Appendix 8 – Explanatory Notes for Form 2 – Individual Tree Risk Assessment

This Form 2 is provided with the *Guidelines for Tree Risk Assessment and Management Arrangement (TRAM Guidelines)* (9th Edition) and aligns with the latest tree risk assessment methods promulgated by the International Society of Arboriculture (ISA) and other overseas professional organisations. It intends to serve as a template for Inspection Officer to collect and record tree information and facilitate a meaningful individual tree basis risk assessment. For an advanced tree risk assessment, the Inspection Officer or arborist concerned shall submit a separate written report including but not be limited to the detailed assessment results on the risks of the tree or the tree part assessed. For further information on the requirements of the written report, the Inspection Officer may refer to the latest version of the ANSI A300 standards and the ISA Best Management Practice – Tree Risk Assessment or other relevant publications, such as BS 3998:2010 – *Tree Work - Recommendations* by the British Standards Institute.

Box(es) and space(s) are provided in the Form for collation of the right information. Please check the box(es) that reflect the observations. More than one box may be checked. Please also write comments and notes that are not covered elsewhere in the Form or for points that need additional explanation in the space(s) provided or under the "Other Observations" section. *It is not necessary to check every box or to fill in every space provided in this Form.* Only information relevant to the tree risk assessment should be collected.

Section 1 – General Information

This Section records the background information of the responsible department and the Inspection Officer who undertakes the individual tree risk assessment.

General Information 基本算	資料!									
Dept. / Agency 部門 / 機構:				Inspection	Officer 巡查人員		Post 職位			
Project/Contract No. 工程/合約編號						File Ref. 檔案編	號			
Date and Time of Inspection					Last Inspection Date		Inspection Tim	e Spent 是次巡	查所用時間	
巡查日期及時問	(dd/mi	n/yyyy)	(hr)	(min)	上次巡查日期	(dd/mm/yyyy)	Inspection Free	quency 巡查運算	8	

Department/Agency: name of the department or agency responsible for the tree risk assessment.

Inspection Officer: name of the Inspection Officer (in English CAPITAL letters) who meets the academic, professional and training qualifications as well as work experience as specified in the 'Requirements for Inspection Officers' in the TRAM Guidelines. The qualifications of the Inspection Officer should be vetted by the responsible tree maintenance department and

each department shall provide a list of accepted Inspection Officers to Greening, Landscape and Tree Management Section (GLTMS) of the Development Bureau for verification.

Post: post title of the Inspection Officer in the responsible department or agency.

Project/Contract No.: Project/Contract reference number in which the tree risk assessment is undertaken (if applicable).

File Ref.: file reference no. in the responsible department or agency that keeps the tree risk assessment reports, if applicable.

Date and Time of Inspection: date and time of the inspection in the format of dd/mm/yyyy and hh/mm. If the inspection lasts for more than one day, the inspection date refers to the commencement date of the inspection.

Last Inspection Date: date of last inspection of the subject tree in the format of dd/mm/yyyy. If the inspection lasted for more than one day, the last inspection date refers to the commencement date of the last inspection. If it is the first-time inspection of the subject tree, please indicate 'first-time inspection' in this field.

Inspection Time Spent: the time spent in the field inspection of the subject tree to the nearest 0.5 hour. Travelling time should not be included.

Inspection Frequency: the frequency of inspection, for example, if the subject tree is inspected every six months, please mark '6 months' or if the subject tree is inspected every year, please mark '12 months', etc. Please mark '*ad hoc'* if the tree risk assessment is undertaken on a need basis.

Section 2 – Tree Information

This Section provides background information of the tree assessed.

IMCP Tree ID IMCP樹木編號	CP Tree ID CP樹木編號 Dept. Tree ID 部門樹木編號		Tree Species 极利				Tnage Category 分流類別	
free Height(m) 對高(米)	Height(m) 米)		Crown Spread(m) 樹冠関度(米)				No. of Trunk(s) 樹幹數目	
DBH of tree trunk(s)(mm		1	2	3	4	5	Aggregated DBH (mm)	
每枝主幹胸徑(毫米)							胸徑(毫米)	
Free on Tree Register	☐ Old and Valuable Tree 占	樹名木 (OVT R	egister No. 占制	的名木登記冊編號	6:)	□Other tree 其他樹木	
ee on Tree Kegister 記冊內樹木 Stonewall Tree 石滑樹		(Tree R	《登記編號:)	☐Brown Root Rot Infected 受視根病	感染	
	Mature Tree (DEB > 750n	nm) 成霞樹 (脑徑 >	• 750毫米)					

TMCP ID: A system generated ID to give a unique reference number to the trees in the new tree database, Tree Management Common Platform (TMCP).

Departmental Tree ID: the departmental identification number of each tree inspected.

Tree Species: the botanical name of the subject tree. Please also include the preferred Chinese common name (generally the first name listed is the preferred common name) listed in the *Check List of Hong Kong Plants* (latest version) published by the Agriculture, Fisheries and Conservation Department (AFCD).

Triage Colour: the classification under the Triage System in the TRAM Guidelines. Please indicate the triage colour in the space provided. Please note that the triage classification may change in each assessment due to a change of the tree conditions and mitigation works completed. If the tree is one of the "Other Trees" in Zone I or one of the trees in other zones, no classification under the Triage System is necessary. Please mark 'NIL' in this situation.

Tree Height: estimated height of the subject tree from the existing ground level to the top of the tree crown measured to the nearest meter. For better estimation, please use a clinometer and/or range pole.

Crown Spread: diameter of the spread of the tree crown measured to the nearest meter. For asymmetric tree crown, the crown spread along the longest axis should be measured.

DBH of Tree Trunk: diameter of the tree trunk at breast height (1.3 meter above ground) measured to the nearest millimeter in accordance with AFCD's Nature Conservation Practice Note No. 2 '*Measurement of Diameter at Breast Height (DBH)*" (2006 or its latest version). For measurement of trees with multiple trunks, please input the individual trunk diameters in the boxes provided and then calculate the aggregate DBH in accordance with AFCD's Practice Note No. 2. The tree risk assessment report should include photographic records showing the multiple trunks and each trunk numbered in sequence (i.e. #1, #2...etc.). If there are more than five individual trunks, please provide the individual trunk diameters in a separate sheet but the aggregate DBH should cover all individual trunks.

Tree Status: tree status in the Tree Register. Please indicate whether the subject tree is an Old and Valuable Tree (OVT), a Stonewall Tree (SWT), a Mature Tree (with an individual trunk(s) over 750mm DBH, a Brown Root Rot Disease (BRRD) infested tree or other trees. If applicable, please fill in the OVT Register No. and Tree Register No. for OVT and SWT respectively in the space provided. Please check more than one box if applicable.

Section 3 – Location Information

This Section provides location information of the subject tree.

Location Information 位置資料

Masterzone Ref. 主區編號			Chinese Location 中文地點		
Subzone Ref. 副區編號			English Location 英文地點		
Coordinates 座標	X:	Y			
Tree Risk Management Zon 樹木風險管理地區類別	e Category		District 地區		
Location Type 地點類別	Roadside landscaped area	路旁綠化地區	Tree pit 樹穴		□ Central divider 中央分隔帶
	Public park or recreation version	ublic park or recreation venue 公園或康樂場地			□ Government compound 政府建築物
	Planter box 花盆		□ SIMAR slopes 系統性鑑辨	維修責任的斜坡	
	Recreational Site/Facility in	nside Country Park 郊野公園内康樂用	地或設施		
	Unleased or unallocated get	overnment land 未批組或未撥用政府	土地	口 Others 其他	
Nearby Utility Post No. 就近	公用設施編號:				

Masterzone Ref. & **Subzone Ref.**: Masterzone reference number and Subzone reference number in the Tree Management Information System (TMIS) for the subject tree. Please fill in "NIL" if there is no Subzone. Details for the zoning of Masterzones and Subzones are specified in the TMIS Manual which can be viewed and/or downloaded from the Cyber Manual for Greening (<u>http://devb.host.ccgo.hksarg</u>). The zones are determined by the responsible department.

Chinese Location and **English Location**: Chinese and English names of the tree location. Please refer to the location/street names in the latest version of the '*Hong Kong Guide*' published by the Lands Department.

District: use district categorisation in 18 District Councils.

Tree Risk Management Zone Category: category of Tree Risk Management Zone as specified in the TRAM Guidelines. Please check the 'Category I' box if the tree falls into Category I zone; check the 'Category II' box if the tree falls into Category II zone; and check the 'Category III' box if the tree falls into Category III zone.

Co-ordinates: x- and y-coordinates of the tree at the centre of the tree trunk according to the HK1980 Grid Coordinates up to 3 decimal places. The coordinates can be measured by common GPS devices.

Location Type: venue or particular area that the subject tree is located. Please mark SIMAR Slope Number in the space provided if the subject tree is within a SIMAR slope. Please check "Others" if none of the venues or areas is applicable. Please check more than one box if more than one location type apply.

Nearby Utility Reference No.: nearby public utility reference number, such as lamp post number. Please mark the utility on the location map with its reference number clearly indicated.

Section 4 – Target Assessment

This Section provides information on the potential targets affected by the subject tree. One individual tree or a tree part may affect one or more potential targets. The assessment of each potential target facilitates a better assessment of the likely consequence of a potential tree failure.

Target No. 目標物編號	Target Description 目標物的描述	Target Zone 目標物範圍	Occupancy rate 佔用率	Remove target? 可否移除目標?	Restrict usage? 可否限制使用?
1					
2					
3					
4					
5					

Target Number: the potential targets in priority according to the severity of consequence. People is always the most critical target with the most severe consequence.

Target Description: brief description of the target identified, for example, 'pedestrians', 'people in leisure/amenity area', 'occupied resident house', 'cars in carpark', 'school', 'play area', 'low-traffic street', or 'high-traffic street', etc.

Target Zone: location at which the target would likely be present the most. Please check the box if the target would likely be:

- > Within dripline the target is within the dripline of the subject tree; or
- Within 1.5 x Ht. the target is outside the dripline but within the striking distance, i.e. 1.5 times of the total tree height.

Occupancy Rate: estimated amount of time in a day or a week that the target would likely be present within the Target Zone.

- > Rare the target is not commonly within the Target Zone.
- > Occasional the target is present within the Target Zone infrequently or irregularly.
- Frequent the target uses or performs activity within the Target Zone for a large portion of a day or a week.

Constant – the target is present within the Target Zone at nearly all times, 24 hours a day, 7 days a week.

Remove Target: remove the target as far as possible to eliminate the risk. Please check the box 'Yes' if the target can be removed; otherwise, please check the box 'No'.

Restrict Usage: restrict usage to eliminate the risk if possible. Please check the box "Yes" if access to the Target Zone can be restricted; otherwise, please check the box 'No'.

Section 5 – Site Conditions

This Section provides background information of the site that may affect the likelihood of tree failure.

Site Conditions 場地狀況

Topography 地勢	ロ Flat 平地 ロ N ロ Others 其他:	Vatural terrain 天然	山坡 ロ Man-m	nade slope 人望	斜坡 🗆 Re	taining wall 擋占	L牆 □ Stonewall 石牆		
Site changes 場地改變	□ None 沒有 □	Grade change 地	表改變 口 Site cle	aring 場地平整	□ Ot	hers 其他			
Soil conditions 土壤情況	口 Normal 正常	□ Compacted ±	實被擠壓 □ Wate	er logging 積水	Others	其他			
oil crack or crack behind lean 土壤裂鏈或裂鏈於傾斜部位肯後 O None 沒有 O Yes 有									
Restriction within driplin	e 滴水線範圍內有限制	None 3	ē有 O<25%	O25-50%	O51-75%	O>75%			
Tree failure record 樹木倒	制塌記錄	O None 沒有	O Yes 有						
Brown Root Rot disease	record 褐根病記錄	O None 沒有	O Yes 有						
Other observations 其他	観奈								

Topography: topography of the site where the tree is growing. Please check the box "flat", "natural terrain", "man-made slope", "retaining wall" or "stonewall" where applicable and specify other site observations in the box "Other observations". Please check more than one box to fully describe the site setting.

Site Changes: site factors affecting the root system of the subject tree or site factors that may affect the wind exposure of the subject tree:

- None no soil changes observed.
- Grade change soil was added or removed from the site.
- Site clearing adjacent tree(s) had been removed or significantly reduced, which may cause the assessed tree to become exposed to wind.
- Root cut the root system of the assessed tree had been cut or was otherwise significantly damaged. More information on root cuts should be included in the 'Root Conditions' section.
- > Others other necessary information or further description of site change.

Soil conditions: factors that may affect the health and/or vitality of the tree assessed, or the ability of the assessed tree's root system to provide sufficient mechanical support.

- > Normal normal soil conditions.
- Insufficient volume soil volume limited by rocks, water table, building foundations, retaining wall, size of a container/planter/tree pit or other factors.
- Compacted soil is severely compacted, limiting the depth, spread, and distribution of the root system.
- Water logging water-logged due to poor drainage, high water table, excessive irrigation or assessed tree grows in a low area.
- Others conditions that has not been covered in the boxes provided or further descriptions of soil conditions is considered necessary.

Soil crack or crack behind lean: Please check the box if soil crack or crack behind lean was observed. Give more descriptions in the space provided when necessary.

Restriction within the Dripline: Please check the box and estimate the percentage restriction observed within the dripline of the tree assessed. Restriction refers to building, pavement, roads, hard landscape features, retaining wall, planter boundary or drainage channels etc.

Tree Failure Record: Please check the box if whole-tree failure(s) at the site of the tree assessed was reported in the past 12 months of the site inspection, saving for the trees that have failed during typhoons. Please give more information including the estimated time of the tree failures and the reasons for the failures, etc., if possible.

Brown Root Rot Disease Record: Please check the box if Brown Root Rot Disease infested tree(s) was previously identified within the dripline of the assessed tree. Please give detailed descriptions including the estimated time of disease identification, treatment applied, etc., if possible.

Other Observations: Please provide other observations that have not been covered in this Section.

Section 6 - General conditions

This Section provides general conditions of the tree assessed.

General Conditions 總體概況

Tree vigor 茁壯程度	O Low 低 O	Normal 正常	O Hìgh 高			
Lean 傾斜	○ No 沒有 ○ □ Recent Tilt 新近	' Yes 有 Angle fro 傾斜	om vertical 傾斜角度 □ Res	口 Natural due to pho ponse growth 反應生長	totropism 趨光性	□ Self-corrected 已自然修正
Wind exposure 受風情況	O Protected 受遮	擋 O Partial 部份) O Exposed 暴露	O Wind funneling 風洞	O Others 其他 —	
Wildlife or nesting site 🖺	予生動物或鳥巢	O None 沒有	O Yes 有			
Cable or brace 鋼索或支勢	л ж	O None 沒有	O Yes 有			
Pruning history 修剪歷史	□ Cleaned 清理樹 □ Topped 削頂	冠 🛛 Thinned 疏	減樹冠 🗆 Raised 提升植 獅尾 🗆 Others 其他	討冠 □ Reduced 縮減樹冠	Structural prun	ing 結構修剪
Other observations 其他	觀察					

Tree Vigor: the overall health conditions of the tree assessed. Please indicate:

- Low tree growth is restricted or stunted, smaller than normal size, leaf density below average and/or abnormal epicormics.
- Normal tree growth is in similar size of a typical/average sample tree for its species in the area, leaf conditions and branching show no significant defects. Root growth is in normal conditions, no restriction.
- High tree is growing well and appears to be of a size above a typical/average sample tree for its species in the area. It is also free from any restriction, diseases or pests infestation.

Lean: angle of the trunk measured from vertical line. Please indicate:

- None no leaning observed.
- > Yes measure the angle from vertical line and record in the space provided.
- Recent Tilt tilting was first identified in the current inspection or the leaning angle has increased by more than five (5) degrees in the past 12 months.
- > Natural due to phototropism leaning due to phototropism.
- > Self-corrected leaning of tree corrected due to self-correction mechanism.
- Response growth reaction wood or additional wood has grown to increase the structural strength of the trunk/branches; describes location and extent of response growth observed.

Wind Exposure: factors that affect wind load of the tree assessed. Please indicate:

- Protected other trees, structures or buildings in the area significantly reduce wind velocity or the exposure of the assessed tree to wind.
- > Partial other trees, structures or buildings near the tree moderately reduce the

impact of wind on the assessed tree.

- Exposed the assessed tree is fully exposed to wind, e.g. standalone tree, tree at the edge of a forest/plantation, etc.
- Wind funneling wind may be 'funneled' or 'tunneled' (by buildings, canyons, large stands of trees) towards the assessed tree so that wind velocity experienced by the assessed tree is increased dramatically.

Wildlife or Nesting Site: wild birds or other wildlife including bats, squirrels, etc. may use the branches or cavity of the assessed tree for nesting. Please indicate:

- > None no nesting activity is observed.
- Yes nesting activity is observed. Please record on-site observations in the space provided (if available), including the name of the wildlife (if known), quantity, and location of nests, etc.

Cable or Brace: presence of cable or brace installed to provide additional support to the assessed tree. Please indicate:

- > None no cable or brace system was installed.
- Yes cable or brace system was installed. Please provide more information if possible, including the type of cables or braces, conditions of cables or braces, effectiveness, maintenance requirement, etc., in the space provided.

Pruning History: maintenance/pruning record of the assessed tree in the past 12 months or the latest tree assessment. Please indicate:

- Cleaned crown cleaning was conducted.
- > Thinned crown thinning was conducted.
- Raised crown raising was conducted.
- Reduced crown reduction was conducted.
- > Structural pruning structural pruning was conducted, normally for young trees.
- Topped inappropriate pruning technique used to reduce tree size; characterized by inter-nodal cuts.
- Lion-tailed inappropriate pruning practice used to remove an excessive number of inner and/or lower lateral branches.
- Others: give detailed descriptions on the items checked, last pruning date and other pruning records not covered above.

Other observations: Please provide other observations that have not been covered in this Section.

Section 7 – Crown Conditions

This Section provides information on the crown conditions of the assessed tree.

Crown Conditions 樹冠狀況

Crown density 樹冠密度	O Normal ⊞	常 O Sparse 稀疏 (0 <25% O	25% - <50% O 50	0% <75%)	Imbalanced creating	own 樹冠不對稱	
Live crown ratio 活冠比	O <40%	O 41 - 70%	O >70%	Crown load 樹冠負	荷 O Normal 正:	常 O Heavy 過重	O Declined 衰弱	
Foliage 葉片	O Fallen leaf	(Seasonal) 落葉(季節性)	O Defoliation (V	Vithered) 落葉 (枯萎)	O Normal 正常 O C	hlorotic 萎黄 %	O Necrotic 壞死	%
Leaf size 葉片大小	〇 Normal 正	彩 O	Smaller than norm	nal 比正常細小				
Dieback twigs 枯枝	0 <5% 0	5 - <25% O 25 - 50%	, O >50%	□ Epicormics 水横枝 〔	□ Hanger 懸吊斷枝	Pest and disease	se 病蟲害	
Other observations 其他	觀察							

Crown Density: the branches, foliage and other reproductive parts of a tree forming the tree crown that blocked light visibility or penetration through the crown. Crown density can be estimated by using the crown density – foliage transparency card or electronic densitometers. Please indicate:

- Normal crown density is similar to a typical/average sample tree for its species in the area.
- Sparse crown density is lower than a typical/average sample tree for its species in the area that allows a large degree of wind and light penetration. Please estimate the percentage of sparse in <25%, 25% - <50%, or 50% - <75% by comparing to a typical/average sample tree for its species in the area and fill in the space provided. Over 75% is considered "Normal".

Imbalanced Crown: Please check the box if the canopy is not uniformly formed.

Live Crown Ratio (LCR): the ratio of the height of the live crown to the total height of entire tree [(crown height/tree height) × 100%]. Please check the appropriate box for the estimated range of LCR.

Crown Load: the estimated overall loading at tree crown of the assessed tree. This may vary with the density of foliage and other reproductive parts, canopy architecture, etc.

- Normal crown load is similar to a typical/average sample tree for its species in the area.
- Heavy crown load is much higher than a typical/average sample tree for its species in the area.
- Declined crown load is lower than a typical/average sample tree for its species in the area.

Foliage: an important indicator of tree health based on the comparison with a healthy specimen of the same species in the area. Please indicate:

- Fallen leaf (seasonal) fallen leaf observed on the tree, check if the tree is a deciduous tree and leaves shed in winter.
- Defoliation (withered) defoliation observed on the tree, check if the tree is withered and leaves shed before it is dead.
- Normal foliage color is similar to a typical/average sample tree for its species in the area.
- Chlorotic leaves become yellowish-green to yellow, estimate the percentage of chlorotic foliage in the canopy and fill in the space provided.
- Necrotic dead leaves remained in the tree crown, estimate the percentage of necrotic in the tree crown and fill in the space provided.

Leaf Size: size of leaves in the mature part of the assessed tree.

- Normal leaf size in mature part of the assessed tree is similar to a typical/average sample tree for its species in the area.
- Smaller than normal leaf size in mature part of the tree is smaller than leaves in a sample species in the area.

Dieback Twigs: progressive death of twigs starting at the tips of shoots or branches. The percentage of dieback twigs can be estimated by comparing the portion of dieback twigs to the entire tree crown. Please indicate:

- > <5% less than 5% of dieback twigs was observed.
- > 5% <25% dieback appeared on about 5% to less than 25 % of canopy
- > 25% 50% dieback appeared about 25% to 50% of the canopy
- > >50% dieback extended to over 50% of the canopy.

Epicormics: Please check the box if epicormics, which are shoots sprouting vigorously from damaged bark/wounds on trunk or branch of a tree, are present.

Hanger(s): Please check the box if hanger(s), which is a broken part of trunk or branch that remains or hangs up in the tree crown. This hanger may impose high potential risk to the target(s), especially unprotected target(s), present underneath the canopy of the tree.

Pest and disease: Please check the box if pest(s) or disease(s) was observed on the assessed tree. Please try to identify the pest(s) or disease(s) detected on the assessed tree such as Brown Root Rot Disease and decay caused by *Ganoderma* spp. and termites, for better pest/disease control.

Other Observations: Please provide other observations that have not been covered in this Section.

Section 8 – Branch Conditions

This Section provides information on the branch conditions of the assessed tree.

Branch Conditions 樹枝狀況

Co-dominant bra	nches 等勢枝	□ Included bark 內夾樹皮	Z	Cross branches 疊枝	 Crooks or abrupt bends 不常規彎曲 	口 Sap flow 滲液	
Cracks or splits 종	Cracks or splits 裂缝或裂册 Decay or cavity 腐爛		樹洞	□ Heavy lateral limb 重侧枝	□ Deadwood 枯木		
□ Canker 潰瘍 □ Galls 腫瘤 □ Burls 節瘤			□ Wounds or mechanical injury 傷痕或機械破損				
Pest and disease 病蟲書:			Parasitic or epiphytic plants 寄生或附生植物:				
Fungal fruiting bo	□ Fungal fruiting bodies 真歯子實證:		□ Response growth 反應生長:				
Other observations 其	他觀察						

Please check the appropriate box(es) if the following branch conditions are observed:

Co-dominant branches: branches of nearly equal diameter arising from a common junction, e.g. from apical buds at the tip of the same stem and lacking normal branch union or collar.

Included bark: bark that embedded in a union of two or more branches or between branch and trunk, resulting a weakened structure or source of decay to core wood.

Cross branches: crossing, rubbing or upright branches that may cause damage to tree bark or resulted in weakened structure.

Crooks or abrupt bends: abnormal bending of tree branch. The crooks or bends may result in weak point on branch(es).

Sap flow: oozing of liquid that may result from infections or infestations under the bark. The presence of sap flow may or may not be a structural defect or stability weakness.

Cracks or splits: separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction.

Decay or cavity: decay and cavity in a branch may be caused by mechanical injury or fungal damage or wildlife nesting, resulting in weakened structure on the branch.

Heavy lateral limb: limb with unusually long length for its diameter and/or heavy foliage load concentrated near its tip.

Dead wood: dead wood may be resulted from poor pruning or remains of hangers.

Cankers or Galls or Burls: cankers are localised diseased areas (lesions) on the trunk, branch or even roots; often sunken or discolored; galls are abnormal swellings of tissue caused by pests; may or may not be a defect; burls are outgrowth on the branch; not usually considered a defect.

Wound or mechanical injury: wound or mechanical injury observed on branch. Wound is an opening that is created when the bark of a live branch is cut, penetrated, damaged, or removed. Please provide more descriptions if necessary.

Pest and disease: pest and disease that may significantly affect tree health or stability. Please try to identify the pest or disease detected on the assessed tree, such as termites, for better pest/disease control.

Parasitic or epiphytic plants: parasitic or epiphytic plants grow on branches. The presence of parasitic or epiphytic plants may or may not affect health or structure of the tree. Please try to identify the parasitic or epiphytic plants observed and provide details in the space provided.

Fungal fruiting bodies: fungal fruiting bodies or mycelia present at decayed part of the assessed tree. Please try to identify the common wood decay fungi such as Brown Root Rot Disease and decay caused by *Ganoderma* spp. as far as possible. Close-up photographs showing the key features of the fungi should be included to aid subsequent identification.

Response growth: reaction wood or additional wood that has grown to increase the structural strength of the branch. Please indicate the location(s) and extent.

Other observation: Please provide other observations that have not been covered in this Section.

Section 9 – Trunk Conditions

This Section provides information on the trunk conditions of the assessed tree.

Trunk Conditio	ons 主幹狀況				
口 Cavity 樹洞	#1 L 🗟 (mm) W	闊 (mm) D 深	(mm) Direction	方向 Heigh	t above ground 離地面高度
	#2 L長 (mm) W	闊 (mm) D 深	(mm) Direction	方向 Heigh	t above ground 離地面高度
	#3 L長 (mm) W	闊 (mm) D 深	(mm) Direction	方向 Heigh	t above ground 離地面高度
	#4 L長 (mm) W	闊 (mm) D 深	(mm) Direction	方向 Heigh	t above ground 離地面高度
D Co-dominar	nt stems 等勢幹	□ Included bark 内英様	財皮	D Poor taper 不良漸尖生長	□ Crooks or abrupt bends 不常規彎曲
Cracks or sp	lits 裂缝或裂開	Abnormal bark crac	k 不正常樹皮裂紋	口 Sap flow 滲液	
口 Canker 潰瘍	口 Galls 腫瘤	口 Burls 節瘤	Wounds	or mechanical injury 傷痕或機械破	損
Pest and dis	ease 病蟲害:		Parasitic or epip	hytic plants 寄生或附生植物:	
🗆 Fungal fruiti	ing bodies 真菌子實體:		Response growt	h 反應生長:	
Other observatio	ons 其他觀察				

Cavity: Please measure and input the dimensions of cavity on tree trunk. The direction of cavity opening and height of cavity (measured at the center of the opening above ground level) should be measured and marked in the space provided.

Please check the appropriate box(es) if the following trunk conditions are observed:

Co-dominant stems: trunks of nearly equal diameter arising from a common junction and lacking a normal union or collar.

Included bark: bark that embedded in a union of two or more trunks, causing a weakened structure at the trunk.

Poor taper: tree with normal taper in trunk has its diameter decreases gradually from base to top. Tree with little or no taper may result in higher possibility of failure.

Crooks or abrupt bends: abnormal bending of tree trunk(s), the crooks or bends may result in weak point on the trunk(s).

Cracks or splits: separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction.

Abnormal bark crack: bark cracks may be a common character on tree trunk. It would be useful to compare with other trees of the same species in the area to identify abnormal bark cracks.

Sap flow: oozing of liquid that may result from infections or infestations under the bark. The presence of sap flow may or may not be a structural defect or stability weakness.

Cankers or Galls or Burls: cankers are localised diseased areas (lesion) on the trunk, branch or even roots; often sunken or discolored; Galls are abnormal swellings of tissue caused by pests; may or may not be a defect; Burls are outgrowth on the trunks; not usually considered a defect.

Wounds or mechanical injury: wound or mechanical injury observed on tree trunk. Please give more descriptions if necessary.

Pest and disease: pest and disease that may significantly affect tree health or stability. Please try to identify the pest or disease detected on the assessed tree, such as termites, for better pest/disease control.

Parasitic or epiphytic plants: parasitic or epiphytic plants grow on tree trunk(s). The presence of parasitic or epiphytic plants may or may not affect health or structure of the tree. Please try to identify the parasitic or epiphytic plants observed on the tree and fill in the space provided.

Fungal fruiting bodies: fungal fruiting bodies or mycelia present at decayed parts of the tree. Please try to identify common wood decay fungi, such as Brown Root Rot Disease and decay caused by *Ganoderma* spp., as far as possible. Close-up photographs showing the key features of the fungi should be included to aid subsequent identification.

Response growth: reaction wood or additional wood that has grown to increase the structural strength of the trunk. Please note location(s) and extent.

Other observation: Please provide other observations that have not been covered in this Section.

Section 10 – Root Conditions

This Section provides information on the root conditions of the tree assessed.

Root Conditions 根部狀況

Root collar not visible 根脊不現	口 Cracks or splits 裂縫或:	裂開	□ Exposed root根部外露	□ Root rot 根部腐壞		
□ Cut or pruned roots 根部經切割或截根 □ Trunk girdling 纏繞樹幹		¥	□ Girdling root 纏繞根	Dead surface roots 表根枯萎		
□ Root-plate movement 根基移位	injury 傷痕或機械破損					
Pest and disease 病蟲害:	Parasitic or epiphytic plants 寄生或附生植物:					
 Fungal fruiting bodies 真菌子實體: 		□ Response growth 反應生長 :				
Other observations 其他劉察						

Please check the appropriate box(es) if the following root conditions are observed:

Root collar not visible: if possible, please determine and note the depth of root collar below ground.

Cracks or splits: separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction.

Exposed root: roots exposed, curling or snaking around a tree. Root exposure may be caused by erosion of top-soil, lack of soil space for root growth or over trampling.

Root rot: root rot is a common root disease. Please try to identify the type of root rot and provide close-up photographs of the rotted areas for further identification.

Cut or pruned roots: roots cut or pruned may truncate the transmission path of water and nutrients to the trunk and leaves.

Trunk girdling: roots girdled the tree trunk may cause restriction to trunk or destruction of the trunk, resulting in stability concern.

Girdling root: roots circles the tree base or below surface soil. The root girdling restricted or destructed the development of both trunk and roots, and may cause tree failure in extreme case.

Dead surface roots: dead surface roots may indicate structural instability, check this box if dead surface root is observed.

Root-plate movement: root plate may be affected by strong gust wind or soil erosion; rootplate movement may severely affect the stability of the tree.

Wounds or mechanical injury: wounds or mechanical injury observed on the roots, in particular the exposed roots.

Pest and disease: pest and disease that may significantly affect tree health or stability. Please try to identify the pest or disease detected on the assessed tree, such as termites, for better pest/disease control.

Parasitic or epiphytic plants: parasitic or epiphytic plants grow on roots exposed. The presence of parasitic or epiphytic plants may or may not affect health or structure of the tree. Please try to identify the parasitic or epiphytic plants observed on the tree and provide details in the space provided.

Fungal fruiting bodies: fungal fruiting bodies or mycelia present at decayed parts of the roots. Please try to identify common wood decay fungi, such as Brown Root Rot Disease and decay caused by *Ganoderma* spp., as far as possible. Close-up photographs showing the key features of the fungi should be included to aid subsequent identification.

Response growth: reaction wood or additional wood that has grown to increase the structural strength of the roots or root collar. Please note location(s) and extent.

Other observations: Please provide other observations that have not been covered in this Section.

Section 11 – Risk Categorisation

This Section on risk categorisation follows the tree risk assessment method promulgated by the ISA, and the method is described in the "*Best Management Practice – Tree Risk Assessment*" (2011) published by the ISA.

Target No.	Tree Part	Condition(s) of Concern	Part Size	Fall Distance		Likelihood 可能性	E	Consequences	Risk rating
目標物語號	樹木部分	關注狀況	(mm) 部位大小 (毫米)	(m) 下墜距離 (米)	Failure 倒塌	Impact 影響	Failure and Impact 倒塌並影響 (Matrix 1: Likelihood matrix 可能性組合)	後果	風險評級 (Matrix 2: Risk rating matrix 風險評級組合)

ikelihood of Failure Likelihood of Impacting Target				Likelihood of Failure	Consequences of Failure				
問題的可能性 影響目標的可能性				and Impact	倒塌後果				
	Very Low 非常低	Low 低	Medium 中等	High 高	倒塌並影響的可能性	Negligible 微小	Minor 較小	Significant 重大	Severe 嚴重
Highly Probable	Unlikely	Somewhat likely	Likely	Very likely	Very likely	Low	Moderate	High	Extreme
非常可能	很性感音	有唬章	較大坡會	很大感音	很大機會	#	=	로	^{%注} 尺
Probable	Unlikely	Unlikely	Somewhat likely	Likely	Likely	Low	Moderate	High	High
相當可能	很性感音	很性感音	有項音	較大機會	較大機會	代	=	문	문
Possible	Unlikely	Unlikely	Unlikely	Somewhatlikely	Somewhat likely	Low	Low	Moderate	Moderate
有可能	很然感音	很低嘹音	很然液會	有核會	有機會	代	代	=	=
Improbable	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Low	Low	Low	Low
不太可能	很性感音	很性嘹音	很性艰音	很性嘹音	很低機會	代	代	氏	代

Target Number: reference number of the targets in priority according to the severity of consequence as given in Section 4 – Target Assessment. **Please list a maximum of three most important targets on each tree part identified.**

Tree Part: the concerned part of the tree. It could be the whole tree, one or more branch(es), main trunk, or root, which might lead to damages of the target(s). A category of tree part may lead to one or more 'Condition(s) of Concern'.

Condition(s) of Concern: the condition(s) of tree or tree part that affect the likelihood of failure and may lead to damages to target, e.g. 'large, dead branch over a car parking space.', 'root plate movement observed at a tree near a residential house', 'trunk decay identified at a tree nearly a children playground' etc.

Part Size: the size of the tree or tree part concerned. Please estimate the diameter of the tree part concerned; if whole tree is concerned, measure the DBH of the tree trunk.

Fall Distance: the fall distance of the tree part or the whole tree against the target concerned. The longer the fall distance, the larger the extent of damage.

Likelihood of Failure and Impact

The likelihood of failure can be categorised into four levels:

- Improbable failure of the tree or tree part concerned is not likely under normal weather conditions and may not fail under extreme weather conditions including red/black rainstorm, typhoon signal No. 8, or extreme winter monsoon, within a specified timeframe. According to the ISA guidelines, the 'specified timeframe' for estimating likelihood of tree failure is between one to five years.
- Possible failure of the tree or tree part concerned could occur under extreme weather conditions within a specified timeframe but would unlikely fail during normal weather conditions.
- Probable failure of the tree or tree part concerned is expected under normal weather conditions within the specified timeframe.
- Highly probable the tree or tree part concerned has started falling or failure is most likely to occur in the near future under normal weather condition. If this situation is encountered, the Inspection Officer is required to take immediate action(s) to protect public safety.

The likelihood of impacting a target can be categorised in four levels:

- Very low the chance of a tree or tree part failure impacting the target concerned is very low, for example, a rarely used site, an occasionally used site that is partially protected by shelter/cover/structure, or a rarely used trail, etc.
- Low it is not likely that a tree or tree part failure will impact the target concerned, for example, an occasionally used site that is fully exposed to the tree concerned, a frequently used site that is partially exposed to the tree concerned, or a constant target that is well protected from the tree concerned.
- Medium a tree or tree part failed may or may not impact the target, with nearly equal likelihood, for example, a frequently used site that is fully exposed to the tree concerned, a constantly used site that is partially protected from the tree concerned.
- High A tree or tree part failure will most likely impact the target, for example, a fixed target is fully exposed to the tree concerned, high-use road or walkway adjacent to the tree concerned.

According to ISA's risk categorisation, 'likelihood of failure and impact' can be selected from a Likelihood Matrix – Likelihood of Failure x Likelihood of Impact, using the Likelihood Matrix table (Matrix 1).

Consequence of Failure

The consequence of failure can be categorised into four levels:

- Negligible no personal injury, low value property damage, or minor or no disruption to traffic or human activities will be involved.
- Minor very minor personal injury may or may not require simple first aid treatment, low to moderate property damage, or small disruptions to traffic or human activities will be involved.
- Significant personal injury may result in hospitalization, moderate to high property damage, or considerable disruption to traffic or human activities will be involved.
- Severe serious personal injury or death, high value property damage, or major disruption to traffic and/or important human activities will be involved.

According to ISA's risk categorisation, the risk rating of a specific tree part to a specified target can be selected from the Risk Rating Matrix – Likelihood of Failure and Impact x Consequence of Failure, by using the Risk Rating Matrix table (Matrix 2).

Section 12 – Mitigation Measures

This Section requires the Inspection Officer to make recommendations on mitigation measures based on the results of the tree risk assessment. Mitigation measures should be prioritised according to their urgency in terms of protecting public safety. The residual risk of the tree or individual tree part upon completion of the recommended mitigation measures should be estimated at the time of the inspection to evaluate if the recommended mitigation measures are implemented adequately.

Mitigation Measures 缓减措施								
Target No. 目標物編號	Tree Part 樹木部分	Mitigation Measures 續減措施	Anticipated Completion Date	Residual Risk 剩餘風險				
			預算完成日期 (dd/mm/yyyy)					

Target No.: reference number of the targets in priority according to the severity of consequence given in Section 4 – Target Assessment.

Tree Part: the target tree or tree part that requires mitigation measures.

Mitigation Measures: the recommended mitigation measures to reduce the tree risk.

Anticipated Completion Date: the expected completion date of the recommended mitigation measures in the format of dd/mm/yyyy.

Residual risk: estimated risk level upon completion of the recommended mitigation measures.

Section 13 – Notes, Explanations, Descriptions and Supplementary Information

Notes, explanations, de	escriptions and supplmer Overall residual risk 综合剩餘風險	<u>itary Information 説明、註解、描述及</u> Advanced assessment 進一步検査	補充資料 O No 否 O Yes 是 Please describe 満描述				
		Inspection limitations 檢查限制 Next inspection date 下次檢查日期	□ None 沒有 □ Inaccessible 難以接近 □ Climbers 攀缘植物 □ Root collar buried 根脊被埋 □ Others				
Attached Information 附夾資料							
Attachment Type Attachment Name			Description				
Add Rows							

Notes, Explanations, Descriptions and Supplementary Information: Please include any conditions or factors or observations that have not been well described elsewhere in the form, including additional notes of the Inspection Officer that are used as the basis for making decisions on the hazard, impact and risk levels in the risk assessment.

Overall Tree Risk Rating: the highest risk rating determined among the different problematic tree parts identified.

Overall residual risk: the highest residual risk upon completion of the mitigation measures for all the problematic tree parts identified.

Advanced Assessment: The Inspection Officer needs to advise if advanced assessments for the tree concerned is required. Please check the box 'Yes' if required and provide details of the advanced assessments recommended, including but not be limited to:

- Drill resistance;
- Sonic tomography;
- Aerial inspection;
- Root radar inspection; or
- Slope/stonewall stability analysis, etc.

Inspection Limitations: the possible limitations of the tree risk assessment. Additional information may be provided in the space 'Others'.

Attached Information: Please provide photos, map, measurements, drawings, figures, etc. relevant to the assessment.

Add Site Plan: relevant site plan should be uploaded. The site plan should show the location of the tree and targets concerned, the dripline, Target Zone boundary and relevant land status information.

Add Tree Photo: relevant photos including but not be limited to site photos, whole tree photos in different directions, close-up photos showing the defects with illustrations and denotes should be uploaded. All photos provided shall follows the photograph requirements set out in Appendix 6 – Photo-taking Guidelines for Tree Risk Assessment specified in the TRAM Guidelines. All photographs should be stamped with date and time at which the photo is taken.

Add Other Information: other relevant information that would help describe, illustrate and/or explain the tree risk assessment, mitigation measures and others should be included

Section 14 – Declaration

This Section requires the Inspection Officer to make declaration regarding his/her qualifications for completing the tree risk assessment and the authenticity of the tree risk assessment that he has just completed with a view to stepping up accountability of the Inspection Officer to his/her own work.

Declaration 聲明							
I, the Inspection Officer for the above TRA Form 2, confirm that I have inspected the tree(s) at the specified date and time with due diligence, and the information given in the Form(s) is truly reflecting what I observed on site.							
本人作為以上個別樹木風險評估(表格2)的巡查人員,確認本人已在本表格所列日期及時間,謹慎小心完成有關樹木的風險評估,而本表格上填入的資料均真確無訛地反映本人在現場觀察所得。							
My academic, professional, training records and work experience met the requirements of Inspection Officer (Form 2) in the TRAM Guidelines. 本人的學術、專業、培訓紀錄及相關工作經驗均符合「樹木風險評估及管理安排」指引中對巡查人員的要求。							
Name of Inspection Officer: [巡查人員姓名	(詩以英文正母書將。)						
Date of Form 2 Completed: 完成表格2日期	(dd/mm/yyyy)						
(If Form 2 is submitted in paper form 若以文本形式遞交表格2)							
Signature of Inspection Officer:							

Name of Inspection Officer: English name in CAPITAL letter of the Inspection Officer who has completed the tree risk assessment for the subject tree. This name should match the one provided in the list of the accepted Inspection Officers provided by the departments to DEVB.

Date of Form 2 Completion: the date that the Inspection Officer completed the Form 2 for the subject tree in the format of dd/mm/yyyy.

Signature of Inspection Officer: if the Inspection Officer cannot submit the Form 2 through TMCP, he/she may need to submit the Form 2 in other forms, including but not be limited to, hard copy, PDF, JPEG, or other forms of digital copy. The Inspection Officer is therefore required to sign the Form 2 prior to its submission. For submission via TMCP, no signature is required. Verification of authenticity would be performed automatically by the system.

References:

Agriculture, Fisheries and Conservation Department, 2006, Nature Conservation Practice Note No. 2 - Measurement of Diameter at Breast Height (DBH), Agriculture, Fisheries and Conservation Department, Government of Hong Kong Special Administrative Region, China.

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- Dunster, J. A., Smiley, E. T., Matheny, N. and Lilly, 2017, Tree Risk Assessment Manual, International Society of Arboriculture, USA.
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- Lonsdale, D., 2017, Principles of Tree Hazard Assessment and Management (7th ed.), Arboriculture Association, UK.
- Shigo, A.L. 2008, A New Tree Biology and Dictionary (11th ed.), Shigo and Trees, Associated., USA.
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