

FORM 5
ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE
(CHAPTER 499)
SECTION 13(1)

Application for Variation of an Environmental Permit

PART A PREVIOUS APPLICATIONS

No previous application for variation of an environmental permit.
 The environmental permit was previously amended.
Application No. :

PART B DETAILS OF APPLICANT

B1. Name : (person or company)
Civil Engineering and Development Department
[Note : In accordance with section 13(1) of the Ordinance, the person holding an environmental permit or a person who assumes responsibility for the designated project may apply for variation of the environmental permit.]
B2. Business Registration No. : [REDACTED]
(if applicable)
B3. Correspondence Address : [REDACTED]
B4. Name of Contact Person : [REDACTED] B5. Position of Contact Person : [REDACTED]
B6. Telephone No. : [REDACTED] B7. Fax No. : [REDACTED]
B8. E-mail Address : (if any) [REDACTED]

PART C DETAILS OF CURRENT ENVIRONMENTAL PERMIT

C1. Name of the Current Environmental Permit Holder :
Civil Engineering and Development Department
C2. Application No. of the Current Environmental Permit : EP-470/2013
C3. The Current Environmental Permit was Issued in : month / year
11 | 20 | 13

Important Notes : Please submit the application together with
(a) 3 copies of this completed form; and
(b) appropriate fee as stipulated in the Environmental Impact Assessment (Fees) Regulation to the Environmental Protection Department at the following address :
The EIA Ordinance Register Office,
27th floor, Southorn Centre, 130 Hennessy Road,
Wan Chai, Hong Kong.

Tick (✓) the appropriate box
EPD185

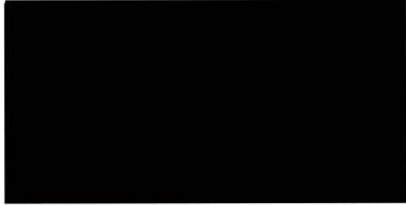


PART D PROPOSED VARIATIONS TO THE CONDITIONS IN CURRENT ENVIRONMENTAL PERMIT

D1. Condition(s) in the Current Environmental Permit :	D2. Proposed Variation(s) :	D3. Reason for Variation(s) :	D4. Describe the environmental changes arising from the proposed variation(s) :	D5. Describe how the environment and the community might be affected by the proposed variation(s) :	D6. Describe how and to what extent the environmental performance requirements set out in the EIA report previously approved or project profile previously submitted for this project may be affected :	D7. Describe any additional measures proposed to eliminate, reduce or control any adverse environmental impact arising from the proposed variation(s) and to meet the requirements in the Technical Memorandum on Environmental Impact Assessment Process :
<p>Scale and Scope of Designated Project</p> <p>Construction of service reservoir and watermain for the reuse of treated sewage effluent for reuse in Kwu Tung North (KTN) and Fanling North (FLN) Development Areas</p> <p>Figure 1 - Location Plan for the Project</p>	<p>To relocate the FLN flushing water service reservoir (FLWSR) from Tong Hang to Table Hill.</p> <p>Please refer to revised Figure 1 attached.</p>	<p>WSD has advised that gravity supply system (service reservoir approach) should be adopted for designing the proposed FLWSR in view of the water quality of the reclaimed water.</p> <p>For service reservoir approach, the flushing water will be pumped from the SWHWRP to a FLWSR for storage first, and then conveyed to the supply zones by gravity pressure.</p> <p>In order to have sufficient hydraulic head at all consumer connections within FLN NDA of minimum 15 m head, the proposed FLN FLWSR is required to be situated at an elevation level at or higher than +56 mPD. Hence, Table Hill is the only option in the nearby area, which meets this hydraulic requirement and is nearest to the SWHWRP.</p> <p>Also, shortening water main could minimise the headlosses, which would improve energy efficiency of water pumps within the SWHWRP when comparing to the original proposed FLWSR location at Tong Hang.</p>	<p>The originally proposed FLN FLWSR at Tong Hang will be relocated to Table Hill. Both are located at hillside area which is currently covered by grassland/shrubland. Small patches of disturbed grassland of low ecological value will be lost due to the proposed works.</p> <p>Few village houses at Cheung Po Tau (nearest about 135 m) are identified near to the proposed FLN FLWSR location at Table Hill. When compared to the originally proposed FLN FLWSR location at Tong Hang, it is further away from the A/NSR and major roads.</p>	<p>The newly proposed FLN FLWSR location at Table Hill will not induce increase in pollution emissions or discharges or waste generation. Dust, noise, water quality and waste management can be mitigated properly by relevant regulations, guidelines and good site practices. The proposed variation is not expected to have impact on these aspects.</p> <p>The habitat nature and size of the originally and relocate location of the FLN FLWSR are similar in nature, significant ecological impact is not anticipated.</p>	<p>The habitat nature and size of the originally and relocate locations of the FLN FLWSR are similar in nature. The relocate FLN FLWSR will be constructed on an existing hillock at Table Hill. The proposed construction method is similar to the originally proposed FLN FLWSR at Tong Hang as stated in the NENT NDAs EIA report.</p> <p>With the implementation of mitigation measures in place, violation of criteria in this technical memorandum is not anticipated. No material change is expected. Significant impacts due to the proposed variation is not expected and the environmental performance and findings in the approved EIA report are considered still valid.</p> <p>For details of the assessment extracted from the Environmental Review Report prepared under CE21/2019 (CE), please refer to the attached Annex 1.</p>	<p>Adverse environmental impact arising from the proposed variation is not expected and the requirements in the Technical Memorandum on Environmental Impact Assessment Process can be fulfilled. Therefore, additional environmental measures are not necessary.</p>

PART E DECLARATION BY APPLICANT

E1. I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental permit may be suspended, varied or cancelled if any information given above is false, misleading, wrong or incomplete.



Signature of Applicant



Full Name in Block Letters



Position



on behalf of Civil Engineering and Development Department
Company Name and Chop (as appropriate)

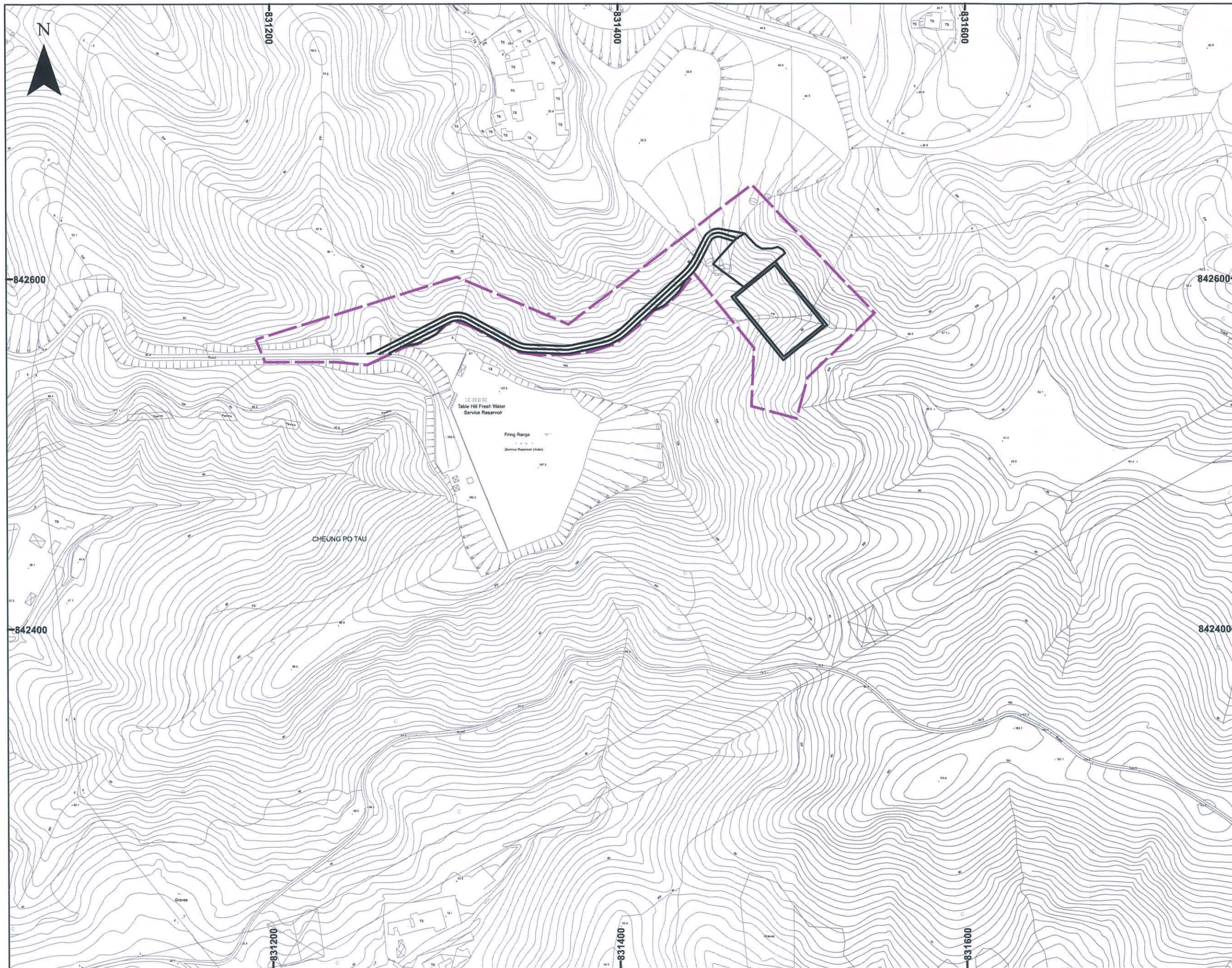
29 April 2022
Date

NOTES :

1. A person who constructs or operates a designated project in Part I of Schedule 2 of the Ordinance or decommissions a designated project listed in Part II of Schedule 2 of the Ordinance without an environmental permit or contrary to the permit conditions commits an offence under the Ordinance and is liable to a maximum fine of \$5,000,000 and to a maximum imprisonment for 2 years.
2. A person for whom a designated project is constructed, operated or decommissioned and who permits the carrying out of the designated project in contravention of the Ordinance commits an offence and is liable to a maximum fine of \$5,000,000 and to a maximum imprisonment for 2 years.

Legend

 PROJECT BOUNDARY OF PROPOSED FLN FLUSHING WATER SERVICE RESERVOIR
擬議粉嶺北沖廁水配水庫項目邊界



Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	04/22	04/22	04/22	04/22

Approved

Agreement No. **CE21/2019(WS)**

Project Title
FRESH WATER AND FLUSHING WATER SERVICE RESERVOIRS AND ASSOCIATED WORKS IN FANLING NORTH - DESIGN AND CONSTRUCTION
 粉嶺北食水及沖廁水配水庫及相關工程 - 設計及建造

Figure Title
PRELIMINARY LOCATION OF FLN FLWSR AND REVISED PREMIT BOUNDARY
 粉嶺北沖廁水配水庫初步位置及修訂的許可證邊界

Drawing No. **Figure 1** Revision **D**

Scale **A3: 1:2,000**

Client
 **土木工程拓展署**
 Civil Engineering and Development Department

Consultant

BINNIES HONG KONG LIMITED
 賓尼士工程顧問有限公司

DRAFT - ISSUE 3

ENVIRONMENTAL REVIEW REPORT FOR RELOCATION OF FLN FLWSR FROM TONG HANG TO TABLE HILL

Agreement No. CE 21/2019 (WS)

Fresh Water and Flushing Water
Service Reservoirs and Associated
Works in Fanling North –
Design and Construction

BINNIES PROJECT NO. 406152
BINNIES FILE NO. 406152/40.0009

PREPARED FOR

Civil Engineering and Development Department

27 APRIL 2022



Prepared by:



Signature

Apr 2022

Date

Tobey CHOW/Bandson LI/CHU Tsz Wing

Printed Name

Checked by:



Signature

Apr 2022

Date

Esther TONG

Printed Name

Approved by:



Signature

Apr 2022

Date

Glenn CHAN

Printed Name

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1.0 INTRODUCTION

1.1 Background and Purpose

- 1.1.1 The Territorial Development Strategy Review in 1990s first identified that there was potential for strategic growth in the North East New Territories (NENT). The Planning and Development Study on NENT, which was commissioned in 1998 and completed in 2003 under Agreement No. CE 64/96.
- 1.1.2 The NENT NDA Study was commissioned jointly by the Civil Engineering and Development Department (CEDD) and the Planning Department (PlanD) in June 2008 and was completed in December 2013. Various planning, engineering and environmental studies were completed to formulate a revised proposal for the NENT New Development Area (NDA) based on the NENT NDAs Study, confirm the feasibility of implementing the revised proposal and formulate the implementation strategies and programme for the NDA.
- 1.1.3 The design consultancy for Development of Kwu Tung North (KTN) and Fanling North (FLN) NDA, Phase 1 under Agreement No. CE 13/2014 (CE) (the First Phase Assignment) was commissioned by CEDD in November 2014, to carry out detailed design and site investigation of the First Phase Works (i.e. the site formation and engineering infrastructure works for the Advance Works and First Stage Works).
- 1.1.4 The KTN and FLN NDA are being developed in phases, comprising the First Phase Works (i.e. the Advance Works and First Stage Works) and the Remaining Phase Works. The First Phase Works are to carry out advance site formation of land (including soil remediation) in the KTN and FLN NDA for housing and associated engineering infrastructures. The Remaining Phase Works pertinent to this Project is to carry out remaining phase site formation and engineering infrastructure works at KTN and FLN NDA for housing and Government, Institution or Community (G/IC) facility development.
- 1.1.5 In July 2020, Black & Veatch Hong Kong Limited (B&V) was commissioned by CEDD to implement the Project under Agreement No. CE 21/2019 (WS) – “Fresh Water and Flushing Water Service Reservoirs and Associated Works in Fanling North – Design and Construction”

1.2 Objectives of the Relocation of FLN FLWSR

- 1.2.1 The objective of this Assignment is to relocate the FLN FLWSR from Tong Hang to Table Hill.

1.3 Scope of Relocation of FLN FLWSR

- 1.3.1 The scope of the Fanling North flushing water service reservoir (FLN FLWSR) comprises:
- a) proposed FLN FLWSR (6,200 m³) together with a temporary-main for flushing (TMF) from the nearby fresh water service reservoir;
 - b) proposed access and maintenance platform to the FLN FLWSR.

Other Works

- a) provision of all associated civil, structural, geotechnical, electrical and mechanical works, including site formation, pipe jacking, hard rock excavation, landscaping, permanent and temporary access and other related works as may be necessary;
- b) ancillary civil and geotechnical, utility diversion, landscaping, street lighting, drainage and other related works; and
- c) implementation of environmental monitoring and mitigation measures for the works mentioned above.

1.3.2 The proposed location of FLN FLWSR at Table Hill and original location at Tong Hang are shown in **Drawing 406152/B&V/VEP/001**.

1.4 Purpose and Structure of this Environmental Review Report (ERR)

1.4.1 Referring to the NENT NDAs EIA report, utilization of Treated Sewage Effluent (TSE) from SWHSTW fall under Schedule 2 Designated Project (i.e. DP7). The utilization of TSE will have environmental benefits in reducing the sewage pollution loads into Deep Bay. The major facilities of the utilization of TSE including the treatment facilities for effluent reuse in SWHSTW, a flushing water service reservoir in KTN, and a flushing water service reservoir in FLN and the associated pipeworks.

1.4.2 Under this Study, the original FLN FLWSR is proposed at Tong Hang to achieve the required water level and also avoid encroaching upon the permitted burial ground. The proposed site could be accessed via the existing access road of Tong Hang FWSR. Based on the latest design approach and consideration, the originally proposed FLN FLWSR at Tong Hang is now proposed to be relocated adjacent to the existing Table Hill FWSR (TBHFWSR). This ERR is to assess the potential environmental implications due to the construction and operation of the proposed FLN FLWSR at Table Hill (**Drawing 406152/B&V/VEP/002**).

1.4.3 This ERR is divided into 4 sections as follows:

Section 1 – Introduction

Section 2 – Review on NENT NDAs Study

Section 3 – Preliminary Environmental Review

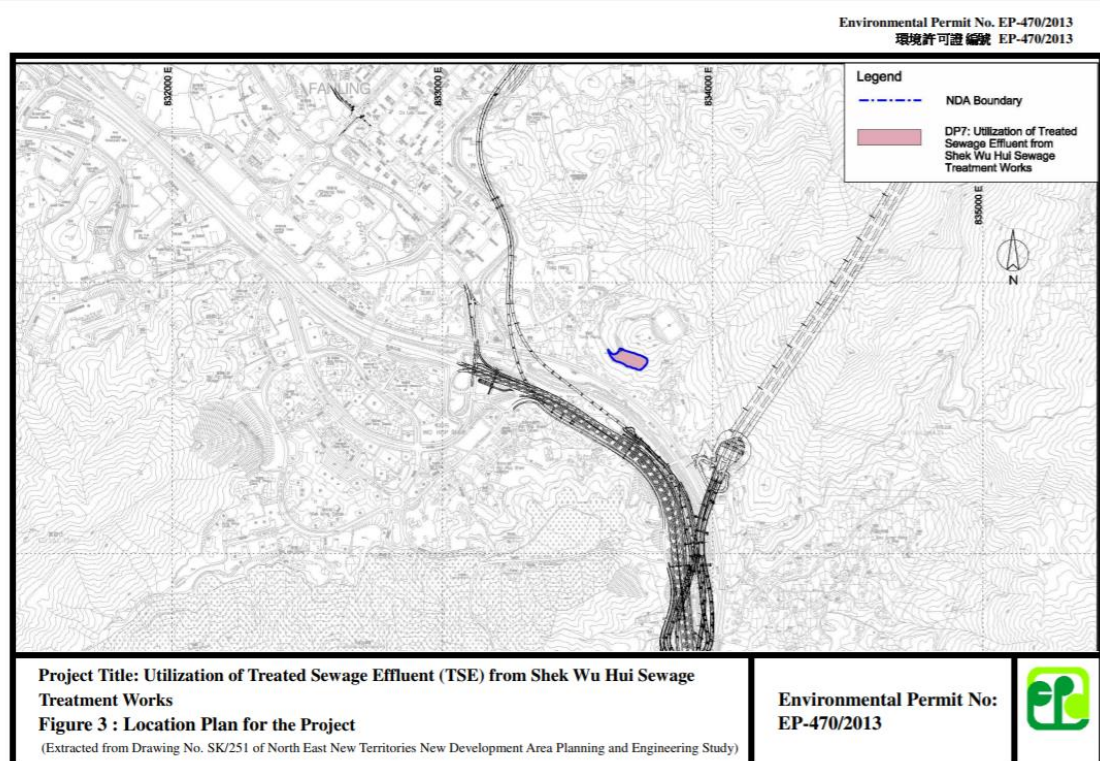
Section 4 – Conclusion

2.0 REVIEW ON NENT NDAs STUDY

2.1 EIA Findings

FLN FLWSR

- 2.1.1 The proposed FLN FLWSR (about 0.6 ha) is to be located at hillside slope above Tong Hang Tung Chuen, west of the existing Tong Hang Service Reservoir. The construction and operation of reclaimed water service reservoir is a DP under Item F4 of the Schedule 2 of EIAO, which is shown in Figure 3 of EP-470/2013 extracted below.



[Source: <https://www.epd.gov.hk/eia/register/permit/latest/figure/ep4702013figure3.pdf>]

2.2 Original Engineering Design of FLN FLWSR

- 2.2.1 The original preliminary design of the proposed FLN FLWSR was prepared by the consultants of the NENT NDAs Study.

FLN FLWSR

- 2.2.2 The originally proposed dimension of the FLN FLWSR was 50 m (L) x 35 m (W) with estimated water depth of 3.8 m in the previous WSUIA of Agreement No. CE 13/2014 (CE).
- 2.2.3 The original preliminary design in the previous studies for the FLN FLWSR is located at Tong Hang, which is near the Lau Shui Heung Irrigation Reservoir. The founding level of the proposed FLN FLWSR was proposed at +56 mPD. The original location for FLN FLWSR at Tong Hang is shown in **Drawing 406152/B&V/VEP/003**.

2.3 Latest Engineering Design of FLN FLWSR

- 2.3.1 The original preliminary design of the proposed FLN FLWSR has been reviewed under this Project in accordance with ETWB TC(W) No. 19/2003.
- 2.3.2 The latest update of the engineering design is that the estimated capacity of the proposed FLN FLWSR will be revised to about 6,200 m³ according to the latest water demand and the

latest design approach requirement detailed in Section 2.5 below. In order to formulate a cost-effective site formation scheme to suit the adjacent topographic condition, the proposed dimension and water depth of FLN FLWSR are required to be revised.

2.4 Original Design Approach of FLN FLWSR

- 2.4.1 In the previous NENT NDAs Study, balancing tank design approach was recommended to be adopted for designing the proposed FLN FLWSR. Flushing water would be directly pumped to supply zones while excess flushing water will be stored in the proposed FLN FLWSR which was proposed to be located at Tong Hang.

2.5 Latest Design Approach of FLN FLWSR

- 2.5.1 As stated in paras. 6.4.11 and 7.4.7 of the WSUIA of Agreement No. CE 13/2014 (CE), as well as at the recent coordination meetings between CEDD and WSD dated 8 September 2020 and 10 December 2020, WSD has advised that gravity supply system (service reservoir approach) should be adopted for designing the proposed FLWSR in view of the water quality of the reclaimed water.

- 2.5.2 The source of flushing water is reclaimed water provided from the SWHWRP. For service reservoir approach, the flushing water will be pumped from the SWHWRP to a service reservoir for storage first, and then conveyed to the supply zones by gravity pressure.

Design Layout and Description

- 2.5.3 For the proposed FLN FLWSR, it is now proposed to be located at Table Hill, which is situated adjacent to the existing TBHFWSR. The proposed FLN FLWSR upon review of this Project would be in rectangular shape with dimension of 29 m (L) x 44 m (W) and the maximum water depth of 5 m. The invert level of the proposed FLN FLWSR would be updated to +74mPD.

Site Selection Option

- 2.5.4 In order to have sufficient hydraulic head at all consumer connections within FLN NDA of minimum 15 m head, the proposed FLN FLWSR is required to be situated at an elevation level at or higher than +56 mPD. Hence, Table Hill is the only option in the nearby area, which meets this hydraulic requirement and is nearest to the SWHWRP. Also, shortening water main could minimise the headlosses, which would improve energy efficiency of water pumps within the SWHWRP.

Need for the Change

- 2.5.5 As discussed in para. 2.5.1, service reservoir approach should be adopted for designing the proposed FLN FLWSR in view of the water quality of the reclaimed water.
- 2.5.6 If service reservoir approach is adopted for the proposed FLN FLWSR at Tong Hang, the alignment of watermain from the SWHWRP to the proposed FLN FLWSR would go through the whole future FLN NDA. The total length of trunk mains is approximately 8.2 km. The long trunk mains would incur higher energy consumption for pumping due to high energy loss along a long flow path, and hence induce a much higher carbon footprint.
- 2.5.7 Since the alignment of the trunk mains would go through the whole future FLN NDA, interface issues and substantial traffic issues would be anticipated during the construction stage and the maintenance works during the operation stage.
- 2.5.8 The construction of additional 8.2 km long trunk mains due to service reservoir approach will cause higher air and noise impacts during construction.

2.5.9 Taking into consideration the above concerns, it is proposed to change the location of the proposed FLN FLWSR from Tong Hang to Table Hill.

Construction & Operation Benefits

2.5.10 The alignment of the reclaimed water trunk mains from the SWHWRP to the proposed FLN FLWSR at Table Hill would be along Fu Tei Au Road and Man Kam To Road, and then running along the existing WSD’s service reservoir maintenance access. The total length of the trunk mains is approximately 2.2 km only, which is much shorter compared with the original design approach. As such, the construction cost and construction time will be much cheaper and shorter respectively.

2.5.11 With shorter construction time for the trunk mains mentioned above, the nuisance to the public will be significantly reduced.

2.5.12 With the shorter length of trunk mains, the energy consumption for pumping would be reduced due to the lower energy loss along a shorter flow path, and hence the carbon footprint would be reduced.

2.5.13 The alignment of trunk mains would be connected from the SWHWRP to the proposed FLN FLWSR at Table Hill through Fu Tei Au Road and Man Kam To Road, which would not go through the FLN NDA. Therefore, no interface issues would be anticipated during the construction stage and operation stage.

Construction Methodology and Programme

2.5.14 The FLN FLWSR is to be built on a platform (+74 mPD) to be formed on the hillside. New access roads will be formed connecting the existing maintenance access road with the new platforms. All associated FLN FLWSR watermains are to be laid on plinths along the hillside to the north of the maintenance access road. Leakage collection system such as that shown in WSD Standard Drawing No. WSD 1.20C are to be provided along the water mains affecting slopes.

2.5.15 The construction works of the proposed FLN FLWSR and the associated watermains are scheduled to commence in Q4 2024 for completion in Q3 2028, which would meet the programme of the population intake of the FLN NDA.

Interfacing Project

2.5.16 The construction works of the proposed FLN FWSR and the associated watermains are scheduled to commence at the same time of FLN FLSWR. No other major interface issues would be anticipated for the proposed FLN FLWSR at Table Hill during construction and operation stages. The latest proposed locations of the FLN FWSR and FLN FLWSR at Table Hill are shown in **Drawing 406152/B&V/VEP/004**.

Table 2-1 Summary of Benefits for Relocation of FLN FLWSR

ITEMS	RELOCATTION OF FLWSR AT TABLE HILL	ORIGNIAL LOCATION OF FLWSR AT TONG HANG
Footprint of FLWSR*	0.21 ha	0.61 ha
Habitats	Predominantly grassland, plantation and urban areas of low to low-to-moderate ecological values	Predominantly grassland, grassland/shrubland and small portion of secondary woodland of moderate ecology value.
Trunk Mains	2.2 km	8.2 km

**Civil Engineering and Development Department | Environmental Review Report for Relocation of FLN
FLWSR from Tong Hang to Table Hill**

ITEMS	RELOCATTION OF FLWSR AT TABLE HILL	ORIGNINAL LOCATION OF FLWSR AT TONG HANG
	(lower energy consumption for pumping due to shorter pipeline)	
Construction programme	Shorter	Longer (more interfacing issues and longer trunk length during construction)
Remarks: * It is the service reservoir footprint only but exclude the associated working platform/maintenance access and access road. The required areas are assumed to be the same order.		

3.0 PRELIMINARY ENVIRONMENTAL REVIEW

3.1 Review of Material Change

3.1.1 The originally proposed FLN FLWSR is located at Tong Hang where is grassland/shrubland (see **Figure 3-1**), while the newly proposed location for the FLN FLWSR will be adjacent to the existing TBHFWSR where is of similar type of habitat (i.e. grassland) (see **Figure 3-2**).

Figure 3-1 Originally Proposed FLN FLWSR at Tong Hang Location Plan

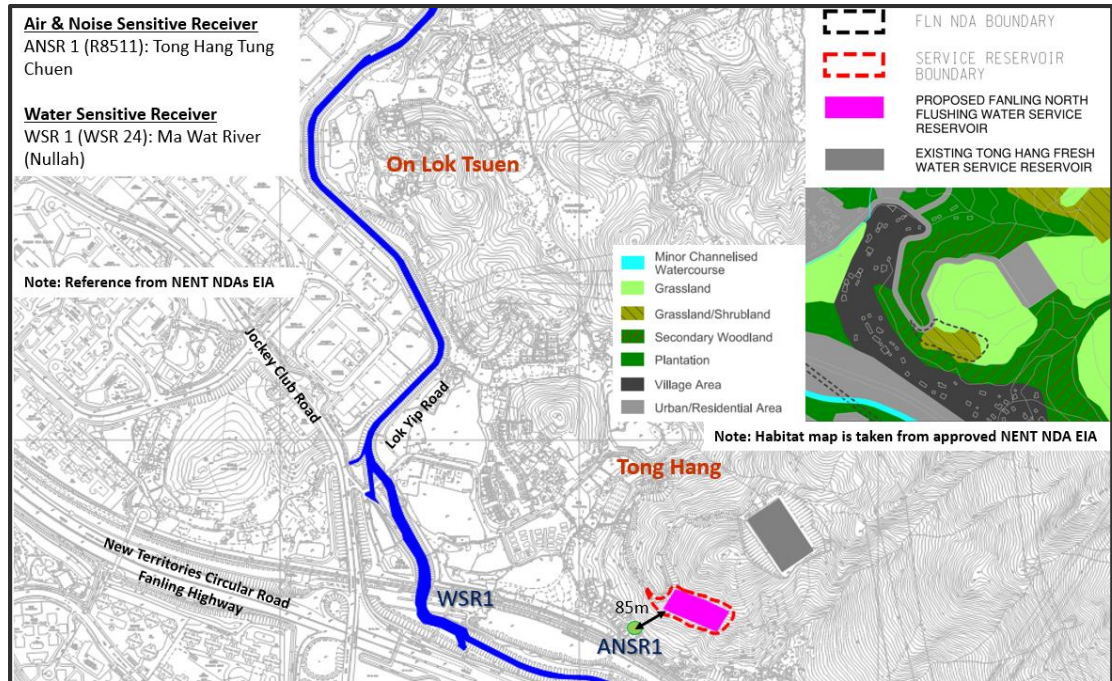
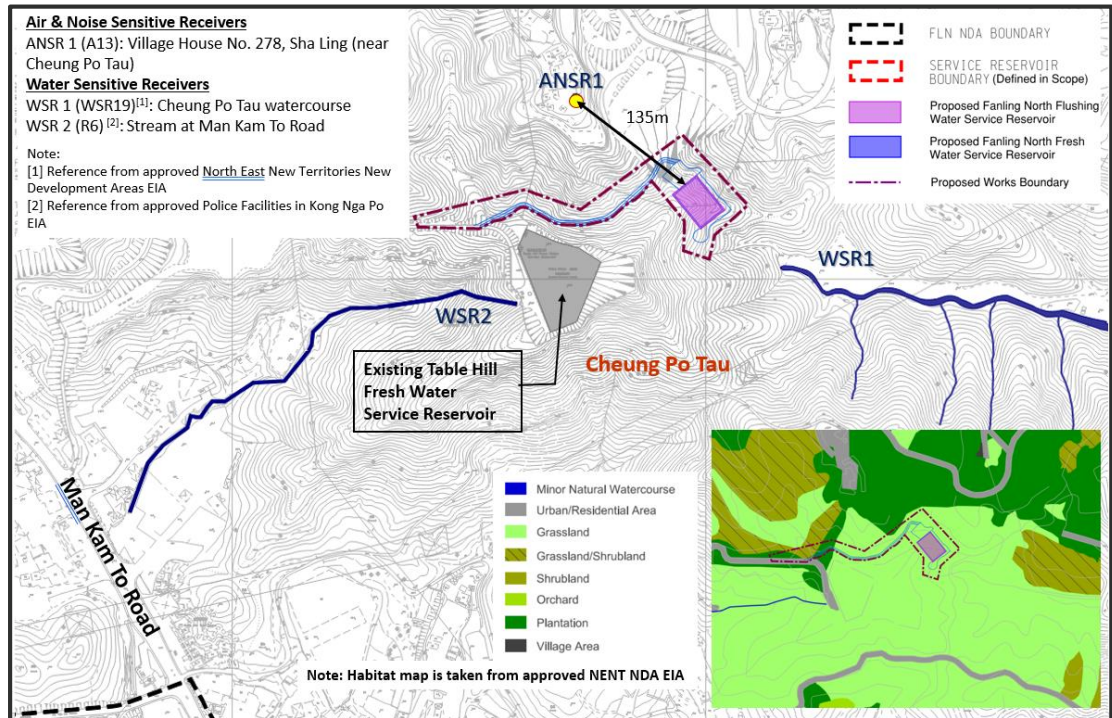


Figure 3-2 Proposed FLN FLWSR at Table Hill Location Plan



3.1.2 Referring to Section 6.1 of the EIAO-TM, the definition of “material change” in the EIAO shall be used for a material change to a DP. The material change refers to significant changes only. As a matter of principle, an environmental impact is considered to be adverse if any factor listed in Annex 3 applies and the criteria in Annexes 4 to 10 of the EIAO-TM may be violated. As a general rule, changes under the following circumstances are considered as material changes to a DP. An evaluation against Section 6.1 of the EIAO-TM for the newly proposed FLN FLWSR location at Table Hill is shown in **Table 3-1**.

Table 3-1 Evaluation Against Section 6.1 of the EIAO-TM

EVALUATION CRITERIA	PROJECT DESCRIPTION	IS IT A MATERIAL CHANGE?
<p>(a) a change to physical alignment, layout or design of the project causing an environmental impact likely to affect existing or planned community, ecologically important areas or sites of cultural heritage;</p>	<p>The originally proposed FLN FLWSR at Tong Hang will be relocated to Table Hill, which is adjacent to the existing TBHFWSR. Both are located at hillside area which is currently covered by grassland/ shrubland. Small patches of disturbed grassland of low ecological value will be lost due to the proposed works.</p> <p>Based on the ecological appraisal carried out in Oct/Nov 2020, May to Aug 2021 and Nov 21, fern <i>Brainea insignis</i> were found in exposed grassland and plantation edge. Transplantation, if needed, shall be carried out before construction. Transplantation proposal, if needed based on the detailed survey, will be submitted to EPD and AFCD for agreement prior to construction of service reservoir.</p> <p>Few village houses at Cheung Po Tau (nearest about 135 m) are identified near to the newly proposed FLN FLWSR location at Table Hill. When compared to the originally proposed FLN FLWSR location at Tong Hang, the nearest village house at Tong Hang Tung Chuen is about 85 m.</p>	<p>The habitat nature and size of the originally and newly proposed locations of the FLN FLWSR are similar in nature.</p> <p>Construction methodology will remain the same as proposed in EIA report.</p> <p>With the implementation of mitigation measures in place, violation of criteria in this technical memorandum is not anticipated. No material change is expected.</p>
<p>(b) a physical change resulting in an increase in the extent of reclamation or dredging affecting water flow or quality likely to affect ecologically important areas, or disrupting sites of cultural heritage;</p>	<p>The newly proposed FLN FLWSR location at Table Hill will not involve any reclamation or dredging works.</p>	<p>N/A</p>
<p>(c) an increase in pollution emissions or discharges or waste generation likely to violate guidelines or criteria in this technical memorandum without mitigation measures in place;</p>	<p>The newly proposed FLN FLWSR location at Table Hill will not induce increase in pollution emissions or discharges or waste generation.</p> <p>Dust, noise, water quality and waste management can be mitigated properly by</p>	<p>With the implementation of mitigation measures in place, violation of criteria in this technical memorandum is not</p>

EVALUATION CRITERIA	PROJECT DESCRIPTION	IS IT A MATERIAL CHANGE?
	relevant regulations, guidelines and good site practices.	anticipated. No material change is expected.
(d) an increase in throughput or scale of the project leading to physical additions or alterations that are likely to violate the guidelines or criteria in this technical memorandum without mitigation measures in place; or	The newly proposed FLN FLWSR location at Table Hill will not induce increase in throughput or scale of the project leading to physical additions or alterations.	N/A
(e) a change resulting in physical works that are likely to affect a rare, endangered or protected species, or an important ecological habitat, or a site of cultural heritage.	Based on the ecological appraisal carried out in Oct/Nov 2020, May to Aug 2021 and Nov 2021, fern <i>Brainea insignis</i> were found in exposed grassland and plantation edge. Transplantation, if needed, shall be carried out before construction. Transplantation proposal, if needed based on the detailed survey, will be submitted to EPD and AFCD for agreement prior to construction of service reservoir.	With the implementation of mitigation measures in place, violation of criteria in this technical memorandum is not anticipated. No material change is expected.

3.1.3 As the results of these changes as appropriate, in accordance with the conditions attached to the EP and the requirements of the EIAO, to determine the effect of the changes and to verify that after the implementation of the recommended mitigation measures, the environmental impact is not greater than that predicted in the approved EIA Report. It is then appropriate to obtain the consent of the Director of Environmental Protection to the changes by applying for a change to the conditions in the EP.

3.1.4 The proposed FLN FLWSR will be constructed on an existing hillock at Table Hill. The proposed construction work will involve excavation, site formation, construction of structure, E&M installation and finishing and landscaping works. The proposed construction method is similar to the originally proposed FLN FLWSR at Tong Hang as stated in the NENT NDAs EIA report. The following section is to identify the potential environmental impacts to determine whether the environmental performance requirements in the approved EIA report can be met with equivalent or additional measures.

3.2 Air Quality

3.2.1 The construction method of the proposed FLN FLWSR at Table Hill is similar to the proposed FLN FWSR as stated in the NENT NDAs EIA. The distance to the ASR is further away to the proposed FLN FLWSR and major roads than the original location at Tong Hang. Thus, the potential fugitive dust impact generated from the proposed FLN FLWSR is similar to the proposed FLN FWSR. It is considered that NENT NDAs EIA findings are considered applicable. Referring to air quality assessment of approved NENT NDAs EIA report, the potential dust impact from other construction activities such as the utilities works, building and landscape works within the two NDAs is considered to be minor. With the implementation of mitigation measures, the predicted total suspended particulates (TSP) concentrations at the identified Air Sensitive Receivers (ASRs) would comply with the respective criteria. There will be no adverse residual air quality impacts during construction phase. No potential dust impact nor odour emission during the operation of the FLN FLWSR at Table Hill is

anticipated.

Mitigation Measures

3.2.2 In order to reduce the dust impact and achieve compliance with TSP criteria at ASRs, watering in all works areas once per hour during working hours (7:00 am – 7:00 pm) would be required in accordance with the Air Pollution Control (Construction Dust) Regulation. As stated in Section 3.8.1 of NENT NDAs EIA report, dust suppression measures should also be incorporated by the contractor to control the dust nuisance throughout the construction phase. In addition, the contractor shall follow the legislation, technical circulars and guidelines as shown below:

- Air Pollution Control (Non-road Mobile Machinery)(Emission) Regulation;
- Air Pollution Control (Fuel Restriction) Regulations (i.e. using liquid fuel with a sulphur content of less than 0.005% by weight);
- Recommended Pollution Control Clauses for Construction Contracts;
- DEVB's TC no. 13/2020, Timely Application of Temporary Electricity and Water Supply for Public Works Contracts and Wider Use of Electric Vehicles in Public Works Contracts; and
- DEVB's TC No.1/2015, Emissions Control of NRMM in Capital Works Contracts of Public Works

3.2.3 The mentioned requirements should be incorporated into the contract specification for the civil work. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.

3.3 Noise

3.3.1 The construction method of the proposed FLN FLWSR at Table Hill is similar to the proposed FLN FWSR as stated in the NENT NDAs EIA. Referring to the noise assessment of approved NENT NDAs EIA report, the major construction activity of service reservoir will involve the use of powered mechanical equipment (PME) including bulldozers, rock drill, air compressor, etc. The potential noise impact generated from the proposed FLN FLWSR is similar to the proposed FLN FWSR. It is considered that NENT NDAs EIA findings are considered applicable. With the implementation of mitigation measures, the predicted noise levels at the identified Noise Sensitive Receivers (NSRs) at Tong Hang Tung Chuen, which is the nearest NSR to the proposed FLN FWSR at Tong Hang, would comply with the respective criteria. There will be no adverse residual noise impacts during construction phase.

3.3.2 According to our recent site visit and the review of the surrounding elements, there is a nearest NSR (Village house No. 279 at Cheung Po Tau) identified, which is about 135 m away from the proposed FLN FLWSR. Comparing to the nearest NSR (R8511) identified at the original FLWSR at Tong Hang, which is about 85 m away from the original FLWSR, the nearest NSR at Table Hill is much far away from the construction noise source. Therefore, the predicted noise levels at the identified NSR nearest to the proposed FLWSR at Table Hill could also comply with the respective criteria, with the implementation of the same mitigation measures. There will be no adverse residual noise impact during construction phase at Table Hill.

3.3.3 There would not be any potential noise source generated from the proposed FLN FLWSR during operation phase. Therefore, fixed noise impact is not expected during operation phase.

Mitigation Measures

3.3.4 With the implementation of practical mitigation measures including good site management practices, use of site hoarding, use of movable noise barrier, acoustic mat and full enclosure, use of “quiet” plant and working method as recommended in the approved NENT NDAs EIA report, adverse construction noise impacts from the Project is not anticipated. These requirements should be incorporated into the contract specification for the civil work. The noise levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.

3.4 Water Quality

3.4.1 The nearest sensitive receiver (WSR1 – Cheung Po Tau watercourse) is identified. It is a natural stream with approximately 170 m in length located downstream to the proposed FLN FLWSR at Table Hill. Construction site runoff would come from the works site during construction. The surface runoff might be polluted by:

- Runoff and erosion from site surfaces, drainage channels, earth working areas and stockpiles;
- Bentonite slurries and other grouting and cement materials;
- Wash water from dust suppression sprays and wheel washing facilities; and
- Fuel, oil, solvents and lubricants from maintenance of construction machinery and equipment.

3.4.2 During operation stage, the surface runoff of the service reservoir will be drained directly into the local drainage system. There will be no sewage generated during the operation stage, as the service reservoir is unmanned.

3.4.3 With concern of the aesthetic issue of colourant in the reclaimed water, overflow at the FLWSR to nearby drainage system and watercourses shall be prohibited.

3.4.4 The top water level of the FLWSR shall be properly interlocked with the pump operation at Shek Wu Hui Effluent Polishing Plant to avoid overflowing of the FLWSR. To deal with emergency overflow case, an overflow pipe would be connected to the sewerage network at Man Kam To Road. Thus, there is no potential water quality impact when operating and maintaining the reservoirs. Washwater generated from annual maintenance of the reservoirs will be expected. The FLWSR would be separated into two compartments to facilitate the operation and maintenance. Maintenance cleaning will be scheduled when the flushing water storage in one of the compartments become empty before cleaning. The other compartment will continue in operation for flushing water supply. The washed water will be drained down to washout pipe and further discharged downstream to the sewerage network at Man Kam To Road. Thus, no significant implication on the sewerage system is anticipated. With an implementation of proper cleaning procedures, the washwater from the FLWSR will be discharged to the sewerage network at Man Kam To Road. Water quality impacts during the operation phase is minimal.

Mitigation Measures

3.4.5 Recommendations on good site practices have been proposed in the NENT NDAs EIA report in order to minimise/avoid the water quality impact. In accordance with the Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94), construction phase mitigation measures should be provided. By adopting the mitigation measures with best management practices (please refer to the Section 5.7.1 of NENT NDAs EIA report), it is anticipated that the impacts of runoff from the construction site will be reduced to satisfactory levels before discharges.

- 3.4.6 In view that the Project site at Table Hill is surrounded by water sensitive area, regular site inspections and water quality monitoring should be undertaken during the construction to ensure that the recommended mitigation measures are properly implemented. A WPCO license should be obtained if there is any construction drainage discharge. Self-monitoring and reporting should be carried out for monitoring the construction drainage discharge in accordance with the WPCO license.

3.5 Waste Management

- 3.5.1 Construction of service reservoirs will potentially result in the generation of waste. Typical waste types associated with the above activities include site clearance waste, excavated materials, construction and demolition (C&D) materials, chemical wastes, general refuse and sewage. Site clearance waste will be generated mainly from tree felling and site clearance of existing ground surface which consists of broken concrete, non-inert portion, broken asphalt and top soil; while the excavated material is defined as inert virgin material removed from the ground and sub-surface which is generated during site formation.
- 3.5.2 According to the latest FLN NDA flushing water demand and the discussion with WSD, the volume of FLN FLWSR is designed at 6,153m³ (44m x 29m x 4.82m), which is about the same as the original planned in NENT NDAs study of 6,000m³ (50m x 35m x 3.43m). Hence, the quantities of inert C&D materials, non-inert C&D materials and general wastes to be generated during construction of the newly proposed FLN FLWSR location at Table Hill will be very similar to the originally proposed FLN FLWSR at Tong Hang. The handling arrangement will also be similar to the recommendations in the Table 7.9 of the NENT EIA report.

Mitigation Measures

- 3.5.3 Measures, including the opportunity for on-site sorting, reuse of excavated fill materials, etc., shall follow the recommendations of the NENT NDAs EIA report (please refer to Section 7.5 and Table 7.9 of NENT NDAs EIA) to minimise the surplus materials to be disposed. With the implementation of mitigation measures and proper waste management practices for handling, transportations and disposal of identified C&D materials and other waste arising from the Project, no residual impact is expected during the construction phase of the Project. As the proposed FLWSR will be unmanned, it is expected that there would be limited quantities of general refuse and chemical waste to be generated from regular checking and maintenance during the operation of the Project and will be properly handled by licensed chemical waste collectors and reputable waste collector.
- 3.5.4 The recommended mitigation measures will be included in the specification of the Works Contract. Auditing should be carried out periodically to determine if waste is being managed in accordance with prescribed waste management procedures and the Environmental Management Plan (EMP). The audit should examine all aspects of waste management including waste generation, storage, recycling, treatment, transportation, and disposal. The general site inspections including waste management issues will be undertaken weekly by the Engineer to check all construction activities for compliance with all appropriate environmental protection and pollution control measures, including those set up in the EMP.

3.6 Terrestrial Ecology

Review of Ecological Baseline Conditions at Table Hill and Tong Hang

- 3.6.1 The proposed FLN FLWSR will be relocated from Tong Hang site to Table Hill which is immediately east of the existing TBHFLWSR. The proposed FLN FLWSR will be located in grassland, whilst some associated infrastructural works (e.g. new man-made slopes,

retaining structures and maintenance access road, etc.) will slightly encroach upon the edges of upland plantation and the existing access road.

- 3.6.2 Secondary woodland at Tong Hang Site previously rated as having “moderate ecological value” in the EIA can be preserved due to the change of the location of the proposed FLWSR from Tong Hang to Table Hill. The works areas for the proposed amendments (i.e. FLN FLWSR) under this Study only comprises habitats predominantly grassland of low-to-moderate ecological value, and some minor areas of plantation and urban areas of low-to-moderate ecological value and low ecological value respectively. The overall value of habitats to be affected by the proposed FLN FLWSR is lower than those affected by the approved scheme in the NENT NDAs EIA. Ecological field appraisal has been conducted between November 2020 and May to August 2021, and November 2021 in accordance to the agreed ecological appraisal methodology paper submitted in May 2021. A review of the changes in ecological impacts due to the proposed amendments is presented below.

Ecological Surveys

- 3.6.3 A preliminary ecological survey was conducted in November 2020 at the Project site at Table Hill and along the proposed alignment of main laying works for the current Study. In addition to the preliminary ecological survey conducted in November 2020, ecological surveys were also conducted during May and November 2021 to cover both the wet and dry season periods. In general, methodologies for terrestrial and freshwater ecological surveys will follow EIAO Guidance Note 10/2010.
- 3.6.4 **Table 3-2** and **Table 3-3** present the proposed survey programme for ecological impact assessment for the Project.

Table 3-2 Schedule of Habitat and Vegetation Surveys

Survey Time	2020	2021						
	Nov	May	Jun	Jul	Aug	Sep	Oct	Nov
Habitat & Vegetation Survey	✓	✓	✓	✓	✓	✓	✓	-

Table 3-3 Schedule of Fauna Surveys

Survey Time	Fauna Group	2020	2021						
		Nov	May	Jun	Jul	Aug	Sep	Oct	Nov
Day Survey	Mammal	✓	✓	✓	✓	✓	-	-	✓
	Bird	✓	✓	✓	✓	✓	-	-	✓
	Herpetofauna	✓	✓	✓	✓	✓	-	-	✓
	Butterfly	✓	✓	✓	✓	✓	-	-	✓
	Dragonfly	✓	✓	✓	✓	✓	-	-	✓
	Aquatic fauna	✓	✓	✓	✓	✓	-	-	-
Night Survey	Mammal	✓	✓	✓	✓	✓	-	-	✓
	Birds	✓	✓	✓	✓	✓	-	-	✓
	Herpetofauna	✓	✓	✓	✓	✓	-	-	✓

Habitats and Flora

- 3.6.5 The proposed FLN FLWSR at Table Hill will be situated immediately east of the existing TBHFLWSR (see **Figure 3-2**). The Project Site at Table Hill is dominated by typical uphill grassland. It was observed during field appraisal (October/November 2020) that approximately half of the site (the southern portion) was burnt by hill fire after Chong Yang Festival (**Figure 3-3**). The Project Site at Table Hill is in close proximity to graves on the hillsides, and it is believed that the area has been chronically disturbed by anthropogenic

hill fire due to grave-sweeping activities.

Figure 3-3 The Condition of the Proposed FLN FLWSR at Table Hill after Chong Yang Festival



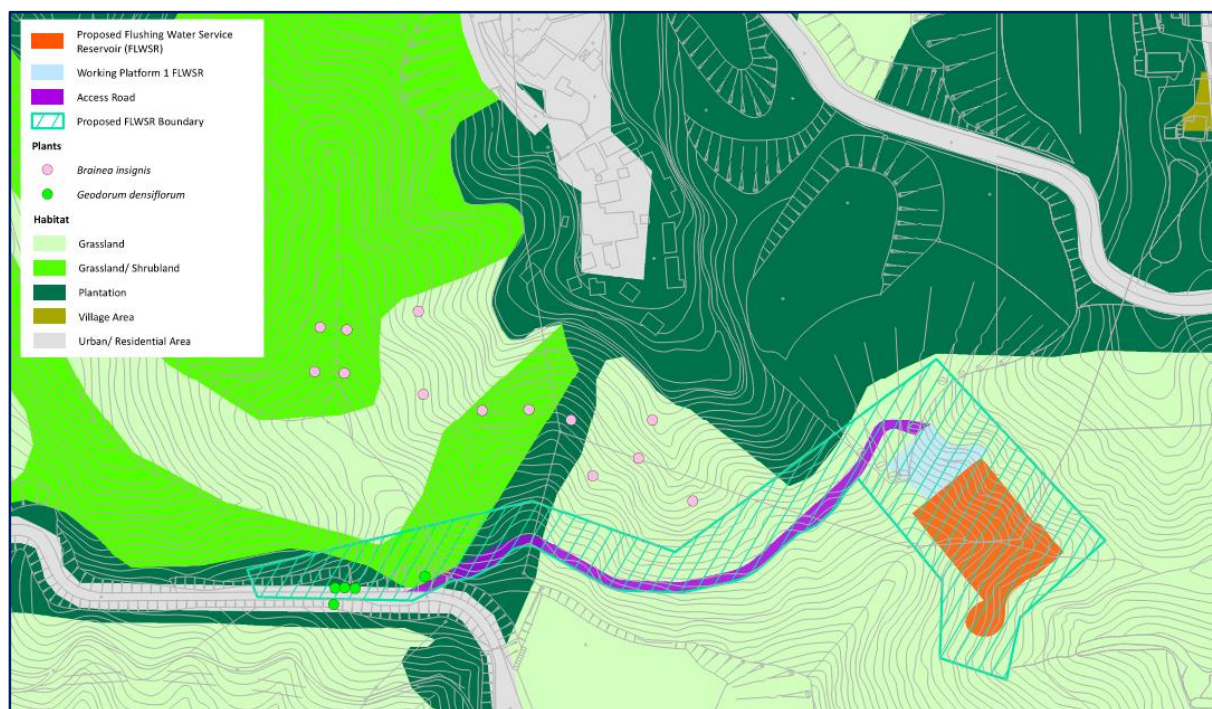
3.6.6 The Project Site is inaccessible as it is located on hill slope and surrounded by some barbed wire and overhead electric cables. A broad review on vegetation and habitats was conducted based on the field appraisal (Nov 20 – Nov 21) along Kong Nga Po Road and along the access road leading to the Project Site at Table Hill (supplement with the drone survey near to the Project Site). Most of the plant species recorded are common and widespread in Hong Kong. A young tree species of *Canthium diocum* was recorded in the downslope area adjacent to Kong Nga Po Road and away from the Project Site. It is classified as “Vulnerable” in IUCN Red List based on the assessment of its range in Sri Lanka but is regarded as Common by AFCD (2009).

3.6.7 Two plant species of conservation importance, including the fern *Brainea insignis* and the orchid *Geodorum densiflorum* were recorded. The fern *Brainea insignis* was commonly recorded in exposed grassland and plantation edge during the site appraisal. It is considered as a Category II protected species in China. The orchid species *G. densiflorum* is a native species, locally protected by Cap. 96A and Cap. 586. All identified fern *Brainea insignis* are located outside the proposed FLN FLWSR boundary while 4 nos. of the orchid *Geodorum densiflorum* are outside the direct footprint of proposed access road but within the proposed FLWSR boundary (

3.6.8 **Figure** 3-4 refers).

3.6.9 Two native orchid species of conservation importance, *Pecteilis susannae* and *Spathoglottis pubescens* were recorded along the access road leading to the Table Hill FWSR during the EIA study which is approximately 300 m from the proposed FLN FLWSR site. These native orchid are not observed within the 500m of the Study Area during the appraisal period.

Figure 3-4 Location of Plant Species of Conservation Importance (Nov 2020 – Aug 2021)



Fauna

- 3.6.10 According to the approved NENT NDAs EIA report, Grey Nightjar was recorded in upland grassland (a suitable breeding habitat) near Cheung Po Tau and Wa Shan. It was found in the breeding season close to the proposed Freshwater Service Area in FLN Area A3-1. This species nests on the ground in grassland and grassland/shrubland and may have a preference for regenerating burnt areas, as many of the observations have come from such areas (M.R. Leven pers. obs.). It is a nocturnal species and roosts/rests during the day. It relies on camouflage when roosting and nesting and will tolerate close approach by people during the day. The appraisal period has covered the breeding season of Grey Nightjar (May to Aug 21) and concluded that it is not a breeding site of the bird species within the 500 m of the Study Area.
- 3.6.11 Based on the field appraisal, approximately 35 bird species were recorded within the 500 m of the Study Area. All are abundant or common in Hong Kong (AFCD 2020). Black Kite *Milvus migrans*, which is considered of Regional Concern based on the restrictedness of roosting and/or breeding site, was recorded soaring above the Study Area. However, no roosting and/or breeding site was recorded within the 500 m of the Study Area. Collared Crow *Corvus torquatus*, which is considered of Local Concern (Fellowes et al. 2002), was occasionally recorded perching within the 500 m of the Study Area.
- 3.6.12 Approximately 47 butterfly species were recorded within the 500 m of the Study Area. Most of them are Common or Very Common (AFCD 2020). Three species recorded, Forget-me-not *Catochrysops Strabo*, Metallic Cerulean *Jamides alecto* and Courtesan *Euripus nyctelius* are considered to be Very Rare (AFCD 2020). One species recorded, Swallowtail *Papilio xuthus*, is considered to be Rare (AFCD 2020). Five species recorded, Plains Cupid *Chilades pandava*, Common Sergeant *Athyma perius*, Gaudy Baron *Euthalia lubentina*, Painted Jezebel *Delias hyaprete* and Danaid Egg-fly *Hypolimnas misippus* are considered to be Uncommon (AFCD 2020). Danaid Egg-fly is also considered of Local Concern (Fellowes et al. 2002).

3.6.13 A total of 11 dragonfly species were recorded. All are abundant or common in Hong Kong (AFCD 2020). They were recorded within the 500 m of the Study Area. No aquatic fauna species was recorded from the transect surveys.

3.6.14 A total of 3 amphibian species and 5 reptile species were recorded within the 500 m of the Study Area. All are widely distributed in Hong Kong (AFCD 2020). Four-clawed Gecko *Gehyra mutilata*, which is considered of Vulnerable (RLCV 2016) in China, was occasionally recorded at the roadside of firing range adjacent to the Project Site.

Changes in Direct and Indirect Ecological Impacts

Direct Ecological Impacts

3.6.15 A broad comparison of the works footprints between the original EIA proposal and the proposed amendments is presented below:

Table 3-4 Broad Comparison Works Footprints of Proposed Amendments

	IN NENT NDA EIA REPORT (ESTIMATED FROM THE EIA REPORT ¹) FLWSR (TONG HANG)	PROPOSED AMENDMENTS UNDER THIS STUDY FLWSR (TABLE HILL)
Direct Footprint (SRs)	Grassland: 0.11 ha Grassland/ Shrubland: 0.45 ha Secondary Woodland: 0.02 ha Urban/ Residential: 0.02 ha	Grassland: 0.21 ha
Associated Works (e.g. access road, slopes, etc.)	N/A	Working Platform: 0.06 ha (grassland) Access Road: ~0.12 ha (grassland: ~900m ² ; plantation: ~230m ² ; grassland/shrubland 50m ² & Urban Residential: 20 m ²) Other Works Area(s): 0.86 ha
Total Works Areas	At least 0.61 ha ¹	~1.25 ha

Notes:

1. The areas are estimated from the preliminary layout plan as shown in Figures 13.5t of the EIA Report.

3.6.16 Based on the estimation from the EIA Study, the original proposal for the FLN FLWSR at Tong Hang Site covered approximately 0.61 ha of a hillside area. The scheme presented in the EIA was very preliminary and any extra areas required for the associated works (e.g. access roads, slope works, etc.) were not known at the EIA stage. In the proposed amendments, the direct footprint of the FLN FLWSR will cover approximately 0.21 ha of the upland grassland. In addition to the SR footprint, there will be a working platform (~0.06 ha grassland) and an access road (~0.12 ha comprising predominately grassland) connecting the FLWSR to the existing road to the west of the SR site. The total works areas for the proposed FLN FLWSR under the proposed amendments would be approximately 1.25 ha, including approximately 0.86 ha of other works areas which would be temporarily disturbed during construction of the FLWSR and will be fully reinstated upon completion of the works. The permanent habitat loss under the proposed amendments, i.e. approximately 0.39 ha of the upland habitats which are predominately grassland is less than the total area (~0.61 ha) of upland habitats to be lost under the approved scheme in the EIA.

3.6.17 Secondary woodland at Tong Hang Site previously rated as having “moderate ecological value” in the EIA can be preserved due to the change of the location of the proposed FLWSR from Tong Hang to Table Hill. The works areas for the proposed amendments under this Study only comprises habitats predominantly grassland of low-to-moderate ecological

value, and some minor areas of plantation and urban areas of low-to-moderate ecological value and low ecological value respectively. The overall value of habitats to be affected by the proposed amendments is lower than those affected by the approved scheme in the EIA. The proposed amendments for the FLN FLWSR are considered to result in generally lower ecological impact from habitat loss.

- 3.6.18 Two plant species of conservation importance, including the fern *Brainea insignis* and the orchid *Geodorum densiflorum* recorded in low numbers within or near the proposed access road to the SRs of the proposed amendments. Any plant species of conservation importance affected by the proposed works under the proposed amendments will be transplanted to suitable receptor site before commencement of construction works. Detailed mitigation measures are provided below. With full implementation of mitigation measures, the ecological impacts arising from potential loss/ mortality of plant species of conservation importance are considered to be low.

Indirect Ecological Impacts

- 3.6.19 The fauna species recorded at or near the proposed FLN FLWSR at Table Hill are generally common species from the field appraisal conducted in 2020/2021. All fauna species recorded were highly transient and mobile. There were no roosting/nursery grounds or habitat dependent fauna species recorded from the recent appraisal. It is anticipated that disturbance impact to existing wildlife due to the proposed amendments to FLN FLWSR would be very low.
- 3.6.20 No permanent watercourses were identified within or near the proposed FLN FLWSR at Table Hill. As such, no significant ecological impact from induced water quality impact is anticipated.

Mitigation Measures

Mitigation Measures for FLN FLWSR at Tong Hang

- 3.6.21 There was no specific ecological mitigation measures for the approved scheme of FLN FLWSR in the EIA Study, except for the compensation of woodland for cumulative impacts on woodland loss proposed in the EIA. The potential loss of ~0.02 ha secondary woodland at Tong Hang Site was proposed to be mitigated from the provision of woodland compensation proposed in the EIA.

Mitigation Measures for the Proposed Amendments under this Project

- 3.6.22 Under the proposed amendments, no woodland compensation is required as no woodland will be affected for the proposed FLN FLWSR at Table Hill site. However, at least two plant species of conservation importance, including the fern *Brainea insignis* and the orchid *Geodorum densiflorum* recorded within or near the proposed access road to the SRs under in the amended scheme.
- 3.6.23 A detailed baseline plant survey shall be conducted prior to commencement of construction works to identify any plant species of conservation importance within or adjacent to the proposed works area. In-situ preservation of these species should be considered as far as feasible and practical. Transplantation to nearby upland areas is also considered feasible as mitigation.
- 3.6.24 Prior to commencement of construction works, a Transplantation Proposal shall be developed and agreed with relevant government authorities to mitigate impacts of affected floral specimens of conservation importance. The proposal shall be prepared by a qualified botanist/plant ecologist, and include a detailed baseline floral survey to identify the updated location(s), numbers, and conditions of all flora species of conservation importance within

the updated boundaries of works area(s) of the Project Site. The proposal shall also identify suitable receptor site(s) for transplantation of affected specimens which are considered to have relatively higher post-transplantation survival rate. The proposal shall also detail the methodologies for transplantation work and post-transplantation maintenance requirements.

- 3.6.25 With full implementation of mitigation measures provided in the EIA report and also in Sections 3.6.19 – 3.6.21 of this Report, the proposed amendments would not result in significant ecological impacts as compared with those recommended in the approved EIA report.
- 3.6.26 Under the proposed amendments, additional mitigation measures are required to be included in the amended EM&A Manual to mitigate potential loss/ mortality of plant species of conservation importance. These measures include:
- Conduct a detailed baseline plant survey prior to commencement of construction works to identify and confirm location(s) of plant species of conservation importance within or adjacent to the proposed works area of the proposed amendments to FLN FLWSR;
 - Prepare a detailed Transplantation Proposal to propose methodologies for transplantation of the affected plant species of conservation importance and the maintenance requirements after transplantation; and
 - Carry out transplantation work including maintenance work as required.

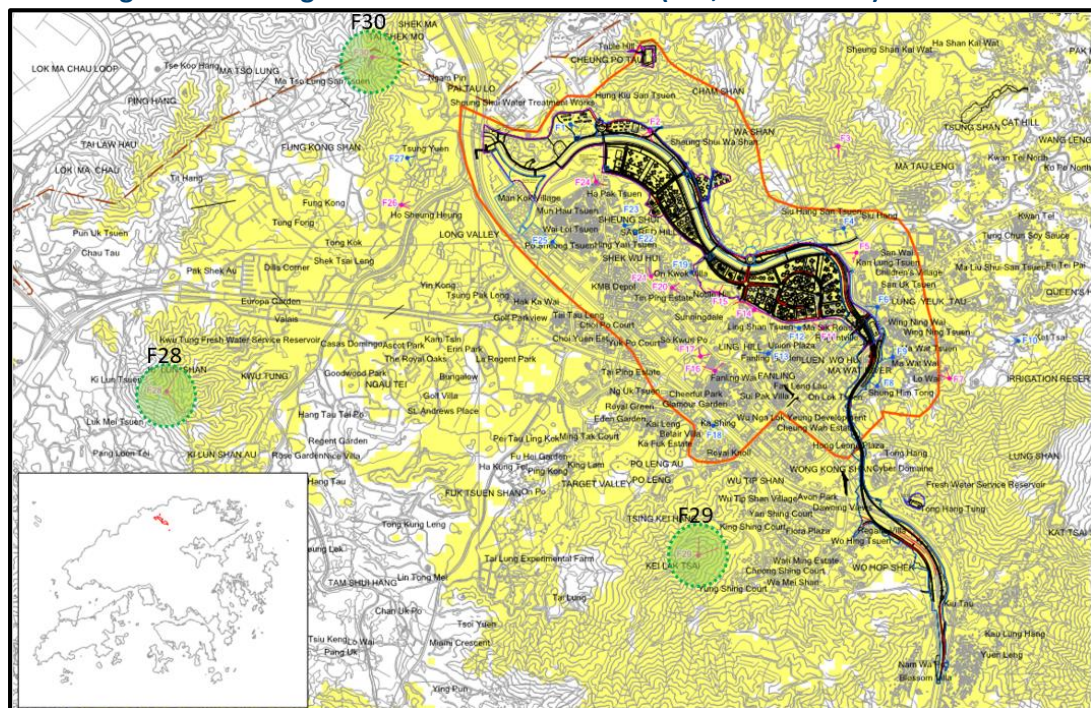
3.7 Landscape and Visual

- 3.7.1 Cut/fill works will be required for the proposed FLN FLWSR at Table Hill adjacent to the proposed FLN FWSR. The Landscape and Visual impact assessment based on the preliminary design of the FLN FWSR carried out in the NENT NDAs EIA (i.e. cut/fill slope formation will be approximately 24 m with the angle not exceeding 40°; the slope exposed after completion is 18 m due to some being underground). As the proposed FLN FLWSR at Table Hill is located adjacent to the proposed FLN FWSR with much smaller size and similar design, the potential impact generated from the proposed FLN FLWSR is similar to the proposed FLN FWSR. Therefore, it is considered that the findings in the NENT NDAs EIA are considered applicable to the proposed FLN FLWSR. Further detailed studies at the detailed design stage may further reduce the extent of site formation and minimise the landscape and visual impacts.

Visual Impact

- 3.7.2 Three (3) strategic VSRs have panoramic views which were taken in both KTN and FLN NDAs. These are F30 Tai Shek Mo Footpath and Lookout; F28 Ki Lun Shan Footpath; and F29 Kei Lak Tsai Footpath in Lam Tsuen Country Park (**Figure 3-5**).
- 3.7.3 Only F29 (Kei Lak Tsai Footpath in Lam Tsuen Country Park) can view the proposed FLN FWSR at Table Hill. Significance of combined NDA visual impact is based on the sensitivity assessment of the VSRs and the magnitude of change they might experience. The potential significances of the unmitigated visual impacts from FLN FWSR during the construction and operation are provided in Table 12.12.6 of the NENT NDAs EIA report. Significance of mitigated impacts during construction and at operation Day 1 and Year 10 are also presented in the NENT NDAs EIA report.

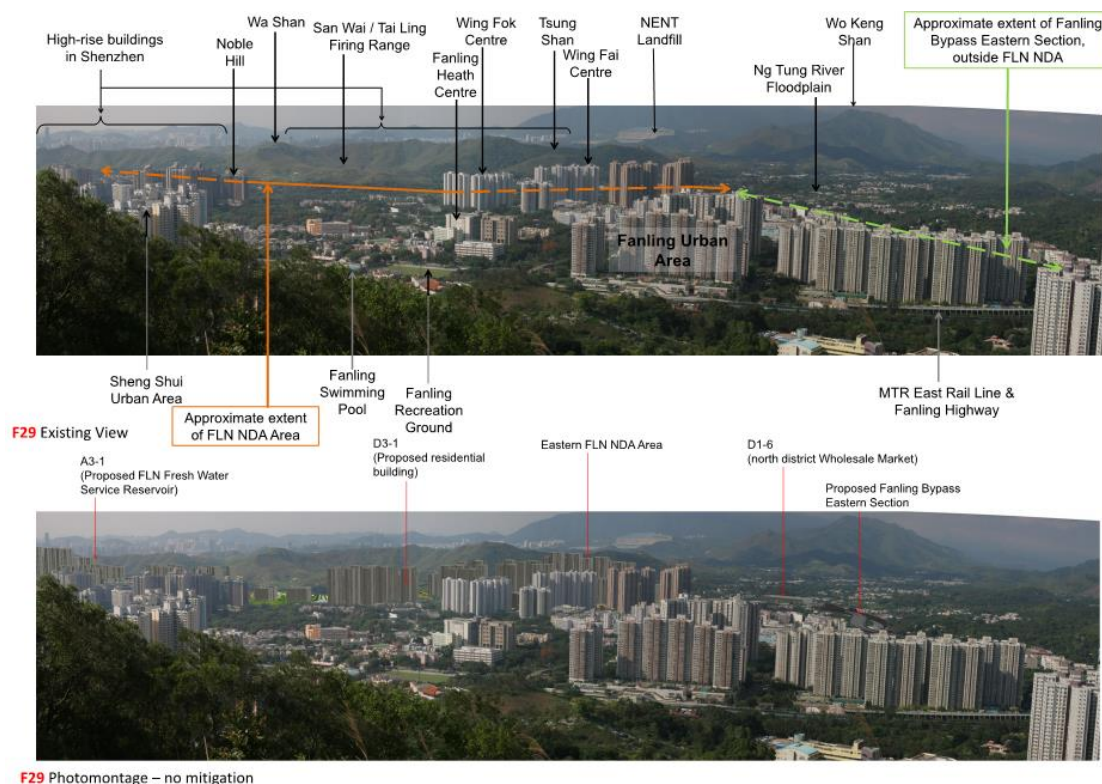
Figure 3-5 Strategic Visual Sensitive Receivers (F28, F29 and F30)



[https://www.epd.gov.hk/eia/register/report/eiareport/eia_2132013/eia/pdf/figure/figure_12-19-0.pdf]

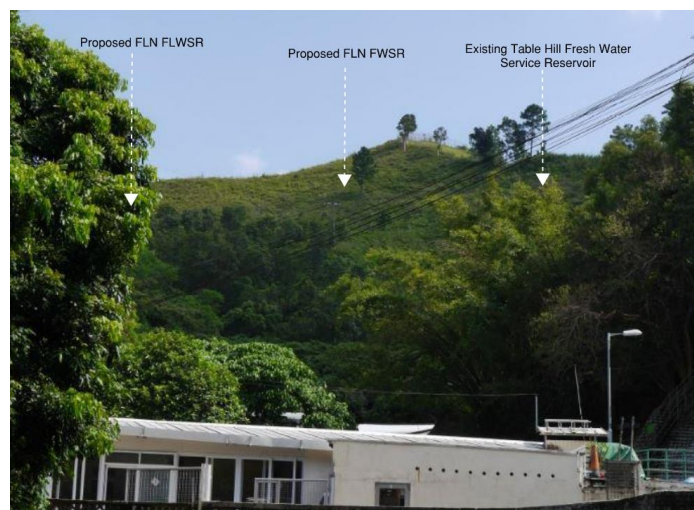
- 3.7.4 Existing view towards the FLN NDA from F29 Wu Tip Shan Lookout is shown below (Figure 3-6) extracted from Figure 12.23.15a of the approved NENT NDAs EIA report. This photomontage shows the existing view from the view point and the unmitigated view of FLN NDA, which helped to determine the magnitude of change rankings.
- 3.7.5 Referring to Figure 3-6, the hill of Table Hill is visible behind the urban area without the FLN Development. Photomontages show the unmitigated view at Day 1 of operation phase, the mass of new FLN NDA buildings will be generally visible to this VSR. This VSR will only get glimpse view to the proposed FLN FLWSR at Table Hill at far distance. The construction and operation of the proposed FLN FLWSR is not notable.
- 3.7.6 Based on recent walkover survey, the village houses along Kong Nga Po Road will be the potential VSR of the proposed FLN FLWSR. The existing view from no. 277 Sha Ling is shown in Figure 3-6. Although the ridgeline of Table Hill will be slightly reprofiled due to the construction of proposed FLN FLWSR, it is shielded by the existing trees and the VSR might have glimpse view of the proposed works. Besides that, the proposed FLN FLWSR is sunken underneath the ridgeline, thus, with the implementation of proposed mitigation measures as discussed below, the overall the magnitude of change is anticipated to be insignificant during construction and operation phases.
- 3.7.7 According to the approved NENT NDAs EIA report, visually sensitive receivers (VSRs) were selected considering locations that are either particularly visually sensitive or indicative of the visual impact for a number of locations that have been identified as VSRs and selecting the best representative area. It is noted that there was no VSR selected in the vicinity of and facing the proposed FLN FWSR in the approved NENT NDAs EIA report, this implies that the visual impact arising from the proposed FLN FWSR is insignificant.

Figure 3-6 Existing View Towards the FLN NDA from F29 Wu Tip Shan Lookout



[Source: Figure 12.23.15a - Photomontage from F29 Wu Tip Shan Lookout, looking towards FLN NDA (1 of 2)]

Figure 3-7 Existing View from No. 277 Sha Ling, Looking towards Proposed FLN FLWS



Mitigation Measures – Visual

3.7.8 Based on the sensitivity assessment of VSRs as described in Section 12.11 of the NENT NDAs EIA report and the magnitude of change described in Section 12.12.1 of the NENT NDAs EIA report, the potential significance of the unmitigated visual impacts during the construction and operation phases have been described in Table 12.10.3 of the methodology in the NENT NDAs EIA report. Residual impact significance is also determined in Section 12.12.2.2 of the NENT NDAs EIA report, considering the mitigation measures described in full in Section 12.9 of the NENT NDAs EIA report.

3.7.9 For full details of the construction and operation mitigation measures suggested in Table

12.9.1, refer to Section 12.9 of the NENT NDAs EIA report, but in principle key mitigation measures suggested to alleviate just visual impacts include MM2 Detailed Design – Visual, MM16 Screen Hoarding and MM17 Light Control. Other mitigation measures that allow for soft landscaping of areas and structures to improve visual amenity include MM6 Slope Landscaping, MM9 Vertical Greening, MM10 Green Roof, MM11 Screen Planting and MM12 Road Greening, and all these measures also confer an element of landscape impact mitigation due to their greening nature. Some mitigation measures that may be primarily considered to alleviate landscape impacts, such as MM4 Tree Protection & Preservation, MM5 Tree Transplantation, MM7 Compensatory Planting and MM8 Woodland Compensatory Planting, may also serve to alleviate visual impacts, by retaining or conferring a greening element to the view and therefore improving visual quality. Detailed architectural design of built elements will be carried out at a later stage and therefore the building forms and building mass shown in the photomontages for the proposed FLN FLWSR is subject to further refinement of design (e.g. of building forms, finishes and colours) visual impacts will be reduced. Mitigation measures would be implemented during operation of the development, such as soft landscaping, will actually start to be implemented during the construction stage of the Project.

Landscape Impact

- 3.7.10 The magnitude of change to FLN NDA landscape resources (LRs) and landscape character areas (LCAs) are detailed in Tables 12.8.3 and 12.8.4 (Figures 12.12.0-12.12.4 and 12.14.0-12.14.4) of the NENT NDAs EIA report.
- 3.7.11 Two LR are identified as located within the FLN FLWSR (Site A3-1 of the NENT NDAs EIA report)
- A small area of LR - Shrubland / Grassland Mosaic at Cham Shan and Wa Shan (FLR-8.3, please see NENT NDAs EIA report) located within the RODP in Site A3-1 in the NENT NDAs EIA report, which is the proposed for the FLN FWSR. The preliminary design of the reservoir and its access road suggested that the site formation work required would affect a small area of this LR (<1.0 ha).
 - A small area of LR - Rural Development Area in the North of FLN NDA (FLR-12.3, please see NENT NDAs EIA report) will be affected by Site A3-1 in the NENT NDAs EIA report, which is proposed as the FLN FWSR and its access road. The LR here is mainly composed of the existing Firing Range with FWSR underneath and its access road and has undergone some site formation already for the construction of these structures.

Mitigation Measures – Landscape

- 3.7.12 The highest proposed cut/ fill slopes will be 24 m with a maximum 40° for all slopes. The exposed slope at completion will be up to 18 m high as some of it will be underground. There will be some topography changes in this area as Figures 12.12.6 and 12.12.8 of the NENT NDAs EIA report help to illustrate. The existing vegetation in this area will also be lost and some demolition or removal of existing structures may be required during construction along with site formation. The magnitude of change to this LR type is considered to be intermediate at construction, mainly due to the topographical changes. During operation, this small area will be incompatible with the current LR unless mitigation designs such as green roof are implemented. The overall magnitude of change is considered to remain intermediate.
- 3.7.13 Although the area affected is relatively very small, the magnitude of change is considered intermediate given the landform changes (See Figures 12.12.6 and 12.12.8 of the NENT NDAs EIA report). This LR has medium sensitivity and prior to mitigation the impact

significance is moderate during construction and operation. Trees unavoidably affected by the project shall be transplanted as far as practicable in accordance with DEVB TC (W) No.4/2020 - Tree Preservation and the latest guidelines promulgated by Greening, Landscape and Tree Management Section of Development Bureau. Affected trees that are not suitable for transplantation and to be felled shall be compensated in not less than 1:1 in quantity and in accordance with DEVB TC (W) No.4/2020. Onsite compensation shall be prioritised.

- 3.7.14 Design of the reservoirs will be finalised under this Project to minimise changes to the land form and interference with natural terrain. Retaining walls should also be considered as well as cut slopes, to minimise landform changes for the road and reservoir construction. Earthworks and engineered slopes should be designed to be a visually interesting landform, compatible with surrounding landscape and to mimic the natural contouring and terrain. Landscaping of the reservoir roof and the surrounding reservoir structures will also help to mitigate the impact to the shrubland/grassland here (no trees will be planted on the roof itself) by creating a green vegetated area rather than hardscape surface. Planting of climbers to grow up vertical surfaces where appropriate could also soften any wall structures. By implementing all these measures as well as taking care to landscape any slopes that are formed and implement protection, preservation, transplantation and compensatory planting for trees, the impact on these LRs are considered to be reduced to slight during construction and operation day 1. With soft landscaping maturing and conferring greater mitigation by year 10 of operation, the impact is considered to be reduced to insignificant by year 10.

3.8 Cultural Heritage

Topography

- 3.8.1 The Study Area is located at the crest of Table Hill and to the east of the existing TBHFWSR at Cheung Po Tau, northern New Territories. The Study Area is, in general, a vegetated natural hillside facing north, east and south. Two man-made geotechnical features, Feature Nos. 3NW-C/C6 and 3NW-C/C28, are located within the Study Area. Feature No. 3NW-C/C6 is a vegetated 30° soil cut slope dipping towards northwest and is located at the western portion of the Study Area and adjacent to the existing TBHFWSR. Feature No. 3NW-C/C28 is a vegetated 25° soil cut slope facing north and is located at northern portion of the Study Area.
- 3.8.2 Elevation of the Study Area ranges from approximately +61mPD to +131mPD. According to digital terrain model (DTM) data obtained from the Lands Department, the Study Area is generally inclined at an angle of 30° to 40° with some local topographic depression. A number of natural drainage channels are also observed from the topographic map.

Geology

- 3.8.3 Based on the available ground investigation record within and in the vicinity of the Study Area, siltstone/sandstone, which may have been metamorphosed, is anticipated to underly the majority of the Study Area. Thickness of Grade V/IV material is anticipated to be approximately 15m at the southern portion of the Study Area. Increasing thickness of up to 22m of Grade V/IV material is anticipated towards the northeast portion of the Study Area. A corestone layer of Grade IV/III material of approximately 3m to 28m thick is present between the Grade V/IV material and engineering rockhead. Engineering rockhead is anticipated to be rising towards crest of Table Hill and is varying between +52mPD and +100mPD.

Superficial Geology

- 3.8.4 The solid geology of the study area mainly consists of two types of bedrock: Grade III/IV sedimentary or metasedimentary rock and Grade III or better rock of siltstone or metamorphic rock recovered.
- 3.8.5 The bedrock is usually covered with thick layer of soil. These soils are known as the saprolite which is a chemically weathered rock it is form in the lower zones of soil profiles and represent deep weathering of the bedrock surface, it is evaluated as having no archaeological potential.

Archaeology

- 3.8.6 No Site of Archaeological Interest listed by the Antiquities and Monuments Office (AMO) is identified at the newly proposed FLN FLWSR location at Table Hill, and no impact is therefore anticipated. Referring to the Cultural Heritage Assessment Area (CHAA) of the NENT NDAs EIA report, evaluation had been conducted based on the criteria for assigning levels of archaeological potential.
- 3.8.7 Referring to the Section 11.5.3.1 of the NENT NDAs EIA report, a mapping of the archaeological potential and their significance was established based on the factors for evaluation of archaeological potential and the criteria to assign for archaeological potential. It indicated that proposed location of FLN FLWSR was within the low archaeology potential area (Figure 11.10a&b of the NENT NDAs EIA report). Referring to the geology map, it indicated that the proposed FLN FLWSR at Table Hill was located within the metasiltstone and phyllite, with metasandstone area. In accordance to the approved NENT NDAs EIA report, the non-alluvium deposits area was considered to have low archaeological potential as it considered that archaeological remains may once have existed, but where the survival of such remains will have been significantly affected by past and/or present landuse or areas subject to erosion such as on upper hill slopes. Based on the historical aerial photos (from 1974-2018) and the land use records, the land use of the proposed FLN FLWSR at Table Hill remains unchanged. As a result, the findings indicate that the proposed FLN FLWSR location belongs to low archaeological potential.

Mitigation Measures

- 3.8.8 In accordance with NENT NDAs EIA report, for the areas with low archaeological potential, pursuant to the Antiquities and Monuments Ordinance, the construction contractor should inform the AMO immediately in case of discovery of antiquities or supposed antiquities during the course of soil excavation works at construction stage.

Built Heritage

- 3.8.9 Literature review supplemented by built heritage survey identified two Declared Monuments, two Grade 1 historic buildings, three Grade 2 historic buildings, seven Grade 3 historic buildings, two nil grade buildings, one Proposed Grade 1 historic building, 25 buildings and structures and 104 landscape features within the CHAA. Within the FLN NDA CHAA, no direct nor indirect impacts is anticipated for the built heritage items listed by the AMO and identified landscape features. No mitigation measure is required.

3.9 Land Contamination

- 3.9.1 The land contamination assessment has examined the potential contaminative landuses within the NENT NDAs and their potential impacts to future use. The assessment involved site appraisal, site investigation, assessment of contamination level, and health risk assessment for high natural background of arsenic detected in KTN.

- 3.9.2 The findings indicated that the newly proposed FLN FLWSR location is outside the significant potential for land contamination as stated in the EIA report (Appendix 8-1 of the NENT NDAs EIA report).
- 3.9.3 Historical aerial photos covering the Project site boundary of proposed FLN FLWSR were reviewed to evaluate any land use changes associated with potential contamination implication. The oldest aerial photo available dated back to 1974. Based on the historic photos, the land used in the works areas of proposed FLN FLWSR were natural hilltop slope since 1974 and no change in land use since then. The historical aerial photos showing major changes are shown in [Appendix 3.1](#) and the site visit photos are shown in [Appendix 3.2](#). As the no change in land use since then, it is considered that the newly proposed FLN FLWSR at Table Hill is not considered as a potentially contaminated area and no land contamination impact is expected.

4.0 CONCLUSION

- 4.1.1 Environmental review for the newly proposed FLN FLWSR at Table Hill has been carried out and is presented in **Section 3.0** of this Report based on the potential key environmental impacts to be generated from the works. The potential impacts are generally similar to those identified in the NENT NDAs EIA report. With the implementation of the mitigation measures, the environmental performance requirements in the approved NENT NDAs EIA report can be met with equivalent and additional measures. Therefore, it is considered applicable and proposed to apply for the Variation on Environmental Permit due to the relocation of the proposed FLN FLWSR from Tong Hang to Table Hill.

END OF TEXT

References

- AFCD. 2003. Rare and Precious Plants of Hong Kong. Agriculture, Fisheries and Conservation Department, HKSAR, Hong Kong. 234pp.
- AFCD. 2007. Flora of Hong Kong Vol. 1. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences. 329pp.
- AFCD. 2008. Flora of Hong Kong Vol. 2. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences. 352pp.
- AFCD. 2009. Flora of Hong Kong Vol. 3. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences. 352pp.
- AFCD. 2011. Flora of Hong Kong Vol. 4. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences. 379pp.
- AFCD. 2012. Checklist of Hong Kong Plants 2012. Agriculture, Fisheries and Conservation Department. The Government of the Hong Kong Special Administrative Region. 219pp.
- AFCD. 2018. Agriculture, Fisheries and Conservation Department Annual Report 2016-17.
- AFCD. 2020a. Hong Kong Biodiversity Database. Online database accessed from [http:// www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp](http://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp) on 26 Feb 2020.
- AFCD. 2020b. Hong Kong Herbarium Database. Online database accessed from <https://www.herbarium.gov.hk/> on 26 Feb 2020.
- Atkins China Limited. 1999. Environmental Impact Assessment for Route 9 between Tsing Yi and Cheung Sha Wan (EIA-025/1999).
- Barretto, G., Cribb, P. and Gale, S. 2011. The Wild Orchids of Hong Kong. Publications (Borneo) Kota Kinabalu. Kadoorie Farm & Botanical Garden.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). 2020. The CITES Appendices I, II and III. Accessed from <https://www.cites.org/eng/app/appendices.php> on 26 Feb 2020.
- Fellowes, J.R, M.W.N. Lau, D. Dudgeon, G.T. Reels, G.W.I. Ades, G.J. Carey, B.P.L. Chan, R.C. Kendrick, K.S. Lee, M.R. Leven, K.D.P. Wilson & Y.T. Yu. 2002. Wild animals to watch: Terrestrial and freshwater fauna of conservation importance in Hong Kong. *Memoirs Hong Kong Natural History Society* 25: 123–160.
- Hu, Q. M., Wu, T.L., Xia, N. H., Xing F. W., Lai, C.C. P., Yip, K. W. 2003. Rare and Precious Plants of Hong Kong. Agriculture, Fisheries and Conservation Department, The Government of the Hong Kong Special Administrative Region.
- IUCN. 2020. IUCN Red List of Threatened Species. Accessed from www.iucnredlist.org on 26 Feb 2020.
- Jiang, Z.-g., Jiang, J.-p., Wang, Y.-z., Zhang, E., Zhang, Y.-y., Li, L.-l., Xie, F., Cai, B., Cao, L., Zheng, G.-m., Dong, L., Zhang, Z.-w., Ding, P., Luo, Z.-h., Ding, C.-q., Ma, Z.-j., Tang, S.-h., Cao, W.-x., Li, C.-w., Hu, H.-j., Ma, Y., Wu, Y., Wang, Y.-x., Zhou, K.-y., Liu, S.-y., Chen, Y.-y., Li, J.-t., Feng, Z.-j., Wang, Y., Wang, B., Li, C., Song, X.-l., Cai, L., Zang, C.-x., Zeng, Y., Meng, Z.-b., Fang, H.-x. & Ping, X.-g. 2016. Red List of China's Vertebrates. *Biodiversity Science*, 24(5): 500–551.
- Karsen, S. J., Lau, M.W.N. & Bogadek, A. (1998). Hong Kong Amphibians and Reptiles (2nd Edition). Provisional Urban Council Hong Kong.
- Lee, W. T. C., Chau L. K. H. & Wu, S. H. (2003) Flora of Hong Kong Pteridophyta, Kadoorie Farm & Botanic Garden, Hong Kong.

Pang K.S., Yip, J.K.L. & Lai, P.C.C. 2011. A Review of the Status of the IUCN Red List of Threatened Plants in Hong Kong. AFCD Hong Kong Biodiversity Newsletter, Issue 20.

Qin HN, Yang Y, Dong SY, He Q, Jia Y, Zhao LN, Yu SX, Liu HY, Liu B, Yan

YH, et al. 2017. Threatened species list of China's higher plants.

Biodivers Sci. 25(7):696–744

Qin HN, Yang Y, Dong SY, He Q, Jia Y, Zhao LN, Yu SX, Liu HY, Liu B, Yan

YH, et al. 2017. Threatened species list of China's higher plants.

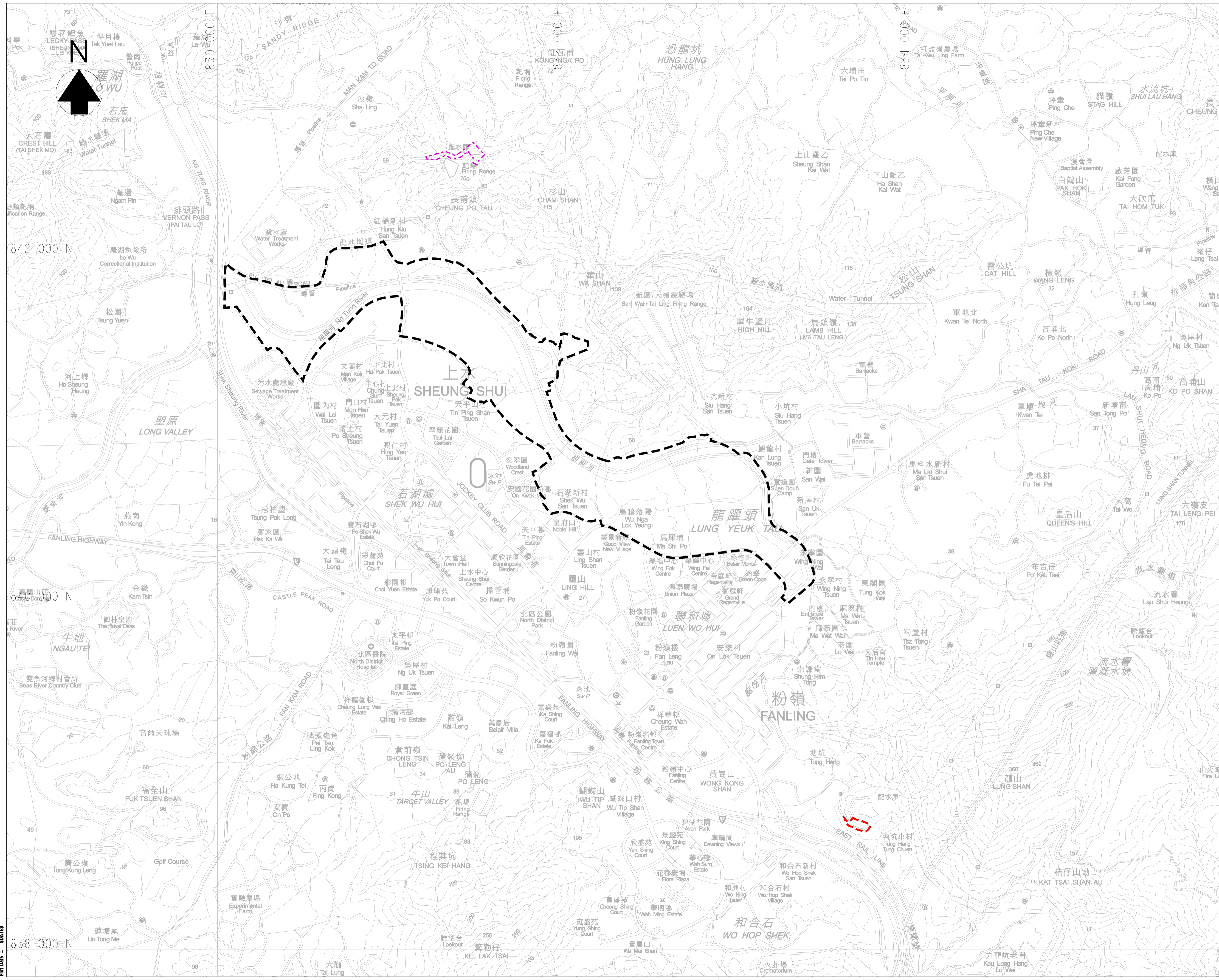
Biodivers Sci. 25(7):696–744

Qin, H. N., Yang, Y., Dong, S. Y., He, Q., Jia, Y., Zhao, L. N., Yu, S. X., Liu, H. Y., Liu, B., Yan, Y. H., Xiang, J. Y., Xia, N. H., Peng, H., Li, Z. Y., Zhang, Z. X., He, X. J., Yin, L. K., Lin, Y. L., Liu, Q. R., Hou, Y. T., Liu, Y., Liu, Q. X., Cao, W., Li, J. Q., Chen, S. L., Jin, X. H., Gao, T. G., Chen, W. L., Ma, H. Y., Geng, Y. Y., Jin, X. F., Chang, C. Y., Jiang, H., Cai, L., Zang, C. X., Wu, J. Y., Ye, J. F., Lai, Y. J., Liu, B., Lin, Q., W. & Xue, N. X. 2017. Threatened Species List of China's Higher Plants. Biodiversity Science, 25(7), 696-744.

Siu, G.L.P., 2000. Orchidaceae of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 137-147.

Xing, F.W., Ng, S.C. & Chau, L.K.C. 2000. Gymnosperms and angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Drawings



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- LEGEND 圖示**
- SERVICE RESERVOIR BOUNDARY (1) (DEFINED IN PROJECT SCOPE) 配水庫邊界 (原定項目範圍)
 - PROJECT BOUNDARY OF PROPOSED FLN FLUSHING WATER SERVICE RESERVOIR 擬議粉嶺北沖廁水配水庫項目邊界
 - FLN NDA BOUNDARY 粉嶺北新發展區邊界

NOTE 註:
 (1) This boundary includes the footprint of service reservoir only, no other associated works is included.
 此邊界僅包括配水庫的佔地面積, 不包括其他相關工程。

Revision	Date	Description	Initial
Initial	LB	LB	SZ
Date	09/20	09/20	09/20

Agreement No. **CE 21/2019 (WS)**

Agreement title
FRESH WATER AND FLUSHING WATER SERVICE RESERVOIRS AND ASSOCIATED WORKS IN FANLING NORTH - DESIGN AND CONSTRUCTION
 粉嶺北食水及沖廁水配水庫及相關工程 - 設計及建造

Figure title
LOCATION PLAN
 位置圖

Figure no.	Revision
406152 / B&V / VEP / 001	-

Scale
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 1 : 20000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

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Plot Date = \$DATES

CAD Filename = \$FILE\$

LEGEND 圖示

- PROJECT BOUNDARY OF PROPOSED FLN FLUSHING WATER SERVICE RESERVOIR
擬議粉嶺北沖廁水配水庫項目邊界
- FLN NDA BOUNDARY
粉嶺北新發展區邊界

Revision	Date	Description			Initial
Initial	LB	Designed	Checked	Drawn	Checked
Date	09/20	09/20	09/20	09/20	GC

Agreement No. CE 21/2019 (WS)

Agreement title
FRESH WATER AND FLUSHING WATER SERVICE RESERVOIRS AND ASSOCIATED WORKS IN FANLING NORTH - DESIGN AND CONSTRUCTION
 粉嶺北食水及沖廁水配水庫及相關工程 - 設計及建造

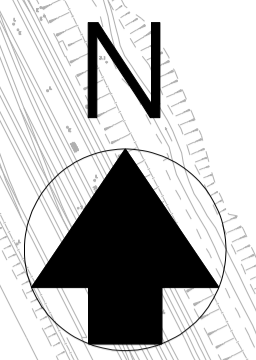
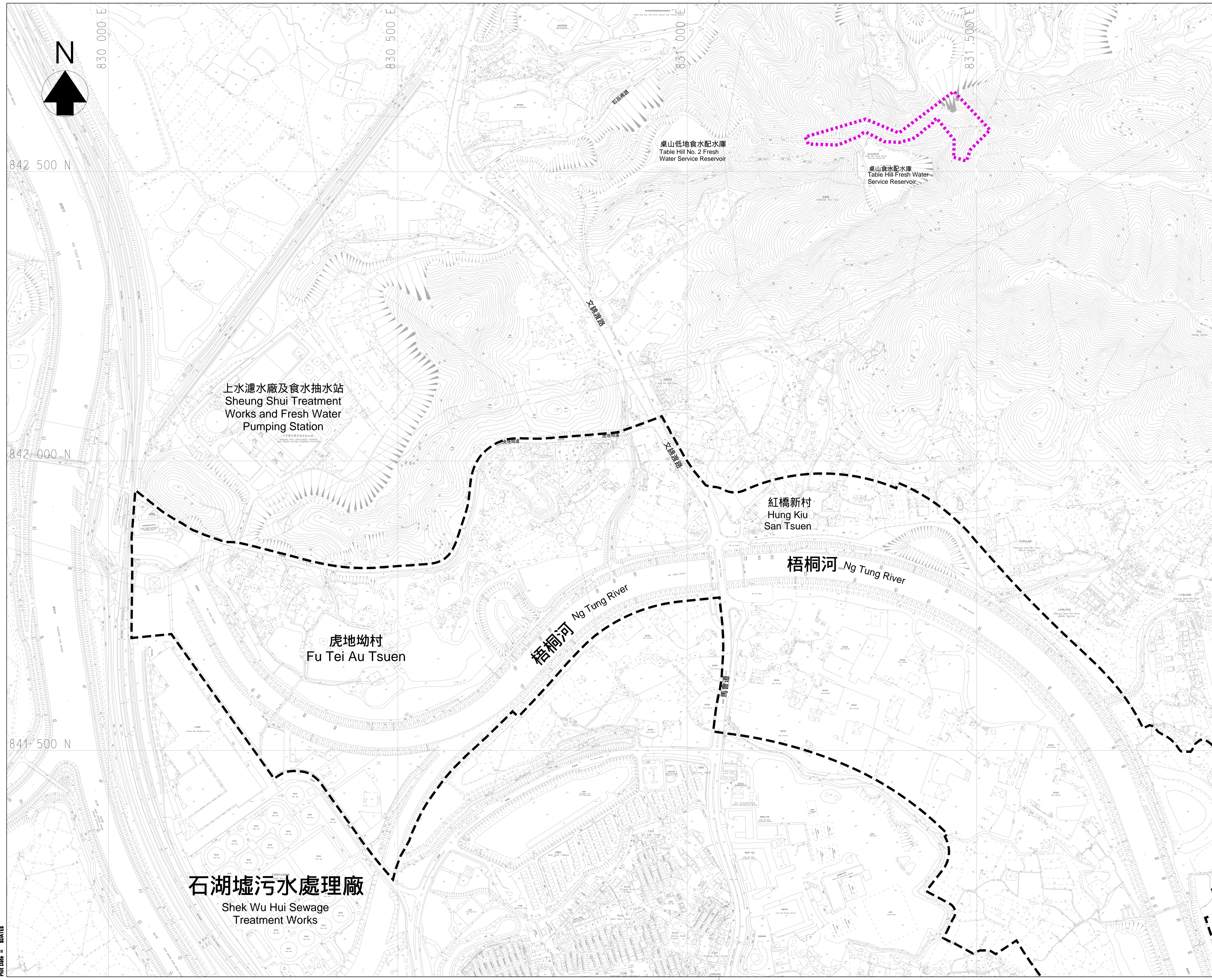
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 暫定的沖廁水配水庫位置圖

Figure no. 406152 / B&V / VEP / 002 Revision -

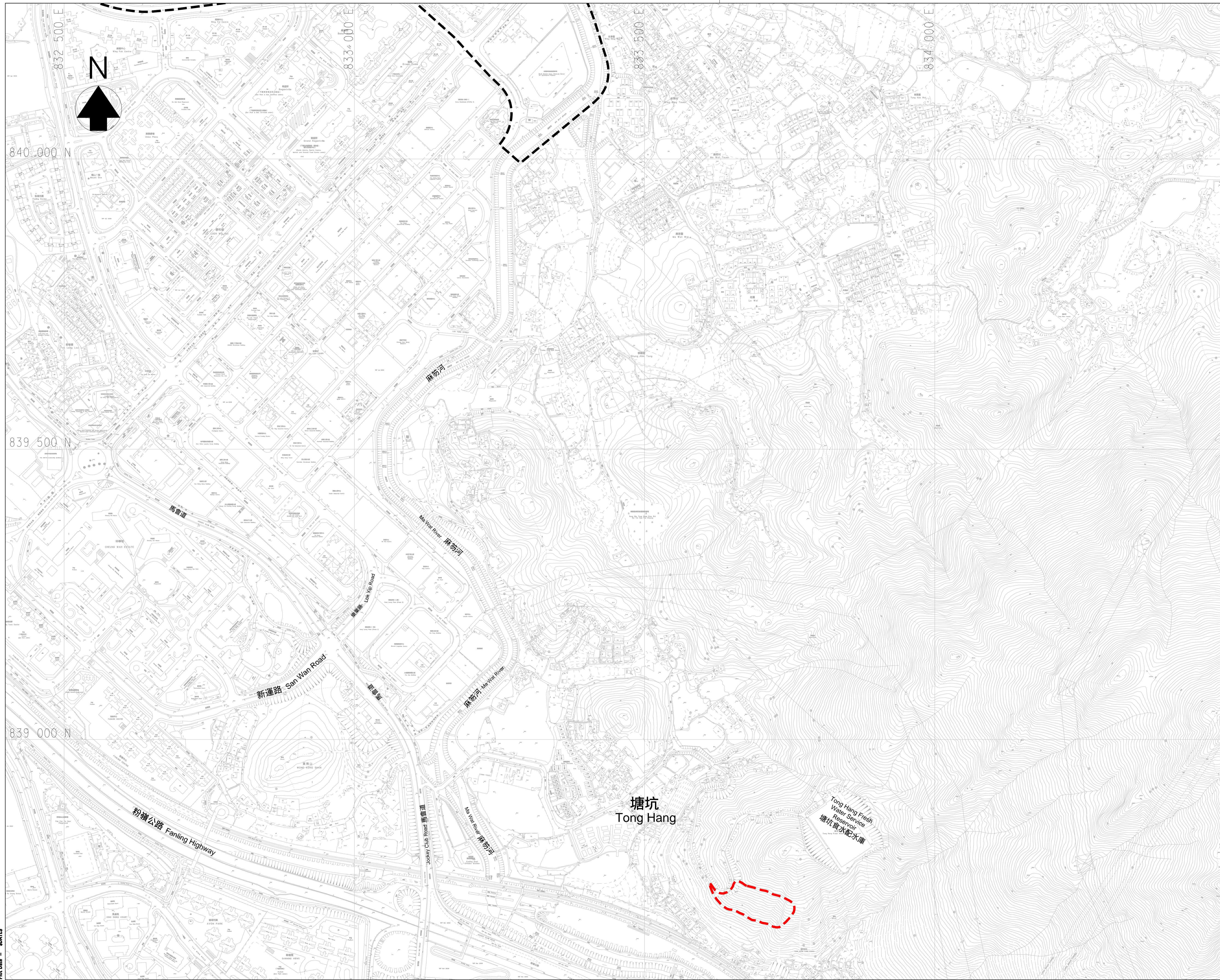
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- LEGEND 圖示**
- SERVICE RESERVOIR BOUNDARY (DEFINED IN PROJECT SCOPE)
配水庫邊界 (原定項目範圍)
 - FLN NDA BOUNDARY
粉嶺北新發展區邊界

NOTE 註:
 (1) This boundary includes the footprint of service reservoir only, no other associated works is included.
 此邊界僅包括配水庫的佔地面積, 不包括其他相關工程。

Revision	Date	Description			Initial
		Designed	Checked	Drawn	
Initial	LB	LB	SZ	GC	
Date	09/20	09/20	09/20	09/20	

Agreement No. **CE 21/2019 (WS)**

Agreement title
FRESH WATER AND FLUSHING WATER SERVICE RESERVOIRS AND ASSOCIATED WORKS IN FANLING NORTH - DESIGN AND CONSTRUCTION
 粉嶺北食水及沖廁水配水庫及相關工程 - 設計及建造

Figure title
LOCATION PLAN OF FLUSHING WATER SERVICE RESERVOIRS
 原定的沖廁水配庫位置圖

Figure no. **406152 / B&V / VEP / 003** Revision **-**

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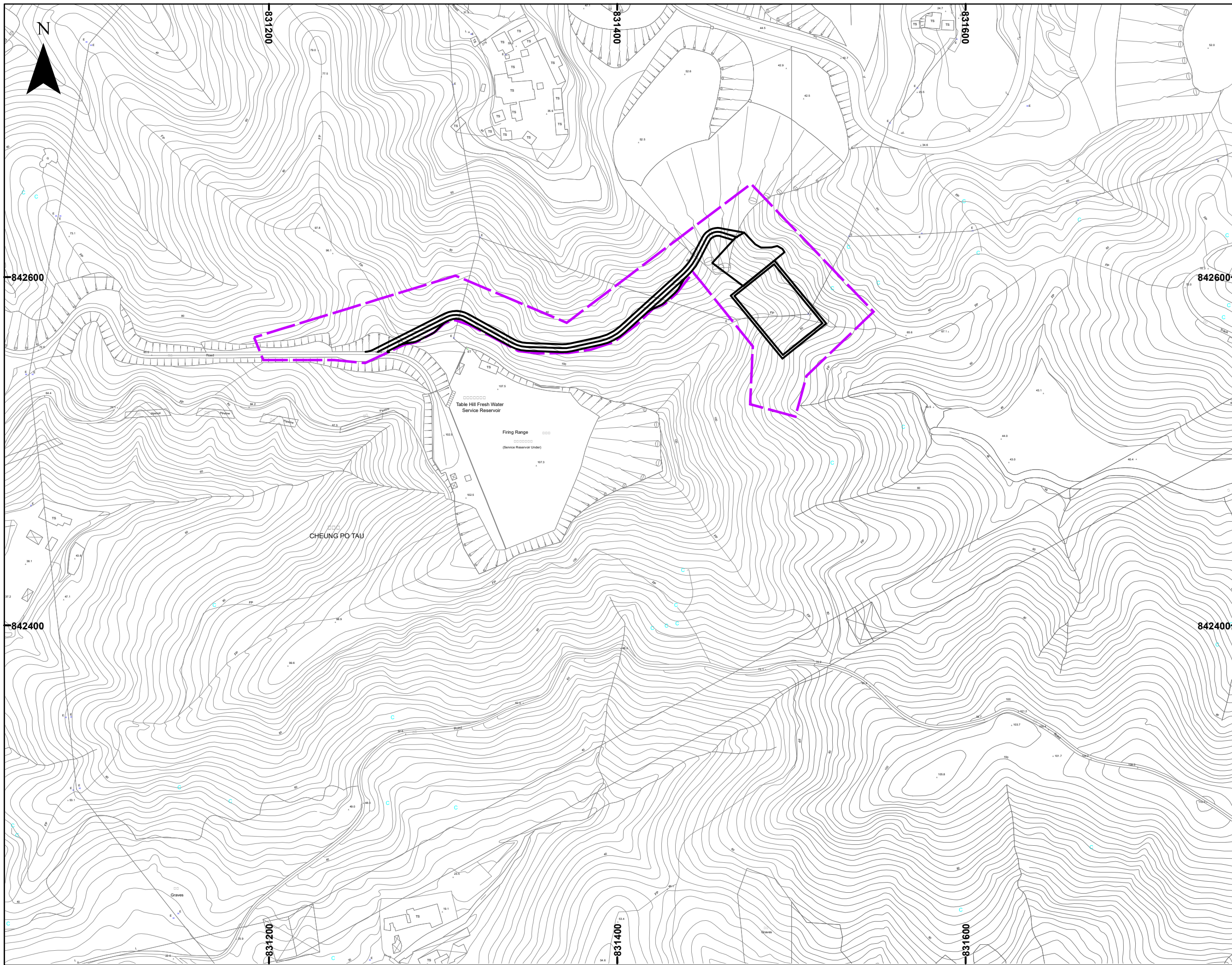
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Legend

 PROJECT BOUNDARY OF PROPOSED FLN FLUSHING WATER SERVICE RESERVOIR
擬議粉嶺北沖廁水配水庫項目邊界



Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	04/22	04/22	04/22	04/22

Approved

Agreement No. **CE21/2019(WS)**

Project Title
FRESH WATER AND FLUSHING WATER SERVICE RESERVOIRS AND ASSOCIATED WORKS IN FANLING NORTH - DESIGN AND CONSTRUCTION
 粉嶺北食水及沖廁水配水庫及相關工程 - 設計及建造

Figure Title
PRELIMINARY LOCATION OF FLN FLWSR AND REVISED PERMIT BOUNDARY
 粉嶺北沖廁水配水庫初步位置和修訂的許可證邊界

Drawing No. 406152/B&V/VEP/004 Revision **D**

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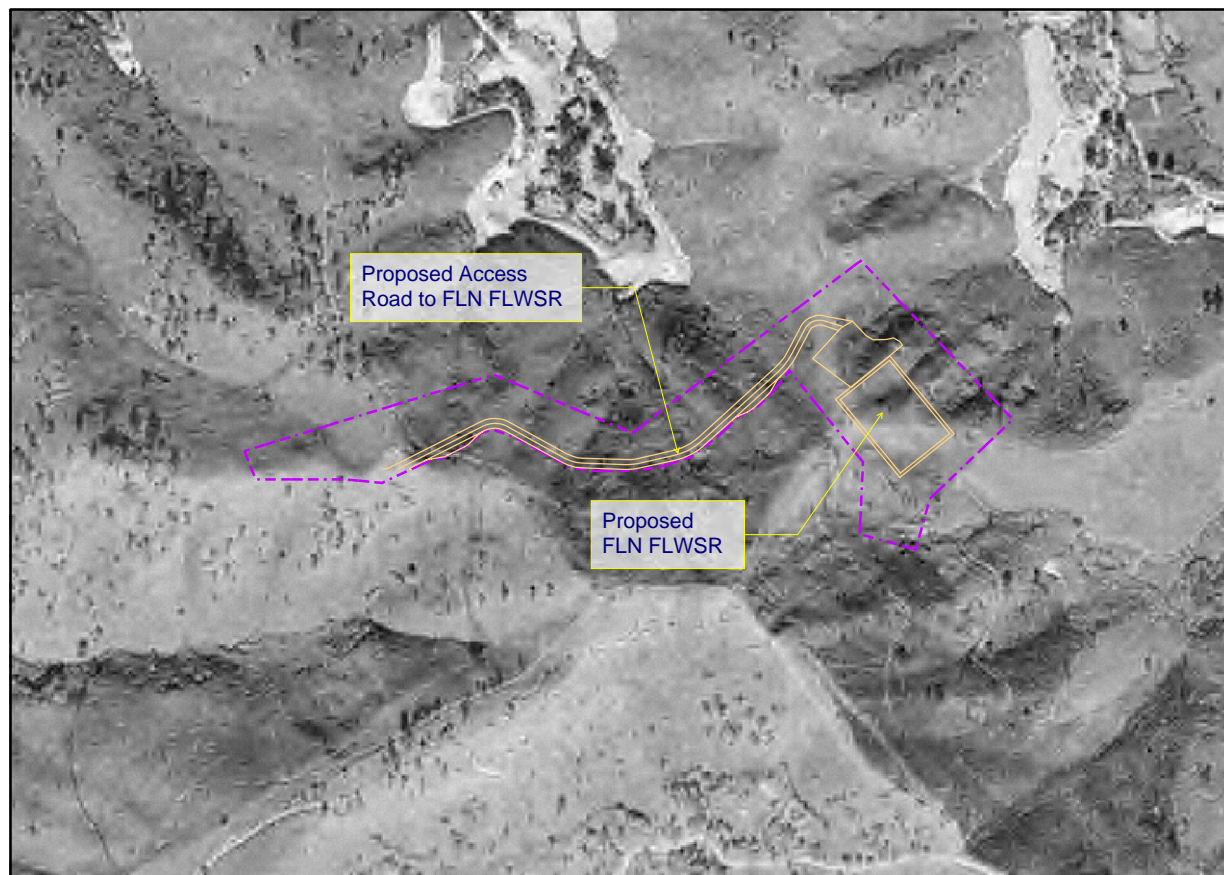
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Appendix 3-1

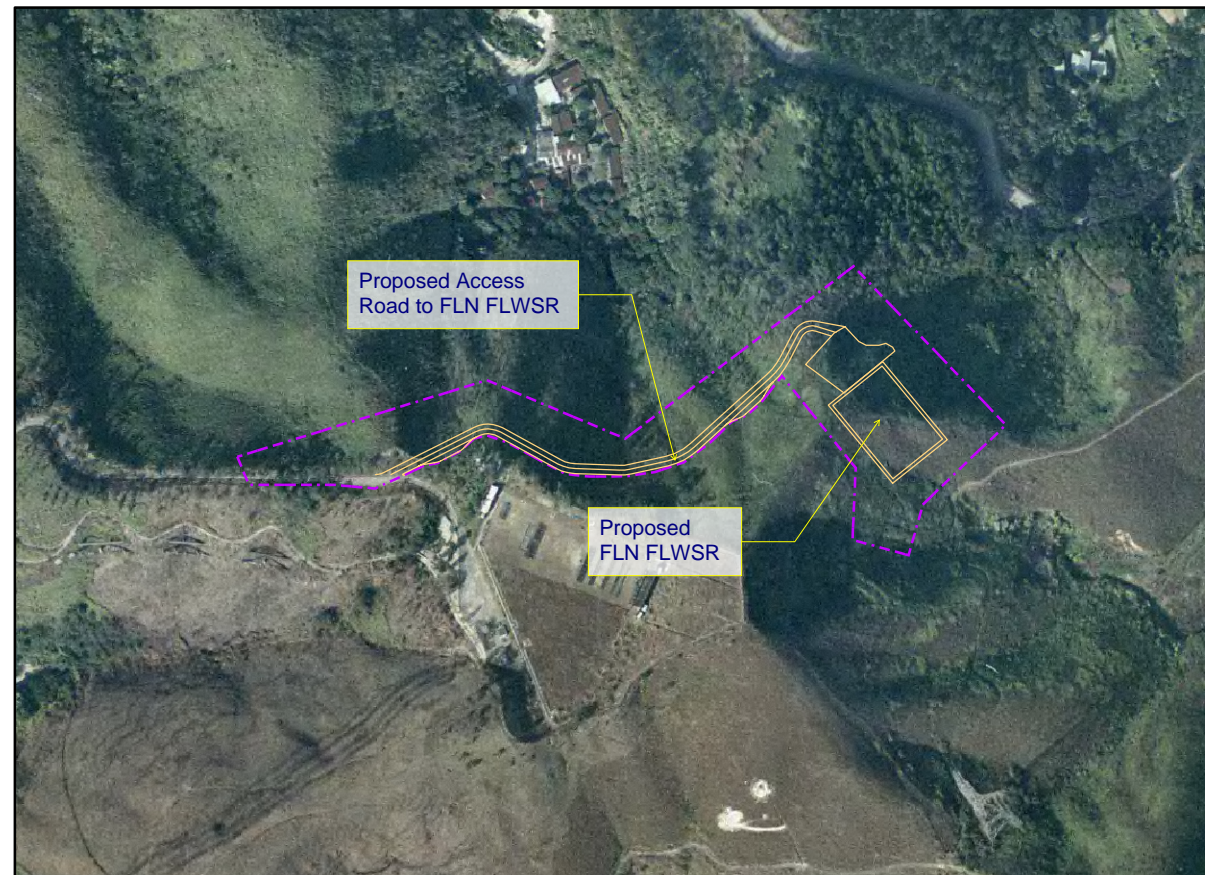
Historical Aerial Photo of Proposed FLN FLWSR

Legend

Project Boundary of Proposed
FLN Flushing Water Service
Reservoir



Year 1974



Year 2003



Year 2012



Year 2019

Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	01/22	01/22	01/22	01/22

Approved

Agreement No. **CE21/2019(W5)**

Project Title
Fresh Water and Flushing Water Service Reservoirs and Associated Works in Fanling North

Figure Title
Historical Aerial Photo of Proposed FLN FLWSR

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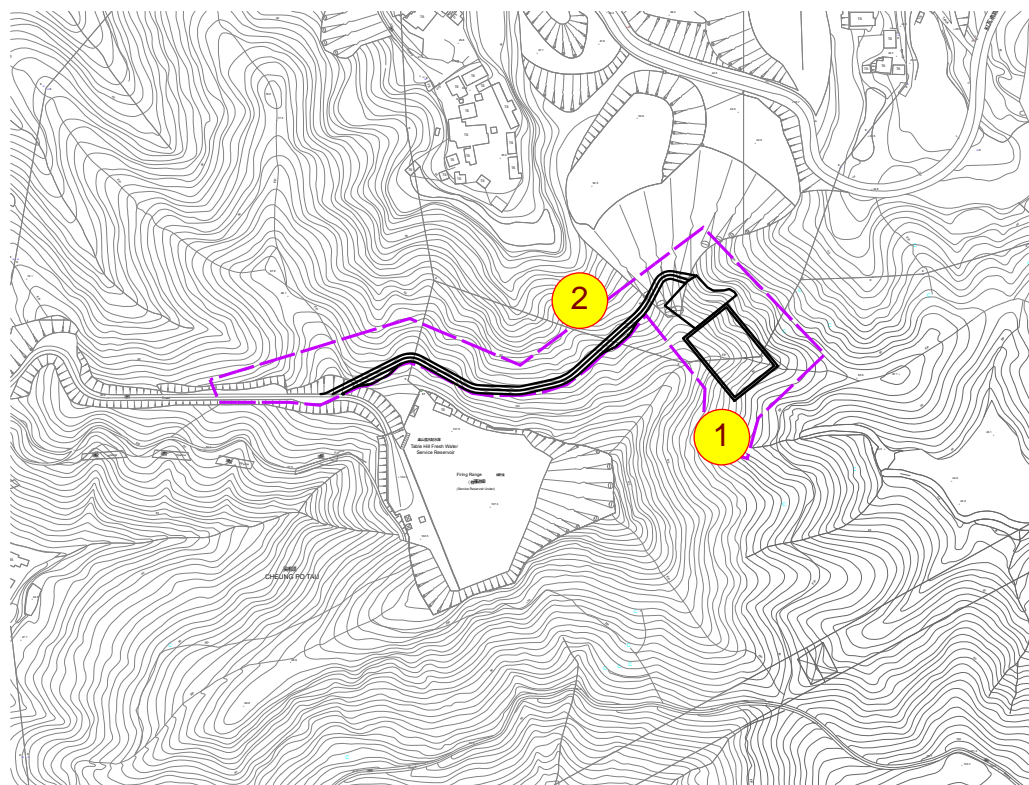
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Appendix 3-2

Walkover Survey Photo Record



Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	01/22	01/22	01/22	01/22

Approved

Agreement No. -

Project Title

Fresh Water and Flushing Water Service Reservoirs and Associated Works in Fanling North

Figure Title

Walkover Survey Photo Record

Drawing No.	Appendix 3-2	Revision	-
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Scale

Client
 土木工程拓展署
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Consultant
