**Proposed Rezoning From "AGR" & "GB" To "G/IC" for**
**a Proposed "Social Welfare Facilities" (Residential Care Homes for The Elderly) (RCHE)**
**Lot 232 RP, 232 S.A RP, 232 S.A ss. 1 to 14, 232 S.B RP, 232 S.B ss. 1 to 27,**
**232 S.C to 232 S.E, 233 RP, 233 S.A to 233 S.M, 237 RP, 237 S.A to 237 S.R,**
**239 RP, 239 S.A to 239 S.G in D.D.23, Tung Tsz, Tai Po, N.T.**
**S12A Application for Planning Application No. Y/NE-TK/19**
**Response-to-Comment – EPD**
**(Updated 19 February 2025)**

| Comments | Response |
|---|---|
| EPD's Comments on the Sewerage Impact Assessment Report | |
| 1. General:<br>Please correct the typo "Tung Tyz"/ "Tung Tze Road". | Noted, relevant sections are corrected accordingly. |
| 2. Section 4i):<br>The no. of beds in the SIA report (253 beds) does not tally with the Form No. S12A (265 beds). Please revise. | It is noted that the information from the latest development schedule is not tally with the Form No. S12A. 265 beds is adopted as conservative approach. Section 4i and 4ii are revised accordingly. |
| 3. Section 4ii):<br>The UFF type of residents should be "Institutional and special class" under our GESF Table T-1. A UFF of 0.19 should be deployed. | Section 4ii is revised accordingly. |
| 4. Section 4ii):<br>We consider the UFF value of J11, Community, Social & Personal Services, for now should be updated to 0.28 instead of 0.2. Please revise. | Section 4ii is revised accordingly. |
| 5. Section 4iii):<br>Peak flow instead of ADWF should be considered for checking the pipe capacity. Please revise. | Peaking factor is adopted to estimate the peak flow. Section 4iii is updated accordingly. |
| 6. Section 4iv):<br>Since the sewage from your project site will be discharged into the existing public | The sewage from the proposed development will be discharged into the existing manhole and |

**Proposed Rezoning From "AGR" & "GB" To "G/IC" for**
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**Lot 232 RP, 232 S.A RP, 232 S.A ss. 1 to 14, 232 S.B RP, 232 S.B ss. 1 to 27,**
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**S12A Application for Planning Application No. Y/NE-TK/19**
**Response-to-Comment – EPD**
**(Updated 19 February 2025)**

| Comments | Response |
|---|---|
| manhole, you should demonstrate in the SIA that your proposed project will not cause any surcharge problem in the downstream sewerage system, together with the sewage flow from other adjacent developments (both existing and planned, if any). Please further gather information to compile the assessment. | transferred to the nearby TKRSPS No.7. Given that the contribution of the estimated foul water flow is small. The sewerage impact is considered negligible. Section 4 and 5 is updated accordingly. |

# Sewerage Impact Assessment for Proposed Residential Care Home for the Elderly (RCHE) Development at Tung Tsz, Tai Po

C241003W-01-C

**PREPARED FOR**

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05 March 2025

## Contents

## 1. Background

The applicant, R Lee Architect, intends to develop one 10-storey building block situated at Tung Tsz, Tai Po, New Territories for the Proposed Residential Care Home for the Elderly (RCHE) Development.

The purpose of this report is to conduct a Sewerage Impact Assessment (SIA) to assess the potential sewerage impact arising from the proposed development.

## 2. Objective

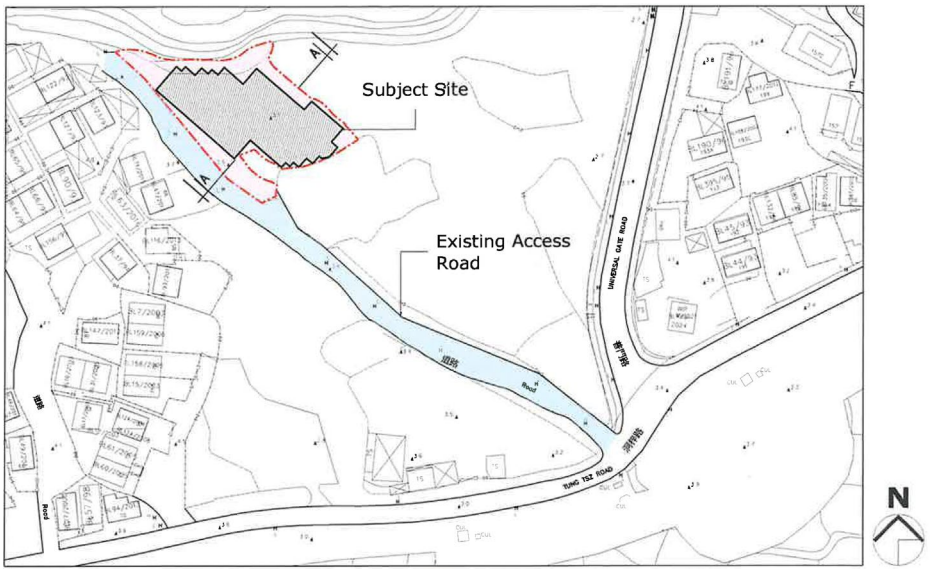
These SIA objectives are to assess the potential sewerage impact arising from the proposed development and recommend mitigation measures, if necessary, to alleviate the impacts.

## 3. Site Information

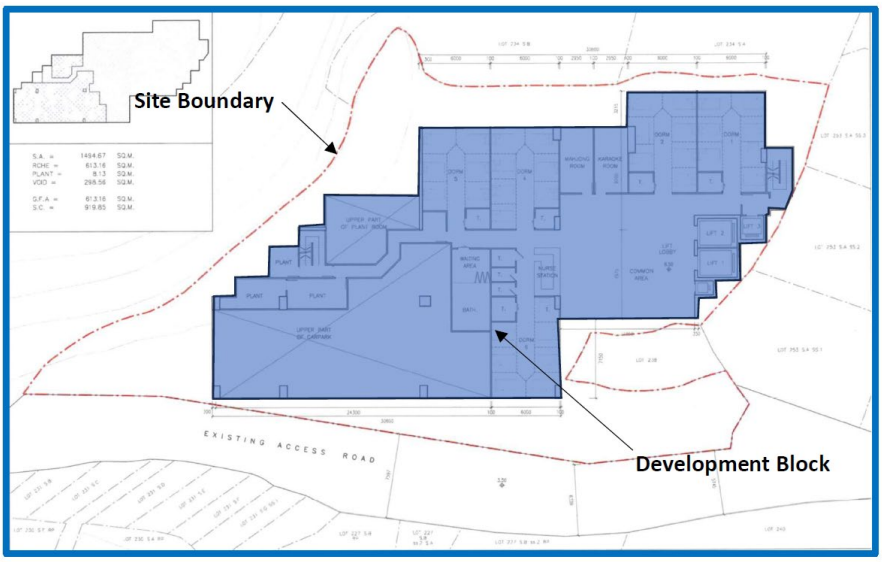
**The Premise:** D.D.23, Lot 232RP, 232 S.A. RP, 232 S.A.ss. 1 to 14, 232 S.B. RP, 232 S.B. ss 1 to 2, 232 S.C. to 232 S.E., 233 RP, 233 S.A to 233 S.M., 237 S.R. 238, 239 RP, 239 SG.

**Address:** Tung Tsz, Tai Po

**Location Plan:**



**Development Plan:**




**Development Schedule:** Proposed Residential Care Home for the Elderly (RCHE) Development

| | |
|---|---|
| Site Area: | 1,494.67m$^2$ |
| Class of Site: | A |
| Proposed Plot Ratio for Non-domestic: | 5.57 < 9.5 |
| Proposed Site Coverage above for Non-domestic (Above 15m): | 61.09% < 80% |
| Proposed Building Height: | 34.50mPD |
| Absolute Height: | 31.0m |
| Proposed No. of storey: | 10 storeys |

| Proposed Gross Floor Area | | | |
|---|---|---|---|
| LG/F (ENTRANCE & CARPARK) | : | 606.13m² | |
| UG/F (RCHE) | : | 613.16 m² | |
| 1/F-5/F (RCHE) | : | 916.89m² x 5 storeys = 4584.45 m² | (45 no. of beds x 5 storey) |
| 6/F (RCHE) | : | 886.14 m² | (17 no. of suites) |
| 7/F (RCHE) | : | 759.44 m² | (11 no. of suites) |
| 8/F (MANAGEMENT OFFICE) | : | 764.44 m² | |
| R/F (SKY GARDEN) | : | 110.07 m² | |
| **TOTAL** | : | **8323.83 m² (89597 ft²) (28 no. of suites & 225 no. of beds)** | |

## 4. Sewage Impact Assessment

i) No. of Residents/Employees
a) No. of Residents = 265 beds (Adopted from Form No. S12A as conservative approach)
b) No. of Employees = 120 Nos. (About 2 times as recommended by Code of Practice for Resident Care Home)

ii) Estimated Sewage Flows :
EPD Technical Paper Report No. EPD/TP1/05 – Table T-1 (Unit Flow Factor for Domestic Flows)

**Table T-1 : Unit Flow Factors for Domestic Flows**

| | Unit | Datum (2002) ($m^3$/day) | Increase per Annum ($m^3$/day) | Planning for Future ($m^3$/day) |
|---|---|---|---|---|
| **Domestic (housing type specific)** | | | | |
| Public rental | | 0.190 | - | 0.190 |
| Private R1 | person | 0.190 | - | 0.190 |
| R2 | person | 0.270 | - | 0.270 |
| R3 | person | 0.340 | 0.003 | 0.370 |
| R4 | person | 0.340 | 0.003 | 0.370 |
| Traditional village | person | 0.150 | - | 0.150 |
| Modern village | person | 0.270 | - | 0.270 |
| Institutional and special class | person | 0.190 | - | 0.190 |
| Temporary and non-domestic | person | 0.150 | - | 0.150 |
| Mobile residents | person | 0.190 | - | 0.190 |
| **Domestic (catchment specific)** | | | | |
| General- Permanent housing (for catchment wide planning) | | | | |
| - Sandy Bay | person | 0.320 | 0.003 | 0.350 |
| - Stanley, Discovery Bay | person | 0.290 | - | 0.290 |
| - Shek O | person | 0.280 | 0.007 | 0.350 |
| - Outlying Islands, Sai Kung | person | 0.260 | 0.001 | 0.270 |
| - Yuen Long, Mui Wo | person | 0.230 | 0.002 | 0.250 |
| - Aberdeen, Wan Chai, North Lantau | person | 0.230 | - | 0.230 |
| - Sha Tin, Tai Po | person | 0.210 | - | 0.220 |
| - San Wai | person | 0.200 | 0.003 | 0.230 |
| -Wah Fu, Shek Wu Hui | person | 0.200 | 0.001 | 0.210 |
| - Northwest Kowloon, Tuen Mun, Central, North Point | person | 0.200 | - | 0.200 |
| - Ap Lei Chau, Chai Wan, Shau Kei Wan, Central Kowloon, East Kowloon, Kwai Chung, Tsing Yi, Tseung Kwan O | person | 0.190 | - | 0.190 |
| General- Other housing (for catchment wide planning) | | | | |
| - All catchments | person | 0.175 | - | 0.175 |

Notes of Table T-1:

(1) For planning a new sewerage system, the planning unit flow factors should be used. Adequate allowance should be provided in the proposed sewerage system to ensure that the sewerage system will be adequate for the worst possible future development scenarios.
(2) Permanent housing comprises public rental housing, subsidized sales flats and private permanent housing (R1, R2, R3 and R4). Other housing consists of non-domestic, institutional & special classes, and temporary housing.

| Site | Use | Global Unit Flow Factor (m3/person/day) | No. of Residents/Employees | ADWF (m3/day) |
|---|---|---|---|---|
| Tung Tsz, Tai Po | RCHE (Institutional and special class) | 0.19 | 265 residents | 50.35 |
| | RCHE (J11, Community, Social & Personal Services) | 0.28 | 120 staff | 33.6 |
| Total | | | 385 | 83.95 |

iii) Sewer Pipe Design :
For sewer pipe, one quarter (1/4) full bore is used to allow space for a core of air in centre of the stack and the air keeps fluctuations to a minimum.

Minimum velocity of 0.7m/s (smaller than 300mm diameter) is used for maintaining self-cleansing purpose.

To facilitate inspection and cleaning, pipe should not be less than 200mm diameter.

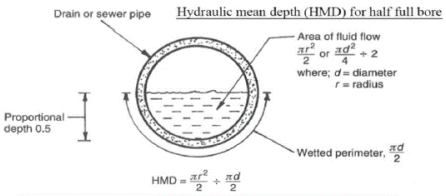
**Peaking Factors, P from EPD GESF Table T-5**

| Population Range | Peaking Factor (excluding stormwater allowance) for facility with new upstream sewerage |
|---|---|
| For sewers | |
| <1000 | 6 |

Peak Flow = (ADWF) (P) = (83.95)(6) = 503.7 $m^3$/day or 0.00583$m^3$/s

1/4 full bore, velocity of 0.7m/s and 225mm pipe is used.

The capacity of the pipe :
$Q = V \times A = (0.7)(\pi)[(0.225)^2/4] \times 0.25 = 0.00696 m^3/s > 0.00583 m^3/s$, **OK**




| Depth of flow | HMD |
|---|---|
| 0.25 | Pipe dia. (m) / 6.67 |
| 0.33 | Pipe dia. (m) / 5.26 |
| 0.50 | Pipe dia. (m) / 4.00 |
| 0.66 | Pipe dia. (m) / 3.45 |
| 0.75 | Pipe dia. (m) / 3.33 |
| Full | Pipe dia. (m) / 4.00 |

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**Chezy"s formula:** $V = C\sqrt{m \times i}$

where V = velocity of flow = 0.7m/s

m = hydraulic mean depth (HMD) → HMD = 0.225 / 6.67 = 0.0337

C = Chezy coefficient = $(0.0337)^{1/6}/(0.015$(concrete pipe) $)= 37.89$

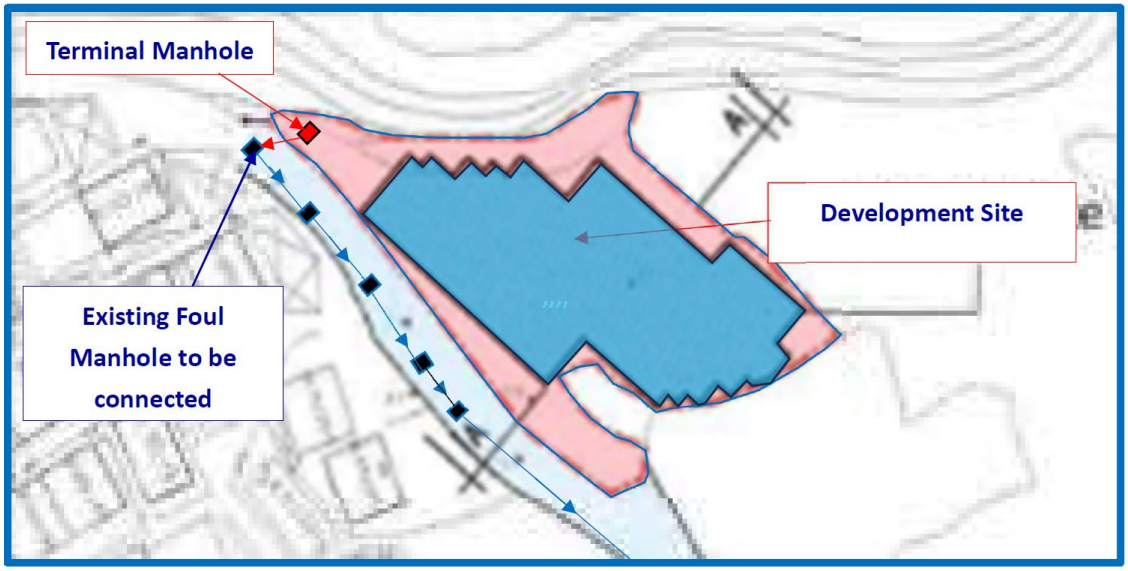
$0.7 = 37.89 \times (0.0337 \times i)^{0.5}$

$(0.7/37.89)^2 = 0.0337 \times i$

Thus i = 0.0101 or **1.01%** (i = inclination )

iv) Connection to Public Foul System :

The foul water from the developing site will be discharged into the nearby existing Foul Manhole (as shown below). The foul water will be transferred to the nearby TKRSPS No. 7 with an ADWF of about 7,800 $m^3$/day. The contribution of foul water from the proposed development to the TKRSPS No.7 is small (i.e. 83.95/7800=1.08%).




## 5. Conclusion :

The potential sewerage impact from the proposed development has been assessed quantitatively.

The foul water generated from the proposed development will be discharged into the nearby existing Foul Manhole and transferred to nearby TKRSPS No. 7.

Given that the contribution of the total foul water flow to the existing foul system is small (i.e. 1.08%), the sewerage impact arisen from the proposed development is considered negligible.