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METHOD STATEMENT TITLE	Rev. -

Method Statement for Tree Felling Work, Preservation and Protection

	Prepared by:	Checked by:	Reviewed by:			Approved by:
Signature:						
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Position:	Engineer	Construction Manager	SM/~~SO~~	~~QM/QE~~	~~EM/EO~~	Project Director
Date:	8/2/24	8/2/24	8/2/24	8/2/24	8/2/24	9/2/24

1. Introduction

This Method Statement is a safety working method & procedures documents to describing the health, safety, environment & quality requirements for carrying out the tree fell, preservation and protection plan under the Contract 1701. The methodologies of elimination, mitigation and control of risks shall be addressed.

The Details of protection, transplanted and removal shown as **Appendix A**. The principle methods as described in the following sections are subject to review during construction and may be amended if required.

2. Reference Documents

- General Specification for Civil Engineering Works (NEC4) (MTR Corporation Limited - 2022)
- Particular Specification for Contract 1701.
- Materials and Workmanship Specification for Civil Engineering Works

3. Responsibilities for Activities described within Method Statement

CSHK is responsible to inspect and carry out the construction works. The responsible persons are listed below and be responsible for the activities:

Name	Position	Area
Howard Siu	Construction Manager	W2A5, W4, W5, W6A, W6B, W7, W8A, W8B, W10
CF Chan	Construction Manager	
Anthony He	Assistant Construction Manager	
Nick Wang	Site Agent	
Kanson Woo	Engineer	
Andrew Lo	Graduate Engineer	
Vincent Li	Construction Manager	W3, W12, W11G, W11D, W11C, W2A1, W2B, W2A2, W2A3, W2A4
Nana Chung	Assistant Construction Manager	
Johnson Chun	Senior Engineer	
David Lam	Senior Engineer	
Man Hin Li	Assistant Engineer	
Ted Leung	Construction Manager	W11B3, W11A, W11B2, W11B1, W11E, W11F2, W11F3
Li Yuk Wa	Assistant Construction Manager	
Jack Wong	Senior Engineer	
Andy Lo	Engineer	
Edward Yang	Graduate Engineer	
Kyle Lai	Graduate Engineer	
Leung Kwok Fung	Safety Manager	All
Ernest Young	Assistant Safety Officer	
Lau Yu Tat	Senior Surveyor	
Cheung Siu Kei	Superintendent	

(a) Construction Manager
Responsible for overall administration, monitoring, controlling progress and quality of works in a safe manner.

(b) Site Engineer / Superintendent / Foreman
Responsible for developing works procedures, controlling progress and quality of works in a safe manner. They also have to implement safety at works area for workers via guidance from safety officers.

(c) Safety Manager/ Safety Officer
Responsible for assessing working conditions of work areas in safety means. To prepare risk assessment before works, enforce safety works practice and environment in the workplace and work site.

(d) Worksite Person In Charge (WPIC)
WPIC is in charge of the work in the works areas, which are located at various positions of site. Site Supervisor is also responsible in implementing works control checklist.

(e) Registered Electrical Workers (REW)
Workers who have valid certificate of registered electrical worker and completed MTR RSI training and obtain qualification.

(f) Workers
Workers who have completed RSI training and received a valid qualification.

(g) Competent Person (CP(T)/CP(NT))
CP shall provide pre-work briefing to all workers and anyone work within the Railway Operation Area (Siu Ho Wan Depot). Briefing attendance records shall be kept on site for inspection. CP shall report to depot before works could commence.

Emergency Team contact list is enclosed so that work can be safely arranged to suspend for contingency/ reasons. Please refer to **Appendix D**.

4. Programme and Working Hours

The method statement is applicable for tree fell, preservation and protection under Contract 1701. The general working hours will be from 08:00 – 18:00 daily, from Monday to Saturday and expected to be completed within a week. It may be required to carry out works from 19:00 to 23:00 and Sunday and Public Holidays in case of essential speeding up of the working process. CSHK would check internally to fulfil the Construction Noise Permit Requirement.

All the works shall be led by CP(T)/CP(NT) during the approved working period at different areas, details are summarised in the below table. Competent Person for Underground Utilities Survey shall be assigned and in the presence of works.

Location of Works	Allowed Working Period	Remarks
Mainline	Non-Traffic Hour	3 days per week

		(02:00 – 04:00)	
	Test Track	Night Shift (Exact time to be coordinated)	3 days per week
	Depot Track Area	Non-Peak Hour (11:00 – 15:00) Night Shift (Exact time to be coordinated)	

5. Plant, Equipment & Material

All equipment will be inspected prior to the mobilization on site to ensure that they are in good working condition and comply with the current regulations.

For Tree Felling

- Labels
- Hand-saw
- Grab Lorry
- Chain saw
- Aluminium mobile tower
- Aerial working platform
- Mobile Crane
- Flatbed Tractor & trailer

For Tree Preservation

- Labels
- Grab Lorry
- Protective Fencing
- Rootball box
- Planter box
- Sand bag
- Line wire

6. Works Methodology

6.1 Preparation Works

- Trees to be felled were marked with label. Contractor shall only fell those trees shown as **Appendix A**.
- Before the tree felling, the trees will be cordoned off by temporary fence to fence off the pedestrians and other people from their falling zone. The cordoned off area should be as far as practicable, based on on-site situation.
- All certificates and documents of equipment required shall be checked on site.
- Pre-work Briefing or training shall be provided to workers by frontline supervisors daily.
- Temporary water-filled barriers with non-transparent plastic panels shall be provided at adequate distance around the tree to be felled.
- "Watchman" shall be provided to standby outside the tree felling works area during the whole operation to keep anyone from not entering the workplace.
- Outmost care shall be taken into consideration during the felling works to avoid adjacent existing properties and plants to be retained/ transplanted from any damages.

- All worker for tree felling works shall wear their personal protective equipment, such as safety belt and helmet, at all times of the works.
- Protection from damage of existing underground utilities shall be completed commencement of the tree felling works.
- An escape route shall be established. A path of escape from the work area shall be determined for the chain saw operator to use after the felling cuts are made and the tree begins to fall. An ideal escape route should be at a 45-degree angle from the tree's direction of fall.
- The escape route shall be cleared of any brush or ground debris, including any equipment. The minimum retreat distance shall be 6 meters.
- A least 2 ground operators shall manage pedestrian safety at 2 ends of the works area during the whole operation
- TTA will be provide if necessary.

6.2 Tree Felling

Protection, Transplanting and Removal of Existing Trees					
	Protection		Removal		
			Location		
	To be Retained	To be Transplanted	Within Depot	SSK	Other Area
Nos	283	4	117	14	19
	287		150		

6.3 Tree Felling

6.3.1 Sequence of Tree Felling Works by Climbing (Scenario 1)

- Tree Felling will comply with the standard of American National. Standard for Arboricultural Operations (ANSI Z133) - Safety Requirements.
- Before starting any tree felling work, the supervisor will coordinate with site representative to ensure that no trees are felled wrongly. All trees to be felled shall be confirmed ad double checked by the Supervisor.
- Cherry picker/ working platform/ crane lorry will be used, if necessary, to facilitate the removal of tree by pieces and it will be temporarily parked inside the site only. During the working at height on the trees, the workers shall wear the proper personal protective equipment including protective shoes, goggles, gloves, safety helmet with chin-strap, reflective vest, and safety harness.
- A temporary working area will be cordoned off and alert others and against the hazards of falling objects.
- The tree will be felled piece by piece using rigging/ cherry picker/ working platform which will be started from tip of branch piece by piece until all branches removed. Then the trunk shall remove from top to the bottom also piece by piece above ground level.
- The tree workers will get to the crown of the slope trees by tree climbing if necessary, depending on site constraint shall also consider the risk of electrocution,

especially if branches being fell off to the overhead line. This might cause serious injury to the staff and any workers nearby. The tree workers who climb the tree should be qualified tree worker. Starting the tree felling, the worker will cut the crown pieces by pieces with poles saws or chainsaws after holding the branches firmly by min.12mm rope to ground or any suitable rigging points.

- In general, for branches with Diameter at breast height (DBH) between 100mm to 300mm, maximum length of each piece should be 5 m. For branches with DBH 300mm, maximum length of each piece should be 2m. However, the dimension of the cut pieces could be adjusted based on the on-site situation including target availability, slope gradient and the presence of buffers, for example, for the trees adjacent to public road, maximum size of cut piece should limit to 1.5m in length to reduce risk. For higher target availability, the cut branches will be lifted by min.12mm rope to the ground safely so that the lowering of cut limbs and stumps to avoid causing injury to person and damage to property. After the cutting of branches, the main trunk will be held firmly by the min.12mm ropes to limit its movement. Then the trunk will be cut at trunk base. Then the trunk will be laid onto the ground by the min.12mm ropes and will be cut into pieces that can be removed by the grab lorry from the site.
- There might be some minor adjustment of the felling procedure in account of the on-site situation, with the same safety manner.
- Tree trunks and branches shall be removed in pieces for reasons of safety and to such a manner that any potential damage to the public and adjacent railway utilities, services or pipes, structures, slopes or stream course vegetation is avoided. Care should be taken to avoid damaging such facilities
- Other existing trees to be retained adjacent to the trees to be felled shall be maintained properly, care should be taken to avoid damaging any structures or neighbouring trees, stubs, grass or surfaces.

6.3.2 Sequence of Tree Felling Works (Scenario 2)

- Position the mobile crane and aluminium foldable mobile tower on ground at optimum distance from tree to be felled.
- Fence off the tree felling work area before operation.
- Securely tie the chain saw to the man cage of aluminium foldable mobile tower or aerial working platform to avoid chain saw falling.
- Tagline should be fastened to the tree branch which will be cut.
- The cutting shall be started from the tallest branches to the lower branches.
- Fasten and tie one end of the tree branch to be felled with min.12mm heavy-duty rope by the skilled workmen in the man cage and the other end of the min.12mm rope to be attached to the crane's b in order to control the felling down position of the tree branch.
- Cut the bottom of the tree branch with the chain saw at about 1 inch depth.
- The cut section of branch / truck shall be slowly brought down and directed to a safe location within the work area. The cutting length for all diameter of trunk shall be 500mm with safe working load 1 ton.
- The stump shall be removed by hand grubbing and winching; stump cutting machine: hydraulic lifting or other method approved by the Engineer.
- The felled tree branches and trunk shall be cut into pieces and removed offsite at the end of each working day to our nursery for mulching or compost.

6.3.3 Rigging system

- Rigging system shall be used to control the falling zone of the tree branches during removing the trees located near the road or foot path.

6.4 Tree to be Retained

- The tree will be fenced Temporary Protective Fencing shall be 1200m high comprising straining corner posts, intermediate straining posts, and bamboo pales.
- End straining posts shall be 150x150x1800mm long timber posts driven 600mm into ground. Posts shall be installed at corners, ends of runs and at 10m centers.
- Intermediate posts shall be 100x100x1800mm timber posts driven 600mm into ground at 2000 centers.
- Bamboo pales shall be hand-driven from bamboo poles of approximately 30mm diameter. Pales shall be 1200mm long and notched 80mm from the top. Pales shall be positioned at not more than 50mm spacing.
- Line wires shall consist of two numbers of 2mm diameter galvanized steel wires twisted together. Pales shall be fixed between the twisted wires. A first line wire shall be fixed 150mm from the top of the pales and second line wire shall be fixed 200mm from the ground level. A third line wire shall be fixed equally spaced between the other two. Fixing to intermediate timber posts shall be galvanized steel staples. Wires shall be fixed to end posts by running two complete turns round the post with the wire twisted back on itself and staples driven tightly into the post.
- All protected trees to be watered twice a week around tree base
- Oil, petrol, creosote and other toxic chemicals must be kept away from the root spread. Site fires must be kept well away from the trees and roots. Hot air and fumes will also cause damage.
- If existing hard pavement around a tree is to be removed which exposes tree roots, pavement must be replaced immediately with top soil or sand to prevent surface roots from drying out.
- Care must be taken to protect the trees from any physical damages during the erection and dismantling of scaffolding and temporary works.
- Any cuts incurred shall be dressed immediately according to acceptable horticultural practice.
- Extra care should be given to the tree within close distance of any possible excavation area; no form of root pruning is allowed unless requested and approved by Landscape Architect and Architect.
- Acidic fluid or any other chemical waste the works to be used for shall not be allowed to be splashed onto any part of the trees or drained to the pit of the tree.

6.5 Tree to be Transplanted

- Trees to be transplanted were marked with labels which are shown in Construction Drawing.
- Except those trees required to house in the temporary nursery, that have been dug for transplanting should be planted as soon as possible
- Cover a root ball with damp material which will retain moisture (burlap, peat moss,

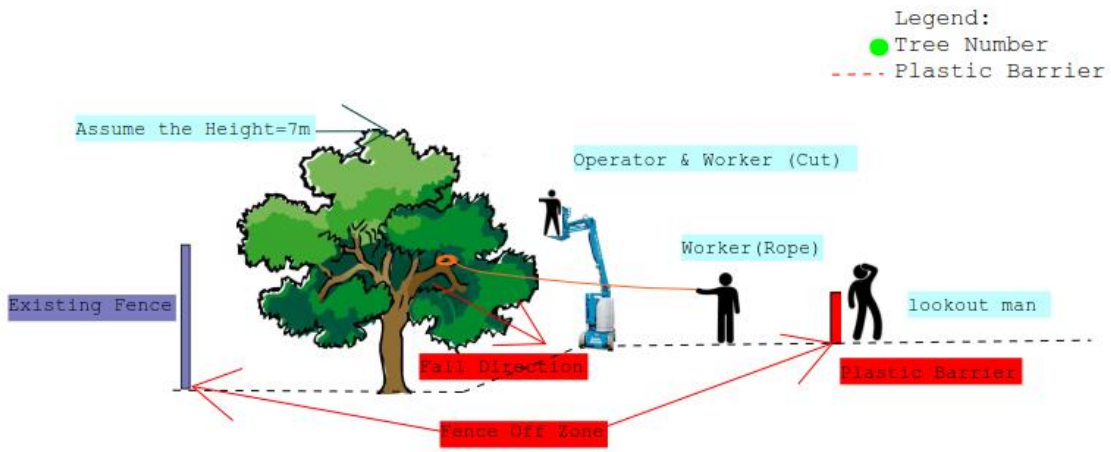
Canvas, plastic, etc,) until planting.

- The planting holes should be two to three times wider than the root ball. Plant at the same depth that the tree was growing in its previous location.
- Pre-water holes before planting in dry soils. This prevents initial post-planting water from migrating away from the root ball.
- The rootball for transplanting and pruning of the tree roots shall be conducted.
- Using 8 to 10 times the DBH (diameter of the tree trunk measured at 1.3m from soil level of adjacent ground) or at most 2.5m (due to the logistic limit for trees transporting the truck) as diameter, mark out a circle on the around the tree as a guide to indicate the diameter of the root-ball to be provided for the tree. A wider rootball that can be handled conveniently shall allow the tree a better chance of surviving the transplanting.
- Using a sharp spade drive the blade to full depth around the circumference of the circle in only two opposing segments, to sever the roots along the section to a depth of approximately 2 spits deep.
- After certain regeneration period, repeat the above mentioned step for the next two opposite segments.
- After a period since the last root pruning, prepare the root ball as specified and cut the underside of the root ball at 1.2m from soil level of adjacent ground. followed by uplifting and transplanting.
- The tree shall be fully supported by guy wires and/or steel members, in accordance with the size of the tree, at all times.
- crown thinning will not be considered to be carried out to all transplanted trees except the trees subject to the limitation of the logistic arrangement. Crown thinning will be carried out at the same time when root pruning is conducted to reduce water consumption by the tree. in total no more than 20% of the crown shall be pruned and the crown shall be maintained in well-balanced form. The following key procedures shall be observed:
- Safety precautions shall be taken to protect those engaged in the operations, and people and properties in the vicinity.
- The tool for the pruning works shall be sharp to ensure clean cuts.
- The central main leader of the tree shall not be pruned. (no topping)
- Generally, pruning cuts should be made just outside the branch collar as Figure 3. The branch collar contains trunk or parent branch tissue and should not be damaged or removed. If the trunk collar has grown out on a dead limb to be removed the cut will be made just beyond the collar, without cutting the collar.
- When the tree is ready to be transplanted upon completion of root and crown
- pruning, the spreading branches shall be tied to protect the branches from tearing when lifting and transporting the tree.
- Cut around the circumference of the root zone around the tree to ensure all protruding roots are severed.
- Any loose soil around the shoulder of the outline for the rootball shall be eased off
- Use the spade to cut off the rest of the roots from the rootball that was not cut previously and then thrust the spade underneath the rootball at an angle of 45 degrees to cut off more roots for the rootball.
- When the tree is movable, slide a sheet of burlap or equivalent underneath the rootball and then wrap up the entire rootball to retain the soil and prevent moisture loss. Tie the wrapping firmly in place around the trunk
- The entire tree including the tied crown shall also be wrapped with a polythene sheet

to prevent damage during lifting and transiting.

- The tree shall be tied from at least 2 points to be lifted from the ground and carefully loaded onto a truck.
- The above mentioned preparation works are for trees up to semi-mature size trees. For mature and older trees the rootball shall be protected by a wooden container.
- Upon lifting from the ground and during transit the tree shall be protected
- Against excessive sunlight, wind and drought. Care shall be taken in packing to prevent overheating that results in loss of foliage due to excessive evapotranspiration.
- Lifting and unloading of the tree shall be provided with the same care to prevent the splitting of the trunks and broken branches.
- Upon unloading the tree shall be planted immediately and shall not be left exposed for a prolonged time.
- For temporary holding, the transplanted tree shall be kept at a location to be fully protected from physical damage or overly exposed and with room for healthy growth of the tree.
- Depending on the duration, for short-term situations, the tree shall be left with its root ball/container intact and at the up-right position, the polythene sheet unwrapped, tied securely, and firmly kept in place by covering with a layer of top-soil around to maintain the moisture of the root-ball until re-planting of the tree to its permanent location.
- At about the same time as when the tree is to be lifted for transplanting a pit bigger than the dimension of the rootball of the tree, with about 300mm of space to spare all around, at the new location shall be dug and prepared for ready planting of the tree.
- The bottom of the pit shall be loosened for better drainage of water, and with a generous helping of peat and bone meal or equivalent to promote fresh root growth
- The transplanted tree shall be securely guyed and allowed the same procedure for planting and allowed of a new tree.
- For the other transplantation operation of the designated trees, they will keep in the temporary nursery until the permanent recipient location is formed. Since the sizes of these trees are comparatively smaller, it is believed that they could probably survive from the double transplantation operation of being kept in the holding nursery. In view of their relatively smaller tree crown size, no crown thinning will be proposed as they could completely fall within the size limit of the transporting truck.
- For those trees designated as 'retained' in the approved report, they will be treated with protective measures based on the current horticultural practice. Monitoring of the same will also be carried out throughout the entire works period.
- The final recipient location of the transplanted trees and the location of all the retained trees are shown in the Tree Retention plan as attached in Appendix A for reference.
- Within the works boundary of Widening of Castle Peak Road between Kwun Tsing Road and Hoi Wing Road, there will inevitably be impacts to some of the existing trees. These impacts were documented in the Tree Preservation and Removal Proposal

6.5 Operation Plan



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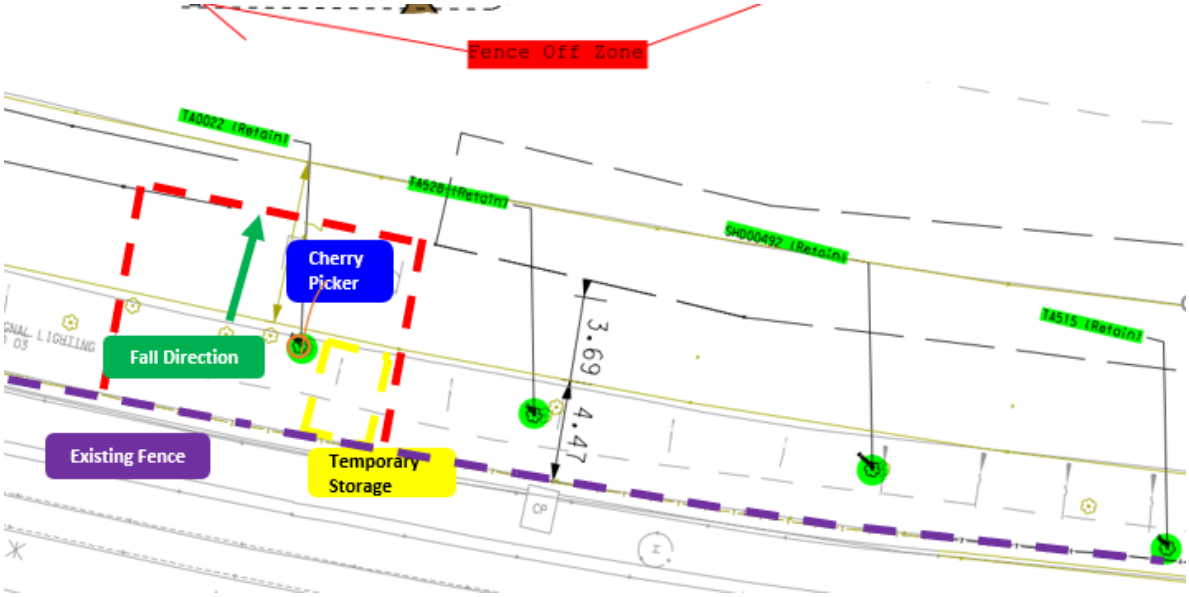

Plan

7. Safety

- All workers shall be equipped with reflective vests and safety helmets during operation. All workers must go through a briefing by the Construction Manager / Engineer / Safety Officer / Safety Supervisor before commencement of any works.

- A pre-meeting will be arranged before commencement of the work among Survey Team, Construction Team and Safety Team to brief the nature of works, the safety aspects and the necessary safety requirements as identified in the Risk Assessment in **Appendix D**.

- To ensure the worker carrying out the tree felling works are fully informed of the risks and they are aware of the measures to control those risks, the Briefing will be provided before operation commence.

	● Safety helmets fitted with chin straps must be worn within the site, safety boots, hearing protectors (if needed), high visibility jackets / sashes, reflective vests, goggles, gloves and full body harnesses for work at height will be provided to all staff working on site. Plastic barriers and reflective traffic cones will be prepared prior to work commencement to demarcate the working area. ● Permit-to-Dig system shall be implemented and strictly followed to mitigate the risk of damages to underground utilities. Relevant valid underground utilities plans shall be obtained and cable detection shall be conducted by competent person before commencement of works. Briefing shall be conducted to workers to acknowledge them on the underground utility conditions at the works area and precautions required. The proposed working area should be marked physically on site by CP. ● Any emergency situation shall be reported to site supervisors (i.e. Construction Manager/ Engineer/ Foreman etc.) and Safety Department for prompt response. The emergency contact list is shown in **Appendix D.** The risk for the works shall be assessed and the Risk Assessment Analysis is shown in **Appendix C**.
8.	**Environmental**
	The following mitigation measures will be followed: - General works shall be carried out during normal working hours (08:00 to 18:00). No works using PME will be carried out after 07:00pm on Sunday and public holiday without a valid construction noise permit. - The risk of causing damage to existing trees during survey works is low. If any survey will affect the existing tree, construction team will be informed immediately for resolving. - Excavated soil shall be stocked pile at designated area and covered properly by tarpaulin sheets to prevent dust generation and reused on site prior to disposal. - The tree debris produced during the tree removal shall be stored in the empty area temporarily. The tree debris shall not be stored in site for more than 7 calendar days. - ULSD Diesel will be used in all PME - Plant with QPME label will be employed if available - All chemicals will be placed on drip tray - Any wastewater produced during the work will be treated prior to disposal
9.	**Quality Control**
	Refer to **Appendix B** for Inspection and Test Plan. ● Construction works shall be fully complied with Quality Plan. For work activity which is classified as “Quality Hold Point”, no subsequent work can be started unless the former work activity was inspected and accepted by MTR’s inspectorate.
10.	**Appendices**
	A. Construction Drawing B. Inspection and Test Plan (ITP)

	C. Risk Assessment D. Emergency Contact List