

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

AGREEMENT NO. CE 47/2020 (CE) – TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 – 2024) – FEASIBILITY STUDY

TASK ORDER NO. 9 – SAN TIN

Water Supply Impact Assessment (WSIA) Report (Issue 1)

JULY 2023





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**Water Supply Impact Assessment (WSIA)
Report
(Issue 1)**

[CONFIDENTIAL]

PROJECT NO.: 2512219A

DATE: JULY 2023

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DRAWINGS

CE47/TO9/SK/0011 TASK ORDER NO.9 SAN TIN EXISTING
WATERWOK LAYOUT PLAN



ABBREVIATIONS

CEDD	Civil Engineering and Development Department
CIF	Community Isolation Facility
EVA	Emergency Vehicular Access
GFA	Gross Floor Area
MiC	Modular Integrated Construction
WSD	Water Supplies Department
WSIA	Water Supply Impact Assessment
WSP	WSP (Asia) Limited



1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 WSP (Asia) Ltd. (WSP) is commissioned by the Civil Engineering and Development Department (CEDD) to submit the Section 16 Planning Application to seek permission from the Town Planning Board (TPB/ the Board) for the Proposed Temporary Training Facilities (the proposed development) at the San Tin Community Isolation Facility (CIF) (Application Site/Site), on a temporary basis up to 31 October 2024.
- 1.1.2 The Applicant, CEDD, proposes a development on a temporary basis up to 31 October 2024. The Application Site falls within an area zoned for “Other Specified Uses (Services Stations)” under the Approved San Tin Outline Zoning Plan No. S/YL-ST/8 (OZP). In accordance with Clause No. (11) (b) of the covering Notes of the approved OZP, “.....*temporary use or development of any land or building not exceeding a period of three years requires permission from the Town Planning Board.....*”. Therefore, this planning application is submitted to the TPB under Section 16 of the Town Planning Ordinance for the proposed temporary development.
- 1.1.3 The Application Site is currently occupied by San Tin CIF. With the epidemic in Hong Kong having been brought under control gradually, the CIF have been put into standby mode. To fully utilize the existing resources and facilities, the Applicant intends to convert the existing San Tin CIF as the proposed temporary development up to 31 October 2024.
-

1.2 STRUCTURE OF THE REPORT

- 1.2.1 This WSIA report contains the following sections in addition to this introduction: -
- | | |
|-----------|--|
| Section 2 | Describes the existing site conditions and presents the key development parameters of the Development for the WSIA |
| Section 3 | Discusses the methodology and design parameters for the WSIA |
| Section 4 | Presents the existing water works installations in the vicinity of the Site; water demand estimations; the proposed connection points to existing watermains; impact to existing water supply system; and proposes mitigation measures |
| Section 5 | Summarizes the finding and provide conclusion of the WSIA report |



2 SITE DESCRIPTION

2.1 DESCRIPTION OF THE SITE

- 2.1.1 The proposed development is located at the existing Yuen Long San Tin Community Isolation Facility which is bounded by Castle Peak Road – San Tin to the east, San Tin Tsuen Road to the north and Tung Wing On Road to the south.
-

2.2 DEVELOPMENT SCHEDULE

- 2.2.1 Taking into account the Site is previously used as CIF, the units and required infrastructure have already been constructed. The anticipated population intake would be October 2023 tentatively and the Site is intended to operate till 31 October 2024.



3 METHODOLOGY AND DESIGN PARAMETERS FOR WATER SUPPLY IMPACT ASSESSMENT

3.1 METHODOLOGY

Design Guidelines and Reference

3.1.1 This report is prepared in accordance with WSD's Departmental Instruction No. 1309.

3.2 DESIGN PARAMETERS AND ASSUMPTIONS

- 3.2.1 The facilities and utilities including the existing waterworks and fire services system of the existing CIF will be fully utilised.
- 3.2.2 The potable and flushing unit water demands for the existing CIF are taken as 140 litres/bed/day and 70 litres/bed/day respectively.
- 3.2.3 The potable and flushing unit water demands for the Proposed Development are taken as 25 litres/head/day and 25 litres/head/day respectively.

4 WATER SUPPLY IMPACT ASSESSMENT AND PROPOSED MITIGATION MEASURES

4.1 EXISTING WATERWORKS

Fresh Water Supply System

- 4.1.1 Existing fresh water mains and salt water mains record plans are obtained from WSD and ASD. Also, there are some existing Dia. 54 – 108mm PE fresh water mains within the Site, providing fresh water and fire services.
- 4.1.2 The existing site fresh water main connects to WSD’s Existing DN150 fresh water mains at the eastern end of the site near San Tin Tsuen Road. The existing fresh water main is presented on the **Drawing No. CE47/TO9/SK/0011**.
- 4.1.3 Existing fresh water supply to the area is mainly supplied by Ngau Tam Mei Fresh Water Primary Service Reservoir and supported by the Au Tau Fresh Water Service Reservoir. The invert level of NTM FWPSR is +94.15mPD and top water level is +104.00mPD.

Salt Water Supply System

- 4.1.4 There is no existing salt water supply system in the vicinity of the Site. All water will be provided by the existing fresh water supply system.

4.2 WATER DEMAND ESTIMATION

Existing Water Demand

- 4.2.1 The major sources of the fresh water demand at the existing CIF are hand washing, shower and toilet flushing in the toilets and shower rooms at the site. No water tap or toilet is installed in the residential cells.
- 4.2.2 Existing fire hydrant are also identified around the existing Site.
- 4.2.3 The fresh water and flushing water demand for the CIF is estimated based on the residential population and land use. The breakdown of the demand projection is summarised in Table 4.1.

Table 4.1 Fresh Water Demand Project of Existing Community Isolation Facility

Development Type	Population (bed) [A]	Potable Water Demand (l/bed/d) [B]	Flushing Water Demand (l/bed/d) [C]	Mean Daily Fresh Water Demand (m ³ /d) [D = A x (B+C)]	Peak Fresh Water Demand (l/s) [E = A x (3 x B + 2 x C)]
Community Isolation Facility	2,800	140	70	588	18.15

Water Demand from the Development

- 4.2.4 The estimated mean daily fresh water demand and peak fresh water demand for the CIF are 588 m³/day and 18.15 l/s respectively.

4.3 PROPOSED WATER SUPPLY SYSTEM

- 4.3.1 The facilities and utilities of the existing CIF will be maintained. No waterworks are proposed under this project and the existing water supply system and fire services system will be maintained and utilised.
- 4.3.2 With no existing and planned salt water supply network near the Site, it is assumed that the existing fresh water main will serve for both potable and flushing purpose within the Site, which is in the same manner as previous CIF as shown in **Drawing No. CE47/TO9/SK/0011**.
- 4.3.3 The fresh water and flushing water demand for the proposed development is estimated based on the student population and land use. The breakdown of the demand projection is summarised in Table 4.2.

Table 4.2 Fresh Water Demand Project of Proposed Development

Development Type	Population	Potable Water Demand	Flushing Water Demand	Mean Daily Fresh Water Demand	Peak Fresh Water Demand
	(h)	(l/h/d)	(l/h/d)	(m ³ /d)	(l/s)
	[A]	[B]	[C]	[D = A x (B+C)]	[E = A x (3 x B + 2 x C)]
Proposed Development	100	25	25	5	0.145

Water Demand from the Development

- 4.3.4 The estimated mean daily fresh water demand and peak fresh water demand for the proposed development are 5 m³/day and 0.145 l/s respectively.

4.4 WATER SUPPLY IMPACT ASSESSMENT

- 4.4.1 The fresh water demand of the proposed development would be the significantly less than that of the existing CIF, therefore, it is considered that there will be no adverse impact on the existing Ngau Tam Mei Fresh Water Primary Service Reservoir and the existing water supply system would be capable of providing adequate potable and flushing supplies.



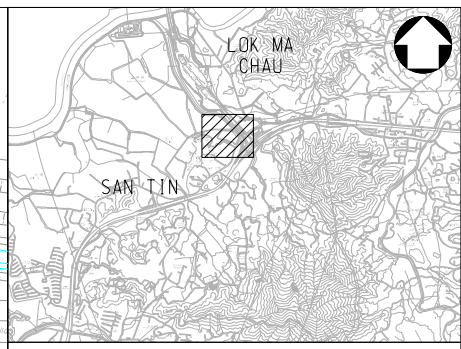
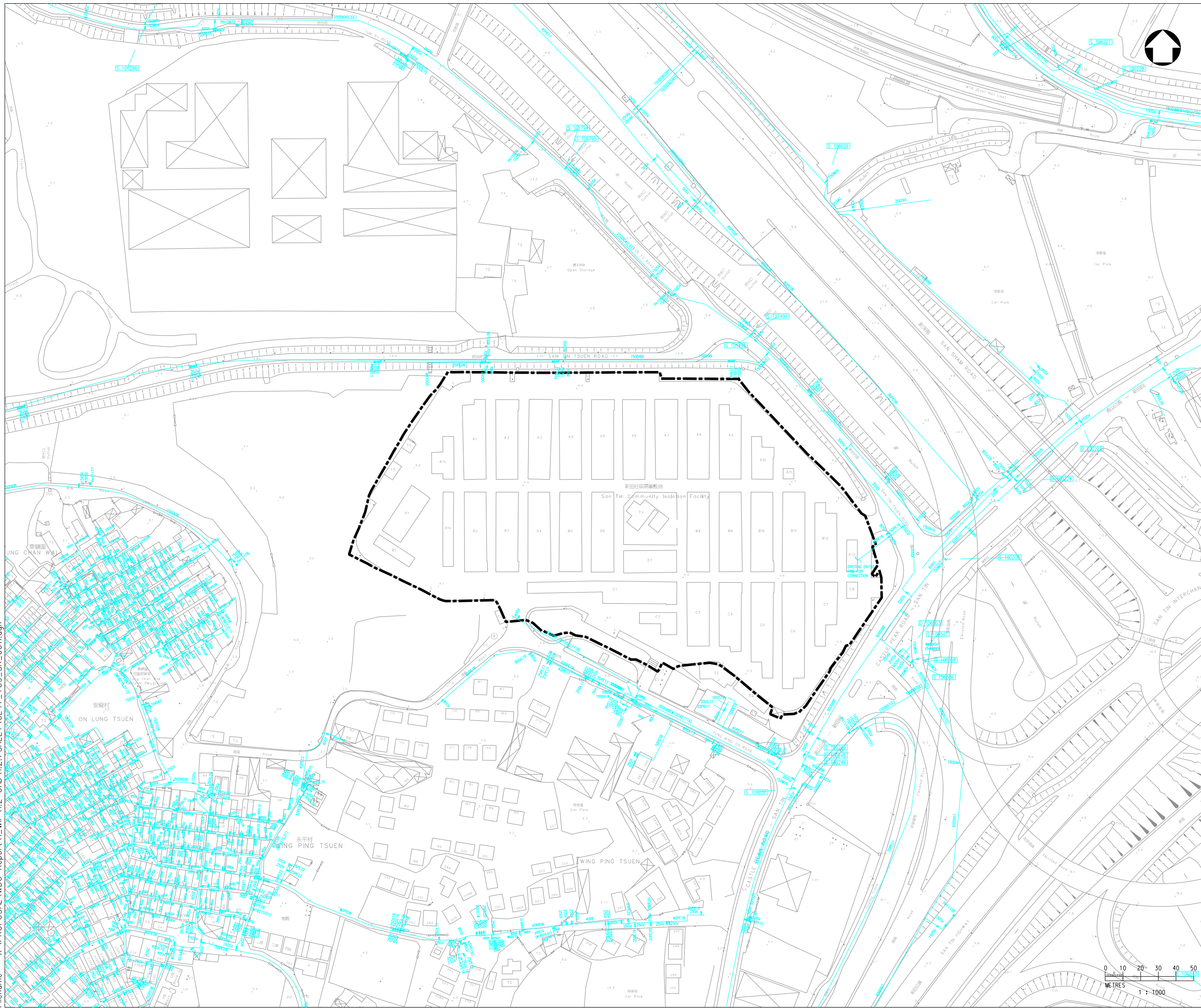
5 CONCLUSION

5.1 CONCLUSION

- 5.1.1 With no salt water main available near the development site, it is proposed that flushing water will be supplied by fresh water mains. The estimated mean daily fresh water demand and peak fresh water demand for the proposed development are 5 m³/day and 0.145 l/s respectively.
- 5.1.2 The fresh water demand of the proposed development would be significantly less than that of the existing CIF, it is considered that there will be no adverse impact on the existing fresh water supply system.
- 5.1.3 It is considered that the water supply system would be capable of providing adequate potable and flushing supplies to the proposed development.



DRAWINGS



KEY PLAN

LEGEND :

- SITE BOUNDARY OF PLANNED DEVELOPMENT
- EXISTING FRESH WATER MAIN

Rev	Description	By	Date
Consultant			
Project title			
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Drawing title			
TASK ORDER NO. 9 - SAN TIN EXISTING WATERWORK LAYOUT PLAN			
Drawing no. CE47/T09/SK/0011		Rev. -	
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:1000 (A1)		Status -	



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Drawing title
 TASK ORDER NO. 9 - SAN TIN EXISTING WATERWORK LAYOUT PLAN

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