

## **Appendix E**

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Recommended Mitigation Measures	Objective of the Measures	Who to Implement / Maintain the Measures	Location of the Measures	When to Implement the Measures?	Refer to paragraph(s) in this Plan
<p><b>Review of Receptor Site</b></p> <p>a. The receptor site will be reassessed by the Qualified Personnel (e.g. an Arborist in the List of Minimum Personnel Requirements for Landscape Works, Tree Management Works and Vegetation Maintenance Contracts) and agreed with ET/IEC, Project Manager and the future maintenance party prior to the commencement of transplantation taking into account the latest site condition.</p> <p>b. Habitat characteristics of the alternative sites should be similar to that of their original locations. Should any changes in the location of final receptor site be proposed afterwards, agreement from the Qualified Personnel, Project Manager, ET and IEC should be sought before informing the Director of Environmental Protection (DEP).</p>	<p>a. Identify suitable alternative receptor site should changes to the existing receptor site be identified</p>	<p>Qualified Personnel</p>	<p>Receptor sites of transplanted trees.</p>	<p>Prior to commencement of transplantation works</p>	<p>S4.1.1-S4.1.3</p>
<p><b>Transplantation Methodology</b></p> <p><i>Preparation of Receptor Site</i></p> <p>a. Before transplanting, site clearance at the receptor sites should be carried out and overgrown weeds should be removed. Planting holes should be marked with individual tree numbers before the transplant and chosen to provide adequate growth space for future growth. Any large stones and concrete materials in and around the selected planting holes should be removed. Soil at the receptor sites should be ploughed and conditioned before the transplant as necessary. Preparation of receptor site should be done carefully so that the root systems of the nearby vegetation are not damaged.</p> <p><i>Preparation of Rootball and Root Pruning</i></p> <p>b. Root pruning should normally take place during the wet season with a minimum of one month allowed for root regeneration between each stage of root pruning.</p>	<p>a. Safely transplant plant species of conservation importance that would be directly impacted by proposed work to nearby suitable receptor site</p>	<p>Qualified Personnel</p>	<p>i) Existing location of the retained / transplanted trees; and</p> <p>ii) Receptor sites of transplanted trees.</p>	<p>August 2021 to November 2021 tentatively (root pruning works to be commenced at least 3 months before the tentative uplifting and transplantation works in November 2021)</p>	<p>S5.2.1-S5.2.17</p>

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<p>c. Further to the inspection conducted in August 2021 by the Contractor's Qualified Personnel, it was confirmed the root pruning would be carried out in mid-October 2021 to mid-November 2021 and subsequently transplanting works tentatively, subject to the approval of this Plan.</p> <p>d. The period of root pruning may be adjusted to suit specific tree species and/or imposed contract constraints.</p> <p>e. The diameter of the rootball to be cut shall be determined by the Qualified Personnel. Normally, the rootball to be cut should be ten times the trunk diameter at breast height and not less than 1500mm diameter, and 600 – 1200mm deep to enhance survival rate for transplanting. Method statements should be submitted by the Contractor taking into account the size and species of trees, site constraints, arboricultural practices, etc for particular tree(s).</p> <p>f. After determining the size of the rootball, the proposed circumference of the rootball shall be marked on the ground around the tree.</p> <p>g. The trenches that are made for rootball preparation shall be backfilled with backfilling materials, to encourage new growth of root tips. Rootball shall be kept moist from time to time during the preparatory period to stimulate new-root.</p> <p>h. Roots shall be cut with a clean sharp knife or similar sharp implement to prevent tearing of the roots.</p> <p>i. The Contractor's Qualified Personnel shall make regular checks to ensure the stability of the tree and adjustments made accordingly throughout the entire root pruning/crown pruning stages.</p>					

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<p>j. Transplanted plants shall be inspected monthly by the Qualified Personnel to check the health of the tree. Any sign of deterioration shall be notified to the Project Manager, ET and IEC and remedial action shall be taken. The Contractor shall water regularly, remove weed growth, fertilize, aerate the soil, folia feed, carry out insecticide treatment and any other horticultural work as necessary and as instructed by Qualified Personnel.</p> <p><i>Tree Lifting and Protection</i></p> <p>k. Transplanting shall be carried out during early morning or late afternoon when the sun is not directly overhead. No lifting shall take place during rainfall. Tree shall be transplanted within twenty-four hours of lifting.</p> <p>l. Wrap trunk and lower branches with accepted hessian and tie with jute string at least one day prior to rootball preparation. Before lifting, the outer edge of the previously dug trenches shall be loosened from the surrounding soil and the rootball undercut to allow the tree to be lifted free from the ground with the rootball intact.</p> <p>m. A crane or lifting device shall be used to secure the tree and support its full weight when lifted without damaging the branches or trunk. No items of hardware shall be inserted into the trunk or branches for lifting or other purposes. Cables used for lifting shall be wrapped with protective rubber sheaf to prevent damage.</p> <p>n. Plants shall be lifted carefully to avoid damage to rootball. Roots shall be cut free from ground, not pulled, using a suitable implement to give a clean cut.</p> <p>o. A board shall be placed under the rootball or a rootball box shall be constructed to support the full width and depth of the rootball.</p>					

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<p>p. The Qualified Personnel shall be present to supervise the work.</p> <p><i>Planting</i></p> <p>q. Prior to the lifting of the trees, tree pits at their receptor sites shall be already prepared and agreed on site. All pits shall be 300-500mm greater than the size of the rootball of the tree to be transplanted at all sides and bottom. Tree pit base shall be scarified to a depth of 150mm. Loosen the base and sides of the tree pit and fill with water twenty-four hours before planting to ensure free drainage. Trees shall be transplanted to the new tree pits within twenty-four hours after being lifted. All transplanted individuals should be saturated with water.</p>					
<p><b>Post-transplantation Maintenance</b> <i>Maintenance Duration</i></p> <p>a. All of the transplanted <i>Gmelina chinensis</i> individuals should be maintained by the Contractor for 12 months (establishment period) after planting into their final receptor sites.</p> <p><i>Watering</i></p> <p>b. These receptor sites should be thoroughly watered immediately after planting. During the establishment period, the soil should be regularly monitored to prevent drying out. The individuals should be watered properly and adequately or daily, if required. After that, watering frequency should be conducted at least twice a week until the end of the establishment period. Frequency of watering should be adjusted accordingly so that the soil is kept moist. The Qualified Personnel would be responsible for determining and advising the Contractor the suitable moisture level and the frequency of watering.</p> <p><i>Use of Mulch</i></p> <p>c. Mulches help conserve moisture, maintain moderate soil temperature, and control weeds around plants. If required, organic mulches such as peat moss,</p>	<p>a. Provide care for newly transplanted individuals</p>	<p>Contractor</p>	<p>Receptor sites of transplanted trees.</p>	<p>Immediately after transplantation for 12 months</p>	<p>S.5.3.1-S5.3.4</p>

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<p>thoroughly dried grass clippings or small wood chips could be placed on the soil surface over the plant root system.</p> <p><i>Pruning/Weeding</i></p> <p>d. Insect/fungal infested stems, or those infected with disease would be removed after transplantation. Pruning may also be required after transplantation to remove any broken stems. The receptor sites should be kept free from weeds throughout 12-months establishment period. Any unwanted weeds found in these areas should be removed by the Contractor once identified and/or when instructed by the Project Manager. Weeding should be carried out by hand as much as possible and removed weeds should be disposed of appropriately by the Contractor.</p>					
<p><b>Post-transplantation Monitoring Performance</b></p> <p>a. Health conditions of the transplanted individuals should be monitored by the Qualified Personnel in the presence of ET throughout the 12-month establishment period at the receptor sites. Monitoring of the transplanted individuals should be conducted once per week in the first three months and once in each of the following month in the remaining establishment period. During the remainder of the construction phase, monitoring of transplanted individuals should continue, however the frequency would be reduced to once every 3 months, given that the health conditions during the establishment period remained fair to good. Should problems relating to the transplanted tree health arise during the establishment period, monitoring frequency during post establishment period (throughout construction phase) would be subject to the situation and the advice of the ET.</p> <p>b. Any post-transplantation monitoring findings should be included in the monthly inspection checklist/report and it should be submitted to the Project Manager,</p>	<p>a. Monitoring the health of newly transplanted individuals</p>	<p>Qualified Personnel</p>	<p>Receptor sites of transplanted trees.</p>	<p>Immediately after transplantation for 12 months</p>	<p>S.5.4.1-S5.4.8</p>

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<p>Environmental Team Leader and Independent Environmental Checker for review and record.</p> <p>c. The Contractor shall be responsible if any <i>Gmelina chinensis</i> die during the transplantation process, within the two years monitoring period due to negligence or non-compliance of this Plan. Replacement planting of new trees of the same species, or other species to the satisfaction of the Project Manager, at the Contractors' expense would be deemed necessary under these conditions.</p> <p><i>Construction Activities</i></p> <p>d. Any construction activities that may adversely affect the identified individual plant species of conservation importance should be reported in advance to the Project Manager for planning of preventive measures to avoid possible damage.</p> <p><i>Photographic Record</i></p> <p>e. The Contractor should submit a photographic record for the two <i>Gmelina chinensis</i> individuals to be transplanted during each of the following stages for record purpose:</p> <p>f. Before transplantation - recording the existing growth angle and compass orientation of the plant, in order to allow replication during transplanting;</p> <p>g. During Transplantation - recording each procedure, including digging and root pruning, any stems/branches pruning, formation of rootball, preparation works at all receptor sites, transportation of uplifted individuals to the receptor sites, planting of individuals at the receptor sites and after transplanting into the receptor sites; and</p> <p>h. Post-Transplantation Period – recording the status of transplanted individuals during the 12-month establishment period and until the end of construction</p>					

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phase, following the aforementioned monitoring schedule.					
<p><b>Protection Measures for Retained / Transplanted Individuals</b>  <i>Erection of Protective Fencing</i></p> <p>a. Prior to the commencement of site clearance works and during the whole of the construction period, protection zone should be set up around the existing plants of conservation importance including 3 no. of <i>Aquilaria sinensis</i> and 33 no. of <i>Gmelina chinensis</i> (in which 2 no. of <i>Gmelina chinensis</i>, RT07 and RT08, are to be transplanted). In locations where site hoarding is not erected, protective fencings with sufficient buffer zone will be provided. Signposts should also be erected to inform the workers about the precautionary measures for protecting the concerned plant individuals and their root system. The Contractor should keep the protection zone clean and tidy without building materials, waste and excess soil. No digging, trenching, compaction, or other soil disturbance should be allowed in the protection zone.</p> <p><i>Dust Control</i></p> <p>b. During periods of drought, trunks, limbs and foliage should be sprayed with water to remove any accumulated construction dust.</p> <p><i>Reporting Injury</i></p> <p>c. Any damage or injury to the retained / transplanted plants should be reported to the Project Manager, ET and IEC immediately. The Contractor should arrange a Qualified Personnel to inspect and conduct appropriate arboricultural / horticultural operation as necessary to the damaged / injured trees.</p>	<p>a. Ensure plant species of conservation importance close to proposed works areas are protected during construction phase</p>	Contractor	<p>i) Existing location of the retained / transplanted trees; and</p> <p>ii) Receptor sites of transplanted trees.</p>	Prior to and during construction period.	S2.3.4-S2.3.6

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<p><b>Ecology (Construction Phase)</b></p> <p>a. Preservation and/or Transplantation of plant species of conservation importance and the following monitoring of preserved/transplanted plant individuals</p>	<p>a. Protection of plant species of conservation importance</p>	<p>Contractor</p>	<p>Within construction sites</p> <p>All areas for public works</p>	<p>For preservation and/or transplantation, before commencement of site formation.</p>	<p>EIA S9.8.3 EM&amp;A Appendix 4.1 Log. Ref EC10</p>
<p>b. Monitoring of preserved / transplanted plant species</p>	<p>b. Monitor and evaluate the effectiveness of the preservation and transplantation programme.</p>	<p>Contractor</p>	<p>Construction sites for preserved plants; recipient sites for transplanted plants</p>	<p>After transplantation or preservation. For transplanted individuals, for two years, monthly for the first year, and then quarterly for the second year. For the preserved individuals, monthly throughout the construction.</p>	<p>EIA S9.11.1 EM&amp;A Appendix 4.1 Log. Ref EC22</p>