Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance for Tung Chung New Town Extension (West) (EP No. EP-519/2016)

June 2026

土木工程拓展署
Civil Engineering and Development Department

MOTT MACDONALD

Environmental Permit No. EP- 519/2016

Tung Chung New Town Extension (West)

Environmental Team Leader Certification

Reference Document /Plan

Document to be Certified:	Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance
Date of Document:	June 2026
Date received by ETL:	4 June 2026

Reference EP Condition

Environmental Permit Condition: 2.21

The Permit Holder shall, no later than three months before the commencement of construction works at Tung Chung Valley, submit a Preservation and/or Translocation Plan (The Plan) for the plant species of conservation importance, including but not limited to *Aquilaria sinensis*, *Pavetta hongkongensis* and *Gmelina chinensis,* that could be affected by the Project to the Director for approval. The Plan shall include at least the following information:

(i) The target species;
(ii) Methodology for pre-construction survey, preservation and/or translocation for each species;
(iii) Identification of suitable receptor sites;
(iv) An implementation programme; and
(v) A post-translocation monitoring programme.

ETL Certification

I hereby certify that the above reference document complies with the above referenced condition of EP-519/2016.



Daniel Sum
Environmental Team Leader Date: 5 June 2026

Qualified Ecologist Certification

I hereby confirm that the Qualified Ecologist of the ET has been consulted in preparing ecological aspects of the above referenced document/plan.



Yusei Lo
Qualified Ecologist Date: 5 June 2026

Your Ref.

By Post

Our Ref. 198377-1205

Date 5 June 2026

South Development and Sustainable Lantau Office
Civil Engineering and Development Department
13/F, North Point Government Offices
333 Java Road, North Point
Hong Kong

Attention: Mr. Ryan CHAK / Ms. Carol LAM

Dear Sir / Madam,

Agreement No. CE 59/2017 (EP)
Independent Environmental Checker for Tung Chung New Town Extension – Investigation
Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance (EP condition 2.21)

We refer to the Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance for Tung Chung New Town Extension (West) (TCW) dated June 2026 and certified by the Environmental Team (ET) Leader of TCW on 5 June 2026. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 2.21 of EP-519/2016.

Should you have any query, please feel free to contact the undersigned at 2608 7314 (chuawo@binnies.com) or our Edward Lau at 3894 9695 (lauky@binnies.com).

Yours faithfully,
for and on behalf of
BINNIES HONG KONG LIMITED

MANUEL CHUA
INDEPENDENT ENVIRONMENTAL CHECKER

cc: ET Leader / TCW – Mott (Attn: Mr. Daniel SUM) [by Email: daniel.sum@mottmac.com]
PM / TCW – Arup (Attn: Mr. Jackson WONG) [by Email: jackson.wong@tcw.c561011.hk]

Binnies Hong Kong Limited
43/F, AIA Kowloon Tower, 100 How Ming Street, Kwun Tong, Hong Kong
賓尼斯工程顧問有限公司
香港九龍觀塘巧明街 100 號友邦九龍大樓 43 樓
+852 2601 1000 +852 2601 3988 binnieshk@binnies.com

Member of the Association of Consulting Engineers of Hong Kong
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BIM PROJECT VERIFICATION ISO 19650 SGS

1. Project Description

The development of Tung Chung New Town Extension (TCNTE), comprising Tung Chung East (TCE) and Tung Chung West (TCW), is a mega-scale and complex project aiming to provide land to meet the future housing economic and social development needs of Hong Kong. Due to the fact that the proposed works are geographically separated, the implementation of mega-scale Project is divided into two packages, namely TCE and TCW respectively. In accordance with the tight delivery programme, the Project will be implemented in phases under separate contracts for the developments of TCE and TCW.

2. Scope of Works for Tung Chung New Town Extension

The Tung Chung New Town Extension project (the Project) comprises the following elements:

(i) reclamation of the seabed by a non-dredged method at TCE to form a total of about 130 hectares of land;
(ii) construction of about 4.9 kilometers of seawalls, with an eco-shoreline, three drainage box culvert outfalls, three circulation drains and a seawater intake at TCE;
(iii) provision of infrastructure for Tung Chung Area 58, including construction of a single two-lane road with a footpath and the associated utility works;
(iv) site formation works at TCW;
(v) construction of the River Park including a visitor centre at TCW;
(vi) construction of proposed open space;
(vii) construction of sustainable urban drainage systems at TCW;
(viii) construction of roads, footpaths, cycle tracks and the associated junction / road improvement works;
(ix) engineering infrastructure works covering drainage, sewerage, waterworks (including a fresh water service reservoir, a salt water service reservoir and a salt water pumping station), common utility tunnels and landscaping works; and
(x) implementation of environmental mitigation measures and environmental monitoring and audit programme for the works.

3. Implementation Programme

The Contract No. NL/2020/05 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Ma Wan Chung (i.e. Contract 5) at TCW has been awarded in May 2021 and the major construction work is scheduled for completion in 2027. The main contractor for Contract No. NL/2020/05 is Build King – Richwell Civil Joint Venture (BKRCJV).

The Contract No. NL/2020/06 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1 (i.e. Contract 6) at TCW has been awarded in May 2021 and the major construction work is scheduled for completion in 2027. The main contractor for Contract No. NL/2020/06 is China Railway Group Limited (CREC).

The Contract No NL/2023/10 – Tung Chung New Town Extension – Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung (i.e. Contract 10) at TCW has been awarded in October 2025 and is scheduled for completion in 2029. The main contractor for Contract No. NL/2023/10 is CREC Joint Venture (CRECJV).

The Contract No NL/2023/11 – Tung Chung New Town Extension – Infrastructure Works at Tung Chung Valley, Phase 2 (i.e. Contract 11) at TCW has been awarded in March 2026 and is scheduled for completion in 2030. The main contractor for Contract No. NL/2023/11 is CCC-CCECC-CR11G Joint Venture (3CJV).

The Entrustment Agreement No. ENT/TUE/001 – Construction of Infrastructure Works in the Tung Chung New Town Extension Area (i.e. Entrusted Works) has been awarded in June 2025 and is scheduled for completion in 2028. The main contractor for Entrusted Works is Bouygues Dragages (1201) Joint Venture (BDJV).

4. Submission under EP

Since land resumption in TCW is still in process and the public works areas will be handed over to the relevant authority (CEDD) in phases, the pre-construction survey for plant species of conservation importance and the subsequent preservation and/or translocation exercise will be implemented in phases. This Plan outlines the framework in carrying out the pre-construction survey for plant species of conservation importance and implementing the subsequent preservation and/or translocation exercise in TCW for future public works contractors and private developers to follow. For the Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance for TCE, please refer to the dedicated project website: http://env.tcnte.hk/ep-submissions.html.

CCC-CCECC-CR11G Joint Venture

Contract No. NL/2023/11
Tung Chung New Town Extension –
Infrastructure Works at Tung Chung Valley, Phase 2

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Rev. 1

	Prepared by:	Approved by:
Name	Leo Leung	Alice Leung
Position	Environmental Officer	Contract Manager
Signature		
Date	4 June 2026	4 June 2026

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REVISION HISTORY

Revision	Revised Date	Section	Description of Change
0	30/03/2026	-	First Submission
1	04/06/2026	2.3.4	Revised in accordance with EPD comments on 8 May 2026

1 INTRODUCTION

1.1 GENERAL

1.1.1 This plan is prepared by CCC-CCECC-CR11G Joint Venture (3CJV) in accordance with Condition 2.21 of the Environmental Permit No. EP-519/2016 dated 09/08/2016.

1.1.2 This plan only covers the works in Tung Chung West (TCW). For the same plan for TCE, please refer to http://env.tcnte.hk/ep-submissions.html.

1.2 PROJECT BACKGROUND

1.2.1 In mid-1996, the Government completed the Territorial Development Strategy Review (TDSR) which identified housing shortfall in the medium to long term. The TDSR also identified the North Lantau New Town (NLNT) as a strategic growth area, among other areas to meet the territorial housing demand, with a revised population target of 320,000 by 2011.

1.2.2 In 2004, the Administration formulated a concept plan for planning initiatives on Lantau (Concept Plan). The Concept Plan was then revised in mid-2007 taking into account comments collected from the public consultation (Revised Concept Plan). Under the Revised Concept Plan, Tung Chung is to remain a comprehensively planned new town for a population of 220,000 with adequate community facilities and regional facilities to serve the whole of Lantau.

1.2.3 The CEDD and the Planning Department (PlanD) jointly commissioned Agreement No. CE 32/2011(CE) - Planning and Engineering Study on the Remaining Development in Tung Chung (P&E Study) in 2012. The P&E Study aims at identifying development potentials and opportunities to extend Tung Chung into a distinct community to meet housing, social, economic, environmental and local needs. Under the P&E Study, various planning, engineering and environmental studies were carried out to formulate a development scheme to extend existing Tung Chung to Tung Chung East (TCE) and Tung Chung West (TCW).

1.2.4 The P&E Study adopted a three-stage Public Engagement (PE) programme to facilitate public discussions and foster consensus building. Taking into account the public views and the planning and technical assessments, the Recommended Outline Development Plans (RODPs) for TCE and TCW were finalized under the P&E Study and were endorsed in January 2015. The planned new population of TCE and TCW under the RODPs would be around 120,000 and 25,000 respectively. With the new population in TCE and TCW, the total planned population in Tung Chung will reach about 270,000 upon full development.

1.2.5 The development theme of Tung Chung New Town Extension (TCNTE) will pursue a sustainable and balanced approach while taking account of its strategic location and the synergy effect to make Tung Chung a regional commercial hub for retail and office developments. The TCNTE development, comprising TCE and TCW, will provide about 49,600 flats for an additional population of 145,500 and about 877,000m2 gross floor area (GFA) for commercial uses. The housing mix for public housing and private housing is of a ratio of 65:35 approximately.

1.2.6 The general scope of works for TCW includes site formation and engineering infrastructure works for the development of TCW and engineering infrastructure

improvement works for both public and private development. The scope of the Project comprises the following principal works components:

(a) Site formation works, including decontamination works, for the proposed infrastructure, Government, Institution or Community (G/IC) sites, subsidized housing and private development;

(b) Engineering infrastructure works including roads, drainage, sewerage including sewage pumping stations, and waterworks to support the proposed developments in TCW;

(c) Provision of public sewerage including sewage connection points inside village areas including but not limited to Ma Wan Chung, Wong Nai Uk, Shek Lau Po, Ngau Au, Lam Che, Nim Yuen, Mok Ka and Shek Mun Kap, and other unsewered areas of TCW;

(d) Provision of a cycle track network in TCW;

(e) Provision of a footbridge across Shun Tung Road;

(f) Sustainable Urban Drainage System (SUDS), including but not limited to provision of an attenuation & treatment pond for each residential development site and provision of roadside bioswales;

(g) De-channelization of the channelized portion of Tung Chung Stream near Shek Lau Po;

(h) A River Park along the eastern tributary of Tung Chung Stream (section between Chung Yat Street and Shek Mun Kap Road);

(i) Natural terrain hazard mitigation measures;

(j) Ma Wan Chung Improvement Works;

(k) Revitalisation of the ex-Tung Chung Public School;

(l) Landscaping, streetscaping, re-provisioning and ancillary works;

(m) Engineering infrastructure improvement works for Tung Chung Area 6 according to the findings of the engineering assessments for rezoning the area from "G/IC" use to commercial use; and

(n) Provision of environmental mitigation measures for the works mentioned in (a) to (m) above.

1.2.7 According to the plant survey from the EIA study AEIAR-196/2016 Tung Chung New Town Extension, plant species of conservation importance include *Aquilaria sinensis, Cibotium barometz, Gmelina chinensis, Halophilia ovalis, Ligustrum punctifolium, Pavetta hongkongensis, Uvaria calamistrata, Zostera japonica* and *Zoysia sinica* were recorded within the assessment area of TCW. Among them, only *Aquilaria sinensis, Cibotium barometz, Pavetta hongkongensis* and *Gmelina chinensis* were recorded within the Project Site in TCW (**Appendix A**).

1.2.8 Individuals of *Aquilaria sinensis* were found within the footprints of TCV-1, TCV-7, polders and the works area of the proposed service reservoirs. Individuals of *Gmelina chinensis* were recorded within the works area of the proposed service reservoirs, while individuals of *Cibotium barometz* and *Pavetta hongkongensis* were recorded within the footprint of the proposed widening at Shek Mun Kap Road. Results of the group tree surveys conducted for Landscape and Visual Impact Assessment of the EIA study also uncovered more individuals of *Aquilaria sinensis* and *Gmelina chinensis* within the development footprints. Mitigation measures including preservation and/or translocation in these areas prior to site formation was recommended in the EIA stage as mitigation to minimize the impacts on these plant species of conservation importance.

1.2.9 As stated in the EIA report, preservation and/or translocation of plant species of conservation importance will cover all areas for public works, provided before site formation commences by the government departments responsible for the construction of those public works of the site formation works for those sites. This measure will also be required in TCV-1 in where plant species of conservation importance were recorded, and which are zoned for residential/commercial developments by private developers and the lands within mostly belong to private lots. The names of the various development areas during the EIA study are shown in **Appendix B**.

1.2.10 This Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance stated detailed methodology for translocation, confirmation of the receptor sites for translocation, a post-translocation monitoring programme and implementation programme.

1.3 PURPOSE OF THIS PLAN

1.3.1 This plan is prepared in accordance with the conditions of approval under Section 8(3) of the EIA Ordinance (letter ref. (37) in EP2/N9/S/145-Pt.-dated 8 April 2016) and Clause Condition 2.21 of the Environmental Permit No. EP-519/2016 “The Permit Holder shall, no later than 3 months before the commencement of construction works at Tung Chung Valley, submit 3 hard copies and 1 electronic copy of the Preservation and / or Translocation Plan (The Plan) for plant species of conservation importance, including but not limited to *Aquilaria sinensis, Pavetta hongkongensis* and *Gmelina chinensis*, that could be affected by the Project to the Director of Environmental Protection for approval.” The Plan shall include at least the following information:

- the target species;
- methodology for pre-construction survey, preservation and/or translocation for each species;
- identification of suitable receptor sites;
- an implementation programme; and
- a post-translocation monitoring programme.

1.3.2 The site formation of the development areas in TCW will be implemented by phases. Most of the development areas in TCW are private lands, land resumption is still processing at the time of preparing present Plan. Preparation of Pre-construction survey to obtain the up-

to-date information of the target species shall be carried out after land resumption by phases prior to preservation and/or translocation of plant species of conservation importance to fulfil the EP requirements. This Plan outlines the framework in carrying out the Pre-construction survey for plant species of conservation importance and implementing the subsequent preservation and/or translocation exercise in TCW for future public works contractors and private developers to follow.

2 TARGET SPECIES OF PRESERVATION AND/OR TRANSLOCATION

2.1 REQUIREMENT OF ENVIRONMENTAL PERMIT

2.1.1 In accordance with the condition 2.21 of the EP condition, the target species for preservation/translocation including the plant species of conservation importance but not limited to *Aquilaria sinensis, Pavetta hongkongensis* and *Gmelina chinensis*.

2.1.2 Plant species of conservation importance are defined from protection status (e.g. listed under Forestry Regulations and Cap. 586 in Hong Kong, listed by IUCN or CITES, or listed as Category I or II protected species in mainland China); species distribution (e.g. endemic); and rarity (e.g. considered rare or very rare by Corlett *et al*. (2000), regarded as rare by Yip *et al*. (2010)). However, exotic invasive species, escaped cultivars or captive species, vagrants and introduced species are excluded.

2.1.3 The following laws/regulations and conventions for conservation importance are relevant with evaluation of the conservation importance of plant species.

- Forestry Regulations (Cap. 96A) which are subsidiary legislation of the Forests and Countryside Ordinance (Cap. 96);
- Category I/ II/ III in List of Wild Plants under State Protection;
- Considered ‘Rare’ or ‘Very Rare’ plant species listed by Corlett et al. (2000) or regarded as ‘Rare’ by Yip *et al*. (2010) where applicable;
- China Plant Red Data Book;
- Threatened Species List of China’s Higher Plants (Qin *et al*. 2017);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap 586);
- Category I or II State Protected Wild Animals;
- The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species (*Species which are classified by IUCN as Least Concern (LC), Near Threatened (NT), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions are not considered of conservation importance in the present EcoIA*.); and
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

2.2 LOCATIONS OF TARGET SPECIES

2.2.1 As stated in the EIA report, preservation and/or translocation of plant species of conservation importance will cover all areas for public works and a location for private development. The implementation area of the preservation and/or translocation exercise is shown in **Appendix C1, C2, C3 & C4**.

2.2.2 Indicative locations of the plant species of conservation importance recorded in Tung Chung West under the EIA study were marked. **Appendix D** shows the locations of the plant species of conservation importance recorded in the EIA study overlaid with the present development areas (both public works and private development), only *Aquilaria sinensis* and *Pavetta hongkongensis* were within the development areas.

2.2.3 During the EIA stage, a publication from KFBG named "Ecological and Conservation Importance of Tung Chung, Lantau" documented species of conservation importance including plant, in order to highlight the ecological importance of Tung Chung. According to the report, *Nepenthes mirabilis, Spiranthes hongkongenis, Goodyera procera* were recorded along the streamside; *Aquilaria sinensis, Gmelina chinensis, Dioscorea hispida, Gymnosphaera hancockii* were recorded in the woodland and orchard; *Halophila sp., Zostera japonica* and *Ligustrum punctifolium* were recorded in Tung Chung Bay. However, the locations were not indicated on map.

2.2.4 A tree survey was conducted under a formal Tree Preservation and Removal Proposal prepared by Ove Arup & Partners Hong Kong Ltd in accordance with the requirements as stipulated in DEVB TCW No. 4/2020. The tree survey was conducted from January 2017 to November 2018 and in the process of being renewed from August 2020 onwards to assess all existing trees within the Contract 5 and Contract 6 boundary. For affected trees of which the tree survey has expired the 2-year valid period, their conditions and photos have also been updated in August to September 2020. Target species *Aquilaria sinensis, Canthium dicoccum* and *Gmelina chinensis* were recorded in the tree survey. As the tree survey was not exhaustively covered all target species, pre-construction survey for plant species of conservation importance will be conducted by the qualified botanist appointed by contractor.

2.2.5 Plant survey was conducted by Green Power in recent years. Plant species of conservation importance include *Trachelospermum jasminoides, Chamaecrista leschenaultiana, Cibotium barometz, Gnetum luofuense, Acacia pennata, Nepenthes mirabilis, Ania hongkongensis, Goodyera procera, Spiranthes sinensis, Canthium dicoccum, Aquilaria sinensis* and *Gmelina chinensis* were recorded within and nearby the lower Tung Chung River catchment (**Appendix E**) (Green Power 2021).

2.3 CRITERIA OF TRANSLOCATION

2.3.1 Although the plant species mentioned in **Section 2.2** are considered as species of conservation importance, translocation of all the species are not practical and unnecessary in terms of ecology due to the growth form and commonness in Hong Kong.

2.3.2 Besides the three species i.e. *Aquilaria sinensis, Pavetta hongkongensis* and *Gmelina chinensis* specified in the EP condition, the species under statutory protection should also be transplanted as far as practicable, if they are not able to be preserved on site. For example, *Ania hongkongensis, Cibotium barometz, Goodyera procera, Gymnosphaera*

hancockii, Nepenthes mirabilis and *Spiranthes sinensis* are all protected by Hong Kong laws (Cap. 96A and/or Cap. 586) and included in other legislations, conventions and guidelines.

2.3.3 *Acacia pennata*, *Chamaecrista leschenaultiana, Dioscorea hispida* and *Trachelospermum jasminoides* are regarded as "Rare" by Corlett et al. 2000. These species are counted as species of conservation importance and be included in the preservation/translocation. As *Dioscorea hispida* exhibits climber growth form, thus no translcation is recommended for this species.

2.3.4 *Canthium dicoccum* was classified as "Vulnerable" in IUCN Red List in 1998 but not included in any Hong Kong law, mainland legislation, and any conventions and guidelines. In fact, this species is common in Hong Kong and also regarded as "Common" by Corlett *et al.* 2000. Notably, *Canthium dicoccum (Psydrax dicoccos)* has since been reassessed and is currently listed as "Least Concern" in IUCN Red List, based on the assessment on 23 March 2023).

2.3.5 *Gnetum luofuense* is only classified as "Near Threatened" in IUCN Red List and not included in any Hong Kong law, mainland legislation, and any conventions and guidelines. Classifying as "Near Threatened" in IUCN Red List, this species is not currently facing a high risk of extinction in the wild, and indeed, this species is very common in Hong Kong and also regarded as "Very Common" by Corlett *et al.* 2000. In addition, this species is a climber and usually entangles other vegetation, it will be very difficult to separate it out for transloaction.

3 PRE-CONSTRUCTION SURVEY

3.1 SURVEY METHODOLOGY

3.1.1 As most of the development areas in TCW are private lands and land resumption are still processing at the time of preparing present Plan, a detailed pre-construction survey for the target species (which are the plant species of conservation importance, including but not limited to *Aquilaria sinensis*, *Pavetta hongkongensis* and *Gmelina chinensis*) will be conducted and a Preservation and/or Translocation Proposal will be submitted within 1 calendar month after the completion of the Pre-construction survey to the Project Manager, ET and IEC before submission to EPD.

3.1.2 Qualified botanist will be engaged to carry out a Pre-construction survey focusing on the target species at the commencement of the respective Contracts and shall be completed within 9 months before translocation. The qualified botanist should possess a degree in a botany or related field equivalent to the standards of Level 3 or above in the Hong Kong Qualification Framework and have at least 5 years' experience in Hong Kong on vegetation surveys, and preferably with a relevant professional qualification, including but not limited Certified Arborist and Professional Tree Inspection. The appointment of the qualified botanist shall be agreed by ET and IEC and approved by the Project Manager. The Pre-construction survey record shall cover all target species within the site boundary. The Implementation Area of the Preservation and /or Translocation Exercise contained in **Appendix C1, C2, C3 & C4** were prepared in accordance with the approved EIA Report AEIAR196/2016 (**Figure 9.5a** and **9.5b**) and site boundary line identified under the respective Contract drawings (Drawing no. 251854/C6/G/1000, 251854/C5/G/1111, 251854/C10/G/1000 & Figure 4D) of Contract Nos. NL/2020/05, NL/2020/06,

NL/2023/10 & NL/2023/11. The qualified botanist shall also ascertain the presence and update the quantities and latest conditions of the target species.

3.1.3 The target species should be recorded and the corresponding location(s) should be mapped. Photographic records of each identified target species and the following information and characteristics should be noted**:**

- Plant Species (Scientific Name and Chinese Name) and Conservation Status;
- Overall Height (m);
- Trunk Diameter at Breast Height (DBH) (mm) (for tree and shrub only); DBH is not required for small shrub and herbal species
- Crown Spread (m) (for tree and shrub only);
- Form (for tree only);
- Health;
- Structural Condition;
- Suitability for Transplanting and Remarks;
- Recommendation;
- Additional Remarks (if any).

3.1.4 The assessment criteria for the target species, including Form, Health, Structural Condition and Suitability for Transplanting are stated in **Appendix F**.

4 METHODOLOGY FOR PRESERVATION AND/OR TRANSLOCATION AND PROPOSED RECEPTOR SITES

4.1 PRESERVATION

4.1.1 The target species outside the boundary of the development areas (**Appendix C1, C2, C3 & C4**) will not be impacted directly. The mitigation measures for the target species within the site boundary will follow the recommendation of the qualified botanist. The retained target species will be preserved and retained throughout the construction period.

4.1.2 Extensive site formation works are required within the development areas. Depending on the site condition and detailed design of the development layout, the target species will be preserved as far as practicable, otherwise, translocation should be conducted.

4.1.3 Detailed method statement for protection of retained target species is shown in **Appendix G**.

4.2 IDENTIFICATION OF SUITABLE RECEPTOR SITES

4.2.1 The Qualified botanist should confirm the exact location of the receptor for each individual target species being transplanted after the pre-construction survey.

4.2.2 The potential suitable receptor sites could not be identified at this stage. Key considerations in identifying suitable receptor sites are set out for future qualified botanist to follow:

1) The receptor sites provide enough space for translocation
2) The receptor sites should be near to the site of target species
3) The receptor sites should avoid excessive soil moisture.
4) The receptor sites shall match with the original habitats
5) Consent shall be gauged from the owners of the receptor sites beforehand

4.3 TRANSLOCATION

4.3.1 All proposed translocation works should be supervised by qualified botanist that should possess a degree in a botany or related field equivalent to the standards of Level 3 or above in the Hong Kong Qualification Framework and have at least 5 years' experience in Hong Kong on translocation, and preferably with a relevant professional qualification, including but not limited to Certified Arborist and Professional Tree Inspection. The appointment of the qualified botanist shall be agreed by ET and IEC and approved by the Project Manager.

4.3.2 The Contractor shall also engage a qualified landscape subcontractor to carry out the translocation works. All translocation works should be carried out in planting season, (preferably from March to May and no later than September), prior to site formation.

4.3.3 Based on the results of the Pre-construction survey, the qualified botanist will determine the best appropriate translocation methodology to suit the present environment, size and condition of the plant species to be transplanted. Translocation Report shall be prepared and submitted to ET, IEC and the Project Manager after within 1 calendar month after the completion of translocation. The general approach of such translocation works for the target species is shown in **Appendix G**

5 PRESERVATION AND/OR TRANSLOCATION PROPOSAL

5.1.1 The qualified botanist shall conduct a pre-construction survey for target species, including but not limited to the quantity, location(s), size(s) and the information stated in **Section 3.1.3** of each target species identified within the development areas.

5.1.2 The qualified botanist shall determine, with justification, on the feasibility and transplant ability of each identified individual or target species and propose respective suitable receptor locations and necessary site preparation works for the target species.

5.1.3 Preservation and/or Translocation Proposal shall propose translocation methodology (make reference to **Appendix G**), implementation programme, confirmation of the

receptor site(s), post-translocation monitoring and maintenance arrangement/programme for the translocated individuals of the target species. The Plan shall also identify the future maintenance parties of each proposed receptor sites.

5.1.4 Preservation and/or Translocation Proposal shall propose feasible protective measure for preserving any specimens of the target species considered to be protected *in-situ* within the development areas.

5.1.5 Preservation and/or Translocation Proposal shall be accepted by the Project Manager, Environmental Team and Independent Environmental Checker.

5.1.6 The Preservation and/or Translocation Proposal shall contain the following items:

- Plant species of conservation importance recorded within Project Boundary in vegetation survey
- Recommendation on flora species of conservation importance (i.e. avoidance, minimization and compensation)
- Methodology of in-situ preservation, translocation
- Identification of temporary nursery site (if applicable), receptor site for the plant species proposed to be transplanted
- Implementation programme for in-situ preservation and translocation
- Post-translocation monitoring and maintenance programme (such as monitoring frequency, maintenance programme and indicate future maintenance agent of the plant species to be transplanted).
- Appendix/ Figure: Location of the Plant species of conservation importance recorded
- Appendix/ Figure: Photo record of the Plant species of conservation importance recorded

6 POST-TRANSLOCATION MONITORING PROGRAMME

6.1.1 Surveys will be conducted to monitor and evaluate the effectiveness of the preservation (within the development areas) and translocation programme. Survival and health conditions of transplanted plant individuals as well as individuals to be preserved *in-situ* will be monitored, necessary maintenance operation will also be recommended. The monitoring surveys shall be carried out by qualified botanist.

6.1.2 For transplanted individuals, the monitoring will be after translocation for two years and throughout the construction period (for in-situ preserved individuals). The frequency will be monthly for the first year, and then quarterly for the second year as the monitoring frequency can be reduced after the 1-st year stabilization. A landscape contractor should be employed to conduct the maintenance works (e.g. weeding and watering) as recommended by the qualified botanist for the transplanted individuals.

6.1.3 For the *in-situ* preserved plant individuals, the monitoring will be conducted monthly throughout the construction period, to monitor if the construction works affect the

preserved individuals. The condition of the tree-protection zone, if any, should be regularly checked.

6.1.4 The qualified botanist should prepare a monitoring report after each monitoring to document the findings and recommendation of the preservation and/or post-translocation monitoring, which will be submitted to ET, IEC and the Project Manager within 2 weeks of monitoring

7 IMPLEMENTATION PROGRAMME OF PRESERVATION AND/OR TRANSLOCATION OF PLANT SPECIES OF CONSERVATION IMPORTANCE FOR PUBLIC WORKS

7.1.1 Depending on the site condition and detailed design of the development layout, the target species will be preserved as far as practicable. Otherwise, translocation will be conducted. The translocation works, if approved, should be carried out in planting season (preferably from March to May and no later than September), prior to site formation. The tentative programme for implementing the preservation and/or translocation exercise for each individual public works areas is shown in **Table 1 & Table 1.1, Table 1.2, Table 1.3** and **Appendix C1, C2, C3 & C4**. The Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance will be updated and submitted to EPD for approval when the remaining contracts commence.

Table 1 Tentative Programme for Implementing the Preservation and/or Translocation Exercise of Plant Species of Conservation Importance for Each Individual Public Works Area in Ma Wan Chung for NL/2020/05

Individual Public Works Areas	Time for Implementing Exercise
Part E (Tung Chung Road North)	**Jun 2022**
Part G	**Jun 2022**
Part H (Town Park)	**Jun 2022**
Part H (Hiking Trail)	**Jun 2022**

Table 1.1 Tentative Programme for Implementing the Preservation and/or Translocation Exercise of Plant Species of Conservation Importance for Each Individual Public Works Area in Tung Chung Valley for NL/2020/06

Individual Public Works Areas	Time for Implementing Exercise
Area 42	**Jun 2022**
Area 46	**Apr 2023**
New Road L29	**Jun 2022**
Shek Mun Kap Road and Bridge C	**Jun 2022**

SATP 05 and SATP 07	**Apr 2023**

Table 1.2 Tentative Programme for Implementing the Preservation and/or Translocation Exercise of Plant Species of Conservation Importance for Each Individual Public Works Area in Tung Chung Valley for NL/2023/10

Individual Public Works Areas	Time for Implementing Exercise
Part A & B (Ma Wan Chung)	**Mar 2026**
Part D (Wong Nai Uk)	**Mar 2026**
Part F (Road 22)	**Mar 2026**
Part G	**Mar 2026**
Part H & I (Road 24)	**Mar 2026**
Part J (NGAU AU)	**Mar 2026**

Table 1.3 Tentative Programme for Implementing the Preservation and/or Translocation Exercise of Plant Species of Conservation Importance for Each Individual Public Works Area in Tung Chung Valley for NL/2023/11

Individual Public Works Areas	Time for Implementing Exercise
Road L25	**Aug 2026**
Road L26	**Aug 2026**
Road L28	**Aug 2026**
River Park Phase 2	**Aug 2026**

7.1.2 An implementation schedule summarized the preservation and/or translocation programme is shown in **Table 2**.

Table 2 Implementation Schedule

Section Ref.	Recommended Task	Deliverable/ Tasks required for implementation	Objectives of the Task & Main Concerns to address	Who to implement /maintain the task?	Location of the task	When to implement the task?
2 & 3	Pre-construction survey for the target species (which are the plant species of conservation importance, including but not limited to *Aquilaria sinensis, Pavetta hongkongensis* and *Gmelina chinensis*)	Pre-construction survey report should be submitted to ET, IEC and the Project Manager before submission to EPD	Minimize the potential impact to plant species of conservation importance	Qualified botanist/ appointed by Contractor/CEDD/ private developer	Development areas of public and private works	Completed within 9 months before translocation
3.1.1 & 5	Preservation and/or Translocation Proposal	Preservation and/or Translocation Proposal should be submitted to ET, IEC and the Project Manager	Minimize the potential impact to plant species of conservation importance	Qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works, and receptor sites	Submitted within 1 calendar month after the completion of Preconstruction survey
4.1	Preservation	Monitoring record should be submitted to the Project Manager	Minimize the potential impact to plant species of conservation importance	Contractor and qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works	Monitoring conducted monthly throughout the construction period
4.2	Identification of Suitable Receptor Sites	The detail should be provided at Preservation and/or Translocation Proposal	Minimize the potential impact to plant species of conservation importance	Contractor and qualified botanist appointed by Contractor/CEDD/ private developer	Receptor sites	After the Preconstruction survey

Section Ref.	Recommended Task	Deliverable/ Tasks required for implementation	Objectives of the Task & Main Concerns to address	Who to implement /maintain the task?	Location of the task	When to implement the task?
4.3	Translocation	The qualified botanist should be agreed by ET and IEC and approved by the Project Manager	Minimize the potential impact to plant species of conservation importance	Landscape Contractor and qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works, and receptor sites	Planting season (preferably from March to May and no later than September), prior to site formation.
4.3.3	Translocation report	The translocation report should be submitted to ET, IEC and the Project Manager	Minimize the potential impact to plant species of conservation importance	Landscape Contractor and qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works, and receptor sites	Submitted within 1 calendar month after the completion of translocation.
6	Post-translocation monitoring	The qualified botanist should prepare a monitoring report after each monitoring to document the findings and recommendation of the preservation and/or post translocation monitoring	Minimize the potential impact to plant species of conservation importance	Contractor and Qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works, and receptor sites	After translocation for two years and throughout the construction period (for in-situ preserved individuals). The frequency will be monthly for the first year, and then quarterly for the second year
6.1.4	Monitoring Report	The monitoring report should be submitted to ET, IEC and the Project Manager	Minimize the potential impact to plant species of conservation importance	Contractor and Qualified botanist appointed by Contractor/CEDD/ private developer	Development areas of public and private works, and receptor sites	Within 2 weeks of monitoring

(END)

8 REFERENCE

Corlett, R. T., Xing, F., Ng, S. C., Chau, L. K. C., & Wong, L. M. Y. (2000). Hong Kong vascular plants: distribution and status. Memoirs of the Hong Kong Natural History Society, 23: 1-157.

Yip, J. K., Yip, J. K. L., Liu, E. K. Y., Ngar, Y. N., & Lai, P. C. C. (2010). A floristic survey of marshes in Hong Kong. Hong Kong Biodiversity 19: 7-16.

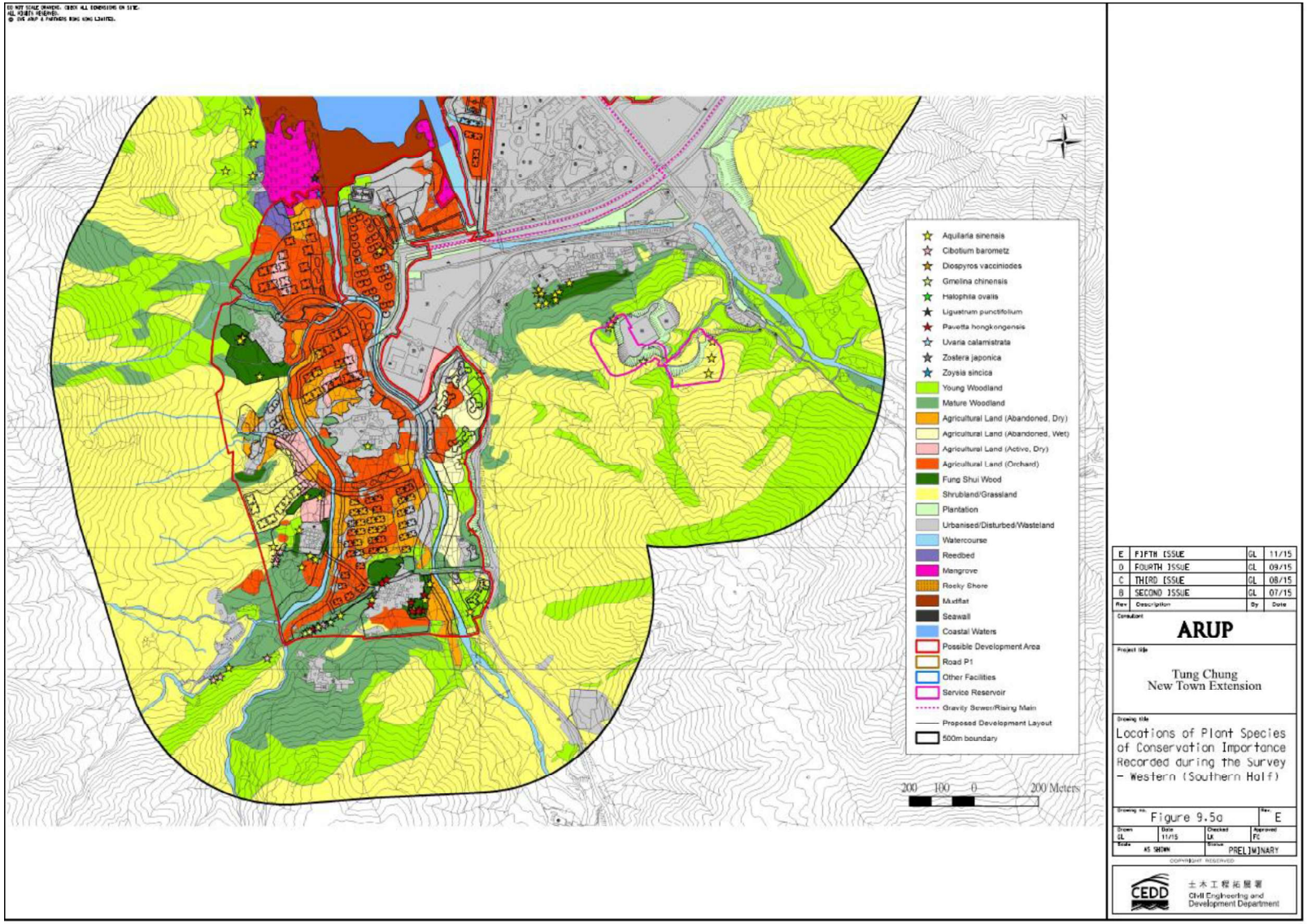
Qin et al., 2017. Threatened Species List of China's Higher Plants. Biodiversity Science 2017, Vol. 25, Issue (7): 696-744.

Green Power 2021, Ecological Baseline Study of Tung Chung River Catchment 202

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix A1 – Plant Species of Conservation Importance recorded during the EIA Study (southern half)

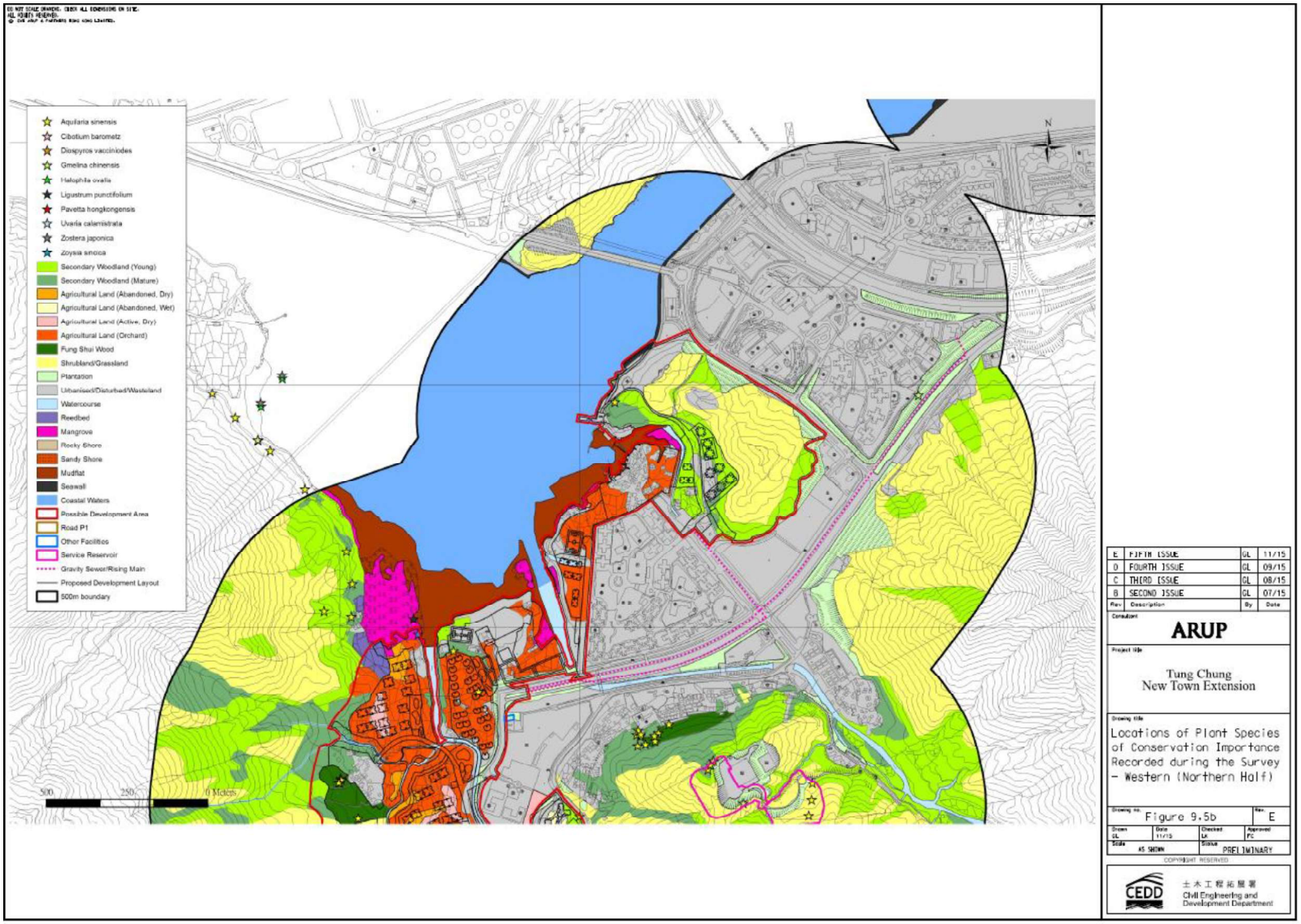
DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix A2 – Plant Species of Conservation Importance recorded during the EIA Study (northern half)

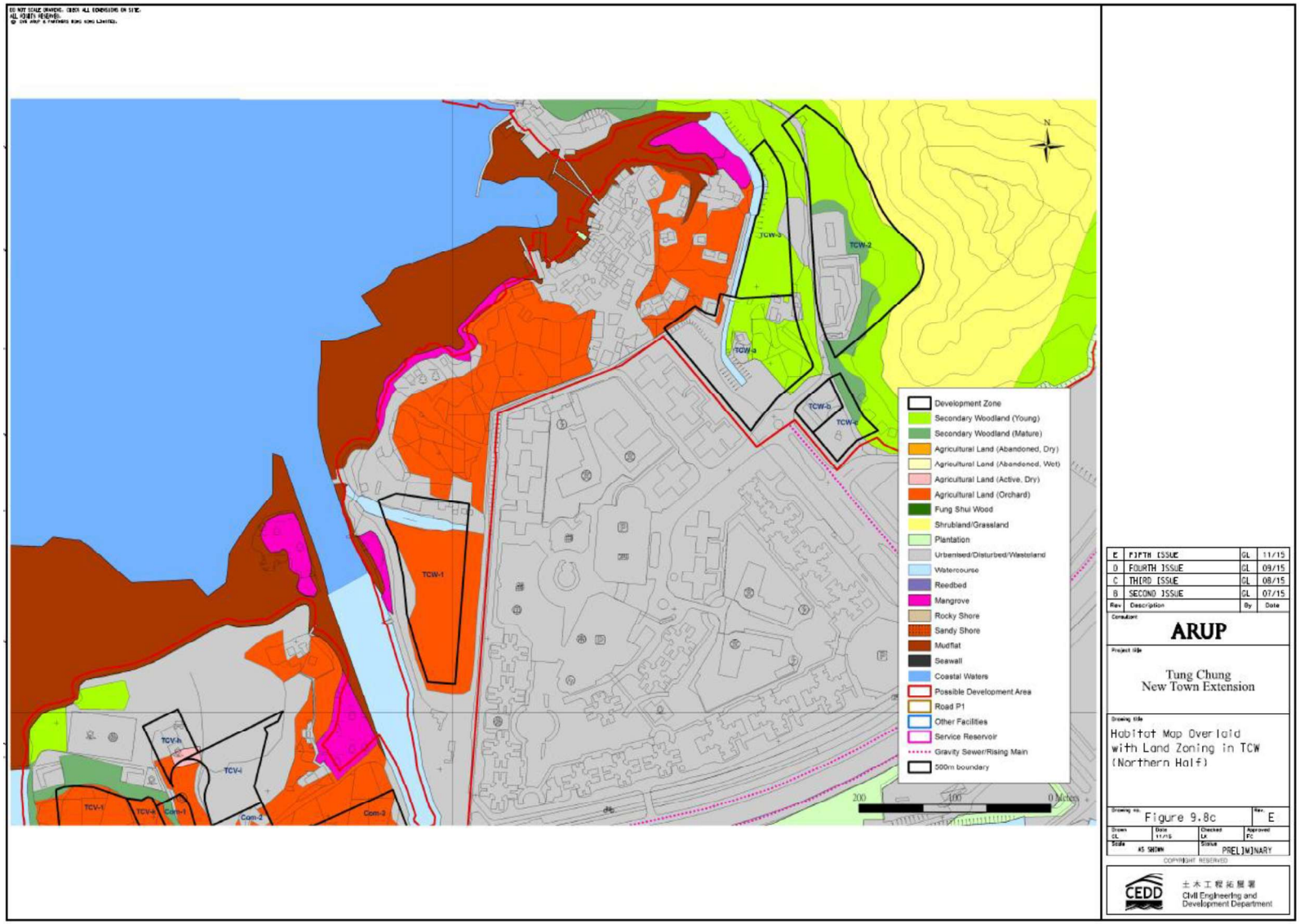
DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix B1 – Names of Development Areas in the Northern Tung Chung Valley during the EIA Study (northern half)

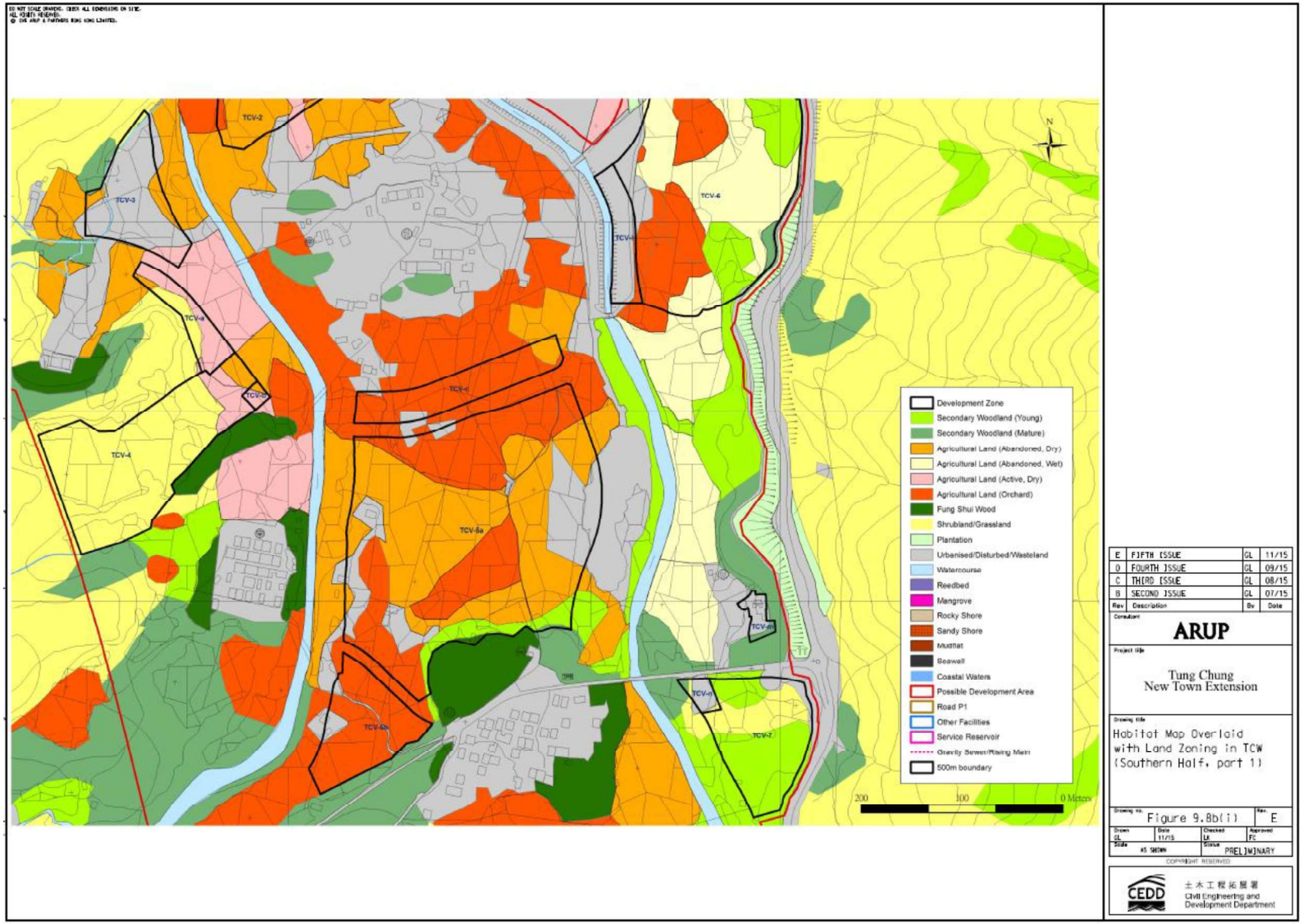
DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix B2 – Names of Development Areas in the Southern Tung Chung Valley during the EIA Study (southern half part 1)

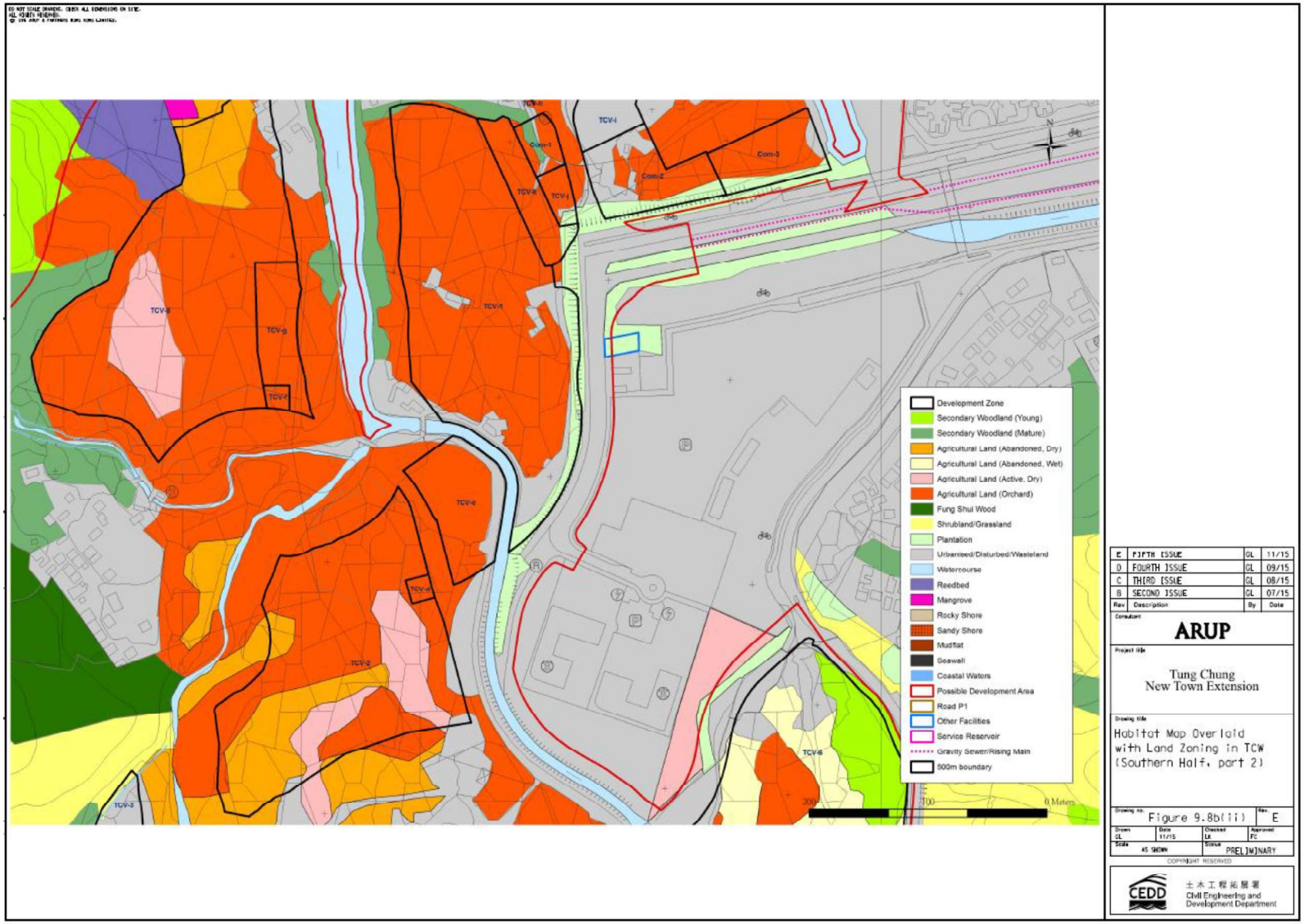
DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

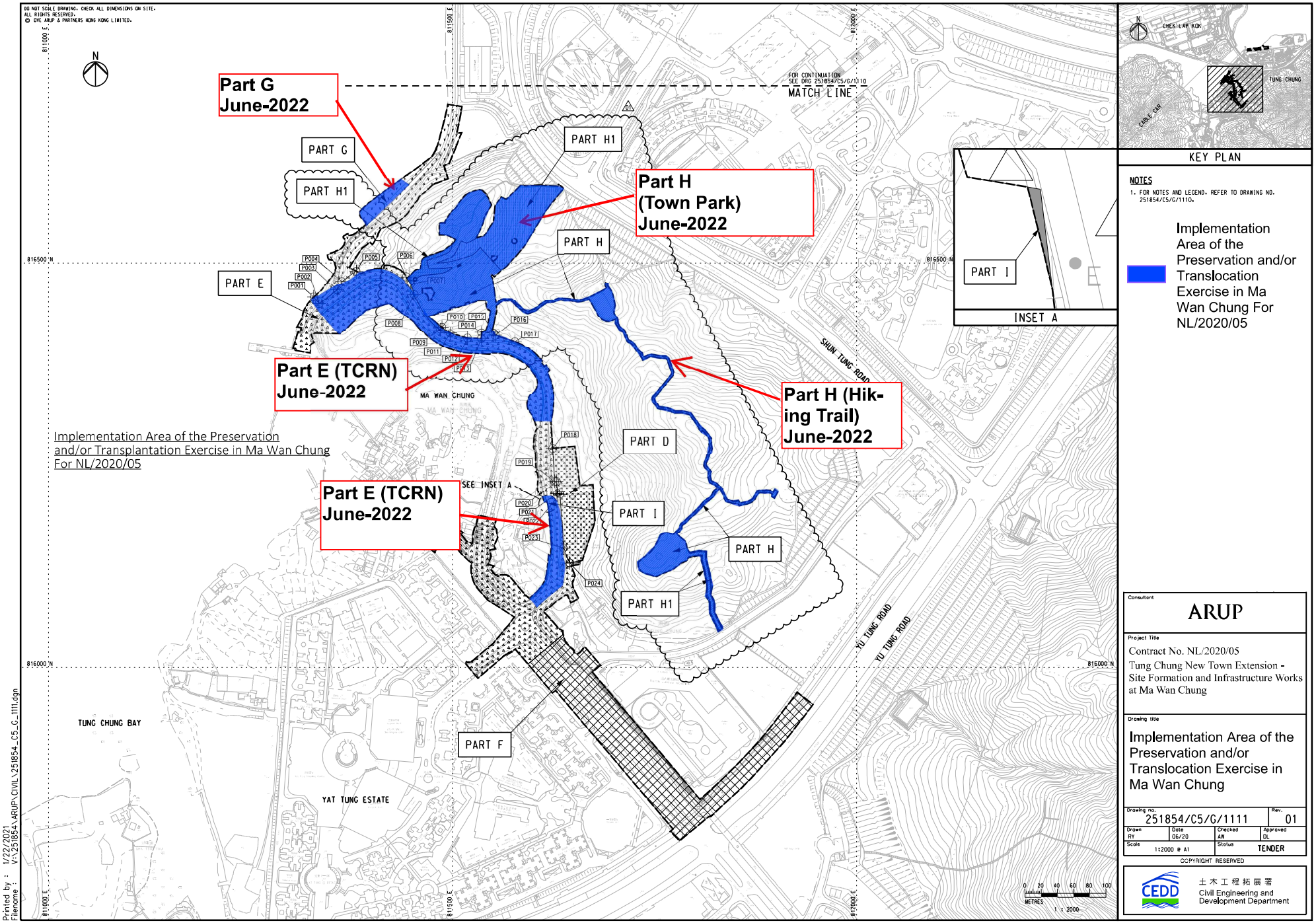
Appendix B3 – Names of Development Areas in the Southern Tung Chung Valley during the EIA Study (southern half part 2)

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



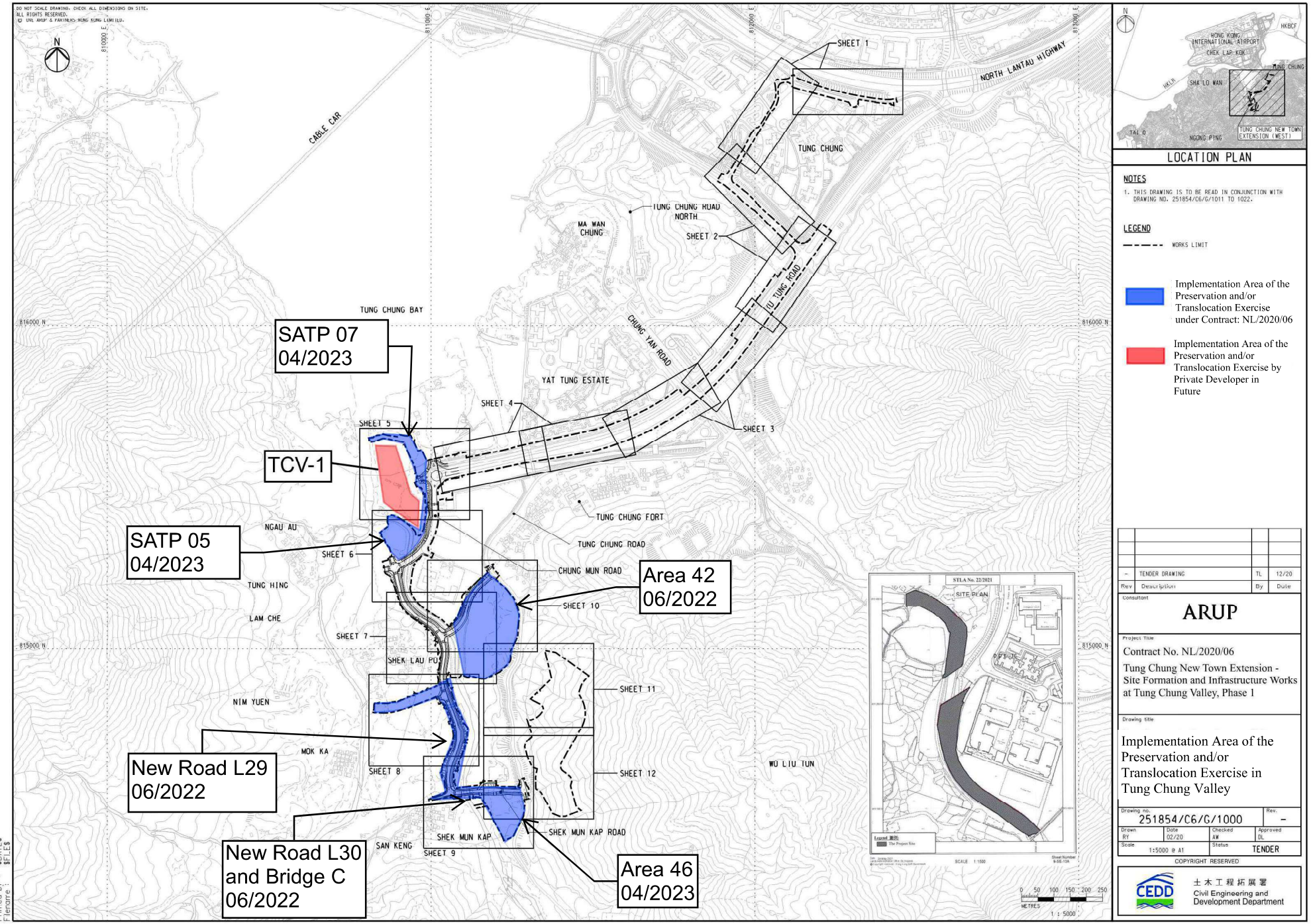
DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix C1 – Implementation Area of the Preservation and/or Translocation Exercise in Ma Wan Chung for NL/2020/05


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Part G
June-2022
PART G
PART H1
PART H1
Part H
(Town Park)
June-2022
PART H
PART E
Part E (TCRN)
June-2022
Part H (Hik-
ing Trail)
June-2022
PART D
PART I
PART H
PART H1
PART F
SEE INSET A
FOR CONTINUATION
SEE DRG 251854/C5/G/1110
MATCH LINE
INSET A
PART I
KEY PLAN
CHEK LAP KOK
TUNG CHUNG
CABLE CAR
SHUN TUNG ROAD
YU TUNG ROAD
YU TUNG ROAD
MA WAN CHUNG
TUNG CHUNG BAY
YAT TUNG ESTATE
811000 E
811500 E
812000 E
816500 N
816000 N
METRES
1 : 2000
Implementation Area of the Preservation and/or Transplantation Exercise in Ma Wan Chung For NL/2020/05
NOTES
1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 251854/C5/G/1110.
Implementation Area of the Preservation and/or Translocation Exercise in Ma Wan Chung For NL/2020/05
Consultant
ARUP
Project Title
Contract No. NL/2020/05
Tung Chung New Town Extension - Site Formation and Infrastructure Works at Ma Wan Chung
Drawing title
Implementation Area of the Preservation and/or Translocation Exercise in Ma Wan Chung
Drawing no.
251854/C5/G/1111
Rev.
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DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

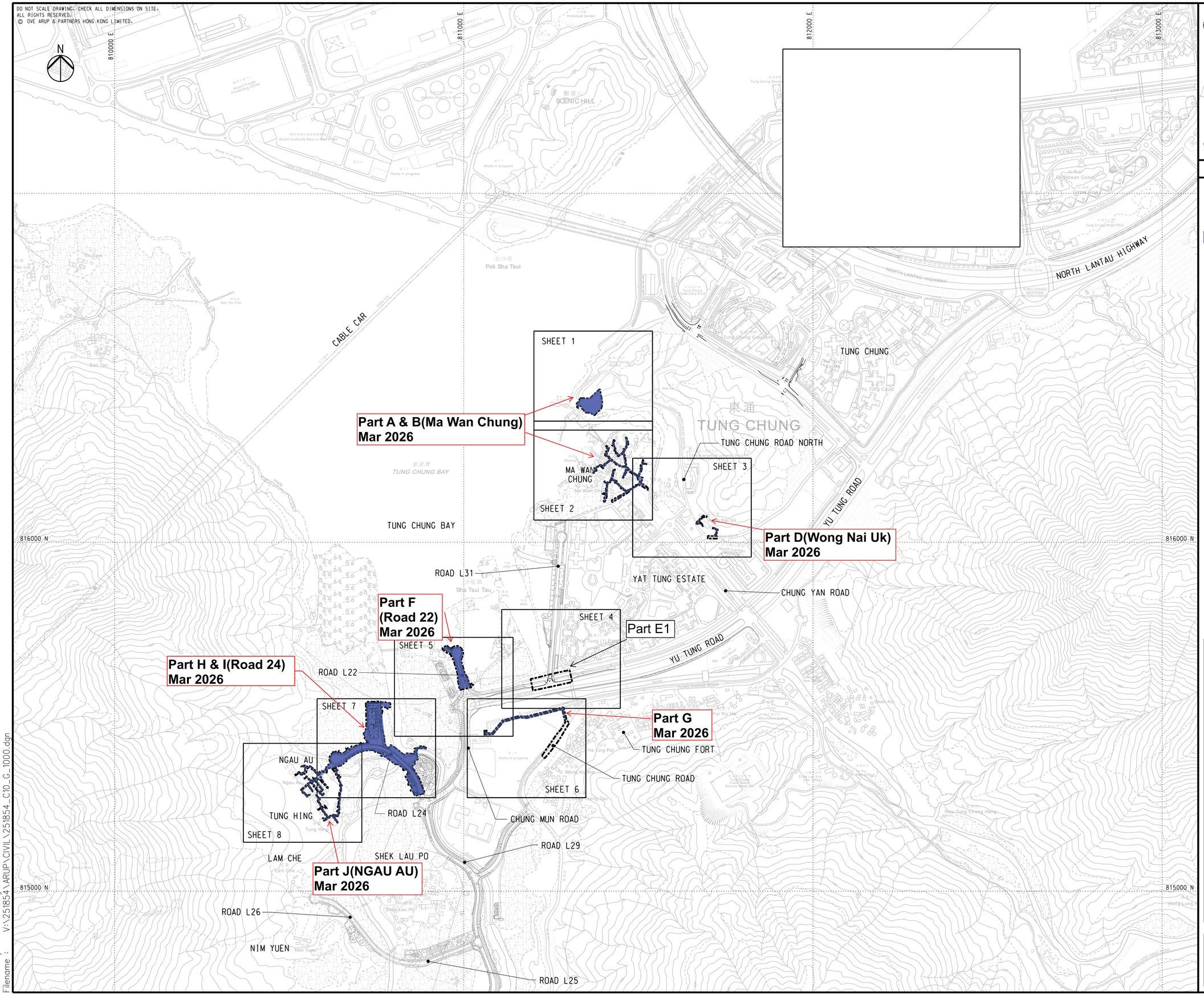
Appendix C2 – Implementation Area of the Preservation and/or Translocation Exercise in Tung Chung Valley for NL/2020/06

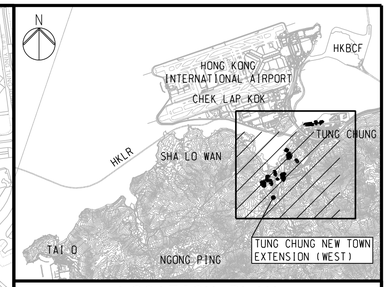

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N
811000 E
812000 E
813000 E
816000 N
815000 N
SHEET 1
NORTH LANTAU HIGHWAY
CABLE CAR
TUNG CHUNG
TUNG CHUNG ROAD NORTH
SHEET 2
MA WAN CHUNG
LIU TUNG ROAD
TUNG CHUNG BAY
CHUNG YAN ROAD
YAT TUNG ESTATE
SHEET 4
SHEET 3
SHEET 5
SATP 07
04/2023
TCV-1
TUNG CHUNG FORT
TUNG CHUNG ROAD
NGAU AU
SHEET 6
SATP 05
04/2023
CHUNG MUN ROAD
Area 42
06/2022
SHEET 10
TUNG HING
LAM CHE
SHEET 7
SHEK LAU PO
SHEET 11
NIM YUEN
MOK KA
New Road L29
06/2022
SHEET 8
SHEET 12
WU LIU TUN
SHEK MUN KAP
SHEK MUN KAP ROAD
SAN KENG
SHEET 9
New Road L30
and Bridge C
06/2022
Area 46
04/2023
SITE PLAN
SCALE 1:1500
0 50 100 150 200 250
METRES
1 : 5000
HONG KONG INTERNATIONAL AIRPORT
CHEK LAP KOK
HKBCF
TUNG CHUNG
SHA LO WAN
HKLR
TAI O
NGONG PING
TUNG CHUNG NEW TOWN EXTENSION (WEST)
LOCATION PLAN
NOTES
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. 251854/C6/G/1011 TO 1022.
LEGEND
WORKS LIMIT
Implementation Area of the Preservation and/or Translocation Exercise under Contract: NL/2020/06
Implementation Area of the Preservation and/or Translocation Exercise by Private Developer in Future
- TENDER DRAWING TL 12/20
Rev Description By Date
Consultant
ARUP
Project Title
Contract No. NL/2020/06
Tung Chung New Town Extension - Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1
Drawing title
Implementation Area of the Preservation and/or Translocation Exercise in Tung Chung Valley
Drawing no. 251854/C6/G/1000
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DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix C3 – Implementation Area of the Preservation and/or Translocation Exercise in Tung Chung Valley for NL/2023/10

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LOCATION PLAN

Implementaion Area of the Preservation and/or Translocation Exercise under Contract: NL/2023/10

Rev	Description	By	Date
-	TENDER DRAWING	WL	08/23

Consultant

ARUP

Project Title

Contract No. NL/2023/10

Tung Chung New Town Extension - Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung

Drawing title

Implementaion Area of the Preservation and/ or Translocation Exercise in Tung Chung Valley

Drawing no.	Rev.
251854/C10/G/1000	-

Drawn	Date	Checked	Approved
WL	08/23	AW	DL

Scale: 1:5000 @ A1

Status: TENDER

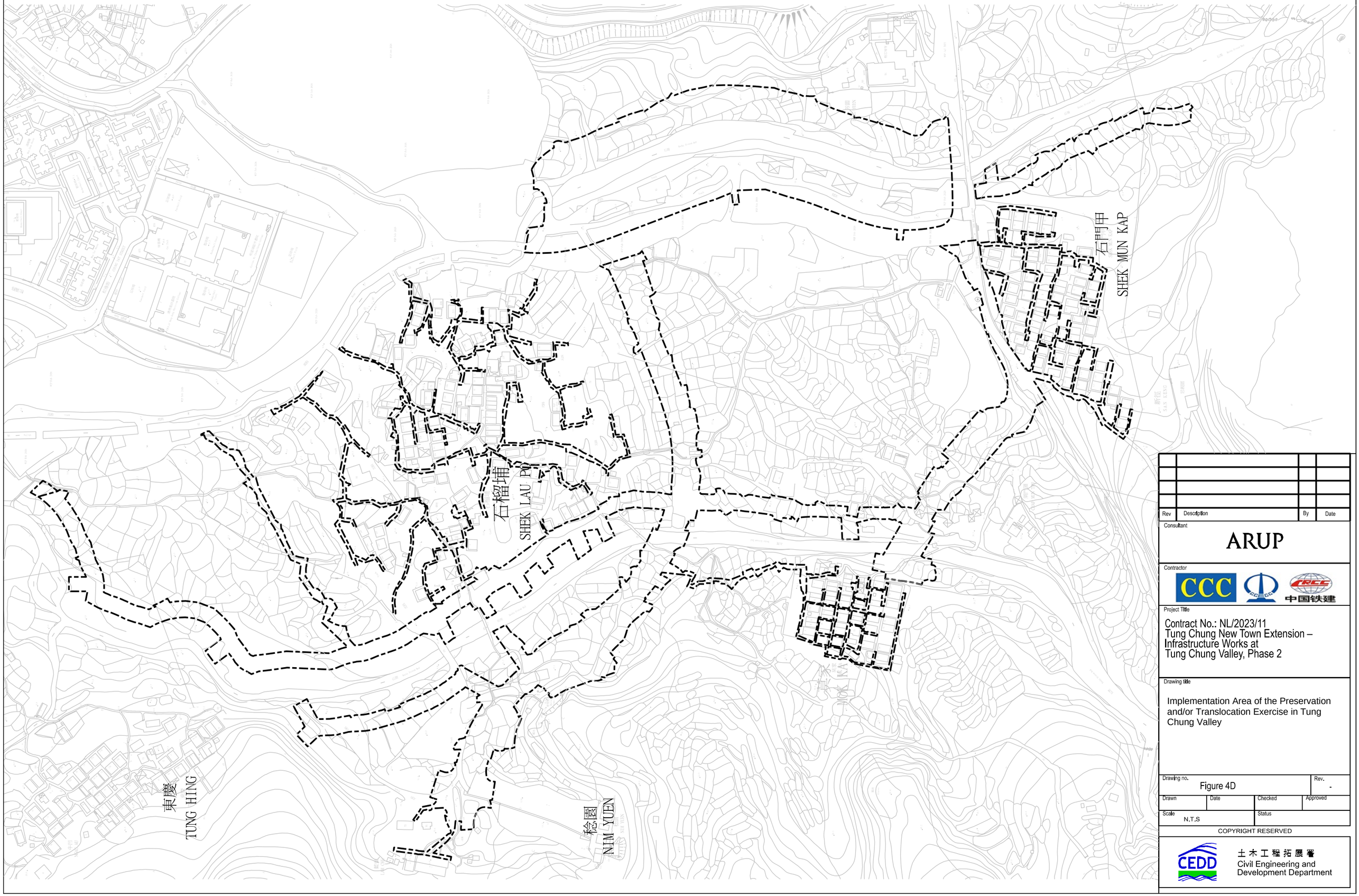
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Printed by : chak-sang.kan Date : 3/11/2024
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DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix C4 – Implementation Area of the Preservation and/or Translocation Exercise in Tung Chung Valley for NL/2023/11



Rev	Description	By	Date

Consultant

ARUP

Contractor

CCC 中国铁建

Project Title

Contract No.: NL/2023/11
Tung Chung New Town Extension – Infrastructure Works at Tung Chung Valley, Phase 2

Drawing title

Implementation Area of the Preservation and/or Translocation Exercise in Tung Chung Valley

Drawing no.		Rev.
Figure 4D		-
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Scale: N.T.S		Status

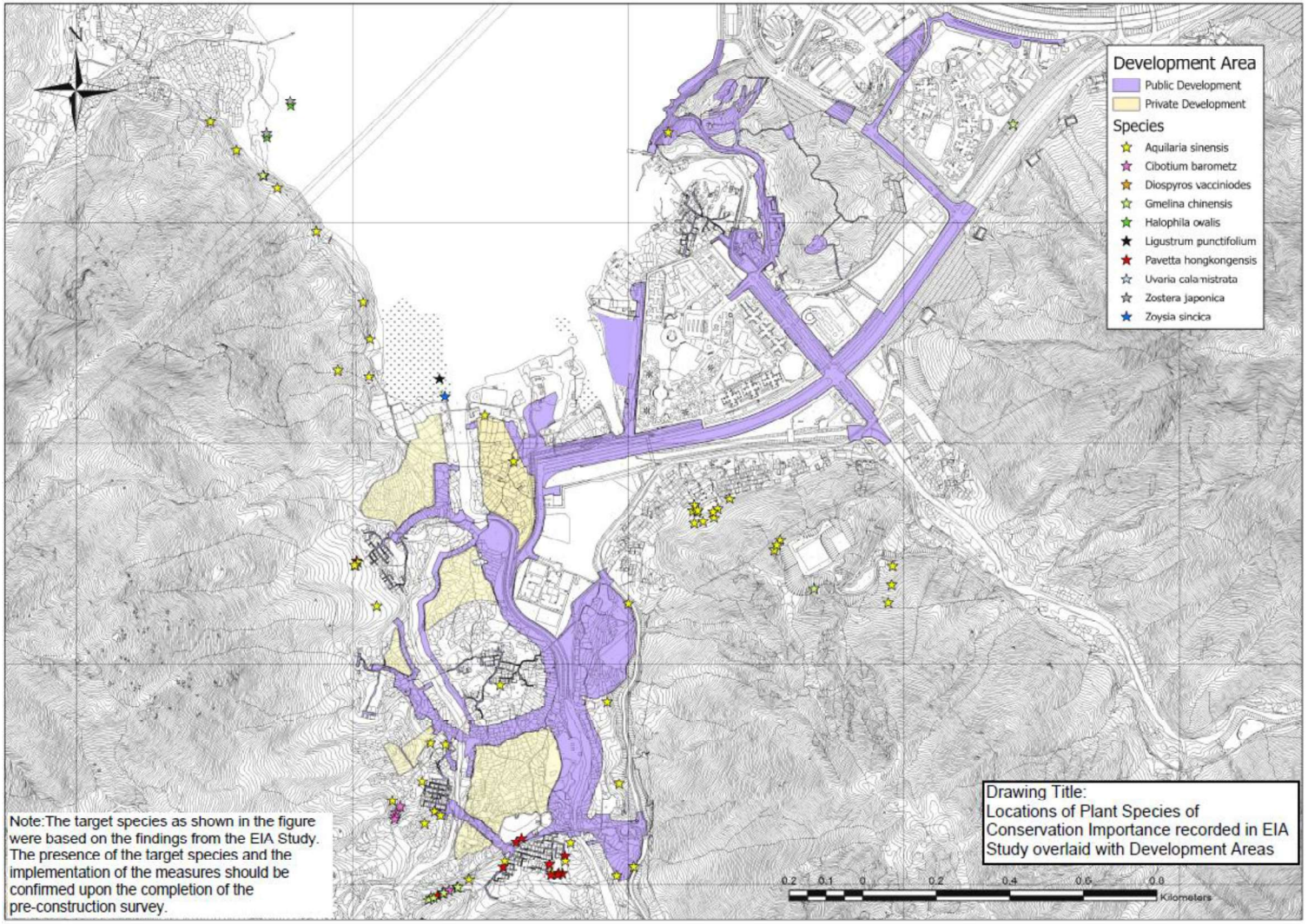
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DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix D – Locations of Plant Species of Conservation recorded in EIA Study overlaid with Development Areas

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE



DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix E – List of Species of Conservation Importance Concern Provided by Green Power

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

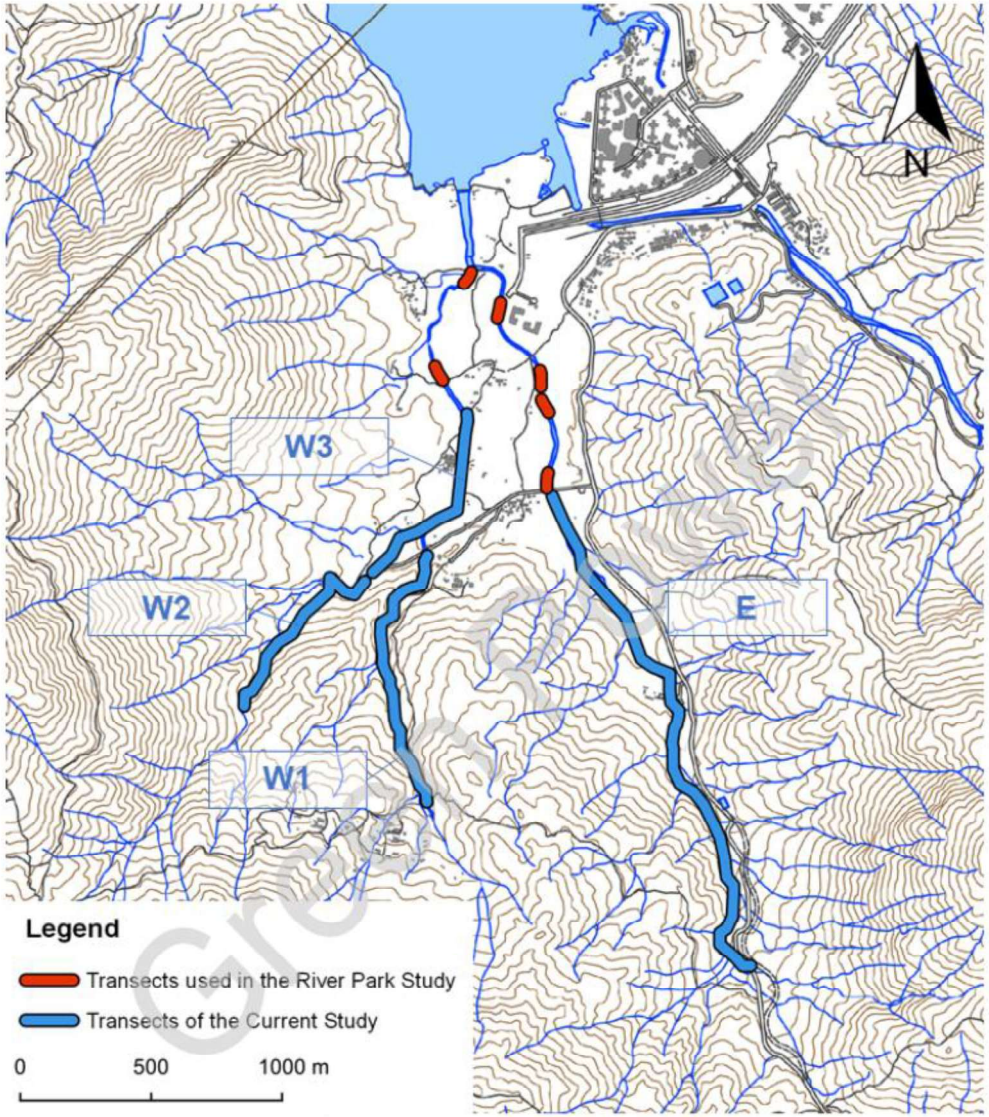


Figure 5.1. Map of survey units of plant survey conducted in Tung Chung River catchment between 2018-2021. The basemap is provided by the Hong Kong GeoData Store and intellectual property rights are owned by the Government of the HKSAR.

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Scientific Name	Common Name	Chinese Name	Conservation, Protection and Local Status[1]	E	W1	W2	W3	^
Trachelospermum jasminoides	Star Jasmine	絡石	H(R)		*			
Chamaecrista leschenaultiana	Wild Sensitive-plant	短葉決明	H(R)	*				
Cibotium barometz	Lamb of Tartary	金毛狗	R(VU), Cap. 586		*	*	*	
Gnetum luofuense	Luofushan Joint-fir	羅浮買麻藤	IUCN(NT)	*	*	*	*	*
Acacia pennata	Snake Acacia	羽葉金合歡	H(R)		*			*
Entada phaseoloides	Giant Bean	榼藤	R(LC), H(VR)		*			
Nepenthes mirabilis	Pitcher Plant	豬籠草	R(VU), Cap. 96, Cap. 586	*				*
Ania hongkongensis	Hong Kong Ania	香港帶唇蘭	Cap. 96, Cap. 586		*			
Arundina graminifolia	Bamboo Orchid	竹葉蘭	Cap. 96, Cap. 586		*			
Goodyera procera	Tall Rattlesnake-plantain	高斑葉蘭	Cap. 96, Cap. 586	*				*
Phaius tankervilliae	Common Phaius	鶴頂蘭	Cap. 96, Cap. 586	*				
Spiranthes sinensis	Ladies Treeses	綬草	Cap. 96, Cap. 586	*				*
Canthium dicoccum	Butulang Canthium	魚骨木	IUCN(VU)	*	*	*		
Eurya acuminatissima	Acute-sepal Eurya	尖葉毛柃	H(R)			*		
Aquilaria sinensis	Incense Tree	土沉香	C(VU), R(NT), Cap. 586	*	*	*		*
Gmelina chinensis	-	石梓	R(VU)	*		*		
Total no. of species of conservation concern recorded			**16**	**9**	**9**	**6**	**2**	**6**

Table 5.1. Species of conservation concern recorded within Tung Chung River catchment between 2018-2021. ^ denotes casual records collected beyond designated transects. * denotes presence. Non-native or cultivated species are excluded.

1. Conservation, Protection and Local Status

IUCN – Conservation Status in IUCN (2021): VU = Vulnerable, NT = Near Threatened.
C – Conservation status in *China Red Data Book* (Fu & Chin 1992): VU = Vulnerable.
R - Listed in the *Rare and Precious Plants of Hong Kong* (AFCD 2003) (status in China): VU = Vulnerable; NT = Near Threatened; LC = Least Concern.
H – Conservation status in *Hong Kong vascular plants: Distribution and status* (Corlett et al. 2000): VR = Very Rare; R = Rare.
Cap. 96 - Protected under *The Forests and Countryside Ordinance*.
Cap. 586 - Protected under *The Protection of Endangered Species of Animals and Plants Ordinance*.

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Appendix F – Assessment Criteria for Target Species

DETAILED PRESERVATION AND/OR TRANSLOCATION PLAN FOR PLANT SPECIES OF CONSERVATION IMPORTANCE

Assessment Criteria for the Target Species

Form (applicable to tree/shrub only)

Assessment of "Form" is classified as follows:

Good : Tree/shrub of well balanced form, well-shaped crown, good branch scaffolding, high live crown ratio. Trunk intact, not topped, with good taper; for excurrent species a straight and upright leader; for decurrent species well distributed primary branches. Specimen tree/shrub that is an excellent representative of its species.

Average : Tree/shrub of generally balanced form, generally upright trunk with good taper, evenly branched; medium live crown ratio; trees/shrubs more or less in accordance with the standard form for its species.

Poor : Tree/shrub of unbalanced form, leaning, crooked, bending trunk; multiple trunks or closely spaced competing leaders; trees/shrubs suffering from loss of major branches, topped trunk; trees/shrubs growing close to adjacent trees/shrubs or structures with poor taper and low live crown ratio.

Health

Based on the below criteria, the classification of "Health" is as follows:

Good : Plant with no apparent health problem.

Average : Plant with small amount of health problems and a high chance of recovery.

Poor : Plant with serious health problems and with a low chance of recovery, even with remedial measure.

The "Health" of a plant is assessed according to the following criteria:

- ***Foliage and Twigs:***
  - general plant vigour;
  - whether the leaf density, colour and size is typical for the species at the season;
  - evidence of poor shoot growth, dieback twigs and epicormics; and
  - signs of pest and disease.

- ***Branches*** **(applicable to tree/shrub only)*:***
  - presence and amount of dead branches;
  - decay and/or open cavity on branches;

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- wounds or mechanical damage on branches;
- bleeding or sap flow; and
- signs of pest, disease and fungal fruiting bodies.

• ***Trunk*** **(applicable to tree/shrub only)*:***

- degree of leaning;
- co-dominant trunks, included bark;
- crooks / abrupt bends;
- wounds, damages, cracks or splits; and
- decay, open cavity, abnormal bulge that may indicate internal rot.

• ***Root*** **(applicable to tree/shrub only)*:***

- root flare condition;
- girdling roots;
- soil cracks or root plate movement; and
- evidence of restricted rooting area, disturbed roots.

• ***Climbers / Parasitic Plants:***

- occurrence and coverage of aggressive climbers and/or parasitic plants.

Structural Condition (applicable to tree/shrub only)
The classification of "Structural Condition" is as follows:

Good : Plant with no or insignificant structural problems.

Average : Plant with minor structural problems that can be tolerated, or that can be corrected with mitigation measures and a high chance of recovery afterwards.

Poor : Plant with serious structural problems that is not correctable, or requires severe pruning that would lead to extensive removal of live foliage, deformation of natural form, or large unrecoverable wound.

The "Structural Condition" of a plant is assessed according to the following criteria:

• ***Crown and Branches:***

- live crown ratio, symmetry of canopy, evidence of heavy crown load;
- evidence of crown reduced, excessively thinned/topped/pollarded;
- co-dominant branches / leaders, included bark;
- crooks / abrupt bends;
- decay and/or open cavity on branches;
- dead branches, hangers, cross branches;
- wounds, damages, cracks or splits; and
- heavy lateral limb / lion's tailing.

• ***Trunk:***

- degree of leaning;

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- co-dominant trunks, included bark;
- crooks / abrupt bends;
- wounds, damages, cracks or splits; and
- decay, open cavity, abnormal bulge that may indicate internal rot.

• ***Root:***

- root flare condition;
- girdling roots;
- soil cracks or root plate movement; and
- evidence of restricted rooting area, disturbed roots.

Suitability for Transplanting

The classification of "Suitability for Transplanting" is as follows:

High : Plants that are considered highly suitable for transplanting if necessary.

Medium : Plants that are considered fairly suitable for transplanting if necessary.

Low : Plants that are considered unsuitable for transplanting.

The "Suitability for Transplanting" of a plant is assessed according to the following criteria and the rationale elaborated in the "Remarks" column:

• ***Plant Size:***

- Generally the larger a plant, the more difficult to be transplanted in terms of logistics and engineering limitation.
- Plants of very large size should not be considered suitable for transplanting, unless the feasibility to transplant is considered financially reasonable and technically feasible.

• ***Maturity*:**

- The more mature a plant, the lower of its post-transplant recovery power.
- Plants with evidence of over-maturity and onset of senescence should not be considered suitable for transplanting.

• ***Anticipated Form after Transplanting*** **(applicable to tree/shrub only):**

- Trees/shrubs anticipated to have irrecoverable form after transplanting (e.g. if substantial crown and root pruning are necessary to facilitate the transplanting) should not be considered suitable for transplanting.

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• ***Health, Form and Structure*:**

- Plants with unrecoverable health problem, structural problem or trees with

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poor form should not be considered suitable for transplanting.
- If the plant is already in poor health, it is highly unlikely to withstand the stress of transplantation. By the same token, a plant that has a balanced form and is in good health has a higher feasibility of successful transplantation.

• ***Survival Rate of that Particular Species***:

- Different plant species have different tolerance to the stress of transplantation and also have different post-transplant recovery rate. The assessment of the survival rate of a species after transplantation is based on the observed performance of that species in previous transplantation experiences. For species with insufficient transplantation data, the post-transplant survival rate of other similar and related species will be considered if available.

• ***Feasibility of Rootball Preparation***:

- Site topography, ground condition and physical impediments in proximity of above and below ground structures such as wall, utilities, manholes, rocks, foundations, or distance from other plants are all major factors determining the feasibility of rootball preparation.
- For example, a plant growing on rock crevices is infeasible to be extracted with a proper rootball. A plant growing on sloped ground has tilted root system that is unsuitable for transplanting to flat area. A plant rooted close to structures, surrounded by hard paving or which is crowded by other plants or trees is unlikely to obtain a sufficiently large rootball after root cutting.

• ***Accessibility***:

- A proper access to the plant's existing location is required for personnel and machineries to safely carry out the transplanting works. A plant cannot be transplanted if it is growing on inaccessible areas such as steep slopes and/or areas without proper vehicular/machinery access.
- Topography of the proposed route, size limitation on public road transport, and any engineering limitations should also be considered.

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Appendix G – Tentative Method Statement for Preservation and Translocation Works of Target Species

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Method Statement for Protection of Retained Target Species

General:

The methodology for the protection of the retained target species shall make reference to the "Technical Circular (Works) No. 4/2020 – Tree Preservation.

1. Foreword:

This Method Statement aims to outline the general requirement for preservation and protection of retained target species. In addition to this Method Statement, the Contractor shall also follow all relevant statutory and technical guidelines promulgated by the Government, including but not limited to the following:

- General Specification for Civil Engineering Works (2006 Ed.), Section 26 - "Preservation and Protection of Trees";
- All relevant guidelines and Proper Planting Practices from Greening, Landscape and Tree Management Section (GLTMS) of Development Bureau, in particular:
  - "Proper Planting Practice - Design for Tree Protection Zone";
  - "Pictorial Guide for Tree Maintenance";
  - "Tree Care During Construction",

For any discrepancies between this Method Statement and the abovementioned guidelines, the abovementioned guidelines shall take precedence.

2. General Requirements:

- The Contractor shall fully allow the effects of preservation and protection of existing plants in this program, the method of operation and construction, and the vehicular access for the works,

- The Contractor shall assign a person in full-time to oversee the preservation and protection of existing plants.

3. General Precautionary Measures:

To protect target species to be retained, the Contractor shall ensure for the whole duration of the Contract, the following:

- Plant labels for individually surveyed target species shall be placed prior to the commencement of works;
- Plants and their rooting system with soiling assessed as retained with plant labels to be treated with proper plant protection measures, e.g. hoarding along the drip line of plant canopy, by the Contractor;
- Appropriate hoarding as demarcation to block the unaffected plant areas should be placed prior to the commencement of works;
- No unnecessary intrusion into the plant protection zones of preserved individual plants;
- No nails or other fixings shall be driven into the plants, including the exposed roots;
- No fencing, services, or signs other than the identification labels or markings shall be attached to any part of the plants;
- No plants shall be used as anchorages

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for ropes or chains used in guying or pulling or for equipment used for removing stumps, roots or other plants, or for any other purpose;

- No soil, materials, equipment or machinery shall be stockpiled or stored within the plant protection zones;
- No site offices, workshops, canteens, containers or similar structures shall be installed within the plant protection zones;
- Petrol, oil, bitumen, creosote, cement and other materials likely to be injurious to the plants shall be kept away from the plant protection zones, and any accidental spills of these materials shall be cleaned up immediately;
- Excessive water shall be drained away from the plant protection zones to prevent damage to plant roots by asphyxiation;
- The surface on slopes shall be shaped so that water will not drain to the tree trunks but bypass them;
- No passage or parking of vehicles and no operation of equipment or machinery shall take place within the plant protection zones unless otherwise agreed by the Project Manager;
- No stripping of surface vegetation or top layer of soil shall be carried out within the plant protection zones unless otherwise agreed by the Project Manager;
- No fire shall be lit within the plant protection zones or in a position where the flames will likely extend to within 5 m of foliage, branches or trunks of the plants, bearing in mind the size of the fire and the wind direction;
- No concrete mixing, gas tank filling, paintbrush and tool cleaning, or equipment maintenance shall be carried out within the plant protection zones;
- Any necessary scarification or cultivation within the plant protection zones shall be carried out carefully by hand so as not to cause damage to the plants, in particular the bark and the roots;
- Any equipment, in particular delivery vehicles, overhead cranes, mechanical excavations, drilling rigs and piling rigs, shall be carefully operated so as not to cause striking of the trunks, branches, foliage or root collars of the plants;
- The plant, especially trees to be felled that are adjacent to, or that lie within a continuous canopy of, the preserved plants, shall be carefully removed, and if necessary in sections but not using bulldozers in any circumstances, so as not to cause damage to the preserved plants such as scraping bark off trunks or breaking branches of plants;
- Where it is necessary to use herbicides to kill any vegetation, herbicides that can leach through the soil, such as the products containing sodium chlorate, and any other herbicides that are injurious to the plants shall not be used;
- Allowance shall be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards the plants;
- Alkaline clay or limestone shall not be used for filling or paving, concrete shall be mixed on a thick plastic tarpaulin or outside the Site, and mixing trucks shall not be rinsed out on the Site, so as not to cause changes, in particular increases, in soil pH;
- All building debris and chemical wastes shall be hauled away for proper disposal, and in any circumstances shall not be burned or buried on the Site or be disposed of by pouring them on the soil within the Site; and
- Proper pruning proposals to the retained plants should be included in the method statement submitted by the Contractor prior to the execution of the related works.

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4. Securing and Staking Retained Plants

If necessary, secure retained tree with 3 nos. bamboo stakes to form a tripod to the trunk and drive the ends securely into ground. Wrap the area of trunk with pads of hessian or rubber to prevent the tie from chafing the trunk or branches.

5. Pruning (For Tree Only)

- The Contractor shall not carry out pruning to the preserved trees unless the pruning work is required under the Contract or is directed by the Project Manager. The Contractor shall notify the Project Manager of any preserved trees whose branches interfere with the Works and thus require pruning. Pruning shall only commence after the Project Manager's approval has been obtained. The Contractor shall carry out the approved pruning work during the site clearance stage unless otherwise instructed or agreed by the Project Manager.

- The Contractor shall comply with ETWB/DEVB's "General Guidelines on Tree Pruning" when carrying out the pruning work.

6. Pests & Fungal Growth

The site shall regularly check for any insect attack, termite attack or fungus infestation particularly during known periods of activity, Carry out remedial measures on any such occurrence and shall use of sprayed insecticide/fungicides in strict accordance with the manufacturer's instructions. In case of termite attack, specialist shall be employed by the Contractor to provide proposal to eliminate the termite with monthly monitoring report through out the Contract and the establishment period. Use of such materials shall be with due care and have regard to the safety and convenience of the general public and is to be carefully controlled to avoid unnecessary dispersion.

7. Creation and Protection of the PlantProtection Zone by Protective Fencing

Temporary protective fencing shall be erected before other works commence, Protective fence 2.0m high should be erected along the boundary of the Tree Protection Zone (TPZ), and other protection zone for other target species other than trees, which means an area the perimeter of which is defined by the dripline of the plant / plant group to be retained, The protective fence shall come with a padlocked door, access to it shall be restricted only to workers directly involved in plant work. No construction worker shall enter the protection zone. No construction equipment or materials shall breach the protection zone. No heat or fume shall drift into the protection zone. No lifted materials shall sail above the protection zone.

The base of the protective fence shall be sealed by sand bag at least 200 mm tall to prevent the entry of contaminated construction water and other effluent into the protection zone.

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Method Statement for Target Species Transplanting Works

The general guidelines, requirement and precautionary measures stated in the Method Statement for Protection of Retained Target Species also applicable to the transplanting works.

1. Preparation before Transplanting

Prior to the transplant, the landscape contractor should inspect the latest conditions of the individuals to be transplanted and remove any climbers or vegetation that may deter the health and growth of the individuals after the transplant.

For young trees and trees with DBH≥95mm, pruning of tree roots at appropriate time is required for transplantation. The qualified arborist/botanist should determine the appropriate transplanting methodology with reference to the present sizes of the target species to be transplanted.

2. Crown Thinning (For Tree Only)

The total extent of crown thinning should be minimized and in any case should not exceed 1/4 of the original crown on leaf removal. The height of tree shall not be reduced, unless crown reduction, thinning are considered appropriate. Under No circumstances the central main leader of the trees should be pruned or interfered. Should branch pruning is consider necessary, this should aims specifically at the removal of dead, decayed, diseased, infested, broken, crossed, competing or dangerous branches. The objective is to produce a clean, well-spaced, well-shaped and balance head. Besides the above list of circumstances, all other healthy wood should not be cut or removed. To reduce transpiration though leaves in anticipation of root pruning, additional crown thinning will be implemented by means of leaf picking. This minimum-impact approach will also prevent the loss of the original tree crown form. All work shall be carried out in accordance with good horticultural practice and British Standard 4043:1989 – "Recommendations for transplanting root balled trees", and also based on the latest arboricultural concepts and best international practices, and shall be directed and supervised by a qualified arborist/botanist.

Safety precautions shall be taken to protect those engaged in operations as well as people and property in the vicinity. Pruning and removal of branches shall be done using sharp, clean implements to give a single flat, sloping face. Ragged edges of bark or wood are to be trimmed with a sharp knife. Large branches shall be removed in stages beginning with removal of the main weight of the branch with the final cut as close to the main stem as possible without damaging the bark. In the case of branch removal, the final cut should be aligned with the branch collar and the mid-point of the crotch. All cuts shall be made to avoid splintering or tearing of bark which would catch water and encourage rot. Branches less than 15 mm diameter may be cut with sharp secateurs.

3. Tree Pruning (For Tree Only)

Trees requiring pruning or treatment will be categorized as follows.

a) No hard pruning on tree canopy is allowed.

b) Light prune

This shall include the removal of a few branches up to 75mm in diameter.

c) Thin crown

This shall include the picking of leaves of the crown with the extent not to exceed 1/4 of the original tree crown size.

d) Treat for pest and/or disease attack

This shall include the application of an approved pesticide or fungicide to the infected areas in accordance with the manufacturer's instructions and government guidelines.

4. Root Pruning (For Tree Only)

Immediately upon commencement of the contract, root pruning to the specified size of root ball shall be carried out to ensure maximum new fibrous root growth prior to transplanting operations. The first root pruning should be conducted at least 3 months in advance of transplanting.

The width of root ball shall be 10 times the trunk diameter (DBH). The depth of the root ball shall be 1000mm.

Root cutting shall be done in four stages and shall be performed throughout the designated root preparation period as

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mentioned above. The trenches (total 6 nos.) for the root ball shall be 500 mm wide, excavated by hand, and backfilled with a prepared soil mix constituted of 3 parts by volume of completely decomposed granite (CDG) thoroughly mixed with 1 part by volume of moist peat. Rooting hormone shall be applied to stimulate new root growth.

The First Stage shall involve cutting two parallel straight trenches on two sides of the proposed root ball.

The Second Stage (1 month after The First Stage) shall involve cutting trenches on the adjacent two sides of the proposed root ball.

The Third Stage (1 month after The Second Stage) shall involve cutting trenches on the remaining two sides of the proposed root ball.

The Last Stage (1 month after The Third Stage) shall be the cutting of the underside of the root ball and the transplanting of the tree to the final location.

Roots shall be cut free from ground, not pulled, using a suitable implement to give a clean cut. All roots thicker than 50mm diameter shall be treated with an approved sealant.

5. Root Ball Preparation

All selected individuals should be transplanted within the same day once their root balls are prepared. An intact root ball of suitable size should be prepared for each transplanted individual and the size should be justified by the qualified arborist/botanist based on the present size and site condition of the plant.

Before uplifting, the trenches shall be carefully excavated by hand to preserve all newly generated roots. Root pruning, undercut and shaping of root ball of each transplanted individual should be carried out immediately prior to uplifting the root ball.

Each formed root ball should be wrapped with hessian burlap and on the outside with galvanized chicken wire (if suitable) after undercutting. It is to ensure the root ball is firm and the soil is kept in full contact around the root system. The hessian burlap shall be kept moist to keep the roots from drying out during the whole transplantation process and to avoid exposure under sun and strong wind. The root ball shall then be tied with stainless steel chain net with wooden spacer for lifting.

6. Preparation of the Receiving Site

Preparation of the receptor site(s) should be completed before transplanting the uplifted root balls. At the receiving site, planting pits and holes at pre-determined locations shall be dug in advance to appropriate width and depth in preparation to receive the transplanted plants on the same day. Minimal site clearance, including removal of weedy climbers, herbs, large stones and concrete materials, at the receptor site should be carried out to provide adequate growth space for the transplanted individuals. If necessary, soil at the receptor site(s) should be conditioned or fertilized before the transplant.

For transplanted trees, the pit shall be of a saucer shape, with a flat bottom in the centre and sloping sides. The flat bottom part shall be as wide as the root ball width, and each sloping edge shall also be as wide as the root ball plus 300mm on all sides.

For transplanted shrubs, seedlings and saplings, a planting hole should be marked and dug for each transplanted individual and excavated with the same size or larger than the diameter of the prepared root balls. Each planting hole should be backfilled with soil mix after planting the prepared root ball. The backfill should be compacted in layers around the root ball until a level with the surrounding ground to limit future settling and prevent air pockets.

The qualified arborist/botanist or landscape Contractor should adjust the actual locations and separation between the planting holes and pits according to the actual site conditions.

7. Plant Uplifting and Transit

The lifting, transplanting and planting of the target species shall be closely supervised on site by a qualified arborist/botanist. The logistics of the transplanting operation shall be properly organized and timed in advance so as to enable transplanting of the target species directly and promptly to the designated receiving sites of planting. Should the permanent receiving site is not ready, plants should be temporary transplant to a holding nursery and re-transplant back when the receiving site is ready.

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The plants shall be lifted carefully to avoid damage to stem, foliage and roots during digging, transporting and planting processes.

The lifting cables and harnesses shall only be anchored to the root ball box or the chain net wrapping around the root ball for the ball and burlap method. They should never be attached to the trunk, stem or branches. The upper part of the lifting cable should be spread out by frame spacer to prevent the cable from touching the branch at the time of lifting. Guying rope should be tie to the lifting cable to stabilize the tree at the time of lifting. The trunk, stem and the branch should be temporary protected by burlap wrapping and be removed once complete.

After root ball preparation and in the process of transplanting to the receiving site, root balls are to be carefully protected against direct sunlight, wind, drought, mechanical, smoke, artificial heat and other damages. Damaged branches shall be carefully pruned using a sharp clean implement to give a single flat sloping face cut.

8. Planting

The transplanted plants shall be planted in an upright position and allowing adequate space for future growth. A soil saucer of 150 mm high shall be formed on the soil surface around the edge of the root ball to permit rain or irrigation water to be retained and to slowly infiltrate into the root ball. Mulch should be placed around the transplanted seedlings to retain moisture. Adequate watering should be provided on each root ball immediately after the planting work to ensure a thorough soaking of the root balls.

Location of each transplanted individual should be mapped and located for future monitoring. If necessary, the transplanted individual should be fenced in a protected area.

9. Securing and Staking Transplanted Plants

Wrap all trees to be staked or guyed above ground with pads of hessian or rubber to prevent from chafing the trunk or branches.

Stake transplanted tree with 3 nos. bamboo stakes arranged in a tripod to support the tree at approximately one-third of the total tree height as measured from ground.

For transplanted shrubs, seedlings and saplings, bamboo sticks or other appropriate supportive guy should be installed if necessary to stabilise the transplanted plants throughout the establishment period.

10. Transplanting from Holding Nursery to Final Recipient Location

For plants that are transplanted to a holding nursery, at the end of the holding period, similar root pruning period and preparation works as described above shall be carried out prior to uplifting the plants to the final recipient location. Procedure for uplifting from holding nursery, transit to the final recipient location, planting and securing the transplanted plants shall follow the above sections.

11. Maintenance/Establishment works and Monitoring of Transplanted Plants

The transplanted plants shall be maintained immediately after transplanting and shall continue until the completion of all construction work at the site, and thereafter for a period of 12 more months. Such maintenance shall include all measures necessary to establish and to recover from the transplant shock and to permit an acceptable vigorous healthy growing condition. This to include watering, fertilizing, weeding, apply root activator, staking, apply insecticide, etc.

The performance of the transplanted plants shall be monitored throughout the maintenance period on a monthly basis for the first year and quarterly for the second year by recording on a pro-forma report: plant growth condition with reference to trunk, branches, foliage, soil and root, any arboricultural problems and associated remedial measures. Any construction activities that may impact the trees negatively shall be reported well in advance to the Project Manager for planning of preventive tree work to avoid possible damages. All non-routine tree problems are to be promptly reported to the Project Manager.

The Contractor shall take photographs at the

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following key junctures of the tree works:

1. Before commencement
2. After crown thinning
3. 1st root pruning
4. 2nd root pruning
5. 3nd root pruning
6. Final root pruning (under-cutting)
7. Forming root ball
8. Excavating plant pit at receiving site
9. Transit to final location or holding nursery
10. Planting at receiving site
11. Monthly record photo throughout the construction period
12. Monthly record photo during 12 months establishment / maintenance period after Completion of Contract.

Monitoring report on the transplanted plants' health condition with photos on the status of the transplant plants throughout all stages of transplanting works will be prepared by a qualified Botanist / Tree Specialist for Project Manager's review.