

MTR Corporation Limited

South Island Line (East)

Transplantation Proposal

*(Ailanthus fordii)*

September 2011

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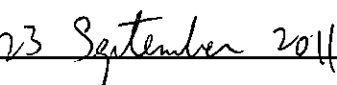


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Thomas Chan

Independent Environmental Checker

Date:



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MTR Corporation Limited

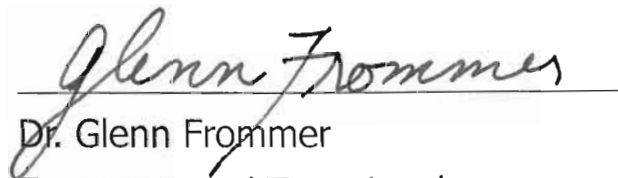
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Certified by:

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Dr. Glenn Frommer  
Environmental Team Leader

Date: 23 SEP 2011

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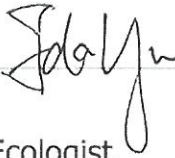
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Prepared by:

  
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Date: 23 SEP 2011

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## Transplantation Proposal

<b>List of Contents</b>		<b>Page</b>
<b>Chapters</b>		
1	Introduction	2
2	Objectives of the transplantation proposal	2
3	Types and locations of the identified rare/protected plants	2
4	Methodology and implementation programme of transplantating the young specimens	4
4.1	Preparation of root ball before transplanting	4
4.2	Uplifting/ moving the root balls of the young specimens	5
4.3	Preparation of receptor sites	5
4.4	Planting of the root balls	6
4.5	Implementation Programme	6
5	Locations of the receptor sites	6
6	Post-transplantation monitoring and maintenance	7
7	References	7

## 1 INTRODUCTION

The SIL(E) Environmental Permit (EP) Condition 2.14(b) specifies that the Permit Holder shall deposit with EPD a Transplantation Proposal showing the types and locations of rare/protected and other uncommon plant species identified in the detailed transplanting baseline survey, locations of reception sites for transplantation, methodology and implementation programme of transplantation, and post-transplantation monitoring and maintenance programme.

This Transplantation Proposal is prepared in accordance with the requirements of the above mentioned EP Condition. This Proposal specifies the transplantation baseline survey findings and proposes transplantation methodology and receptor sites for a protected tree species *Ailanthus fordii* identified within the Project Area.

## 2 OBJECTIVES OF THE TRANSPLANTATION PROPOSAL

From the Detailed Transplantation Baseline Survey Report deposited with EPD in July 2011, two plant species of conservation interest recorded in the degraded woodland to the south of Wong Chuk Hang Nullah, namely herb *Houttuynia cordata* and tree *Aquilaria sinensis*, and four planted young *Ai. fordii* (including two young seedlings) in a plantation area on top of a retaining wall near Hong Kong Park will be influenced by the proposed works. Other unaffected plant species of conservation interest will be protected on-site and appropriate tree protection measures would be established if needed. Transplantation Proposals for *H. cordata*, *Aq. sinensis* and *Ai. fordii* have been prepared under separate cover.

The general objective of this Transplantation Proposal is to reduce the impact to the protected tree *Ai. fordii*, including two young undersized specimens and two young seedlings, recorded in a plantation area on top of a retaining wall near Hong Kong Park. As stipulated in the SIL(E) EP Condition 2.14(b), this Transplantation Proposal provides:

- types and locations of the recorded protected tree *Ai. fordii*,
- locations of the receptor sites for transplantation,
- methodology and implementation programme of transplantation, and
- post-transplantation monitoring and maintenance programme.

## 3 TYPES AND LOCATIONS OF THE IDENTIFIED RARE/PROTECTED PLANTS

According to the latest Detailed Transplantation Baseline Survey Report submitted in July 2011, five planted young *Ai. fordii* (including two young seedlings) were identified in a plantation area on top of a retaining wall near Hong Kong Park (**Figure 1**). **Table 1** summarizes the assessment of the two young specimens as described in the submitted Detailed Transplantation Baseline Survey Report (July 2011). In addition, two seedlings (S1 and S2) (**Plates 1 – 3**) were recorded on a gentle soil slope (~ 20 degrees) close to the two young specimens (T1 and T2). Both are young seedlings (height of 0.35 – 1.65m tall, and canopy spread of 0.65 – 1m width) and are of fair health and structural conditions. This species is regarded

as “Near Threatened” in Mainland China and its wild population is locally protected under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) (AFCD 2003). This species has been widely propagated and cultivated as roadside trees and ornamental trees (AFCD 2003). The current identified young specimens are cultivated plants for garden greening but not wild individuals in natural habitats. This is not considered as a wild plant species of conservation interest. However, it is believed that the young seedlings are self-sown individuals naturally established and hence protection of this population is proposed.

**Table 1**  
**Summary of the assessment of the five young specimens of *Ai. fordii* recorded in the plantation area on top of the retaining wall near Hong Kong Park.**

Plant ID No.	Scientific name	Size			Conditions
		Height (m)	DBH (mm)	Crown Spread (m)	
T1	<i>Ai. fordii</i>	4.0	60	1.2	1. Located on a gentle soil slope (~ 20 degrees); 2. Undersized young specimen with a upright trunk and slightly leaning canopy for sunlight ( <b>Plates 4 &amp; 5</b> ); 3. Fair health and structural conditions.
T2	<i>Ai. fordii</i>	6.5	65	1.5	1. Located on a gentle soil slope (~ 20 degrees); 2. Undersized young specimen with a upright trunk and slightly leaning canopy for sunlight ( <b>Plates 4 &amp; 5</b> ); 3. Fair health and structural conditions; 4. ~1.7m apart (trunk to trunk) from specimen T1
T3	<i>Ai. fordii</i>	8.0	130	1.5	1. Located on a gentle soil slope (~ 30 degrees); 2. Young specimen with a upright trunk and canopy ( <b>Plates 6 &amp; 7</b> ); 3. Fair health and structural conditions.

All five specimens have been protected within fenced areas since the commencement of the construction works. No unauthorized damages to these five specimens are allowed in the fenced areas. On-site construction workers have been notified for the protection of these five specimens.

#### **4 METHODOLOGY AND IMPLEMENTATION PROGRAMME OF TRANSPLANTATING THE YOUNG SPECIMENS**

Since the two undersized specimens (T1 and T2) and the two young seedlings (S1 and S2) will be affected by piling in the vicinity, transplantation of these four specimens is required in accordance with the scheduled works programme. Another tree specimen (T3) will not be affected directly by the nearby proposed works and hence no transplantation is proposed. However, appropriate tree protection measures would be established around the tree dripline.

All young specimens (T1 and T2) and seedlings (S1 and S2) will be transplanted in their own individual root balls due to their small sizes. Transplantation of individual root balls would be more feasible and practical in terms of root ball preparation and logistic arrangement.

Since all specimens to be transplanted are of young ages with limited canopy sizes, majority of their framework roots could be restricted within the tree dripline zone. The following transplantation protocol is proposed to prepare the root ball, uplift and transplant all four specimens on the same day. With larger root ball sizes (at least 1.2 times of the tree dripline), disturbance on these young specimens to be transplanted shall be as minimal as possible. The transplantation of the four specimens will be undertaken under the supervision of the Qualified Ecologist. The transplantation methodology is listed in Section 4.1 – 4.5.

##### **4.1 Preparation of root ball before transplanting**

Due to the young ages and healthy condition of the four specimens of *Ai. fordii* (i.e. S1, S2, T1 and T2), the usual crown cleaning of removing any dead, diseased or damaged branches before the transplant is not necessary. Crown thinning, which is a usual transplantation practice to reduce water loss from transplantation, is not required due to small size, young age and restricted canopy form of these specimens.

Root ball preparation for the four specimens, including root pruning, undercut and shaping the root ball, will be conducted immediately prior to uplifting. Root ball preparation and the followed transplant shall be performed in wet season or the growing season to allow rapid regeneration of new roots from the cuts. The trees should be secured with guying prior to each root pruning process. Roots shall be pruned by digging a small trench using a sharp spade or knife or similar sharp implement to prevent tearing or breaking of the roots.

The diameter of each root balls to be prepared for T1 and T2 shall be at least 1.5m in diameter while the root balls for S1 and S2 shall be at least 1.5m and 1.0m in diameter. All four root balls shall be prepared with sufficient planting depths (i.e. at least 600 – 750mm deep for T1 and T2, and at least 500mm deep for each root balls of S1 and S2). However, the actual root ball dimensions, practicality of root ball preparation and transplantation should be adjusted according to the actual site conditions by the Qualified Ecologist.

Once the four trenches around the root balls have been prepared and the root balls have been dug to the desired depth, it could be shaped by sharp spade or knife or similar sharp implement. The ball shall be tapered on the sides and then slanting inwards towards the base. The root ball shall stand on a pedestal of soil for shaping and burlapping before it is undercut. The stems and branches of the four specimens should be well padded to protect from injury during the transplant.

#### 4.2 Uplifting/ moving the root balls of the young specimens

Before uplifting/ moving the root balls, the usual practice of tying the lower branches of the four specimens is not required due to the small seedling sizes (for S1 and S2) and limited canopy spread on the tall tree trunk (for T1 and T2).

Once the four root balls are undercut, the formed root balls shall be burlapped and then wrapped by the wire mesh. Wire rope slings shall be slipped into the underside of the root balls and wrap around all four sides of the root balls for the uplift/move. The root balls shall be uplifted via the wire rope slings and the tree trunk/stem should not be used as the main anchorage point for the uplift/move. The uplifted root balls will be transplanted and watered on the same day. Lifting and transplanting operations shall be carried out only following a thorough watering by the Contractor or a period of rainfall.

All uplifted root balls will be transplanted directly by crane to the proposed receptor sites that are about 10m apart from their original sites (**Figure 2 and Plates 8 & 9**). During the transplant, canopies of the existing trees next to the proposed receptor sites will be protected to avoid any mechanical damage. Preparation of the receptor sites should be finished before transplanting the uplifted root balls.

#### 4.3 Preparation of receptor sites

The four uplifted root balls will be transplanted directly to the proposed receptor sites (as shown in **Figure 2**) on the same day of root ball preparation. The proposed receptor sites are located on a gentle soil slope (slope gradient varies from 5 – 30 degrees) and colonized by common herbaceous plants (such as fern *Blechnum orientale*, climber *Wedelia trilobata* and other herb *Alocasia odora*) and a few scattered undersized tree saplings (such as *Schefflera heptaphylla* and *Ligustrum sinense*).

As all four root balls will be transplanted closely at the receptor sites, the planting holes will be marked and demarcated prior to the transplant. These planting holes for the transplanted seedlings and young specimens should be located at least 1.5m apart (measured by trunk to trunk distance) and the planting and preparation of planting holes should not adversely influencing the major root systems of the existing trees in the vicinity. However, the actual locations of and separation between the planting holes should be adjusted according to the actual site conditions by the Qualified Ecologist. The specimens will be planted with appropriate slope gradient and orientation to suit their original growth environment on the slope.

Site clearance (such as removing herbs and undersized woody seedlings) at the receptor sites will be carried out before transplanting the uplifted root ball. A planting hole with width of at least 1,000mm larger than the diameter of the root ball will be excavated and any compacted soil and rock around the hole shall be loosened/ removed with a spade to facilitate air penetration. Since the four specimens would be transplanted to the receptor sites without prior root pruning practice, soil conditioner or soil mix shall be prepared for the planting holes to enhance the soil condition favoring the root and plant growth. However, the actual amount and type of soil conditioner or soil mix will be adjusted on-site by the Qualified Ecologist.

#### **4.4 Planting of the root balls**

The uplifted root balls will be transported and planted in the prepared planting holes, with appropriate planting orientation and slope gradient to suit the specimens' original growth environment on the slope. The bottom of the trunk flare/stem of the specimens shall be at or slightly above the finished grade to avoid suffocation of the trunk flare/stem. The planting hole shall be backfilled with soil mix, which shall be compacted in layers around the root ball until level with the surrounding ground to limit future settling and prevent air pockets. The backfill shall not be compacted to a density that inhibits root growth. A shallow depression shall be formed around the trunk base to facilitate water retention.

The transplanted young specimens should be well watered to soak the root balls and soil mix immediately after planting. Mulch shall be placed around the specimens to retain moisture. The specimens (especially T1 and T2) shall be securely supported by guying to the ground. Bamboo tripod staking may be required for stabilizing the transplanted young seedlings (S1 and S2) in position. Such tree support system and bamboo tripod will be maintained throughout the 12-month establishment period. Removal of these support systems after the 12-month establishment period should be adjusted according to the tree/seedling stability and growth by the Qualified Ecologist.

#### **4.5 Implementation Programme**

The transplantation of the four young specimens (including root ball preparation, uplifting and planting into the receptor sites) is scheduled to be performed by September 2011.

### **5 LOCATIONS OF THE RECEPTOR SITES**

The four young specimens of *Ai. fordii* will be transplanted to the proposed receptor sites at the same plantation area near Hong Kong Park (**Figure 2** and **Plates 8 & 9**). Minimal site clearance at the proposed receptor sites will be carried out before transplanting the trees.

The proposed receptor sites for the four specimens should be fenced and protected to prevent damage resulting from the adjacent construction works during the establishment period. On-site construction workers should be notified for the presence of this protected species. No unauthorized damages to the fenced receptor sites should be allowed.

## 6 POST-TRANSPLANTATION MONITORING AND MAINTENANCE

Post-transplantation monitoring and maintenance are crucial for maintaining the plant health and survival during the establishment period of the transplanted specimens.

Regular watering, weeding and pest control should be implemented during the 12-month post-transplantation maintenance period of the four transplanted specimens. Regular monitoring of the health condition and growth of these specimens should be carried out by the Qualified Ecologist during the same maintenance period.

Fresh water shall be used for watering the transplanted specimens at least twice per week in the first three months after the transplant. Watering frequency during the wet season shall be adjusted according to weather condition. Watering shall be applied using a rose or a sprinkler and in such a manner that compaction and washout of soil will not arise.

The receptor sites should be kept free from weeds throughout the post-transplantation maintenance period. Any unwanted weeds, such as *Mikania micrantha*, found in these areas should be removed by the Contractor once identified or when instructed by the Qualified Ecologist. Weeding shall be carried out by hand as much as possible. Any removed weeds, litter and debris should be disposed appropriately by the Contractor.

The Qualified Ecologist and the Contractor shall regularly check for any insect attack and diseased plant parts of the transplanted *Ai. fordii*. Appropriate pest control treatment, including the use of pesticide, and/or removal of diseased plant parts shall be applied if necessary.

Monitoring of the transplanted *Ai. fordii* will be undertaken throughout the 12-month post-transplantation maintenance period. These transplanted specimens will be inspected once per week in the first 3 month and once in each following month in the remaining monitoring period. More frequent monitoring is proposed to review the site adaptability and health of the transplanted young specimens and seedlings since woody plant species need longer time to adapt the new growth environ. Health condition and growth of the transplanted *Ai. fordii* will be assessed and photographic records will be undertaken. In general, the performance of monitoring an ecological prospective will be integrated with the overall monitoring and audit plan for the project as a whole. Monitoring and audit results as well as post-transplantation maintenance and treatment (if any) will be reported in the Monthly EM&A Reports during the monitoring period of the transplanted trees and seedlings.

## 7 REFERENCES

Agriculture Fisheries and Conservation Department (AFCD), 2003. *Rare and Precious Plants of Hong Kong*. Agriculture, Fisheries and Conservation Department, the Government of the Hong Kong Special Administration Region, Hong Kong.

Appendix A – Photographic records of the five young specimens of *Ai. fordii* existing site condition and the proposed receptor site for the this species



Plate 1. The two young seedlings of *Ai. fordii* (S1) and (S2).



Plate 2. General view of the young seedling S1.



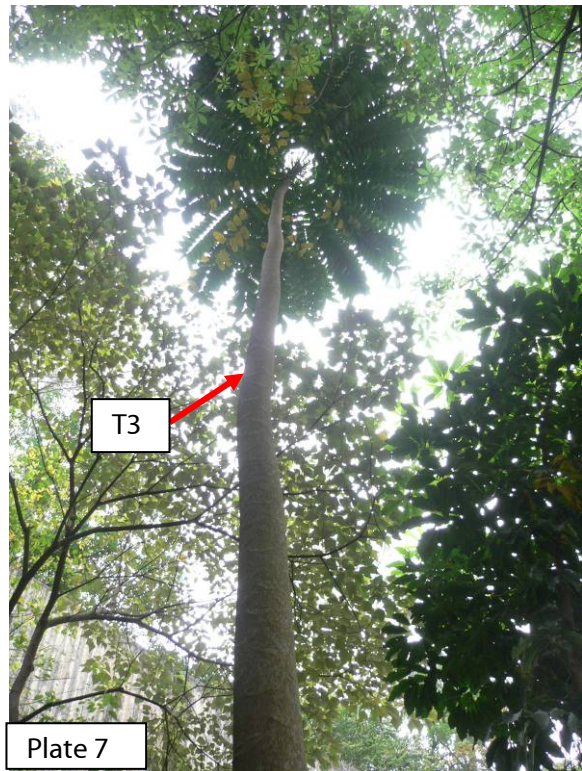
Plate 3. General view of the young seedling S2.



Plate 4. General view of the two undersized young specimens T1 and T2. The two young seedlings are protected within the same fenced area.



Plate 5. Canopies of the two undersized young specimens T1 and T2.



Plates 6 & 7. General view of the young specimen T3 (tree trunk and canopy).



Plate 8. The proposed receptor site (as indicated) at the plantation area.



Plate 9. General site condition of the proposed receptor site. The site is a soil slope and vegetated by common fern, grass, climbers and a few tree seedlings.

**Hardcopy of the Figures is available at EPD's office**