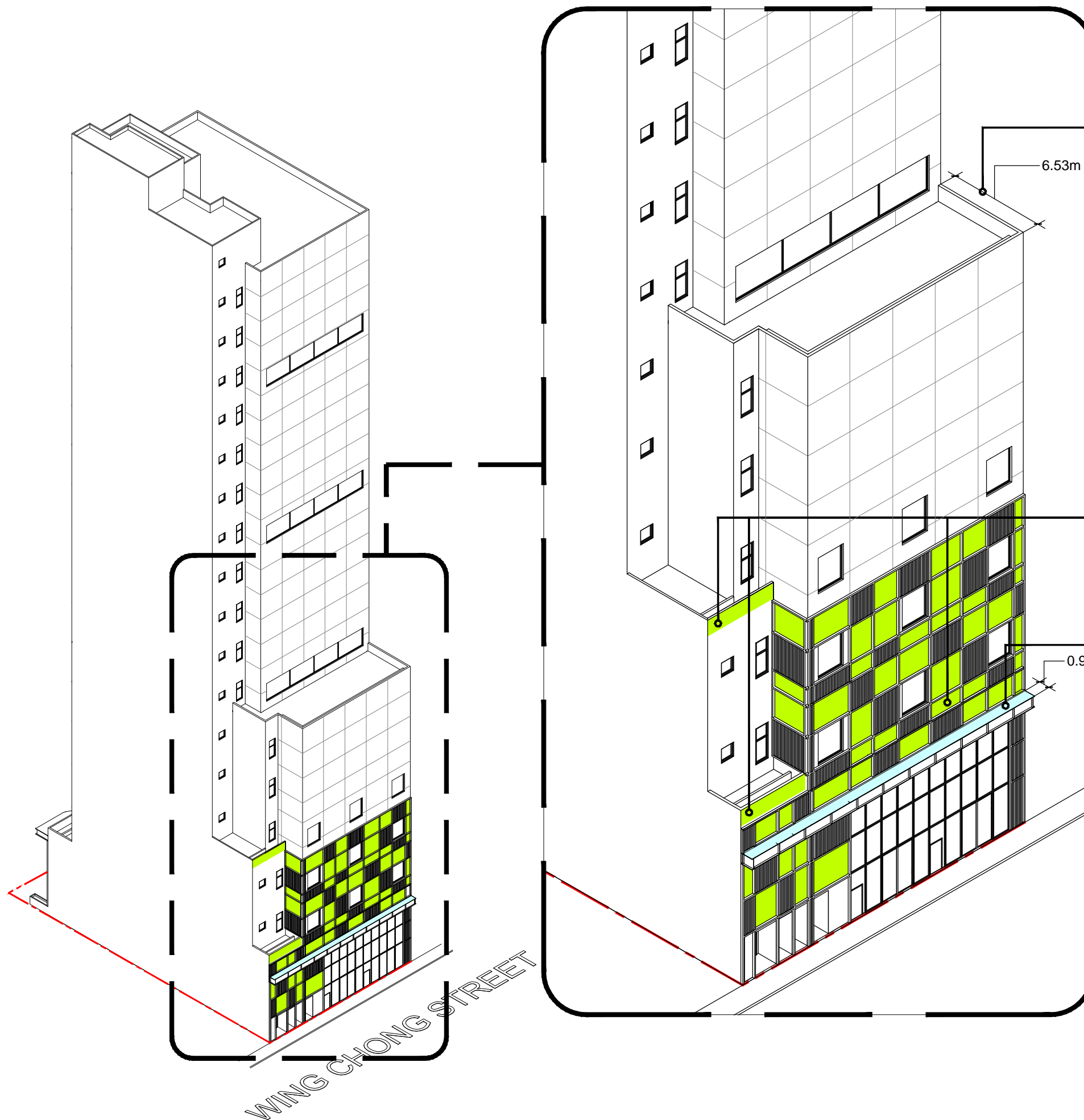
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 Tel: 3583-2000 | Fax: 8143-1130
 Email: mail@studiorca.com

STUDIO | RAYMOND CHAU | ARCHITECTURE | LIMITED

PROJECT NAME
 REDEVELOPMENT OF
 7-11 WING KIN ROAD
 KWAI CHUNG, N.T.

DRAWING TITLE
 ISOMETRIC DRAWING A

DRAWN BY	MH	CHECKED BY	RC
SCALE	N/A	DATE	2025.02.13
JOB No.	2208	DRAWING No.	AR-10



Building Setback
6.53m setback from 6/F and above (subject to detail design)

Planter and Vertical Green
As greening elements to enhance the cityscape

Canopy for Weather Protection
As a shading element at building entrance

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NO	DATE	DESCRIPTION

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Tel: 3583-2000 | Fax: 8143-1130
Email: mail@studiorca.com

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PROJECT NAME
REDEVELOPMENT OF
7-11 WING KIN ROAD
KWAI CHUNG, N.T.




DRAWING TITLE
ISOMETRIC DRAWING B

DRAWN BY	MH	CHECKED BY	RC
SCALE	N/A	DATE	2025.02.14
JOB No.	2208	DRAWING No.	AR-11

APPENDIX 2-2
IDENTIFIED CHIMNEY IN THE VICINITY

ID	Description	Photos	
CH01a & CH01b	Wing Loi Industrial Building Height of chimney: ~85 mPD (77+~8) Distance from site boundary ~64 m	 <p data-bbox="683 703 880 730">viewed from north</p>	 <p data-bbox="1066 703 1308 730">viewed from northeast</p>
CH01c & CH01d	Wing Loi Industrial Building (a) Height of chimney: ~81 mPD (77+~4) Distance from site boundary ~85 m	 <p data-bbox="724 1164 909 1191">viewed from east</p>	 <p data-bbox="1126 1164 1311 1191">viewed from east</p>
CH02	Kwai Chung Crematorium Height of chimney: ~52 mPD Distance from site boundary ~196 m	 <p data-bbox="699 1554 900 1581">viewed from south</p>	 <p data-bbox="1072 1554 1273 1581">viewed from east</p>

ID	Description	Photos
<p>CH03a & CH03b</p>	<p>Wing Kin Industrial Building</p> <p>(a) Height of chimney: ~99 mPD (96+~3)</p> <p>Distance from site boundary ~23 m</p>	 <p>viewed from southwest</p>
<p>CH03c</p>	<p>Wing Kin Industrial Building</p> <p>Height of chimney: ~103 mPD (95+~8)</p> <p>Distance from site boundary ~40 m</p>	 <p>viewed from southwest</p>

ID	Description	Photos
--	<p>Mei Kei Industrial Building</p> <p>A Chimney likely structure is identified in google 3D map only.</p> <p>No industrial Chimney identified.</p>	 <p>Captured from 3D view of google map (last checked on 23rd Dec 2024)</p>  <p>View from North</p>  <p>Captured from Aerial Photo E194703C (dated 1st Mar 2023)</p>