



# Removal of 132kV Overhead Line and Pylons for P-Line

Ecological Management  
Plan (P15 to P19)

19 December 2022

Project No.: 0585151

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## Signature Page

19 December 2022

# Removal of 132kV Overhead Line and Pylons for P-Line

Ecological Management Plan (P15 to P19)



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## Environmental Permit No. EP-603/2022

### Removal or 132kV Overhead Line and Pylons for P-Line

### Certification and Verification


#### Reference Document/Plan

Document/Plan to be Certified/ Verified:	Ecological Management Plan (P15 to P19)
Date of Report:	19 December 2022

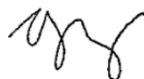
#### Reference EP Condition

Environmental Permit Condition:	2.6 and 2.7
<p>2.6 Before commencement of the removal work within Tai Tam Country Park, the Permit Holder shall, in consultation with the Agriculture, Fisheries and Conservation Department, conduct pre-construction site visits/surveys to review the extent of works and verify the ecological baseline information collected within the Tai Tam Country Park. Subject to the findings of the site visits/surveys, the Permit Holder shall review and update the ecological preventive and mitigation measures proposed in the Project Profile (Register No. PP-636/2021); and no later than one month before commencement of the respective removal work within country park, submit three hard copies and one electronic copy of an Ecological Management Plan (EMP), certified by qualified ecologist and verified by the IEC, to the Director for approval. The EMP shall include but not limited to the following information or measures related to the pylon removal works within country park:</p> <ul style="list-style-type: none"><li>(a) ecological surveys/review method and findings;</li><li>(b) the extent of works areas which shall be as minimal as practicable;</li><li>(c) protective measures, such as temporary protective structures, temporary platform temporary protective metal cage and protective nets, for the flora of conservation importance identified within and in the vicinity of the works areas;</li><li>(d) temporary fence around the works areas to prevent amphibian species of conservation importance (if any) from returning to the works areas (where necessary);</li><li>(e) translocation proposal for amphibian species of conservation importance found within works areas (if any); and</li><li>(f) any other ecological preventive and mitigation measures to be adopted.</li></ul> <p>2.7 The EMP submitted under Condition 2.6 of this Permit shall include an implementation schedule in table form to clearly list out the mitigation measures to be implemented, and by whom, when, where and what requirement. All mitigation measures recommended and requirements specified in the EMP and the implementation schedule shall be fully implemented.</p>	

#### Certification by Qualified Ecologist

I hereby certify that the above referenced <del>document</del> /plan complies with the above referenced conditions of EP-603/2022.	
 Mr Mike Pang Qualified Ecologist	Date: <u>19 December 2022</u>

#### Verification by Independent Environmental Checker

I hereby verify that the above referenced <del>document</del> /plan complies with the above referenced conditions of EP-603/2022.	
 Ms Liz LO Independent Environmental Checker	Date: <u>21 December 2022</u>

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## 1. INTRODUCTION

### 1.1 Background

The P-Line (Parker Line from Deep Water Bay Road to Tai Tam Road with total length of 4.7km) has been in services for more than 40 years and aged at various extent depending on the locations of the pylons and localised climatic conditions. The P-line is no longer in use. The Hongkong Electric Company, Limited (HK Electric) is proposing to remove the 132kV overhead line (OHL) and pylons of P-Line from Deep Water Bay Road to Tai Tam Road. The overall alignment of P-Line is shown in **Figure 1.1**.

Substantial maintenance had been carried out in order to preserve the OHL system intact. HK Electric had maintained the existing transmission network such that the P-Line could be dismantled not only to eliminate the risks to the surrounding areas but also to resume the original aesthetics view. The dismantle works will be conducted in stages by separating 24 pylons in 4 batches. Each batch will contain 5 to 8 pylons (i.e. P1-P6, P7-14, P15-P19 and P20-P24).

As a large portion of the OHL and Pylons is within Tai Tam Country Park, and Tai Tam Reservoir Catchment Area Site of Special Scientific Interest (SSSI), i.e. P1 to P19, the Project is classified as a Designated Project (DP) by virtue of Item Q.1, Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and does not fall into any exception works under Item Q.1. An environmental permit (EP) is required for construction of the Project.

A Project Profile (PP-636/2021) was prepared in support of the Application for permission to apply directly (DIR) for an EP for the Project under the provisions of Section 5(11) of the EIAO. The application was submitted to EPD in November 2021 with DIR permission (DIR-287/2021) and EP (EP-603/2022) granted by EPD on 20 December 2021 and 14 January 2022 respectively.

In accordance with the EP Conditions 2.6 and 2.7, pre-construction site visits/ surveys are required to be conducted to verify the validity and practicality of the proposed works areas before the commencement of the dismantle works. An Ecological Management Plan (EMP) is required to be submitted, no later than one month before commencement of the respective removal work within country park, to EPD for approval.

*EP Condition 2.6:*

*“Before commencement of the removal work within Tai Tam Country Park, the Permit Holder shall, in consultation with the Agricultural, Fisheries and Conservation Department, conduct pre-construction site visits/surveys to review the extent of works and verify the ecological baseline information collected within the Tai Tam Country Park. Subject to the findings of the site visits/surveys, the Permit Holder shall review and update the ecological preventive and mitigation measures proposed in the Project Profile; and no later than one month before commencement of the respective removal work within country park, submit three hard copies and one electronic copy of an Ecological Management Plan (EMP), certified by qualified ecologist and verified by the IEC, to the Director for approval. The EMP shall include but not limited to the following information or measures related to the pylon removal works within country park:*

- (a) ecological surveys/review method and findings;*
- (b) the extent of works areas which shall be as minimal as practicable;*
- (c) protective measures, such as temporary protective structures, temporary platform temporary protective metal cage and protective nets, for the flora of conservation importance identified within and in the vicinity of the works areas;*
- (d) temporary fence around the works areas to prevent amphibian species of conservation importance (if any) from returning to the works areas (where necessary);*
- (e) translocation proposal for amphibian species of conservation importance found within works areas (if any); and*

(f) *any other ecological preventive and mitigation measures to be adopted.*”

EP Condition 2.7:

*“The EMP submitted under Condition 2.6 of this Permit shall include an implementation schedule in table form to clearly list out the mitigation measures to be implemented, and by whom, when, where and what requirement. All mitigation measures recommended and requirements specified in the EMP and the implementation schedule shall be fully implemented.”*

## 1.2 Objective and Scope of the Plan

Pre-construction ecological site visit/ survey within the proposed works areas of P15 to P19 was conducted on 20 and 23 June 2022 in accordance with the Survey Methodology Paper (Pre-construction) submitted to EPD and AFCD on 14 February 2022. The objective of the Ecological Management Plan (EMP) is to review the extent of works and verify the ecological baseline information collected within the Tai Tam Country Park. Subject to the findings of the site visit/survey, the ecological preventive and mitigation measures proposed in the PP have been reviewed and updated as necessary. Information listed in EP Condition 2.6 (see **Section 1.1**) has been included in this EMP.

## 2. PRE-CONSTRUCTION SURVEYS METHODOLOGY

Pre-construction ecological and tree surveys were carried out within the proposed works areas of P15 to P19 on 20 and 23 June 2022 before the dismantle works of each batch of pylons. **Table 2.1** provides a summary of the pre-construction surveys, with focus on vegetation (flora of conservation importance), amphibian of conservation importance, active bird nest within the proposed works areas. Details of the survey methods are provided in **Section 2.1**. The results and of the pre-construction survey and the review of protective measures are given in **Sections 3** and **4**.

**Table 2.1: Summary of the Pre-construction Surveys**

Survey Type	Methodology
Vegetation (flora of conservation importance)	Vegetation survey within the proposed works areas, with particular focus on flora of conservation importance
Amphibian of conservation importance	Active searching within the proposed works areas; including day and night surveys
Avifauna (Active bird nest)	Active searching within the proposed works areas, with particular focus on active bird nest

### 2.1 Ecological Survey

#### 2.1.1 Vegetation

Pre-construction survey was carried out within the proposed works areas of P15 to P19 (**Figures 2.1.1 to 2.1.5**). Subject to the up-to-date site conditions, the works areas may be fine-tuned with the aim to minimise direct impacts on the woodland habitat (i.e. with minimum level of vegetation clearance) and flora species of conservation importance. Should any new flora species of conservation importance be identified during the pre-construction vegetation survey, avoidance and/or, if not practicable, similar means of protective measures should be applied to minimise potential damage on the plant(s).

#### 2.1.2 Amphibian

Should any amphibian species of conservation importance be found within the works areas, capture and translocation would be conducted to move amphibian species of conservation importance from the works areas to suitable recipient sites (e.g. a similar habitat still within the country parks but away from the works area). A detailed translocation proposal would be submitted to AFCD to agree on the detailed translocation procedures.

Amphibian surveys (including day and night-time surveys) have been carried out. Amphibian surveys have been conducted through direct observation and active searching in all habitat types along the survey transects and in potential hiding places such as among leaf litter, inside holes, under stones and logs within the proposed works areas. Auditory detection of species-specific calls has also been used to survey frogs and toads.

#### 2.1.3 Avifauna (Active bird Nest)

Avifauna survey has been conducted with attention given to presence of any active bird nests on the pylons and trees to be potentially affected. Observations have been made using binoculars (at least 8x) and photographic records have been taken, if possible. In case any active bird nest record on the pylon during the pre-construction phase, the dismantle works would be temporarily suspended considering that bird nests or egg are protected under Cap. 170 *Wild Animals Protection Ordinance*. The record of active bird nest would be reported to AFCD and the procedure of the pylon dismantle works would be further discussed and agreed with AFCD.



### 3. RESULTS OF THE PRE-CONSTRUCTION SURVEY AND EXTENT OF PROPOSED WORKS AREAS

#### 3.1 Ecological Survey

During the pre-construction survey, active/ abandoned bird nest and amphibian of conservation importance were not recorded within the proposed works areas of P15 to P19, but calls of Short-legged Toad were heard from woodland beside channelized watercourse near P17, while calls of Romer's Tree Frog were heard from woodland outside the works areas of P19 (**Figure 2.1.3, 2.1.5**). The downstream of the natural stream connecting to the channelized watercourse flowing with limited water.

Based on the survey records, amphibian species of conservation importance, which include Romer's Tree Frog and Short-legged Toad, and flora species of conservation importance, namely *Artocarpus hypargyreus*, *Canthium dicoccum*, *Diospyros vaccinioides*, *Gnetum luofuense*, *Ormosia pachycarpa* and *Pavetta hongkongensis* were recorded outside the proposed work areas at P15, P16, P17, P18, P19 (**Figures 2.1.1 to 2.1.5**), and thus they are not subject to any direct impact from the dismantling works. *Gnetum luofuense* and *Pavetta hongkongensis* identified within the proposed works areas at P15, P16, P18 and P19 will be the only flora species conservation importance that may have conflict with the dismantling works. Photos of the recorded species of conservation importance are provided in **Annexes A1 – A5** respectively.

Three individuals of *Diospyros vaccinioides*, three individuals of *Gnetum luofuense*, one *Pavetta hongkongensis*, one *Artocarpus hypargyreus*, one Small Indian Civet, one Crested Serpent Eagle and one Romer's Tree Frog reported in PP at P15, P16, P17 and P19 were not recorded during the pre-construction survey or during AFCD's site inspection (**Figures 2.1.1, 2.1.2, 2.1.3 and 2.1.5**).

#### 3.2 Extent of Proposed Works Areas

The equipment and removal of materials will be delivered to the Project site via existing vehicular roads by crane lorry and/or footpaths manually. For those areas which are not accessible via existing vehicular roads and/or footpaths, it will be transported by helicopter, such that construction of new access route and associated vegetation clearance are not required. The footpath access to respective pylons are as shown in **Figure 2.1.1a to 2.1.5a**.

The removed concrete (previously used for the pylon stabilisation) generated during the pylon dismantlement will be disposed of at an appropriate waste reception facility and the dismantled materials including wire, conductor and steel will be recycled. The dismantled parts and materials would first be transported by manual handling or EV trolley, and then by crane lorry or helicopter to a nearby vehicular access, and subsequently transported off-site by lorry.

Further to the up-to-date site conditions, the works extents proposed in PP are reviewed and considered remain valid in achieving as minimal as practicable in terms of the works extents and ecological impacts, therefore, fine-tuning/ adjustment of the boundary of the proposed works areas are not required. A summary of survey result and extent of proposed works areas are presented in **Table 3.1**.

**Table 3.1 Summary of Survey Result and Extent of Proposed Works Areas**

No. of Pylon	Approx. Size (m <sup>2</sup> )	Survey Result
P15	85m <sup>2</sup>	One <i>Gnetum luofuense</i> was newly recorded within the proposed works area and may have conflict with the dismantling works ( <b>Annex A1</b> ). Protective measure for this individual will be discussed in <b>Section 4</b> . One <i>Diospyros vaccinioides</i> , <i>Gnetum luofuense</i> and Small Indian Civet reported in PP were not recorded during the pre-construction survey or during AFCD's site inspection.

No. of Pylon	Approx. Size (m <sup>2</sup> )	Survey Result
		No change in the extent of works area.
P16	96m <sup>2</sup>	<p>One <i>Gnetum luofuense</i>, was recorded within the proposed works area and may have conflict with the dismantling works (<b>Annex A2</b>). Protective measure for this individual will be discussed in <b>Section 4</b>.</p> <p>One <i>Gnetum luofuense</i> was newly recorded outside the proposed works area.</p> <p>Crested Serpent Eagle reported in PP was not recorded during the pre-construction survey or during AFCD's site inspection.</p> <p>No change in the extent of works area.</p>
P17	72m <sup>2</sup>	<p>No flora species of conservation importance will be affected.</p> <p>Short-legged Toad was newly recorded outside the proposed works area.</p> <p>Two <i>Artocarpus hypargyreus</i> were newly recorded outside the proposed works area.</p> <p>One <i>Diospyros vaccinoides</i> and <i>Pavetta hongkongensis</i> reported in PP were not recorded during the pre-construction survey or during AFCD's site inspection.</p> <p>No change in the extent of works area.</p>
P18	109m <sup>2</sup>	<p>A total of three <i>Gnetum luofuense</i> were recorded within the proposed works area and may have conflict with the dismantling works (<b>Annex A3</b>). Protective measure for this individual will be discussed in <b>Section 4</b>. No change in the extent of works area.</p>
P19	143 m <sup>2</sup>	<p>One <i>Pavetta hongkongensis</i> was recorded within the proposed works area and may have conflict with the dismantling works (<b>Annex A4</b>). Protective measure for this individual will be discussed in <b>Section 4</b>.</p> <p>Two <i>Pavetta hongkongensis</i> seedlings were newly recorded within the proposed works area and may have conflict with the dismantling works (<b>Annex A5</b>). Protective measure for this individual will be discussed in <b>Section 4</b>.</p> <p>Two <i>Diospyros vaccinoides</i>, were newly recorded outside the proposed works area.</p> <p>One <i>Pavetta hongkongensis</i> was newly recorded outside the proposed works area.</p> <p>Eight <i>Ormosia pachycarpa</i> were newly recorded outside the proposed works area.</p> <p>One Romer's Tree Frog was also newly recorded outside the proposed works area.</p> <p>Two <i>Gnetum luofuense</i>, One <i>Artocarpus hypargyreus</i>, <i>Diospyros vaccinoides</i> and Romer's Tree Frog reported in PP was not recorded during the pre-construction survey or during AFCD's site inspection.</p> <p>No change in the extent of works area.</p>

**Note:**

1. No active/ abandoned bird nest of conservation importance were recorded in proposed works areas of P15 to P19.
2. New species recorded are based on results from either pre-construction survey or AFCD's site inspection.

## 4. REVIEW OF PROTECTIVE MEASURES

As mentioned in **Section 3.1**, *Gnetum luofuense* and *Pavetta hongkongensis* were identified within the proposed works areas at P18 and P19 respectively that may have conflict with the dismantling works. Associated Protective measures would be provided to the species to avoid it being impacted during dismantling works.

The *Gnetum luofuense* found at P15 and P18 are climbing on shrub or on the pylon. The *Gnetum luofuense* entangling on shrub, were located at the fringe of proposed works areas, soft protective nets and temporary protective fencing (**Annexes A6-1, A7, A8, A10 & A11**) with warning sign in sharp colour with the intention to alert the workers to be aware of the species will be provided in order to avoid the species being damaged during the removal works. The deployment and removal of the soft protective net will be conducted with extra care to prevent any potential damage of the plants. A temporary fencing will be erected for the shrub and dripline of the branches entangled by *Gnetum luofuense*. As one *Gnetum luofuense* at P18 was found not entangling the pylon tightly, it is proposed to gently disentangle it from the pylon and put the disentangled part on adjacent unaffected vegetated area outside the works area which will not be affected by the dismantling work (**Annex A9**).

For *Gnetum luofuense* at P16, it was found climbing on shrub of approximately 2m, extending up to canopy. Erecting a protective metal cage for the shrub and tree locating within vegetated area would be large and extensive, an extensive footing would also be required to support the cage. This would further disturb the adjacent vegetated area and result in additional vegetation loss. Moreover, large equipment would be required to bring into the site for erection/ installation of the extensive metal cage. Transportation of large equipment to the site would possibly further damage the vegetation alongside the footpath (which is not expected for the original arrangements). Given the aforementioned constraints and irregular shape of the *Gnetum luofuense* and location at the fringe of proposed works area, soft protective nets and temporary protective fencing (**Annexes A6-1 & A8**) with warning sign in sharp colour with the intention to alert the workers to be aware of the species will be provided in order to avoid the species being damaged during the removal works. The deployment and removal of the soft protective net will be conducted with extra care to prevent any potential damage of the plants. A temporary fencing will be erected for the shrub and dripline of the branches entangled by *Gnetum luofuense*

Given one *Pavetta hongkongensis* at P19 was located at the fringe of proposed works areas, soft protective nets and temporary protective fencing (**Annexes A6-1 & A12**) with warning sign in sharp colour with the intention to alert the workers to be aware of the species will be provided in order to avoid the species being damaged during the removal works. The deployment and removal of the soft protective net will be conducted with extra care to prevent any potential damage of the plants. A temporary fencing will be erected for the shrub and dripline of the branches.

Two *Pavetta hongkongensis* were recorded at P19 located at the fringe of proposed works areas will be also provided with protective measure. Temporary metal cage with a minimum height of 30cm will be erected around the dripline of the seedlings to avoid potential impact under the Project (**Annexes A6-1 & A13**). The temporary metal cage will be removed upon completion of works. The Contractor will ensure that the parts of pylon segments will not have direct contact with the identified *Pavetta hongkongensis*.

Safety and environmental awareness briefing to workers will be provided to alert their awareness on species of conservation importance along the access road to pylons and pay extra attention when using the accesses as some of flora species of conservation importance were found alongside the paths connecting to pylons, in particular P15, P16, P19.

Calls of Short-legged Toad and Romer's Tree Frog were heard from the natural stream near P17 and P19 respectively. Given that the natural stream is separated by a concrete channel and walk trail from P17, while natural stream is of relatively far distance from P19, as such indirect impact to these two species is considered to be insignificant. Considering the close distance between P18 and channelized watercourse, dismantling works to be carried out at P17 and P18 will be scheduled out of wet season (April to October). In order to further avoid the impact, temporary fence with a height of 0.5m will be erected around the proposed works area at P17 and P18 to prevent amphibian species of conservation importance (if any) from returning to the works areas (**Annexes A15 & 16**).

The boundary of the works area will be clearly marked by temporary fence where possible, and soft PVC tape at area where space is limited, before and during the proposed works to avoid impacts on the flora and fauna species of conservation importance recorded nearby (**Annex A17**). The works area boundaries will be regularly checked to ensure that they are not breached and that no damage occurs to surrounding areas/ country parks.

HK Electric will prepare a site audit checklist and conduct weekly site audit at the active works areas during the dismantle works to ensure proposed good site practices / protective measures are in place and effective.

A summary of the protective measures is presented in **Table 4.1** and illustrated in **Annex A**.

**Table 4.1 Summary of Protective Measures**

No. of Pylon	Species	Protective Measures
P15	<i>Gnetum luofuense</i>	Temporary protective fencing (1.5m above ground) will be erected around the drip line of shrub entangled by <i>Gnetum luofuense</i> . The entangled branches above 1.5m of the ground will be covered by soft <i>protective net</i> . The identified individual will be marked by warning sign during decommission work to ensure workers are aware of the concerned plant ( <b>Annexes A7</b> ).
P16	<i>Gnetum luofuense</i>	Temporary protective fencing (1.5m above ground) will be erected around the drip line of shrub entangled by <i>Gnetum luofuense</i> . The entangled branches above 1.5m of the ground will be covered by soft <i>protective net</i> . The identified individual will be marked by warning sign during decommission work to ensure workers are aware of the concerned plant ( <b>Annexes A8</b> ).
P18	<i>Gnetum luofuense</i>	<i>Gnetum luofuense</i> entangled on pylon will be gently disentangled before dismantling work. The disentangled part will be put on adjacent unaffected vegetated area outside the works area which will not be affected by the dismantling work. ( <b>Annex A9</b> ). Temporary protective fencing (1.5m above ground) will be erected around the drip line of shrub entangled by <i>Gnetum luofuense</i> . The entangled branches above 1.5m of the ground will be covered by soft <i>protective net</i> . The identified individual will be marked by warning sign during decommission work to ensure workers are aware of the concerned plant ( <b>Annexes A10-A11</b> ).
P19	<i>Pavetta hongkongensis</i>	Temporary protective fencing (1.5m above ground) will be erected around the drip line of one <i>Pavetta hongkongensis</i> . The branches above 1.5m of the ground will be covered by soft protective net. The identified individual will be marked by warning sign during decommission work to ensure workers are aware of the concerned plant ( <b>Annex A12</b> ).  Temporary metal cages will be erected around the dripline of the two <i>Pavetta hongkongensis</i> seedlings to avoid potential impact under the Project. The identified individual will be marked by warning sign during decommission work to ensure workers are aware of the concerned plant ( <b>Annex A13</b> ).
P17 and P18	Amphibian species of conservation importance (i.e. Romer's Tree Frog and Short-legged Toad)	The pylon dismantling works for P18 will be scheduled outside of wet season (April to October). Temporary fence will be erected around the proposed works areas at P17 and P18 to prevent amphibian species of conservation importance (if any) from returning to the works areas ( <b>Annexes A15-A16</b> ).

Considering the absence of amphibian of conservation importance within the proposed works areas, translocation proposal is considered not necessary. No active/ abandoned bird nest and fauna species of conservation importance were recorded within the proposed works areas during the survey, therefore, no additional ecological preventive and mitigation measures is required.

During planning stage, Project Proponent exerted great efforts to optimise the removal procedures and to minimise impact on vegetation, trees and habitats at any stage of the Project. With the adoption of above protective measures, the proposed works areas at P15 to P19 are confirmed to be still valid and practical.

## 5. IMPLEMENTATION SCHEDULE

Under EP condition 2.1, an Independent Environmental Checker (IEC) will be employed by the Permit Holder before commencement of construction of the Project. The IEC will audit the implementation of all mitigation measures recommended in the PP and required under the EP and to confirm full compliance of the mitigation measures through a monthly audit report.

An implementation schedule is presented in **Table 4.2** to clearly list out the mitigation measures to be implemented as specified in the PP, EP and **Section 4**, and by whom, when, where and what requirement. All mitigation measures recommended and requirements specified in the EMP and the implementation schedule will be fully implemented.

**Table 4.2 Implementation Schedule of Recommended Mitigation Measures during Removal of Overhead Line and Pylons (P15 to P19)**

Ref.	Recommended Mitigation Measures	Objectives of the recommended measures	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
<b>Ecological Mitigation Measures</b>						
EP condition 2.9	<p><u>Avoidance and minimisation on potential environmental impacts</u></p> <ul style="list-style-type: none"> <li>The flora species of conservation importance identified in close vicinity of the works areas will be retained in situ and protected during the works.</li> </ul>	Avoid or minimize potential environmental impacts during the construction stage of the Project	Contractor	Relevant proposed works areas	Construction phase	EP condition 2.9
S5.1.5 of PP	<p><u>Avoidance encroachment onto natural habitats within the country parks and SSSI</u></p> <ul style="list-style-type: none"> <li>To avoid any unnecessary encroachment of the Project onto natural habitats within the country parks and SSSI and use minimal space as the works areas</li> </ul>	Avoid direct impact to natural habitats within the country parks and SSSI	Contractor	Natural habitats within the country parks and SSSI	Pre-construction phase	N/A
EP condition 2.8 & S5.1.5 of PP	<p><u>Avoidance of use of mechanical equipment</u></p> <ul style="list-style-type: none"> <li>To use of electrical hand-held breaker and other hand tools will be used for the pylon foundation removal instead of the mechanical equipment such as excavators</li> </ul>	Further minimise the potential disturbance to the surrounding natural habitats and associated wildlife (esp. fauna species of conservation importance).	Contractor	Proposed works areas	Construction phase	EP condition 2.8
EP condition 2.6 & S5.1.5 of PP	<p><u>To conduct pre-construction site visits/surveys</u></p> <ul style="list-style-type: none"> <li>Additional site visit(s) will be conducted at the pre-construction phase to review the validity and practicality of the proposed works areas.</li> <li>Propose protective measure such as temporary protective structures, temporary platform temporary protective metal cage and protective nets for the flora of conservation importance newly identified from pre-construction survey.</li> <li>Additional ecological survey with focus to amphibian species of conservation importance will be conducted at pre-construction phase by qualified ecologist.</li> <li>To prepare detailed translocation proposal for capture and translocation works if any amphibian species of conservation importance be found within the works area.</li> </ul>	<p>Minimise direct impacts on the woodland habitat (i.e. with minimum level of vegetation clearance), tree pruning and tree felling</p> <p>Minimise direct impacts on amphibian species of conservation importance</p>	Contractor	Proposed works areas	Pre-construction phase	EP condition 2.6

Ref.	Recommended Mitigation Measures	Objectives of the recommended measures	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
<b>Ecological Mitigation Measures</b>						
S5.1.5 of PP and S4 of the EMP	<p><u>Site Inspection</u></p> <ul style="list-style-type: none"> <li>Safety and environmental awareness briefing to workers will be provided to alert their awareness on species of conservation importance along the access road to pylons and pay extra attention when using the accesses as some of flora species of conservation importance were found alongside the paths connecting to pylons, in particular P15, P16, P19</li> <li>The boundary of the works area will be clearly marked by temporary fence where possible and soft PVC tape at area where space is limited, before and during the proposed works to avoid impacts on the flora and fauna species of conservation importance recorded nearby. The works area boundaries will be regularly checked to ensure that they are not breached and that no damage occurs to surrounding areas/ country parks.</li> <li>During the dismantle works, HK Electric will prepare a site audit checklist and conduct weekly site audit at the active works areas to ensure the proposed good site practices / protective measures are in place and effective.</li> </ul>	Minimise the potential disturbance to the surrounding natural habitats and associated wildlife (esp. fauna species of conservation importance).	Contractor	Relevant proposed works areas	Construction phase	N/A
S5.1.5 of PP and Table 4.1 of this EMP	<p><u>Protection on flora species of conservation importance</u></p> <ul style="list-style-type: none"> <li>For one <i>Gnetum luofuense</i> at P15, soft protective net, temporary fencing with warning sign in sharp colour and fencing will be built around the identified plant depending on site condition, with the aim to avoid damage during the dismantling works.</li> <li>For one <i>Gnetum luofuense</i> at P16, soft protective net, temporary fencing with warning sign in sharp colour and fencing will be built around the identified plant depending on site condition, with the aim to avoid damage during the dismantling works.</li> <li>For two <i>Gnetum luofuense</i> at P18, soft protective net, temporary fencing with warning sign in sharp colour and fencing will be built around the identified plant depending on site condition, with the aim to avoid damage during the dismantling works.</li> <li>For one <i>Gnetum luofuense</i> at P18 found not entangling the pylon tightly, would be gently disentangled and put on adjacent unaffected vegetated area outside the works area before dismantling work.</li> </ul>	Minimise direct impacts on floral of conservation importance	Contractor	Relevant proposed works areas	Pre-construction phase / Construction phase	N/A



Ref.	Recommended Mitigation Measures	Objectives of the recommended measures	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
<b>Ecological Mitigation Measures</b>						
	<ul style="list-style-type: none"> <li>For one <i>Pavetta hongkongensis</i> at P19, soft protective net, temporary fencing with warning sign in sharp colour and fencing will be built around the identified plant depending on site condition, with the aim to avoid damage during the dismantling works. The Contractor will ensure that the top parts of pylon segments will not have direct contact with the <i>Pavetta hongkongensis</i> during dismantling works.</li> <li>For two <i>Pavetta hongkongensis</i> seedlings at P19, temporary metal cage will be erected around the dripline of the species to avoid potential impact under the Project. The Contractor will ensure that the top parts of pylon segments will not have direct contact with the <i>Pavetta hongkongensis</i> during dismantling works.</li> </ul>					
EP condition 2.9(a) and S5.1.5 of PP	<p><u>Protection on natural watercourses and other potentially importance habitats for amphibians and freshwater fish</u></p> <ul style="list-style-type: none"> <li>Proposed pylon dismantling works at P17 and P18 located in the close vicinity to watercourses will be scheduled outside wet season (April – October)</li> </ul>	Minimise indirect impact to <u>natural watercourses and other potentially importance habitats for amphibians and freshwater fish</u>	Contractor	P17 and P18	Construction phase	EP condition 2.9(a)
EP condition 2.6 , EP condition 2.9, S5.1.5 of PP and Table 4.1 of this EMP	<p><u>Protection on nearby habitats amphibian and flora of conservation importance</u></p> <ul style="list-style-type: none"> <li>The boundary of the works area will be clearly marked by temporary fence where possible and soft PVC tape at area where space is limited. The works area boundaries will be regularly checked to ensure that they are not breached and that no damage occurs to surrounding areas/ country parks, particularly to any identified flora of conservation importance nearby;</li> <li>Safety briefing to workers will be provided to alert their awareness on species of conservation importance along the access road to pylons and pay extra attention when using the accesses. Avoid any damage and disturbance, particularly those caused by filling and illegal dumping to the surrounding natural habitats and especially those within the Country Park. The contractors will be required to provide proofs of dismantled materials dumping (i.e. waste disposal ticket issued by landfill office and recycling receipt);</li> </ul>	Protect habitats and flora of conservation importance nearby the works area	Contractor	Proposed works areas	Construction phase	EP condition 2.6 and 2.9

Ref.	Recommended Mitigation Measures	Objectives of the recommended measures	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
<b>Ecological Mitigation Measures</b>						
	<ul style="list-style-type: none"> <li>• Prohibit and prevent open fires within the works area boundary during construction and provide temporary firefighting equipment in the work areas</li> <li>• Good site practice should be enforced. Works site should be kept tidy at all times. Accumulation of construction waste and general refuse should not be allowed</li> <li>• Upon completion of the pylon footing removal works, the resulting pits will then be backfilled with soil up to formation level. The works areas will then be reinstated with native plant species.</li> <li>• During the dismantle works, temporary fence with a height of 0.5m will be erected around the proposed works area at P17 and P18 to prevent amphibian species of conservation importance (if any) from returning to the works areas.</li> </ul>					

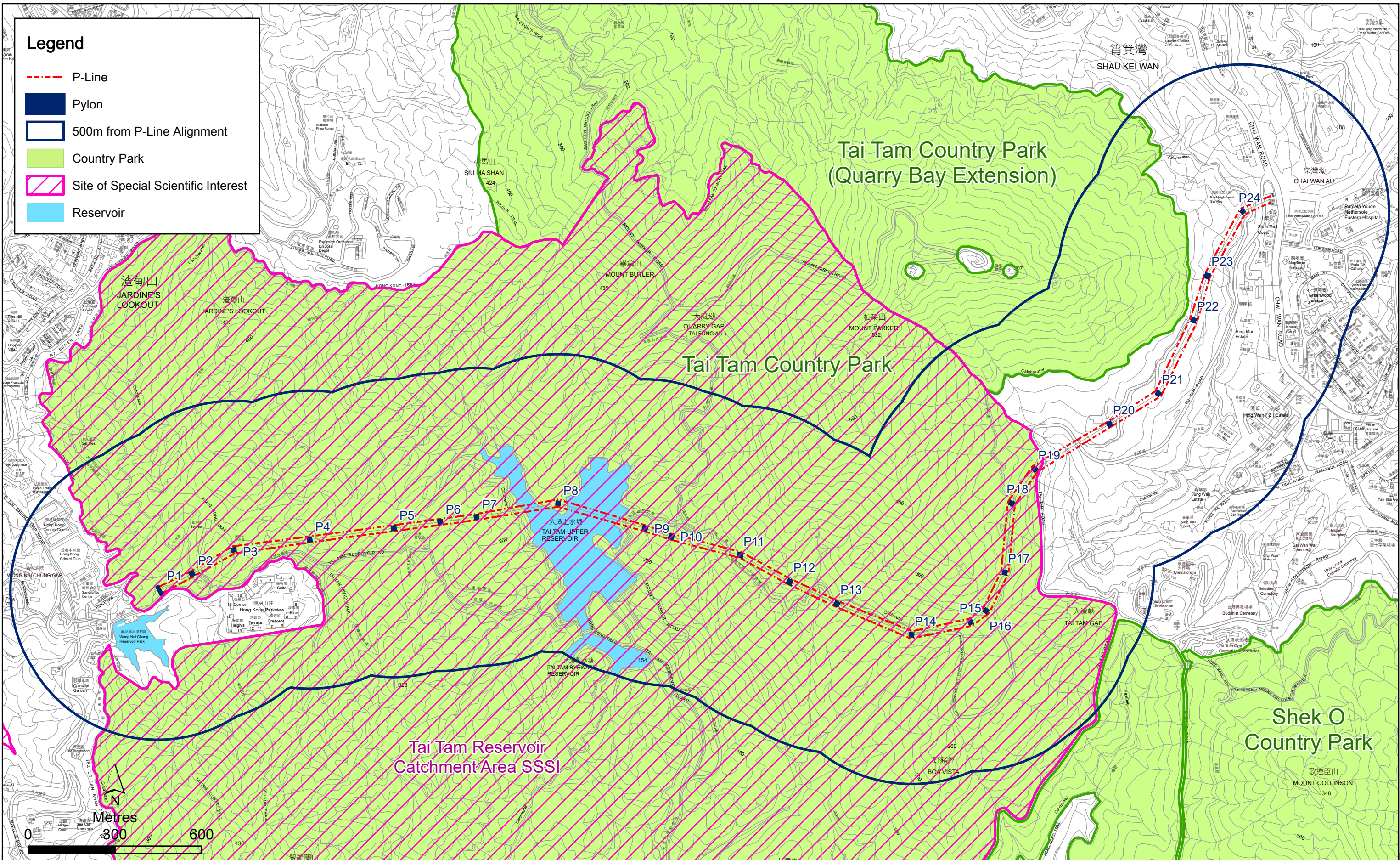


Figure 1.1

Removal of 132kV Overhead Line and Pylons for P-Line

File: T:\GIS\CONTRACT\0585151\mxd\Pre-con\_Survey\_Plan\0585151\_P-Line\_Alignment.mxd  
 Date: 11/1/2022

Environmental  
 Resources  
 Management



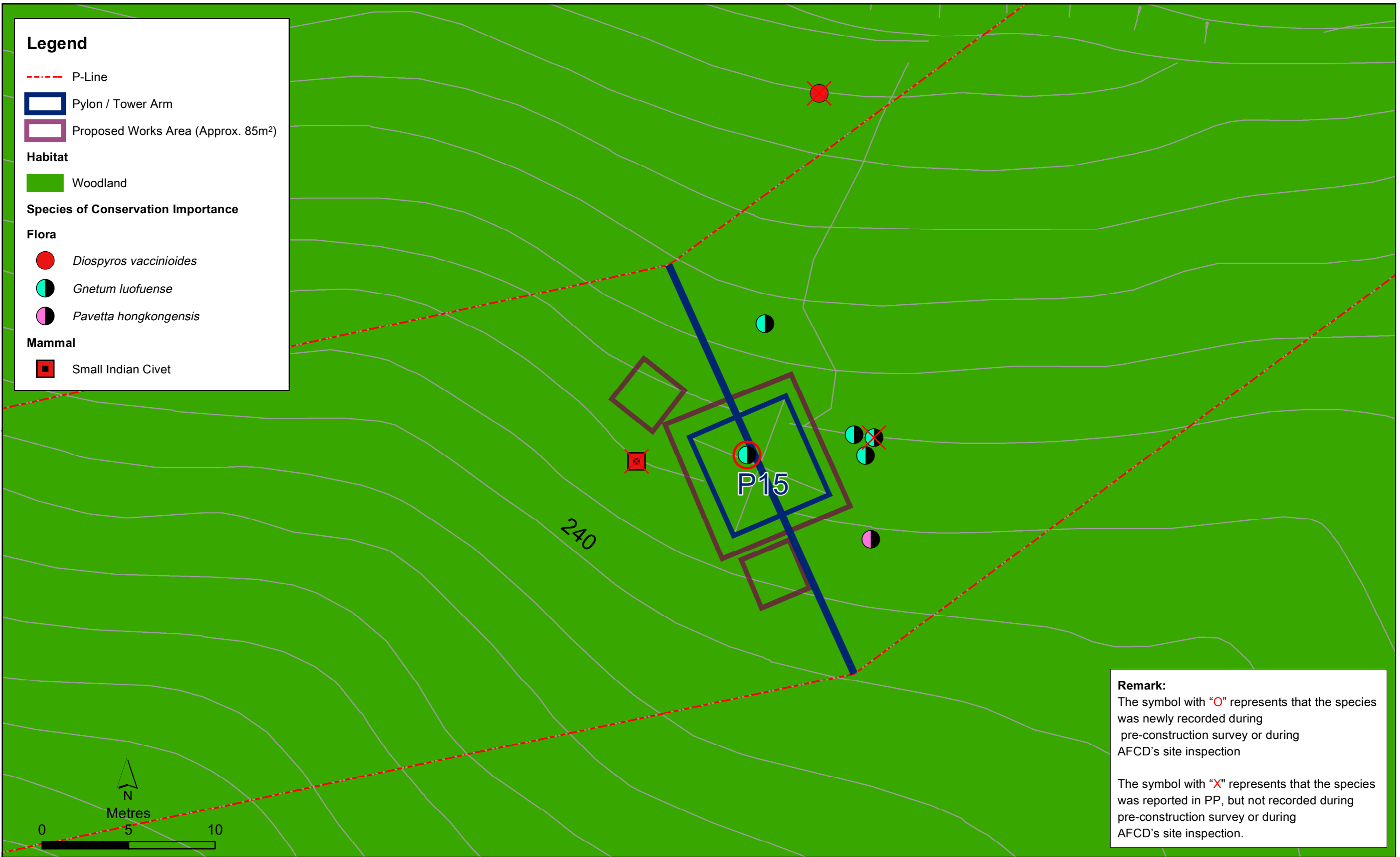


Figure 2.1.1

Zoom-in Habitat Map for Pylon P15

File: T:\GIS\CONTRACT\0585151\mxd\EMP\0585151\_Habitat\_Map\_P15.mxd  
Date: 16/12/2022

Environmental  
Resources  
Management





**Legend**

- Access
- P-Line
- Pylon / Tower Arm
- Proposed Works Area (Approx. 85m<sup>2</sup>)
- Habitat**
- Woodland
- Watercourse/ Water Body
- Developed/ Disturbed Area
- Species of Conservation Importance**
- Flora**
- *Artocarpus hypargyreus*
- *Canthium dicoccum*
- *Diospyros vaccinioides*
- *Gnetum luofuense*
- *Pavetta hongkongensis*
- Mammal**
- Small Indian Civet
- Avifauna**
- Collared Scops Owl
- Crested Serpent Eagle
- Herptofauna**
- ▲ Romer's Tree Frog

**Remark:**  
 The symbol with "O" represents that the species was newly recorded during pre-construction survey or during AFCD's site inspection

The symbol with "X" represents that the species was reported in PP, but not recorded during pre-construction survey or during AFCD's site inspection.

Figure 2.1.1a

Zoom-out Habitat Map for Pylon P15

File: T:\GIS\CONTRACT\0585151\mxd\EMP\Access\0585151\_Habitat\_Map\_P15\_with\_Access.mxd  
 Date: 16/11/2022



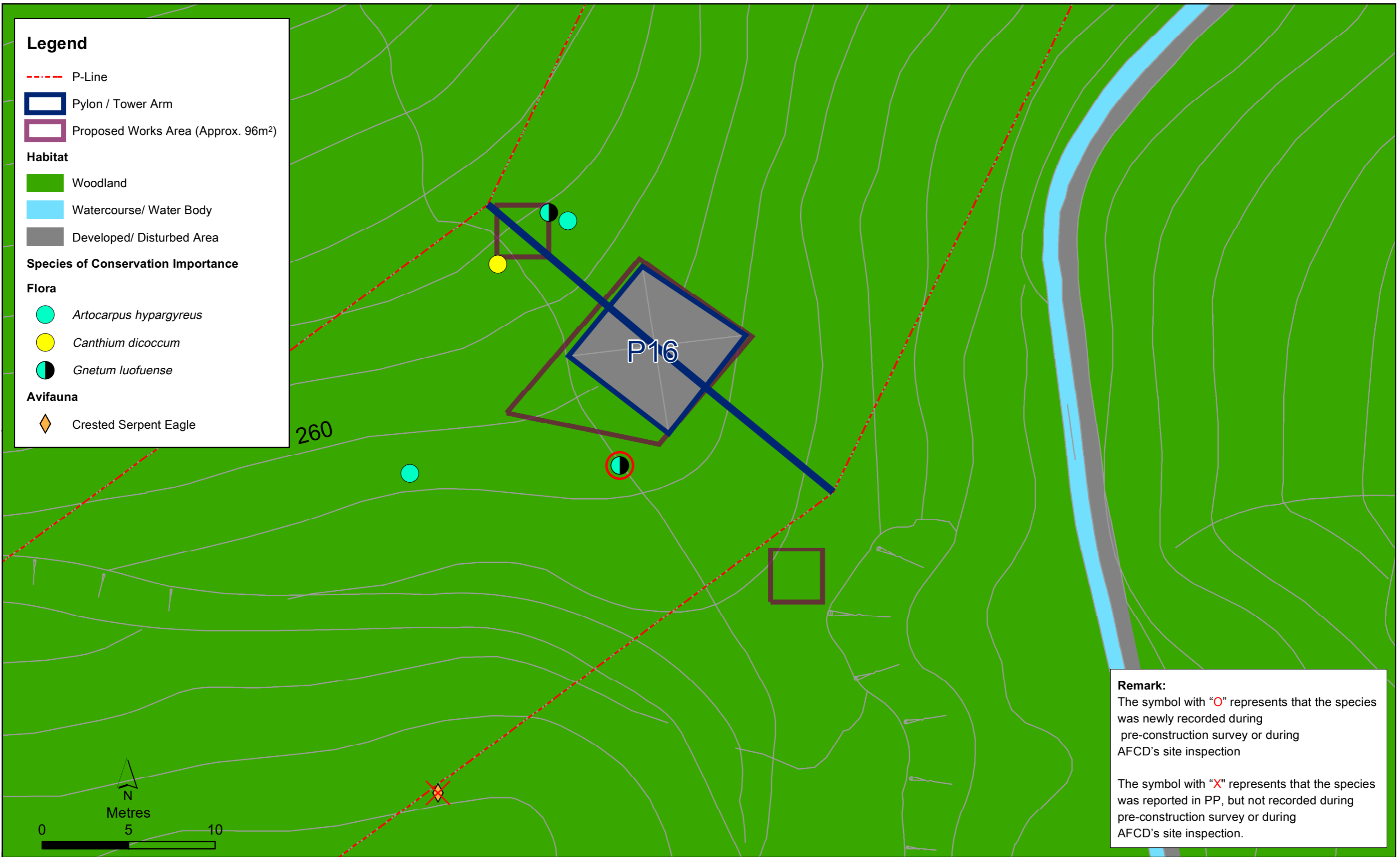
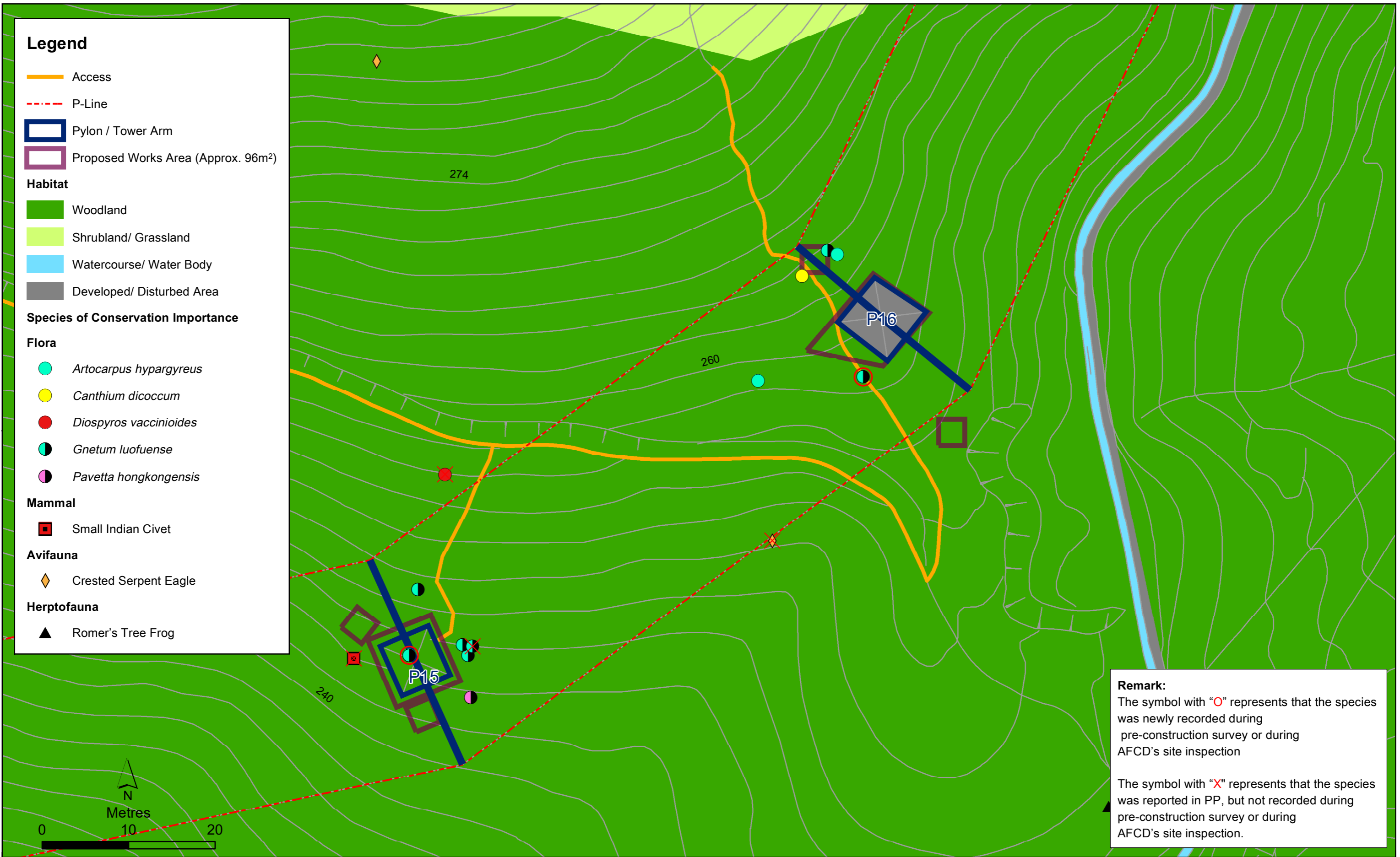


Figure 2.1.2

Zoom-in Habitat Map for Pylon P16



**Legend**

- Access
  - - - P-Line
  - Pylon / Tower Arm
  - Proposed Works Area (Approx. 96m<sup>2</sup>)
- Habitat**
- Woodland
  - Shrubland/ Grassland
  - Watercourse/ Water Body
  - Developed/ Disturbed Area
- Species of Conservation Importance**
- Flora**
- *Artocarpus hypargyreus*
  - *Canthium dicoccum*
  - *Diospyros vaccinioides*
  - *Gnetum luofuense*
  - *Pavetta hongkongensis*
- Mammal**
- Small Indian Civet
- Avifauna**
- ◆ Crested Serpent Eagle
- Herptofauna**
- ▲ Romer's Tree Frog

**Remark:**  
 The symbol with "○" represents that the species was newly recorded during pre-construction survey or during AFCD's site inspection

The symbol with "X" represents that the species was reported in PP, but not recorded during pre-construction survey or during AFCD's site inspection.

Figure 2.1.2a

Zoom-out Habitat Map for Pylon P16

File: T:\GIS\CONTRACT\0585151\mxd\EMPA\Access\0585151\_Habitat\_Map\_P16\_with\_Access.mxd  
 Date: 16/11/2022



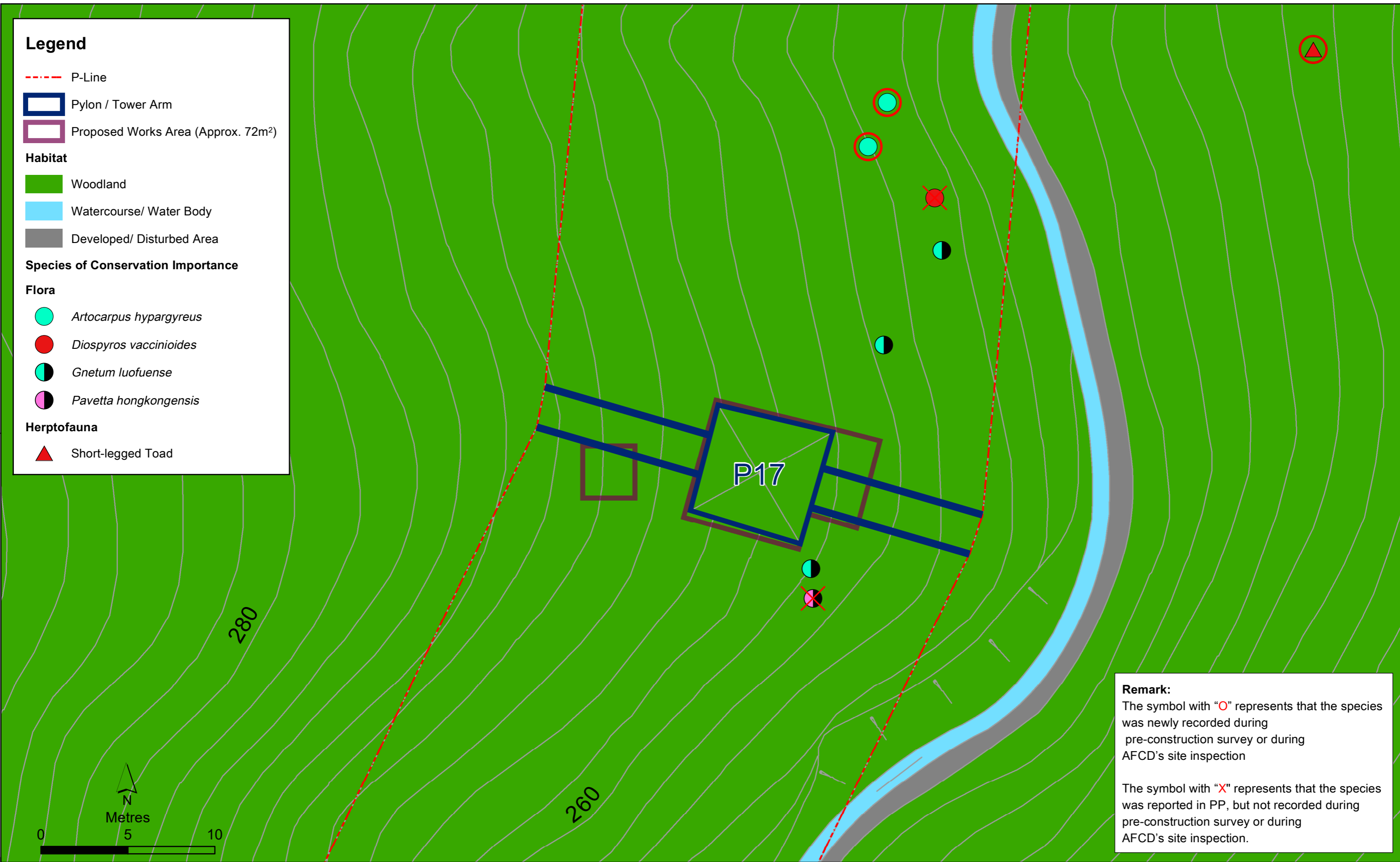


Figure 2.1.3

Zoom-in Habitat Map for Pylon P17



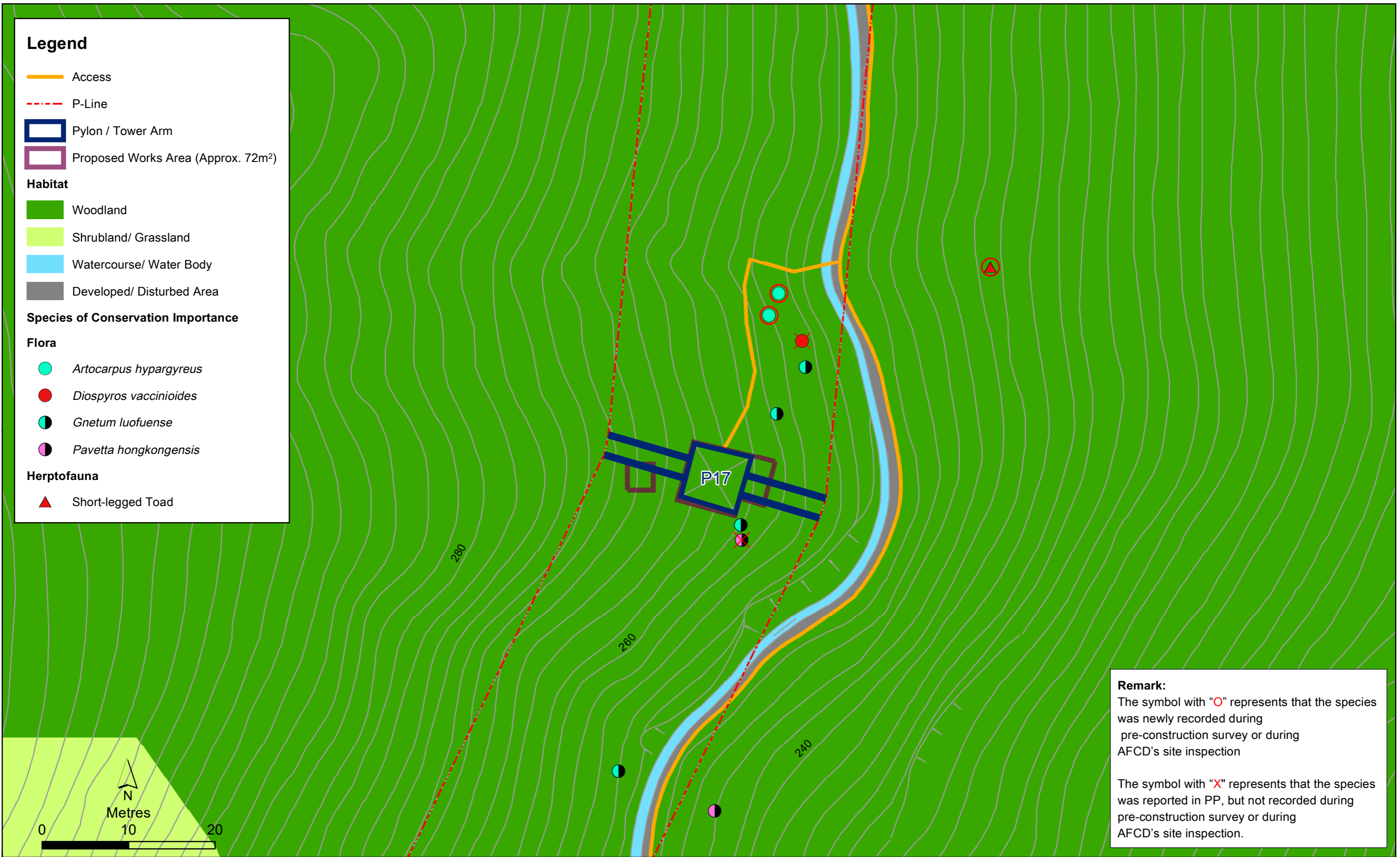
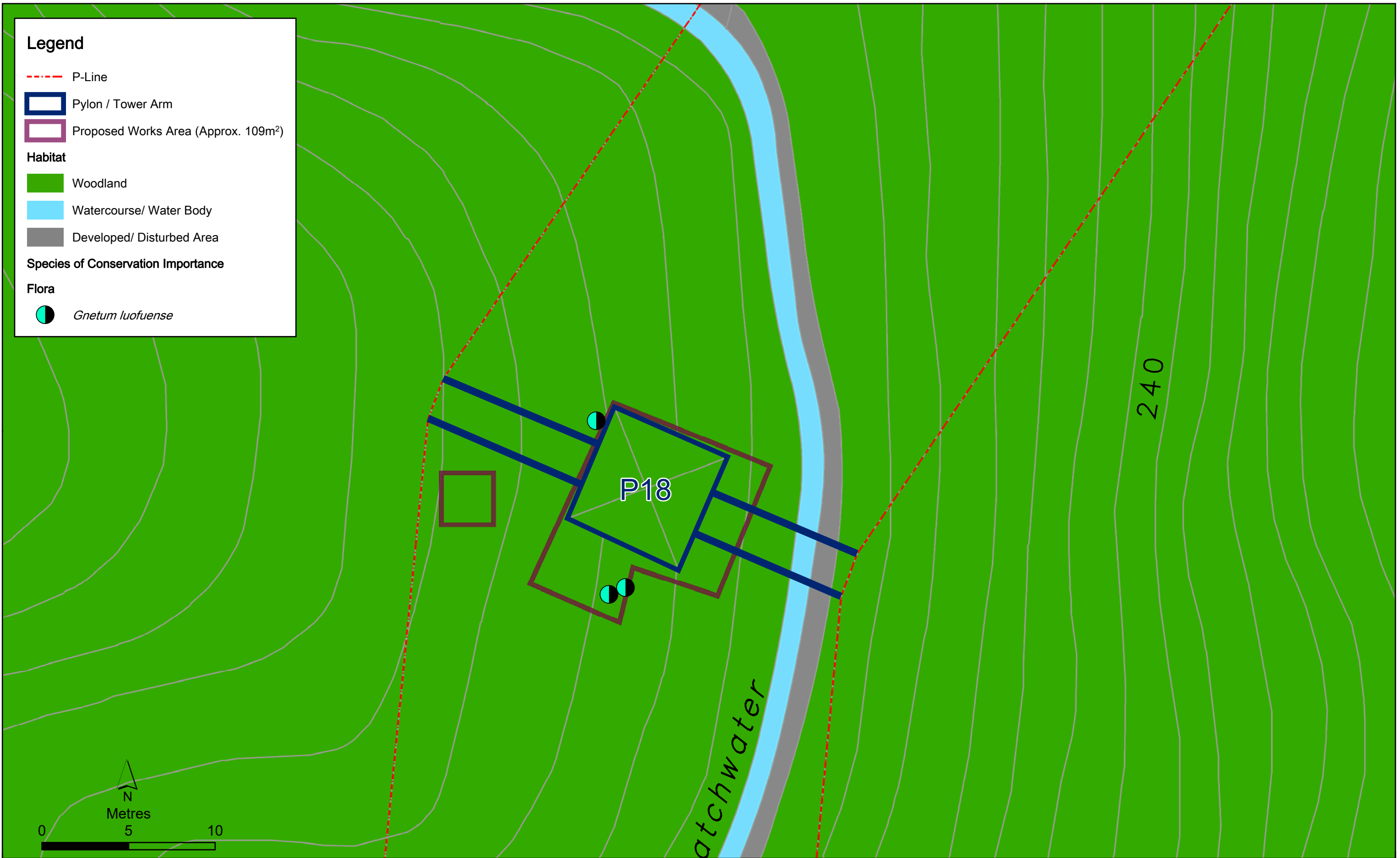


Figure 2.1.3a

Zoom-out Habitat Map for Pylon P17



**Legend**

- - - P-Line
- Pylon / Tower Arm
- Proposed Works Area (Approx. 109m<sup>2</sup>)
- Habitat**
- Woodland
- Watercourse/ Water Body
- Developed/ Disturbed Area
- Species of Conservation Importance**
- Flora**
- Gnetum luofuense*

Figure 2.1.4

Zoom-in Habitat Map for Pylon P18

File: T:\GIS\CONTRACT\0585151\mxd\EMP\0585151\_Habitat\_Map\_P18.mxd  
Date: 7/7/2022

**Environmental  
Resources  
Management**





Figure 2.1.4a

Zoom-out Habitat Map for Pylon P18

File: T:\GIS\CONTRACT\0585151\mxd\EMP\Access\0585151\_Habitat\_Map\_P18\_with\_Access.mxd  
 Date: 16/11/2022

Environmental  
 Resources  
 Management



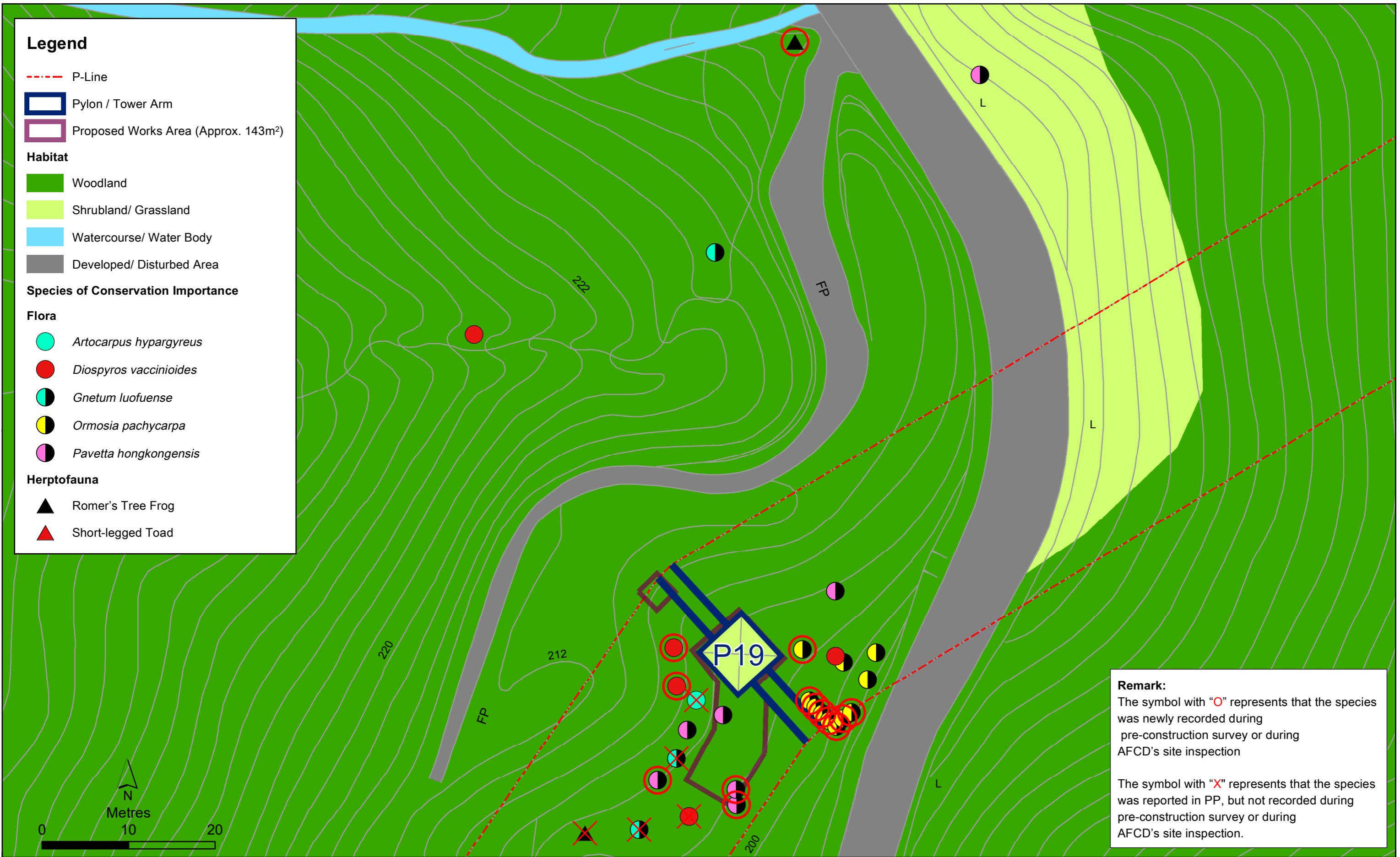


Figure 2.1.5

Zoom-in Habitat Map for Pylon P19

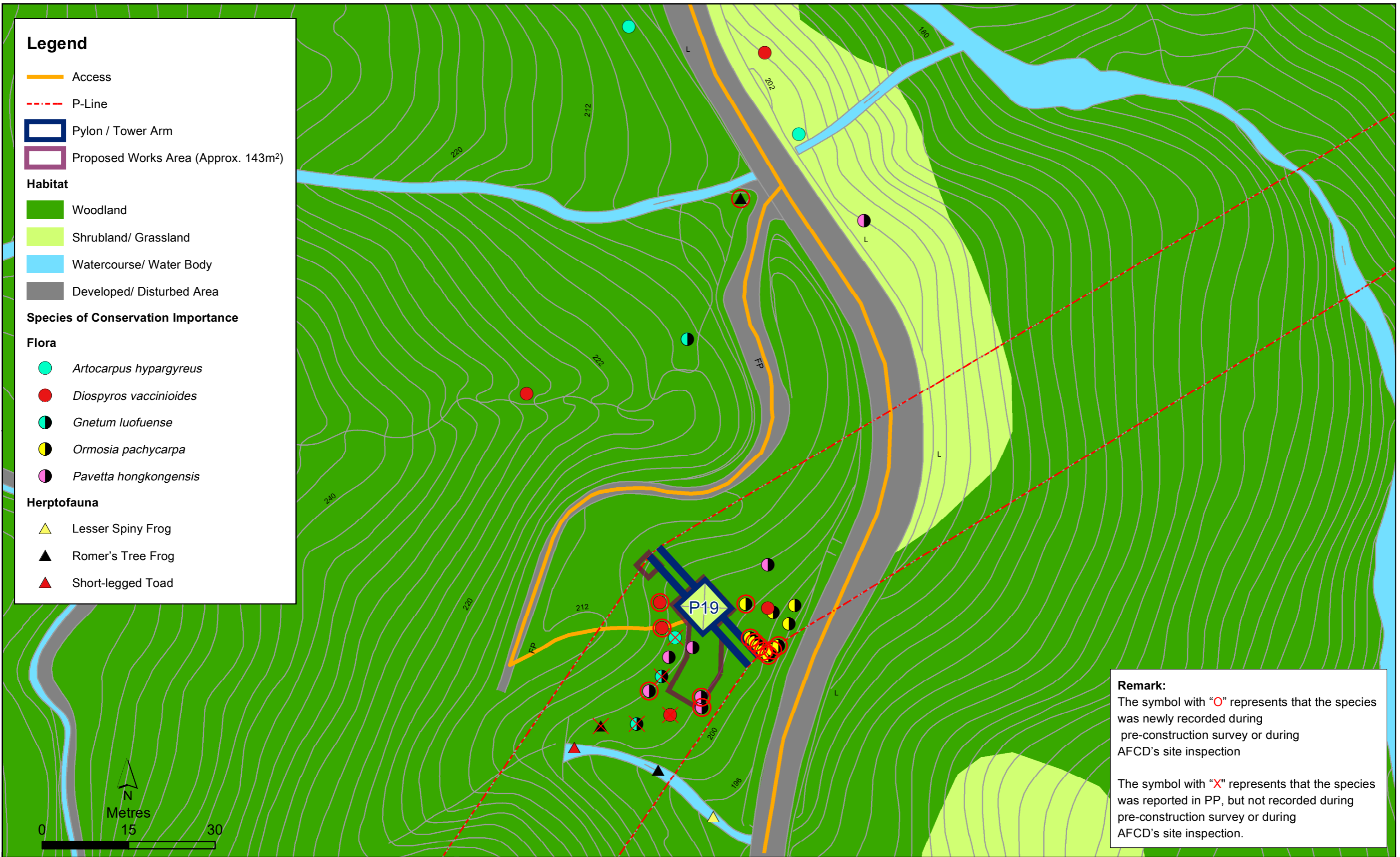
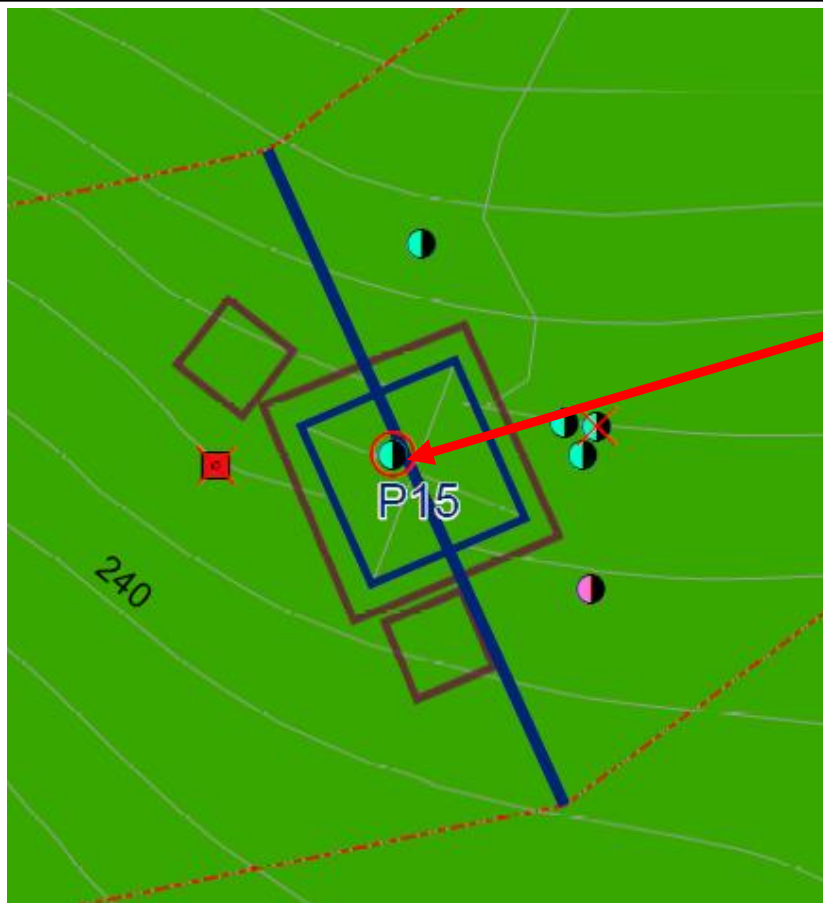


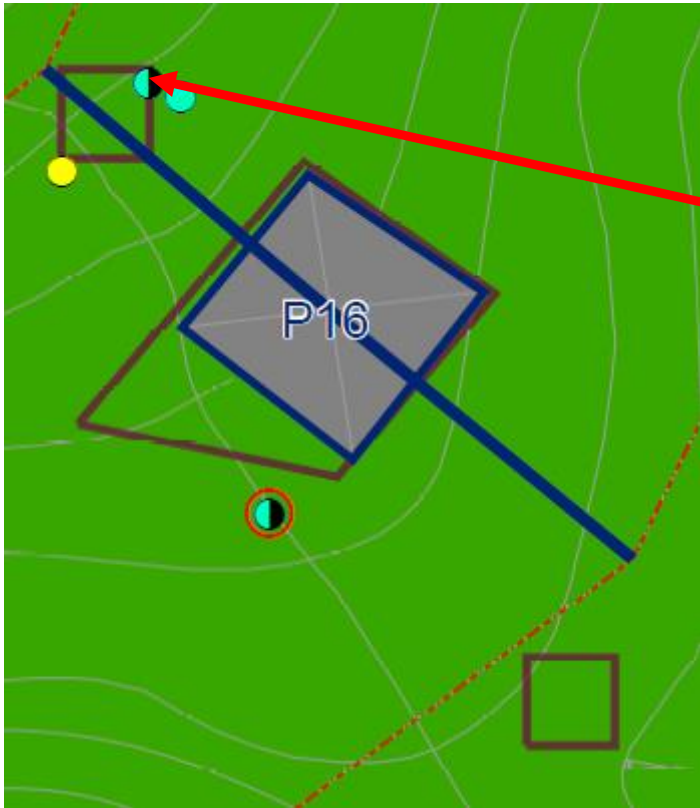
Figure 2.1.5a

Zoom-out Habitat Map for Pylon P19

## ANNEX A PHOTOGRAPHIC RECORDS AND DETAILED DESIGNS OF PROTECTIVE MEASURE

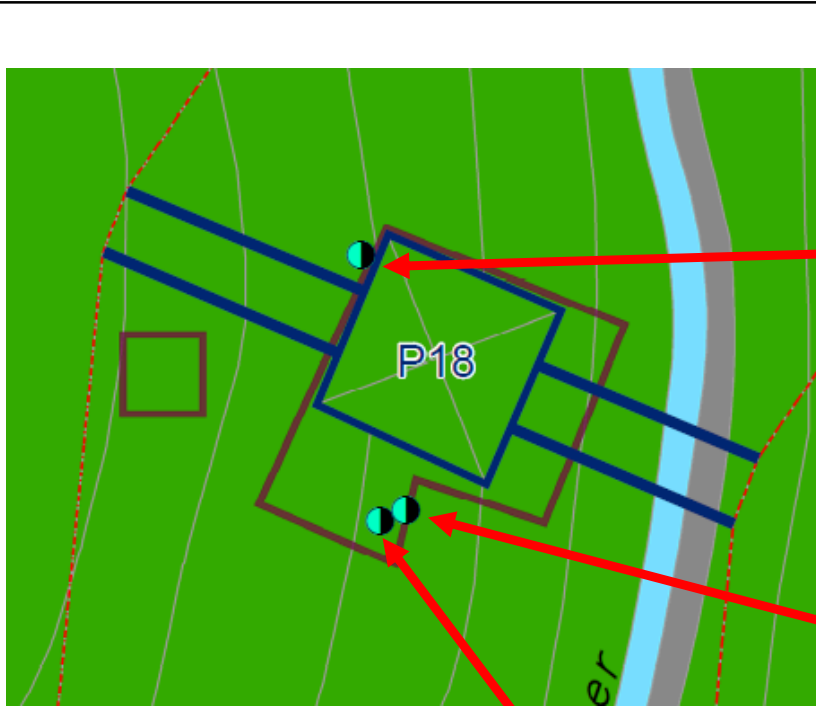


*Gnetum luofuense* recorded within the proposed work area at P15



*Gnetum luofuense* recorded within the proposed work area at P17





*Gnetum luofuense* recorded within the proposed work area at P18 (entangling on pylon)



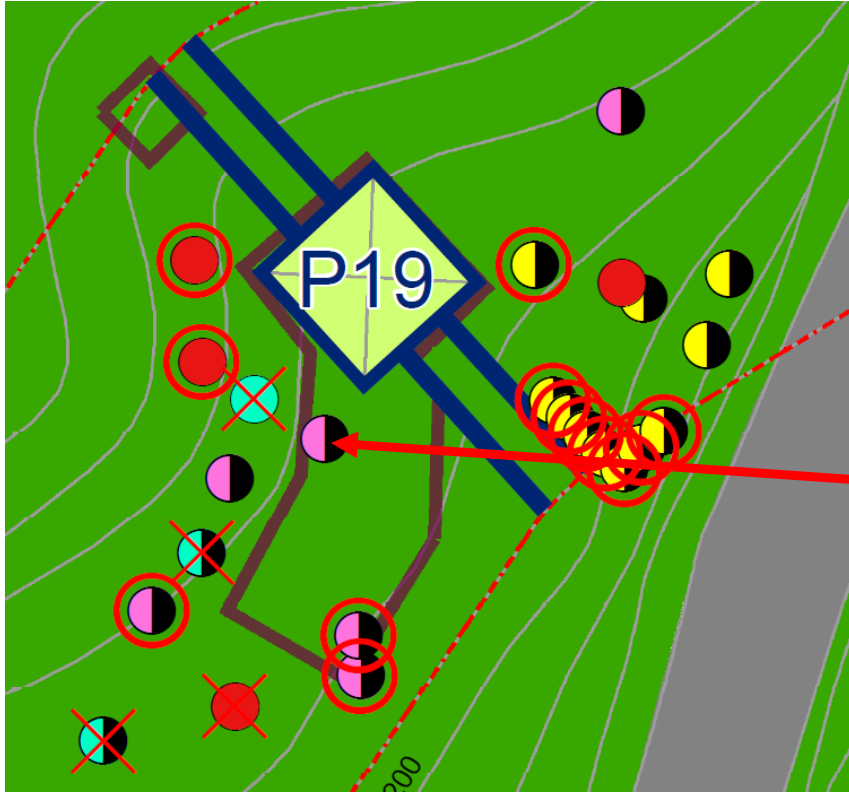
*Gnetum luofuense* recorded within the proposed work area at P18 (entangling on pylon)



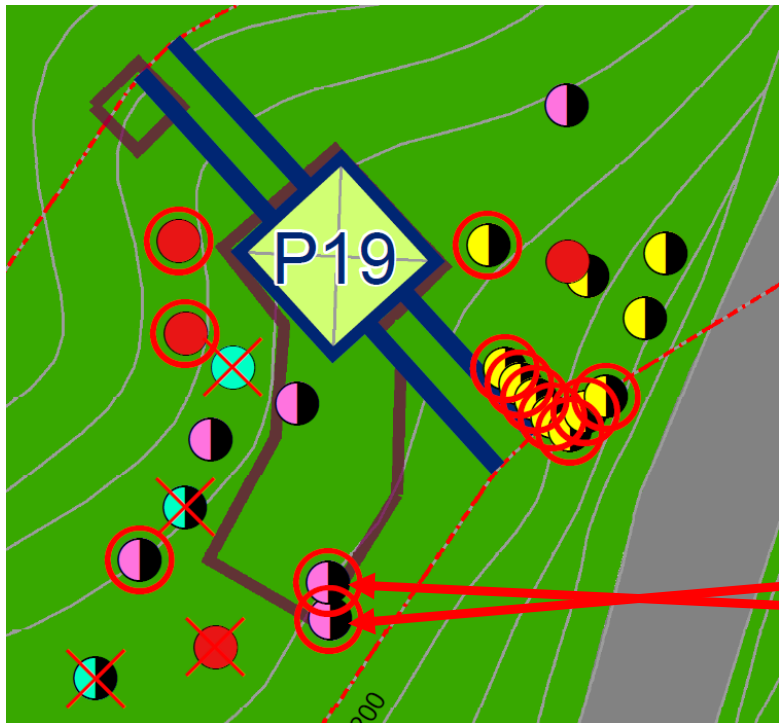
*Gnetum luofuense* recorded within the proposed work area at P18



*Gnetum luofuense* recorded within the proposed work area at P18



*Pavetta hongkongensis* recorded within the proposed work area at P19



*Pavetta hongkongensis* recorded within the proposed work area at P19



**Soft protective net**

The soft protective net with warning sign in sharp colour will be used to cover the species that may be potentially affected by the dismantle works. The soft net allows to cover irregular shape of flora species and species growing off the ground, in particular for the climber *Gnetum luofuense*. The net with warning sign aims to alert workers that the presence of the species.



**Temporary protective fencing  
(Bamboo/steel + Soft protective net)**

Temporary protective fencing is made use of soft protective net with Bamboo/steel surrounded in order to provide a more robust structure for protection purpose. When area is available, it will be used for the shrubs/tree entangled by *Gnetum luofuense* at the **edge** of proposed work area .



**Soft protective net**

As indicated, the shrubs/tree entangled by *Gnetum luofuense* will be covered with soft protective net.



**Temporary Metal Cage**

When area is available, temporary metal cage will be built around the identified plant with the aim to avoid damage during the dismantling works.

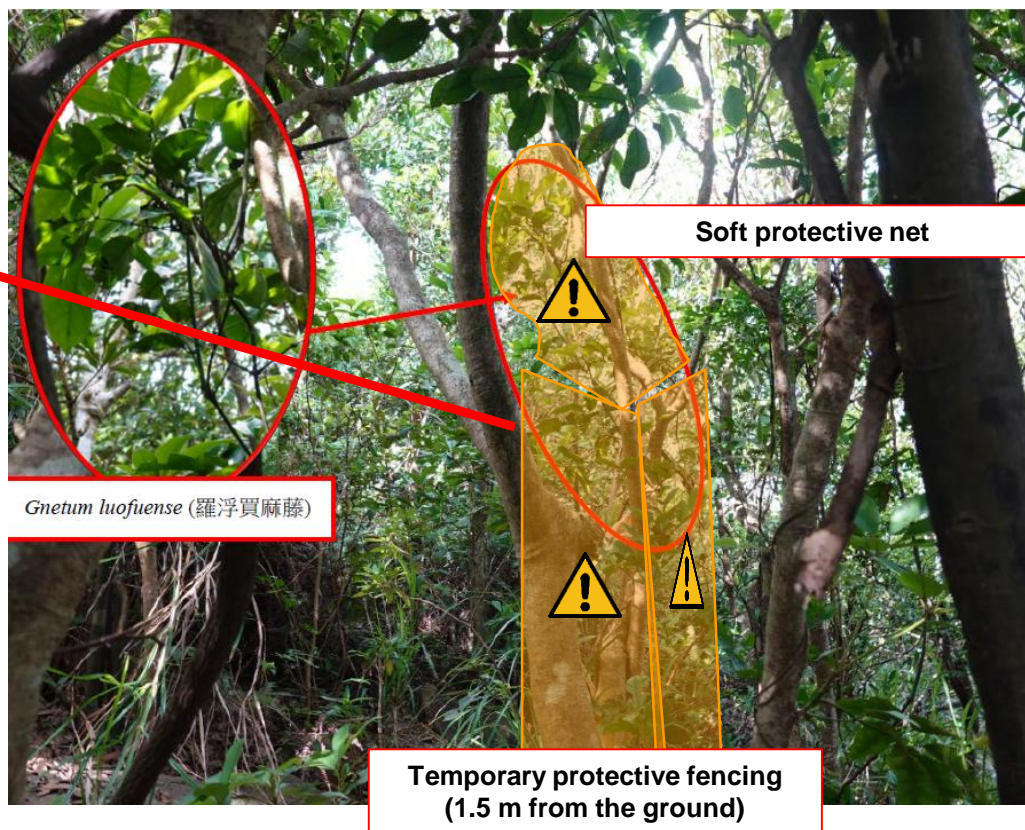
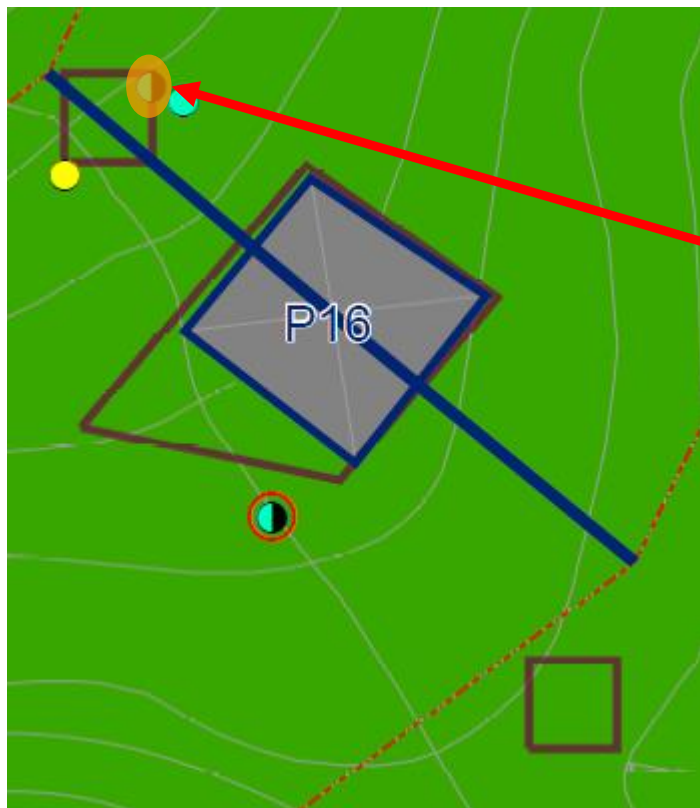


Soft protective net

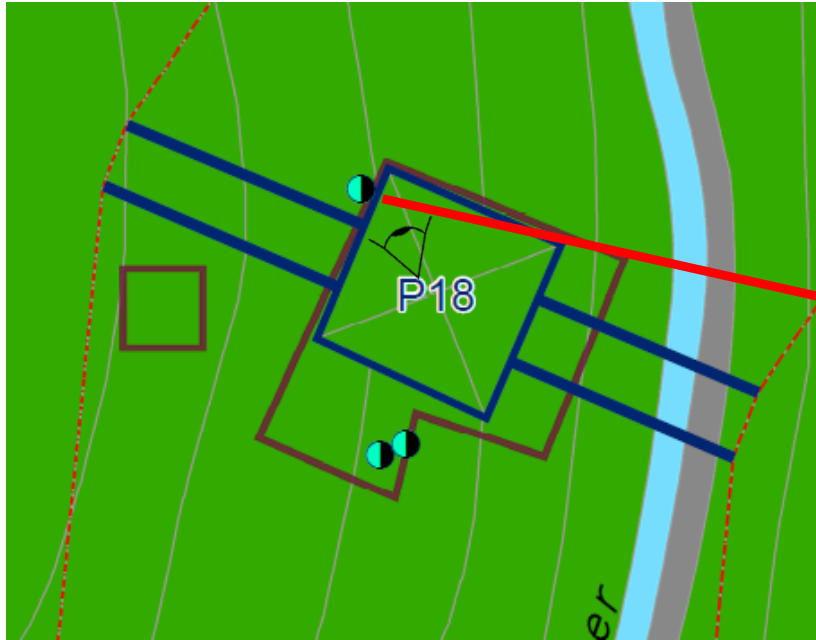
*Gnetum luofuense* (羅浮買麻藤)

*Gnetum luofuense* recorded within the proposed work area at P15

Temporary protective fencing  
(1.5 m from the ground)

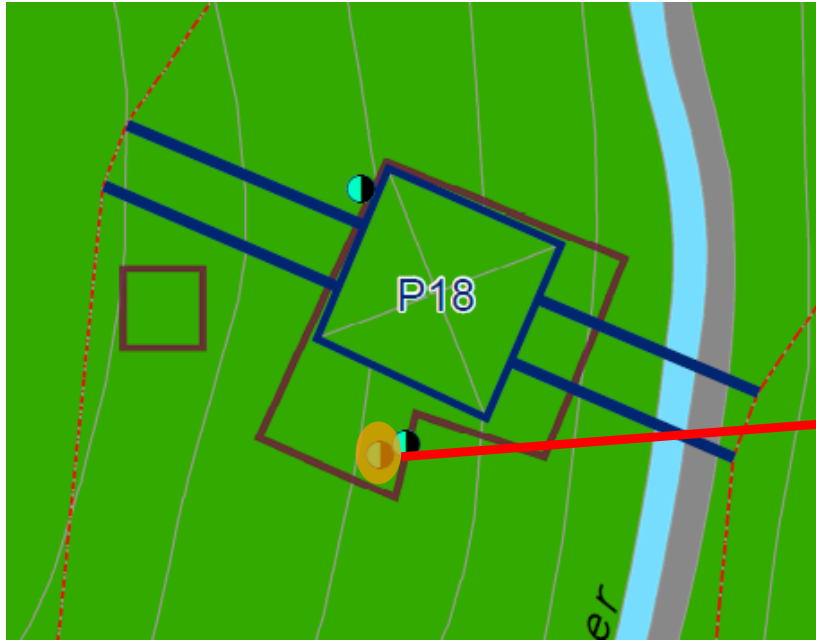


As the species is located at edge of proposed work area, temporary protective fencing (1.5m above ground) will be erected around the shrub which is entangled by *Gnetum luofuense*. The entangled branches above 1.5m of the ground will be covered by soft protective net.



*Gnetum luofuense* recorded within the proposed work area at P18 (slightly entangling on pylon), after gently disentangling could be moved to adjacent vegetation outside of work area.

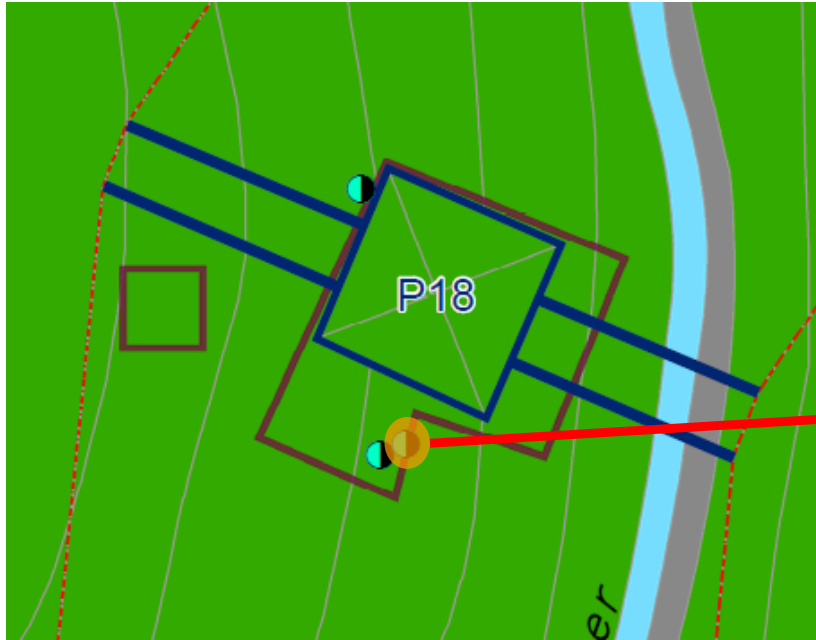




Soft protective net

Temporary protective fencing  
(1.5 m from the ground)

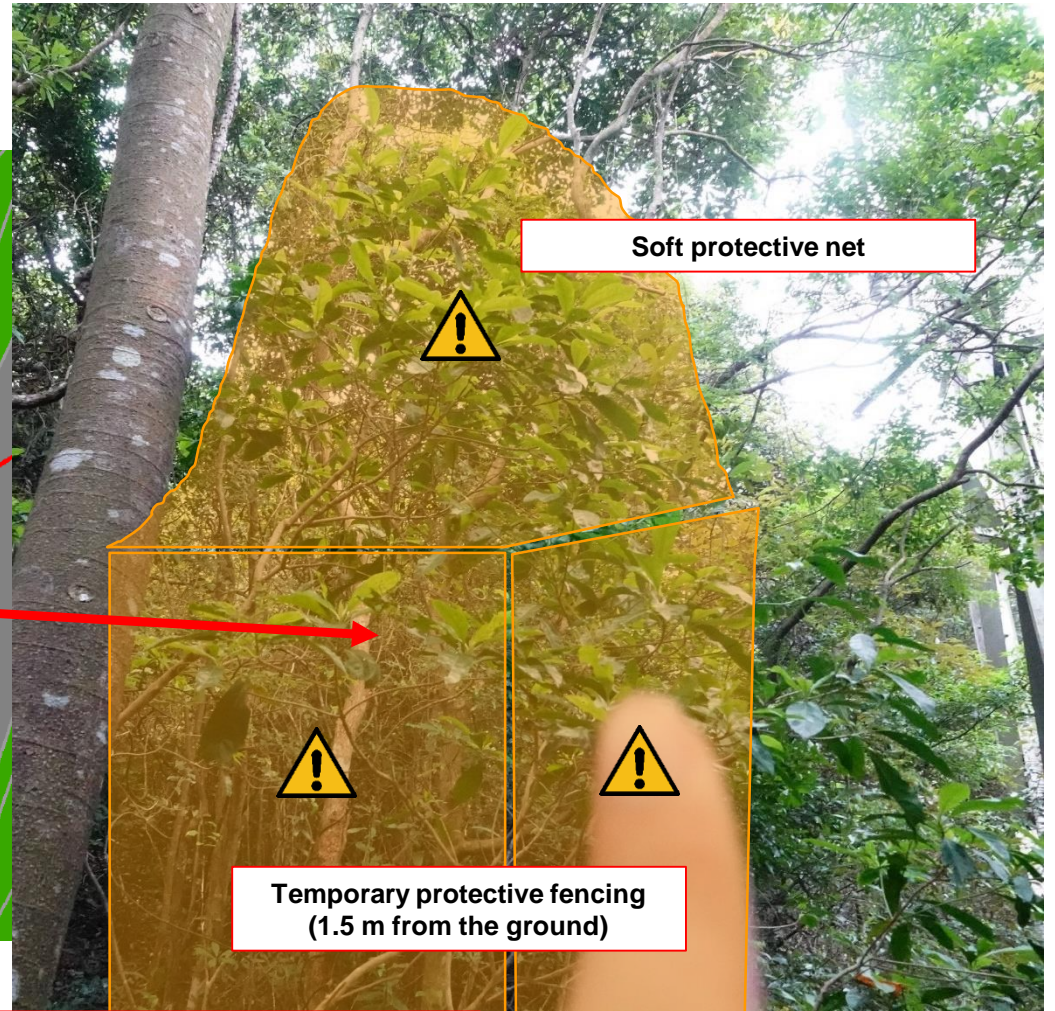
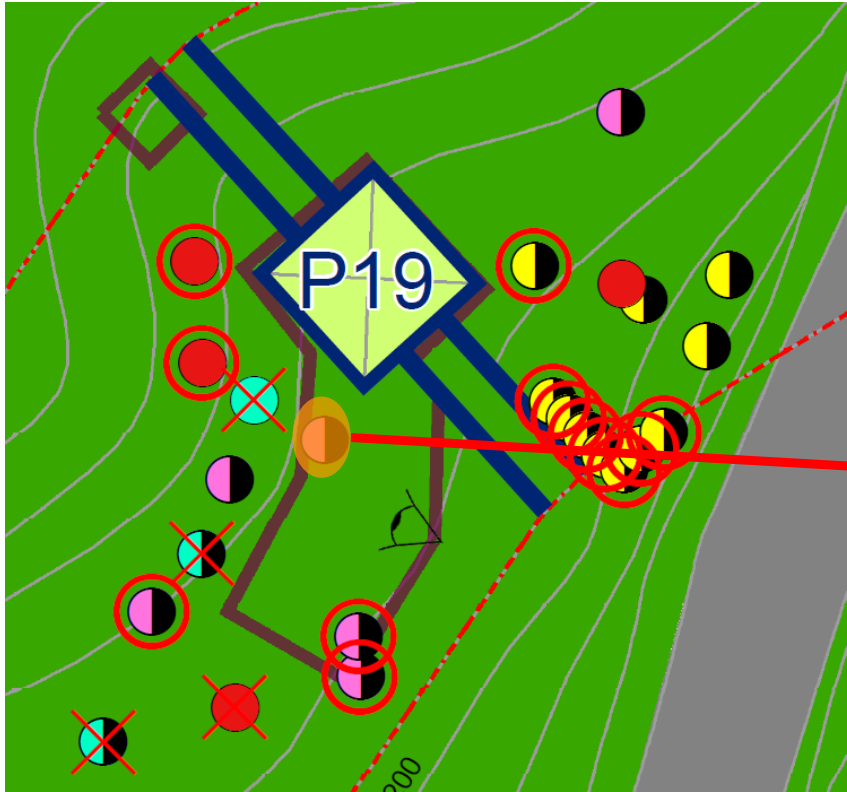
As the species is located at edge of proposed work area, temporary protective fencing (1.5m above ground) will be erected around the shrub which is entangled by *Gnetum luofuense*. The entangled branches above 1.5m of the ground will be covered by soft protective net.



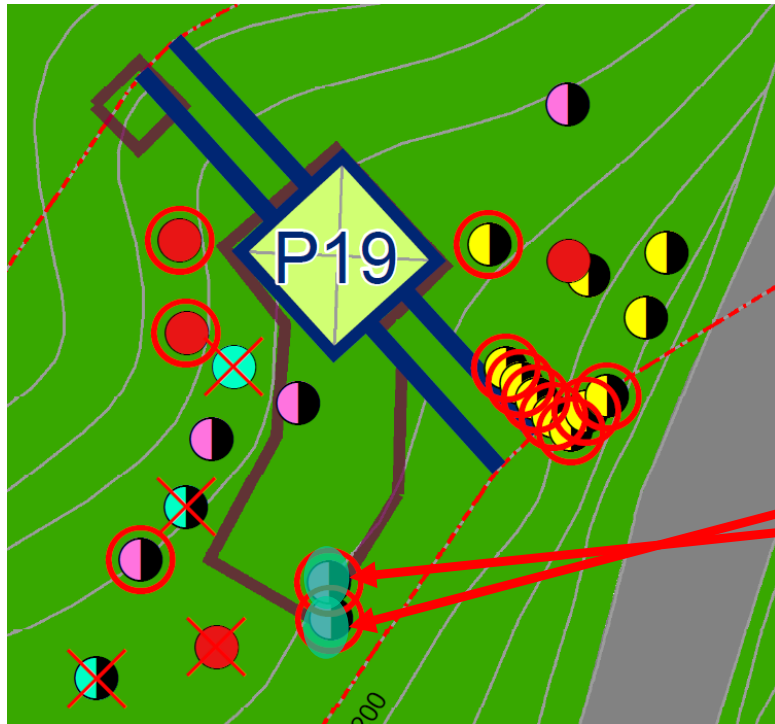
Soft protective net

Temporary protective fencing  
(1.5 m from the ground)

As the species is located at edge of proposed work area, temporary protective fencing (1.5m above ground) will be erected around the shrub which is entangled by *Gnetum luofuense*. The entangled branches above 1.5m of the ground will be covered by soft protective net.



As the species is located at edge of proposed work area, temporary protective fencing (1.5m above ground) will be erected around the shrub which is *Pavetta hongkongensis*. The branches above 1.5m of the ground will be covered by soft protective net.

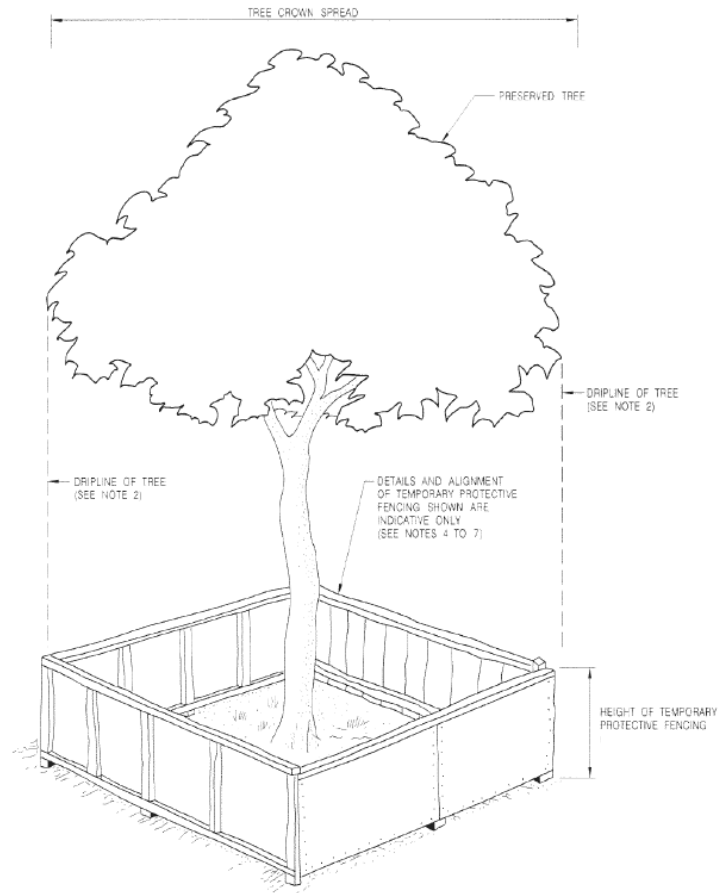


*Pavetta hongkongensis* (香港大沙葉)

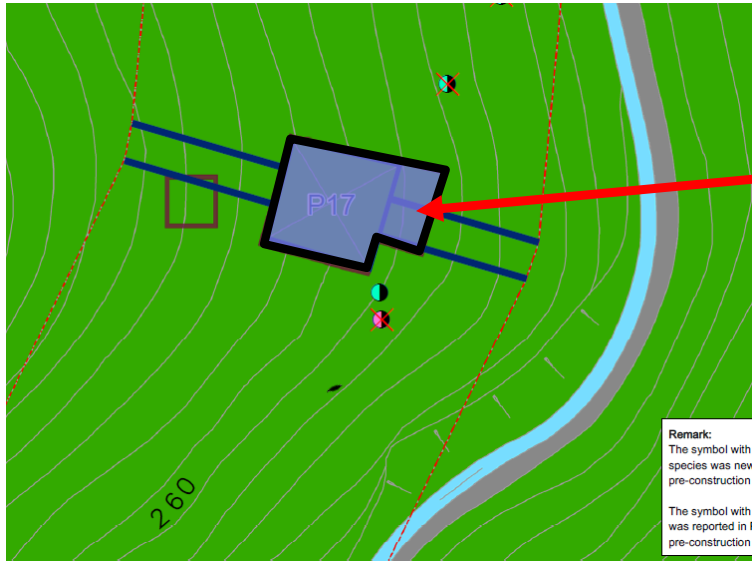
Temporary Metal Cage

Temporary Metal Cage

*Pavetta hongkongensis* (shaded area) will be well covered by temporary metal cage considering the individual is small in size



Temporary protective fencing or metal cage with 1.5m-2m, depending on the height of identified species, will be erected around the dripline of the tree/shrub. The Contractor will maintain the protective measures in good condition during the dismantle work.



Remark:  
The symbol with  
species was new  
pre-construction  
  
The symbol with  
was reported in 1  
pre-construction

**Channelised  
watercourse  
at P17**

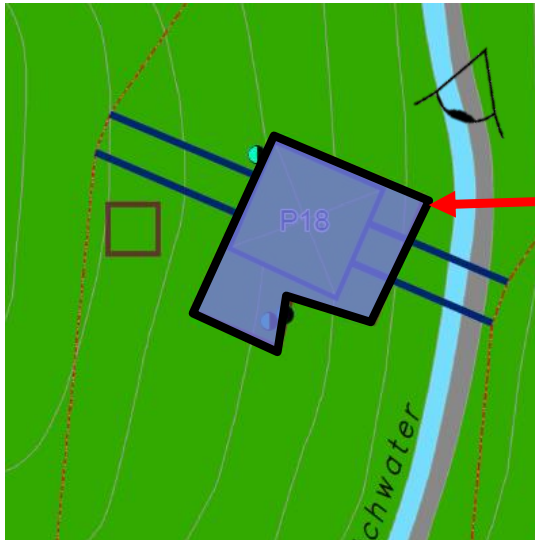


**Example of  
Temporary  
fencing**



The temporary fencing should have at least 0.5m in height and no hole for animal to pass.



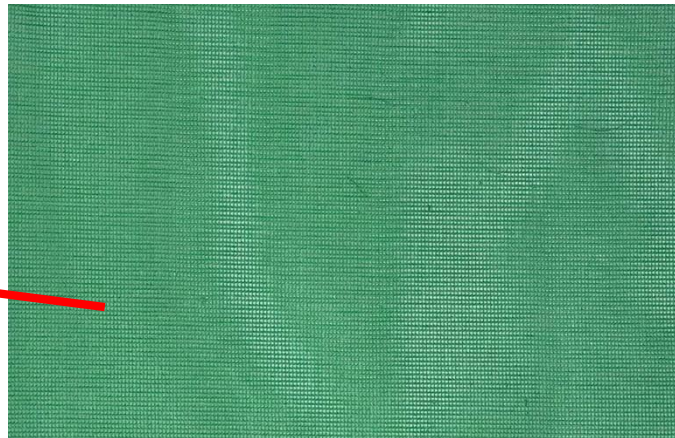


**Channelled watercourse at P18**

**Example of Temporary fencing**



The temporary fencing should have at least 0.5m in height and no hole for animal to pass.





**Temporary Fence**

When area is available, temporary fence will be used to mark proposed works area.



**PVC Tape**

When area is limited, PVC tape will be used to mark proposed works area.