

Enclosure | 6

Appendix 8 of Planning Statement - Drainage Impact Assessment



D03 – Project Profile of Drainage

S12A Rezoning Application – Request for Amendment to the Lung Yeuk Tau and Kwan Tei South OZP from “Residential (Group C)” Zone and “Agriculture” Zone to “Residential (Group A)2” Zone at Various Lots in D.D. 83 and Adjoining Government Land, Lung Yeuk Tau, N.T.

Reference No. 7076933

Prepared for Carlton Woodcraft Manufacturing Ltd
15 March 2023

Document Control

Document:	D03 – Project Profile of Drainage
File Location:	Z:\Jobs\7076933 - Carlton - S12A Lung Yeuk Tau\08 Submission
Project Name:	S12A Rezoning Application – Request for Amendment to the Lung Yeuk Tau and Kwan Tei South OZP from “Residential (Group C)” Zone and “Agriculture” Zone to “Residential (Group A)2” Zone at Various Lots in D.D. 83 and Adjoining Government Land, Lung Yeuk Tau, N.T.
Project Number:	7076933 D03/01
Revision Number:	0

Revision History

REVISION NO.	DATE	PREPARED BY	REVIEWED BY	APPROVED FOR ISSUE BY
0	15 March 2023	Charls LIANG	Antony WONG	Jacky YAU

Issue Register

DISTRIBUTION LIST	DATE ISSUED	NUMBER OF COPIES
Carlton Woodcraft Manufacturing Ltd	15 March 2023	1 electronic soft copy

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1 PROJECT BACKGROUND

1.1 Introduction

- 1.1.1 The title of the Project is S12A Rezoning Application – Request for Amendment to the Lung Yeuk Tau and Kwan Tei South OZP from “Residential (Group C)” Zone and “Agriculture” Zone to “Residential (Group A)2” Zone at Various Lots in D.D. 83 and Adjoining Government Land, Lung Yeuk Tau, N.T.

1.2 Project Proponent

- 1.2.1 The Applicant of the Section 12A Rezoning Application, i.e., On Billion International Ltd, is the Project Proponent.

1.3 Contact Person

- 1.3.1 The Contact Person’s details are as follows:

Name: Ms Isa YUEN
 Company: Aikon Development Consultancy Ltd
 Email: lyuen@aikon.hk
 Telephone: 3180 7811
 Address: Unit 1310, Level 13, Tower 2, Metroplaza, No.223 Hing Fong Road, Kwai Fong, N.T.

1.4 Project Background

- 1.4.1 With reference to the latest policy address in developing the Northern Metropolis, it is aimed to optimize the use of land resources, adopt a higher development intensity and increase high-quality housing supply. In order to address the aforementioned needs, it is planned to redevelop a land with an area of approximately 22,445m² comprising various lots in D.D. 83, and the adjoining government land of about 1,358m², Lung Yeuk Tau, New Territories, into proposed flat, shop and services and eating place (“the Site” or “the Proposed Development”).
- 1.4.2 The Site is currently zoned “Residential (Group C)” (“R(C)”) and “Agriculture” (“AGR”) under the Lung Yeuk Tau and Kwan Tei South Outline Zoning Plan (“OZP”). It was planned to develop a commercial complex for shop and services and eating place, and Residential Development comprising 5 blocks for domestic use.
- 1.4.3 In this regard, a rezoning application under Section 12A of the *Town Planning Ordinance* (“TPO”) to rezone the Site from “R(C)” and “AGR” zones to “Residential (Group A)2” (“R(A)2”) zone under Column 1 shall be required. SMEC Asia Ltd (“SMEC”) has been commissioned by Carlton Woodcraft Manufacturing Ltd (“the Applicant”) to conduct this Project Profile of Drainage to support the application.

1.5 Site Description

- 1.5.1 The Site is located in a developed area in Lung Yeuk Tau, New Territories, which is a flat land used for workshop, storage and warehouses. Its northern part is currently occupied by a permanent domestic structure, temporary structures for open storage yards, storage of construction materials and workshops, open carparks and vacant land. The southern part is currently occupied by the Applicant for warehouse storage.
- 1.5.2 As shown on *Error! Reference source not found.*, Sha Tau Kok Road (Lung Yeuk Tau) Section is located to the immediate north of the Site that runs along the northeast-southwest direction. Across the opposite site of Sha Tau Kok Road (Lung Yeuk Tau) Section, there are San Wai Barracks, a recycling centre and some warehouses. The Site is mainly surrounded by Tung Chun Soy Sauce factory place and some vegetated land to the east, Queen’s Hill Estate to the south,

village houses and warehouses to the west, intermixed with temporary structures, scattered vegetated and abandoned land.

1.6 Project Description

1.6.1 The Proposed Development will tentatively comprise a commercial complex and a Residential Development with the following components:

- Five Residential Blocks
- One Clubhouse
- One Swimming Pool
- One Commercial Complex

1.7 Objectives of this PP

1.7.1 The objectives of this PP are to:

- Determine whether a Drainage Impact Assessment (“DIA”) Study is required;
- Assess the potential drainage impacts arising from the Site; and
- Recommend the necessary mitigation measures to alleviate the impacts.

1.7.2 This Project Profile comprises the following Sections, in accordance with DSD Advice Note No. 1 - Application of the Drainage Impact Assessment Process to Private Sector Projects:

- Determine whether a Drainage Impact Assessment (“DIA”) Study is required;
- Assess the potential drainage impacts arising from the Site; and
- Recommend the necessary mitigation measures to alleviate the impacts.

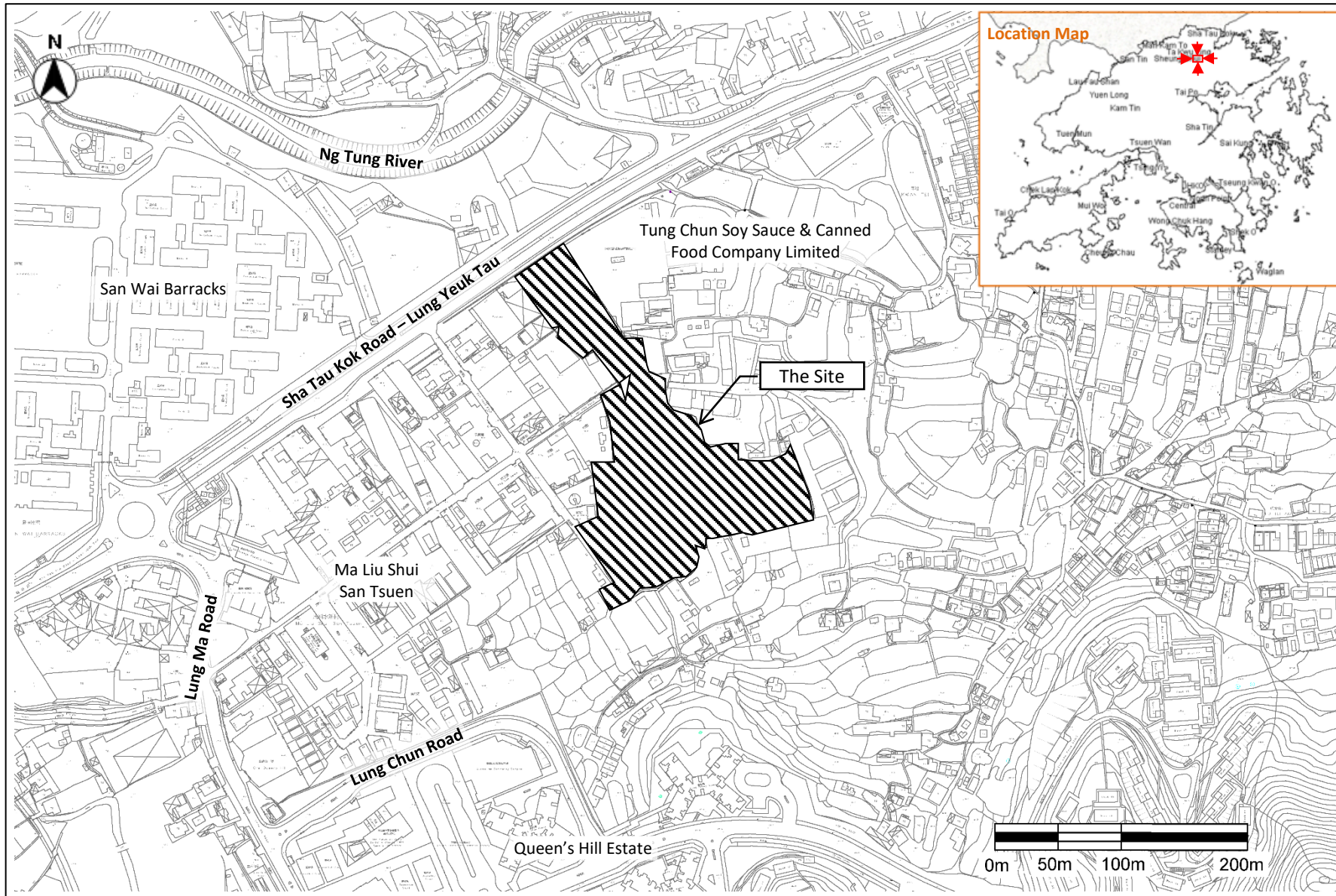
1.8 Reference Materials

1.8.1 In evaluating the drainage impact arising from the Proposed Development, the following materials have been referred to:

1.8.2 In evaluating the potential drainage impact arising from the Proposed Development, the following documents have been referred to:

- Drainage Services Department (“DSD”) Publication Stormwater Drainage Manual (with Eurocodes incorporated) – Planning, Design and Management (2018 Edition).
- DSD Publication Stormwater Drainage Manual – Corrigendum No. 1/2022.
- DSD Advice Note No. 1 – Application of the Drainage Impact Assessment Process to Private Sector Projects.
- Survey maps 3-SW-3A, 3-SW-3B, 3-SW-3C, 3-SW-3D, 3-SW-4A, 3-SW-8A, 3-SW-8B, 3-SW-8C, 3-SW-8D, 3-SW-9A and 3-SW-9C downloaded from Hong Kong Map Service (“HKMS”) 2.0 (<https://www.hkmapservice.gov.hk/>) in January and February 2023.
- GeoInfo Map (<https://www.map.gov.hk/gm/>) reviewed on 10 March 2023.

Figure 1.1: Site Location and its Environs



D03 – PROJECT PROFILE OF DRAINAGE

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SMEC Internal Ref. 7076933

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2 DESCRIPTION OF EXISTING ENVIRONMENT AND DRAINAGE CONDITIONS

2.1 Project Implementation

- 2.1.1 As mentioned in **paragraph 1.4.3**, SMEC has been commissioned by the Project Proponent to prepare this PP to study the changes to the drainage characteristics and the potential drainage impacts arising from the Project.
- 2.1.2 The Project Proponent, subject to the final recommendation of this PP, will be responsible for implementing the proposed works together with all the environmental and drainage mitigation measures.
- 2.1.3 Construction of the Project will be carried out by the Contractor(s) to be appointed by the Project Proponent at a later stage.

2.2 Project Timetable

- 2.2.1 The tentative operation of the Proposed Development will be in 2031.
- 2.2.2 No detailed design including the drainage system is available at this rezoning application stage. The actual drainage construction works will be designed by the drainage engineer to be engaged by the Authorised Person (“AP”) of the Proposed Development subject to the approval from the Building Authority and the relevant government departments. The drainage connection proposal will be submitted by the AP at the detailed design stage.
- 2.2.3 The indicative milestones of the Proposed Development subject to change during the detailed design stage are as follows:

Table 2-1 Indicative Milestones of the Proposed Development

ID	ITEM	ANTICIPATED TIME
1.	Appointing AP	2023
2.	Preliminary Designs	2023 to 2024
3.	Preparation of DIA Study (if required)	2023
4.	Detailed / Finalised Designs	2024
5.	Construction / Implementation	2026 to 2031
6.	Completion / Commencing Operation	2031

2.3 Interaction with Other Projects

- 2.3.1 With reference to the construction programme of the Project, no concurrent works in the vicinity of the Site are identified at the moment.

3 DESCRIPTION OF CONDITIONS

3.1 Introduction

3.1.1 This section describes the existing and future conditions of the environment at and in the vicinity of the Site.

3.2 Site Location and Topography

3.2.1 As mentioned in paragraph 2.1.2 of the Planning Statement, part of the Site is used for workshop, storage and warehouses. Its northern part is currently occupied by a permanent domestic structure, temporary structures for open storage yards, storage of construction materials and workshops, open carparks and vacant land. The southern part is currently occupied by the Applicant for warehouse storage. The Site is relatively flat with the existing ground elevations of +12.2mPD to +13.3mPD. The Site area is approximately 22,445m².

3.3 Statutory Land Use Zoning

3.3.1 As mentioned in **paragraph 1.1.1**, the Site is currently zoned R(C) and AGR under the Lung Yeuk Tau and Kwan Tei South OZP.

3.4 Existing and Future Conditions

Paved and Unpaved Area of the Site

3.4.1 The total Site area is about is approximately 22,445m². In order to understand the existing conditions of the Site and the surrounding area, Site visits were conducted on 6 December 2022 and 18 January 2023. Most of the Site area is hard paved as summarised in **Table 3-1**.

Table 3-1 Percentage of Paved and Unpaved Areas of the Existing Site

SITE AREA, m ²	PAVED AREA, m ²	UNPAVED AREA, m ²
~22,445	~21,323 (~95%)	~1,122 (~5 %)

3.4.2 As mentioned in paragraph 5.3.1 of the Tree Preservation and Landscape Proposal for the Proposed Development, greenery ^[note 1] will be provided and the common greenery is calculated in accordance with PNAP APP-152 ^[note 2]. As mentioned in Table 2 of PNAP App-152, the minimum overall site coverage of greenery for site area between 1,000m² and 20,000m² should be 20% and that for site area for equal to or larger than 20,000m² should be 30% respectively. As mentioned in **paragraph 3.4.1**, the Site area of the Proposed Development is approximately 22,445m². The minimum overall site coverage of greenery for the Proposed Development should therefore be 30% of the Site area.

3.4.3 Although the total greenery area is calculated to be approximately 7359.30m² as mentioned in paragraph 5.3.2 of the aforementioned Tree Preservation and Landscape Proposal, for the conservative approach no less than 30% greenery, i.e., unpaved area, should be adopted for the Proposed Development in accordance with PNAP APP-152.

¹ "Greenery" or "Greenery Area" is area with live plant and soil or similar base defined in BD's PNAP APP-152.

² Practice Notes for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers ("PNAP") APP-152 *Sustainable Building Design Guidelines* published by the Building Department ("BD") in January 2016.

Table 3-2 Percentage of Paved and Unpaved Areas of the Proposed Development

SITE AREA, m ²	PAVED AREA, m ²	UNPAVED AREA, m ²
~22,445	No more than 15,711 (No more than 70%)	No less than 6,734 (No less than 30%)

Catchment Areas

3.4.4 Based on the Site observations and desktop study of the elevations shown on the topographical maps, the catchments are identified as follows:

1. The Site comprises two sub-catchments, Sub-Catchments A1 and A2, with elevations between 12.7mPD and 13.3mPD within A1 and 12.2mPD within A2 respectively.
2. Public roads such as Sha Tau Kok Road – Lung Yeuk Tau, etc. are provided with road drains. Therefore, overland flow from public roads to the Site is unlikely.
3. Other catchments, Catchments U1 to U4 adjacent to the Site, are identified that:
 - (a) Since U1 to U4 are outside the Application Boundary, the payment conditions and flow patterns of U1 to U4 will not be changed due to the Proposed Development.
 - (b) U1 is an industrial use adjacent to A1 of the Site with elevations between 11.6mPD and 12.2mPD. Most of its site is hard paved and provided with fence walls. Overland flow from U1 to the Site is unlikely.
 - (c) U2 is a rural area adjacent to A2 of the Site with approximately 80% of the area to be vegetated area while the other 20% of the area to be village houses/paved areas with elevations between 12.5mPD and 13.9mPD. Some runoff from U2 should overland flow onto the Site which can be currently intercepted by the perimeter drains located to the eastern boundary of A2 of the Site.
 - (d) There are warehouses and workshops located within U3. Most of its site is hard paved and provided with fence walls with elevations between 12.2mPD and 12.4mPD. Overland flow from U3 to A1 of the Site is unlikely.
 - (e) U4 is a house development adjacent to A2 of the Site. It is approximately 70% hard paved with elevations between 12.5mPD and 12.6mPD lower than A2 with elevations between 12.7mPD and 13.3mPD. Overland flow from U4 to A2 of the Site is unlikely.

3.4.5 The identified catchments and anticipated flow directions are shown on **Figure 3-1**.

3.5 Review of Condition

3.5.1 As mentioned in **paragraph 3.4.3**, the Proposed Development will be provided with no less than 30% greenery, i.e., unpaved area. Therefore, runoff arising from the Proposed Development will be less than that of the current situation from drainage point of view.

3.5.2 Overland flow from public roads and the other adjacent catchments to the Site is unlikely as reviewed in **paragraph 3.4.4**.

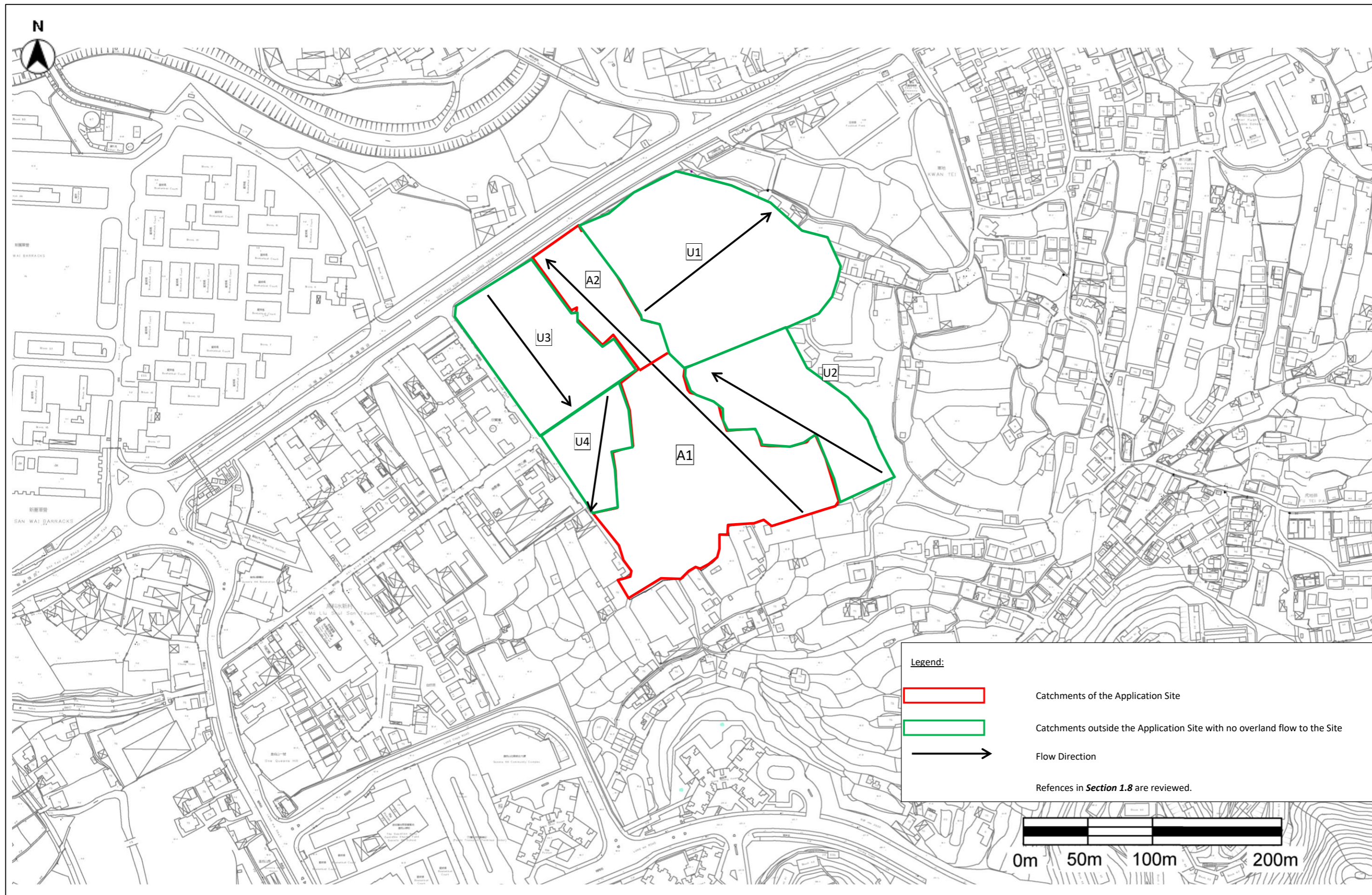
3.5.3 Based on the layout plans attached to Appendix 2 of the Planning Statement, filling for the Proposed Development is not required.

3.5.4 Perimeter drains shall be provided for the Proposed Development.

3.5.5 Based on the above review, it is concluded that:

1. Since no watercourse or drainage path will be affected by the Proposed Development, flooding risk will not be increased due to the Proposed Development;
2. Runoff will be decreased for the increase in unpaved area; and
3. No filling is required for the Proposed Development.

Figure 3-1 Identified Catchments



4 DESCRIPTION OF DRAINAGE CONDITIONS

4.1 Existing Drainage Conditions

- 4.1.1 Survey maps downloaded from HKMS 2.0 and drainage data provided on GeoInfo Map as mentioned in **paragraph 1.8.2**.
- 4.1.2 With reference to the drainage data provided on GeoInfo Map, municipal stormwater U-channels are located between the Site and Sha Tau Kok Road – Lung Yeuk Tau. The widths of the aforementioned U-channels to the north of the Site are 750mm.
- 4.1.3 Surface runoff from the Site comprising Sub-Catchments A1 and A2 can be collected and diverted to stormwater Catchpit SCH1010789 and U-channel SUP1001474 with a width of 750mm. Then the runoff is conveyed to box culvert SBP1000500 across Sha Tau Kok Road – Lung Yeuk Tau. The drainage connection is shown on **Figure 4-1** and summarised in **Table 4-1**.

Table 4-1 Information of Municipal Drainage System Connected to the Site

SITE (CATCHMENT)	CONNECTION POINT	MAIN DRAIN/CHANNEL DOWNSTREAM
Sub-Catchment A1	SCH1010789	U-channel SUP1001474 with a width of 750mm
Sub-Catchment A2		

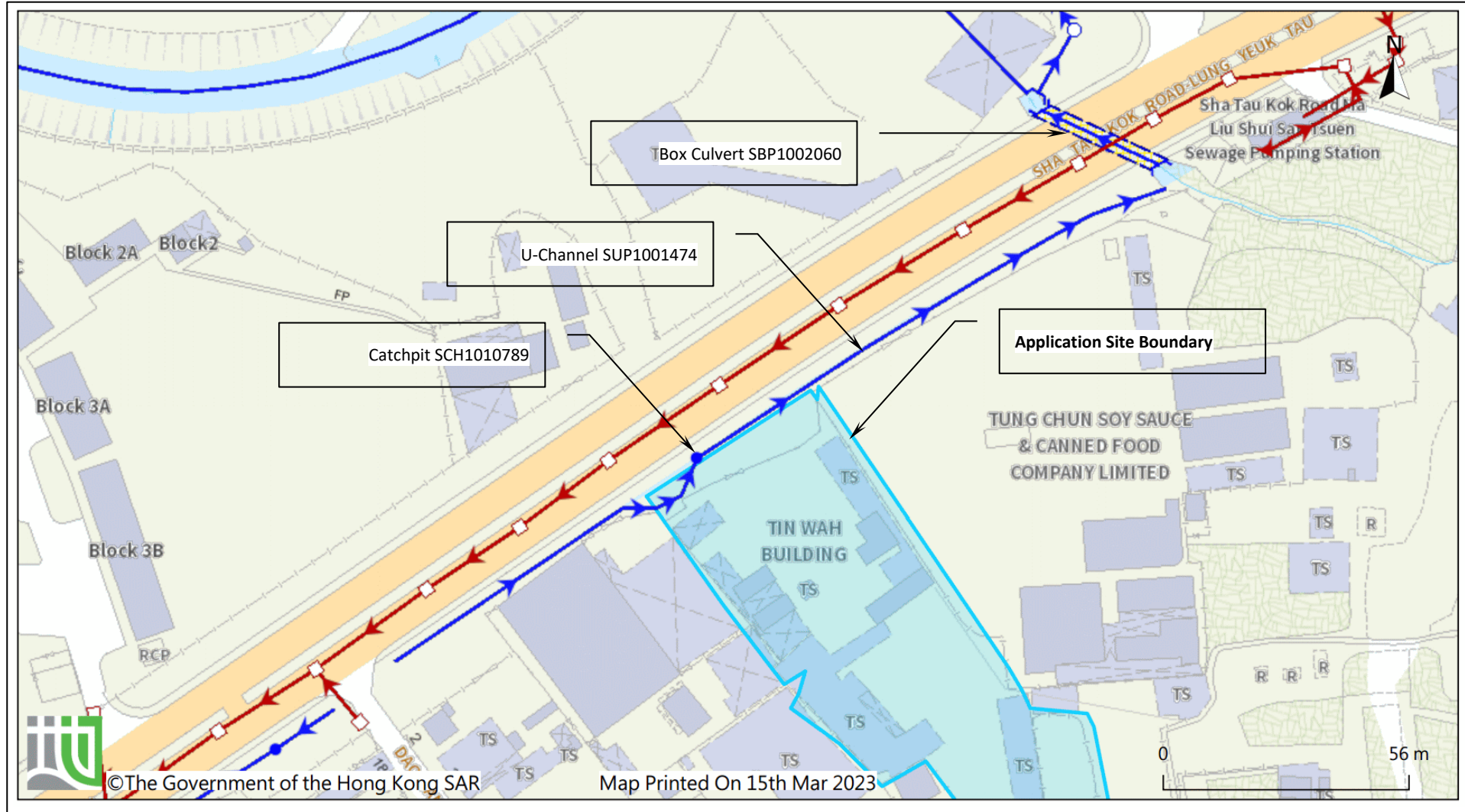
- 4.1.4 According to ETWB TCW No 5/2005 and AFCD’s website, there are no ecologically important streams/rivers (EIS) located within the vicinity of the Site.
- 4.1.5 According to DSD’s website ^[note 3] of flooding blackspots, no flooding blackspots are found within the vicinity of the Site.

4.2 Future Drainage Conditions

- 4.2.1 The same as the existing situation, surface runoff from the Proposed will be collected by a series of drains pipes provided within the Site and subsequently discharge to the existing drainage system.
- 4.2.2 The detailed arrangement of the local drainage system and new drainage connection will be further investigated at the detailed design stage of project. Notwithstanding, as mentioned in **paragraph 3.4.3**, no less than 30% greenery will be provided for the Proposed Development. Thus, no additional drainage impact on the existing drainage system due to the Proposed Development is anticipated.

³ https://www.dsd.gov.hk/EN/Flood_Prevention/Our_Flooding_Situation/Flooding_Blackspots/index.html checked on 6 March 2023.

Figure 4-1 Existing Drainage System

**Notes:**

1. The drainage plan was printed on 15 March 2023 from Geoinfo Map.
2. Red lines are foul sewerage system and blue lines are stormwater drainage system.
3. Sufficient areas within the Application Site shall be reserved and provided for the barrier-free maintenance access of the stormwater drainage system adjacent to and within the Application Boundary for the government.

D03 – PROJECT PROFILE OF DRAINAGE

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5 DRAINAGE IMPACT REVIEW AND CONCLUSION

- 5.1.1 Based on the review of **Sections 3** and **4**, no adverse drainage impact on the municipal drainage system is anticipated due to the Proposed Development.
- 5.1.2 Furthermore, a DIA is considered not required with reference to DSD's *Advice Note No. 1 - Application of the Drainage Impact Assessment Process to Private Sector Projects* based on the following findings:
1. No flooding risk will be increased since no watercourse or drainage path will be affected by the Proposed Development.
 2. No increase in imperious/paved area will be increased. Instead, greenery/unpaved area with no less than 30% in Site area will be provided for the Proposed Development. No significant increase in runoff or change in runoff behaviour from the Application Site will be resulted.
 3. No reclamation or filling will be required to form the Site for the Proposed Development.
 4. Because of no change to the drainage connection with the decrease in runoff generation, no increase in drainage impact on the municipal drainage system downstream of the Proposed Development will be resulted. Therefore, there is no need to upgrade the drainage system downstream of the Site to convey the runoff from the Proposed Development.
 5. The Site is not located at flood prone areas with reference to the website of the DSD regarding flooding blackspots.
 6. No temporary works (e.g. scaffolding or falsework of a bridge) or flow diversion will be implemented during the construction of the Proposed Development adversely affect the performance of the drainage system or aggravate the risks of flooding in its adjacent, upstream and downstream areas.
 7. No significant reduction of flood storage capacity in the surrounding areas during or after construction.
 8. As shown on **Figure 4-1**, a portion of the municipal drainage system is located adjacent to and within the Application Boundary. Sufficient area within the Application Site shall be reserved and provided for the barrier-free maintenance access of the stormwater drainage system adjacent to and within the Application Boundary for the government.

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