土 木 工 程 拓 展 署
Civil Engineering and Development Department
Sustainable Lantau Office

Tung Chung New Town Extension
Detailed Compensatory Woodland Planting Plan

Tung Chung East - Contract No.: NL/2020/02
Tung Chung New Town Extension – Salt Water Supply System

Tung Chung West - Contract No.: NL/2020/06
Tung Chung New Town Extension – Site Formation And Infrastructure Works At Tung Chung Valley, Phase 1

June 2022

Submission	Version	Certified By Environmental Team Leader		Verified By Independent Environmental Checker
		TCE – Area A	TCW – Area B	
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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 Compensatory Woodland Planting Plan
Date of Document:	June 2022
Date received by ETL:	8 June 2022

Reference EP Condition

Environmental Permit Condition: 2.22

The Permit Holder shall, no later than three months before the commencement of construction works at Tung Chung Valley, submit a Detailed Compensatory Woodland Planting Plan (The Plan) to the Director for approval. The Plan shall include at least the following information:

(i) Extent of woodland loss, including site locations and sizes, and plant species and their numbers to be felled;
(ii) Plant species to be selected for compensation with justifications;
(iii) Site conditions and sizes of compensatory planting areas;
(iv) Planting scheme including but not limited to site preparation, size standards of planting, planting space and matrix for each planting site; and planting schedule, including but not limited to, early and timely arrangement for sourcing or nursery propagation of the required species;
(v) Fire control measures for planting; and
(vi) A detailed post-planting monitoring and maintenance programme, with action targets to be established using percentage canopy cover formation for each planting plot to ensure effective woodland establishment in the long term.

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: 8 June 2022

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: 8 June 2022

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

Tung Chung New Town Extension (East)

Environmental Certification Sheet for Environmental Permit No. EP-519/2016

Reference Document/Plan

Document/Plan to be Certified:	Detailed Compensatory Woodland Planting Plan
Date of Report:	June 2022

Reference EP Condition

Environmental Permit Condition: Condition 2.22

The Permit Holder shall, no later than 3 months before the commencement of construction works at Tung Chung Valley, submit 3 hardcopies and 1 electronic copy of a Detailed Compensatory Woodland Planting Plan (The Plan) to the Director for approval. The Plan shall include at least the following information:

(i) extent of woodland loss, including site locations and sizes, and plant species and their numbers to be felled;

(ii) plant species to be selected for compensation with justifications;

(iii) site conditions and sizes of compensatory planting areas;

(iv) planting scheme including but not limited to site preparation, size standards of planting, planting space and matrix for each planting site; and planting schedule, including but not limited to, early and timely arrangement for sourcing or nursery propagation of the required species;

(v) fire control measures for planting; and

(vi) a detailed post-planting monitoring and maintenance programme, with action targets to be established using percentage canopy cover formation for each planting plot to ensure effective woodland establishment in the long term.

ETL Certification

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

Kelvin So
Environmental Team Leader
ERM-Hong Kong, Limited

Date: 8 June 2022

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.

Raymond Chow
Qualified Ecologist
ERM-Hong Kong, Limited

Date: 8 June 2022

Your Ref.

Our Ref. 198377-0512

Date 8 June 2022

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

Attention: Mr. Vincent CHOW/ Mr. Gary YUNG / Mr. K.T. WO / Ms. Carol LAM

Dear Sir / Madam,

Agreement No. CE 59/2017 (EP)
Independent Environmental Checker for Tung Chung New Town Extension – Investigation
Detailed Compensatory Woodland Planting Plan (EP condition 2.22)

We refer to the Detailed Compensatory Woodland Planting Plan for Tung Chung New Town Extension dated June 2022 and certified by the Environmental Team Leader of TCW on 8 June 2022 and Environmental Team Leader of TCE on 8 June 2022. 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 2.22 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 6848 5737 (iec.tcnte@gmail.com or lauky@binnies.com).

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

MANUEL CHUA
INDEPENDENT ENVIRONMENTAL CHECKER

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1 INTRODUCTION

1.1 Background

1.1.1 The existing engineering infrastructure at Tung Chung New Town (TCNT) was completed in April 2003. The current population of TCNT is about 98,000 while the planned population is about 124,000. The Government has been planning to further develop the TCNT into a comprehensively planned new town with a larger population capacity and adequate local and regional community facilities.

1.1.2 The Planning Department and Civil Engineering and Development Department (CEDD) jointly commissioned the Planning and Engineering Study on the Remaining Development in Tung Chung – Feasibility Study (the P&E Study) in January 2012 to review the remaining development potential of TCNT. Following a three-stage public engagement exercise completed in October 2014, a development proposal of Tung Chung New Town Extension (TCNTE) including the Recommended Outline Development Plan, the major development parameters and land uses are formulated.

1.1.3 The proposed TCNTE will cover areas on the eastern and western flanks of the existing TCNT. It will provide about 49,600 residential flats for a population of about 145,500. It will also provide about 500,000 square metres (m^2) gross floor area (GFA) for office use, 327,000 m^2 GFA for retail use and 50,000 m^2 GFA for hotel use.

1.1.4 Land has been reserved in the extension area for recreational educational and community uses such as sports ground, and post-secondary institution. At Tung Chung West, a channelized section of Tung Chung River at the northeast of Shek Lau Po together with the immediate upstream section up to Shek Mun Kap Road will be revitalized into a river park for recreational use with a view to enhancing and promoting water-friendly culture. Upon completion of the proposed TCNTE, the total population of Tung Chung will increase to about 269,500.

1.1.5 The proposed TCNTE was included in 2014, 2015 and 2016 Policy Addresses as a key land supply measure. The first population intake is targeted in 2024.

1.2 The Project

1.2.1 The scope of Works under this Project comprises:

i. Reclamation works for about 130 hectares (ha) of land including construction of associated seawall and eco-shoreline for the development of TCNTE at Tung Chung East (TCE) and a primary distributor road (Road P1);

ii. Site formation works for about 10 ha of land for the development of TCNTE at Tung Chung West (TCW);

iii. Engineering infrastructure works including roads, footbridges, drainage, sewerage, waterworks, sewage and salt water pumping stations, fresh water and salt water service reservoirs, and flood protection measures;

iv. Provision of new cycle tracks connection to the existing cycle track network;

v. De-channelization of the channelized portion of Tung Chung Stream and provision of a river park;

vi. Landscaping, reprovisioning and ancillary works; and

vii. Environmental mitigation measures including noise barriers for the works mentioned in (i) to (vi) above.

1.2.2 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. In accordance with the tight delivery programme, the Project will be implemented in phases under separate contracts for the developments of TCE and TCW. This Plan is jointly prepared by two project teams (namely TCE & TCW) according to their construction programme and project location.

1.2.3 The Contract No NL/2020/02 – Tung Chung New Town Extension – Salt Water Supply System (i.e. Contract 2) at TCE has been awarded in June 2021. The main contractor for Contract NL/2020/02 is China Geo-Engineering Corporation (CGC).

1.2.4 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. The main contractor for Contract No. NL/2020/05 is Build King – Richwell Civil Joint Venture (BKRCJV).

1.2.5 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. The main contractor for Contract No. NL/2020/06 is China Railway Group Limited (CREC).

1.3 Purpose of this Plan

1.3.1 This Plan is prepared for compliance with the Environmental Permit (EP) No. EP-519/2016 ***clause 2.22 - Submission of Detailed Compensatory Woodland Planting Plan***, and para. (e) of the Conditions of Approval (CoA) under Section 8(3) of the EIA Ordinance (letter ref: (37) in EP2/N9/S3/145 Pt.12 dated 08 April 2016).

1.3.2 To ensure and demonstrate that the proposed measures comply with the requirements, relevant sections of the Plan addressing the CoA and EPrequirements are tabulated in **Table 1.1** and **Table 1.2** below:

Table 1.1 CoA Requirements

Requirements	Plan Section
(e) The Project Proponent shall submit a detailed Compensatory Planting Plan to the DEP for approval before commencement of construction works at Tung Chung West. Qualified professional shall be engaged to advise on aspects of plant species selection, planting scheme and schedule including sourcing or nursery propagation of the required species), fire control, and post-planting monitoring and maintenance. Action targets shall be set using percentage canopy cover formation for each planting plot to ensure effective woodland establishment in the long term.	• Plant species selection: Section 5.1 • Planting scheme and schedule: Section 5.2, 5.3, 5.4 Appendix IIIa & IIIb • Sourcing or nursery propagation of the required species: Section 5.5 • Fire control: Section 5.3, 5.6 & 6.10 • Post-planting monitoring and maintenance: Section 6 • Requirements on Qualified professional: Section 6.3 • Action Targets based on Percentage Canopy Cover: Section 6.5

Table 1.2 EP Requirements

Submission of Detailed Compensatory Woodland Planting Plan

2.22 *– The Permit Holder shall, no later than 3 months before the commencement of construction works at Tung Chung Valley, submit 3 hardcopies and 1 electronic copy of a Detailed Compensatory Woodland Planting Plan (The Plan) to the Director for approval. The Plan shall include at least the following information:*

	Requirements	Plan Section
(i)	extent of woodland loss, including site locations and sizes, and plant species and their numbers to be felled;	• Extent of woodland loss: **Appendix Ib** • Site locations and sizes: Section 2.1 • Plant species and their numbers to be felled: Section 2.2 & 2.3
(ii)	plant species to be selected for compensation with justifications;	• Section 5.1
(iii)	site conditions and sizes of compensatory planting areas;	• Section 3.1, 3.2 & 3.3 & 4 **Appendices IIa** & **IIb**
(iv)	planting scheme including but not limited to site preparation, size standards of planting, planting space and matrix for each planting site; and planting schedule, including but not limited to, early and timely arrangement for sourcing or nursery propagation of the required species;	• Planting scheme: Section 5.2 & 5.3 • Site preparation: Section 3.4 • Size standards of planting: **Appendices IIIa** & **IIIb** • Planting space and matrix for each planting site: Section 5.4, **Appendices IIIa** & **IIIb** • Planting schedule: Section 5.4**, Appendices IIIa** & **IIIb** • Early and timely arrangement for sourcing or nursery propagation of the required species: Section 5.5
(v)	fire control measures for planting; and	• Section 5.3, 5.6 & 6.10
(vi)	a detailed post-planting monitoring & maintenance programme, with action targets to be established using percentage canopy cover formation for each planting plot to ensure effective woodland establishment in the long term.	• Section 6

1.3.3 With reference to Section 9.8.3.1 of the approved EIA report (Register No. AEIAR-196/2016), two locations were considered suitable location for compensatory planting. They are (i) the area adjoining the woodlands near the existing service reservoirs (Area A in TCE), and (ii) area to the east of Tung Chung Road (Area B in TCW), for location please refer to **Appendix Ia**.

1.3.4 Due to the site conditions (which are mentioned in Section 1.3.5 as below) and existing vegetation within the compensatory sites, a total estimated 36,000 nos. of whip trees will be planted in this compensatory woodland proposal (subject to on-site assessment, the actual no. of whip trees planting will be based on further review by Qualified Personnel and actual on-site condition). Of which, 2,937 nos. of whip trees shall constitute part of the compensatory tree planting ratio (in numbers) in the Tree Preservation and Removal Proposal (TPRP) for TCW. No individual compensatory tree planting in the TPRP for TCE will be located at the subject compensatory woodland planting areas. The full compensatory tree planting proposals are

incorporated in the TPRPs which will be submitted separately to relevant authorities. The contractors for TCE (contract no. NL/2020/02, NL/2020/03, NL/2020/04 & NL/2020/07) will prepare and submit the TPRP in accordance with the technical circular "DEVB TC(W) No. 7/2015 – Tree Preservation".[1] The contractors for TCW (contract no. NL/2020/05 & NL/2020/06) will prepare and submit the TPRP in accordance with the technical circular "DevB TC(W) No. 4/2020 – Tree Preservation". The preparation and submission of TPRPs shall be made in line with the site progress before the tree removal.

Site constraints and justifications

1.3.5 Further to site survey (Preliminary Vegetation Survey at Compensatory Woodland Planting Area) carried out in August 2021, January 2022 and February 2022 (at Area A in TCE), and November 2021 and December 2021 (at Area B in TCW), the actual condition of the compensatory woodland planting area revealed the following site conditions:

- Newly found uncharted graves
- Remote access
- Steep terrain
- Dense canopy coverage of existing woodland
- Large number of boulders
- Lack of accessible routes to the feasible planting area.

The number of whip tree planting and planting spacing may be locally adjusted to suit the feasible planting area. In view of the dense woodland canopy cover and limited planting space available, best efforts will be provided to meet the target no. of compensatory whip tree planting without disturbing the existing shrubland and woodland vegetation. Due to prior land allocation for government facilities and existing graves, the locations of the recommended woodland compensation areas in the approved EIA Report have been adjusted on the condition that the extent of the compensation areas (11 hectares) is maintained.

1.4 Structure of this Plan

This Plan contains the following information:

- extent of woodland loss, including site locations and sizes, and plant species and their numbers to be felled;
- plant species to be selected for compensation with justifications;
- site conditions and sizes of compensatory planting areas;
- planting scheme, including but not limited to site preparation, size standards of planting, plant spacing, plant matrix and planting schedule;
- fire control measures for planting; and
- post-planting monitoring and establishment / maintenance programme.

[1]: First submission of the TPRP for TCE was made before the effective date of DEVB TC(W) No. 4/2020. In accordance with the technical circular "DEVB TC(W) No. 4/2020", this Circular takes effect on 1 April 2020. Tree Preservation and Removal Proposals (TPRPs) being considered according to DEVB TC(W) No. 7/2015 shall continue until completion of the corresponding government projects or tree removals arising from arboricultural maintenance.

1.5 Site Surveys

The following site surveys have been carried out by both TCE and TCW.

Description	TCE	TCW
Detailed Tree Survey	July/August 2020 by Engineer of TCE	August /September 2020 by Engineer of TCW
Preliminary Vegetation Survey at Compensatory Woodland Planting Area	August 2021, January 2022 and February 2022 by contractor of TCE	November 2021 and December 2021 by contractor of TCW
Tree Survey prior to the commencement of the construction	September 2021 by contractor of TCE	November 2021 to April 2022 by contractor of TCW

2 EXTENT OF WOODLAND LOSS

2.1 Site Locations and Sizes

According to Section 9.8.3.1 and Table 9.30a of the approved EIA report (Register No. AEIAR-196/2016), the TCNTE would affect an anticipated total **5.92 ha** of woodland, including 4.87 ha of young secondary woodland, 0.85 ha of mature secondary woodland, and 0.20 ha of Fung Shui Woodland (for location details please refer to **Appendix Ib**).

2.2 Existing Species

According to Section 9.4.8.3 of the approved EIA report, within the project area, the dominant tree species in secondary woodlands and Fung Shui Woodlands, together with any plant species of conservation importance as recorded within the project area, are listed below for reference:

2.2.1 Secondary Woodland

2.2.1.1 In the open canopy, tree species like *Pinus massoniana*, *Schefflera heptaphylla*, *Mallotus paniculatus*, *Rhus succedanea*, *Celtis sinensis*, *Macaranga tanarius var. tomentosa*, *Sterculia lanceolata*, *Daphniphyllum calycinum* and *Sapium sebiferum* were found. Along the foothill or footpaths a variety of exotic tree species such as *Acacia confusa* and *Casuarina equisetifolia* were recorded.

Species of conservation importance recorded in secondary woodlands included *Aquilaria sinensis* (tree), *Gmelina chinensis* (tree), *Diospyros vaccinioides* (shrub), *Pavetta hongkongensis* (shrub), *Uvaria calamistrata* (shrub), and *Cibotium barometz* (fern).

2.2.2 Fung Shui Woodland

2.2.2.1 Tree species varied among different Fung Shui Woodlands, but are generally dominated by common native species like *Aporusa dioica*, *Bischofia javanica*, *Cleistocalyx nervosa* and the exotic fruit trees *Syzygium jambos*, together with a mixture of other common native trees e.g. *Celtis sinensis*, *Mallotus paniculatus*, *Aquilaria sinensis* and *Endospermum chinense*. A variety of tree and shrub species, including *Psychotria asiatica*, *Desmos chinensis*, *Sterculia lanceolata*, *Sarcandra glabra*, *Ardisia quinquegona*, *Uvaria microcarpa*, *Maesa perlarius* and *Glycosmis parviflora* colonised the understorey.

2.2.2.2 Species of conservation importance recorded in Fung Shui Woodlands included *Aquilaria sinensis* (tree), *Gmelina chinensis* (tree) and *Pavetta hongkongensis* (shrub).

2.3 Species to be Felled within Woodland Loss Area

2.3.1 According to the detailed tree survey as conducted for TCW in August / September 2020 (Report No.: 251854-REP-122-02, Report. no.: 251854-REP-032-05 and Report. no.: 251854-REP-166-01), within the woodland loss area, 17 nos. of plant species will be felled. They are namely, *Macaranga tanarius var. tomentosa*, *Mallotus paniculatus*, *Artocarpus heterophyllus*, *Litchi chinensis*, *Leucaena leucocephala*, *Ficus hispida*, *Celtis sinensis*, *Acacia auriculiformis*, *Ficus variegata*, *Clausena lansium*, *Mangifera indica*, *Cleistocalyx nervosum*, *Citrus maxima*, *Sterculia lanceolata*, *Dimocarpus longan*, *Canthium dicoccum* and *Aporosa dioica*.

2.3.2 On the other hand, it was estimated from the detailed tree survey in August / September 2020 that a total of 2,937 nos. of existing trees for TCW are inevitably affected by the proposed works and are proposed to be removed due to low "Suitability for Transplanting". For contract 5, there are 916 nos. of individually surveyed existing trees. For contract 6, there are trees comprised of 1487 nos. of individually surveyed existing trees as well as an estimated 534 nos. of existing trees in tree groups.

2.3.3 Prior to the commencement of the construction in TCW, tree survey within the site boundaries for Contract No. NL/2020/05 and NL/2020/06 was carried out from November 2021 to April 2022 so that the actual number of trees to be removed due to the construction work was obtained. As of the approved TPRP result obtained in May 2022, the actual number of trees to be removed was 2,996. With the commencement of the upcoming construction work at the construction sites of TCW, further tree surveys will be carried out. The statistics of the tree removal for TCW will also be updated in the Monthly EM&A Report accordingly.

2.3.4 No woodland loss is involved within TCE, and no tree and woody species would be felled.

2.4 Species of Conservation Importance within Woodland Loss Area

2.4.1 According to the detailed tree survey as conducted for TCW in August / September 2020 (Report No.: 251854-REP-122-02, ref. no.: 251854-REP-032-05 and ref. no.: 251854-REP-166-01), within the woodland loss area, 3 nos. of plant species of conservation importance (*Aquilaria sinensis*, *Gmelina chinensis* and *Canthium dicoccum*) were recorded, the mitigation measures stated in the submission for EP condition 2.21 "Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance" will be followed.

3 COMPENSATORY WOODLAND PROPOSAL

3.1 Background

3.1.1 A search of area to mitigate the loss of woodland was conducted and elaborated in the EIA study stage. According to Section 9.8.3.1 of the approved EIA report, after considering a numberof requirements such as the existing vegetation cover, the accessibility for planting and future maintenance, and the ecological linkage with other existing habitats after the compensatory woodland is established, it was considered that two areas, including (i) adjoining the woodlands near the existing Tung Chung Fresh Water Service Reservoir (Area A in TCE), and (ii) hillsides to the east of Tung Chung Road(Area B in TCW) would be suitable locations, they are approximately **11 ha** in size in total.

3.1.2 For the compensatory woodland near the existing Tung Chung Fresh Water Service Reservoir (Area A in TCE), the advantage of the selected location is that there are existing woodlands immediately downhill to the locations and the Sheung Ling Pei Fung Shui Woodland is further downhill behind Sheung Ling Pei Village and Chek Lap Kok New Village. Planting new woodland areas adjoining existing woodlands would form an ecological linkage and increase the overall habitat size, and hence would help to enhance the ecological and landscape values in the long term. Together with the compensatory woodland near hillsides to the east of Tung Chung Road (Area B in TCW), further ecological linkage could be formed. (Para. 9.8.3.1 and Figure 9.11 of the approved EIA report refers.)

3.2 Compensatory woodland near the existing Tung Chung Fresh Water Service Reservoir (Area A in TCE)

3.2.1 The compensatory woodland is located on the northern foothill of Wo Liu Tun, east of Lung Tseng Tau, south of Sheung Ling Pei. Its upper limit mostly follows the +120 mPD contour line and adjoins, without encroaching into, the boundary of the Lantau North (Extension) Country Park. This area is approximately **5.3 ha** in size (location please refer to **Appendix Ia**).

3.2.2 The compensatory woodland is split into two planting sites; they are located to the east and west of the existing Tung Chung Fresh Water Service Reservoir respectively. For the eastern site in approximately **1.4 ha** in size, it is an eastward facing, low altitude (approximately from +60 mPD to +100mPD) hillside soil slope. For the western site of approximately **3.9 ha** in size, it is mainly westward and northward facing, low altitude(approximately from +70 mPD to +120mPD) hillside soil slope. They have average gradients of approximately 20-40° which could provide good drainage by elimination of standing water.

3.2.3 The surface is densely covered with ferns (*Dicranopteris pedata*), grasses and some sparse shrubs growth. Small patches of immature woods are present in shallow ravines within the site. Photos showing the general site condition of Area A in TCE is enclosed in **Appendix IIa**.

3.3 Compensatory woodland near hillsides to the east of Tung Chung Road (Area B in TCW)

3.3.1 The compensatory woodland planting is located on the western foothill of Wo Liu Tun, northeast of Shek Mun Kap, east of Tung Chung Road. Its upper limit mostly follows the +100 mPD contour line and adjoins, without encroaching into, the boundary of the Lantau North (Extension) Country Park. This area is approximately **5.7 ha** in size (location please refer to **Appendix Ia**).

3.3.2 The planting site is a westward facing, low altitude (approximately from +50 mPD to +100mPD) hillside soil slope without obvious rock outcrop. It has a gradient of approximately 20-40° that provides good drainage by elimination of standing water. The surface is densely covered with ferns (*Dicranopteris pedata*), grasses and some sparse shrubs growth. Small areas of immature woods are present in shallow ravines within the site. Photos showing the general site condition is enclosed in **Appendix IIb**.

3.3.3 The extensive growth of the fern species (*Dicranopteris pedata*), a classic soil indicator plant, indicates that the existing soil is slightly acidic which is typical of Hong Kong's hillside. The dense vegetation cover and existence of immature woodsindicate generally favourable site condition to support further vegetation succession,which might previously be marred due to disturbances (e.g. hill fire).

3.4 Site Preparation

3.4.1 The contractor shall carry out the planting works early in the planting season (preferably from March to May and no later than September), so as to enhance the survival rate of the new plants.

3.4.2 The boundary of the site shall first be set out by the contractor's land surveyors and agreed with the Project Manager. The boundary shall be demarcated with durable implements that are clearly viewable.

3.4.3 During the setting out, areas within the site that contain dense woody growth which would not accommodate further tree planting shall have their boundaries set out and protected from interference.

3.4.4 Grass cutting/groundcover trimming and removal of invasive species will be conducted within the planting pits before delivery of plants to the site to facilitate whip tree planting and growth.

3.4.5 When carrying out grass cutting and planting, existing woody shrubs and immature trees shall be preserved as far as possible. No tree (i.e. with trunk diameter of 95mm or more) shall be interfered or removed. The planting pits should be shifted to preserve nearby woody plants.

3.4.6 After grass-cutting, the contractor would usually excavate the planting pits according to the specified spacing before plant delivery, so as to speed up the planting process.

3.4.7 The contractor shall also submit a method statement 1 month before the woodland planting for the ETs' and IEC's agreement and the Engineer's approval. The date of the agreement and approval of method statement will be supplemented in the appropriate monthly EM&A Report by respective ETs. The method statement shall elaborate all aspects on the preparation, materials, working procedures and establishment works of the woodland planting. The method statement shall include, but are not limited to programme of works, site preparation, materials, plant delivery, planting procedures, schedule of establishment works etc.

4 SITE CONDITION

4.1 Site Condition of TCE

4.1.1 Preliminary vegetation survey for TCE have been conducted in August 2021, January 2022 and February 2022 by Qualified Personnel for verifying the proposed details of work in the plan whether they could be executed or any amendment is required.

4.1.2 According to the observation of the inspection and vegetation survey, it is found that the majority of the planting site is sloping terrain (>30°) occupied by different types of woodland vegetation with various population including shrubs and trees (i.e. DBH<95mm) and trees (i.e.: DBH>95mm). Soil erosion control mat on some hilly areas covered by groundcovers, ferns and shrubs is noted. Available planting space is limited, but could be made available at the open gaps between existing trees.

4.1.3 Other area in the planting site is relatively gentle terrain (<30°) occupied by existing groundcover, ferns and few individual shrubs. Available planting space could be found after cutting grass without affecting the existing woody shrubs and trees.

4.1.4 Plant species of conservation importance were identified at the compensatory woodland planting area near the existing Tung Chung Fresh Water Service Reservoir at TCE according to the approved Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance for Tung Chung East (November 2021), submission for EP Condition 2.21. Prior to the commencement of compensatory woodland planting works, tree protection zone should be set up around the preserved existing plants of conservation importance. Signposts should also be erected and regular toolbox talk should be provided to inform the workers about the precautionary measures for protecting the concerned plant individuals and their root system. The contractor should keep the protection zone clean and tidy without building materials, waste and excess soil. No digging, trenching, compaction, or other soil disturbance should be allowed in the tree protection zone.

4.2 Site Condition of TCW

4.2.1 Preliminary vegetation survey for TCW have been conducted in November 2021 and December 2021 for verifying the proposed details of work in the plan whether they could be executed or any amendment is required.

4.2.2 Generally, the extensive growth of the groundcover species fern species *Dicranopteris pedata* is a classic soil indicator plant, indicates that the existing soil is slightly acidic which is typical vegetation found in Hong Kong hillside. The dense vegetation cover and existence of immature woods indicate generally a favorable site condition to support further vegetation succession.

4.2.3 According to the observation of the survey at the surveyed points CW24 to CW36 in the **Appendix IIIb**, the proposed planting site has a gradient of approximately 20-40° that provides good drainage by elimination of standing water.

4.2.4 The surveyed points (CW23 to CW25, and CW27 to CW36) are typical secondary woodland site with understory areas covered with medium to dense population of climber, shrub or fern species such as *Dicranopteris pedata*芒萁.

4.2.5 The surveyed point CW26 is typical shrubland site which has less density of shrubs and covered with groundcover species.

4.2.6 There are no plant species of conservation importance in the woodland compensatory area for TCW.

5 PLANTING SCHEME AND SPECIES SELECTION

5.1 Species Selection Justifications

5.1.1 The proposed species list for compensatory woodland planting is developed from the proposed woodland planting list as stated in the approved EIA report, and with other considerations as elaborated below.

5.1.2 Species selected should meet the following criteria:

- Mostly of native species recorded within the EIA assessment area and are present nearby;
- Small amount of fruit trees to compensate for orchard loss, and to benefit wildlife including those reported in orchard habitats;
- A diverse mix that increases the plantation's overall adaptability, to provide ecological benefits at different times of year, and to enhance wildlife use;
- Market availability;
- Robust, tough-growing, low maintenance requirement; and
- Usage and maintenance are familiar by local practices.

5.2 Planting Scheme – Core Area

5.2.1 The goal of the compensatory woodland planting is to establish a mature, closed canopy dominated by native trees.

5.2.2 In this regard, a majority of native trees and small amount of fruit trees are proposed to be planted in the "Core Area" as shown in **Appendices IIIa** & **IIIb**. A diverse mix is proposed to adapt to potential environmental differences within the site, and to increase biodiversity.

5.2.3 For TCE, in the "Core Area" where the site is dominant with existing groundcover, ferns, shrubs, undersize trees (i.e.: DBH<95mm) and trees (i.e.: DBH>95mm), "Enhancement Planting" will be carried out at the sloping vegetated areas with open gaps between existing trees after carrying out grass cutting without affecting existing woody shrubs and trees. Local planting pockets created after grass cutting within the existing vegetated site will be planted with shade tolerant native plant species, such as *Machilus chekiangensis* (浙江潤楠), *Schefflera heptaphylla* (鵝掌柴) and *Sterculia lanceolate* (假蘋婆), to enrich tree coverage of the planting site and the adapt to the existing diverse woodland habitat.

5.2.4 As the woodland matures, understorey vegetation would naturally develop. The natural regeneration of understorey plants should be encouraged provided that the species are not aggressive in habit and would not adversely affect tree growth.

5.3 Planting Scheme – Green Firebreak Area

5.3.1 In accordance with the EP (Environmental Permit No. EP-519/2016) requirement, the compensatory woodland should be protected from potential disturbance by fires. In order to do so, fire resistant native trees (e.g. *Schima superba*) will be planted in the periphery to form a "green firebreak" (the Green Firebreak Area).

5.3.2 Species selected for this "green firebreak" should be fast growing, have dense canopies to suppress understory growth, reduce wind speed, catch burning embers, and can recover from mild damage by hill fires. Species having high leaf moisture content and a lower flammability would also benefit.

5.3.3 This "green firebreak" would have a width of 20m which is adopted from local practices (e.g. Acacia firebreak planting at Lam Tsuen Country Park; grass-cut firebreaks at various locations in Hong Kong).

5.3.4 It should be noted that this "green firebreak" will require years to reach maturity. Periodic maintenance (e.g. removal of understorey growth and litter accumulation) during the establishment period is needed to maintain its effectiveness until the canopy becomes dense enough to suppress understory. It should also be noted that under adverse fire-weather conditions, even these firebreak trees might themselves catch fire.

5.4 Plant Schedule and Matrix

5.4.1 The proposed tree and shrub species for the compensatory woodland planting are listed in Table 5.4.1 and Table 5.4.2 below:

Table 5.4.1 – Proposed Species List for compensatory woodland near the existing Tung Chung Fresh Water Service Reservoir (Area A in TCE)

Core Area	**Compensatory Planting**				
	Scientific name	**Chinese name**	**Origin**	**Remarks**	**%**
	Cinnamomum camphora	樟	Native	Main canopy tree	13 %
	Clausena lansium	黃皮	Exotic	Fruit tree for orchard loss	7 %
	Cleistocalyx operculatus	水翁	Native	Main canopy tree	7 %
	Dimocarpus longan	龍眼	Exotic	Fruit tree for orchard loss	7 %
	Liquidambar formosana	楓香	Native	Main canopy tree	13 %
	Litsea glutinosa	潺槁樹	Native	Main canopy tree	13 %
	Phyllanthus emblica	餘甘子	Native	Pioneering tree/shrub	7 %
	Polyspora axillaris	大頭茶	Native	Pioneering tree/shrub	7 %
	Sapium discolor	山烏桕	Native	Pioneering tree/shrub	13 %
	Sapium sebiferum	烏桕	Native	Pioneering tree/shrub	13 %
				Total	100 %
	Enhancement Planting				
	Scientific name	**Chinese name**	**Origin**	**Remarks**	**%**
	Machilus chekiangensis	浙江潤楠	Native	Main canopy tree	32 %
	Schefflera heptaphylla	鵝掌柴	Native	Pioneering tree/shrub	34 %
	Sterculia lanceolata	假蘋婆	Native	Main canopy tree	34 %
				Total	100 %
Green Firebreak Area	**Scientific name**	**Chinese name**	**Origin**	**Remarks**	**%**
	Schima superba	木荷	Native	Firebreak tree	100%
				Total	100%

* The planting detail will be subjected to further review by Qualified Personnel and actual on-site condition.

Table 5.4.2 – Proposed Species List for compensatory woodland east of Tung Chung Road (Area B in TCW)

	Compensatory Planting				
Core Area	**Scientific name**	**Chinese name**	**Origin**	**Remarks**	**%**
	Ligustrum sinense	山指甲	Native	Pioneering tree/shrub	6.02 %
	Polyspora axillaris	大頭茶	Native	Pioneering tree/shrub	6.02 %
	Phyllanthus emblica	餘甘子	Native	Pioneering tree/shrub	6.02 %
	Castanopsis fissa	鱷蒴錐	Native	Main canopy tree	6.02 %
	Celtis sinensis	朴樹	Native	Main canopy tree	6.02 %
	Cinnamomum burmannii	陰香	Native	Main canopy tree	6.02 %
	**Cinnamomum camphora*	樟	Native	Main canopy tree	1.1%
	**Ficus microcarpa*	榕樹	Native	Main canopy tree	1.1%
	Ilex rotunda var. microcarpa	小果鐵冬青	Native	Main canopy tree	6.02 %
	Liquidambar formosana	楓香	Native	Main canopy tree	6.02 %
	Mallotus paniculatus	白楸	Native	Main canopy tree	6.02 %
	Reevesia thyrsoidea	梭羅樹	Native	Main canopy tree	6.02 %
	Sapium discolor	山烏桕	Native	Main canopy tree	6.02 %
	Sapium sebiferum	烏桕	Native	Main canopy tree	6.02 %
	Schefflera heptaphylla	鵝掌柴	Native	Main canopy tree	6.02 %
	Schima superba	木荷	Native	Main canopy tree	6.02 %
	Sterculia lanceolata	假蘋婆	Native	Main canopy tree	6.02%
	Clausena lansium	黃皮	Exotic	Fruit tree for orchard loss	2.5 %
	Dimocarpus longan	龍眼	Exotic	Fruit tree for orchard loss	2.5 %
	Myrica rubra	楊梅	Native	Fruit tree for orchard loss	2.5 %
				Total	100 %
Green Firebreak Area	**Scientific name**	**Chinese name**	**Origin**	**Remarks**	**%**
	Schima superba	木荷	Native	Firebreak tree	100 %
				Total	100 %

* The planting detail will be subjected to further review by Qualified Personnel and actual on-site condition.

5.4.2 According to the current proposal, total estimated 36,000 nos. of whip trees will be planted or a maximum no. of planting by 1.5m spacing (The actual no. of whip trees and planting will be based on further review by Qualified Personnel and actual on-site condition) within the compensatory woodland planting area. Detailed planting proposal listing the proposed tree species, specification, plant spacing and plant matrixes to be planted at the compensation woodland are shown in **Appendices IIIa** & **IIIb**.

5.4.3 Whip Tree shall have the following characteristics as per section 3.12 of General Specification for Civil Engineering Works (GS), 2020 Edition:

a) Age between 2 and 3 years;
b) A single central stem well furnished with side branches according to species;
c) A well-developed vigorous root system;
d) Total height above soil level exceeding 900mm but not exceeding 2000mm;
e) Grown and supplied in a container at least 125mm in diameter and 200mm deep and;
f) Free of any pest, fungi and disease

5.4.4 The planting programme with the timeline for the completion of the compensatory woodland planting for ET and IEC to carry out their duties under the Environmental Monitoring & Audit Programme.

Table 5.4.3 – Planting Schedule and Programme

	TCE	TCW
Planting by Contractor	Q3 2022 (preferably from March to May and no later than September)	Q2 2022 (preferably from March to May and no later than September)
Establishment Works by Contractor	Q4 2022 to Q3 2025	Q3 2022 to Q2 2025
Post-planting monitoring by Contractor	Q4 2022 to Q3 2025 (on a quarterly basis)	Q3 2022 to Q2 2025 (on a quarterly basis)
Establishment / Maintenance Works by CEDD	Q4 2025 to Q3 2032	Q3 2025 to Q2 2032
Percentage Canopy Cover measurement by CEDD	Q3 2025, Q3 2029 and Q3 2032	Q2 2025, Q2 2029 and Q2 2032

Note: Establishment period refers to the establishment works carried out by contractors appointed by CEDD. Maintenance period refers to establishment / maintenance works carried out by CEDD after the completion of establishment period.

5.5 Plant Procurement

5.5.1 All of the proposed tree species are commercially available, and most of the proposed species are commonly used locally. Therefore, it is not anticipated that prior arrangement from native seedling specialist suppliers (KFBG, AFCD etc.) would be necessary.

5.5.2 Nevertheless, the requirement for the contractors to source all the specified plant materials early and timely manner shall be included into the contract. The contractors shall be required to demonstrate their plant sources' availability and reliability. The plant sources' availability and reliability will be monitored by the Engineer. As the whip trees for the compensatory woodland planting for both TCE and TCW were delivered in early 2022, the arrangement of the sourcing of nursery propagation of the required species, which was considered to be an alternative measure, was not applicable.

5.6 Fire Control

5.6.1 The planting site, at least partly, is subject to fire risk in the presence of nearby graves. To reduce the chance of catching on fire from grave-sweeping activities, and also to prevent disturbing the graves, the plantings will be set back 15m from any existing

graves.

5.6.2 In addition, the planting and establishment of “green firebreak” trees at the periphery of the compensatory woodland will provide some degree of fire protection in the long term, once the green firebreak trees have matured.

5.6.3 The Green Firebreak, as described in Section 5.3, is designed to have dense canopies that would suppress understory growth at maturity, and shall be able to sustain its own function after the 10 years establishment / maintenance period by CEDD.

5.7 Planting

5.7.1 The planting pits shall be 100mm wider and 50mm deeper than the rootball. All litters and stones exceeding 25mm diameter from the excavated materials shall be removed, 50g of pre-planting fertilizer shall be mixed into the soil.

5.7.2 All plants shall be pre-soaked and protected from exposure before planting. Each plant shall be placed upright in the pit. The top of the rootball shall be set slightly deeper (e.g. 10mm) than the surrounding level to form a water retaining basin.

5.7.3 Soil shall be deposited and tamped in layers around the rootball in such a manner that the rootball is not disturbed while the top of the rootball shall not be buried. Plants shall be well watered to soak the rootballs and soil immediately after planting.

5.7.4 Upon the completion of the planting works, the contractor shall submit the as-built records of the compensatory woodland planting to the Engineer for approval and agreed with ET and IEC.

6 POST-PLANTING MONITORING AND MAINTENANCE

6.1 General

6.1.1 The goal of the compensatory woodland planting is to establish a mature, closed canopy dominated by native trees.

6.1.2 The duration of the establishment / maintenance works of the compensatory woodland planting as managed by CEDD shall be ten years, which is in accordance with the Section 9.8.3.2 of the approved EIA Report. This includes the implementation of the establishment work for the first three years by the contractors of TCNTE as commissioned by CEDD.

6.1.3 An outline of post-planting monitoring works and summary of the establishment / maintenance works during the 10 years period (by CEDD) are provided below.

6.2 Post-planting Monitoring

6.2.1 Post-planting monitoring will be carried out by Qualified Personnel at quarterly interval for at least 3 years, and commence 3 months after completion of planting. The Contractor shall submit quarterly post-planting monitoring report to the Engineer, ET and IEC within 5 working days after each monitoring inspection. The Engineer, ET and IEC may join the post-planting monitoring exercise to witness the monitoring work as implemented if necessary.

6.3 Qualified Personnel

6.3.1 The contractor shall employ the qualified botanist and ecologist to be approved by the Engineer and agreed with ET and IEC to carry out the post-planting monitoring and maintenance inspections and prepare the post-planting monitoring reports. The

qualified botanist and ecologist shall attend inspections and meetings with the Engineer, ET and IEC and /or other relevant parties if necessary.

6.3.2 The qualified botanist and ecologist for post-planting monitoring and maintenance shall have the following minimum requirements:

- Have a bachelor's degree or higher in horticulture or a related field such as arboriculture, botany and ecology from a Hong Kong University or equivalent; and
- Have a minimum of 5 years of proven full-time practical experience in horticulture, soft landscape implementation/supervision, plant care or vegetation management.

6.4 Methodology

6.4.1 The post-planting monitoring shall be carried in a systematic, editable and traceable manner. The contractors shall submit the methodology of the post-planting monitoring to the Engineer for approval and agreed with ET and IEC. To facilitate monitoring, the compensatory woodland shall be divided into several planting plots demarcated with clearly visible and durable implements if necessary.

6.4.2 The following information for each planting plot should be recorded:

- Area (m^2) of each planting plot;
- Percentage canopy cover,
- Approximate quantity and percentage presence of each species;
- Survival rate, general health and vigor of each species;
- Sizes of each species, including average height, spread and calibre at ground level/basal diameter/DBH;
- Understorey plant species and coverage;
- Presence and severity of noxious weeds;
- Any special remedial works required;
- Wildlife use of the planted vegetation;
- Other additional remarks

6.4.3 A diverse mix of robust native tree species have been included in the tree planting matrix with an aim to adapt to potential environmental differences within the site. Nevertheless, it would be normal for individual patches to perform differently due to varied site conditions and microclimates, thus the action targets set for replacement planting should be based on actual performances in individual planting plots.

6.4.4 Monitoring at the end of each year's growing season shall determine the extent and amount of replacement planting to be carried out next planting season. Selected individuals of each planted species will be tagged and 20% survival computed Supplementary planting will be recommended when necessary.

6.5 Action Targets based on Percentage Canopy Cover

6.5.1 The action target of percentage canopy shall only be applicable to the area of Level of Planting Difficulty (I). i.e. shrubland area with the gradient <30°. It is proposed to identify a fixed number of pilot trees with belt transect (with quadrats) method in each planting plot. The Qualified Personnel will measure percentage canopy cover formation, growth rate and survival rate monitoring of the pilot trees on the 3rd, 7th and 10th year. A set of action target and corresponding measures shall be formulated basing on the monitoring parameters. At the 10th year, it is proposed to achieve the average percentage canopy cover of 20% in surveyed quadrats or the average growth rate of 20% of the measured crown spread of pilot trees. Remedial measure is required when the survival rate of the surveyed quadrats is lower than 20%. Due to

the lack of literature information of the percentage canopy cover data in Hong Kong, the proposed canopy cover of 20% will be subject to actual site condition.

6.5.2 A method statement for establishing the action target on percentage canopy cover shall be submitted to the Engineer for approval and agreed with ET and IEC 1 month before the commencement of percentage canopy cover measurement.

6.6 Establishment / Maintenance Works (10 years, by CEDD)

6.6.1 Regular establishment / maintenance works shall be carried out to ensure the healthy growth of the plants. The specifications and minimum frequencies of each type of establishment / maintenance works will be clearly stated in the contract. Quarterly inspections should be carried out to monitor the plants and identify any special operations required.

6.6.2 Generally, it will be necessary to regularly cut grass and remove noxious weeds within the planting area. Post-planting fertilizer will be applied yearly in each spring. Dead or dying trees will be replaced. Works may be necessary to ameliorate the effect of any erosion or land degradation should these occur. Periodic grass cutting during the establishment / maintenance period to remove understorey growth and litter accumulation within the Green Firebreak and around graves is recommended to maintain effectiveness of fire control.

6.6.3 The contractors shall carry out the following establishment works when instructed by the Engineer unless otherwise specified. The Engineer shall be responsible to determine the type and frequency of maintenance works required based on the post-planting monitoring results, unless the frequency of any specific maintenance works is specified below.

6.7 Weeding

6.7.1 To reduce competition to the whip trees from grass and noxious weeds, weed control through manual or mechanical means will be necessary. Grass cutting should be carried out as necessary to cut existing grass to 100mm from ground. Meanwhile, noxious weeds like *Leucaena leucocephala* and *Mikania micrantha* shall be uprooted. Unless in exceptional circumstances, in order to prevent unintended dispersal which may affect the natural environment, herbicides and pesticides are not allowed . To prevent fire hazard, all weeding wastes should be removed from site to a proper tipping point for disposal and should not be left on the hillside.

6.8 Erosion Control

6.8.1 Areas affected by washout and gullies and other erosion on slopes, where applicable, shall be repaired. Erosion control measures such as biodegradable coir mesh should be applied to particular spots if necessary.

6.9 Fertilizing

6.9.1 Apply post-planting fertilizer as per GS Clause 3.34(2) at a rate of 50g per whip tree, once each year in spring, and preferably after weeding operation. Fertilizer should be applied near the base of each whip tree and shrub, not broadcasted, so as to reduce absorption and competition from grasses.

6.10 Fire Control

6.10.1 As weeds, understorey growth and leaf litter would act as fuel and facilitate the spread of fire, removal of such materials is essential to maintain the effectiveness of the “Green Firebreak”. Therefore, the establishment / maintenance works shall also include regular grass-cutting and leaf litter collection within the “Green Firebreak Area” and around graves. It is especially important to complete the task before known

periods of high fire risk i.e. before Ching Ming Festival (April) and before Chung Yeung Festival (October).

6.10.2 Furthermore, fire control will include active management measures during the establishment / maintenance period. As understorey growth and litter accumulation would act as fuel to facilitate spreading of fire, the contractors shall carry out grass cutting 4 times per year on a quarterly basis to cut all existing grass within the Green Firebreak Area and around nearby graves will be carried out throughout the establishment / maintenance period to remove understorey growth and litter accumulation.

6.11 Replacements

6.11.1 Dead or poor health trees should be replaced during the establishment / maintenance period based on monitoring results. Replacement planting, if necessary, shall be carried out as soon as possible within the planting season (i.e., preferably from March to May and no later than September), after grass cutting and weeding operation as far as practicable to enhance the survival rate of the new plants.

6.12 Natural Regeneration of Understorey

6.12.1 Understorey vegetation naturally develops as the woodland matures. The natural regeneration of understorey growth within the “Core Area” should be encouraged as long as the species are beneficial to the woodland regeneration and not aggressive in nature.

6.13 Tree Risk Assessment

6.13.1 The Tree Risk Assessment and Management (TRAM) and Auditing exercise shall be carried out where appropriate in accordance with the requirements and methodology as stipulated in the latest version of DEVB’s “Guidelines for Tree Risk Assessment and Management Arrangement” and “Guideline for Auditing of Tree Risk Assessment for Tree Management Departments”.

6.13.2 The contractors shall be responsible to carry out Area Basis Assessment to identify high priority areas and if necessary, Tree Group Inspection (Form 1), Individual Tree Risk Assessment (Form 2) and undertaking of mitigation measures.

6.13.3 Details of the TRAM and Auditing exercise will be elaborated in the “Tree Management Plan and Tree Risk Assessment Report” to be submitted in the Construction Phase.

6.13.4 The woodland compensatory area is classified as Category III Tree Risk Management Zone under the Guidelines for Tree Risk Assessment and Management Arrangement (9th edition (Rev. 3)) published by the Greening, Landscape and Tree Management Section of the DEVB. TRAM will be carried out when necessary (e.g., act on complaint).

6.14 Long Term Maintenance

6.14.1 Upon the completion of first 3 years of the establishment works by the contractors, CEDD will undertake the maintenance responsibility for the woodland planting from the 4th year to 10th years and till the maintenance department of the government to be identified.

7 CONCLUSIONS

7.1 Summary

7.1.1 This Plan is prepared to comply with the EP (Environmental Permit No. EP-519/2016) clause 2.22 - Submission of Detailed Compensatory Woodland Planting Plan, and para. (e) of the Conditions of Approval (CoA) under Section 8(3) of the EIA Ordinance (letter ref: (37) in EP2/N9/S3/145 Pt.12 dated 08 April 2016).

7.1.2 The compensatory woodland planting areas are located on areas adjoining the woodlands near the existing Tung Chung Fresh Water Service Reservoir and hillsides to the east of Tung Chung Road, and are approximately 11 ha in size in total.

7.1.3 A diverse mix of whip trees comprising mostly native trees and small amount of fruit trees for orchard compensation are proposed to enhance the compensatory woodland's diversity and adaptability (the Core Area). The plantation also contains a 20m width band of green firebreak at the periphery, comprising native firebreak trees to act as fire control (the Green Firebreak Area).

7.1.4 As the whip trees for the compensatory woodland planting for both TCE and TCW were delivered in early 2022, the arrangement of the sourcing of nursery propagation of the required species, which was considered to be an alternative measure, was not applicable.

7.2 Contract Requirements

7.2.1 All relevant details including boundaries of planting, plant species, specified sizes and quantities, specification of works, timely procurement of plant materials, post-planting monitoring and establishment requirements etc. should be incorporated into the TCE and TCW contracts for effective implementation and monitoring.

7.3 Programme

7.3.1 According to the latest contract packaging of TCNTE, the proposed compensatory woodland planting will be carried out under Contract 2 (Area A in TCE) and Contract 6 (Area B in TCW). For the planting and establishment works, the works for TCE will commence in Q3 2022 and end in Q3 2025 while the work for TCW will commence in early 2022 and end in mid 2025. The establishment period shall start immediately after completion of planting and last for the duration of the respective Contracts.

7.3.2 Subsequent maintenance will be implemented through other contracts under this Project or term contracts under CEDD to ensure the compensatory woodland is properly taken care of.

7.4 Maintenance Agents

7.4.1 CEDD will be responsible to maintain the compensatory woodland planting for 10 years before handing over to other maintenance department of the government to be identified. Outlines of the post-planting monitoring and establishment requirements during the establishment period by CEDD is presented in Section 6.

7.5 Implementation Schedule

7.5.1 An Implementation Schedule is attached in Appendix IV.

8 REFERENCE

8.1 References and Guidelines

8.1.1 In preparation of the Plan, reference has been made to the following technical circulars, practice notes, guidelines and publications:

8.1.2 DEVB TCW No. 7/2015 & DEVB TCW No. 4/2020 – Tree Preservation

8.1.3 DEVB TCW No. 5/2020 – Registration and Preservation of Old and Valuable Trees

8.1.4 Forests and Countryside Ordinance (Cap.96)

8.1.5 AFCD Publication – Rare and Precious Plants of Hong Kong (2003)

8.1.6 AFCD Publication – Check List of Hong Kong Plants 2012

8.1.7 AFCD Publication – Central Ridge and West (群山覽翠) 2006

8.1.8 AFCD - Briefing Session on the Country Parks Plantation Enrichment Project (available online)

8.1.9 DEVB TCW No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features

8.1.10 General Specification for Civil Engineering Works, 2020 Edition

8.1.11 GEO Publication No. 1/2011 – Technical Guidelines on Landscape Treatment for Slopes

8.1.12 All relevant guidelines and Proper Planting Practices published by Greening, Landscape and Tree Management Section (GLTMS) of Development Bureau

8.1.13 Geo Report No. 259 – Study On The Application Of Various Vegetation Species For Landscaping Of Man-Made Slopes In Hong Kong

8.1.14 CEDD – The Geology of Hong Kong (available online)

8.1.15 PlanD – Landscape Value Mapping of Hong Kong Technical Report (available online)

APPENDIX Ia PROPOSED WOODLAND PLANTING LOCATION

PROPOSED WOODLAND PLANTING AREA A IN TCE

PROPOSED WOODLAND PLANTING AREA B IN TCW

NOTES :

1) Adjustments on the site boundaries of the compensatory woodland area has been made as compared with approved EIA Report, which were due to the prior land allocation for the government facility and the existing graves.

2) The total area of the revised woodland compensatory planting area is 11 ha, which is consistent with the requirements from the approved EIA Report.

圖見名稱 drawing title

PROPOSED WOODLAND PLANTING LOCATION

圖則編號 drawing no.

SLO-Z0684

比例 scale A1

1 : 5000

辦事處 office

可持續大嶼辦事處
SUSTAINABLE LANTAU OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

APPENDIX Ib WOODLAND LOSS LOCATION PLAN

LEGEND

- PROPOSED WORKS LAYOUT
- WOODLAND LOSS
- FUNG SHUI WOOD LOSS

REMARK:

i.) The drawing is prepared by making reference to the woodland loss area (highlighted in orange color) and fung shui wood loss area (highlighted in blue color) as shown in Figure 9.4b and 9.4c of the Approved EIA Report. The "black dotted" line indicated the current project works boundaries.

ii.) Approved EIA Report (figures 9.4b and 9.4c) were Habitat Map to show existing condition at the time of EIA Report. Whereas Appendix Ib shows the current project works boundary therefore woodland loss locations are different.

Rev	Description	By	Date
A	FIRST ISSUE	TL	04/21

Consultant

ARUP

Project Title

Agreement No. CE 70/2015 (CE)

Tung Chung New Town Extension (West)
- Design and Construction

Drawing title

Woodland & Fung Shui Wood Loss Location Plan

Drawing no.	Rev.
251854/SK/C/149/02	A

Drawn	Date	Checked	Approved
RY	04/21	AM	DL

Scale: 1:5000 @ A1

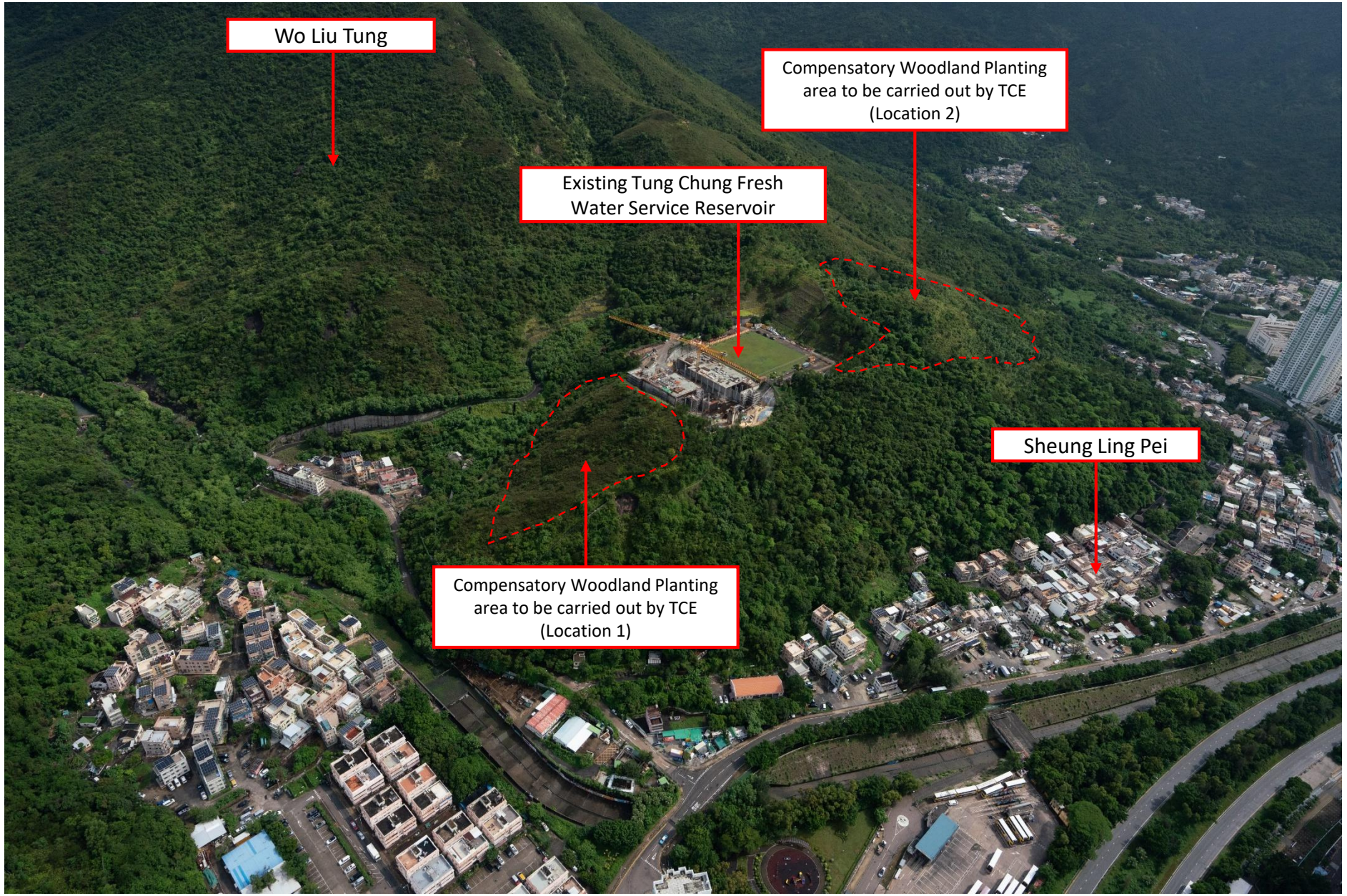
Status: PRELIMINARY

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

Printed by : 4/23/2021
Filename : V:\251854\ARUP\CIVIL\SKETCH\Internal\251854_SK_C_149_02.dgn

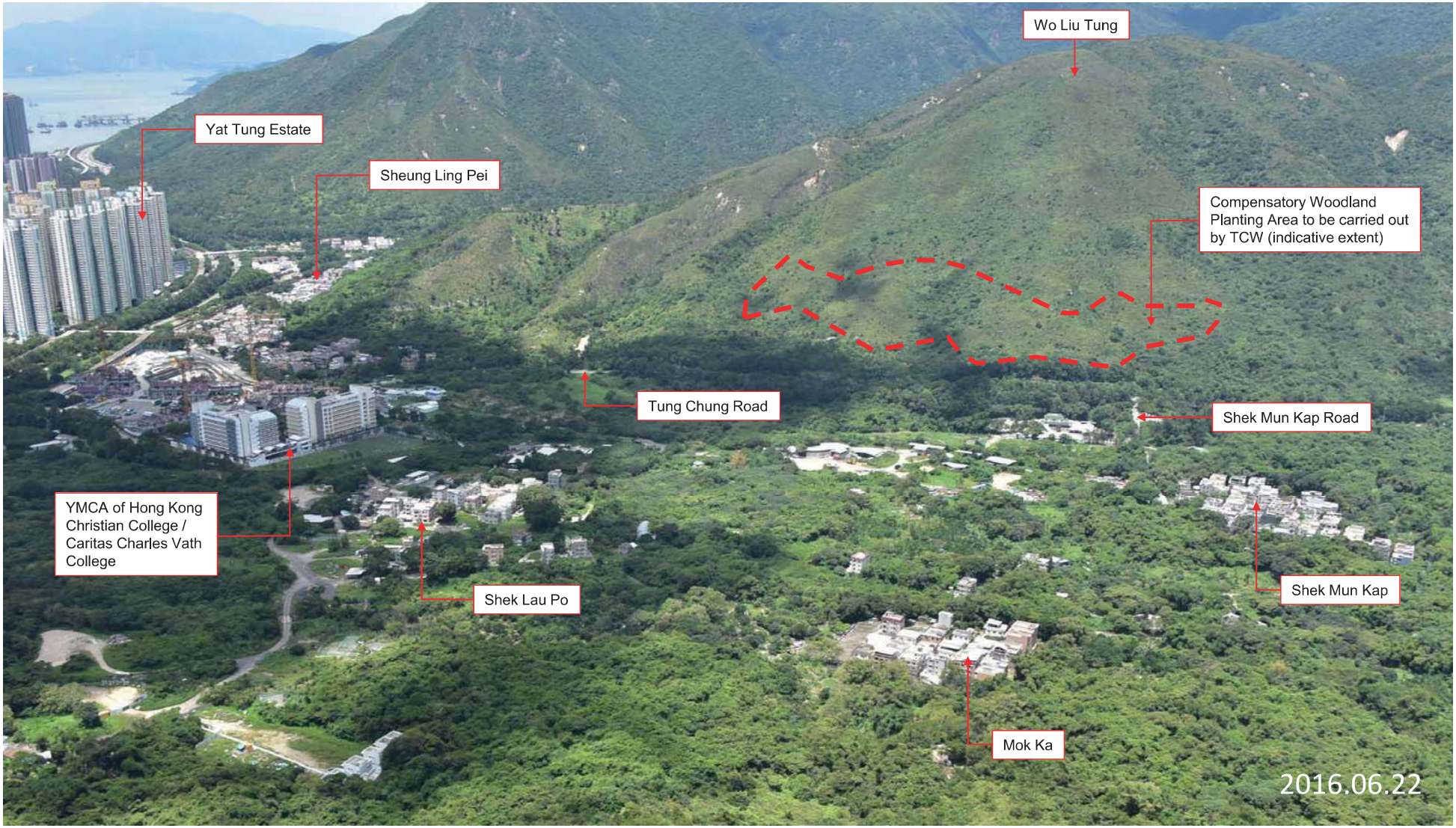
APPENDIX IIa SITE PHOTOS - TUNG CHUNG EAST

Site Photo of Woodland Compensatory Planting Area A Under TCE

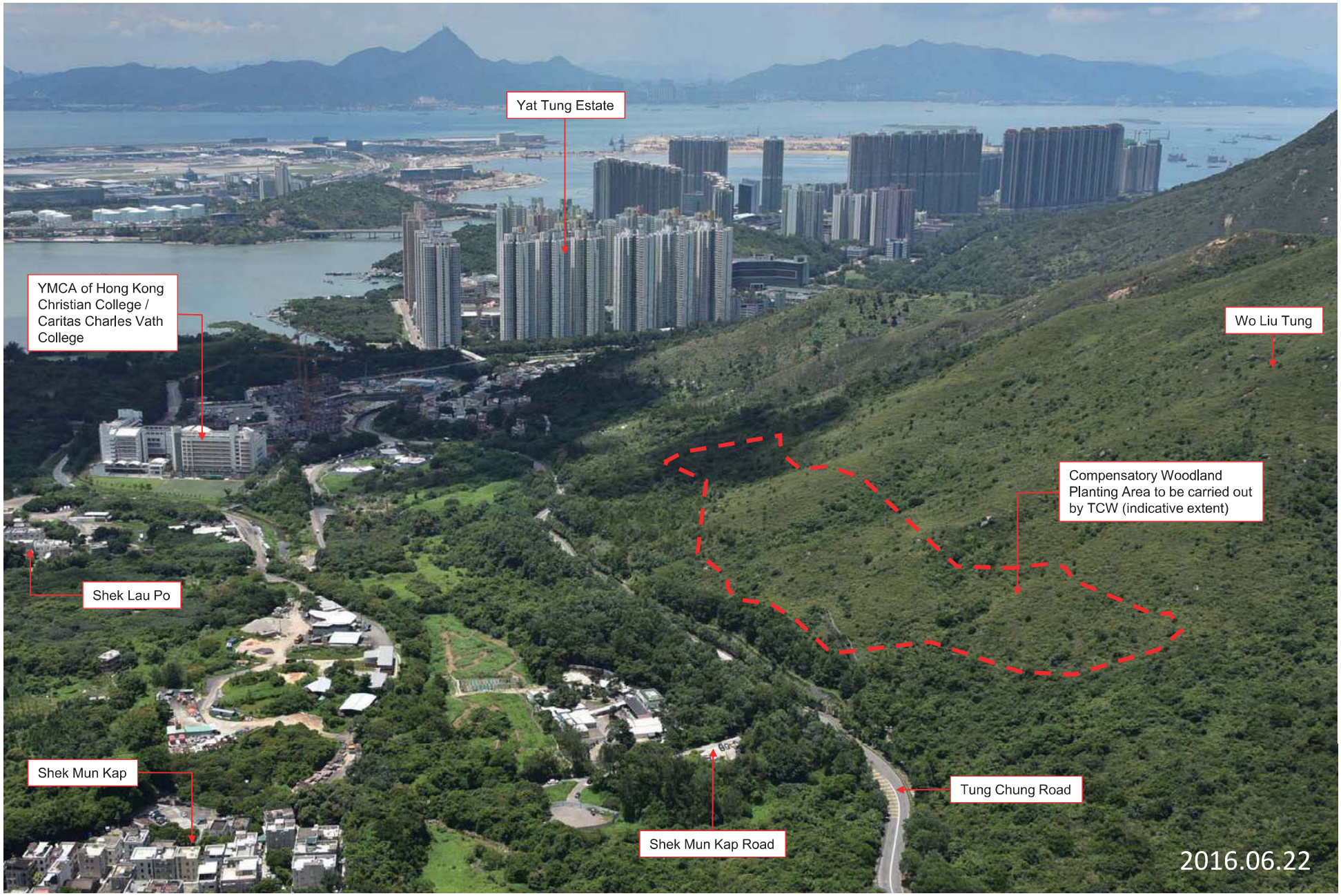


APPENDIX IIb SITE PHOTOS - TUNG CHUNG WEST

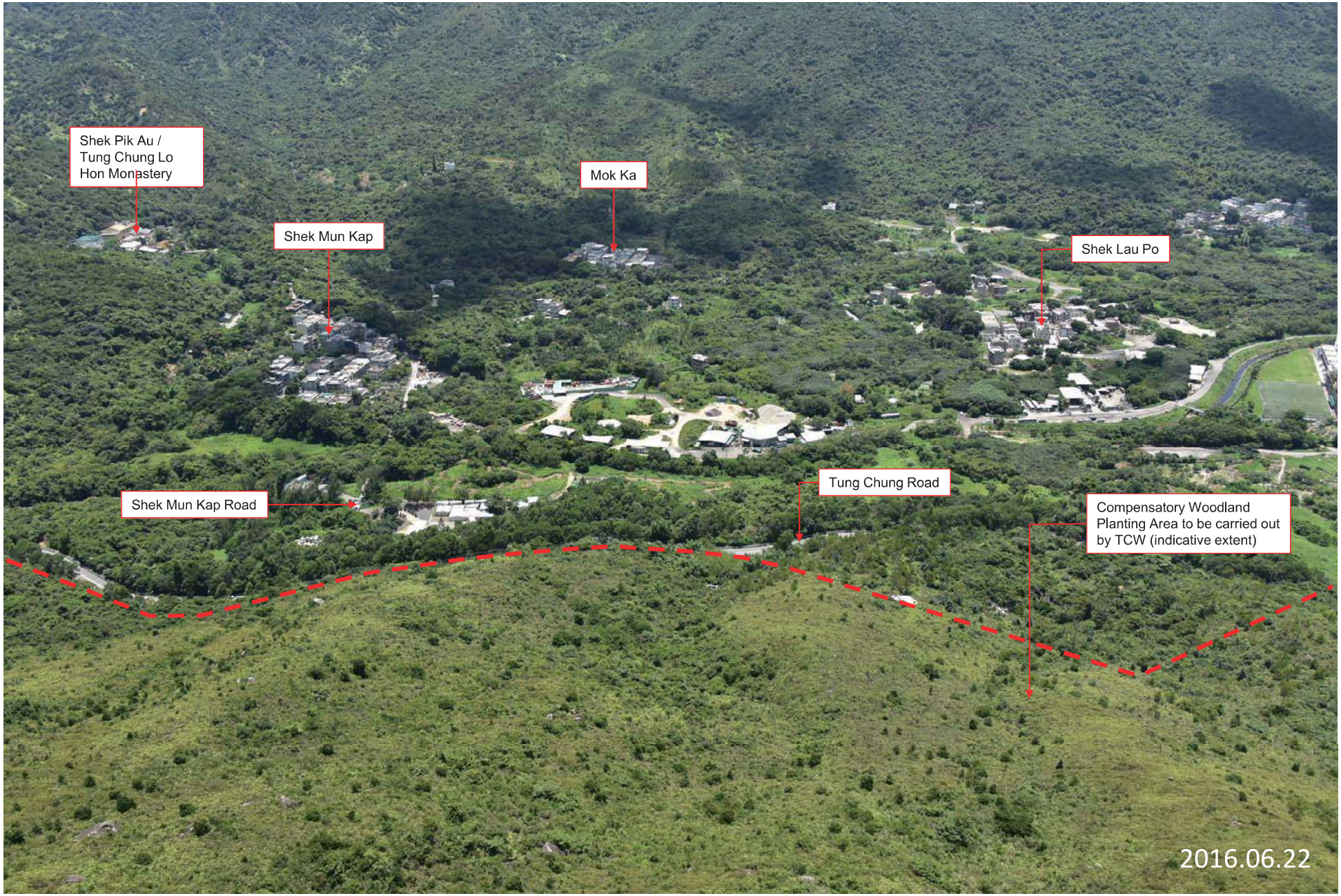
Site Photos of Woodland Compensatory Planting Area B in TCW



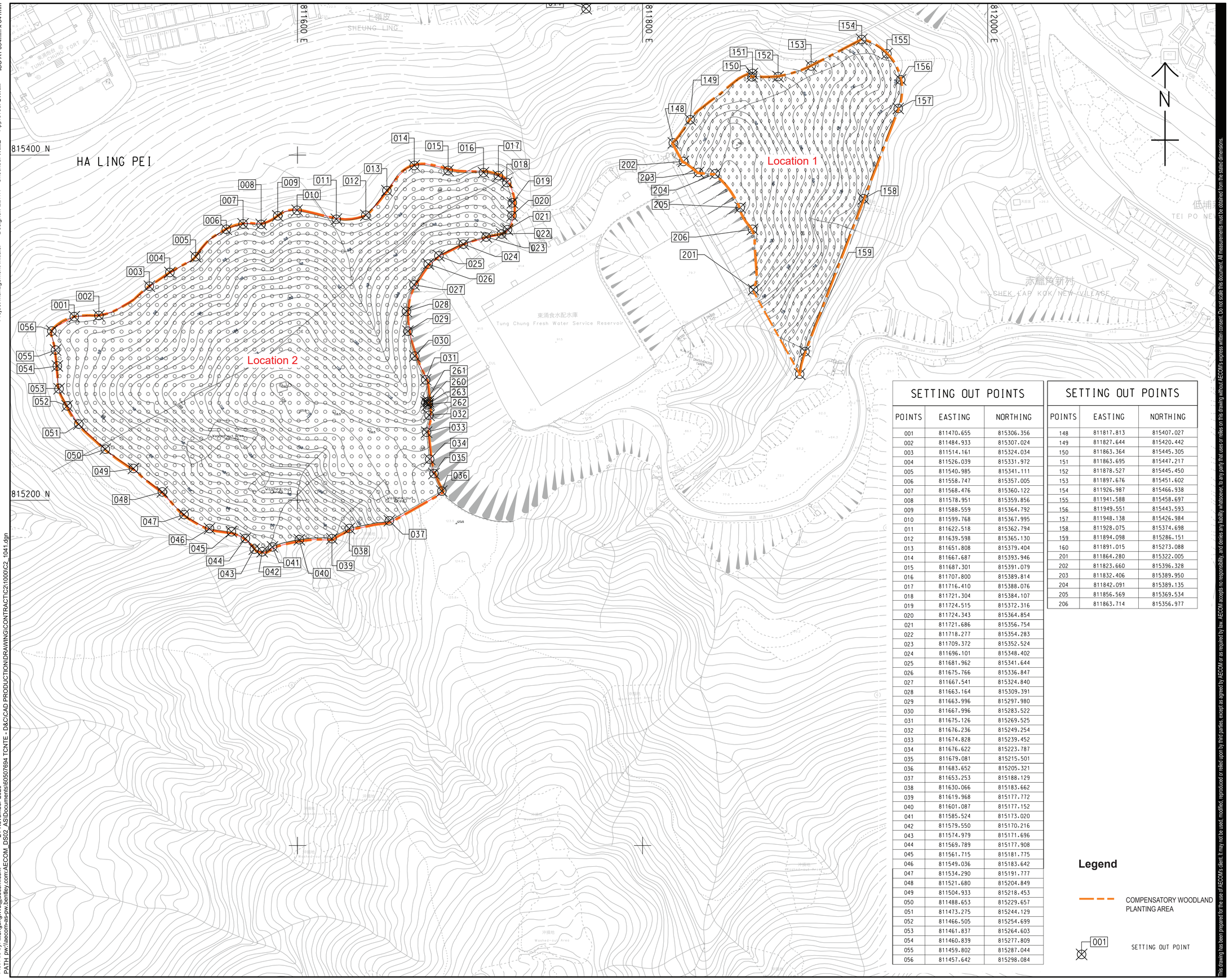
Site Photos of Woodland Compensatory Planting Area B in TCW



Site Photos of Woodland Compensatory Planting Area B in TCW



APPENDIX IIIa COMPENSATORY PLANTING PLAN AND PROPOSAL - TUNG CHUNG EAST



SETTING OUT POINTS		
POINTS	EASTING	NORTHING
001	811470.655	815306.356
002	811484.933	815307.024
003	811514.161	815324.034
004	811526.039	815331.972
005	811540.985	815341.111
006	811558.747	815357.005
007	811568.476	815360.122
008	811578.951	815359.856
009	811588.559	815364.792
010	811599.768	815367.995
011	811622.518	815362.794
012	811639.598	815365.130
013	811651.808	815379.404
014	811667.687	815393.946
015	811687.301	815391.079
016	811707.800	815389.814
017	811716.410	815388.076
018	811721.304	815384.107
019	811724.515	815372.316
020	811724.343	815364.854
021	811721.686	815356.754
022	811718.277	815354.283
023	811709.372	815352.524
024	811696.101	815348.402
025	811681.962	815341.644
026	811675.766	815336.847
027	811667.541	815324.840
028	811663.164	815309.391
029	811663.996	815297.980
030	811667.996	815283.522
031	811675.126	815269.525
032	811676.236	815249.254
033	811674.828	815239.452
034	811676.622	815223.787
035	811679.081	815215.501
036	811683.652	815205.321
037	811653.253	815188.129
038	811630.066	815183.662
039	811619.968	815177.772
040	811601.087	815177.152
041	811585.524	815173.020
042	811579.550	815170.216
043	811574.979	815171.696
044	811569.789	815177.908
045	811561.715	815181.775
046	811549.036	815183.642
047	811534.290	815191.777
048	811521.680	815204.849
049	811504.933	815218.453
050	811488.653	815229.657
051	811473.275	815244.129
052	811466.505	815254.699
053	811461.837	815264.603
054	811460.839	815277.809
055	811459.802	815287.044
056	811457.642	815298.084

SETTING OUT POINTS		
POINTS	EASTING	NORTHING
148	811817.813	815407.027
149	811827.644	815420.442
150	811863.364	815445.305
151	811863.695	815447.217
152	811878.527	815445.450
153	811897.676	815451.602
154	811926.987	815466.938
155	811941.588	815458.697
156	811949.551	815443.593
157	811948.138	815426.984
158	811928.075	815374.698
159	811894.098	815286.151
160	811891.015	815273.088
201	811864.280	815322.005
202	811823.660	815396.328
203	811832.406	815389.950
204	811842.091	815389.135
205	811856.569	815369.534
206	811863.714	815356.977

Legend

- COMPENSATORY WOODLAND PLANTING AREA
- 001 SETTING OUT POINT

AECOM

PROJECT 項目

TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

CONTRACT TITLE

TUNG CHUNG NEW TOWN EXTENSION - SALT WATER SUPPLY SYSTEM

CLIENT 業主

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

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

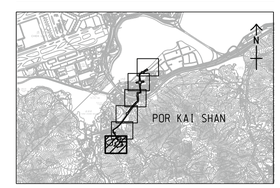
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核
-	DEC. 20	TENDER DRAWING	TKML

STATUS 階段

SCALE 比例 A3 1:2000

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖



PROJECT NO. 項目編號 60507694

CONTRACT NO. 合約編號 NL/2020/02

SHEET TITLE 圖紙名稱

Compensatory Woodland Planting - Location Plan

SHEET NUMBER 圖紙編號

Figure 1

ISO A1 594mm x 841mm
Approved: SWKM
Checked: TKML
Designer: ELWK
Project Management Initials:
Plot File by: Mengting.Wu@aecom.com 21-November-2020
PATH: pw:\\aecom-as-pw.bentley.com:AECOM_DS02_AS\Documents\60507694 TCNTE - D&C\CAD PRODUCTION\DRAWING\CONTRACT\C21000\C2_1041.dgn

Initial Planting – General Requirement
Proposed Compensatory Woodland Tree Mix Species List (TCE)

Core Area	**Compensatory Planting**						
	Scientific name	**Chinese name**	**Size**	**Spacing (mm)**	**Origin**	**Remarks**	**Percentage %**
	Cinnamomum camphora	樟	Whip tree	1500	Native	Main canopy tree	13 %
	Clausena lansium	黃皮	Whip tree	1500	Exotic	Fruit tree for orchard loss	7 %
	Cleistocalyx operculatus	水翁	Whip tree	1500	Native	Main canopy tree	7 %
	Dimocarpus longan	龍眼	Whip tree	1500	Exotic	Fruit tree for orchard loss	7 %
	Liquidambar formosana	楓香	Whip tree	1500	Native	Main canopy tree	13 %
	Litsea glutinosa	潺槁樹	Whip tree	1500	Native	Main canopy tree	13 %
	Phyllanthus emblica	餘甘子	Whip tree	1500	Native	Pioneering tree/shrub	7 %
	Polyspora axillaris	大頭茶	Whip tree	1500	Native	Pioneering tree/shrub	7 %
	Sapium discolor	山烏桕	Whip tree	1500	Native	Pioneering tree/shrub	13 %
	Sapium sebiferum	烏桕	Whip tree	1500	Native	Pioneering tree/shrub	13 %
							100 %
	Enhancement Planting						
	Scientific name	**Chinese name**	**Size**	**Spacing (mm)**	**Origin**	**Remarks**	**Percentage %**
	Machilus chekiangensis	浙江潤楠	Whip tree	1500	Native	Main canopy tree	32 %
	Schefflera heptaphylla	鵝掌柴	Whip tree	1500	Native	Pioneering tree/shrub	34 %
	Sterculia lanceolata	假蘋婆	Whip tree	1500	Native	Main canopy tree	34 %
							100%
Green Firebreak Area	**Scientific name**	**Chinese name**	**Size**	**Spacing (mm)**	**Origin**	**Remarks**	**Percentage %**
	Schima superba	木荷	Whip tree	1500	Native	Firebreak tree	100%
							Total

Notes:
1. The standard of whip tree shall refer to section 3.12 of General Specification for Civil Engineering Works (GS), 2020 Edition.

2. The actual no. of whip tree planting will be based on further review by Qualified Personnel and actual on-site condition.

AECOM

PROJECT
TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

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

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

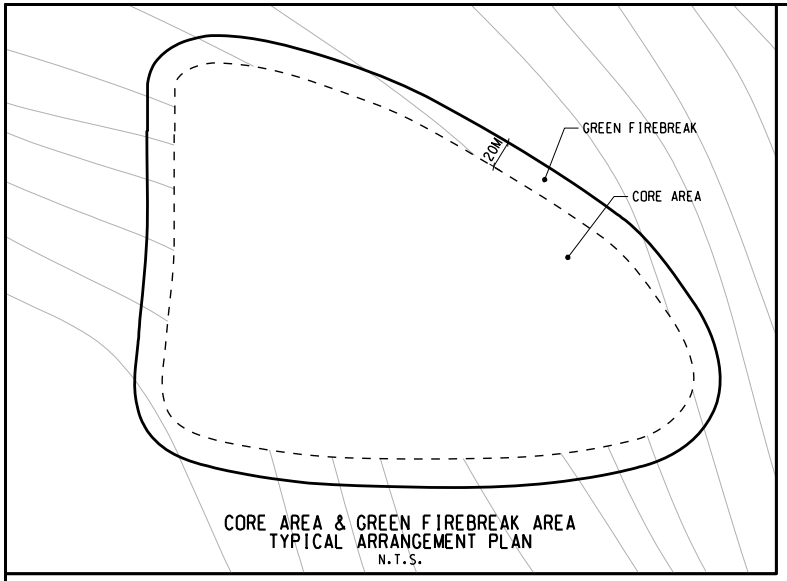
SCALE: N.T.S.
DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60507694
CONTRACT NO.: CE 69/2015 (CE)

SHEET TITLE
COMPENSATORY WOODLAND PLANTING - PLANTING SCHEDULE

Figure 2



CORE AREA & GREEN FIREBREAK AREA
TYPICAL ARRANGEMENT PLAN
N.T.S.

NOTE:

1. PLANTING FOR CORE AREA IN GROUPS OF 10 TO 20 OF SAME SPECES. SHALL BE RANDOMLY AND EVENLY DISTRIBUTED.

LEGEND:

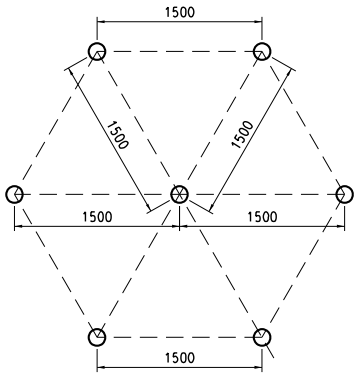
WHIP TREE SPECIES AS SPECIFIED

WOODLAND PLANTING COMPENSATORY OF EIA OUTER BOUNDARY

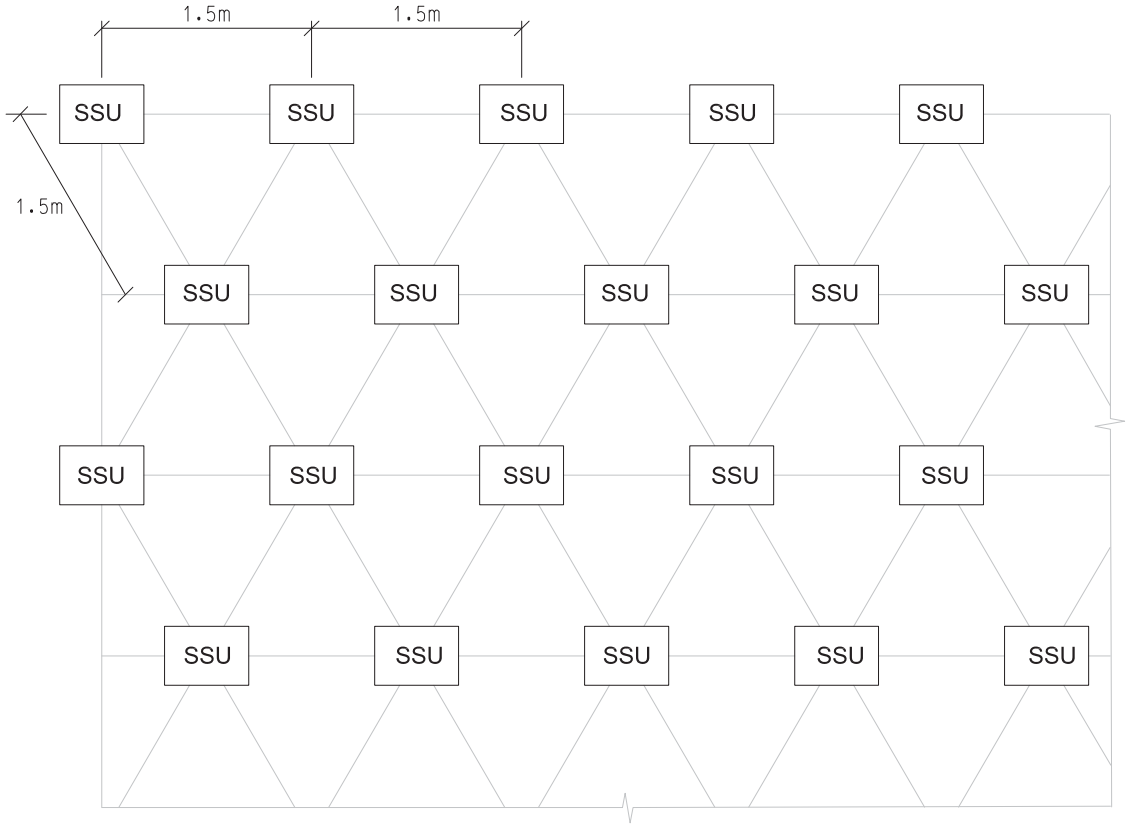
DELINEATION BETWEEN CORE AREA & GREEN FIREBREAK AREA

Green Firebreak Area

Code	Scientific name	Chinese name	Size	Spacing (mm)	Origin
SSU	*Schima superba*	木荷	Whip tree	1500	Native



TYPICAL PLANTING MATRIX F1
FOR GREEN FIREBREAK AREA
N.T.S.



Compensatory Woodland Planting - Green Firebreak Area Planting Matrix

AECOM

PROJECT
TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

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

CONSULTANT
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ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.

STATUS

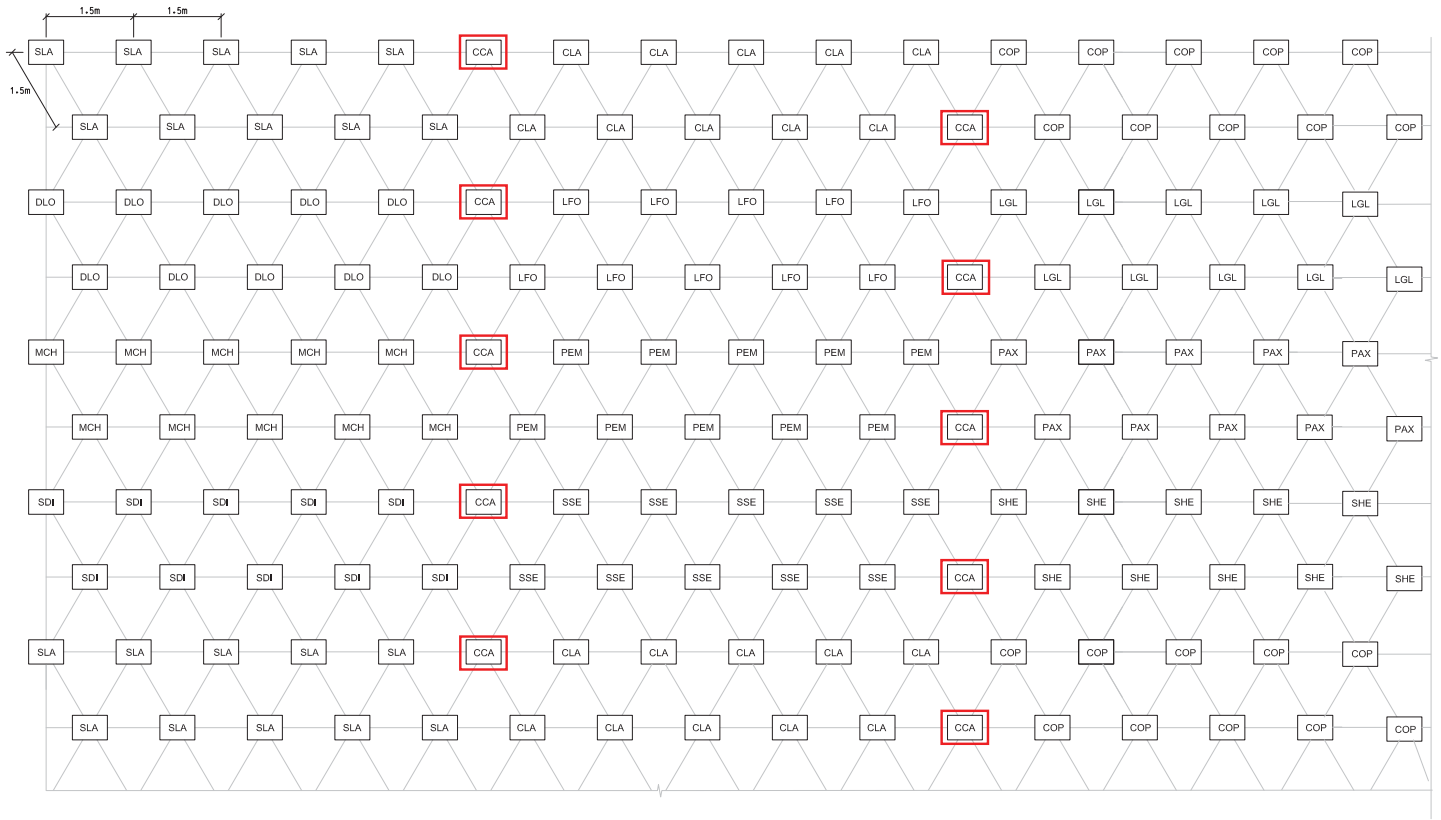
SCALE: N.T.S.
DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60507694
CONTRACT NO.: CE 69/2015 (CE)

SHEET TITLE
COMPENSATORY WOODLAND PLANTING - GREEN FIREBREAK AREA PLANTING MATRIX

Figure 3



Typical Pattern Size : 23.2 m x 11.7 m

Compensatory Woodland Planting - Core Planting Area Planting Matrix

Legend of Basic Core Planting

Code	Species
CCA	Cinnamomum camphora 樟
CLA	Clausena lansium 黃皮
COP	Cleistocalyx operculatus 水翁
DLO	Dimocarpus longan 龍眼
LFO	Liquisambar formosana 楓香
LGL	Litsea glutinosa 潺槁樹
MCH	Machilus chekiangensis 浙江潤楠
PEM	Phyllanthus emblica 余柑子
PAX	Polyspora axillaris 大頭茶
SDI	Sapium discolor 山烏桕
SSE	Sapium sebiferum 烏桕
SHE	Schefflera heptaphylla 鵝掌柴
SLA	Sterculia lanceolata 假萍婆

Note:

For the Enhancement Planting on Core Planting Area.The shade tolerance species, i.e. Schefflera heptaphylla 鵝掌柴, Sterculia lanceolata 假萍婆 and Machilus chekiangensis 浙江潤楠 will be planted in group of 10 nrs. available space.

AECOM

PROJECT

TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

CLIENT

土木工程拓展署 Civil Engineering and Development Department

CONSULTANT

AECOM Asia Company Ltd.
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SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE: N.T.S.

DIMENSION UNIT: MILLIMETRES

KEY PLAN

PROJECT NO.: 60507694

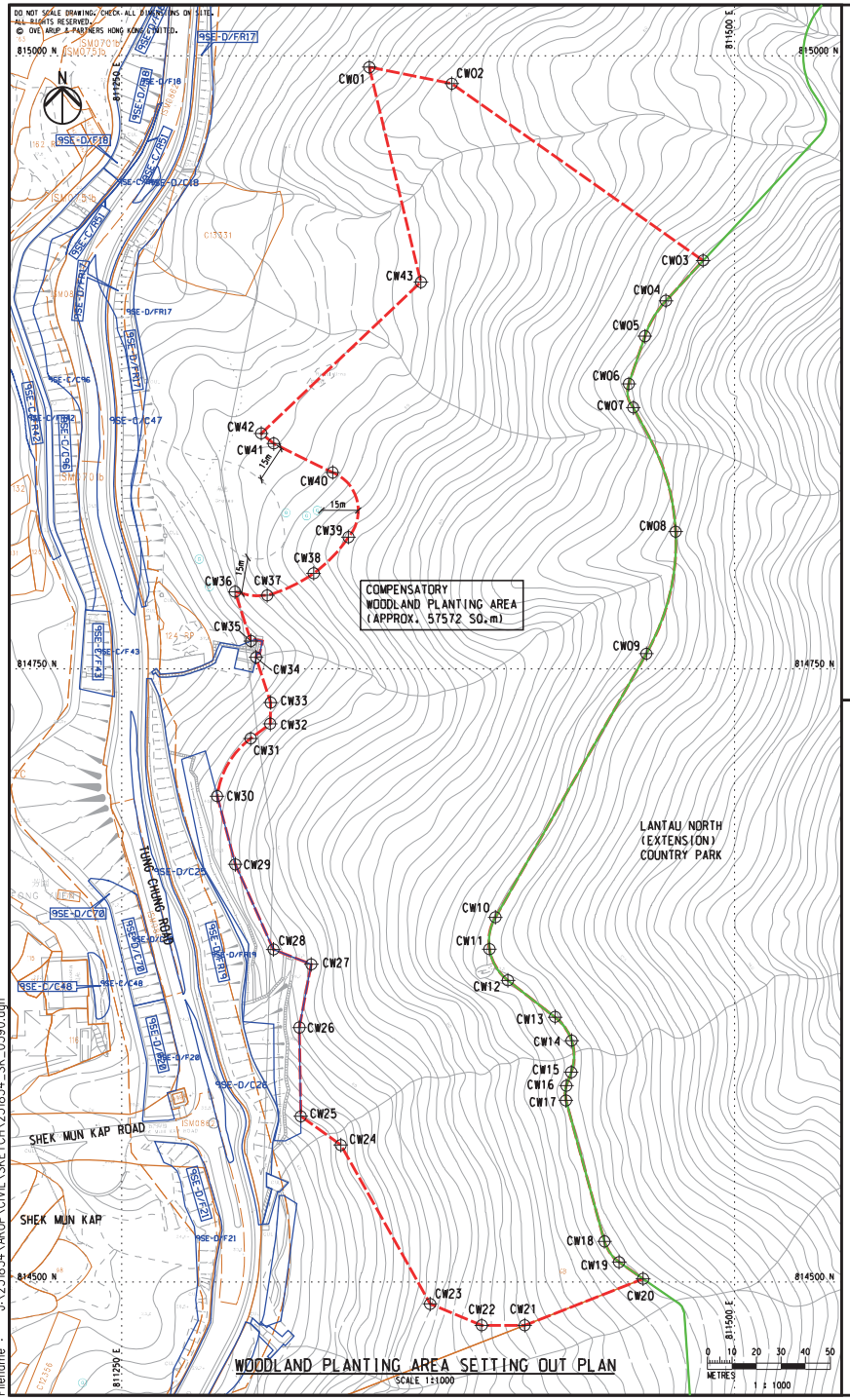
CONTRACT NO.: CE 69/2015 (CE)

SHEET TITLE

COMPENSATORY WOODLAND PLANTING -
CORE PLANTING AREA PLANTING MATRIX

Figure 4

APPENDIX IIIb COMPENSATORY PLANTING PLAN AND PROPOSAL - TUNG CHUNG WEST



WOODLAND PLANTING AREA SETTING OUT PLAN

SCALE 1:1000

SETTING OUT POINT	EASTING	NORTHING
CW01	811350.946	814995.351
CW02	811384.625	814988.723
CW03	811487.157	814916.535
CW04	811471.913	814900.108
CW05	811463.346	814885.729
CW06	811456.752	814866.257
CW07	811458.598	814856.581
CW08	811475.934	814805.903
CW09	811463.958	814756.221
CW10	811402.291	814648.719

SETTING OUT POINT	EASTING	NORTHING
CW11	811399.892	814635.703
CW12	811407.409	814622.944
CW13	811426.671	814608.055
CW14	811433.432	814598.462
CW15	811433.279	814585.517
CW16	811431.321	814580.022
CW17	811431.097	814574.018
CW18	811446.873	814516.529
CW19	811452.803	814508.166
CW20	811462.644	814501.356

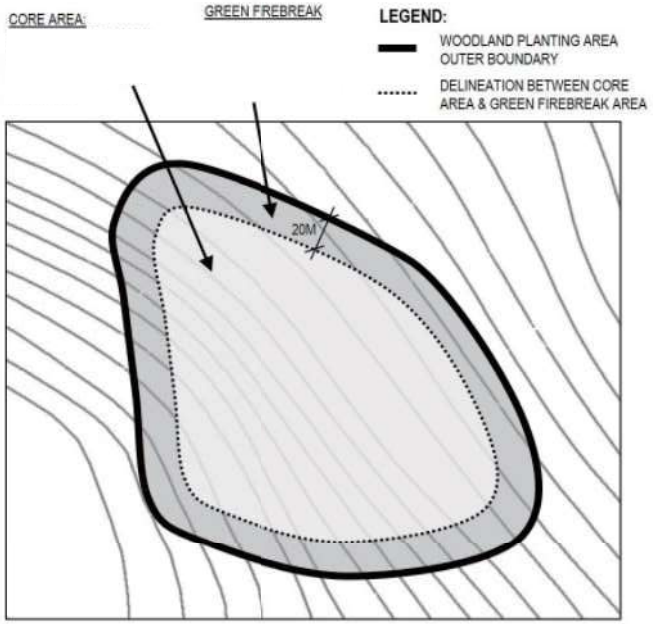
SETTING OUT POINT	EASTING	NORTHING
CW21	811414.204	814482.324
CW22	811396.738	814482.324
CW23	811375.758	814491.004
CW24	811339.319	814555.790
CW25	811322.951	814567.551
CW26	811322.421	814603.765
CW27	811327.276	814629.477
CW28	811311.812	814635.591
CW29	811296.214	814670.294
CW30	811288.815	814698.202

SETTING OUT POINT	EASTING	NORTHING
CW31	811302.503	814721.585
CW32	811310.484	814727.574
CW33	811310.665	814736.232
CW34	811304.727	814754.783
CW35	811302.622	814761.362
CW36	811296.172	814781.516
CW37	811309.302	814780.040
CW38	811328.268	814789.072
CW39	811342.460	814803.689
CW40	811335.980	814830.082

SETTING OUT POINT	EASTING	NORTHING
CW41	811311.989	814841.907
CW42	811306.804	814846.053
CW43	811372.018	814907.723

NOTES

1. THE CONTRACTOR SHALL SET OUT ON SITE THE BOUNDARIES OF CORE AREA AND GREEN FIREBREAK AREA WITH REFERENCE TO THE SETTING OUT POINTS AND TYPICAL ARRANGEMENT PLAN ON THIS DRAWING FOR THE ENGINEER'S APPROVAL.
2. FOR ANY EXISTING DENSELY WOODED AREAS WITHIN THE SITE THAT COULD NOT ACCOMMODATE FURTHER PLANTING, THE CONTRACTOR SHALL AGREE THEIR BOUNDARIES WITH THE ENGINEER AND PROTECT THE AREAS FROM UNNECESSARY INTERFERENCE.
3. IF EXISTING GRAVES ARE IDENTIFIED WITHIN OR NEAR THE SITE, THE CONTRACTOR SHALL SET OUT A BOUNDARY MEASURING 15m RADIUS FROM THE GRAVES. NO PLANTING SHALL BE CARRIED OUT WITHIN.
4. ALL BOUNDARIES AS MENTIONED IN ABOVE POINTS SHALL BE SET OUT WITH ROBUST, LONG LASTING, CLEARLY VIEWABLE IMPLEMENTS TO BE APPROVED BY THE ENGINEER.



CORE AREA & GREEN FIREBREAK AREA TYPICAL ARRANGEMENT PLAN

N.T.S.

LEGEND

- WOODLAND PLANTING AREA OUTER BOUNDARY
- COUNTRY PARK BOUNDARY
- CW01 SETTING OUT POINT
- EXISTING GRAVE
- SIMAR SLOPE BOUNDARY
- LAND LOT BOUNDARY

Rev	Description	By	Date
C	GENERAL REVISION	SS	07/17
B	GENERAL REVISION	SS	05/17
A	FIRST ISSUE	YPC	03/17

Consultant

ARUP

Contract No. and Title

Agreement No. CE 70/2015 (CE)

Tung Chung New Town Extension (West) - Design and Construction

Drawing title

COMPENSATORY WOODLAND PLANTING AREA B in TCW

Drawing no.	Rev.
FIGURE 1	C

Drawn	Date	Checked	Approved
RY	03/17	KK	DL

Scale: 1:1000 @ A1

Status: PRELIMINARY

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

Printed by : 04/07/2017
Filename : J:\251854\ARUP\CIVIL\SKETCH\251854_SK_0590.dgn

CORE AREA TREE PLANTING SCHEDULE

CODE	SCIENTIFIC NAME	CHINESE NAME	ORIGIN	SPECIFI-CATION	SPACIN G (MM)	Percent-age %
LSI	LIGUSTRUM SINENSE	山指甲	NATIVE	WHIP TREE	1500	6.02%
MPA	MALLOTUS PANICULATUS	白楸	NATIVE	WHIP TREE	1500	6.02%
CFI	CASTANOPSIS FISSA	黧蒴錐	NATIVE	WHIP TREE	1500	6.02%
CSI	CELTIS SINENSIS	朴樹	NATIVE	WHIP TREE	1500	6.02%
CBU	CINNAMOMUM BURMANNII	陰香	NATIVE	WHIP TREE	1500	6.02%
SSE	SAPIUM SEBIFERUM	烏桕	NATIVE	WHIP TREE	1500	6.02%
CLA	CLAUSENA LANSIUM	黃皮	EXOTIC	WHIP TREE	1500	2.5%
PAX	POLYSPORA AXILLARIS	大頭茶	NATIVE	WHIP TREE	1500	6.02%
FMI	FICUS MICROCARPA	榕樹	NATIVE	WHIP TREE	1500	1.1%
SSU	SCHIMA SUPERBA	木荷	NATIVE	WHIP TREE	1500	6.02%
IRM	ILEX ROTUNDA VAR. MICROCARPA	小果鐵冬青	NATIVE	WHIP TREE	1500	6.02%
LFO	LIQUIDAMBAR FORMOSANA	楓香	NATIVE	WHIP TREE	1500	6.02%
RTH	REEVESIA THYRSOIDEA	梭羅樹	NATIVE	WHIP TREE	1500	6.02%
DLO	DIMOCARPUS LONGAN	龍眼	EXOTIC	WHIP TREE	1500	2.5%
PEM	PHYLLANTHUS EMBLICA	餘甘子	NATIVE	WHIP TREE	1500	6.02%
SDI	SAPIUM DISCOLOR	山烏桕	NATIVE	WHIP TREE	1500	6.02%
CCA	CINNAMOMUM CAMPHORA	樟	NATIVE	WHIP TREE	1500	1.1%
SHE	SCHEFFLERA HEPTAPHYLLA	鵝掌柴	NATIVE	WHIP TREE	1500	6.02%
SLA	STERCULIA LANCEOLATA	假蘋婆	NATIVE	WHIP TREE	1500	6.02%
MRU	MYRICA RUBRA	楊梅	NATIVE	WHIP TREE	1500	2.5%
					TOTAL:	100%

GREEN FIREBREAK AREA TREE PLANTING SCHEDULE

CODE	SCIENTIFIC NAME	CHINESE NAME	ORIGIN	SPECIFI-CATION	SPACIN G (MM)	Percent-age %
F1	SCHIMA SUPERBA	木荷	NATIVE	WHIP TREE	1500	100%
					TOTAL:	100%

Notes:

1. The standard of whip tree shall refer to section 3.12 of General Specification for Civil Engineering Works (GS), 2020 Edition.

2. The actual no. of whip tree planting will be based on further review by Quali-fied Personnel and actual on-site condition.

Rev.	Description	By	Date
C	GENERAL REVISION	SS	07/17
B	GENERAL REVISION	SS	05/17
A	FIRST ISSUE	SS	02/17

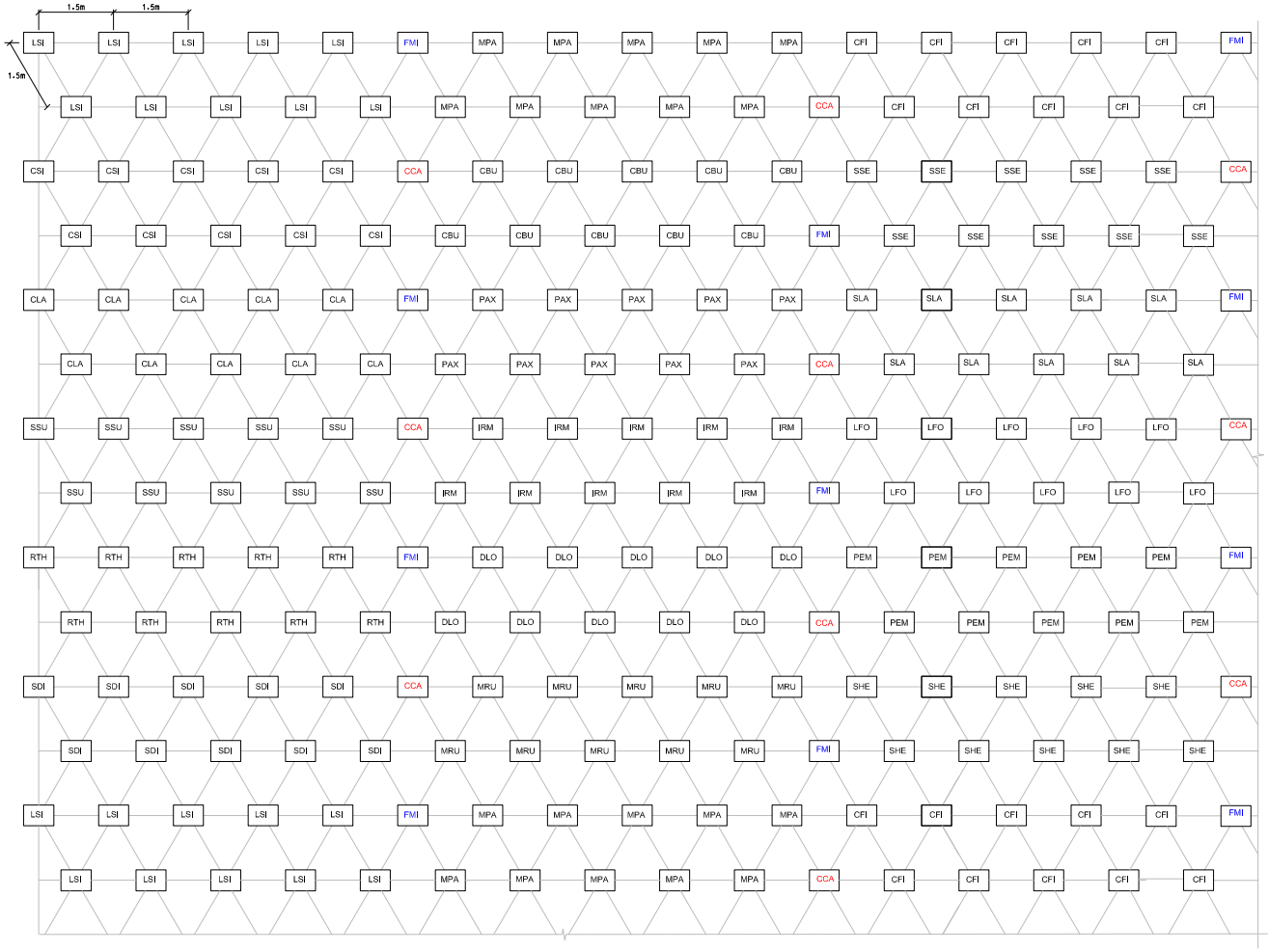
Consultant: ARUP

Contract No. and Title: Agreement No. CE 70/2015 (CE)
Tung Chung New Town Extension (West)
- Design and Construction

Drawing title: COMPENSATORY WOODLAND PLANTING : INITIAL PLANTING CONTRACT – GENERAL REQUIREMENTS (SHEET 1 OF 2)

Drawing no.: FIGURE 2 | Rev.: C
Drawn: SS | Date: 02/17 | Checked: EL | Approved: DL
Scale: NTS | Status: PRELIMINARY

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



Planting Pattern of Compensatory Woodland Planting of Core Area
Typical Pattern Size: 24m x 18.2m

CORE AREA TREE PLANTING SCHEDULE

CODE	SCIENTIFIC NAME	CHINESE NAME	ORIGIN	SPECIFICATION
LSI	LIGUSTRUM SINENSE	山指甲	NATIVE	WHIP TREE
MPA	MALLOTUS PANICULATUS	白楸	NATIVE	WHIP TREE
CFI	CASTANOPSIS FISSA	黧蒴錐	NATIVE	WHIP TREE
CSI	CELTIS SINENSIS	朴樹	NATIVE	WHIP TREE
CBU	CINNAMOMUM BURMANNII	陰香	NATIVE	WHIP TREE
SSE	SAPIUM SEBIFERUM	烏桕	NATIVE	WHIP TREE
CLA	CLAUSENA LANSIUM	黃皮	EXOTIC	WHIP TREE
PAX	POLYSPORA AXILLARIS	大頭茶	NATIVE	WHIP TREE
FMI	FICUS MICROCARPA	榕樹	NATIVE	WHIP TREE
SSU	SCHIMA SUPERBA	木荷	NATIVE	WHIP TREE
IRM	ILEX ROTUNDA VAR. MICROCARPA	小果鐵冬青	NATIVE	WHIP TREE
LFO	LIQUIDAMBAR FORMOSANA	楓香	NATIVE	WHIP TREE
RTH	REEVESIA THYRSOIDEA	梭羅樹	NATIVE	WHIP TREE
DLO	DIMOCARPUS LONGAN	龍眼	EXOTIC	WHIP TREE
PEM	PHYLLANTHUS EMBLICA	餘甘子	NATIVE	WHIP TREE
SDI	SAPIUM DISCOLOR	山烏桕	NATIVE	WHIP TREE
CCA	CINNAMOMUM CAMPHORA	樟	NATIVE	WHIP TREE
SHE	SCHEFFLERA HEPTAPHYLLA	鵝掌柴	NATIVE	WHIP TREE
SLA	STERCULIA LANCEOLATA	假蘋婆	NATIVE	WHIP TREE
MRU	MYRICA RUBRA	楊梅	NATIVE	WHIP TREE

Project : Contract No.: NL/2020/06
Tung Chung New Town Extension -
Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1

ARUP

Drawing Title : Planting Pattern of Compensatory Wooland Planting

Scale : N.T.S.

Rev.

FIGURE 3

Date : 25 February 2022

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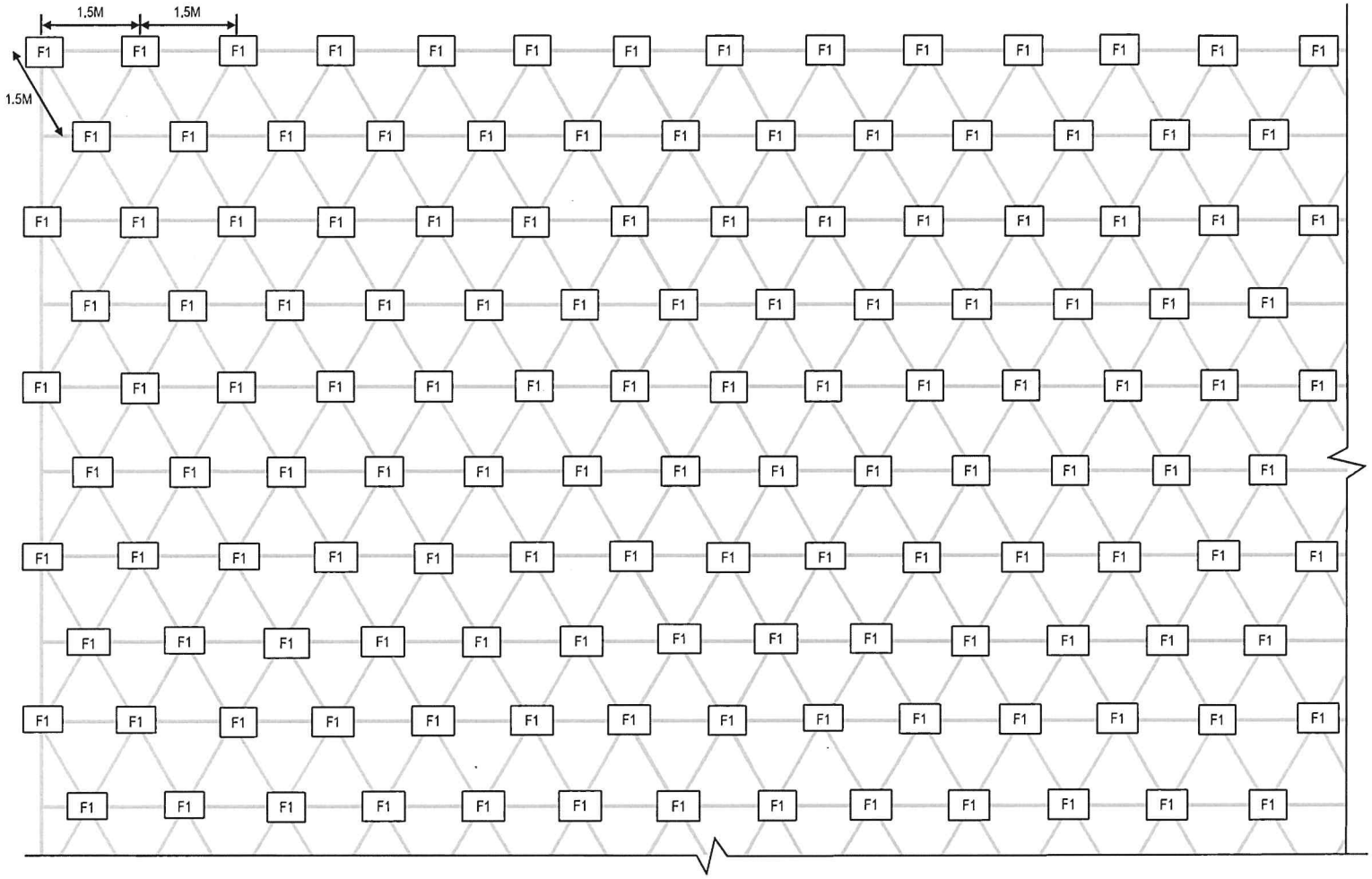

GREEN FIREBREAK AREA
SCHEHATIC PLANTING MATRIX
N.T.S.

NOTES:

1. REFER TO FIGURE 2 FOR GREEN FIREBREAK AREA TREE PLANTING SCHEDULE.

LEGEND: TREES FOR GREEN FIREBREAK AREA

Rev.	Description	By	Date
B	GENERAL REVISION	SS	05/17
A	FIRST ISSUE	SS	02/17

Consultant: ARUP

Contract No. and Title: Agreement No. CE 70/2015 (CE)
Tung Chung New Town Extension (West) - Design and Construction

Drawing Title: COMPENSATORY WOODLAND PLANTING : INITIAL PLANTING CONTRACT – GREEN FIREBREAK AREA PLANTING MATRIX

Drawing no.: FIGURE 4 | Rev.: B
Drawn: SS | Date: 02/17 | Checked: EL | Approved: DL
Scale: NTS | Status: PRELIMINARY

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

APPENDIX IV IMPLEMENTATION SCHEDULE

Implementation Schedule

Tung Chung New Town Extension - Design and Construction

Environmental Protection Measures	Deliverables	Objectives of the Measures	Who to Implement the Measures	Location of the Measures	When to Implement the Measures	Section No(s) of the Plan
Site Preparation						
<u>Site Preparation</u> • Boundary demarcated with durable and viewable implements. • Grass cutting/groundcover trimming and removal of invasive species. • Areas containing dense woody growth have their boundaries set out and protected. • Preserve existing woody shrubs and immature trees. • Excavate the planting pits according to the specified spacing before plant delivery.	Method statement on site preparation works and planting procedures 1 month before woodland planting for ET and IEC agreement and Engineer's approval.	To provide a suitable environmental for the compensatory woodland planting.	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Prior to commencement of compensatory planting works	S.3.4
<u>Site Survey</u> Conduct the site survey for the woodland planting area.	Submit a site survey report to Engineer for record	For verifying the proposed details of work in the plan whether they could be executed or if any amendment is required.	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Prior to commencement of compensatory planting works	S.1.5
<u>Plant Procurement</u> Early procurement of tree species.	Demonstration of plant sources' availability and reliability to Engineer	To fulfil the specified quantities and sizes at the time of planting	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Prior to commencement of compensatory planting works	S.5.5

Environmental Protection Measures	Deliverables	Objectives of the Measures	Who to Implement the Measures	Location of the Measures	When to Implement the Measures	Section No(s) of the Plan
Compensatory Planting						
<u>Planting Scheme</u> Core Area • Understorey plants should not be aggressive and would not adversely affect tree growth. Green Firebreak Area • Species selected should be fast growing and have dense canopies. • Green firebreak would have a width of 20m. • Periodic maintenance (e.g. removal of understory growth and litter accumulation).	Method statement on site preparation works and planting procedures 1 month before woodland planting for ET and IEC agreement and Engineer's approval.	- The goal of the compensatory woodland planting is to establish a mature, closed canopy. dominated by native trees. -Fire resistant native trees as the "green firebreak area" is required to protect the compensatory woodland from potential disturbance by fires.	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Prior to commencement of compensatory planting works	S.5.1 – S.5.3
<u>Plant Schedule and Matrix</u> • A total estimated 36,000 nos. of whip trees will be planted (The actual no. of whip trees will be based on further review by qualified personnel and actual on-site condition.) or a maximum no. of planting by 1.5m spacing whichever the less.		To fulfil the specified quantities and sizes at the time of planting	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	During compensatory planting works	S.5.4
<u>Fire Control</u> • Plantings set back 15m from any existing graves. • Periodic grass-cutting within the Green Firebreak Area and around nearby graves.	Submit a proposal of fire control measures for planting to Engineer for approval	To prevent understorey growth and litter accumulation which act as fuel causing spread of fire.	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	During compensatory planting works, and the Establishment / Maintenance period	S.5.6 and S.6.10

Environmental Protection Measures	Deliverables	Objectives of the Measures	Who to Implement the Measures	Location of the Measures	When to Implement the Measures	Section No(s) of the Plan
Post-planting Monitoring						
<u>Post-planting Monitoring</u> • Post-planting monitoring carried out by Qualified Personnel at quarterly interval for at least 3 years and commence 3 months after completion of planting. • The compensatory woodland should be divided into a number of planting plots to facilitate monitoring. • Diverse mix of robust native tree.	Quarterly post-planting monitoring report shall be submitted to Engineer, ET and IEC within 5 working days after each monitoring inspection	To monitor and provide remedial works to ensure the woodland establishment in long term.	Contract No.: NL/2020/02 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Establishment / Maintenance Period	S.6.1 – S.6.4
<u>Establishment / Maintenance Works (10 years by CEDD, 3 years under current contracts provision and additional 7 years to be carried out by subsequent contracts)</u> • Quarterly inspections should be carried out to monitor the plants and identify any special operations required. • Regularly cut grass and remove noxious weeds. • Herbicides and pesticides should not be used unless in exceptional circumstances. • All weeding wastes should be carried away to a proper tipping point for disposal. • Remove weeds, understorey growth and leaf litter.		To monitor and provide remedial works to ensure the woodland establishment in long term.	CEDD, Contract No.: NL/2020/02, NL/2020/05 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	10 years Establishment / Maintenance period	S.6.6 – S.6.12
<u>Action Targets based on Percentage Canopy Cover</u> • Identify a fixed number of pilot trees with belt transect (with quadrats) method in each planting plot.	Submit a method statement for establishing the action target on percentage canopy cover for Engineer's approval	Monitoring for the percentage canopy cover formation, growth rate and survival rate.	CEDD	Compensatory Woodland Planting Area A in TCE and Area B in TCW	3rd, 7th and 10th years after planting	S.6.5

Environmental Protection Measures	Deliverables	Objectives of the Measures	Who to Implement the Measures	Location of the Measures	When to Implement the Measures	Section No(s) of the Plan
• When the action level percentage canopy cover trigger, remedial measures, such as replacement of dead or poor health trees, shall be instigated.	and ET and IEC agreement 1 month before the commencement of percentage canopy cover measurement					
<u>Tree Risk Assessment</u> • TRAM and auditing exercise. • Tree Management Plan and Tree Risk Assessment Report" to be submitted in the Construction Phase.	Tree Management Plan and Tree Risk Assessment Report	To identify the risk of the trees.	Contract No.: NL/2020/02, NL/2020/05 and NL/2020/06	Compensatory Woodland Planting Area A in TCE and Area B in TCW	Construction Phase when necessary (e.g., act on complaint)	S.6.13