

Technical review on Traffic, Sewerage and Water Supply aspects

1. Background

- 1.1 The Shantung Street / Thistle Street Development Scheme (YTM-012) was commenced by the Urban Renewal Authority (URA) on 16 October 2020 by way of a development scheme under Section 25 of the Urban Renewal Authority Ordinance (URAO). On the same day, the URA submitted the draft Shantung Street / Thistle Street Development Scheme Plan (DSP) to the Town Planning Board (TPB), which was subsequently approved by the Chief Executive in Council (CE in C) on 8 February 2022. The approved Shantung Street / Thistle Street DSP No. S/K3/URA4/2 (the Approved DSP) was published on the 18 February 2022.
- 1.2 Under URA's planning submission in 2020, extensive technical assessments were conducted on traffic, landscape, environmental, visual, drainage, sewerage and water supply aspects in support of the draft DSP. The assessments have demonstrated that there are no insurmountable problems arising from the proposed development from environmental, traffic, drainage, sewerage and water supply perspectives, which were accepted by relevant Government departments.
- 1.3 To allow more flexibility on the plot ratio (PR) interchangeability between domestic and non-domestic PR for the future development, URA submits this planning application to seek approval from the TPB under Section 16 of the Town Planning Ordinance for minor relaxation of Domestic PR restriction for the Approved DSP. The Domestic PR is proposed to relax from 7.5 to not more than 8.5, while keeping the overall plot ratio at 9.0 (the Current Indicative Proposal).
- 1.4 The current planning application is a non-scheme-based submission and the actual domestic PR and non-domestic PRs would be worked out at detailed design by the Applicant or its Joint Venture Partner (JVP). To evaluate the technical feasibility of the Current Indicative Proposal, this technical review has been conducted to compare the development parameters in the Approved DSP with those of the Current Indicative Proposal, and providing an overview of the potential implications on traffic, sewerage and water supply aspects.

2. Comparison of Development Parameters

- 2.1 As mentioned in paragraph 1.3 above, the purpose of this planning application is to seek the TPB's permission to allow more flexibility on the PR interchangeability between domestic and non-domestic PR for the future development. To illustrate the planning parameters of the Current Indicative Proposal and for scenario testing, the proposed domestic plot ratio is assumed at 8.5 and the non-domestic plot ratio is adjusted to 0.5 accordingly, while the overall plot ratio is kept at 9.0. Same as the assumptions of the technical assessments in the Approved DSP, the Site is anticipated to be completed by year 2031/32.
- 2.2 The comparison of development parameters for the Approved DSP and Current Indicative Proposal is summarised in Table 2.1

Table 2.1 Comparison of Approved DSP and Current Indicative Proposal

Development Parameters	Under "R(A)" of the Approved DSP [A]	Current Indicative Proposal [B]	Difference [B]-[A]
Application Site Area (m ²)	-	2,871 ^	-
Site Area for PR Calculation (m ²)	1,660	1,661 ^	+ 1
Total PR	9.0	9.0	-
Domestic PR	Not more than 7.5	Not more than 8.5 #	+ 1.0
Non-Domestic PR	-	-	-
Total GFA (m²)	Not more than 14,940	Not more than 14,949 ^	+ 9
Total Domestic GFA (m ²)	Not more than 12,450	Not more than 14,118.5 #	+ 1,668.5
Non-Domestic GFA (Commercial) (m ²)	-	- #	-
Non-domestic GFA (GIC) (to be exempted from GFA calculation under the approved DSP) (m ²)	About 2,850	About 2,850	-
At-grade POS (m²)	Not less than 780	Not less than 780	-
Sunken Plaza	About 200	About 200	-
Max. BH (mPD)	120	120	-
Proposed Population	780 (Based on population by-census 2016, the average domestic household size in Mong Kok West District Council Constituency Area is 2.6 person)	690 - 874 (Based on population census 2021, the average domestic household size in Mong Kok West District Council Constituency Area is 2.3 person)	-
No. of Flats *	About 300	300 - 380 *	+ 0 - 80

Notes:

For indicative purpose only.

^ According to site survey, the area on the draft land grant is 2,475m², resulting to corresponding adjustment in total GFA.

The domestic and non-domestic PR/GFA are for illustrative purpose only. To allow flexibility and optimum use of development potential, development at the Application Site is subject to a maximum domestic PR

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and total PR. The actual domestic and non-domestic PRs and GFAs would be worked out at detailed design by the Applicant or its Joint Venture Partner (JVP).

** The actual no. of units would be worked out at detailed design by the Applicant or its JVP.*

- 2.3 Table 2.1 shows that there is an increase of domestic GFA/PR, but the non-domestic GFA/PR is reduced, with the total GFA remains unchanged.

3 Traffic Review

3.1 Under the draft DSP planning submission in 2020, the URA has commissioned a traffic consultant to conduct a Traffic Impact Assessment (TIA) for the draft DSP and demonstrated that the proposed redevelopment will result in no adverse traffic impact to the surrounding existing and planned road network in 2020. Transport Department (TD) has no objection in-principle to the submitted TIA. The parking requirements and vehicular access arrangement are also included in the draft land grant for the YTM-012 Development Scheme.

3.2 Table 3.1 shows the provision of internal transport facilities for the Current Indicative Proposal. For scenario testing, it is assumed the proposed development will accommodate 380 nos. of units under the Current Indicative Proposal.

Table 3.1 Proposed Internal Transport Facilities

Item	Type	HKPSG Recommendations/ Draft Land Grant Requirements		Calculation ^[1]				Provision	
				Min	=		=		
Private Car Parking Spaces	Residential	GPS x R1 x R2 x R3		Min	=	$(270 \times 0.5 + 90 \times 1.2) \div 7 \times 0.75 \times 0.75$	= 20 nos.	28 nos.	
		GPS	=						1 car space per 4 - 7 flats
		R1	=						0.5 for flat size $\leq 40m^2$ 1.2 for flat size 40 – 70m ²
		R2	=						0.75 for development within a 500m-radius of rail station
	R3	=	0.75 for domestic plot ratio > 8.00						
	Max	=	$(270 \times 0.5 + 90 \times 1.2) \div 4 \times 0.75 \times 0.75$	= 35 nos.					
Visitors	5 visitor car parking spaces for developments with more than 75 units per block		No.	=	1×5	= 5 nos.	5 nos.		
Retail	1 space per 150 – 300m ² GFA		Min	=	$830.5 \div 300$	= 3 nos.	3 nos.		
Max	=	$830.5 \div 150$	= 6 nos.						
Total			Min	=	20 + 5 + 3	= 28 nos.	36 nos.^[2]		
Max	=	35 + 5 + 6	= 46 nos.						
Motorcycle Parking Spaces	Residential	1 space per 100 – 150 flats		Min	=	$360 \div 150$	= 3 nos.	4 nos.	
	Max	=	$360 \div 100$	= 4 nos.					
	Retail	5 – 10% of total provision of car parking space		Min	=	$3 \times 5\%$	= 1 no.	1 no.	
Max	=	$3 \times 10\%$	= 1 no.						
Total			Min	=	3 + 1	= 4 nos.	5 nos.		
Max	=	4 + 1	= 5 nos.						
Private Light Bus Parking Spaces ^[3]	GIC facilities	(i) Day Care Centre for the Elderly	= 3 nos.	No.	=	3 + 1 + 1	= 5 nos.	5 nos.	
		(ii) Special Child Care Centre	= 1 no.						
		(iii) Centre for Home Care Services for Frail Elderly Persons	= 1 no.						
Goods Vehicle L/UL Spaces	Residential	Minimum 1 bay for every 800 flats or part thereof, subject to minimum 1 bay for each housing block		No.	=	$360 \div 800$	= 1 no.	1 no.	
	Retail	1 space per 800 – 1,200m ² , or part thereof, of GFA		Min	=	$830.5 \div 1200$	= 1 no.	1 no.	
	Max	=	$830.5 \div 800$	= 2 nos.					
Total			Min	=	1 + 1	= 2 nos.	2 nos.		
Max	=	1 + 2	= 3 nos.						
GIC Facilities L/UL Spaces ^[4]	GIC facilities	For exclusive use by the GIC facilities for L/UL of goods vehicles, and setting down of passengers from motor vehicles including taxis, ambulances and private light buses		No.	=	1 no.		1 no.	

^[1]Min – Minimum; Max – Maximum

^[2]Include 2 accessible parking spaces

^[3]PBTO requirements are adopted for the calculation of parking spaces and L/UL spaces provision

- 3.3 The proposed development is a small-scale development with only 1 residential tower and two podia for GIC and some retail facilities. Under the current notional design, the proposed relaxation of domestic PR will result in additional up to 80nos. of units to accommodate the additional GFA, predominantly comprising small sized units. Besides, the retail podia is intended to be used by some local neighbourhood shops to serve the local community. It is considered that the demand from the small sized families and local retail shops would mainly be LGV bays instead of HGV bays.
- 3.4 The provision of internal transport facilities follows the provision in the Approved DSP and the Draft Land Grant of YTM-012. The proposed provision is also in accordance with the requirements of the Hong Kong Planning Standards and Guidelines (HKPSG).
- 3.5 Table 3.2 shows the adopted trip rates according to the submitted TIA conducted for the Approved DSP. Table 3.3 shows the comparison of traffic generation by the Approved DSP and Current Indicative Proposal.

Table 3.2 Adopted Trip Rates

Component	Adopted Trip Rates (pcu/hr/flat or pcu/hr/100 m ² GFA)			
	AM		PM	
	Gen ^[2]	Att ^[2]	Gen ^[2]	Att ^[2]
Residential ^[1]	0.0718	0.0425	0.0286	0.0370
Retail ^[1]	0.2296	0.2434	0.310	0.3563

^[1] Refer to TPDM Vol. 1, Ch. 3, Appendix, Table 1 and Table 2. Adopted the same trip rate according to the TIA in 2020.

^[2] "Gen" means "Generation" and "Att" means Attraction.

Table 3.3 Traffic Generation by the Approved DSP and Current Indicative Proposal

	Component	Parameter	Trip Generation (pcu/hr)					
			AM			PM		
			Gen ^[2]	Att ^[2]	Gen+ Att	Gen ^[2]	Att ^[2]	Gen+ Att
Approved DSP	Residential ^[1]	300 flats	22	13	35	9	11	20
	Retail ^[1]	2,490 m ²	6	6	12	8	9	17
	GIC ^[3]	2,850 m ²	10	10	20	10	10	20
		Total [a]	38	29	67	27	30	57
Current Indicative Proposal	Residential ^[1]	380 flats	27	16	43	11	14	25
	Retail ^[1]	830.5 m ²	2	2	4	3	3	6
	GIC ^[3]	2,850 m ²	10	10	20	10	10	20
		Total [b]	39	28	67	24	27	51
Difference = [b] – [a]			+1 (+3%)	-1 (-3%)	0 (0%)	-3 (-11%)	-3 (-10%)	-6 (-11%)

^[1] Refer to TPDM Vol. 1, Ch. 3, Appendix, Table 1 and Table 2. Adopted the same trip rate according to the TIA in 2020.

^[2] "Gen" means "Generation" and "Att" means Attraction

^[3] The adopted traffic trip is assumed only for conservative assessment purpose, with the same trip rate adopted the TIA in 2020.

Note: Trip Generation is rounded to the nearest digit.

- 3.6 Table 3.3 shows that compared to the Approved DSP, the traffic generation (2-way) of the AM peak is expected to remain the same, while during the PM peak, a decrease of

11% is expected, which are insignificant. Therefore, it is anticipated that the traffic generated by the Current Indicative Proposal will have minimal impact to the capacity of the nearby junctions.

- 3.7 In light of the above, it is concluded that the findings of the submitted TIA still remain valid and the Current Indicative Proposal would have no adverse traffic impact on the local traffic network and pedestrian walking environment. Detailed design on the internal transport facilities and detailed traffic enhancement measures would be dealt with during subsequent detailed design stage.

4 Sewerage Review

- 4.1 Under the draft DSP planning submission in 2020, the URA has commissioned an environmental consultant to conduct a Sewerage Impact Assessment (SIA) for the draft DSP and demonstrated that insurmountable sewerage impact arising from the proposed development is not anticipated. Environmental Protection Department (EPD) and Drainage Services Department (DSD) were consulted and have no objection in-principle to the submitted SIA.
- 4.2 To prepare for advance site works and utilities diversion of the Approved DSP, an updated SIA report was prepared and approved by the DSD in June 2024 (Approved SIA).
- 4.3 According to Applicant's sewerage flow estimation based on the Current Indicative Proposal, and reference to the Approved SIA, the estimated daily sewerage discharge from the proposed building block at the southern part of the DSP area and the building block at the northern part of the DSP area is 342.9 m³/day and 82.8 m³/day respectively, which is similar to the estimation of the Approved SIA. The impact on the capacities of existing drainage and sewerage system from the proposed development would be acceptable. The conclusion of the Approved SIA conducted that there would be "no insurmountable sewerage impacts" would remain valid. Table 4.1 and 4.2 compares the estimated population of the Approved SIA and Current Indicative Proposal and Table 4.3 and 4.4 indicates the estimation of sewage flow.

Table 4.1 Estimation of Population according to the approved SIA (June 2024)

	No. of flat	Non-residential GFA (m ²)	Population Factor		Population	
			No. of person per flat	Residential Population	Worker Density (worker/100m ²) ^[2]	No. of Employee
Estimation of Population (Building Block at the Southern part of the DSP area)						
Residential	300		2.3 ^[1]	750 ^[1]	-	-
Retail ^[3]		0	-	-	3.5	0
F&B ^[3]		235	-	-	5.1	12
GIC		1800	-	-	3.3	59
ClubHouse		682	-	-	3.3	23
Estimation of Low Block Population (Building Block at the Northern part of the DSP area)						
Retail ^[4]		1128	-	-	3.5	39
F&B ^[4]		1128	-	-	5.1	58
GIC		1050	-	-	3.3	35

^[1] According to the Population Census 2021, the average domestic household size is 2.3 for Mong Kok West District Council Constituency Area. For conservative assessment and scenario testing, a 10% increment in the average domestic household size is applied, i.e. 2.3*1.1=2.5 is adopted for residential population estimation in the SIA.

^[2] The worker density for different sections are from Figure 9 of Commercial and Industrial Floor Space Utilization Survey.

^[3] It is assumed that all of the commercial area for F&B uses.

^[4] The GFA ratio between retail and F&B uses is assumed to be 1:1.

Table 4.2 Estimation of Population of Current Indicative Proposal

	No. of flat	Non-residential GFA	Population Factor		Population	
			No. of person per flat	Residential Population	Worker Density ^[2]	No. of Employee ^[3]
Estimation of Population (Building Block at the Southern part of the DSP area)						
Residential	380		2.3 ^[1]	950	-	-
ClubHouse		682	-	-	3.3	23
Estimation of Population (Building Block at the Northern part of the DSP area)						
Retail ^[3]		415.5	-	-	3.5	15
F&B ^[3]		415	-	-	5.1	21
GIC		2850	-	-	3.3	94

^[1] According to the Population Census 2021, the average domestic household size is 2.3 for Mong Kok West District Council Constituency Area. For conservative assessment and scenario testing, a 10% increment in the average domestic household size is applied, i.e. $2.3 \times 1.1 = 2.5$ is adopted for residential population estimation in the SIA.

^[2] The worker density for different sections are from Figure 9 of Commercial and Industrial Floor Space Utilization Survey.

^[3] The GFA ratio between retail and F&B uses is assumed to be 1:1.

Table 4.3 Estimation of Sewage Flow according to the approved SIA (June 2024)

Occupant Type	Unit Flow Factors (m ³ /day/person) ^{[1][2]}	No. of Occupants	Flow Rate (m ³ /day) ^[3]
Estimation of Sewage Flow (Building Block at the Southern part of the DSP area)			
Residential	0.27	750	263.3
F&B	0.28	12	24.6
GIC	0.28	59	21.5
ClubHouse	0.28	23	8.4
Total		844	317.8
Estimation of Sewage Flow (Building Block at the Northern part of the DSP area)			
Retail	0.28	39	14.2
F&B	1.58	58	119.1
GIC	0.28	35	12.7
Total	-	132	146.0

^[1] EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.

^[2] The Unit Flow Factors are 0.27, 0.28, & 1.58 m³/day/head for residential use, clubhouse/ GIC use, and F&B use respectively.

^[3] The catchment inflow factor of North West Kowloon from Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning is 1.3.

Table 4.4 Estimation of Sewage Flow of Current Indicative Proposal

Occupant Type	Unit Flow Factors (m ³ /day/person) ^{[1][2]}	No. of Occupants	Flow Rate (m ³ /day) ^[3]
Estimation of Sewage Flow (Building Block at the Southern part of the DSP area)			
Residential	0.27	950	334.5
ClubHouse	0.28	23	8.4
Total			342.9
Estimation of Sewage Flow (Building Block at the Northern part of the DSP area)			
Retail	0.28	15	5.5
F&B	1.58	21	43.1
GIC	0.28	94	34.2
Total	-	-	82.8

^[1] EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.

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^[2] The Unit Flow Factors are 0.27, 0.28, & 1.58 m³/day/head for residential use, clubhouse/ GIC use, and F&B use respectively.

^[3] The catchment inflow factor of North West Kowloon from Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning is 1.3.

4.4 Moreover, since the current notional design is subject to change at detailed design stage, the URA will follow the SIA clause imposed in the land grant condition of the Site to ensure the proposed development would not cause adverse sewerage impact to the nearby sewerage system. Detailed design on the sewerage system would be dealt with during subsequent detailed design stage.

5 Water Supply Review

- 5.1 Under the draft DSP planning submission in 2020, the URA has commissioned an environmental consultant to conduct a Water Supply Impact Assessment (WSIA) for the draft DSP and demonstrated that insurmountable water impact arising from the proposed development is not anticipated. Water Supplies Department (WSD) has no comment on the draft DSP including the submitted WSIA.
- 5.2 As demonstrated in the submitted WSIA, the saltwater demand is expected to increase from 42.35 m³/day to 57.31 m³/d (an increase of 14.96m³/day, or 0.015 MLD) due to the YTM-012 Development Scheme. The saltwater pumping station serving the Site has substantial spare capacity to accommodate this increase. Since the proposed relaxation of domestic PR will only result in additional up to 80nos. of units to accommodate the additional domestic GFA, and given that the overall development intensity remains unchanged, it is expected that the increased demand from the domestic portion can be adequately met by the existing main supply facilities. Detail connection arrangement for the site and local water mains will be reviewed in later stage of project implementation.
- 5.3 In view of the above, the conclusion of the WSIA conducted in Approved DSP that there would be “no insurmountable water supply impacts” would remain valid.

6 Conclusion

- 6.1 This technical review demonstrates that the technical assessments previously conducted under the draft DSP remain valid, and there will be no insurmountable problems in terms of traffic, sewerage and water supply impact brought by the Current Indicative Proposal.