Appendix 2: Landscape Master Plan

## Section 16 Planning Application for Proposed Tai Po Kau Nature Academy at Tai Po Kau, Tai Po

### Landscape Master Plan

Jul 19, 2022

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Revision	Date	Description
-	Jul 19, 2022	First Submission

# 1 Table of Contents

1	Intr	oduction	3
2	Exis	ting Site Conditions	3
3	Pro	ject Description	3
4	-	dscape Master Plan	
-	4.1	Landscape Design Concept	
	4.2	Edge treatment	
	4.3	Connection, access, and site levels	
	4.4	Programme and function	
	4.5	Soft landscape design and ecological feature	5
	4.6	Hard landscape design	6
	4.7	Site coverage of greenery	6
	Area o	f the Application Site:	6
5	Tre	e Survey	6
	5.1	Tree Survey and Schedule	6
	5.2	Recommended Treatment	7
	5.3	Compensatory Tree Planting and Enhancement Tree Planting Proposal	7
6	Lan	dscape Management and Maintenance	7

### 1 Introduction

- 1.1 This Landscape Master Plan is prepared to support the Section 16 Planning Application for a proposed Tai Po Kau Nature Academy at Tai Po Kau Lot 1, 2, 4-8 in D.D.33 (hereafter referred to as the Application Site). The Application Site falls within the "Green Belt" ("GB") zone on the Tai Po Outline Zoning Plan No. S/TP/29 ("OZP"). 'Field Study/Education/Visitor Centre' and 'Holiday Camp' (tent camping ground) are Column 2 uses that may be permitted with or without conditions on application to the TPB.
- 1.2 This submission will demonstrate that the proposed development is in line with the planning intention from landscape perspective, and outline the landscape design features, mitigation and enhancement measures, as well as the tree preservation and compensatory proposals for the proposed development. This proposal has taken into account the potential impacts of the proposed development to the site and the immediate area, in terms of landscape, visual, and ecological aspects.

#### 2 Existing Site Conditions

- 2.1 The Application Site has a total area of about 0.9ha and ranges in elevation from approximately +99 mPD in the northeast to +123mPD in the southwest. It is located between Tai Po Kau Forest Track Kau Lead Section and a natural stream. It is adjacent to the Tai Po Kau Nature Reserve on 3 sides. The site was an abandoned farmland. Its surrounding has dense tree coverage whilst tree coverage within the Application Site is comparatively low (Refer to Figure 2.1). The site falls into Upland and Hillside Landscape and Settled Valley Landscape according to Landscape Character Map of Hong Kong.
- 2.2 Figure 2.2 to 2.4 shows existing site conditions. Tai Po Kau Forest Track Kau Lead Section is a concrete road (View 1). There are 2 site access points with metal fence erected (View 1 & 3). Site edge abutting the road is heavily vegetated by typical woodland shrub. There are occasional openings offering views to inside the site (View 2).
- 2.3 There are 3 major clusters of buildings / structures inside the site, including:
  - a) A few severely deteriorated metal structures with metal sheet roof and a small building to the northeast (View 10 & 11)
  - b) A building with metal sheet roof at the centre (View 2, 4, 5, 8 & 12)
  - c) A building with metal sheet roof and a smaller building to the southwest (View 13, 14 & 15)
- 2.4 The site is currently covered by overgrown vegetation mostly weed, groundcover and low-lying shrubs (View 2, 6, 8, 12 & 15). A tree survey was done in September 2021 by Outdoor Wildlife Leaning Hong Kong. The survey identified 70 nos. trees inside the Application Site. Result of the tree survey and proposed treatment are detailed in Section 5.

## 3 Project Description

3.1 The proposed development comprises redevelopment of 3 existing single storey buildings to a visitor centre (+109 mPD), an activity centre (+114.05 mPD) and a plant nursery (+104.1 mPD) with ancillary facilities.

#### 4 Landscape Master Plan

#### 4.1 Landscape Design Concept

The Landscape Master Plan is shown in **Figure 4.1**. Landscape Section is shown in **Figure 4.2**. The concept of the landscape design is to provide a complete educational journey for visitors to experience the nature of Tai Po Kau. Since the site is an enclave surrounded by the Tai Po Kau Nature Reserve, the design is largely driven by the site context, aiming to loosely replicate the characteristics of hillside landscape in Tai Po Kau while hinting the site's historical use of a farmland. Ecological design principles are adopted in this landscape design.

#### 4.2 Edge treatment

The site is abutting a concrete access road (Tai Po Kau Forest Track - Kau Lead Section) to the south. Existing overgrown vegetation is not well-managed. There are also occasional damages along the edge and within the site caused by wild boar. Large and robust shrub with dense foliage, such as *Ligustrum sinense* and *Dichroa febrifuga*, are proposed along this edge to offer protection against wild boar as well as visual enhancement along the access road. The shrub will be managed to maintain visual permeability into the site from the access road.

The site is abutting a vegetated slope leading to a natural stream to the north. All trees along this edge are proposed to be retained.

#### 4.3 Connection, access, and site levels

Existing access points at northeast and south of the site are proposed to be kept. These are the only points where vehicles are allowed in the site (Refer to **Figure 4.1**).

Existing paths are retained and used in the proposed design. Additional paths complying with universal accessibility are introduced to connect the 3 buildings and other activity zones. The sinuous paths along site topography also offer rich visitor experience inside the site.

Path layout is designed with respect to the existing site contour such that minimal earth works will be needed to archive compliance with universal accessibility. Soil level around all retained trees remain unchanged.

#### 4.4 Programme and function

The site is divided into 3 zones for visitor management in order to minimise human disturbance to the nature environment (Refer to **Figure 4.3**).

<u>General Visitor Zone</u>: This zone is anticipated to be the key visiting loop in which all general public are welcomed. This zone includes the visitor centre, an orchard path with fruit trees, a forest deck (connecting the visitor centre to lower part of the orchard path), and a strolling path around the water pond. This is the most easily accessible part of the site.

<u>Invited Guest / Guided Visitor Zone</u>: This zone is located uphill and is anticipated to have less general public. This zone includes an activity centre, event lawn, viewing deck, camping ground and an activity ground inside forest. Visitors to this zone will likely be those coming for guided tour or educational events.

<u>Operation / Nursery Zone</u>: This zone is located downhill and is anticipated to be a plant nursery. Most of the landscape areas here are designated as plant nursery to propagate and grow species local to Tai Po Kau area.

#### 4.5 Soft landscape design and ecological feature

In close collaboration with ecologist, plants proposed for this design comprises a range of species which can enhance ecological performance of the site. These includes species commonly found in the Tai Po Kau Nature Reserve and those that provide food and habitat for wildlife.

Potential plant species choices include the following but subject to market availability: -

Location	Potential tree species	Potential shrub species
Visitor Centre and	Zanthoxylum avicennae, Ficus	Melastoma malabathricum,
Forest Deck	variolosa, Polyspora axillaris	Melastoma sanguineum,
		Rhodomyrtus tomentosa,
		Glycosmis parviflora, Gardenia
		jasminoides, Enkianthus
		quinqueflorus, Rhaphiolepis indica
Orchard Path	Dimocarpus longan, Litchi	
	chinensis, Citrus reticulata, Citrus	
	maxima, Citrus limonia, Clausena	
	lansium, Averrhoa carambola,	
	Psidium guajava, Mangifera	
	indica	
Pond and Sandpit	Syzygium nervosum	Adina pilulifer, Ficus pyriformis,
		Blastus cochinchinensis, Illicium
		dunnianum
Viewing Deck	Rhodoleia championii, Mallotus	
	paniculatus, Schefflera	
	heptaphylla, llex rotunda,	
	Aquilaria sinensis, Tetradium	
	glabrifolium, Ficus subpisocarpa	
Camping Ground	Garcinia oblongifolia, Diospyros	
	morrisiana, Ternstroemia	
	gymnanthera, Lithocarpus	
	corneus, Syzygium levinei,	
	Syzygium hancei, Reevesia	
	thyrsoidea, Sterculia lanceolata	
Activity Ground	Engelhardia roxburghiana,	Memecylon ligustrifolium,
	Endospermum chinense, Schima	Ardisia hanceana
	superba, Elaeocarpus sylvestris,	
	Lithocarpus haipinii, Castanopsis	
	faberi, Antidesma bunius, Pygeum	
	topengii	
Main entrance and	Ligustrum sinense, Pavetta	Ligustrum sinense, Dichroa
site edge	hongkongensis	febrifuga

The existing vegetation inside the site mainly consisted of invasive species such as *Mikania micrantha* and *Bidens pilosa*. Other native herbaceous plants such as *Microstegium ciliatum* are very common and fast growing. The only floral species of conservation importance recorded within the Application Site is the protected fern *Neottopteris nidus* found either singly or in groups on tree trunks or rock. This protected fern will be retained. Other invasive species and common species will be replaced by the proposed shrub species as a part of the ecological enhancement proposal.

Existing water pond will be kept with its water depth remain unchanged to retain the current habitat. Sandpits are introduced to pond edges to attract dragonfly and butterfly. Proposed tree, shrub, and groundcover demarcation plan is included in **Figure 4.4**.

#### 4.6 Hard landscape design

Simple paving materials are chosen for this design. Majority of the area are paved either by porous material (porous concrete paver) or materials that allows runoff to pass through (wood deck, loose gravel and sand/mud), so as to allow groundwater recharge. The only imporous finish is to be applied on existing paths (Refer to **Figure 4.5**).

#### 4.7 Site coverage of greenery

Referring to PNAP APP-152 Sustainable Building Design Guidelines, site coverage of greenery for sites between 1,000 – 20,000 m<sup>2</sup> shall be 10% at primary zone and 20% overall. A minimum 1,811 m<sup>2</sup> will be required for this development. Since this is a nature educational centre, not less than 5000 m<sup>2</sup> greenery will be provide. All of the greenery provide in this proposed development will be primary zone greenery (Refer to **Figure 4.5**).

Area of the Application Site:	9,055 m <sup>2</sup>
Site Coverage of Greenery required:	20%, i.e. 1,811 m <sup>2</sup>
Primary Zone Greenery Areas required:	10%, i.e. 905.5 m <sup>2</sup>
Site Coverage of Greenery provided:	Not less than 5,000 m <sup>2</sup> (55.2%) at primary zone
	and overall

#### 5 Tree Survey

#### 5.1 Tree Survey and Schedule

The survey identified 70 nos. tree within the Application Site. There are 21 species, of which 14 are native species. **Figure 5.1 and 5.2** show the tree survey and treatment plan, and **Figure 5.3 to 5.5** show the tree schedule.

There is no rare or protected tree species (based on Forests and Countryside Ordinance, Cap. 96) located within the Application Site. There is no registered or potentially registrable Old and Valuable Trees. The most abundance species within the site is *Litsea monopetala*. No tree outside the site is affected.

#### 5.2 Recommended Treatment

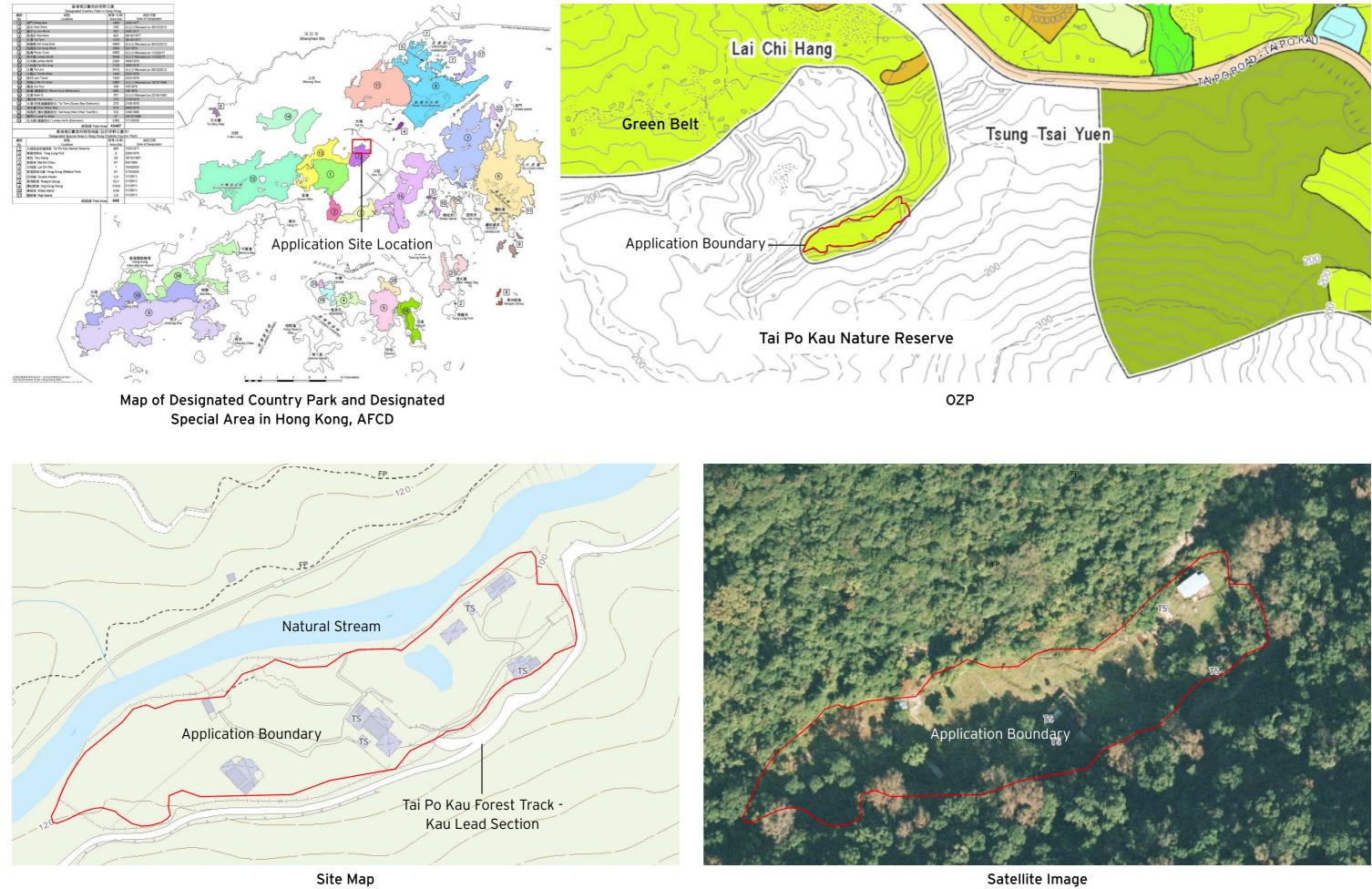
	poor form and not suitable for transplant)
Tree to be felled (T161)	1 (In direct conflict with proposed access road;
(T122 & T79)	
Dead tree found and to be removed	2
Trees to be retained	67

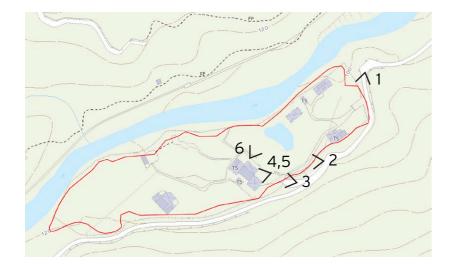
# 5.3 Compensatory Tree Planting and Enhancement Tree Planting Proposal Figure 5.6 and 5.7 show the Compensatory Tree Planting and Enhancement Tree Planting Proposal. The 3 felled trees are compensated with 3 nos. tree in 1:1 ratio in terms of quantity. The proposed species is *Syzygium hancei*.

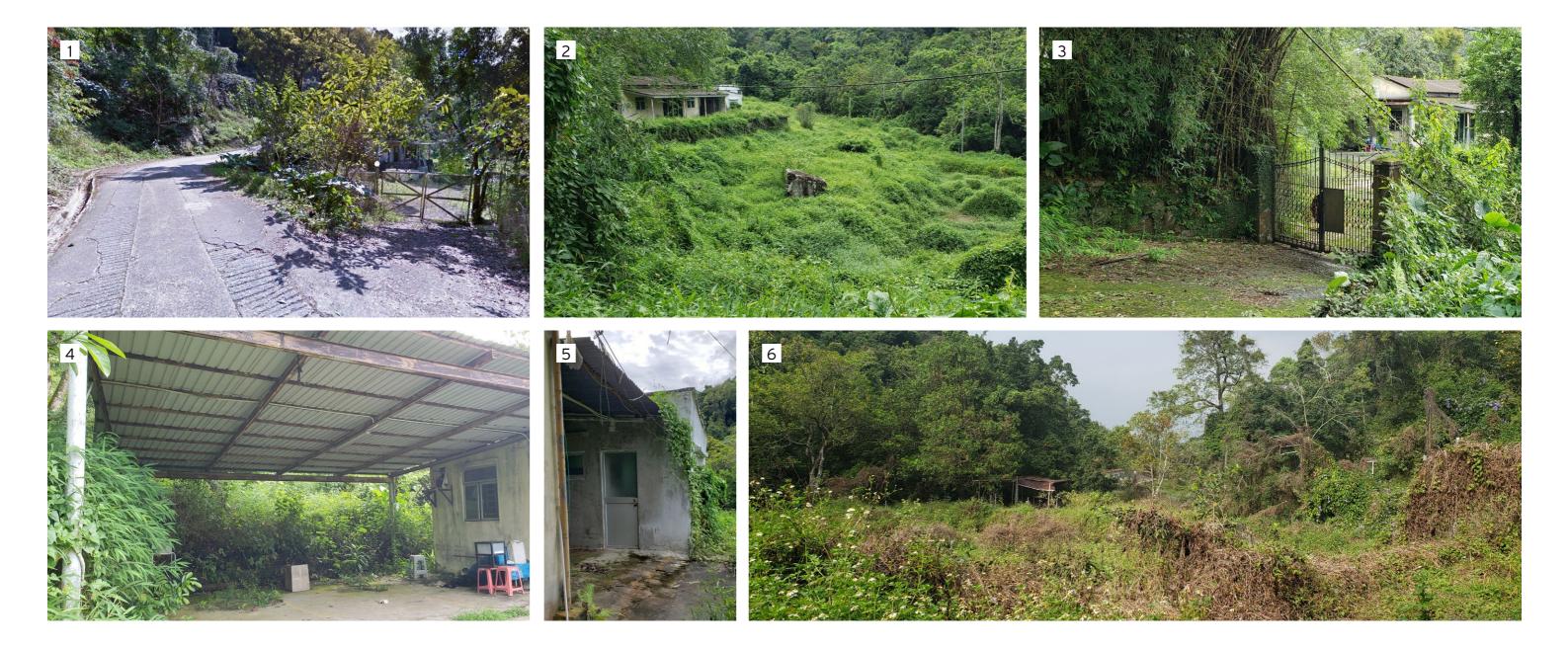
There are additional over 100 nos. of enhancement tree planting proposed inside the site.

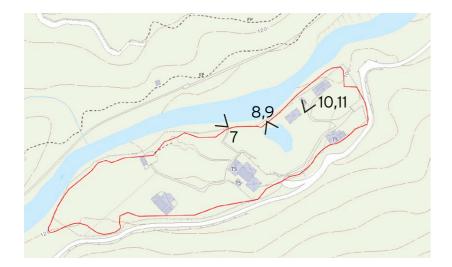
#### 6 Landscape Management and Maintenance

- 6.1 Upon completion of the construction works, a 12-month Defects Liability Period (DLP) will be implemented for the hard landscape whereby the contractor will be responsible for the maintenance during this first year. Maintenance of soft landscape areas will be carried out by a qualified Landscape Contractor for a period of 12 months after the completion of the construction works. At the expiry of the 12 months, the lot owner shall take over the maintenance responsibilities of the site.
- 6.2 Maintenance includes the following regular operations: rubbish and litter removal, sweeping and cleaning, damage inspection and repair, watering, weeding, firming up of plants, pruning / thinning, grass cutting, forking over and replanting / replacing of damaged and dead plants.

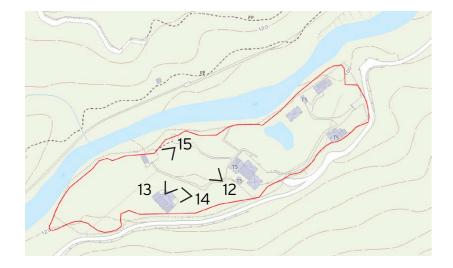






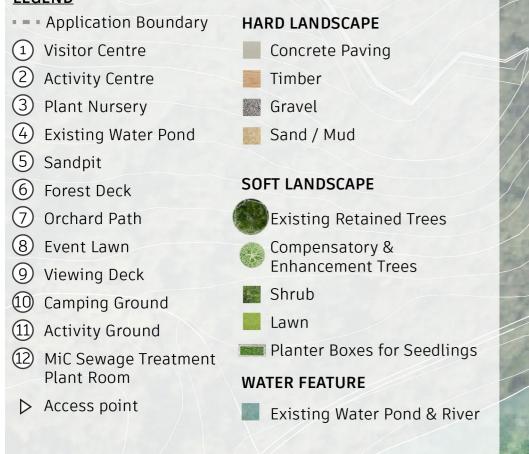






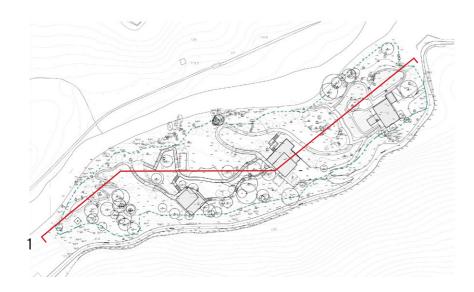


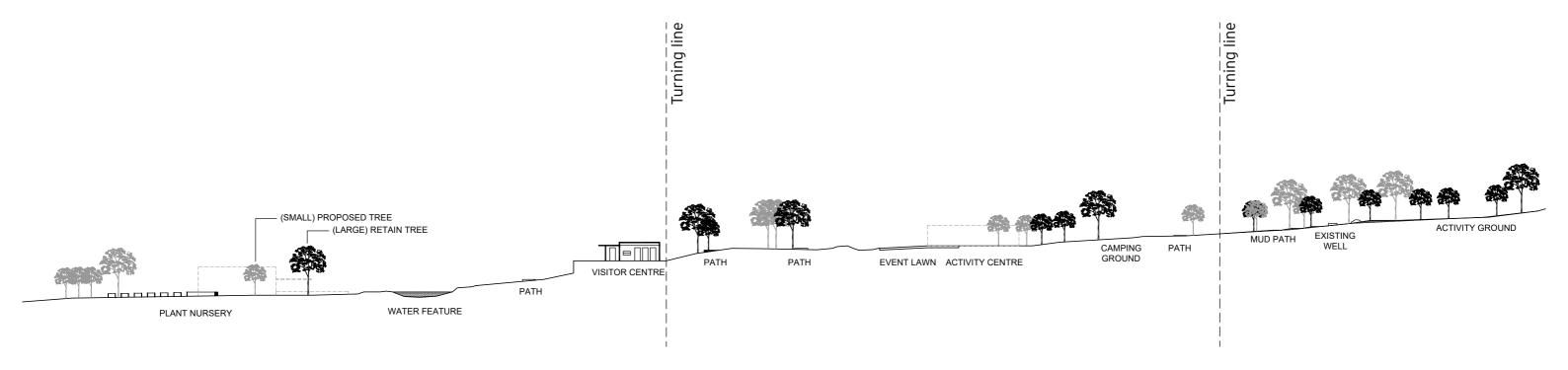
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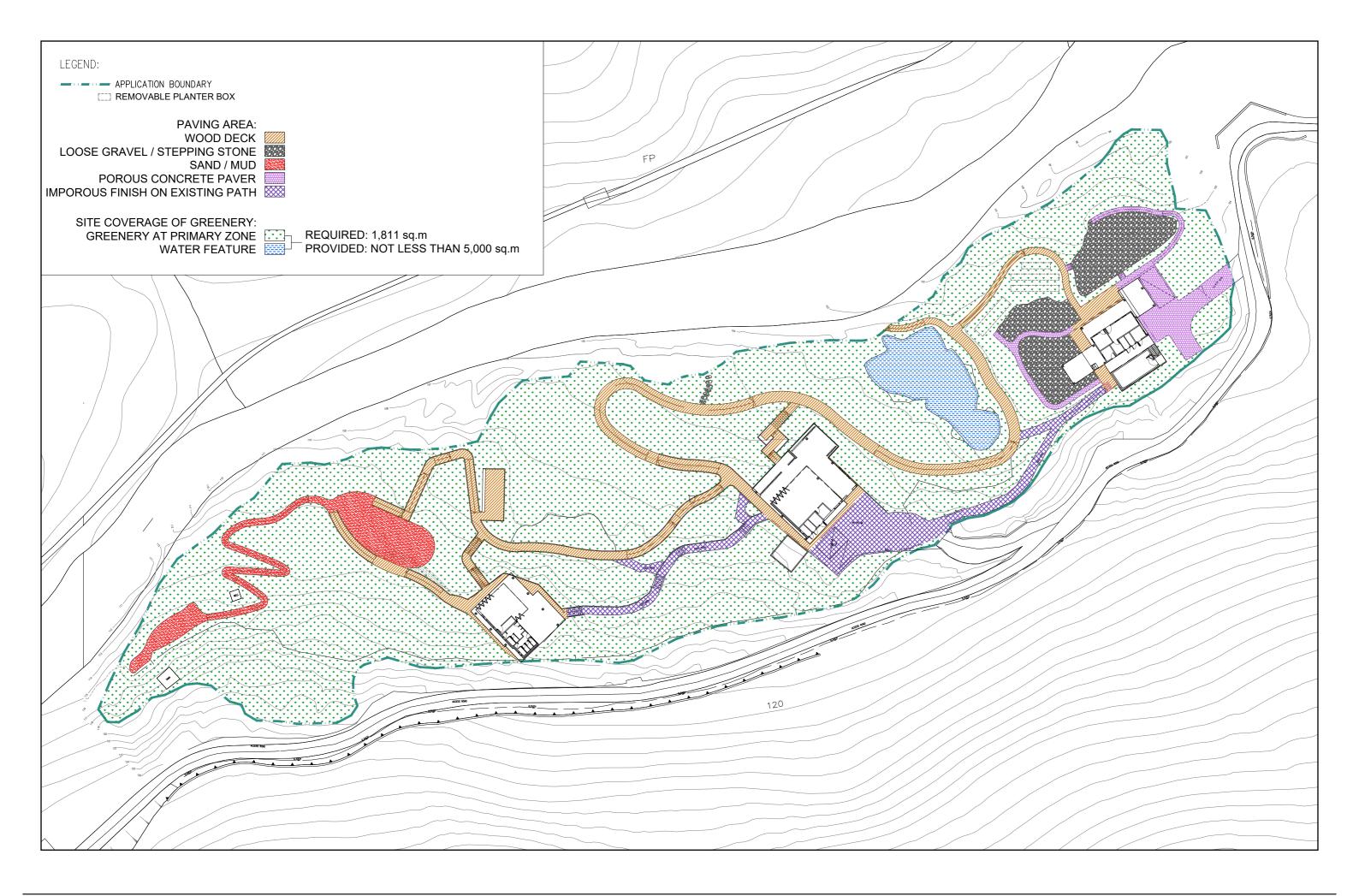


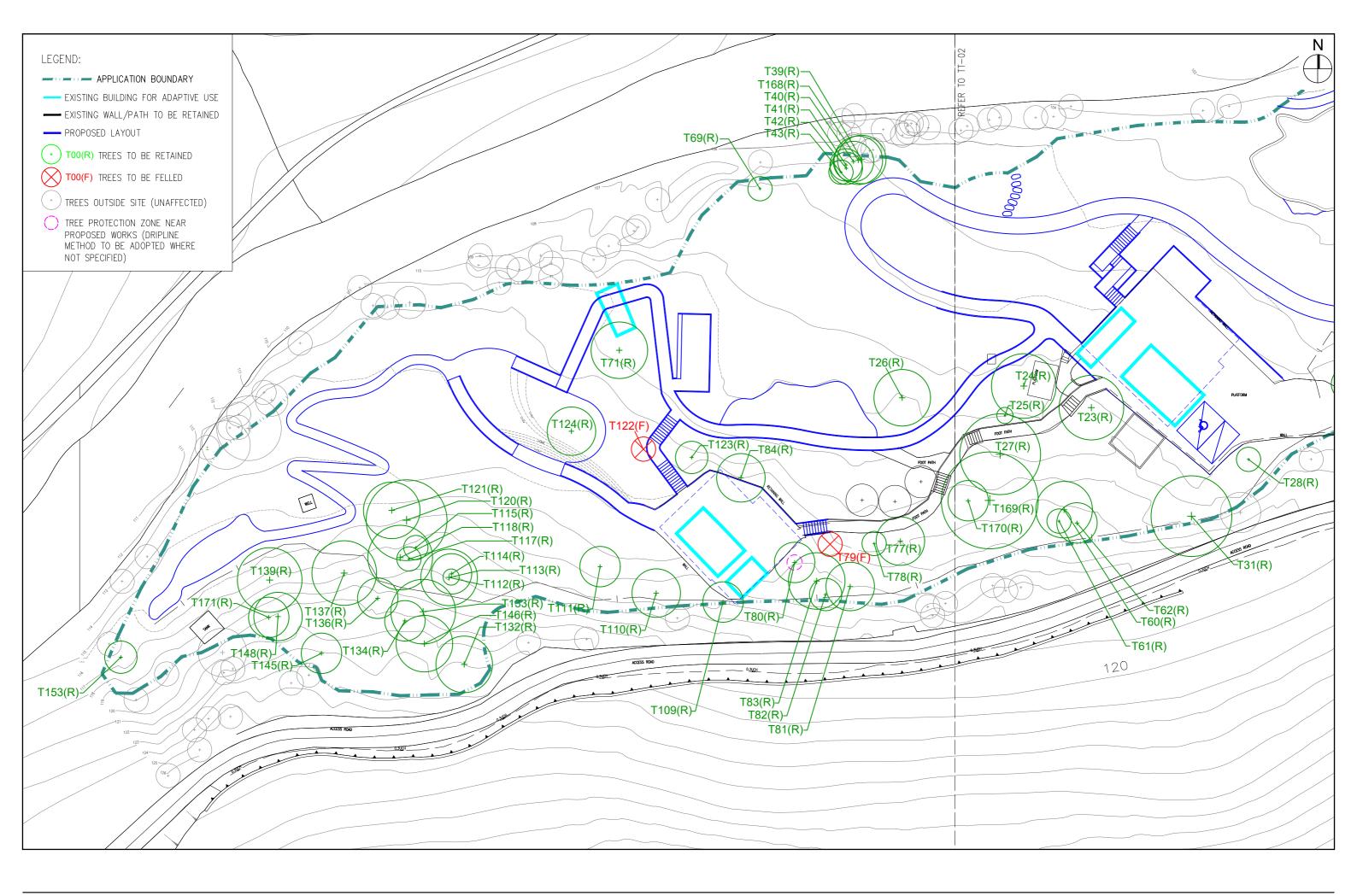


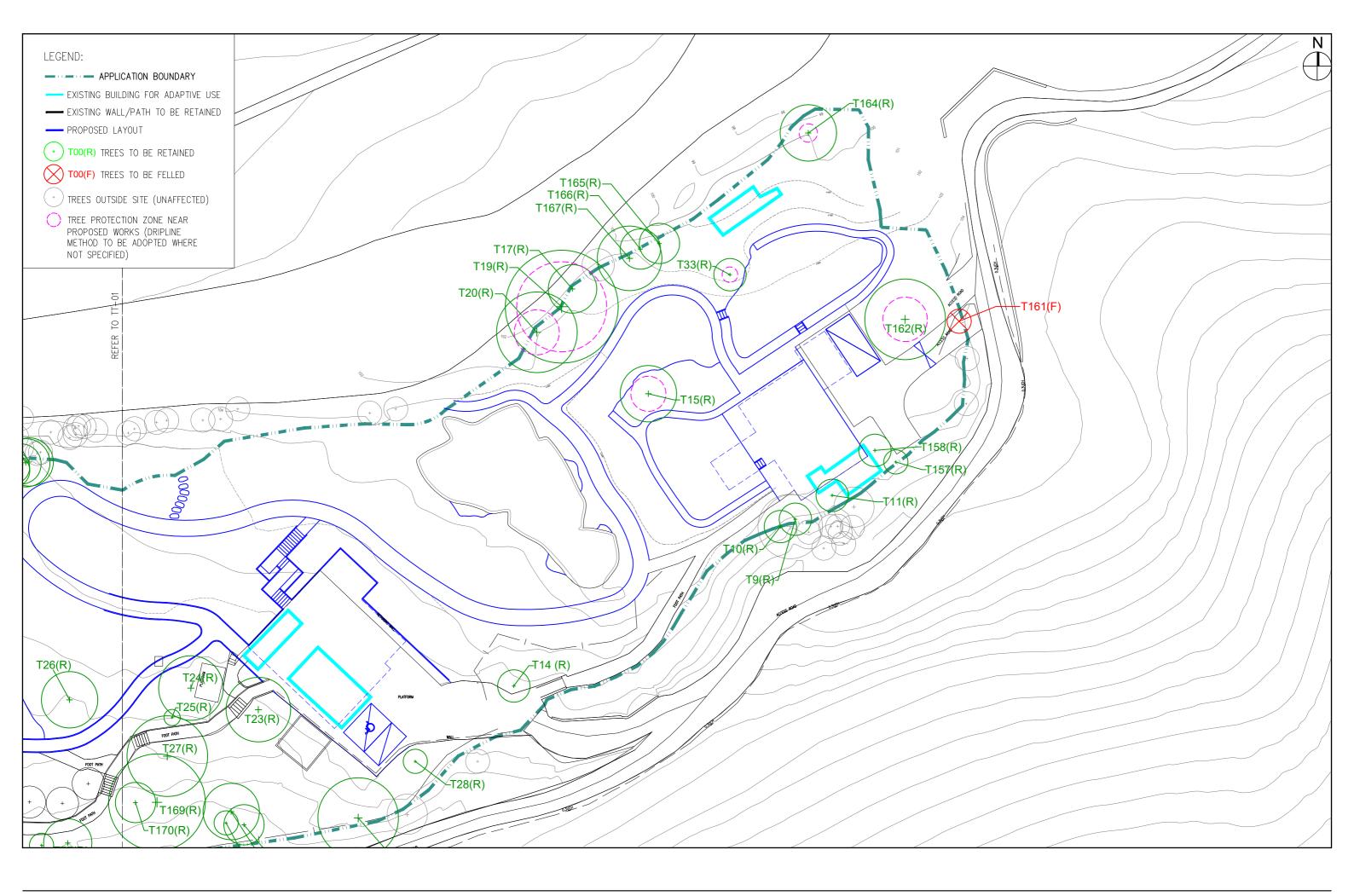
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Tree ID number	Tree Species	Chinese Name	Native / Exotic	Overall Height (m)	Trunk diameter (mm)	Average crown spread (m)	Form (Good/ Fair/ Poor)	Health Condition (Good/ Fair/Poor)	Structural Condition (Good/ Fair/ Poor)	Value (High/ Medium/Low)	Proposed treatment	Remarks
Т9	Litsea monopetala	假柿木薑子	Native	7	99	4	Fair	Fair	Fair	Medium	Retain	climbers
T10	Bridelia insulana	禾串樹	Native	5	144	4	Poor	Fair	Fair	Low	Retain	dead branch, sprout, topped, parasitic plants
T11	Ficus variegata	青果榕	Native	7	137	4	Fair	Fair	Fair	Medium	Retain	climbers
T14	Averrhoa carambola	楊桃	Exotic	7	185	4	Poor	Fair	Fair	Medium	Retain	climbers, imbalance canopy
T15	Machilus pauhoi	刨花潤楠	Native	8	363	7	Fair	Poor	Fair	Medium	Retain	codominant, dead branch, parasitic plants, reduced canopy
T17	Sterculia lanceolata	假蘋婆	Native	7	162	6	Fair	Fair	Fair	Medium	Retain	multiple stems
T19	Ficus microcarpa	細葉榕	Native	14	932	14	Fair	Good	Fair	High	Retain	
T20	Cleistocalyx nervosum	水翁	Native	10	466	10	Fair	Fair	Fair	Medium	Retain	dead branch
T23	Dimocarpus longan	龍眼	Exotic	8	619	8	Fair	Fair	Fair	Medium	Retain	climbers, multiple stems
T24	Vitex quinata	山牡荊	Native	9	429	8	Fair	Fair	Fair	Medium	Retain	broken branch, parasitic plants
T25	Osmanthus fragrans	桂花	Exotic	4	113	2	Fair	Fair	Fair	Low	Retain	climbers, multiple stems, pruned
T26	<i>Bauhinia</i> sp.	羊蹄甲屬	N/A	9	454	7	Fair	Fair	Fair	Medium	Retain	dead branch
T27	Litsea monopetala	假柿木薑子	Native	16	378	10	Fair	Good	Fair	Medium	Retain	
T28	Syzygium hancei	韓氏蒲桃	Native	6	155	3	Poor	Poor	Fair	Low	Retain	topped
T31	Litsea monopetala	假柿木薑子	Native	14	738	10	Fair	Fair	Fair	Medium	Retain	codominant, multiple stems
Т33	Litsea glutinosa	潺槁樹	Native	4	161	4	Fair	Fair	Fair	Medium	Retain	codominant
Т39	Litsea monopetala	假柿木薑子	Native	11	150	6	Fair	Fair	Fair	Medium	Retain	
T40	Litsea monopetala	假柿木薑子	Native	10	164	5	Fair	Fair	Fair	Medium	Retain	dead branch
T41	Litsea monopetala	假柿木薑子	Native	8	121	4	Fair	Fair	Fair	Medium	Retain	dead branch
T42	Litsea monopetala	假柿木薑子	Native	8	165	4	Poor	Fair	Fair	Medium	Retain	dead branch, imbalance canopy, leaning
T43	Litsea monopetala	假柿木薑子	Native	7	120	3	Poor	Poor	Fair	Low	Retain	dead branch, incomplete canopy, leaning
Т60	Litsea monopetala	假柿木薑子	Native	8	248	7	Fair	Fair	Fair	Medium	Retain	climbers, codominant

												climbers,
T61	Litsea monopetala	假柿木薑子	Native	7	105	3	Fair	Fair	Fair	Medium	Retain	codominant, dead branch
T62	Ficus hispida	對葉榕	Native	6	108	5	Fair	Good	Fair	Medium	Retain	dead branch
T69	Litsea monopetala	假柿木薑子	Native	7	1044	174	3	Fair	Fair	Medium	Retain	climbers, codominant, dead branch
T71	Litsea monopetala	假柿木薑子	Native	14	316	7	Fair	Fair	Fair	Medium	Retain	codominant, parasitic plants
T77	Mangifera indica	芒果	Exotic	7	237	6	Fair	Fair	Fair	Medium	Retain	broken branch
T78	Artocarpus macrocarpon	菠蘿蜜	Exotic	7	226	3	Poor	Poor	Fair	Low	Retain	topped
T79	Dead Tree	死樹	N/A	N/A	N/A	N/A	N/A	Dead	N/A	N/A	Fell	
T80	Ficus hispida	對葉榕	Native	4	157	5	Fair	Fair	Fair	Medium	Retain	climbers, multiple stems
T81	Litsea monopetala	假柿木薑子	Native	7	149	6	Fair	Fair	Fair	Medium	Retain	climbers, codominant
T82	Litsea monopetala	假柿木薑子	Native	6	116	4	Fair	Fair	Fair	Medium	Retain	climbers, codominant
T83	Litsea monopetala	假柿木薑子	Native	10	172	7	Fair	Fair	Fair	Medium	Retain	climbers
T84	Averrhoa carambola	楊桃	Exotic	7	249	6	Fair	Fair	Fair	Medium	Retain	codominant
T109	Machilus pauhoi	刨花潤楠	Native	7	180	5	Fair	Fair	Fair	Medium	Retain	broken trunk, codominant, dead branch
T110	Litsea monopetala	假柿木薑子	Native	12	161	6	Fair	Fair	Fair	Medium	Retain	imbalance canopy
T111	Mangifera indica	芒果	Exotic	7	208	5	Fair	Fair	Fair	Medium	Retain	climbers, codominant, dead branch
T112	Litsea monopetala	假柿木薑子	Native	12	309	7	Fair	Fair	Fair	Medium	Retain	dead branch
T113	Machilus pauhoi	刨花潤楠	Native	4	101	2	Poor	Fair	Fair	Medium	Retain	topped, imbalance canopy
T114	Litsea monopetala	假柿木薑子	Native	8	122	5	Fair	Fair	Fair	Medium	Retain	
T115	Litsea monopetala	假柿木薑子	Native	6	109	3	Fair	Fair	Fair	Medium	Retain	multiple stems
T117	Ficus hispida	對葉榕	Native	7	157	3	Poor	Poor	Fair	Low	Retain	2 dead trunks, multiple stems
T118	Machilus pauhoi	刨花潤楠	Native	12	339	8	Fair	Fair	Fair	Medium	Retain	dead branch
T120	Litsea monopetala	假柿木薑子	Native	16	602	10	Fair	Fair	Fair	Medium	Retain	dead branch, reduced canopy
T121	Litsea monopetala	假柿木薑子	Native	15	346	7	Fair	Fair	Fair	Medium	Retain	codominant, dead branch, parasitic plants
T122	Dead Tree	死樹	N/A	N/A	N/A	N/A	N/A	Dead	N/A	N/A	Fell	
T123	Mangifera indica	芒果	Exotic	7	246	4	Fair	Fair	Fair	Medium	Retain	codominant
T124	Litsea monopetala	假柿木薑子	Native	13	302	6	Fair	Fair	Fair	Medium	Retain	sprout, dead branch
T132	Machilus pauhoi	刨花潤楠	Native	10	227	7	Fair	Fair	Fair	Medium	Retain	dead branch

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T133	Ficus hispida	對葉榕	Native	8	318	8	Poor	Fair	Fair	Low	Retain	fungi, decay, dead branch, incomplete canopy
T134	Litsea monopetala	假柿木薑子	Native	8	166	5	Poor	Fair	Fair	Low	Retain	climbers, topped, dead branch
T136	Litsea monopetala	假柿木薑子	Native	9	117	5	Fair	Fair	Fair	Medium	Retain	
T137	Litsea monopetala	假柿木薑子	Native	16	290	8	Fair	Fair	Fair	Medium	Retain	climbers, dead branch
T139	Litsea monopetala	假柿木薑子	Native	16	331	8	Fair	Fair	Fair	Medium	Retain	
T145	Ficus hispida	對葉榕	Native	4	123	5	Fair	Fair	Fair	Medium	Retain	codominant, climbers
T146	Litsea monopetala	假柿木薑子	Native	10	158	7	Fair	Good	Fair	Medium	Retain	
T148	Litsea monopetala	假柿木薑子	Native	7	108	6	Fair	Fair	Fair	Medium	Retain	
T153	Garcinia oblongifolia	黃牙果	Native	8	124	4	Fair	Fair	Fair	Medium	Retain	
T157	Saurauia tristyla	水東哥	Native	3	167	3	Poor	Poor	Fair	Low	Retain	multiple stems, lots of climbers
T158	Litsea monopetala	假柿木薑子	Native	6	117	4	Fair	Fair	Fair	Medium	Retain	climbers
T161	Ficus hispida	對葉榕	Native	5.0	159	4.0	Poor	Fair	Fair	Medium	Fell	Climbers, multiple stems
T162	Ficus microcarpa	細葉榕	Native	9	460	10	Fair	Fair	Fair	Medium	Retain	climbers, parasitic plant, codominant
T164	Litsea monopetala	假柿木薑子	Native	8	190	7	Fair	Fair	Fair	Medium	Retain	climbers
T165	Dimocarpus longan	龍眼	Exotic	6	209	5	Fair	Fair	Fair	Medium	Retain	sprout, associated with <i>Neottopteris</i> <i>nidus</i> (巢蕨)
T166	Sterculia lanceolata	假蘋婆	Native	6	195	5	Fair	Fair	Fair	Medium	Retain	multiple stems, dead branch, sprout
T167	Dimocarpus longan	龍眼	Exotic	8	334	8	Fair	Fair	Fair	Medium	Retain	codominant, dead branch
T168	Litsea monopetala	假柿木薑子	Native	11	213	6	Fair	Fair	Fair	Medium	Retain	untagged, near T39
T169	Delonix regia	鳳凰木	Exotic	14	494	12	Fair	Fair	Fair	Medium	Retain	untagged tree , dead branch
T170	Litsea monopetala	假柿木薑子	Native	6	121	5	Fair	Fair	Fair	Medium	Retain	untagged tree
T171	Litsea monopetala	假柿木薑子	Native	7	105	5	Fair	Fair	Fair	Medium	Retain	untagged tree, near T148



