

Issue No. : 6
Issue Date : August 2020
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**AIR VENTILATION ASSESSMENT –
EXPERT EVALUATION**

FOR

**S16 PLANNING APPLICATION OF
THE PROPOSED FIRE STATION-
CUM-AMBULANCE DEPOT WITH
DEPARTMENTAL QUARTER AT
AREA 72, TSEUNG KWAN O**

Prepared By:

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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1. INTRODUCTION

1.1.1. Allied Environmental Consultants (“AEC”) has been appointed to conduct an Air Ventilation Assessment – Expert Evaluation (“AVA-EE”) to support of a Section 16 planning application for the proposed fire station-cum-ambulance depot with departmental quarter (hereinafter referred to as “Proposed Development”) in Area 72, Tseung Kwan O (hereinafter referred to as “Project Site”).`

2. OBJECTIVES

2.1.1. The main objectives of the study are to conduct a qualitative review and to evaluate potential air ventilation impact on the pedestrian wind environment within and in the vicinity of the Project Site using the methodology framework as set out by relevant environmental standards, guidelines and technical circulars.

2.1.2. The methodology framework of this study is set out in the Technical Circular No. 1/06 and its Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong. The Technical Circular is jointly issued by Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Work Bureau (ETWB) in July 2006 (Technical Guide).

2.1.3. The scope of this study shall cover the following:

- To identify any potentially affected areas due to the proposed building design including building heights, layout and deposition;
- To provide recommendations for alleviating the potential air ventilation impact identified;
- To identify any major wind corridors which should be preserved or reserved; and
- To identify good design features.

3. ASSESSMENT METHODOLOGY

3.1. WIND AVAILABILITY DATA

Hong Kong Observatory

- 3.1.1. The Hong Kong Observatory records the metrological data in Hong Kong. Among all the weather stations in Hong Kong, wind data from Tseung Kwan O station shall be used for the discussion on overall wind environment in the region.
- 3.1.2. According to the wind availability data from Tseung Kwan O Station from 1992 – 2019, the annual wind rose revealed winds flowing from the northeast quadrant (i.e. NNE, NE) and throughout the year. The wind data from June to August is adopted as the summer prevailing wind, where predominant summer winds are flowing from the southwest quadrant (i.e. SW, WSW).

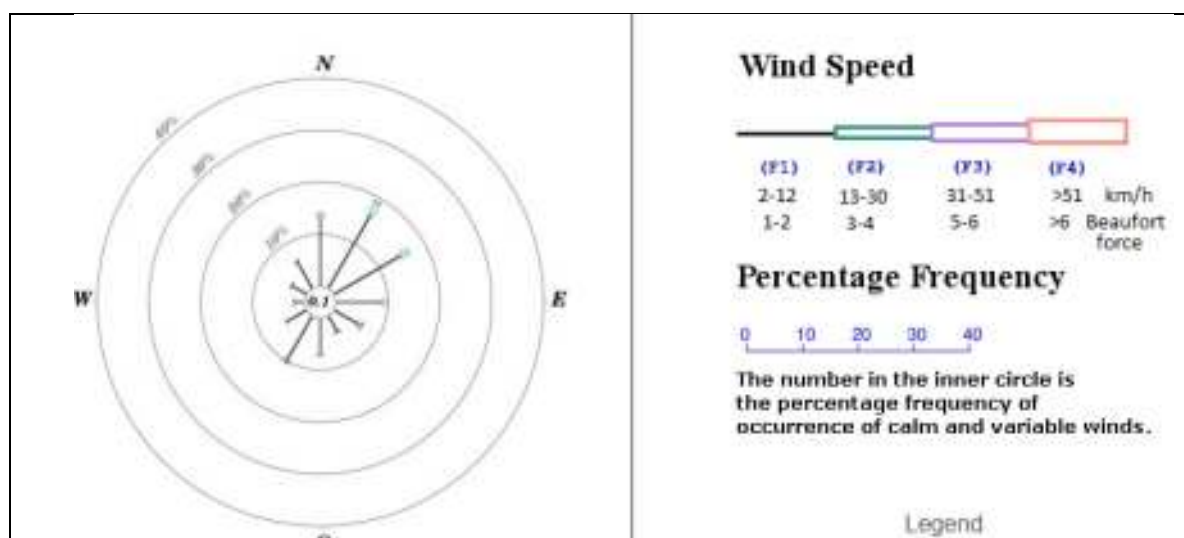


Figure 1 Annual Wind Rose for Tseung Kwan O, 1992 - 2019

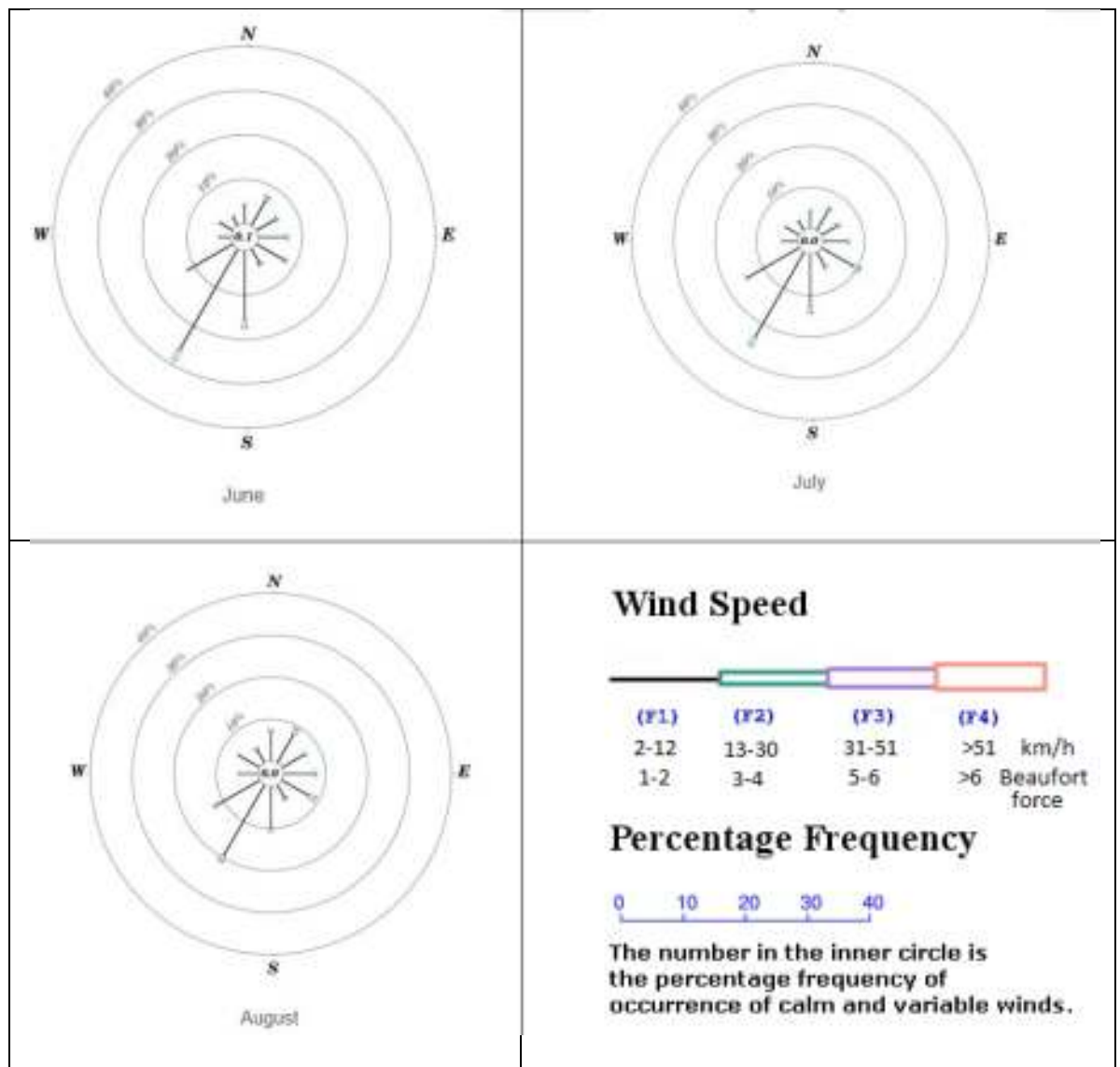


Figure 2 Summer Wind Rose for Tseung Kwan O, 1992 - 2019

Experimental Site Wind Availability Study for Tseung Kwan O

3.1.3. The “Experimental Site Wind Availability Study for Tseung Kwan O” was conducted in 2008 to investigate wind performance in the Tseung Kwan O area. It is identified that E winds dominants during annual and summer wind conditions. In general, annual prevailing winds shall flow from the northeast quadrant and summer prevailing winds shall from southwest quadrant. The wind roses during annual and summer conditions are shown in **Figure 3** and **Figure 4** respectively.

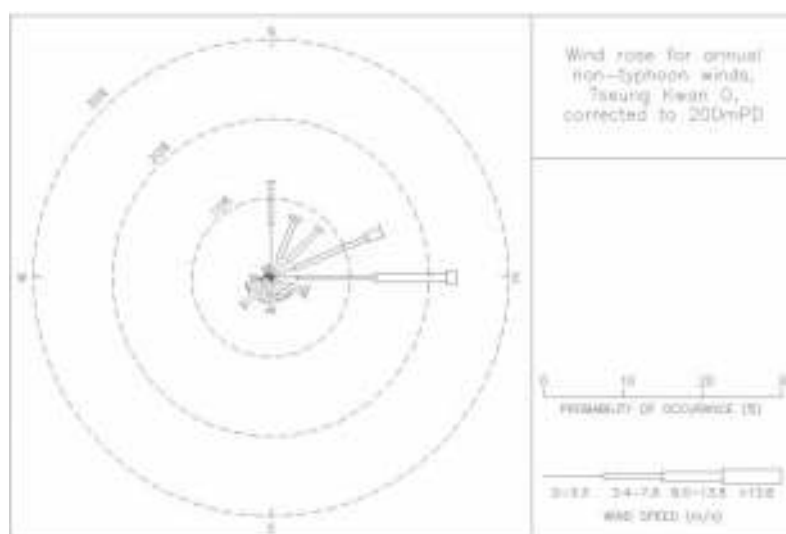


Figure 3 Annual Wind Rose for Tseung Kwan O at 200m

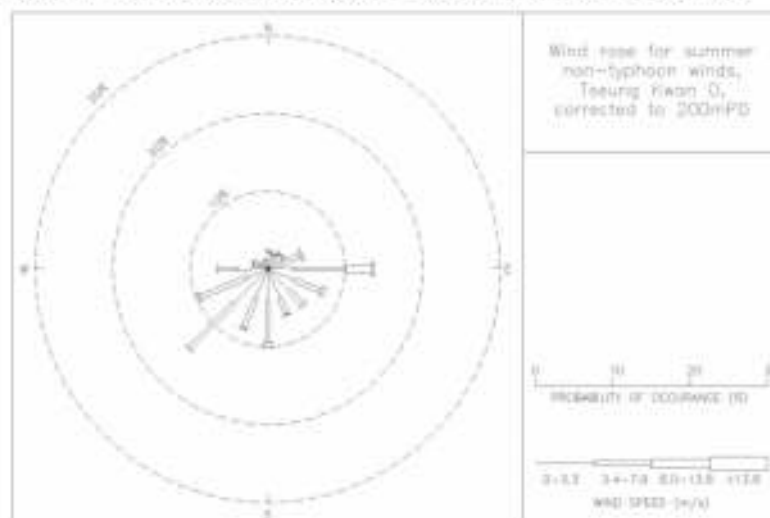


Figure 4 Summer Wind Rose for Tseung Kwan O at 200m

Regional Atmospheric Modelling System (RAMS)

3.1.4. Wind availability to the Project Site is evaluated with reference to the “Consultancy Study on Establishment of Simulated Site Wind Availability Data for Air Ventilation Assessments in Hong Kong”¹ simulated by the meso-scale model of Regional Atmospheric Modelling System (RAMS) Version 6.0 at the horizontal resolution of 0.5km * 0.5km.

3.1.5. The Project Site is located within grid (097,039) in Tseung Kwan O. Wind availability data at 200m was adopted in this assessment. According to PlanD’s simulated data, wind roses, wind direction and wind probability data are provided in **Figure 5** and **Table 1**.

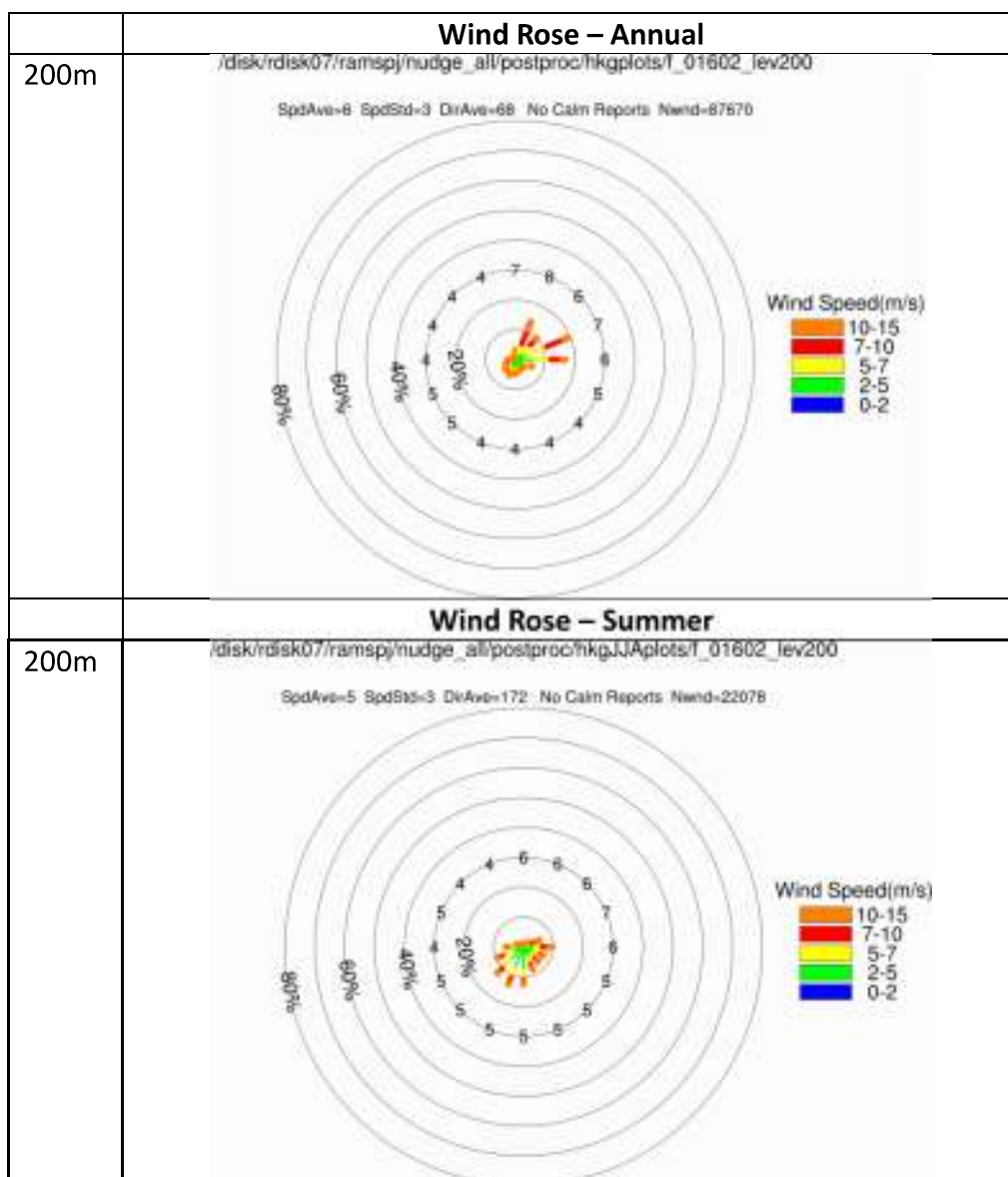


Figure 5 Wind Rose at Grid (097,039)

¹ http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/097039.html

Table 1 Wind Probability at 200m (Grid 097,039)

Wind Direction	Annual Probability	Summer Probability
N	3.1%	0.8%
NNE	13.7%	1.4%
NE	10.1%	1.9%
ENE	19.1%	5.9%
E	16.7%	9.5%
ESE	6.1%	7.4%
SE	3.8%	7.0%
SSE	3.8%	7.9%
S	4.9%	12.5%
SSW	5.5%	13.5%
SW	4.7%	12.4%
WSW	3.5%	9.5%
W	2.4%	5.9%
WNW	1.2%	2.5%
NW	0.6%	1.0%
NNW	0.6%	0.6%

3.1.6. According to RAMS wind data, annual prevailing winds are the incoming winds flowing from the northeast quadrant while summer prevailing winds are flowing southwest quadrant and from E directions.

3.1.7. Among the three sets of wind data, **Table 2** summarises the identified prevailing wind conditions of in Tsueng Kwan O area. For a comprehensive discussion on air ventilation performance of the Project Site and the wind environment at pedestrian level, RAMS data is more appropriate as it is the most updated.

Table 2 Wind Data Summary

Sources	Annual Wind	Summer Wind
Hong Kong Observatory (Tseung Kwan O station from 1992 -2019)	NNE, NE	SW, WSW
Experimental Wind Availability in Tseung Kwan O (2008)	E, NE	SW, WSW, E
RAMS data (Grid 097,039)	ENE, E, NNE, NE	SSW, S, SW

4. PROJECT DESCRIPTION

4.1. SITE LOCATION AND PROPOSED DEVELOPMENT

4.1.1. The Project Site is zoned “Government, Institution or Community (4)” (“G/IC (4)”) on the approved Tseung Kwan O Outline Zoning Plan (“OZP”) No. S/TKO/26. It is located at the southwest part of the Tseung Kwan O Area. The surrounding areas are mainly zoned “Open Space” (“O”), “G/IC, Commercial” (“C”). **Figure 6** shows the location of the Project Site.

4.1.2. With the total gross floor area of about 14,351m², the Proposed Development comprise 1) a 5-storey fire station-cum-ambulance depot with ancillary 8-storey drill tower and 2) a 12-storey “upside-down L shape” DQ building. The Proposed Development is expected to be completed in Year 2024.



Figure 6 Location of Project Site

4.2. SURROUNDING ENVIRONMENT

Urban Morphology

4.2.1. Currently, planned works are identified at the immediate surrounding of the Project Site. The planned works includes planned Government Buildings located at the northeast, planned clinic and police station located at the north, and planned schools located at the east of the Project Site. The south of the Project Site is categorised as “Open Space” under the approved OZP (No. S/TKO/26). The building heights near the surrounding and the land use in the surroundings are summarized in **Table 3** and **Figure 7** respectively.

- 4.2.2.** In addition to the current planned works, the Project Site is surrounded by high-rise (up to 180mPD) residential developments and mid-rise GIC buildings (approx. 50mPD). Further to north of the Project Site, lower-rise GIC buildings of Tiu Keng Ling Library and Open Space are found. Further to the west of the Project Site, high-rise residential development of Ocean Shores is located. Further to the east of the Project Site, mid-rise residential developments including The Wings II and Corinthia by the Sea are found.
- 4.2.3.** According to the EIA of Tseung Kwan O and Lam Tin Tunnel, a full-enclosure noise barrier is proposed at the proposed Road P2 near Ocean Shores where it is 200m away from the Project Site. Since the full-enclosure noise barrier is a lower rise structure, no significant impact would be anticipated to the pedestrian wind environment at the Project Site.

Table 3 Building Heights of Major Development in the Surroundings

Surrounding Buildings	Building Heights (mPD)
Kin Ming Estate	~142
Shin Ming Estate	~123
GT (Ellen Yeung) College	~50
Caritas Institute of Higher Education	~50
Ocean Shores Podium	~10
Ocean Shores	~169
Metro Town Podium	~37
Metro Town	~200
Tiu Keng Ling MTR Station	~12
Choi Ming Court	~120
Hong Kong Design Institute	~63
Hong Kong IVE (Lee Wai Lee)	~50
HK & Macau L.C. Ming Tao Primary School – Ming Tao Primary School	~50
Chui Ling Road CLP Substation	~12
HKCCCU Logos Academy Campus II – Logos Academy	~50
Tiu Keng Ling Sports Centre	~35
Tiu Keng Ling Library	~34
Planned GIC Blocks (Clinic & Police Station)	~45
Tong Ming Court	~119
PLK School Wing Shu Primary School	~50
TKO Catholic Primary School	~37
Park Central Podium	~50
Park Central	~168
Planned Government Buildings*	~97
Planned Cultural Complex	~65
French International School of Hong Kong	~22
Planned School	~33
Capri Podium	~10
Capri	~50
Alto Residences Podium	~12
Alto Residences	~64
The Wings Podium	~10
The Wings	~60-180
The Wings IIA Podium	~10

Surrounding Buildings	Building Heights (mPD)
The Wings IIIA	~100
The Wings IIB Podium	~10
The Wings IIIB	~100
Corinthia by the Sea Podium	~10
Corinthia by the Sea	~34-65
The Wings II Podium	~10
The Wings II	~100
The Parkside Podium	~10
The Parkside	~100
Twin Peaks Podium	~12
Twin Peaks	~99
Ocean Wings Podium	~12
Ocean Wings	~66

* Projects undergoing section 16 planning application

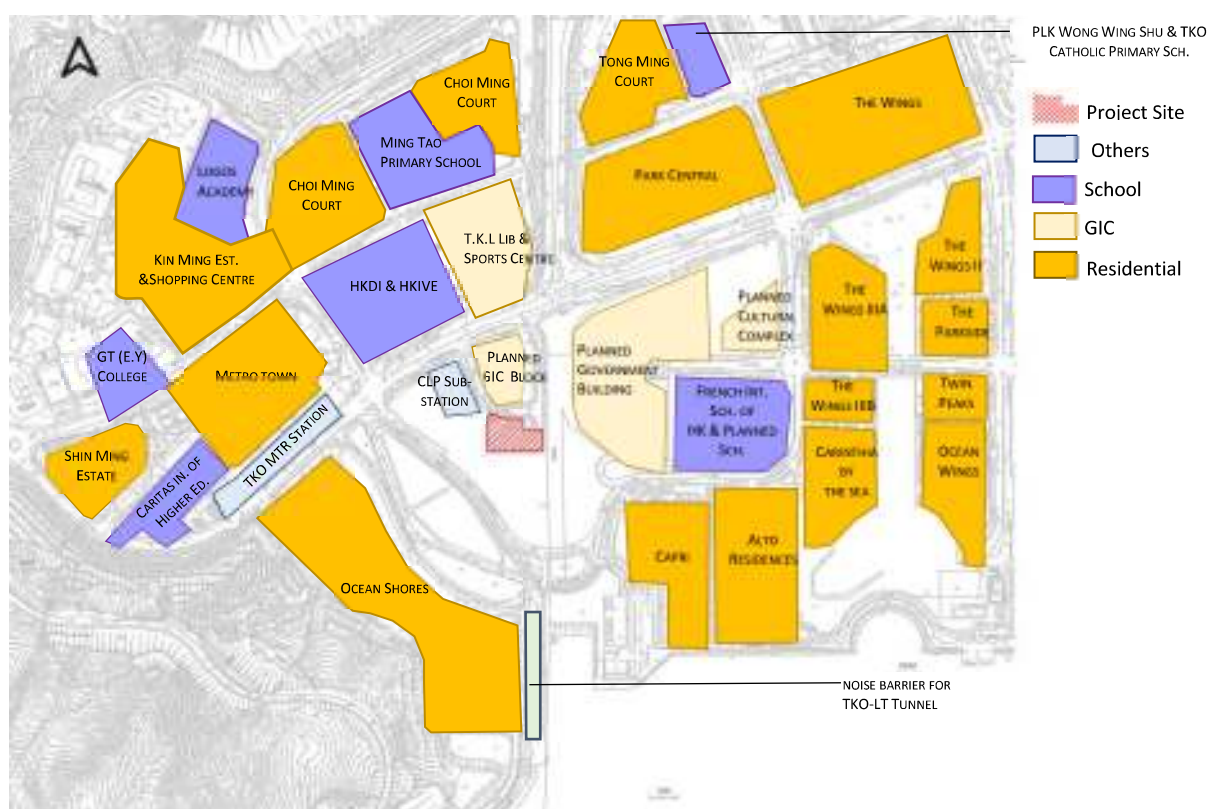


Figure 7 Surrounding Environment

Road/ Street Pattern

- 4.2.4. Road network facilitates wind penetration to the Project Site and the surrounding areas. The annual ENE and summer SW winds would be facilitated by the major wind corridor of east-west roads of Chui Ling Road - Po Yap Road. E winds would be facilitated by Tong Yin Street East and Chi Shin Street. The annual NNE wind and summer prevailing SSW, S winds would be facilitated by the north-south roads of Po Shun Road-proposed Road P2. According to the Further Development of Tseung Kwan O Feasibility Study, a breezeway corridor along proposed Road P2 shall be reserved where any development within it is restricted to maximum height of 30m from ground level. The wind corridor along major road and breezeway corridor is illustrated in **Figure 8**.

Open Spaces and Waterbody

- 4.2.5. Tong Yin Street Open Space located at the west and southwest of the Project Site shall favours incoming winds flowing from the southwest quadrant.

Topography

- 4.2.6. The Project Site is located on a relatively flat area of about 6mPD that shares similar topography to its immediate area. Waterbody of Junk Bay shall favour wind circulation in the nearby surrounding areas of the Project Site.

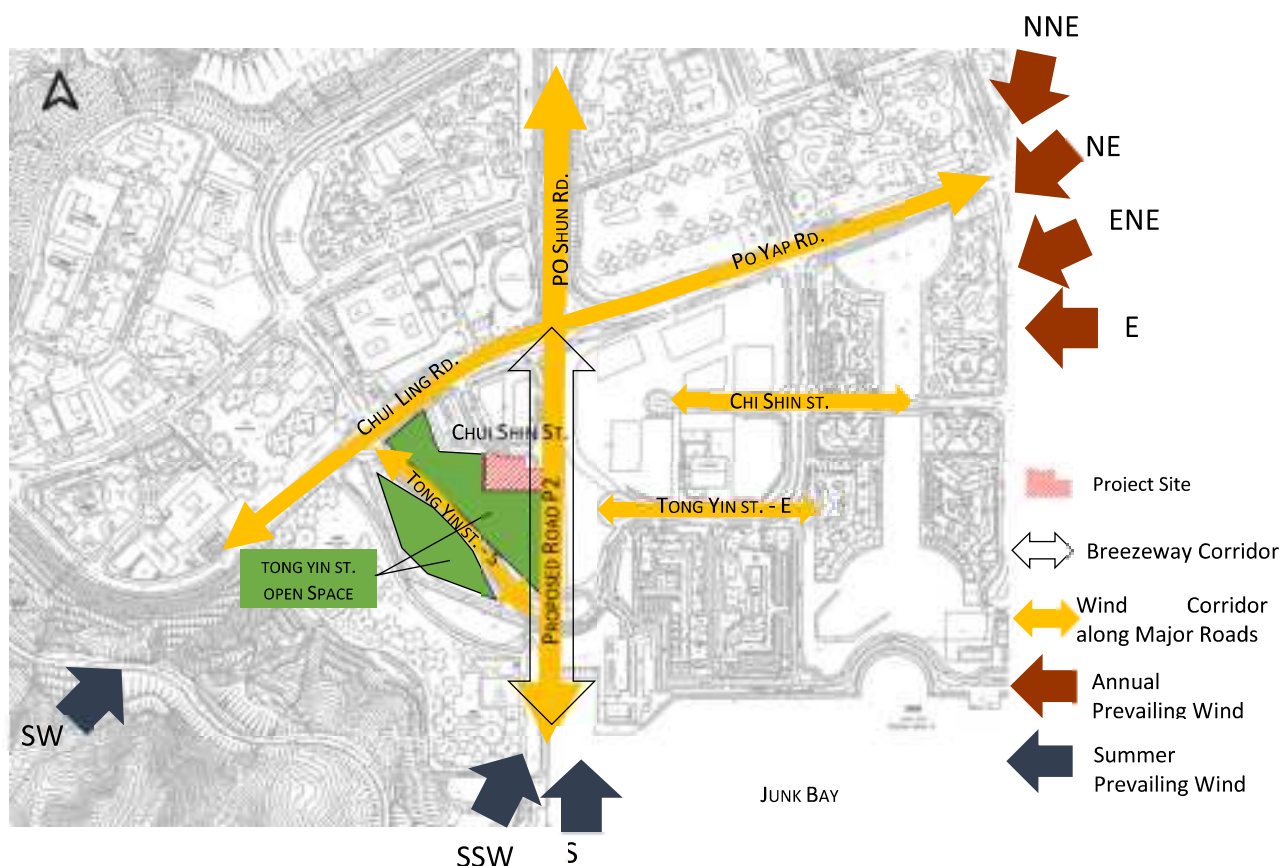


Figure 8 Prevailing Wind Environment in the Study Area

5. BASELINE SCHEME AND PROPOSED SCHEME

5.1.1. The major design parameters and the layout plans between Baseline Scheme and Proposed Scheme are summarised in **Table 4**. Layout plans and section drawing under both schemes are shown **Appendix A**, **Appendix B** and **Appendix C**, **Appendix D** respectively.

Table 4 *Building Heights of Major Development in the Surroundings*

			Baseline Scheme	Proposed Scheme
Site Area (m ²)			3,015	3,015
Building Coverage (GF-4F)			< 65%	< 65%
Building Coverage (from 5F)			Approx. 44%	< 25%
No. of Units	Non-domestic:	Fire station & associated facilities (G/F – 4/F)	< 65%	< 65%
	Domestic:	Departmental Quarters (from 5/F)	-	11
	Total		-	132
Building Height (m)			40m (46mPD)	55.6m (61.6mPD)

5.1.2. In addition to the provision of facilities, special design considerations have been adopted in both Baseline and Proposed Scheme. In particular, good design features including building setback, reduced building coverage and breezeway reservation have been incorporated in the Proposed Scheme upon the consideration of site and design constraint criterion. These good design features are discussed in the following sections.

Building Setback

- 5.1.3.** The site and layout constraints for the Project Site include the construction of the proposed Road P2 located at the east of the Project Site. Also, the schedule of accommodation for a fire-station-cum-ambulance depot limits flexibility in designing the building form and building mass from G/F to 4/F. Therefore, the building shape of G/F to 4/F in the Baseline and the Proposed Scheme is the same.
- 5.1.4.** Under both the Baseline and the Proposed Scheme, the building setback is approx. 30m from the east of the site boundary to ensure wind penetration to the downwind areas. Hence, adequate wind environment at pedestrian level could be maintained under both schemes. **Figure 9** shows the layout from G/F to 4/F.

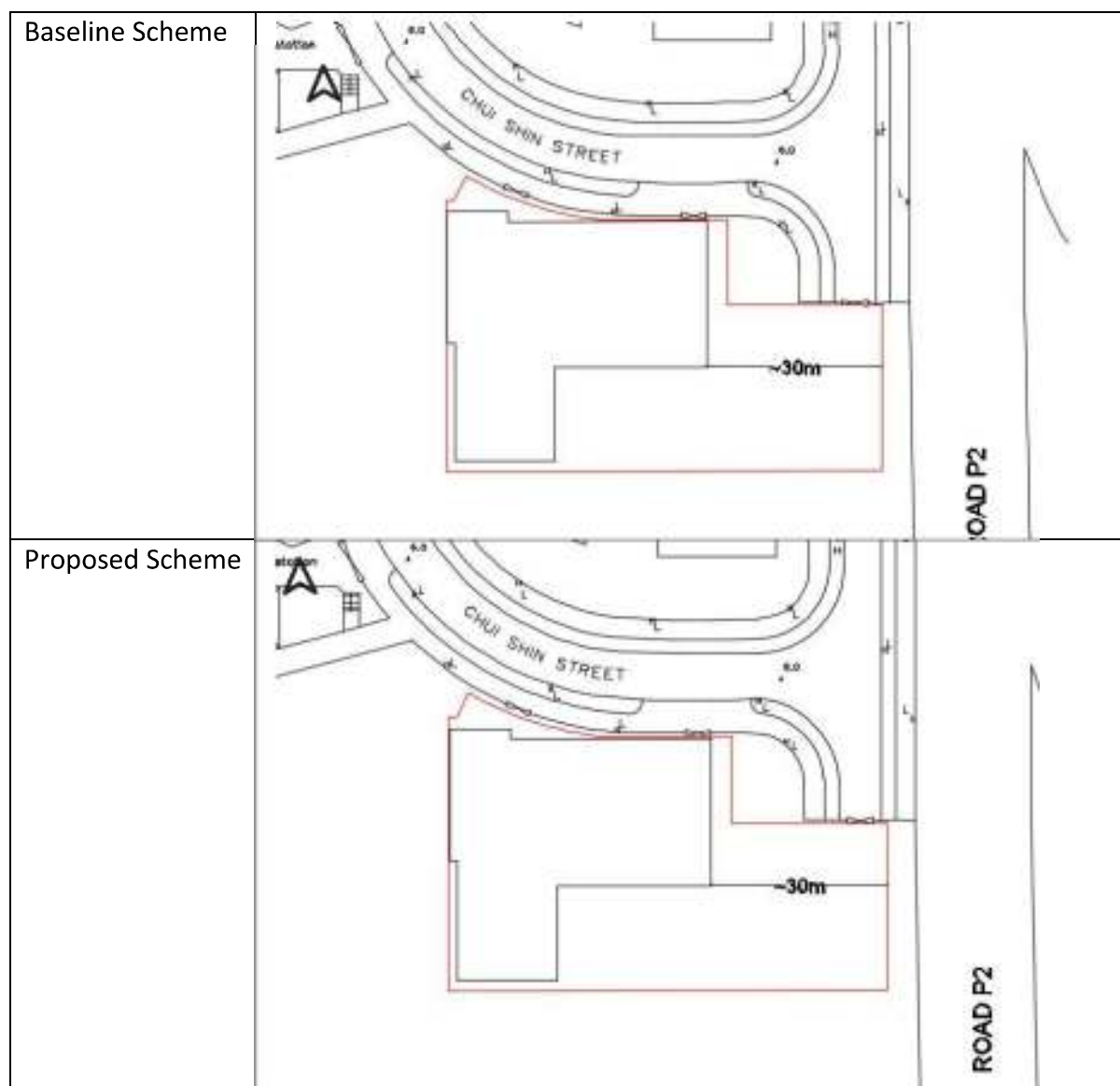


Figure 9 **Layout Plan (G/F to 4/F)**

Building Shape, Coverage and Height

- 5.1.5.** Under the Baseline Scheme, the “upside-down U-shape” office portion from 5/F to 10/F is approx. 34m setback from the east of site boundary, with the building coverage of approx. 44%. In the Proposed Scheme, the building height is increased from 40m to 55.6m to allow rearrangement of the departmental quarter to an “upside-down L shape” in the Proposed Scheme. The rearrangement of building shape increases the building setback from the east of site boundary from 34m to 54m. Such that, the building coverage could be reduced from 44% to <25%. The increase in building height and decrease of building coverage are illustrated in **Figure 10** and **Figure 11** respectively.
- 5.1.6.** Meanwhile, the Proposed Scheme would maintain adequate provision of flat units for departmental quarter.

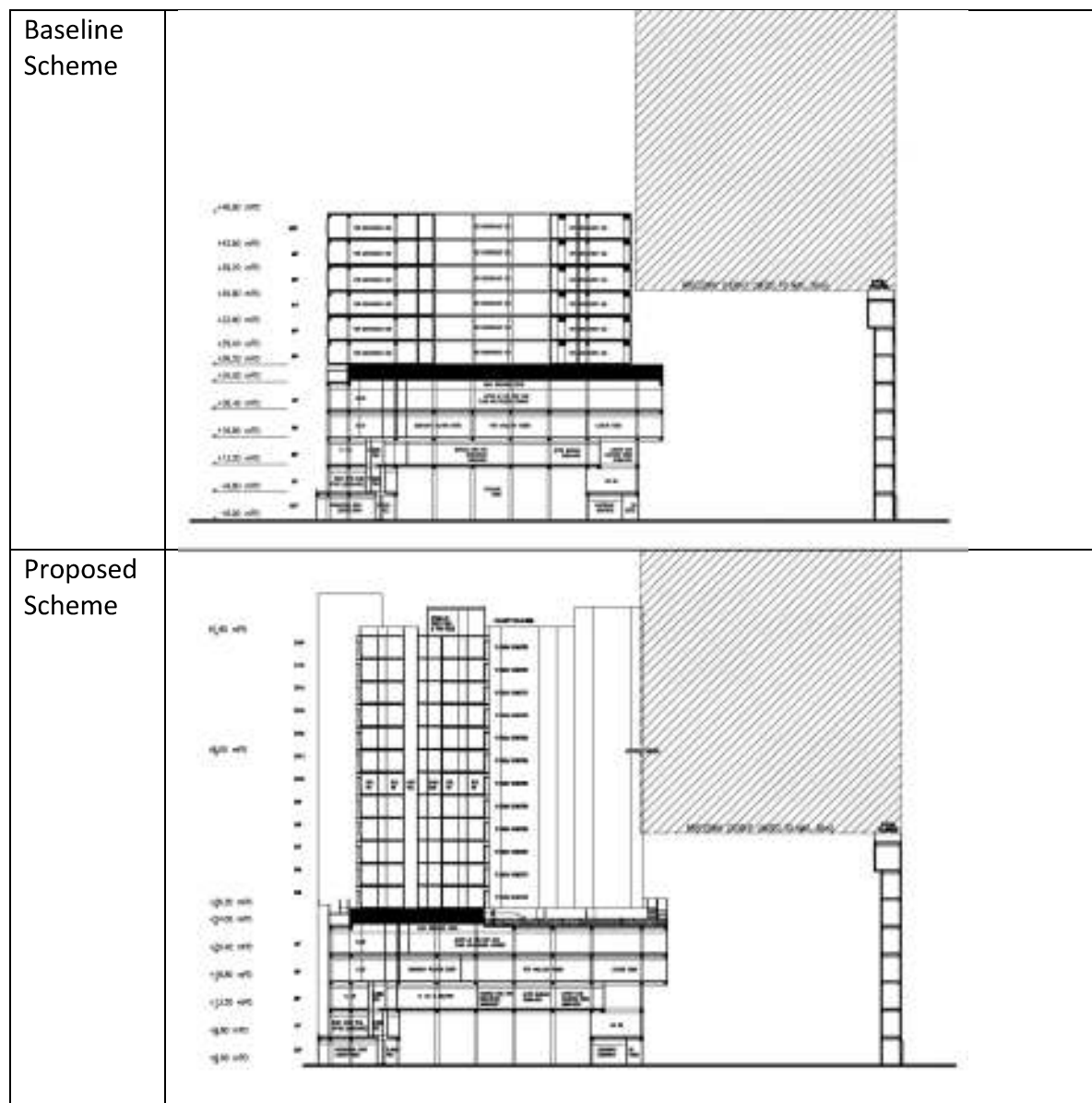


Figure 10 **Section Drawings**

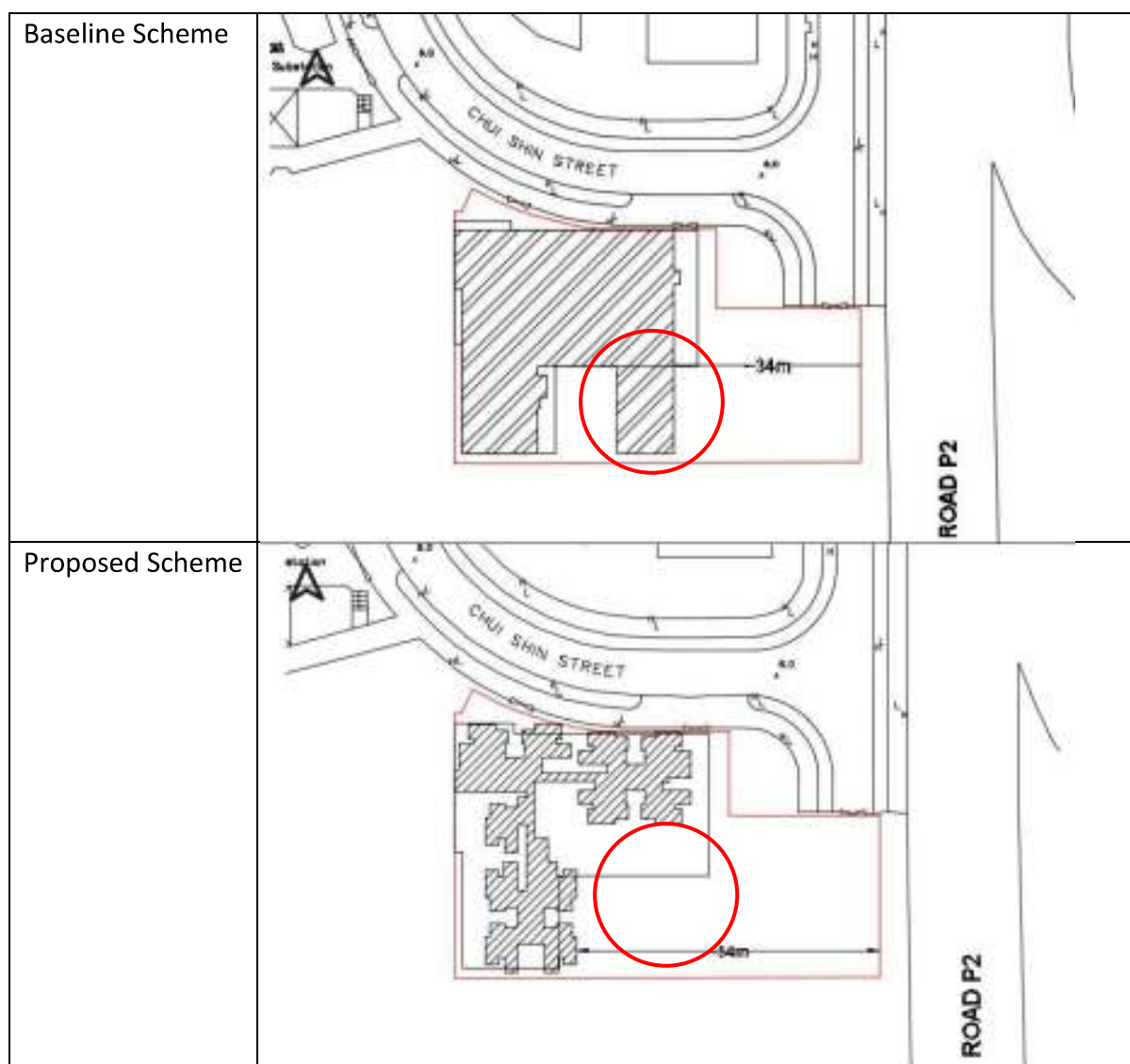


Figure 11 **Layout Plan (Baseline: 5/F-10F and Proposed Scheme: 5/F-16/F)**

Breezeway Reservation

- 5.1.7.** According to the Technical Feasibility Study, as shown in **Appendix E**, a 100m breezeway located at the immediate east of the Project Site along Po Shun Road and proposed Road P2 is identified. The 100m-wide breezeway located at the eastern part of the site, covering about 36% of the Project site. Due to the noise concerns and presence of the breezeway (proposed Road P2), low-rise drill tower, drill yard, plant rooms and some parking and loading / unloading spaces are within the breezeway located east of the Project Site.
- 5.1.8.** Moreover, the Sustainable Building Development Guidelines and the technical characteristics of the modular construction (MiC units) poses additional limitation on the overall arrangement of the Proposed Development. To fulfil SBD guidelines, prescribed window facing the common boundaries prevented further setback to the west so as to fulfil lighting and ventilation requirements of the departmental quarter. Besides, the prefabricated modules and precast staircase are placed side-by-side resulting a double-wall and loss of area, which also prevent further setback to the west. Therefore, the proposed departmental quarter would be slightly encroached onto the 100m breezeway (approx. 300mm), as shown in **Figure 12**. It is considered that the partial encroachment shall have insignificant effect on the breezeway as it represents only 0.3% of its width.

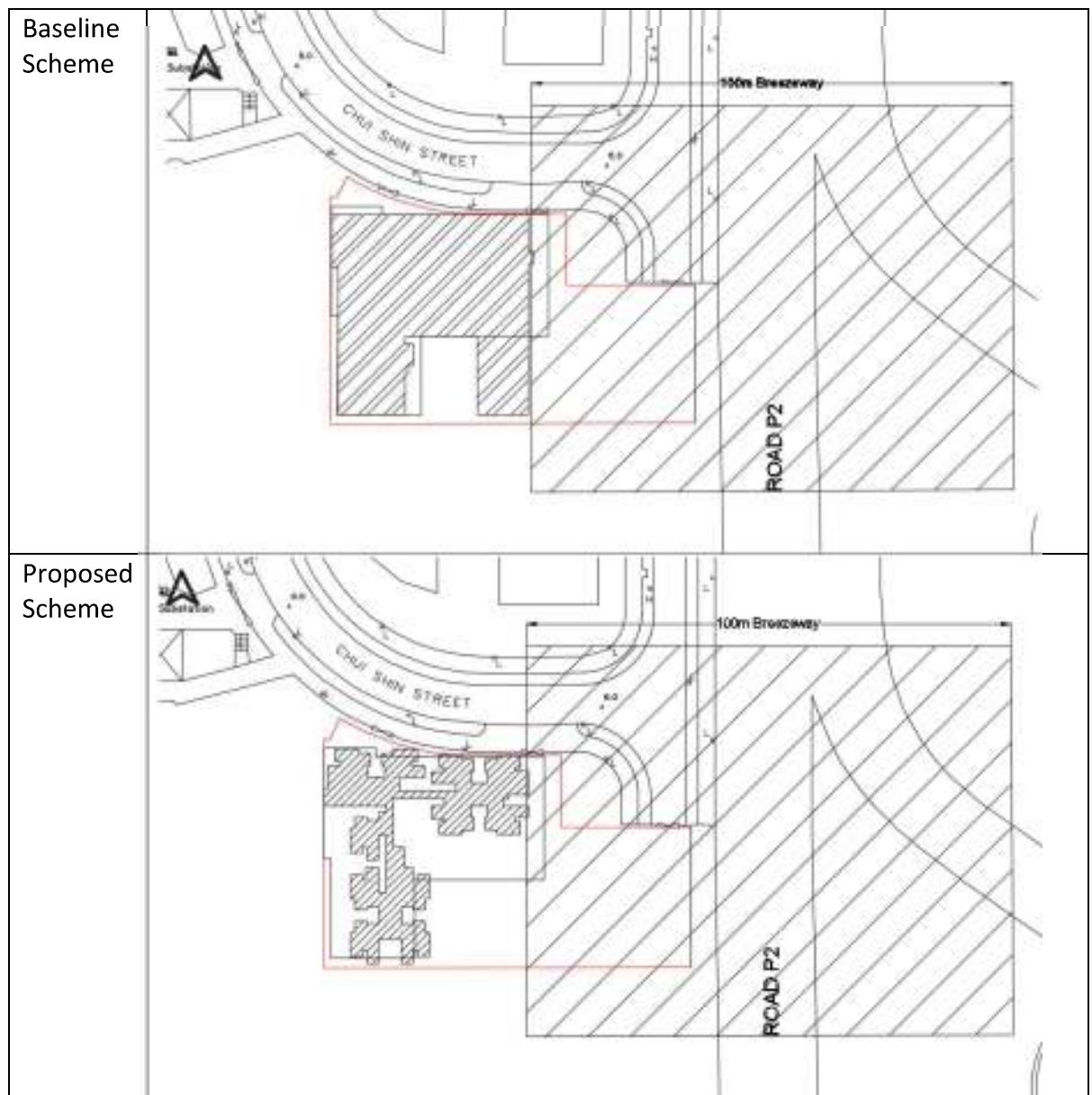


Figure 12 **Breezeway Reservation**

6. EXPERT EVALUATION

6.1. ANNUAL PREVAILING WIND

E Wind

- 6.1.1.** Under annual prevailing wind condition, E wind would flow along Po Yap Road to Chui Ling Road. Portion of E wind would flow from Chi Shin Street, reach the Project Site and further to the downwind residential developments of Ocean Shores and Metro Town, as shown in *Figure 13*.
- 6.1.2.** Under both the Proposed Scheme and the Baseline Scheme, building setback from G/F to 4/F (i.e. approx.30m) is reserved to allow wind circulation within the Project Site. The building coverage for both schemes are <65% due to limited flexibility of the fire-station-cum-ambulance depot. Under the Baseline Scheme, incoming E wind reaches the Project Site would then be diverted into Chui Shin Street, and partly diverted to Tong Yin Street Open Space.
- 6.1.3.** Under the Proposed Scheme, the reduced building bulk from 5/F to roof could divert more E wind to the open space which would otherwise be blocked by the eastern building façade in the Baseline Scheme. With the building height increased from 11/F to 16/F in the Proposed Scheme, less prevailing wind at high level could skim over the building, which could potentially result in a larger wake zone at downwind areas such as the north part of Tong Yin Street Open Space. Nonetheless, due to the openness of the surrounding area and the relatively small footprint of the proposed development, prevailing wind could flow freely from other directions to the north part of Tong Yin Street Open Space. Therefore, it is anticipated that there shall be insignificant impact on wind performance at Tong Yin Street Open Space.

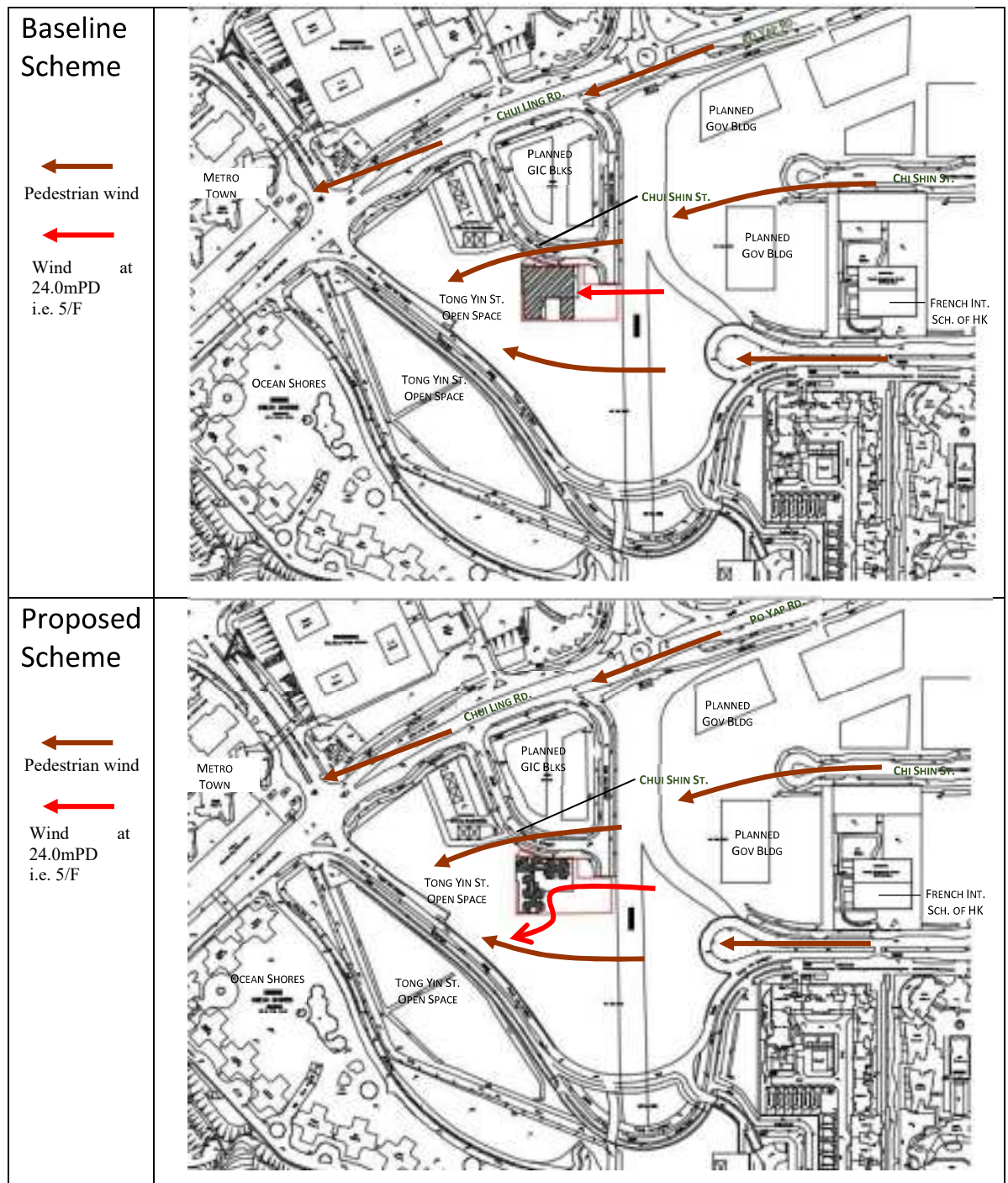


Figure 13 Annual Prevailing Wind (E Wind)

ENE and NE Wind

- 6.1.4.** Generally, the air ventilation performance under ENE and NE wind conditions would flow along the wind corridor of Po Yap Road - Chui Ling Road to reach the downwind area of Metro Town and Ocean Shores. Portion of ENE and NE winds would flow from the building blocks within the planned Government Buildings located northeast of the Project Site as shown in **Figure 14**.
- 6.1.5.** Under the Proposed Scheme and the Baseline Scheme, no noticeable change is found from G/F to 4/F due to similar site layout at these levels. Provision of 30m setback distance from the east of site boundary would reduce the obstruction and favour ENE and NE winds to flow to the downstream area of Tong Yin Street Open Space located southwest of the Project Site.
- 6.1.6.** The office portion from 5/F to 10/F in the Baseline Scheme would block some of the incoming winds flowing from ENE and NE wind conditions to Tong Yin Street Open Space. As discussed in Section 5.1.5, the Proposed Scheme adopts an “upside-down L shape”, which leads to a larger building setback from the east site boundary. The larger setback would allow more prevailing winds to flow across the project site to downwind areas. As a result, improved wind performance at the downwind area at Tong Yin Street Open Space is anticipated. The wind flow pattern of wind at 5/F under Baseline and Proposed Scheme is illustrated in **Figure 14**.
- 6.1.7.** Under the Proposed Scheme, building height is increased from 11/F to 16/F. Therefore, less prevailing wind at high level could skim over the building, which could potentially result in a larger wake zone at downwind areas such as Tong Yin Street Open Space. Nonetheless, due to the openness of the surrounding area and the relatively small footprint of the proposed development, prevailing wind could flow freely from other directions to Tong Yin Street Open Space. With the larger building setback to channel the ENE and NE to downwind locations, it is expected that the wind performance at the Tong Yin Street Open Space at the southwest of the Proposed Development would be improved under the Proposed Scheme.

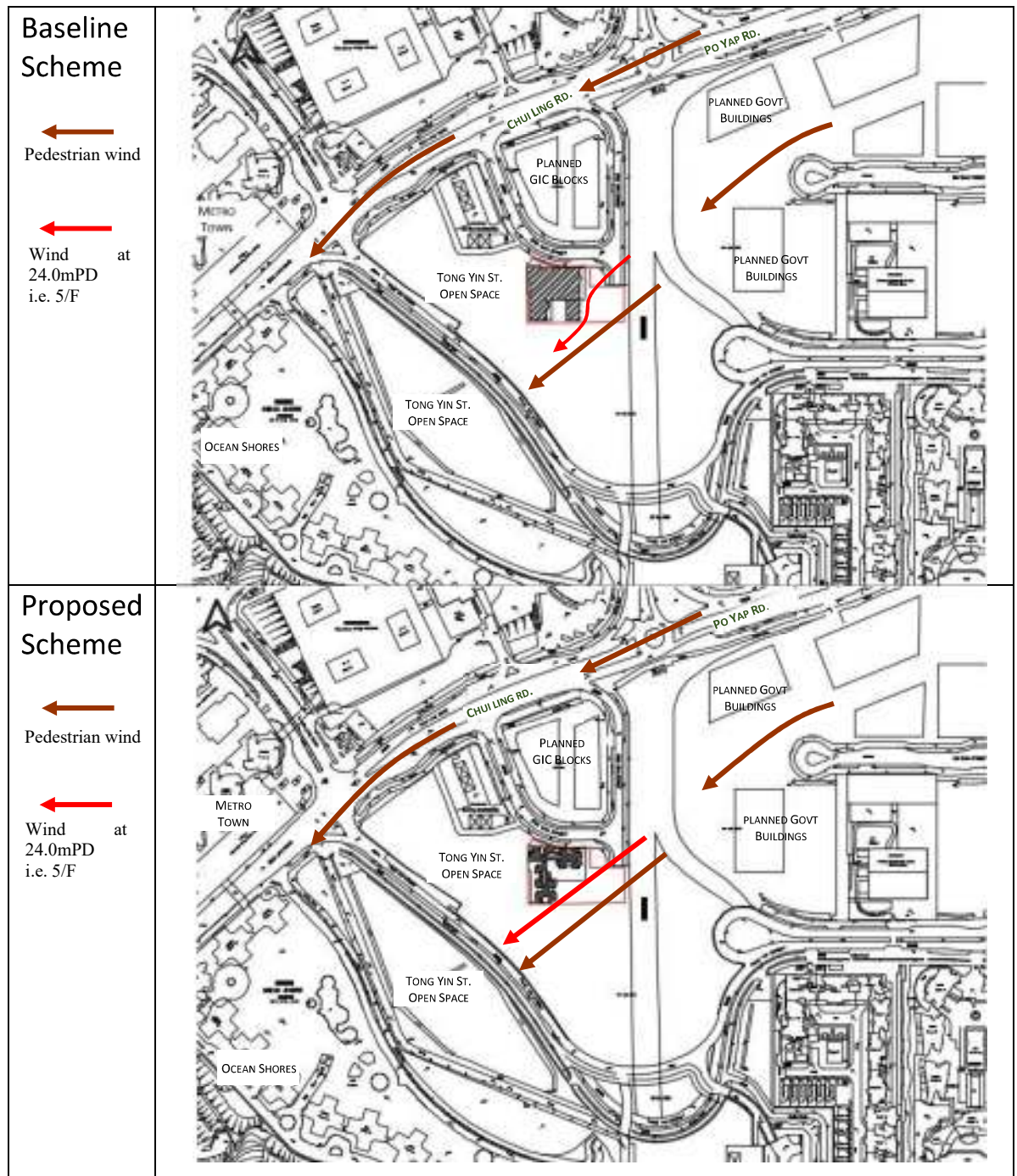


Figure 14 Annual Prevailing Wind (ENE and NE Winds)

NNE Wind

- 6.1.8.** Under annual prevailing wind conditions, NNE wind would flow along the wind corridor of Po Shun Road and reach the Project Site, flows along the proposed Road P2 and further to the waterbody of Junk Bay, as shown in **Figure 15**. Portion of the NNE wind would likely to flow across the lower rise planned GIC blocks located north of Project Site as well.
- 6.1.9.** Under the Proposed Scheme and the Baseline Scheme, similar building setback and site coverage are found from G/F to 4/F. Setback distance from 5/F to 16/F of the Proposed Scheme is enlarged from approx. 34m to approx. 54m due to the “upside-down L shape” design. The larger setback, which aligned with NNE direction, would allow more prevailing winds to flow across the project site to downwind areas. As a result, improved wind performance at the downwind area at Tong Yin Street Open Space is anticipated. The wind flow pattern of wind at 5/F under Baseline and Proposed Scheme is illustrated in **Figure 15**.
- 6.1.10.** Under the Proposed Scheme, building height is increased from 11/F to 16/F. Therefore, less prevailing wind at high level could skim over the building, which could potentially result in a larger wake zone at downwind areas such as Tong Yin Street Open Space. Nonetheless, due to the openness of the surrounding area and the relatively small footprint of the proposed development, prevailing wind could flow freely from other directions to Tong Yin Street Open Space. With the larger building setback, it is expected that the wind performance at the Tong Yin Street Open Space at the southwest of the Proposed Development would be improved under the Proposed Scheme.
- 6.1.11.** The north façade of the departmental quarter of the Project Site is perpendicular to the incoming NNE winds flowing across the lower-rise planned GIC blocks. In the Baseline Scheme, there will be no downwash as its building height is similar to that of the planned GIC blocks. With the increased in building height in the Proposed Scheme, the NNE wind would likely to collide at the departmental quarter at higher level and would then downwash to reach the downstream area of Chui Shin Street and improve the wind environment at pedestrian level. The wind flow pattern of downwash wind is illustrated in **Figure 15**.

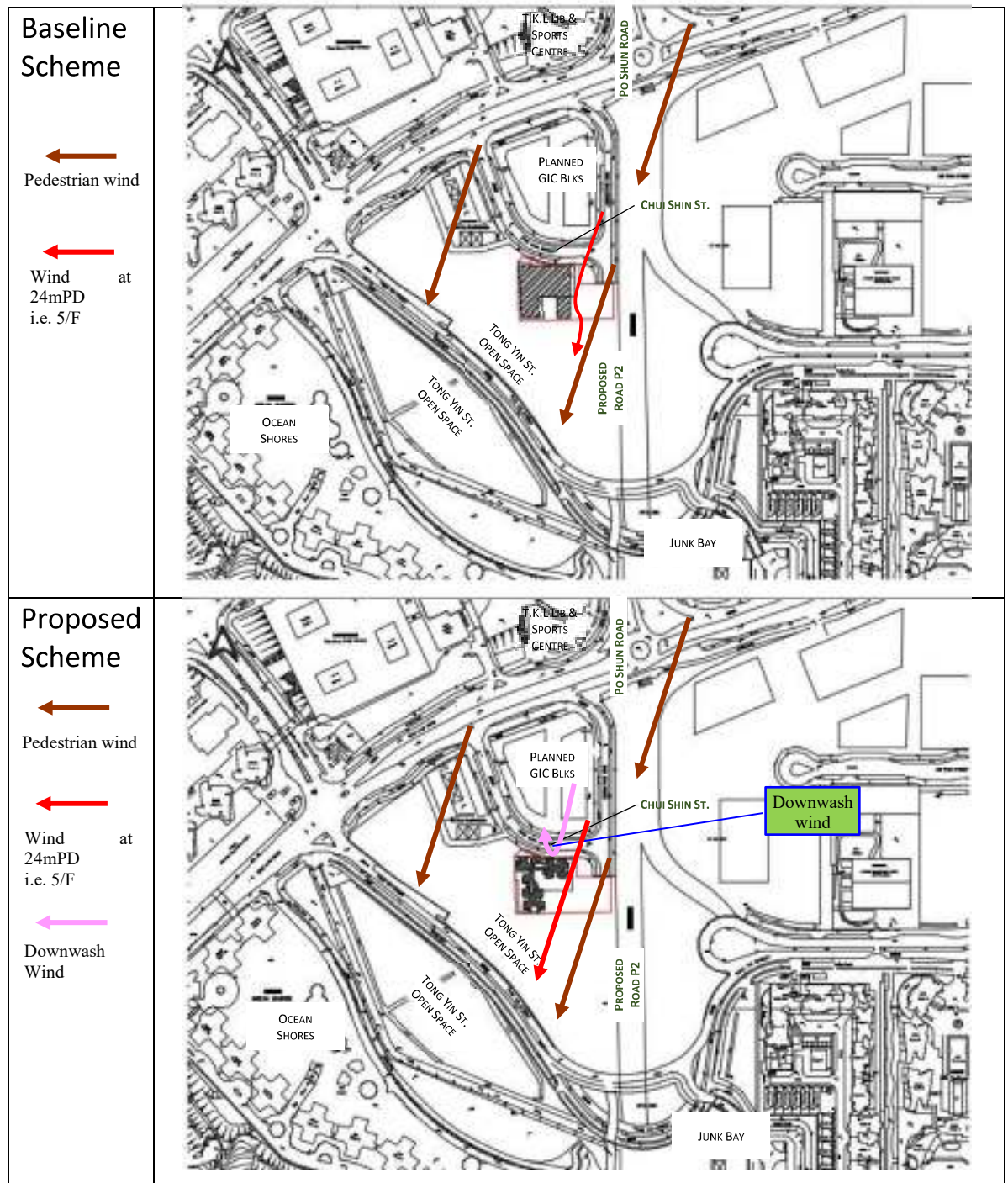


Figure 15 Annual Prevailing Wind Condition (NNE Wind)

6.2. SUMMER PREVAILING WIND

SW and SSW Wind

- 6.2.1.** Under summer prevailing wind condition, SW and SSW winds are expected to flow from Metro Town to Park Central along the major wind corridor of Chui Ling Road - Po Yap Road. Some of the prevailing winds are likely to pass through Tong Yin Street Open Space located west and southwest of the Project Site, reach the Project Site and flow to the planned Government Buildings located northeast of the Project Site, as shown in **Figure 16**.
- 6.2.2.** Under the Proposed Scheme and the Baseline Scheme, no noticeable change is found from G/F to 4/F. The 30m setback from the east of site boundary would favour SW and SSW wind to flow to the downstream area of the planned Government Buildings located northeast of the Project Site.
- 6.2.3.** The office portion from 5/F to 10/F in the Baseline Scheme would block some of the incoming winds flowing from the Tong Yin Street Open Space to downwind areas such as planned Government buildings. As discussed in Section 5.1.5, the Proposed Scheme adopts an “upside-down L shape” design, which leads to a 20m larger building setback from the east site boundary. The larger setback, which aligned with the SW and SSW direction, would allow more prevailing winds to flow across the project site to downwind areas. As a result, improved wind performance at the downwind area at planned Government Buildings is anticipated. The wind flow pattern of wind at 5/F under Baseline and Proposed Scheme is illustrated in **Figure 16**.
- 6.2.4.** Under the Proposed Scheme, building height is increased from 11/F to 16/F. Therefore, less prevailing wind at high level could skim over the building, which could potentially result in a larger wake zone at downwind areas. Nonetheless, due to the openness of the surrounding area and the relatively small footprint of the proposed development, prevailing wind could flow freely from other directions to downwind areas such as west of the site of planned Government Buildings and proposed Road P2. With the larger building setback, it is expected that the wind performance at planned Government Buildings at northeast of the Project Site would be improved under the Proposed Scheme.

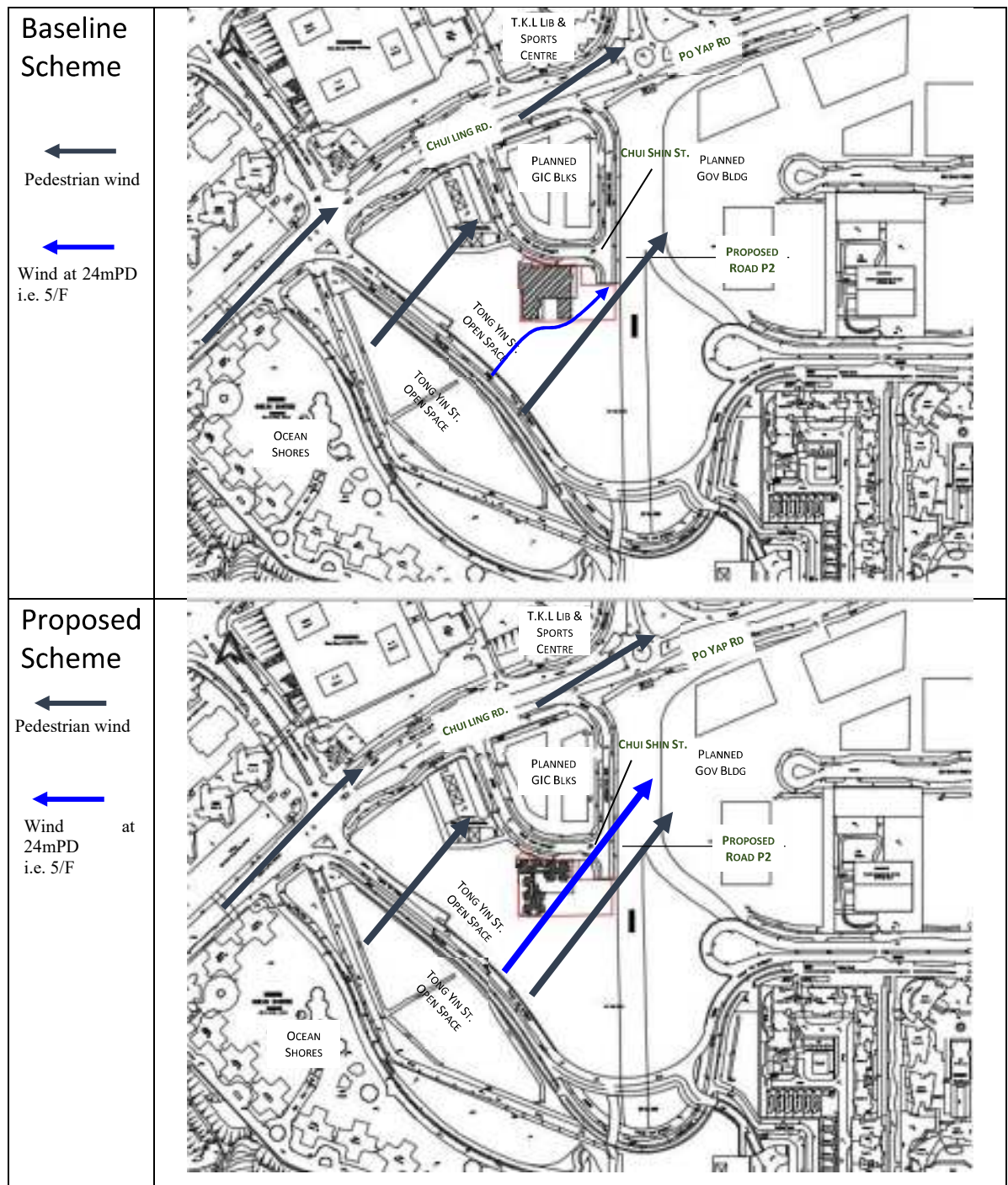


Figure 16 Summer Prevailing Wind Condition (SW & SSW Wind)

S Wind

- 6.2.5.** Under summer prevailing S wind, the incoming winds would flow from the waterbody of Junk Bay along the wind corridor of proposed Road P2-Po Shun Road. The S wind would reach the Project Site, flow to the planned GIC blocks located at the north and further to the downwind areas of Tiu Keng Leng Library and Sports Centre, as shown in **Figure 17**.
- 6.2.6.** Under both the Proposed Scheme and the Baseline Scheme, building setback from G/F to 4/F (i.e. approx.30m) is reserved to allow wind circulation within the Project Site. The building coverage for both schemes are <65% due to limited flexibility of the fire-station-cum-ambulance depot. Incoming S wind reaches the Project Site would then be diverted into Chui Sin Street.
- 6.2.7.** With the increased building setback from 5/F to roof level in the Proposed Scheme, the S wind would be diverted to the north of the site instead of being bounced back by the southern façade in the baseline scheme. With the “upside-down L shape” design, the proposed scheme poses less obstruction to the S wind and improves the wind performance at the downwind area.
- 6.2.8.** The prevailing S wind at high level would skim over the project building and planned GIC block, and then reach the downwind area. Under the Proposed Scheme, the building height is increased from 11/F to 16/F (i.e. 55.6m) while the height of the planned GIC block is about 40m. With the minor height increase of the Proposed Scheme and comparable building height of planned GIC block, no significant impact to the wind performance at the downwind areas such as Tiu Keng Leng Library and Sport Centre is anticipated.

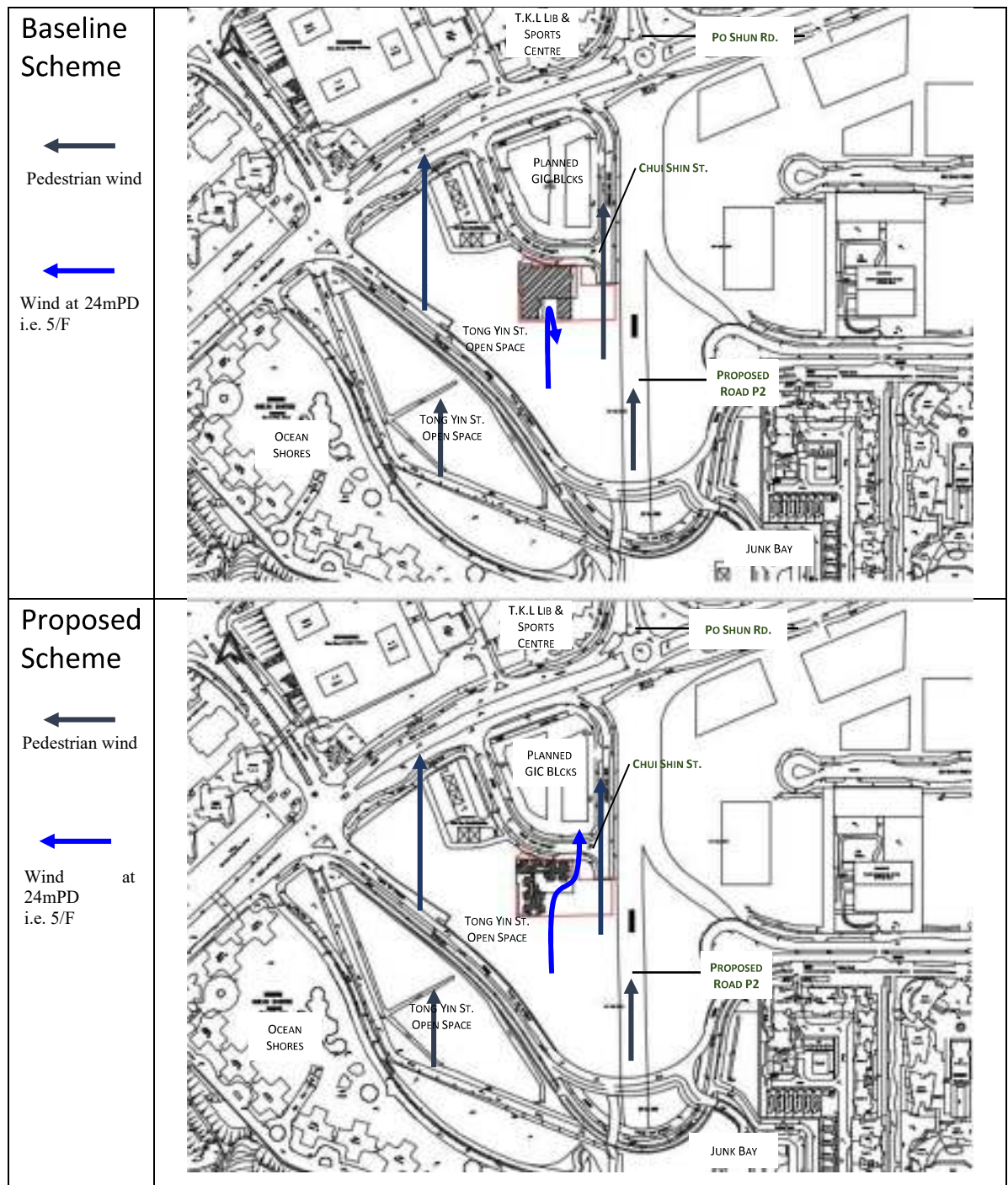


Figure 17 Summer Prevailing Wind Condition (S Wind)

7. CONCLUSIONS

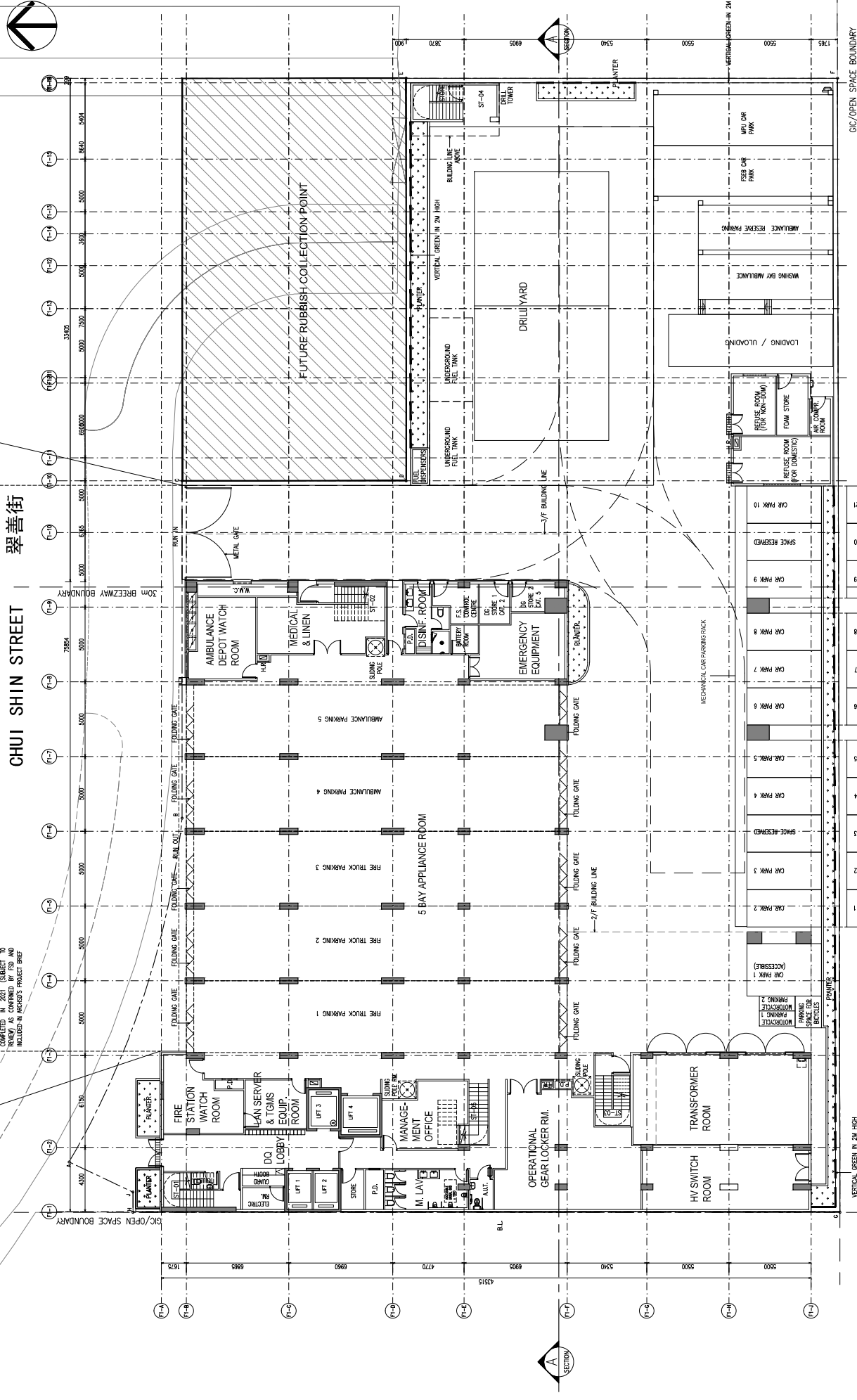
- 7.1.1.** An AVA-EE study was conducted for the proposed fire station-cum-ambulance depot with departmental quarters at Area 72, TKO to provide qualitative evaluation of wind performance of the proposed development under the Baseline and the Proposed Scheme.
- 7.1.2.** In both of the Baseline and the Proposed Scheme, the building structure from G/F to 4/F is setback from the eastern site boundary by approx. 30m to improve air ventilation to the surrounding area. The Proposed Scheme adopts an “upside-down L shape” design, which results in a reduced building bulk and achieve a 20m larger building setback from the eastern site boundary when the compared to the Baseline scheme. The reduced building bulk and enhanced setback would pose less obstruction and allow more prevailing winds to flow across the Project Site and reach the downwind areas of Tong Yin Street Open Space and planned Government Buildings under annual prevailing ENE, NE, NNE and summer prevailing SW, SSW winds respectively. Despite that the building height in the Proposed Scheme is increased from 11/F to 16/F, there shall be insignificant impact on the wind performance in view to the openness of the surrounding area and the relatively small footprint of the proposed development which facilitate the air flow around the building structure for prevailing winds to reach their download locations.
- 7.1.3.** With the good design features to improve air ventilation performance, including enlarged building setback, reduced building coverage and breezeway reservation adopted in the Proposed Development, it is anticipated that there shall be insignificant impact to the wind environment in the surrounding area associated with the Project Site.

Appendix A

LAYOUT PLAN – BASELINE SCHEME

~~(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY):~~

翠善街

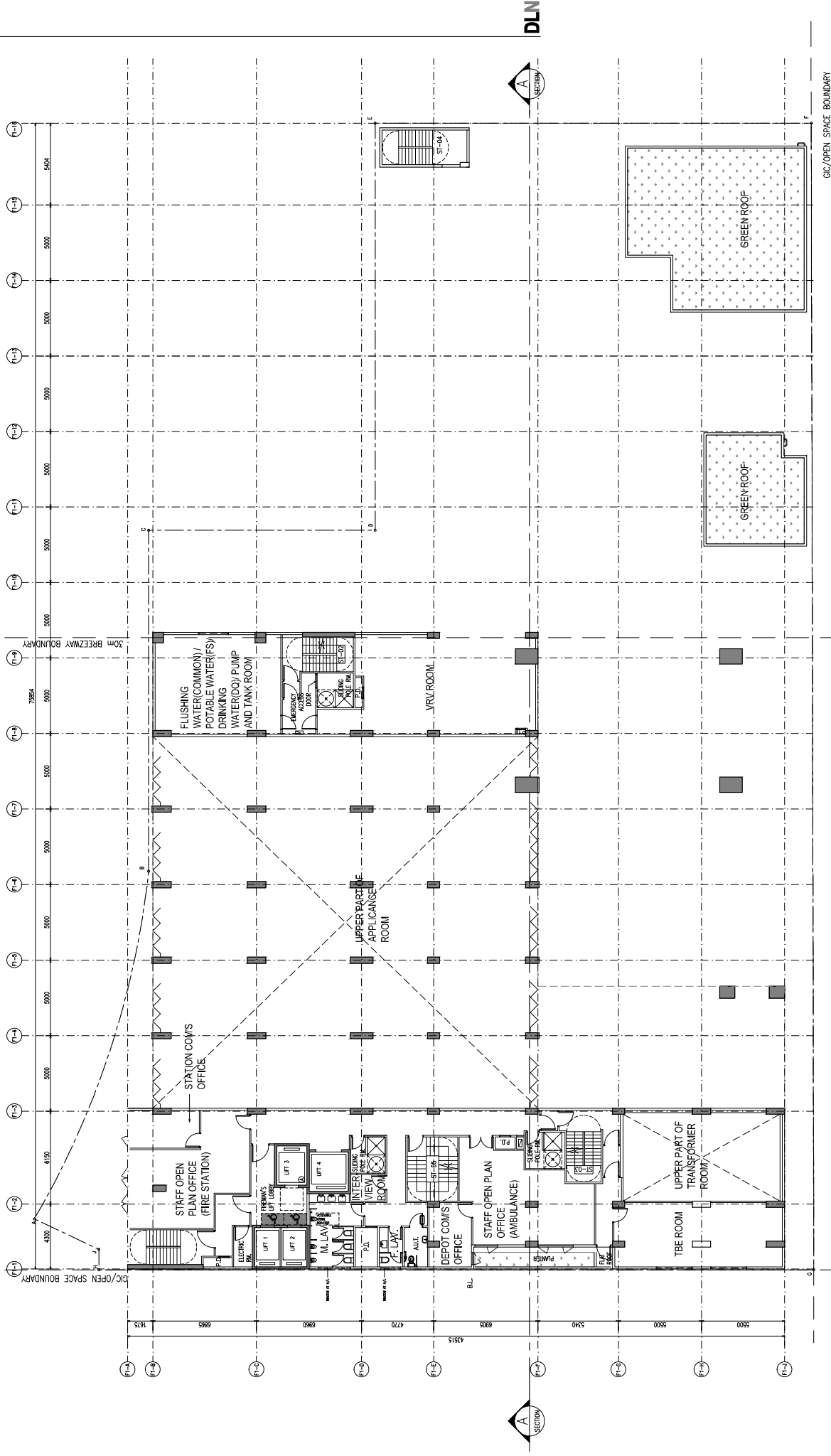


FIRE STATION-CUM-AMBULANCE DEPOT WITH DEPARTMENTAL QUARTERS IN AREA 72, TKO

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H:\Dwg\ACAD\Sketches\2020-06-03 SK-23 S16 F.I. No.4 (Baseline Scheme)\2020-06-03 OZP Complaint Scheme (for S16) - Typical Plan & Section.dwg, 1:251.343, Project No.: N2473-H

1/F PLAN (OZP COMPLIANT BASELINE SCHEME - PLAN)
(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).



DLN

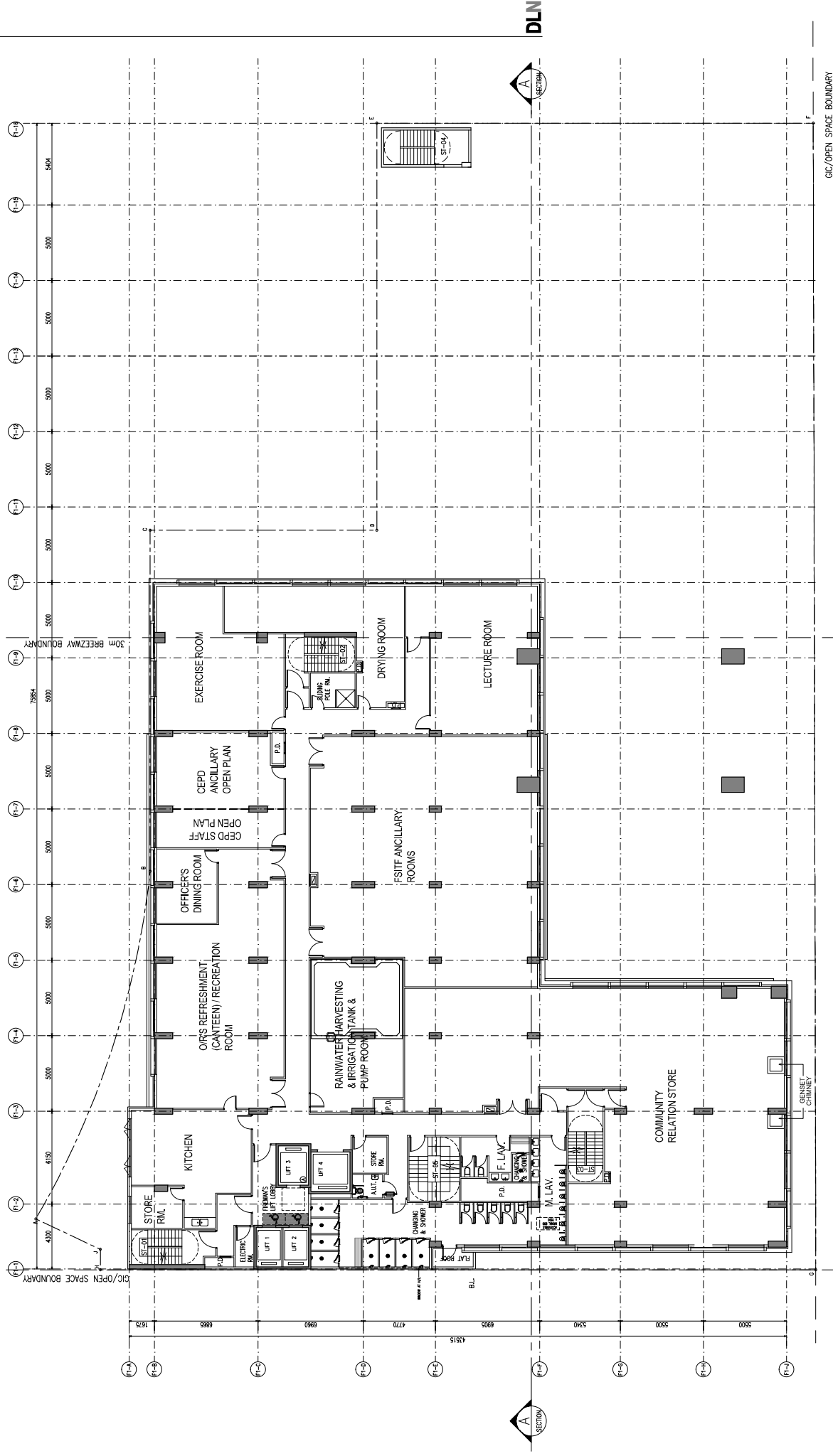


GIC/OPEN SPACE BOUNDARY

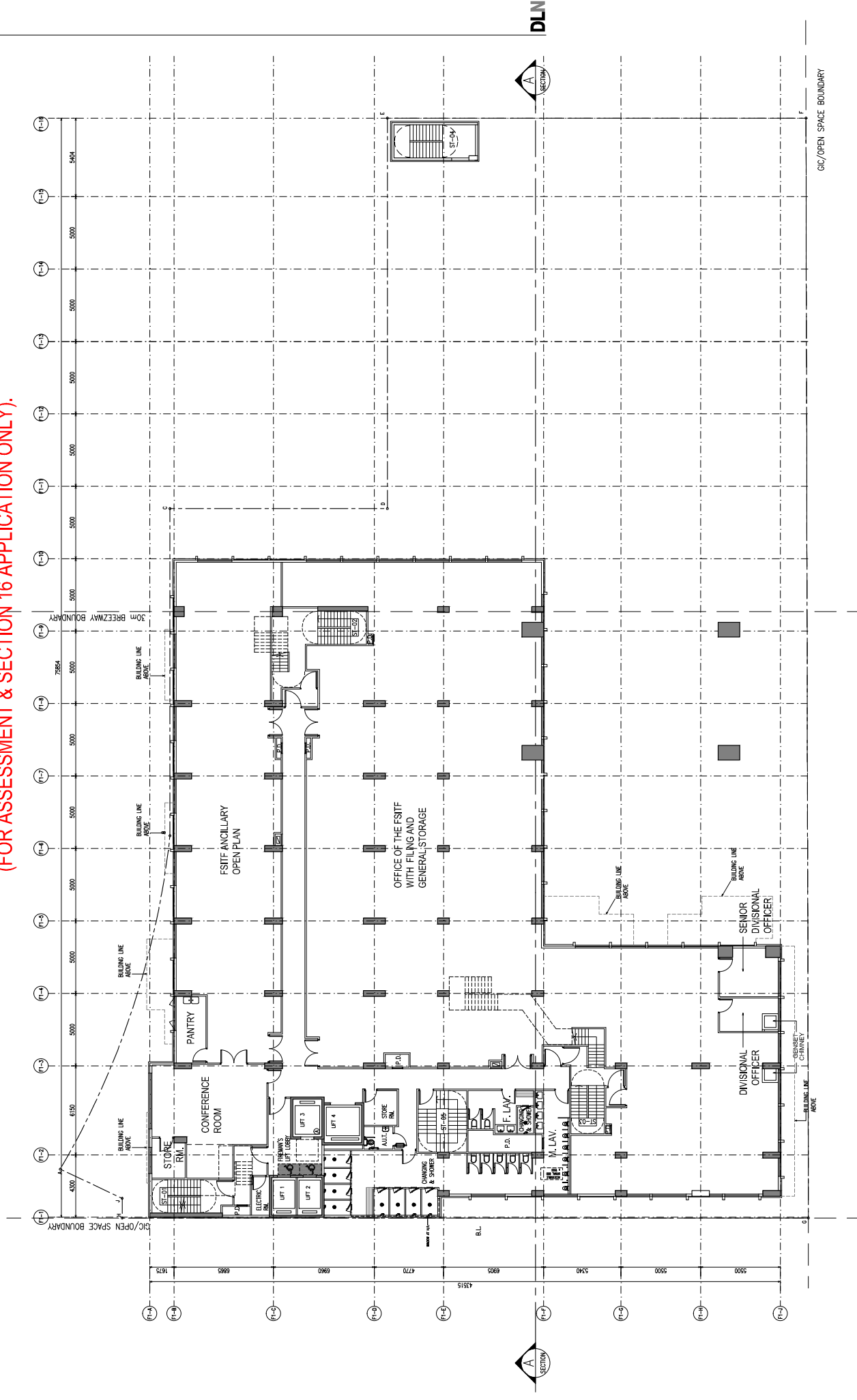
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3/F PLAN (OZP COMPLIANT BASELINE SCHEME - PLAN)
(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).



(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).

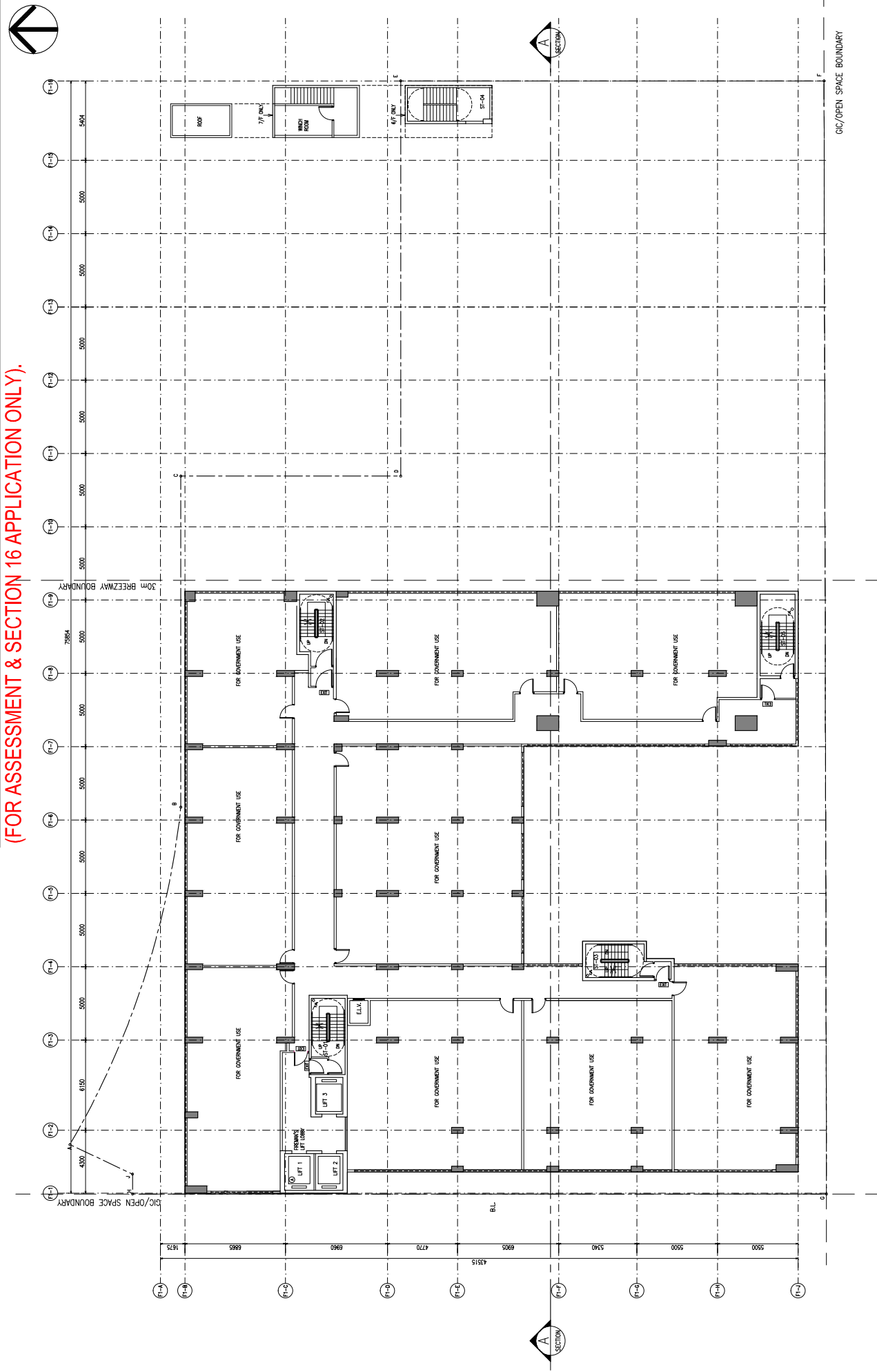


FIRE STATION-CUM-AMBULANCE DEPOT WITH DEPARTMENTAL QUARTERS IN AREA 72, TKO
03-06-2020

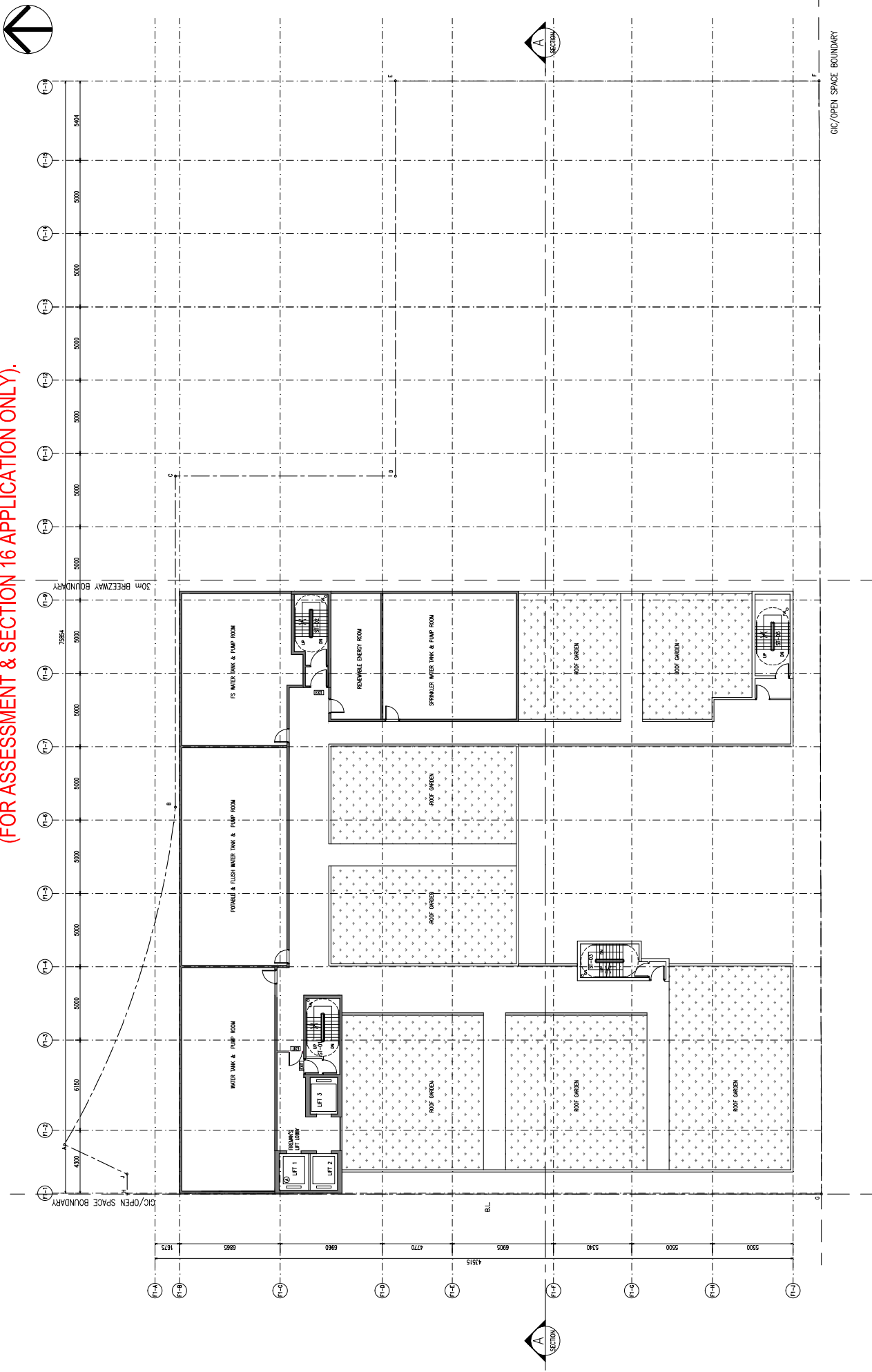
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5/F TO 10/F PLAN (OZP COMPLIANT BASELINE SCHEME - PLAN)
(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).



R/F PLAN (OZP COMPLIANT BASELINE SCHEME - PLAN)
(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).



Appendix B

LAYOUT PLAN – PROPOSED SCHEME

100m Breezeway

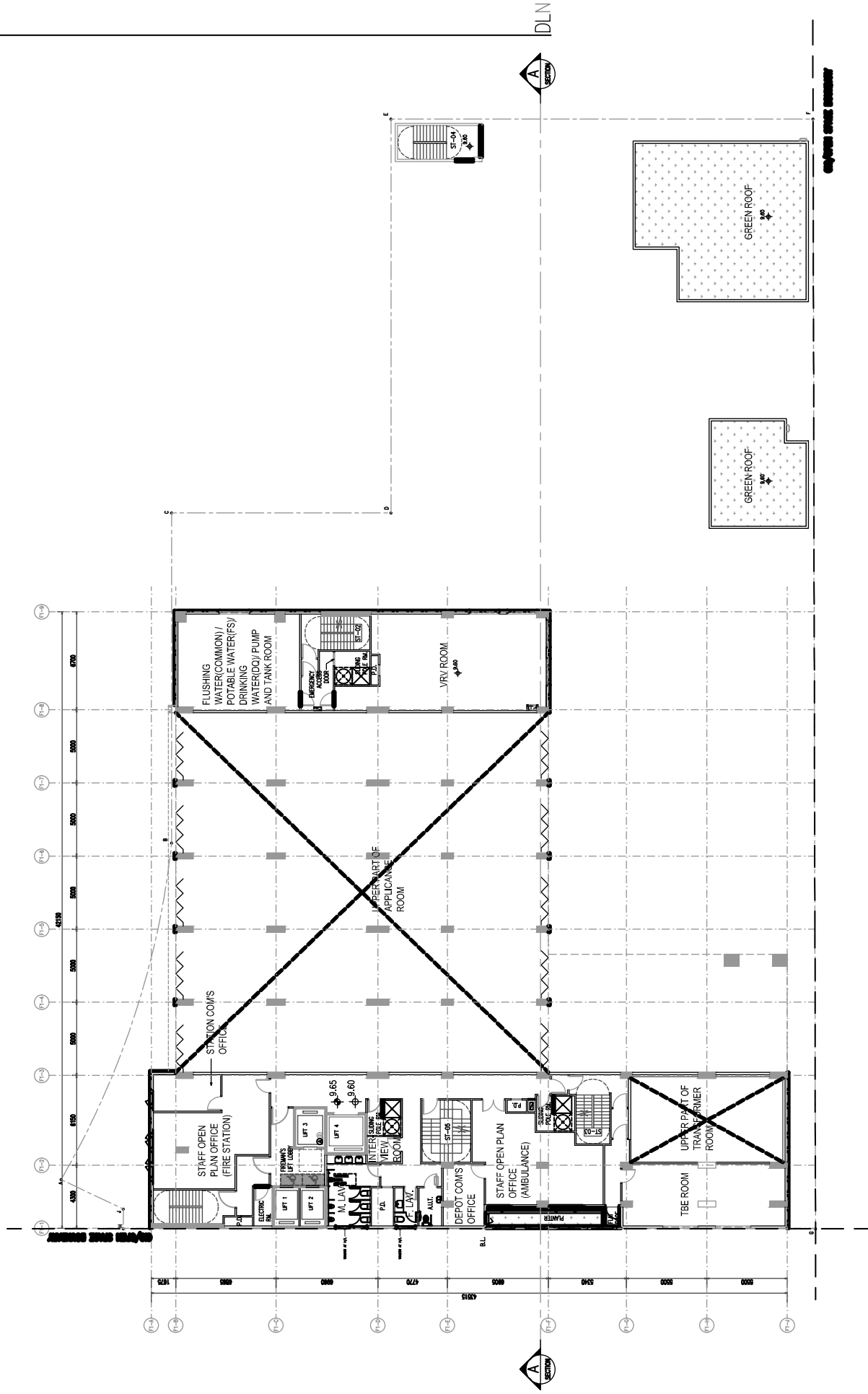


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Bruce Lau Tin-sang 盧子榮	BAAS(HK) (Regulated), BAAS (UK) (Architect)

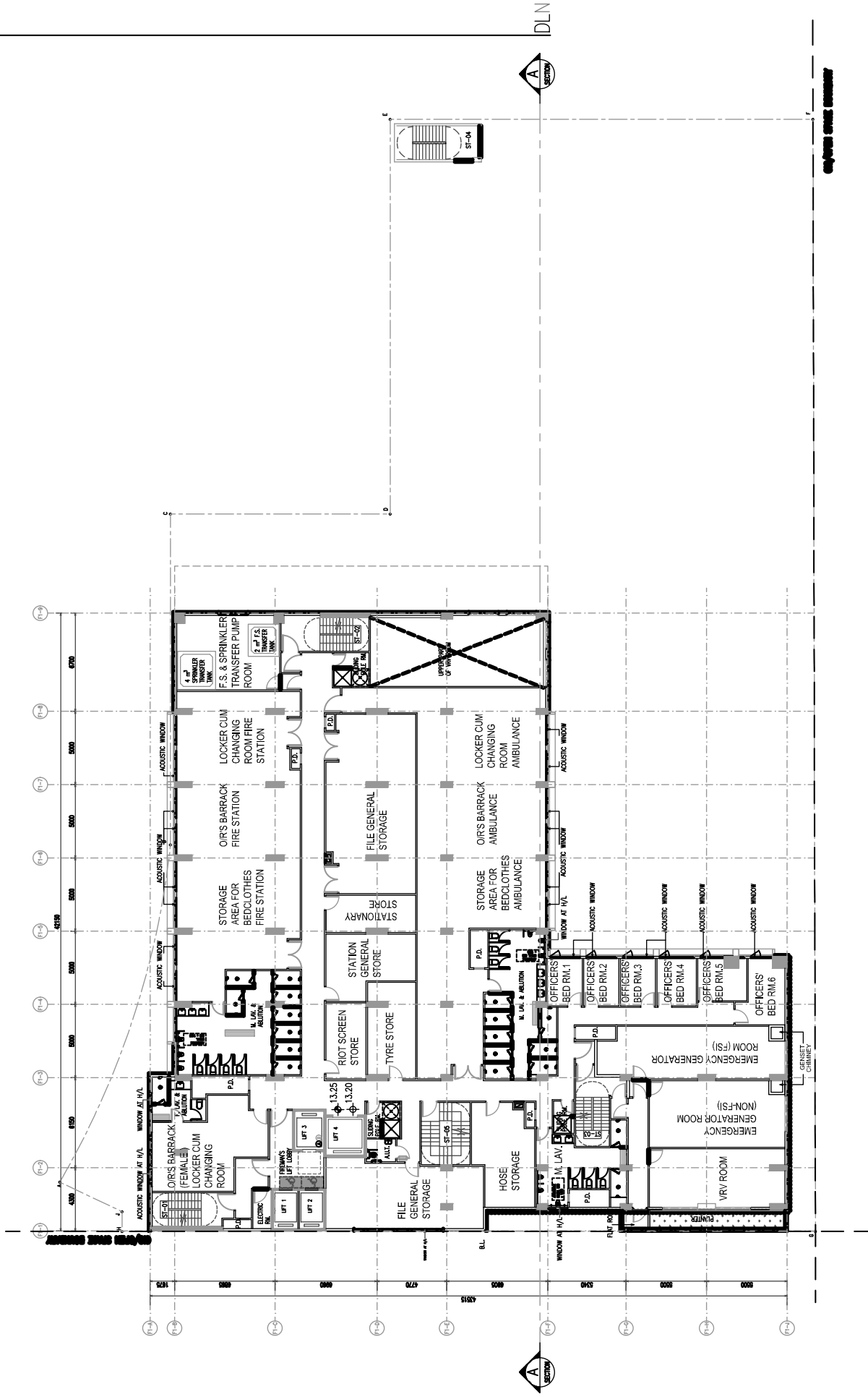
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	製作人	A.A.		校查
JOB NO.	工程項目	DRAWING NO.		圖號
N2473-H				

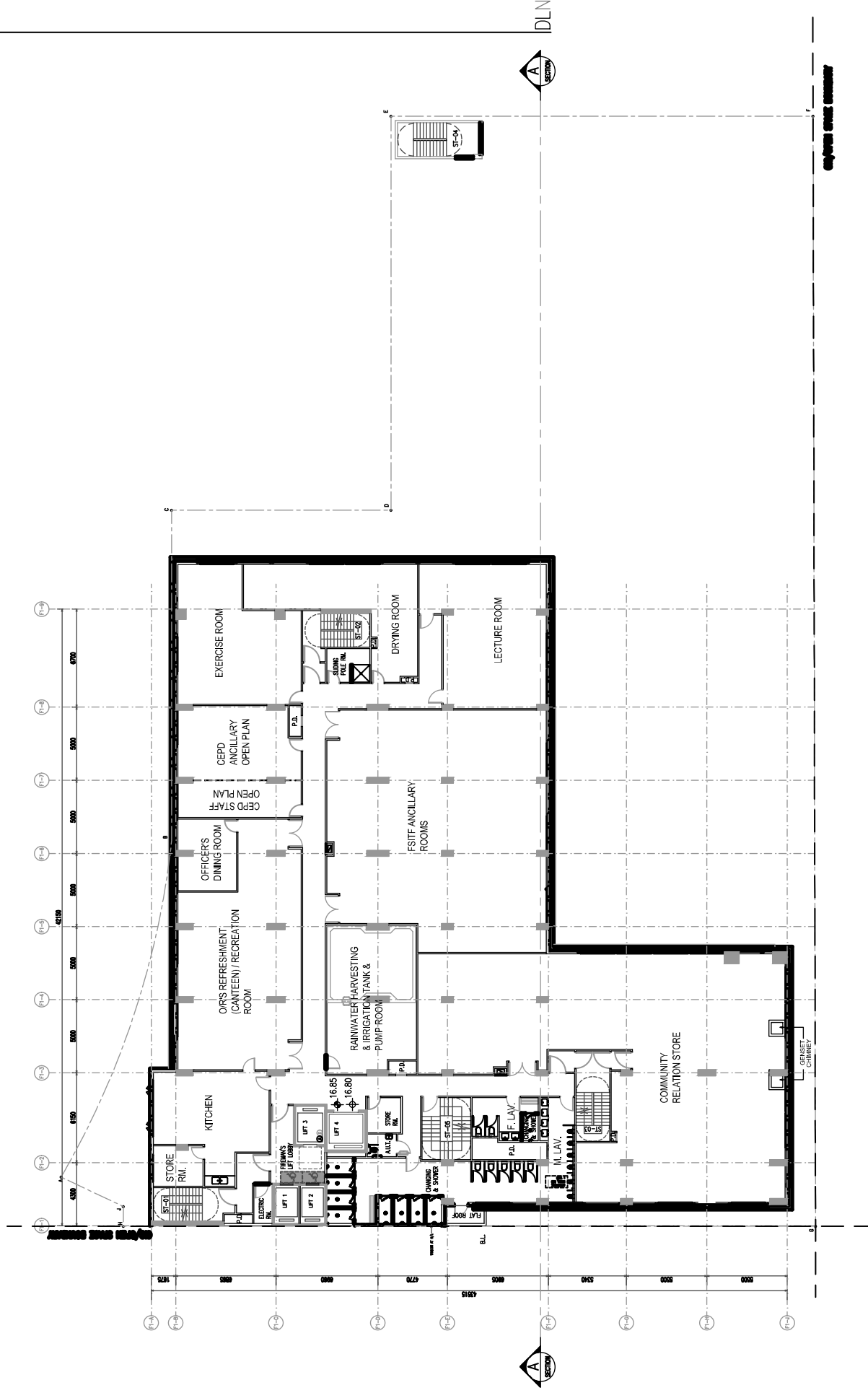
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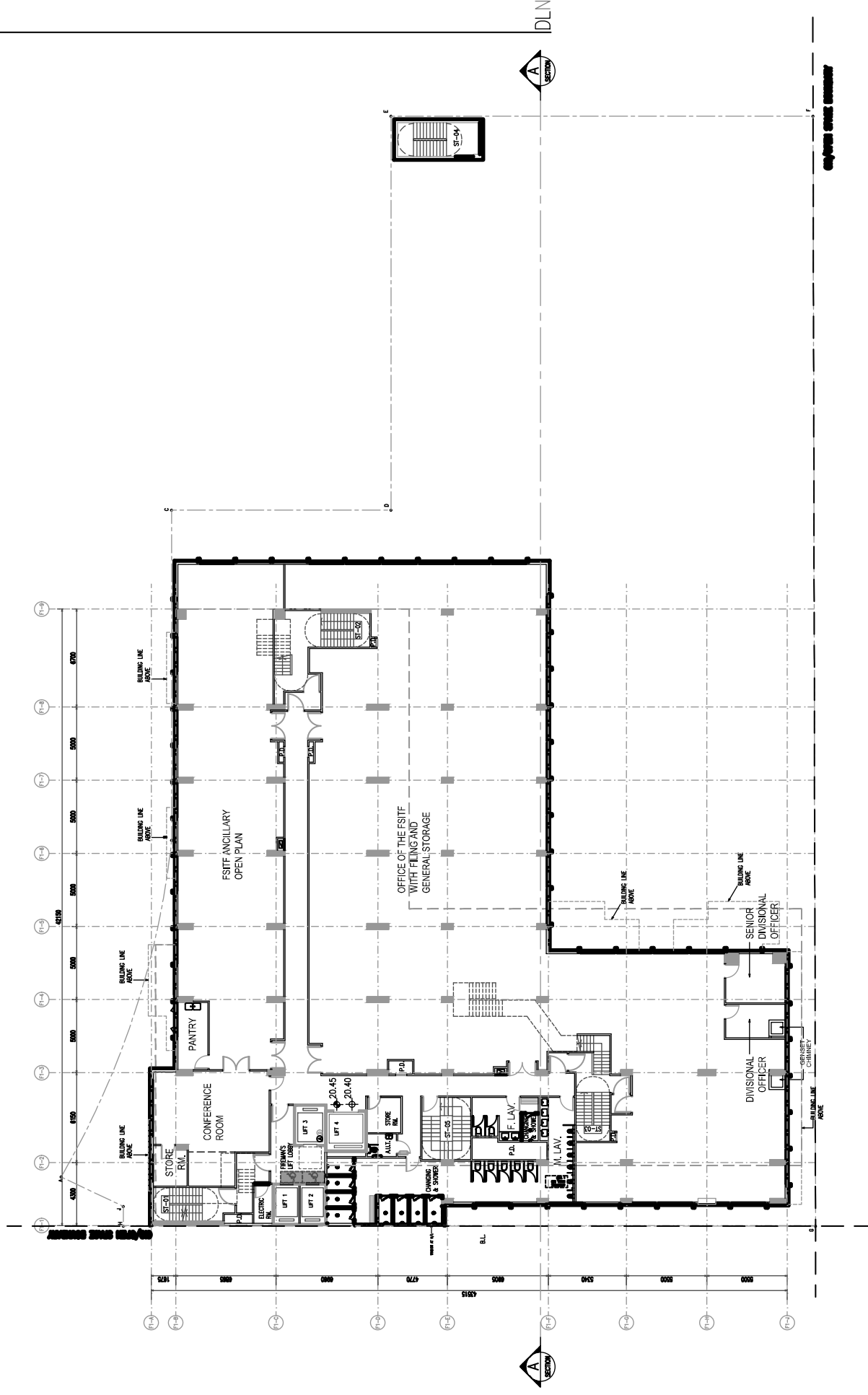
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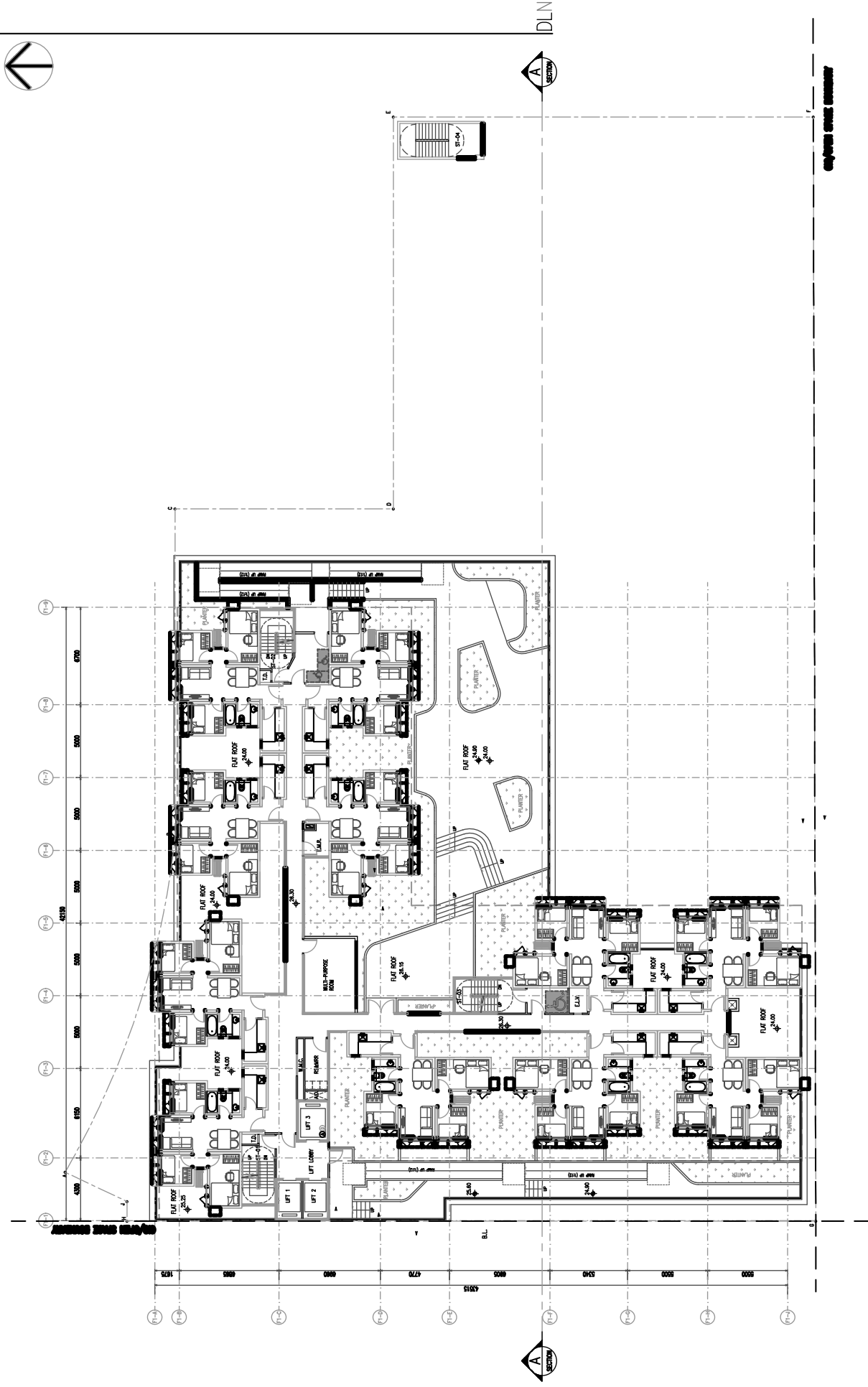
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4/F PLAN (SK-23)



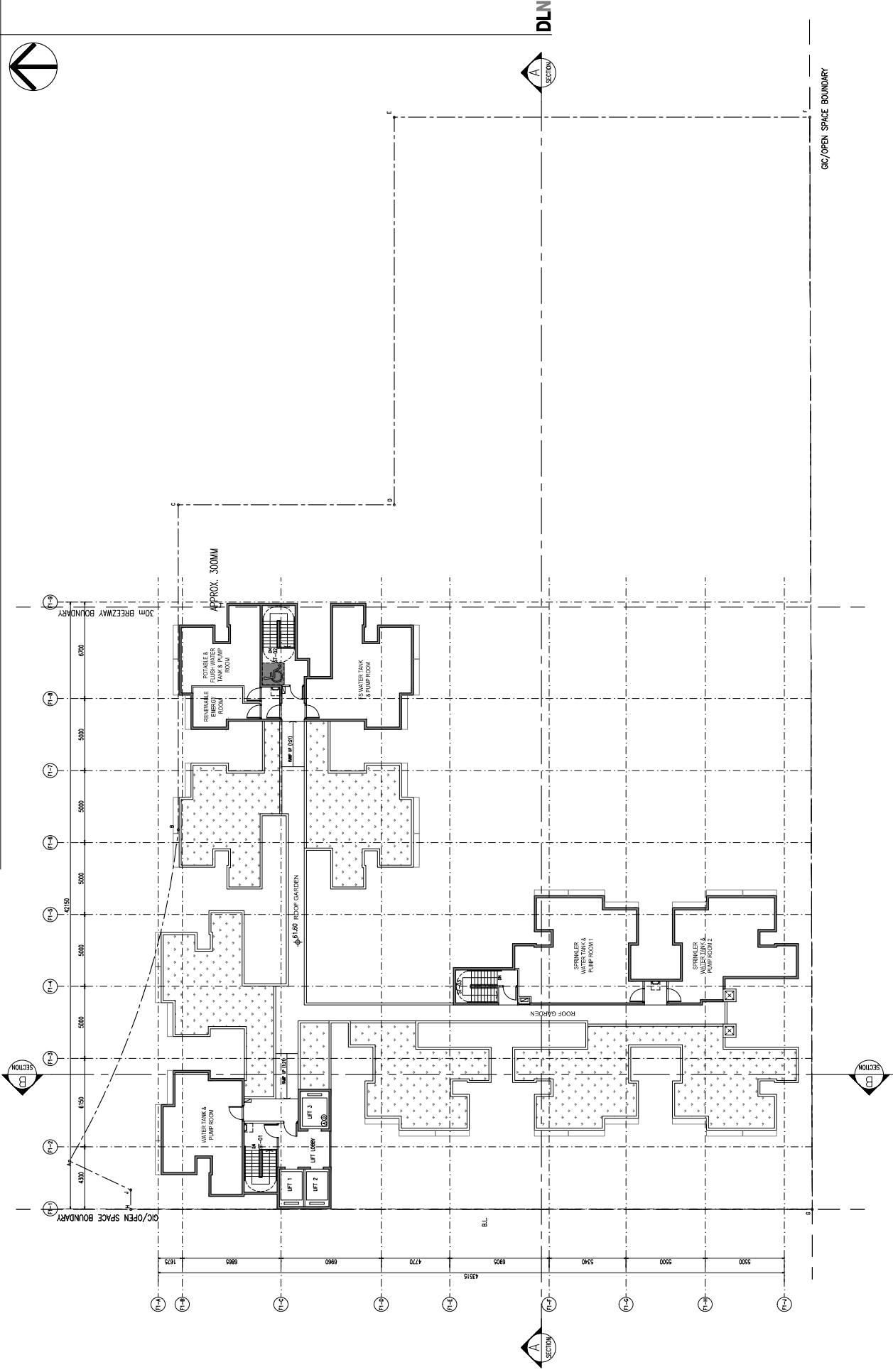
5/F PLAN (SK-23)





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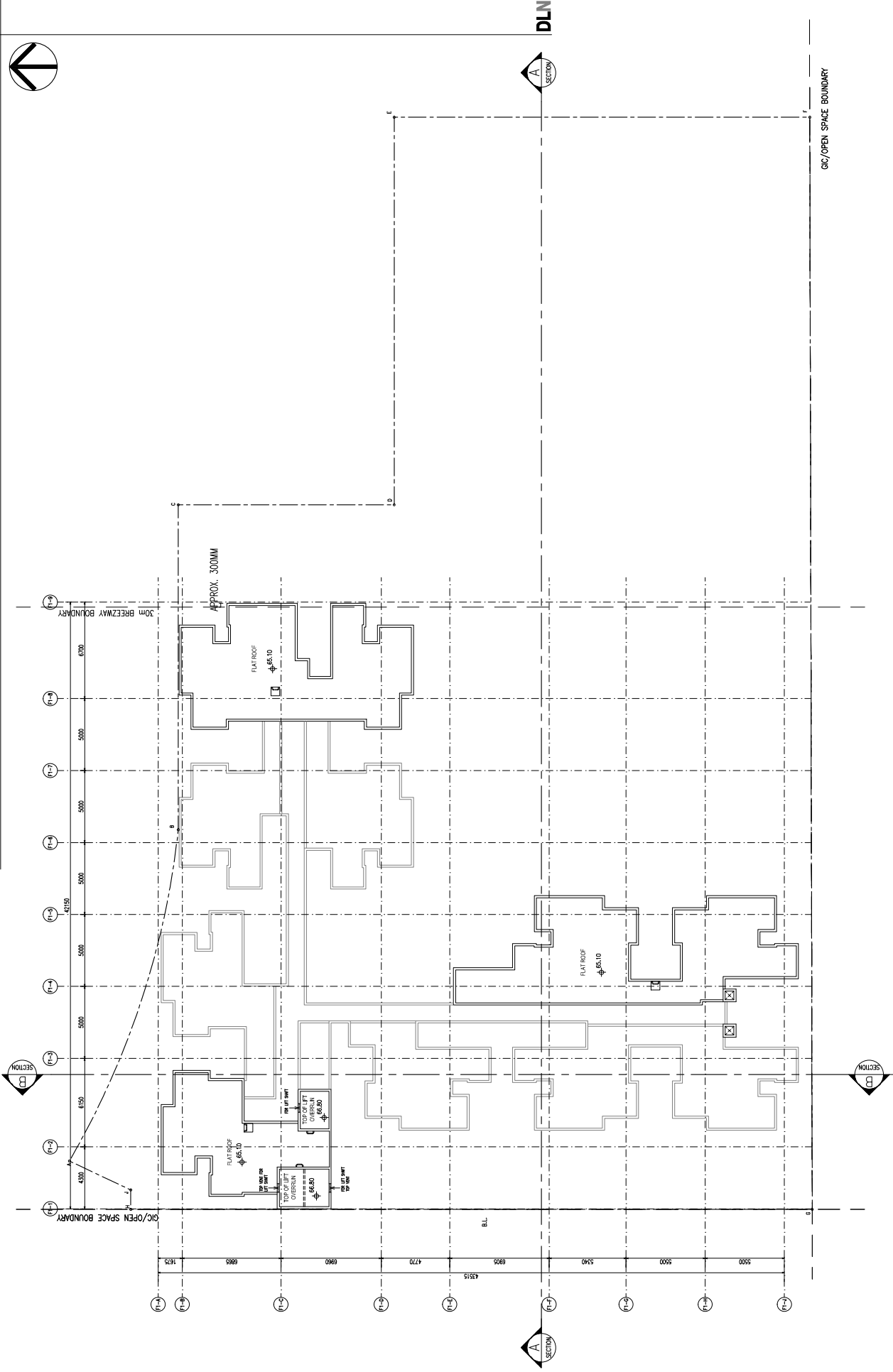
R/F PLAN (SK-23)



FIRE STATION-CUM-AMBULANCE DEPOT WITH DEPARTMENTAL QUARTERS IN AREA 72, TKO
27-12-2019

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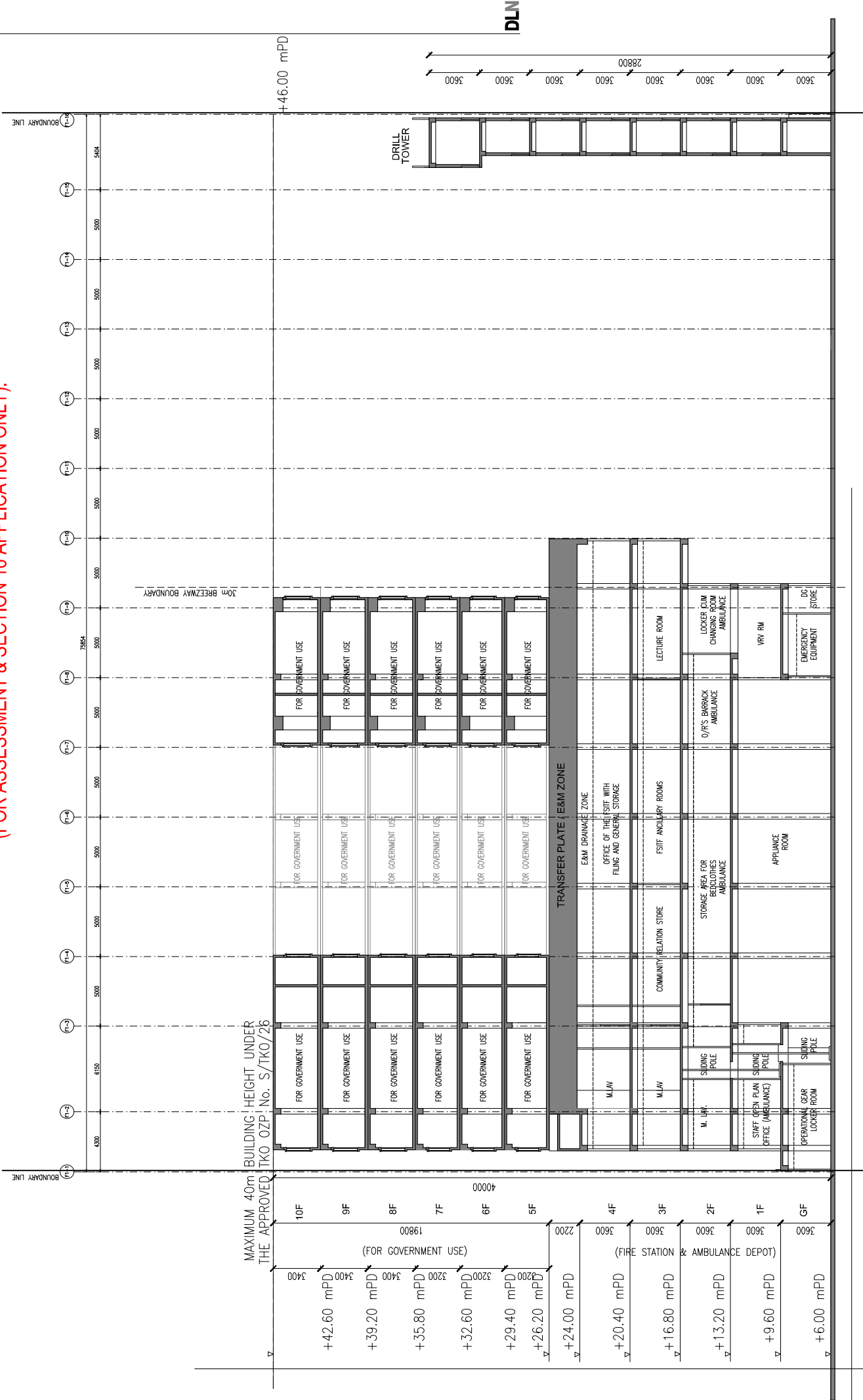
TR/F PLAN (SK-23)



Appendix C

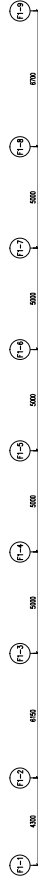
Section Drawing – BASELINE SCHEME

SECTION A-A (OZP COMPLIANT BASELINE SCHEME - SECTION)
(FOR ASSESSMENT & SECTION 16 APPLICATION ONLY).



Appendix D

Section Drawing – PROPOSED SCHEME



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Appendix E

Extracted Page of Technical Feasibility Study

The purpose of breezeways is to provide largely undeveloped corridors (or corridors containing only low rise development) through which an alternative thermal environment to that provided within the built up areas can be created with an aim of enhancing air exchange and passage of cooler air stream.

According to the Further Development of Tseung Kwan O Feasibility Study, any development within the breezeway corridors is restricted to maximum building height of 30m from ground level. As the Eastern part of the site falls within the breezeway corridor along Road P2, which is one of the two major breezeway corridors (100m in width) designated in Tseung Kwan O, development in the Eastern part of the site is subject to the building height restriction of 30m. (Refer to **Annex C** for the self-explanatory memo dated 13 January 2017 from DPO/SK&Is.)

3.8 Set off against Road P2

A proposed road “Road P2”, which is designed as Primary Distributor as advised by CEDD, will be constructed under the project TKO-LTT and abutting the Eastern side of the site.

According to the advice from Environmental Protection Department (EPD), buffer distance of at least 20m against Primary Distributor is required to be provided under Hong Kong Planning Standards and Guidelines for any construction of quarter units, which is considered as air sensitive use. However, other uses where passage of people is only transient under normal circumstance can be regarded as non-air sensitive uses and thus be set up within the buffer zone. Self-explanatory emails dated 25 April 2016 and 25 November 2015 both from EPD are attached in **Annex L1** and **L2** respectively.

Confirmation on transient passage of people in all the non-domestic uses proposed within the buffer zone is given by FSD. A self-explanatory email dated 3 April 2017 from FSD is attached in **Annex M**.

3.9 Further Studies

Ground investigation, preliminary environmental review, topographical survey, TIA and utilities mapping, etc. are required at subsequent planning and design stage.

