



土木工程拓展署

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Agreement No. CE 47/2020 (CE)

**Term Consultancy for Site Formation and
Infrastructure Works for Proposed Development
in Zone 2 (2021 - 2024) - Feasibility Study**

Task Order No. 9 – San Tin

Tree Survey Report

(Draft - Issue 1)

TREE SURVEY REPORT (DRAFT - ISSUE 1)

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1. TREE SURVEY METHODOLOGY

1.1 Tree Survey

1.1.1 A plant is considered as a “tree” if its trunk diameter measures 95mm or more at a height of 1.3m above the ground level.

1.1.2 Tree survey boundary is defined as the S16 Application Site Boundary.

1.1.3 The tree survey was carried out by registered Arborist under Development Bureau’s Registration Scheme for Tree Management Personnel.

1.1.4 This tree survey report includes the following information on each surveyed tree:

Tree Number	Tree numbers were determined by tree assessors and correspond to the tree survey plan.
Species	Tree species were identified with their Scientific and Chinese names.
Height	Tree heights were measured in meters and taken from ground level to the top of tree crown.
Trunk Diameter	Trunk diameter at breast height (DBH) as defined and measured in accordance with Agriculture, Fisheries and Conservation Department’s Nature Conservation Practice Note No.2.
Crown Spread	Crown spread of trees measured in meters.

1.2 Technical Circular, Practice Notes and Publications

The following ordinances, practice notes, technical circulars and other references were consulted in the preparation of this Proposal:

- Forests and Countryside Ordinance (Cap. 96);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- Agriculture, Fisheries & Conservation Department – Nature Conservation Practice Note No. 02 (Rev. Jun 2006) – Measurement of Diameter at Breast Height (DBH);
- Agriculture, Fisheries & Conservation Department – Nature Conservation Practice Note No. 03 – The Use of Plant Names;
- Agriculture, Fisheries & Conservation Department Publication - 'Rare and Precious Plants of Hong Kong' (2003);

- Agriculture, Fisheries & Conservation Department Publication - 'Check List of Hong Kong Plants' (2012);
- Country Park Ordinance (Cap. 208);
- DEVB TCW No. 4/2020 – Tree Preservation;
- DEVB TCW No. 5/2020 - Registration and Preservation of Old and Valuable Trees;
- DEVB TC(W) No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features;
- DEVB TC(W) No. 2/2012 – Allocation of Space for Quality Greening on Roads;
- GEO Publication No. 1/2011 – Technical Guidelines on Landscaping Treatment for Slopes;
- Guidelines on Tree Transplanting (September 2014) – GLTM Section, DEVB;
- Guidelines on Tree Preservation during Development (April 2015) – GLTM Section, DEVB;
- Guidelines for Tree Risk Assessment and Management Arrangement (TRAM, 9th edition) – GLTM Section, DEVB;
- All relevant guidelines and proper planting practices published by GLTMS, DEVB.

1.3 **Tree Assessment Schedule**

1.3.1 The tree survey and assessment was conducted in accordance to the guidelines, practice notes and ordinances stated in Section 1.2.

1.3.2 Tree Survey and Tree Treatment Plan is provided in **Annex 1**. Tree Assessment Schedule is shown in **Annex 2** and provides the following information:

- Tree No. (numbers allocated to individual trees surveyed on site and photos in **Annex 3**);
- Scientific Name and Chinese Name of tree species;
- Size (DBH measured in millimetres, Height and Crown spread measured in metres);
- Amenity Value (of surveyed tree – **H**igh / **M**edium / **L**ow);
- Form (of surveyed tree – **G**ood / **A**verage / **P**oor);

- Health condition (of surveyed tree – **Good / Average / Poor);**
- Structural condition (of surveyed tree – **Good / Average / Poor);**
- Suitability for transplantation (of surveyed tree – **High / Medium / Low);**
- Remarks - Justification of not suitable for transplanting;
- Conservation Status (**Yes / No);**
- OVT or potential OVT (**Yes / No);**
- Maintenance department to provide comments on Tree Survey Report (Before / After);
- Recommendation (of surveyed tree – **Retain / Transplant / Remove);**
- Additional Remarks - Trees location, maturity of trees and trees with ecological and historical significance (if any) of affected trees, rare species of fung shui significance whether tree has fallen/ collapsed etc.

1.3.3 Health, Form and Structural Condition of Tree:

The health, form and structural condition of each tree were evaluated according to the following criteria:

- **G** Trees of good form, moderate to large size and in good form, good health and good structural condition without any significant defects are classified as Good;
- **A** Trees of reasonable form, with few or no visible defects or health problems and reasonable tree form and structural condition with few defects, leading low tree failure potential are classified as being Average;
- **P** Trees that are of poor form, health and structural condition, badly damaged or clearly suffering from decay, dying back or the effects of very heavy vine growth are classified as Poor.

1.3.4 Amenity Value:

The tree was also evaluated and assessed by its amenity value. The factors that were taken into consideration are conservation value, functional value, visual impact and aesthetic value. The assessment of each tree was evaluated according to the following criteria:

- **H** Trees that have conservation value (i.e. trees in the Register of Old and Valuable Trees as per DEVB TC(W) No. 5/2020, trees of particular interest as per TRAM (9th edition) and trees in rare or protected species as listed by the Agriculture, Fisheries & Conservation Department), Fung Shui Significance or have high visual impact, with

good form, health, and structural condition are classified as High in amenity value;

- **M** Trees that are common species with acceptable form, average health and structural condition and are classified as Medium in amenity value;
- **L** Trees that are common species with poor form, health or structural condition are classified as Low in amenity value.

1.3.5 Suitability for Transplanting:

The grade of survival rate after transplantation (High / Medium / Low) was evaluated under the following criteria:

- Condition of surveyed tree: Trees with balanced form, in good health and with high amenity value are considered for transplanting.
- Size and maturity: Small and younger trees have a better chance of surviving transplantation while larger, mature trees are difficult to transplant both logistically and have lower survival rate.
- Species: Different tree species have better chances of survival or are better suited to transplanting than other species.
- Accessibility: Large machinery is required to lift the trees. Steep slopes and rocky terrain make it difficult to access trees.

2.2.1 Recommendations:

Based on the above criteria and the site constraints, the trees were considered for the following actions:

- **Retain** Trees located on unaffected site areas are recommended to be retained and shall be protected during site formation and construction works in vicinity areas.
- **Transplant** Trees located on affected site areas but have a medium to high transplantation survival rate are recommended to be transplanted. Trees that are to be transplanted shall be relocated to a suitable location on site or held in a nursery until site formation and construction is completed, then be transplanted back into the site.
- **Remove** Trees located on affected site areas but have poor health condition, form and amenity value are recommended to be removed.

2. TREE SURVEY FINDINGS

2.1 Tree Survey Findings

2.1.1 Tree survey was conducted on 23rd June 2023. A total of **38** nos. of existing trees were recorded within the tree survey boundary.

2.1.2 There were 8 identifiable tree species found within the tree survey boundary, excluding dead tree. The most dominant species are *Ficus microcarpa* (native, 11 nos.) and *Leucaena leucocephala* (exotic, 7 nos.). Tree information is summarized in **Table 1**.

2.1.3 The general health, structural condition and form of the surveyed trees were ranging from average to poor. Amenity value was rendered between low and high.

Table 1 - Summary of Tree Species

Scientific Name	Chinese Name	Origin	No. of Trees
<i>Carica papaya</i>	番木瓜	Exotic	2
<i>Casuarina equisetifolia</i>	木麻黃	Exotic	6
<i>Ficus benjamina</i>	垂葉榕	Exotic	4
<i>Ficus microcarpa</i>	榕樹(細葉榕)	Native	11
<i>Leucaena leucocephala</i>	銀合歡	Exotic	7
<i>Macaranga tanarius</i> var. <i>tomentosa</i>	血桐	Native	2
<i>Platyclusus orientalis</i>	扁柏	Exotic	3
<i>Syzygium cumini</i>	海南蒲桃	Exotic	1
DEAD TREE	死樹	N.A.	2
		Total	38

2.2 Findings of Old and Valuable Tree & Tree of Particular Interest

- 2.2.1 With reference to DEVB TC(W) No. 5/2020, there are no Old or Valuable Trees (as listed in the Registration and Preservation of Old and Valuable Trees).
- 2.2.2 According to criteria set out in TRAM, two (2) nos. of trees were categorized as Tree of Particular Interest (TPI) due to their measured DBH exceeding 1m. Both trees (i.e. T10 and T20) are *Ficus microcarpa* - a common specimen in Hong Kong.
- 2.2.3 T10 does not have a main trunk leader, with its robust lignified aerial roots spanning around 2.5m. The tree was assessed to be average in terms of tree form, health condition and structural condition. Despite of being a tree of particular interest, the tree is rendered “Medium” in amenity value rather than “High” due to the prevalence of *Ficus microcarpa* in this large size.
- 2.2.4 Similar to T10, T20 do not possess a main trunk leader, while its lignified aerial roots are extending horizontally up to 4m, forming a wall-like shape. The tree was assessed to be average in terms of tree form, health condition and structural condition. The tree is considered “Medium” in amenity value.

3. EXISTING TREE TREATMENT STRATEGY AND PROPOSED TREE TREATMENT

3.1 Tree Treatment Strategy

3.1.1 From tree preservation's point of view, arduous effort should be exercised to preserve the existing trees on site.

3.1.2 Trees that are unavoidably affected by the works and need to be removed shall be first considered for transplanting instead of felling. Feasibility of transplanting have been carefully reviewed in accordance with the "Guidelines on Tree Transplanting" promulgated by the GLTMS/DEVB. In general, the following criteria would be considered for tree transplantation.

- a) Form, Health and Structure are at least "Average";
- b) Both criteria "Amenity value and "Suitability of Transplanting" are at least "Medium";
- c) The tree is not on steeply sloping ground, and is feasible for root ball preparation;
- d) There are no objects such as manholes, water points, hydrants etc. that would interfere with root ball preparation.

3.2 Proposed Tree Treatment

3.2.1 As all the **38** nos. surveyed trees are not affected by the proposed works, they would be retained *in situ*, tree transplantation or removal are not applicable in this tree survey. As such, no compensatory planting is required.

4. SPECIFICATION OF TREE PRESERVATION, PROTECTION AND TRANSPLANTATION WORKS

- 4.1.1 As required in Para. 49 of DEVB TC(W) No. 4/2020 – *Tree Preservation*, contractual requirements on tree preservation, protection and transplantation works should be incorporated into the Contracts, requiring the Contractor to adopt necessary measures to protect and preserve existing trees on Site.
- 4.1.2 The requirements of tree preservation and protection works of this project should comply with the Sections 3 and 26 of CEDD's *General Specification for Engineering Works*, and the requirements as stipulated in DEVB TC(W) No. 5/2020 – *Registration and Preservation of Old and Valuable Trees* and DEVB TC(W) No. 4/2020 – *Tree Preservation*.
- 4.1.3 All retained trees shall be treated with appropriate tree protection measures, including but not limited to setting up the tree protection zone (TPZ) under the tree(s)' dripline as far as practicable. No unnecessary entry into the TPZ should be allowed.

5. SUMMARY

- 5.1.1 This tree survey report was prepared in accordance with DEVB TC(W) No. 4/2020 – *Tree Preservation*.
- 5.1.2 A total of **38** nos. of existing trees were recorded within the tree survey boundary. Two (2) of Tree of Particular Interest (TPI) were found.
- 5.1.3 All these **38** surveyed trees are to be retained *in situ*. None of the trees are proposed to be transplanted or removed.
- 5.1.4 No compensatory planting is required.

ANNEX 1


Tree Survey and Tree Treatment Plan

Date : 8/2/2023
 Filename : X:\PROPOSAL\WDO Report\1_WIP\1.2 CAD\1.2.1 SHEET\CE47_T09_SK_0001.dgn



LEGEND :

- APPLICATION SITE
- EXISTING TREE TO BE RETAINED
- ⊗ TREE OF PARTICULAR INTEREST TO BE RETAINED

Rev	Description	By	Date
Consultant			
			
Project title			
AGREEMENT NO.CE47/2020 (CE) TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY			
Drawing title			
TASK ORDER NO. 9 SAN TIN TREE SURVEY PLAN			
Drawing no.		Rev.	
CE47/T09/SK/0001		-	
Drawn	Date	Checked	Approved
CAD	JUN 2023	VS	YWW
Scale	Status		
1:500 (A1)	-		

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ANNEX 2

Tree Assessment Schedule

Tree Assessment Schedule

Project Title: CE47/2020 (CE) Term Consultancy for Site Formation and Infrastructure Works for Proposed Housing Developments in Zone 2 (2021 - 2024) - Feasibility Study

Task Order No. 9 - San Tin

Date of Survey: 23/6/2023

Tree No.	Species		Measurements			Amenity Value	Form	Health Condition	Structural Condition	Suitability for Transplanting		Conservation Status* (Yes/Yes/Cultivate d/No)	Recommendation	Maintenance Department to Provide Comments on TPRP		Additional Remarks
										High (H)/Medium (M)/Low (L)	Remarks*			Before	After	
	Scientific name	Chinese name	Height (m)	DBH (mm)	Crown Spread (m)	(High (H)/Medium (M)/Low (L))	(Good (G)/ Average (A)/ Poor (P))	(High (H)/Medium (M)/Low (L))	(Retain/ Transplant/ Remove)							
T1	Casuarina equisetifolia	木麻黃	3.5	95	2	M	A	A	A	L	d,g	No	Retain			close to T3
T2	Casuarina equisetifolia	木麻黃	3.5	98	2	M	A	A	A	L	d,g	No	Retain			close to T3
T3	Casuarina equisetifolia	木麻黃	3.5	95	2	M	A	A	A	L	d,g	No	Retain			close to T2 and T1
T4	Casuarina equisetifolia	木麻黃	3.5	95	2	M	A	A	A	L	d,g	No	Retain			close to T3
T5	Ficus microcarpa	榕樹(綠蔭榕)	4	230	3.5	L	A	P	A	L	a,b,g	No	Retain			sign of infestation, dieback twigs, wound on trunk, close to hard-paved surface
T6	Ficus microcarpa	榕樹(綠蔭榕)	7	280	5	L	P	P	A	L	a,b,g	No	Retain			sign of infestation, dieback twigs, imbalanced crown, close to hard-paved surface
T7	Ficus microcarpa	榕樹(綠蔭榕)	8	420	6	M	A	A	A	L	c,g	No	Retain			close to hard-paved surface
T8	Macaranga tararius var. tomentosa	藍桉	6.5	370	5	L	P	A	A	L	a,b,d	No	Retain			imbalanced crown, bending upper trunk, broken branch
T9	DEAD TREE	死樹	4	240	1.5	L	P	P	P	L	a,b,f	No	Retain			dehydrated trunk, no live foliage
T10	Ficus microcarpa	榕樹(綠蔭榕)	9	1000	14	M	A	A	A	L	c	No	Retain			tree of particular interest (TPI), no main trunk, robust lignified aerial roots spanning 2.5m, slight climbers on trunk
T11	Macaranga tararius var. tomentosa	藍桉	5.5	280	4.5	L	P	P	A	L	a,b,d	No	Retain			co-dominant trunks, sparse foliage, suppressed by T10, imbalanced crown
T12	Platylobus orientalis	扁柏	3.5	100	2	L	P	A	A	L	a,b	No	Retain			excessive climbers covered on crown
T13	Casuarina equisetifolia	木麻黃	3.5	95	2	M	A	A	A	L	d	No	Retain			
T14	Casuarina equisetifolia	木麻黃	4	105	2.5	M	A	A	A	M	d	No	Retain			
T15	Syzygium cumini	海南蒲桃	4.5	130	3	M	A	A	A	L	g	No	Retain			close to other tree/shrub, close to hoarding
T16	Ficus microcarpa	榕樹(綠蔭榕)	7.5	270	5.5	L	P	P	A	L	a,b,c,g	No	Retain			imbalanced crown, sparse foliage, close to hard-paved surface
T17	Ficus microcarpa	榕樹(綠蔭榕)	7	600	4	M	A	A	A	L	g	No	Retain			close to T18, close to hard-paved surface
T18	Ficus microcarpa	榕樹(綠蔭榕)	7	450	5	M	A	A	A	L	g	No	Retain			close to T17, close to hard-paved surface
T19	Platylobus orientalis	扁柏	2	95	1.5	L	P	P	A	L	a,b	No	Retain			bushy form
T20	Ficus microcarpa	榕樹(綠蔭榕)	7	1200	9	M	A	A	A	L	c	No	Retain			tree of particular interest (TPI), no main trunk, robust lignified aerial roots extend horizontally up to 4m,
T21	Carica papaya	番木瓜	3.5	100	1.5	M	A	A	A	M	-	No	Retain			
T22	Carica papaya	番木瓜	3.5	98	1.5	M	A	A	A	M	-	No	Retain			
T23	Ficus benjamina	菩提樹	4	130	2	L	P	A	A	L	a,b,g	No	Retain			close to T24, imbalanced crown
T24	Leucaena leucocephala	銀合歡	7	110	4	L	P	A	A	L	a,b,e	No	Retain			leaning trunk
T25	Ficus benjamina	菩提樹	3.5	100	2.5	M	A	A	A	L	g	No	Retain			close to hoarding
T26	Leucaena leucocephala	銀合歡	7	140	4	L	P	A	A	L	a,b,e	No	Retain			leaning trunk
T27	Leucaena leucocephala	銀合歡	4.5	120	2.5	M	A	A	A	L	e,g	No	Retain			close to hoarding
T28	Ficus benjamina	菩提樹	3.5	190	2	M	A	A	A	L	g	No	Retain			root restricted by T29
T29	Leucaena leucocephala	銀合歡	5	95	4.5	L	A	A	A	L	e	No	Retain			root restricted by T28
T30	Leucaena leucocephala	銀合歡	7	220	3.5	L	A	A	A	L	e,g	No	Retain			very close to hoarding
T31	Leucaena leucocephala	銀合歡	4.5	130	3	L	P	A	A	L	a,b,e	No	Retain			low branching with included bark
T32	Leucaena leucocephala	銀合歡	3	120	2.5	L	A	A	A	L	e,g	No	Retain			very close to hoarding
T33	Ficus benjamina	菩提樹	3	110	2.5	L	P	A	A	L	a,b,g	No	Retain			leaning trunk, close to hoarding
T34	Platylobus orientalis	扁柏	2	95	1.5	L	P	P	A	L	a,b	No	Retain			yellowish foliage, bushy form
T35	Ficus microcarpa	榕樹(綠蔭榕)	3.5	400	4	M	A	A	A	M	-	No	Retain			robust aerial roots
T36	DEAD TREE	死樹	8	430	5	L	P	P	P	L	a,b,f	No	Retain			no live foliage, fungal fruiting bodies on crown and base
T37	Ficus microcarpa	榕樹(綠蔭榕)	7	300	6	M	A	A	A	L	c,g	No	Retain			close to T36, surface root restricted by T36
T38	Ficus microcarpa	榕樹(綠蔭榕)	7.5	420	7	L	A	P	A	L	a,b,c	No	Retain			sign of infestation

***Remarks for Suitability for Transplanting**

- a. Trees of low amenity value
- b. Trees with poor form/health/structural condition
- c. Inconceivable form after transplanting (e.g. transplanting requires substantial crown and root pruning)
- d. Low chance of survival soon after transplanting (species with low ability to tolerate transplant; senescent tree with low cost-transplantation survival rate)
- e. Limited tree
- f. Unacceptable species for 7. Forensic leucaena/leucaena which is an invasive, exotic and self-seeding tree
- g. Trees grown under poor conditions which have limited the formation of proper root ball necessary for transplanting (e.g. on slope, close to utilities, close to other trees)
- h. Not cost-effective due to risks that site surface, the feasibility to transplant has been considered financially, resource-wise and technically feasible
- i. Not cost-effective due to common species with low cultural, functional and ecological value, widely cultivated or self-seeded in urban / urban fringe areas (unless high amenity value identified)

Conservation status

- (A) The Protection of Endangered Species of Animals and Plants Ordinance (Cap. 380)
- (B) Forests and Countryside Ordinance (Cap. 98)
- (C) IPPM - Rare and Precious Plants of Hong Kong
- (D) CPDDB - China Plant Red Data Book

ANNEX 3

Photographic Record of Existing Trees



T1 (Retain)



T2 (Retain)



T3 (Retain)



T4 (Retain)



T5 - sign of infestation (Retain)



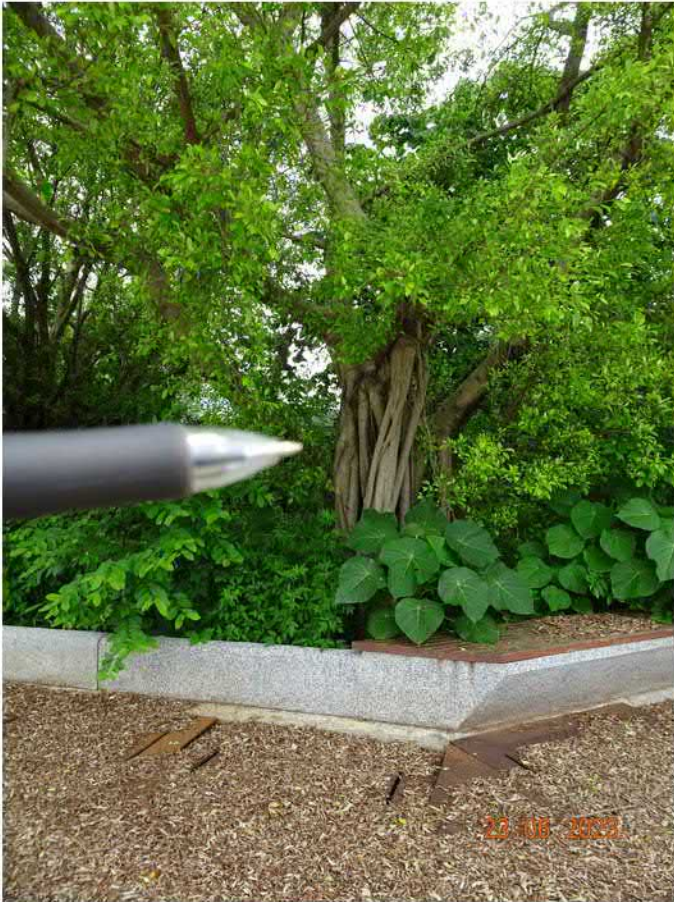
T5 (Retain)



T6 - sign of infestation (Retain)



T6 (Retain)



T7 (3) (Retain)



T7 (Retain)



T8 - crooked trunk (Retain)



T8 (Retain)



T9 (Retain)



T10 - base2 (Retain)



T10 - wholeview (Retain)



T10 - base (Retain)



T11 (Retain)



T12 (Retain)



T13 (Retain)



T14 (Retain)



T15 (Retain)



T16 (Retain)



T17 (Retain)



T18 (Retain)



T19 (Retain)



T20 - base (2) (Retain)



T20 - base (Retain)



T20 - wholeview (Retain)



T21 (Retain)



T22 (Retain)



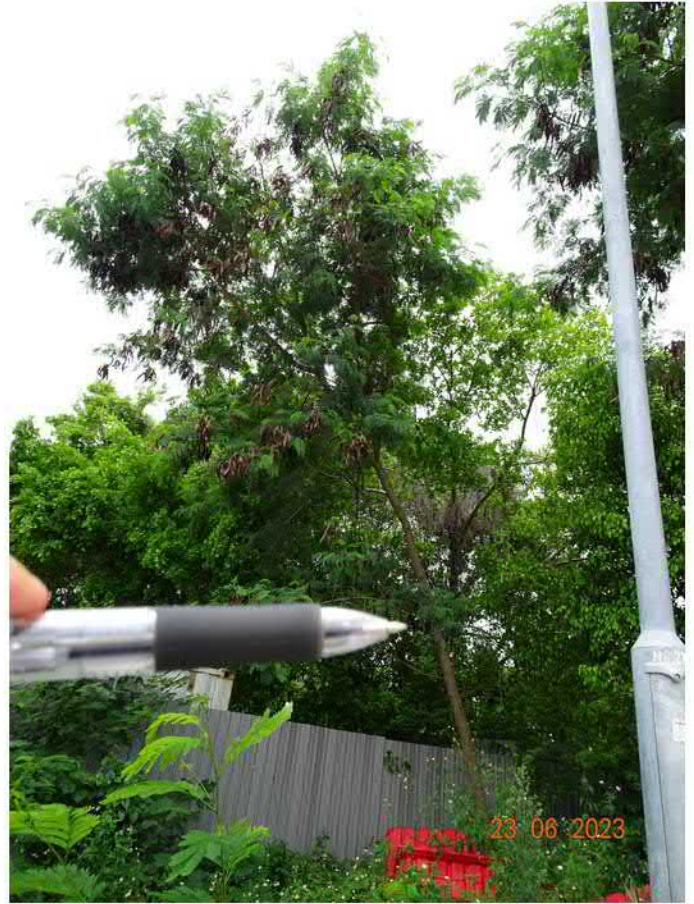
T23 (Retain)



T24 (Retain)



T25 (Retain)



T26 (Retain)



T27 (Retain)



T28 (Retain)



T29 (Retain)



T30 (Retain)



T31 (Retain)



T32 (Retain)



T33 (Retain)



T34 (Retain)



T35 (Retain)



T36 (Retain)



T37 (Retain)



T38 (Retain)