Phase III Redevelopment of The Hong Kong Federation of Youth Groups
Jockey Club Sai Kung Outdoor Training Camp

Tree Protection and Transplanting Plan

Prepared by
Kenneth Ng & Associates Ltd
March 2011

Job No AT/3

	Name	Signature	Date
Prepared by Kenneth Ng & Associates Ltd	Albert Chung		14/3/2011
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Phase III Redevelopment of The Hong Kong Federation of Youth Groups Jockey Club Sai Kung Outdoor Training Camp

Method Statement and Monitoring System for
Tree Preservation of Existing to be Retained

1. Foreword:

   To protect the trees to be retained, the Contractor shall ensure for the whole duration of the Contract, the following:

   - no unnecessary intrusion into areas of tree stand is made,
   - no access routes will be allowed to pass through existing tree stand,
   - the limits of site clearance are to be agreed by the Landscape Architect on site before site clearance commences. ,
   - no nails or other fixings shall be driven into trees,
   - no fencing or signs shall be attached to trees,
   - no materials or machinery shall be stored under or against trees,
   - no workshop, canteens, or similar shall be installed beneath trees, nor shall equipment maintenance etc. be carried out under trees,
   - no trees shall be used as anchors for ropes or chains used in guying, pulling and the like.

   To enhance the health and the appearance of the retained trees, advance tree surgery works are essential prior to any construction activity. The following tree surgery work will be required.

   i. Removal of broken, damaged and diseased branches.
   ii. Removal of weak or crossing branches to ensure a well-balanced crown.
   iii. Protection by fencing
   iv. Secure tree from tipping over with cable through out the construction period

2. Crown Thinning

   No crown thinning is necessary on the retained trees

3. Phased Root Pruning

   No root pruning is required on the retained trees

4. Securing and Staking retained Trees

   Prior to construction work, the tree should be secured and tied properly to the temporary support. Wrap the area of trunk guyed above ground with pads of hessian or rubber to prevent the tie from chafing the trunk or branches.

   Secure retained tree with 3 no. cables from the trunk and drive the metal stakes 1000mm into ground.

5. Protection during Tree Surgery Work

The tree trunk shall be wrapped and protected to prevent mechanical damage during construction works. Care shall also be taken to prevent overheating with its resulting loss of foliage. Damaged branches shall be carefully pruned using a sharp clean implement to give a single flat sloping face cut. Temporary protective fence shall be erected with details as in item 8.

6. Pests & Fungal Growth

The site shall regularly check for any insect attack, termite attach or fungus infestation particularly during known periods of activity. Carry out remedial measures on any such occurrence and shall use of sprayed insecticide/fungicides in strict accordance with the manufacturer's instructions. In case of termite attack, specialist shall be employed by the contractor to provide proposal to eliminate the termite with monthly monitoring report through out the contract and the establishment period Use of such materials shall be with due care and have regard to the safety and convenience of the general public and is to be carefully controlled to avoid unnecessary dispersion.

7. Maintenance/Establishment Works

Retained tree shall be maintained immediately and shall continue until the completion the project by the tree surgery works contractor. The maintenance works shall include all measures necessary to establish and maintain the tree in an acceptable vigorous and healthy growing condition.

8. Creation and Protection of the Cordon Zone by protective fencing

Temporary protective fencing shall be erected before other works commence. Protective fence 2.0m high should be erected beyond the crown spread or the designed protection zone of all existing trees. The protective fence shall come with a padlocked door, access to it shall be restricted only to workers directly involved in tree work. No construction worker shall enter the cordon zone (CZ). No construction equipment or materials shall breach the CZ. No heat or fume shall drift into the CZ. No lifted materials shall sail above the CZ.

The base of the protective fence shall be sealed by sand bag at least 200 mm tall to prevent the entry of contaminated construction water and other effluent into the CZ.

9. Monitoring System

The performance of the retained trees shall be monitored throughout the project construction period on a monthly basis by recording on a Performa report. Tree growth condition with reference to trunk, branches, foliage, soil and root, any arboricultural problems and associated remedial measures. Any construction activities that may impact the trees negatively shall be reported well in advance to the Landscape Architect by the tree specialist or arborist for planning of preventive tree work to avoid possible damages.

The contractor shall report to the management office the days establishment work on the retained tree and a countersigned record log book of the work carried out shall be kept at the site office and made available for inspection. All non-routine tree problems are to be promptly reported to the Landscape Architect

Photographs will be taken at the following key junctures of the tree works:

1. Before commencement
2. Monthly record photo through out the construction and establishment period

Monthly progress report with progress photo on the status of the retained trees include their health condition should be prepared by the contractor's tree specialist or arborist for the Landscape Architect's review and presented at the stage of Certificate of Completion.

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Method Statement for Tree Surgery/Transplanting of Existing Tree

1. Crown thinning

The total extent of crown thinning should be minimized and in any case should not exceed 1/4 of the original crown on leaf removal. The height of tree shall not be reduced, unless crown reduction, thinning are considered appropriate. Under No circumstances the central main leader of the trees should be pruned or interfered. Should branch pruning is consider necessary, this should aims specifically at the removal of dead, decayed, diseased, infested, broken, crossed, competing or dangerous branches. The objective is to produce a clean, well-spaced, well-shaped and balance head. Besides the above list of circumstances, all other healthy wood should not be cut or removed. To reduce transpiration though leaves in anticipation of root pruning, additional crown thinning will be implemented by means of leaf picking. This minimum-impact approach will also prevent the loss of the original tree crown form. All work shall be carried out in accordance with good horticultural practice and British Standard 4043: 1989 - Recommendations for transplanting root balled tree work, and also based on the latest arboricultural concepts and best international practices, and shall be directed and supervised by the tree specialist or arborist.

Safety precautions shall be taken to protect those engaged in operations as well as people and property in the vicinity. Pruning and removal of branches shall be done using sharp, clean implements to give a single flat, sloping face. Ragged edges of bark or wood are to be trimmed with a sharp knife. Large branches shall be removed in stages beginning with removal of the main weight of the branch with the final cut as close to the main stem as possible without damaging the bark. In the case of branch removal, the final cut should be aligned with the branch collar and the mid-point of the crotch. All cuts shall be made to avoid splintering or tearing of bark, which would catch water and encourage rot. Branches less than 15 mm diameter may be cut with sharp secateurs.

Cracks and cavities with rotten wood shall be cut back to healthy tissue. If necessary, a cavity that may accumulate water could be drained by drilling a small hole of 5 mm diameter into its bottom at an angle of about 45 degrees taking as far as possible the shortest path and pointing downwards. If necessary, cracks would be secured by rot bracing.

2. Tree pruning

Trees requiring pruning or treatment will be categorized as follows.

a) No hard pruning on tree canopy is allowed.

b) Light prune
This shall include the removal of a few branches up to 75mm in diameter.

c) Thin crown
This shall include the picking of leaves of the crown with the extent not to exceed 1/4 of the original tree crown size.

c) Treat for pest and/or disease attack
This shall include the application of an approved pesticide or fungicide to the infected areas in accordance with the manufacturer's instructions and government guidelines.

3. Root Pruning

The width of root ball shall be 10 times the trunk diameter (DBH). Immediately upon commencement of the contract, root pruning to the specified size of root ball shall be carried out to ensure maximum new fibrous root growth prior to transplanting operations. The first root pruning should be conducted at least 3 months in advance of transplanting.

The depth of the root ball varies from size and species, normally it shall be 1500mm for DBH of 700- 1200mm (large tree), 1200 mm for DBH of 300-700 mm (medium tree) and 700mm for DBH below 300 (small tree).

Root cutting shall be done in three stages. Each root cutting stage shall be performed at equal intervals (i.e. one month) throughout the designated root preparation period as mentioned above.

The first stage shall involve cutting two parallel straight trenches on two sides of the proposed root ball.

The second stage shall involve cutting trenches on the other two sides of the proposed root ball.

The last stage shall be the cutting of the underside of the root ball and the transplanting of the tree to the final location.

Roots shall be cut free from ground, not pulled, using a suitable implement to give a clean cut.

4. Root Ball Preparation

The formed root ball should be wrapped with hessian burlap and on the outside with wire mesh to ensure the soil is kept in full contact around the root system. The root ball shall then be tied with stainless steel chain net with wooden spacer for lifting.

The trenches for the root ball shall be 500 mm wide and backfilled with a prepared soil mix constituted of 3 parts by volume of decomposed granite thoroughly mixed with 1 part by volume of moist peat and root activator.

5. Preparation of the Receiving Site

At the receiving site, pits at pre-determined locations shall be dug in advance to appropriate width and depth in preparation to receive the transplanted trees. The pit shall be of a saucer shape, with a flat bottom in the centre and sloping sides. The flat bottom part shall be as wide as the root ball width, and each sloping edge shall also be as wide as the root ball plus 300mm on all sides.

6. Tree Uplifting and transit

The lifting, transplanting and planting of the trees shall be closely supervised on site by the tree specialist or arborist. The logistics of the transplanting operation shall be properly organized and timed in advance so as to enable transplanting of trees directly and promptly to the designated receiving sites of planting. Should the permanent receiving site is not ready, trees should be temporary transplant to a holding nursery and re-transplant back when the receiving site is ready.

The trees shall be lifted carefully to avoid damage to stem, foliage and roots. The lifting cables and harnesses shall only be anchored to the root ball box or the chain net wrapping around the root ball for the ball and burlap method. They should never be attached to the trunk or branches. The upper part of the lifting cable should be spread out by frame spacer to prevent the cable from touching the branch at the time of lifting. Guying rope should be tie to the lifting cable to stabilize the tree at the time of lifting. The trunk and the branch should be temporary protected by burlap wrapping and be removed once complete.

After root ball preparation and in the process of transplanting to the receiving site, root balls are to be carefully protected against direct sunlight, wind, drought, mechanical, smoke, artificial heat and other damages. Damaged branches shall be carefully pruned using a sharp clean implement to give a single flat sloping face cut.

The transplanted trees shall be planted in an upright position and allowing adequate space for future growth. A soil saucer of 150 mm high shall be formed on the soil surface around the edge of the root ball to permit rain or irrigation water to be retained and to slowly infiltrate into the root ball. Immediately thereafter the trees shall be watered to ensure a thorough soaking of the root balls.

7. Securing and Staking Transplanted Trees

Wrap all trees to be staked or guyed above ground with pads of hessian or rubber to prevent from chafing the trunk or branches.

Stake transplanted tree with 3 nos cable from the trunk with one end tie above the lowest branch of the trunk and the other end tie to the metal stakes 1000mm long with 700 mm driven into ground.

8. Maintenance / Establishment works and Monitoring of Transplanted Trees

The transplanted trees shall be maintained immediately after transplanting and shall continue until the completion of all construction work at the site, for a total period of 24 months. Such maintenance shall include all measures necessary to establish and to recover from the transplant shock and to permit an acceptable vigorous healthy growing condition. This to include watering, fertilizing, weeding, apply root activator, staking, apply insecticide, etc.

Should weather condition is too dry or too hot, mist irrigation should be applied to each tree to upgrade the micro climatic condition surrounding the tree.
The performance of the transplanted trees shall be monitored throughout the maintenance period on a monthly basis by recording on a proforma report: tree growth condition with

reference to trunk, branches, foliage, soil and root, any arboricultural problems and associated remedial measures. Any construction activities that may impact the trees negatively shall be reported well in advance to the Landscape Architect for planning of preventive tree work to avoid possible damages.

The contractor shall report to the management office before and after carrying out each days' maintenance works on the transplanted trees and a countersigned record log book of the work carried out shall be kept at the site office and made available for inspection. All non-routine tree problems are to be promptly reported to the Landscape Architect
Photographs will be taken at the following key junctures of the tree works:

1. Before commencement
2. After crown thinning
3. 1st root pruning
4. 2nd root pruning
5. Final root pruning (under-cutting)
6. Forming root ball
7. Excavating tree pit at receiving site
8. Transit to final location or holding nursery
9. Planting at receiving site
10. Monthly record photo throughout the construction period
11. Monthly record photo during 24 months establishment / maintenance period

Monthly progress report with progress photo on the status of the transplant trees including all stages of transplanting works and their health condition will be supervised and prepared by contractor's tree specialist or arborist for Landscape Architect's review and presented at the stage of Certificate of Completion.

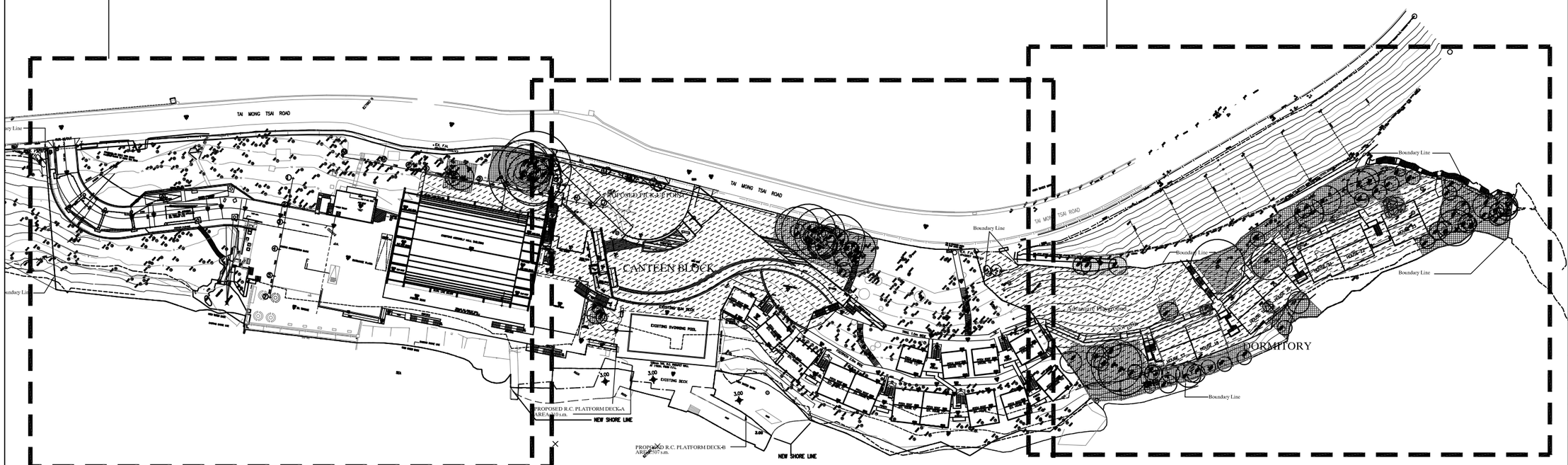
Appendix A

Tree Protection Plan

REFER TO DRAWING AT3-TPP-EPD-02

REFER TO DRAWING AT3-TPP-EPD-03

REFER TO DRAWING AT3-EPD-T-04



LEGEND

- SITE BOUNDARY
- PROPOSED EXTENSION OF LOT BOUNDARY
- EXTENT OF SITE FORMATION WORKS
- TREE TO BE RETAINED (TR1080)
- TREE TO BE TRANSPLATED (TR766)
- TREE OUTSIDE WORKS AREA (TR723)
- EXTENT OF PROTECTIVE FENCING FOR THE RETAINED TREES

修訂編號 No.	日期 Date	修訂 Revisions	繪圖 By

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Project Title 項目

PHASE III REDEVELOPMENT OF HONG KONG FEDERATION OF YOUTH GROUPS JOCKEY CLUB SAI KUNG OUTDOOR TRAINING CAMP

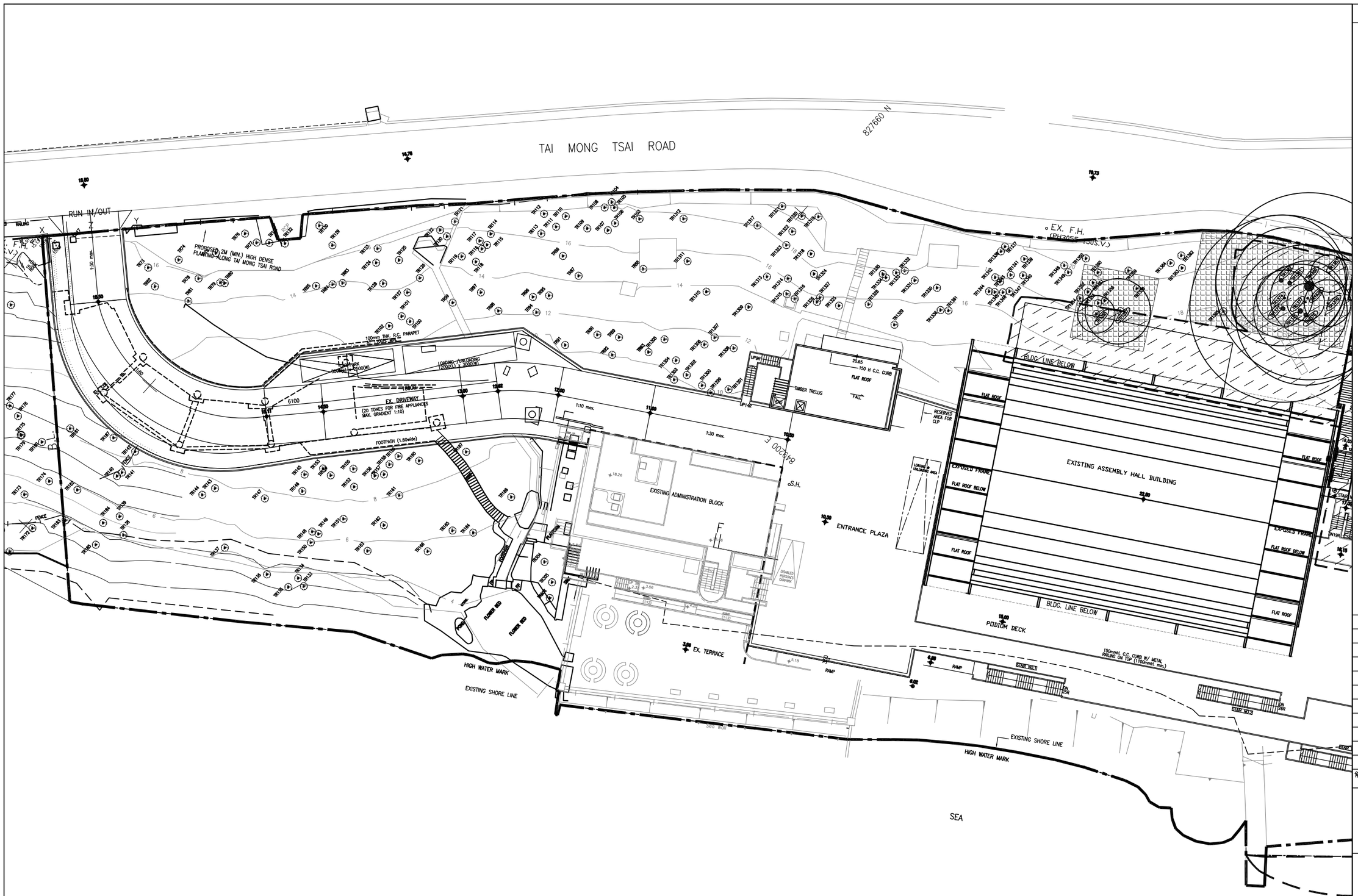
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TREE PROTECTION PLAN-1

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Checked by 校對	KN	Drawing No. 圖號	AT3-TPP-EPD-01
Scale 比例	1:600(A1) 1:1200(A3)		
Date 日期	FEB2011		

size = A1 plot scale 1 :

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- EXTENT OF SITE FORMATION WORKS
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Drawing Title 標題

TREE PROTECTION PLAN-2

Designed by 設計	MC	Approved by 審核	KN
Drawn by 繪圖	HW	Job No. 業務號	AT3
Checked by 校對	KN	Drawing No. 圖號	AT3-TPP-EPD-01.1
Scale 比例	1:200(A1) 1:400(A3)		
Date 日期	FEB2011		

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LEGEND

- SITE BOUNDARY
- PROPOSED EXTENSION OF LOT BOUNDARY
- EXTENT OF SITE FORMATION WORKS
- TREE TO BE RETAINED
- TREE TO BE TRANSPLATED
- TREE OUTSIDE WORKS AREA
- EXTENT OF PROTECTIVE FENCING FOR THE RETAINED TREES

修訂編號 No.	日期 Date	修訂 Revisions	繪圖 By

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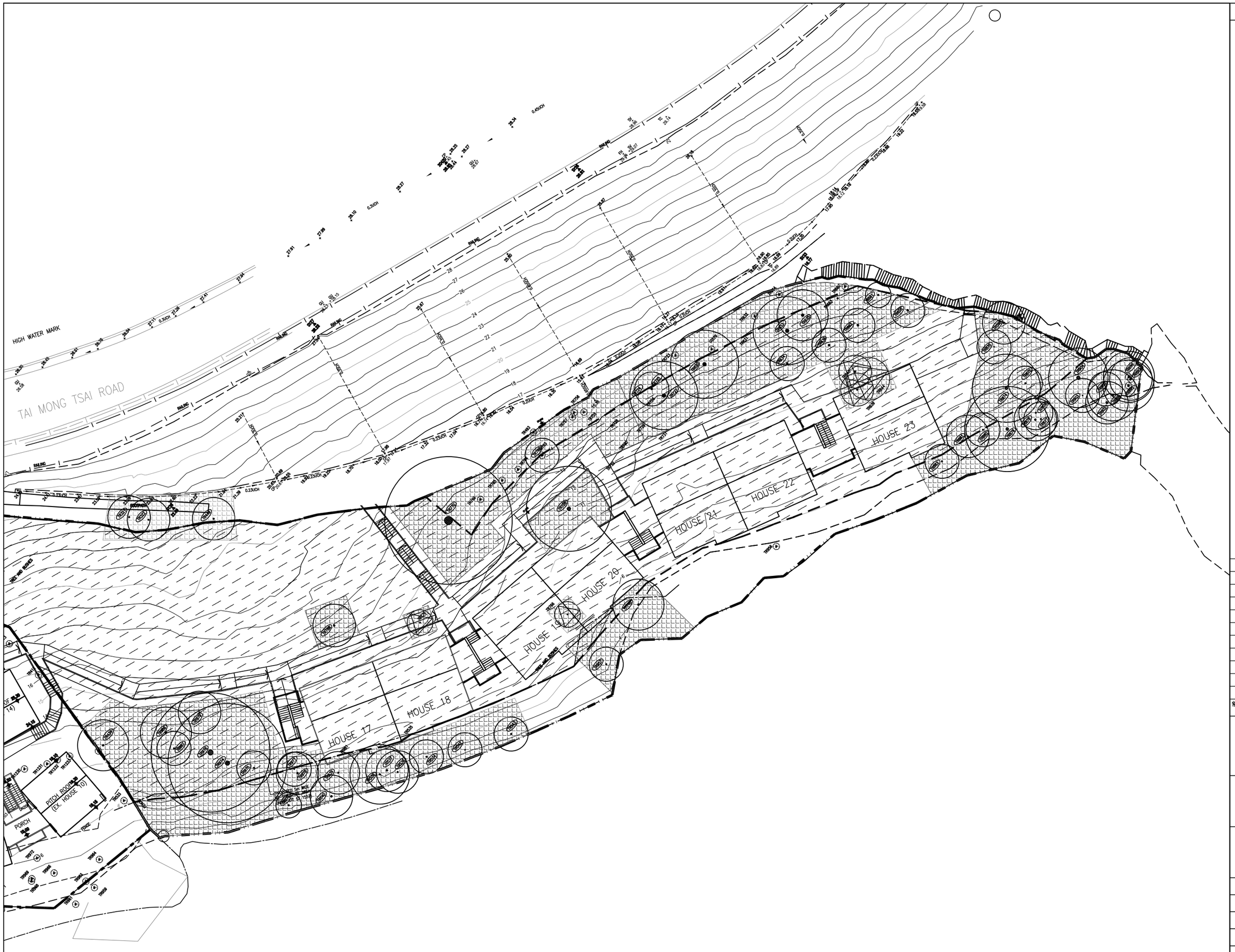
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Date 日期	FEB2011		

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LEGEND

- SITE BOUNDARY
- PROPOSED EXTENSION OF LOT BOUNDARY
- EXTENT OF SITE FORMATION WORKS
- TREE TO BE RETAINED
- TREE TO BE TRANSPLATED
- TREE OUTSIDE WORKS AREA
- EXTENT OF PROTECTIVE FENCING FOR THE RETAINED TREES

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PHASE III REDEVELOPMENT OF HONG KONG FEDERATION OF YOUTH GROUPS JOCKEY CLUB SAI KUNG OUTDOOR TRAINING CAMP

Drawing Title 標題

TREE PROTECTION PLAN-4

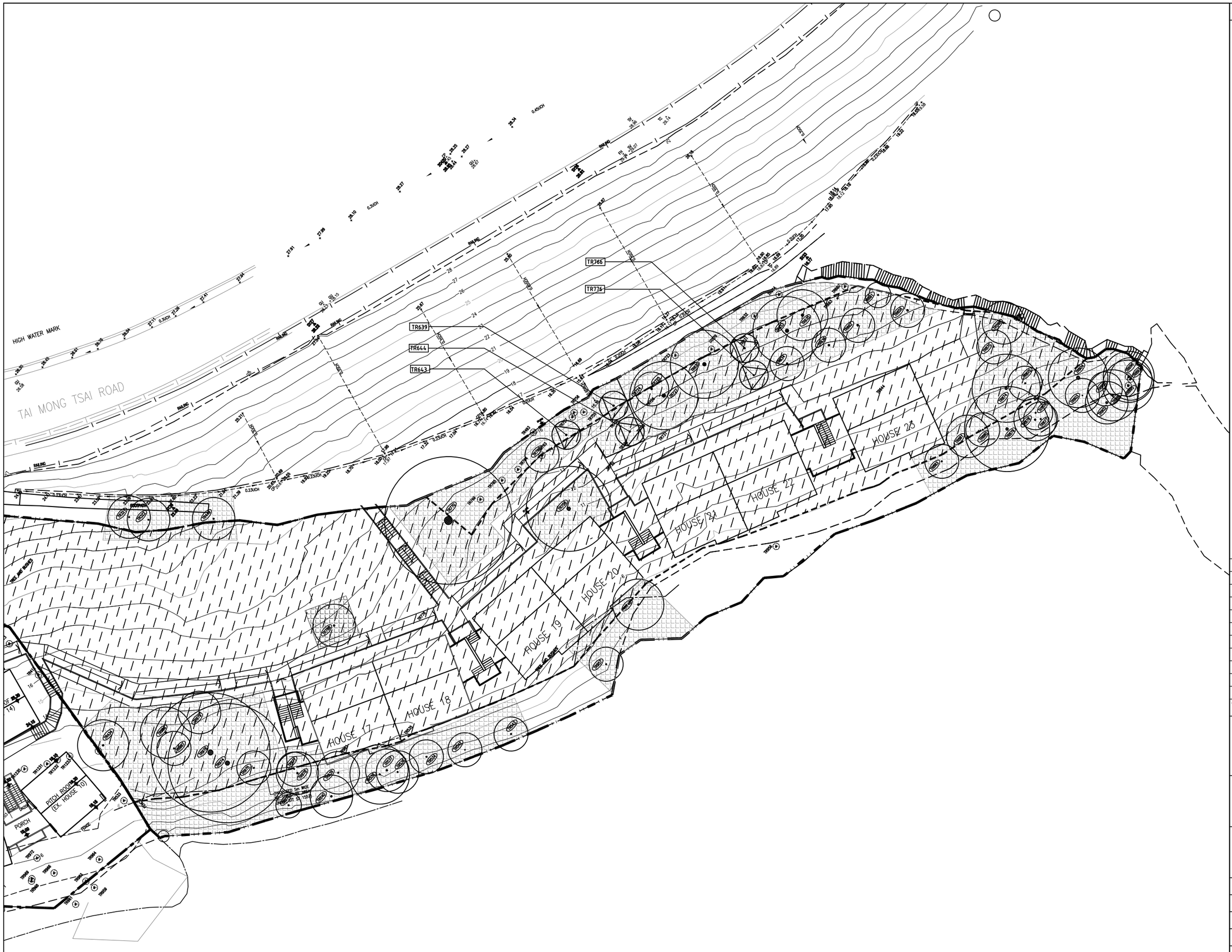
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Date 日期	FEB2011		

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Appendix B

Transplanted Tree Location Plan



LEGEND

- SITE BOUNDARY
- PROPOSED EXTENSION OF LOT BOUNDARY
- EXTENT OF SITE FORMATION WORKS
- TR1080 — TREE TO BE RETAINED
- TR766 — TRANSPLATED TREE
- TR723 — TREE OUTSIDE WORKS AREA
- EXTENTOF PROTECTIVE FENCING FOR THE RETAINED TREES

修訂編號 No.	日期 Date	修訂 Revisions	繪圖 By

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Drawing Title 標題

TRANSPLANTED TREE LOCATION PLAN

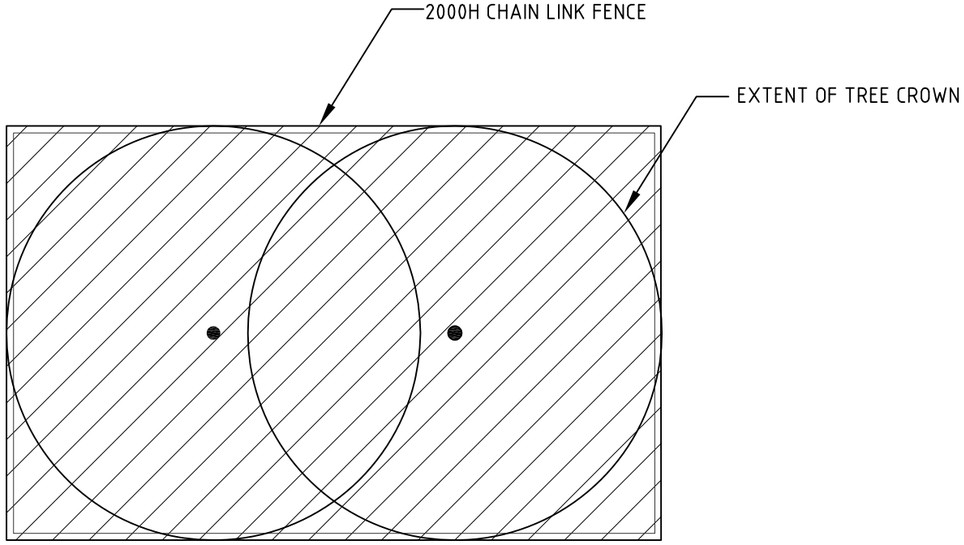
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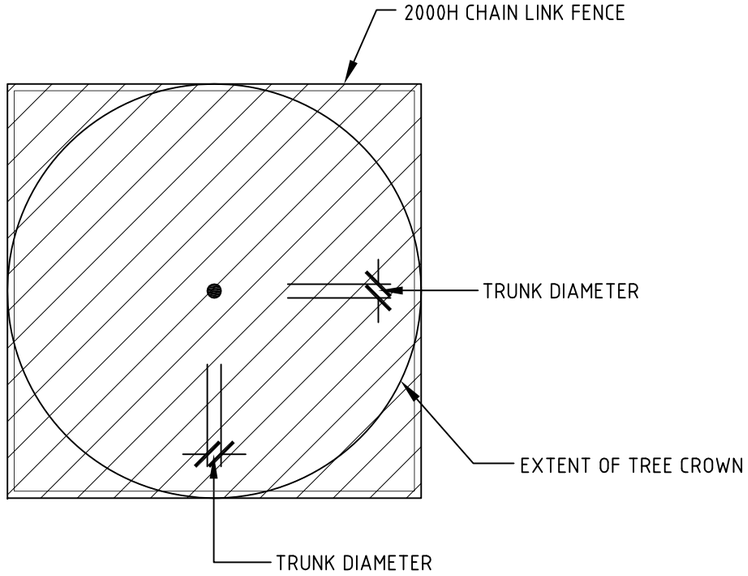
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Appendix C

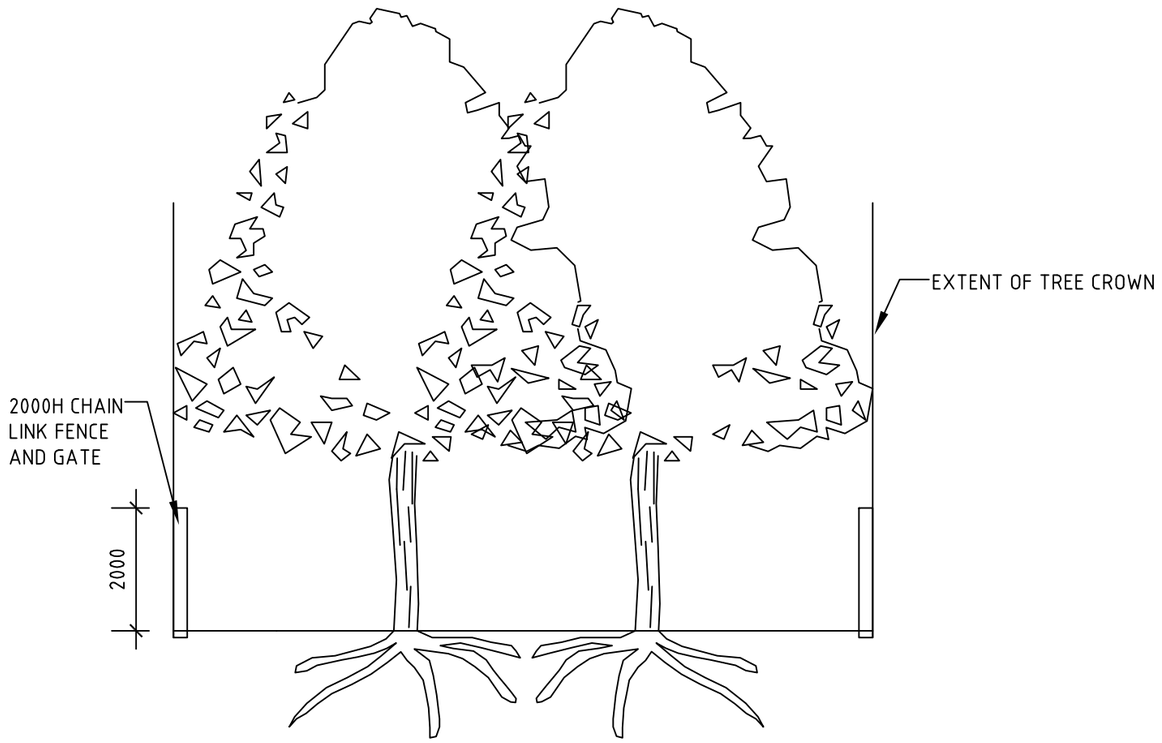
Tree Protection Detail
Protective Fencing



TYPICAL DETAIL FOR PROTECTION
OF GROUP TREE



TYPICAL DETAIL FOR PROTECTION
OF INDIVIDUAL TREE



TYPICAL SECTIONAL DETAIL FOR
PROTECTION OF GROUP TREE

TYPICAL SECTIONAL DETAIL FOR
PROTECTION OF INDIVIDUAL TREE

LEGEND

修訂編號 No.	日期 Date	修訂 Revisions	繪圖 By

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PHASE III REDEVELOPMENT OF HONG KONG FEDERATION OF YOUTH GROUPS JOCKEY CLUB SAI KUNG OUTDOOR TRAINING CAMP

Drawing Title 標題

TREE PROTECTION DETAIL
PROTECTIVE FENCING

Designed by 設計	KN	Approved by 審核	KN
Drawn by 繪圖	AN	Job No. 業務號	AT3
Checked by 校對	KN	Drawing No. 圖號	AT3-LD-01
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Date 日期	OCT2010		

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Appendix D

Transplant Tree Schedule

Transplant Tree Schedule

Tree No.	Tree Species (Botanical Name)	Original location STT/Outside	Tree Size: Overall Height (M)	Tree Size: Average Crown Spread (M)	Tree Size: Trunk Dia (M)	Form Good Fair Poor	Health Good Fair Poor	Amenity Value High Medium Low	Anticipated Survival Rate after Transplanting High Medium Low	top of Soil level above root collar MPD	Proposed treatment Transplant Retain Fell
TR639	Aquilaria sinensis 土沉香	Outside	6.0	4.0	0.13	F	F	H	M	9.68	T
TR643	Aquilaria sinensis 土沉香	Outside	6.0	4.0	0.13	F	F	H	M	10.46	T
TR644	Aquilaria sinensis 土沉香	Outside	7.0	5.0	0.16	F	F	H	M	9.99	T
TR766	Aquilaria sinensis 土沉香	Outside	5.0	3.0	0.13	F	F	H	M	8.54	T
TR776	Aquilaria sinensis 土沉香	Outside	4.0	3.0	0.13	F	F	H	M	14.24	T

Appendix E

Tree Transplanting Programme

HKFYG Jockey Club Sai Kung OTC Phase III Redevelopment

Tree Transplanting Programme time line

	2011											
	April				May				June			
OPERATION	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4
FIRST ROOT PRUNING												
SECOND ROOT PRUNING												
FINAL ROOT PRUNING AND TRANSPLANT TO FINAL LOCATION												
START OF 24 MONTHS ESTABLISHMENT PERIOD												