Appendix 1
Using the ISA Basic Tree Risk Assessment Form

This form is provided with the *ISA Tree Risk Assessment Manual* and is intended to act as a guide for collecting and recording tree risk assessment information. This form is for trees receiving a basic (Level 2) risk assessment. It is *not intended for use* with limited visual (Level 1) or advanced (Level 3) assessments. Space is provided to write comments and notes for various conditions that are not included elsewhere on the form or for points that need additional explanation. *It is not necessary to mark every box or to fill in every line on this form*. Only information relevant to the tree risk assessment should be collected. You may adapt this form for your specific needs or you may use your own method of collecting and analyzing field data.

PAGE 1—DATA COLLECTION

Section 1—Assignment and Tree ID

Client _____ Date _____ Time _____

Address / Tree location _____ Tree no. _____ Sheet _____ of _____

Tree species _____ dbh_____ Height _____ Crown spread dia. _____

Assessor(s) _____ Tools used_____ **Time frame**_____

This section outlines the basic information for your assessment. This will be valuable information when drafting your written report. Be sure to refer back to the time frame stated in this section when determining likelihood of failure later on this form.

Client—name of the person who hired you to perform the assessment or agency for which you are working.

Date—date of the tree inspection.

Time—time of the tree inspection.

Address/Tree location—the physical address, GPS coordinates, or other location description of the tree and the location of the tree on the property, such as "backyard" or "between street and sidewalk on the north side of walk." A typical entry may be "411 Pine Street, Oakville. Large tree on left near driveway."

Tree no.—if the tree has an inventory tag with a number, it should be entered here. If a group of trees without tags are assessed, they may be assigned a sequence number.

Sheet—if multiple sheets are used for a tree assessment—or if a group of trees are assessed—the sheet number and total number of sheets used on the job may be entered.

Tree species—include the common and/or scientific name of the tree; cultivar, if known.

dbh—diameter at breast height [U.S., 4.5 feet (1.37 m); or customary diameter measure for your country; IUFRO standard is 1.3 m above ground] measured in inches or centimeters.

Height—tree height either visually estimated or measured. If measured, the tool used for this measurement should be noted in Tools used.

Crown spread dia.—average diameter of the drip line of the tree; measured or estimated.

Assessor(s)—name of the person or people collecting the tree risk information; may also include qualifications such as "TRAQ."

Tools used—list of tools used in the assessment such as "mallet" or "binoculars." If no tools were used, write "none" or leave blank.

Time frame—period in which you are estimating the likelihood of failure, typically between one and five years. Time frame is essential when rating the likelihood of failure with all categories except *imminent*, which has a different time frame (very soon).

Section 2—Target Assessment

Target number	Target description	Target protection	Target zone			Occupancy rate 1—rare 2 – occasional 3 – frequent 4 – constant	Practical to move target?	Restriction practical?
			Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1								
2								
3								
4								

Target Assessment

The Target Assessment chart is used to list target(s)—people, property, or activities that could be injured, damaged, or disrupted by a tree failure—within the striking distance (target zone) of the tree part concerned. Four lines are provided; additional targets can be listed on a separate form. Target information will correspond with the Risk Categorization chart on the back of the form.

Target number—many trees have multiple targets within the target zone; the target number is provided to list individual targets and to facilitate inclusion of this number in the Risk Categorization chart so that the target description does not need to be rewritten.

Target description—brief description such as "people near tree," "house," "play area," or "high-traffic street." Location of the target can be noted by checking one of the distance boxes under Target zone.

Target protection—note any significant factors that could protect the target because this may affect the likelihood of impact and/or the consequences of failure.

Target zone—identify where the targets are in relation to the tree or tree part:

> **Within drip line**—target is underneath the canopy of the tree.

> **Within 1 × Ht**—target is within striking distance if the trunk or root system of the tree fails (1 times the height of the tree).

> **Within 1.5 × Ht**—target is within striking distance if the trunk or root system of the tree fails and there are dead or brittle branches that could shatter and fly from the failed tree.

Occupancy rate—an estimated amount of time the target is within the target zone. Use corresponding numbered codes (1–4):

1. **Rare**—the target zone is not commonly used by people or other mobile/movable targets.

2. **Occasional**—the target zone is occupied by people or other targets infrequently or irregularly.

3. **Frequent**—the target zone is occupied for a large portion of the day or week.

4. **Constant**—a target is present at nearly all times, 24 hours a day, 7 days a week.

Practical to move target?—check box if it is practical to move the target out of the target zone if mitigation is required.

Restriction practical?—check box if it is practical to restrict access to the target zone.

Section 3—Site Factors

<table>
<tr><td colspan="2">Site Factors</td></tr>
<tr><td>History of failures _____</td><td>Topography Flat☐ Slope☐ _____% Aspect _____</td></tr>
<tr><td colspan="2">Site changes None ☐ Grade change☐ Site clearing ☐ Changed soil hydrology☐ Root cuts☐ Describe_____</td></tr>
<tr><td colspan="2">Soil conditions Limited volume☐ Saturated☐ Shallow☐ Compacted☐ Pavement over roots☐ _____% Describe _____</td></tr>
<tr><td colspan="2">Prevailing wind direction_____ Common weather Strong winds☐ Ice☐ Snow☐ Heavy rain☐ Describe_____</td></tr>
</table>

Site factors may influence the likelihood of tree failure. This section provides a list of common site factors that should be considered. There may be other site factors that are critical on a given site or that you should note even if they are not on this form. Any of these factors can be further described in the space provided or on additional paper. Other site factors affecting wind load should be noted. These may include the site elevation, surface roughness, and hilltop locations.

History of failures—note and describe evidence of previous whole-tree failures on the site, and estimate the time frame for how recently they occurred. Previous branch failures should be noted in the Crown and Branches box (located in the Tree Defects and Conditions Affecting the Likelihood of Failure section of the form).

Topography—check boxes for flat or sloping topography; an estimate of the slope percentage may be included.

Aspect—the compass direction that the slope is facing.

Site changes—factors affecting the root system of the tree or the change in exposure of the tree to wind. Check all that apply:

None—no evidence of recent site changes.

Grade change—soil was added or removed from the site.

Site clearing—adjacent trees, which may have blocked the wind, have been removed or significantly reduced.

Changed soil hydrology—changes have been made that affect water flow in or out of the site.

Root cuts—the root system has been cut or otherwise significantly damaged. Additional information on root cuts will be included in the Roots and Root Collar box.

Describe—note applicable details or further descriptions of site changes.

Soil conditions—factors that can affect the ability of the root system to mechanically support the tree, as well as the general health and vitality of the tree. Check all that apply:

Limited volume—soil volume limited by rocks, water table, building foundations, size of a container, or other factors.

Saturated—soil saturated due to poor drainage, high water table, excess irrigation, or location in a low area. May be saturated now or have a history of inundation.

Shallow—rooting depth limited by one or more factors including high water table, rock ledges, compacted layers, or underground structures such as parking decks.

Compacted—soil is severely compacted, limiting the depth, spread, and distribution of the root system.

Pavement over roots—concrete, asphalt, pavers, or other materials restricting root growth or water movement into the root zone. If present, enter the percentage of the area within the drip line that is paved.

Describe—note applicable details or further descriptions of site conditions.

Prevailing wind direction—a typical, consistent, moderate-to-strong wind, usually from a single direction, that has affected tree crown and root system development.

Common weather—trees will adapt to a number of climatic conditions if they occur regularly. Check all that apply (strong winds, ice, snow, or heavy rain).

Describe—note any further descriptions regarding common weather.

Section 4—Tree Health and Species Profile

Tree Health and Species Profile					
Vigor Low ☐ Normal ☐ High ☐	**Foliage** None (seasonal) ☐	None (dead) ☐ Normal _____ % Chlorotic _____ % Necrotic _____ %			
Pests/Biotic_____	**Abiotic** _____				
Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe_____					

This section provides the opportunity to note any species-specific failure patterns that you suspect may influence likelihood of failure. Any species information you feel is important should be noted in this section. Any of these factors can be further described in the spaces provided or on additional paper.

Vigor—an assessment of overall tree health. Classify as low, normal, or high:

> **Low**—tree is weak, growing slowly, and/or under stress.
>
> **Normal**—tree has average vigor for its species and the site conditions.
>
> **High**—tree is growing well and appears to be free of significant health stress factors.

Foliage—size and color are indications of tree health; compare with a healthy specimen of the same species in the area:

> **None (seasonal)**—a deciduous tree that has dropped its leaves for the winter.
>
> **None (dead)**—a tree that has dropped its leaves because it is dead.
>
> **Normal**—percentage of foliage size and color that is normal for the species in the area.
>
> **Chlorotic**—percentage of foliage that is yellowish green to yellow.
>
> **Necrotic**—percentage of dead foliage in the crown.

Pests/Biotic—insects and diseases that may significantly affect tree health or stability.

Abiotic—abiotic problems that may significantly affect tree health or stability.

Species failure profile—any known failure problems with the species in the branches, trunk, or roots.

> **Describe**—note any further species failure details.

Section 5—Load Factors

Generally, two types of loads need to be considered when evaluating tree risk. Dynamic load is from wind as it impacts the tree, and static load is from gravity acting on the tree. These two loads can interact.

Wind exposure—factors that affect wind load on the tree. Check all that apply:

Protected—trees or structures in the area significantly reduce wind velocity or the tree's exposure to wind.

Partial—other trees, or buildings near the tree, moderately reduce the impact of wind on the tree.

Full—tree is fully exposed to wind.

Wind funneling—wind may be "funneled" or "tunneled" (by buildings, canyons, large stands of trees) toward the tree so that wind velocity experienced by the tree is increased.

Relative crown size—comparison of the tree's crown size to the trunk diameter. Classify as small, medium, or large.

Crown density—the relative wind transparency of the crown:

Sparse—crown allows a large degree of wind and light penetration; varies with species.

Normal—indicates moderate wind and light penetration.

Dense—crown does not allow much light or wind penetration.

Interior branches—increase wind resistance but dampen branch/tree movement:

Few—little wind resistance and damping.

Normal—moderate wind resistance and damping.

Dense—significant wind resistance and damping.

Vines/Mistletoe/Moss—check box if present at moderate to high levels that increase weight or wind resistance. Moss refers to Spanish or ball moss (epiphytes).

Recent or expected change in load factors—record any factors, recent or planned, that may significantly affect the load on any defects.

Section 6—Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐   LCR _____%   Cracks ☐ _____   Lightning damage ☐

Dead twigs/branches ☐   _____% overall   Max. dia. _____   Codominant ☐ _____   Included bark ☐

Broken/Hangers   Number _____   Max. dia. _____   Weak attachments ☐ _____   Cavity/Nest hole ____% circ.

Over-extended branches ☐   Previous branch failures ☐ _____   Similar branches present ☐

Pruning history   Dead/Missing bark ☐   Cankers/Galls/Burls ☐   Sapwood damage/decay ☐

Crown cleaned   ☐   Thinned ☐   Raised   ☐   Conks ☐   Heartwood decay ☐ _____

Reduced   ☐   Topped ☐   Lion-tailed ☐   Response growth _____

Flush cuts   ☐   Other _____

_____ Condition(s) of concern _____

Part Size _____   Fall Distance _____   Part Size _____   Fall Distance _____

Load on defect   N/A ☐   Minor ☐   Moderate ☐   Significant ☐   **Load on defect**   N/A ☐   Minor ☐   Moderate ☐   Significant ☐

Likelihood of failure   Improbable ☐   Possible ☐   Probable ☐   Imminent ☐   **Likelihood of failure**   Improbable ☐   Possible ☐   Probable ☐   Imminent ☐

This section provides a systematic checklist for assessing the tree, dividing it into Crown and Branches, Trunk, and Roots and Root Collar. Check only factors that apply to the assessed tree. These factors may or may not contribute to Condition(s) of concern, Load on defect, or Likelihood of failure.

Crown and Branches

Unbalanced crown—check box if foliage is not uniformly distributed.

Live crown ratio (LCR)—the ratio of the height of the live crown to the height of the entire tree [LCR = (crown height/tree height) × 100].

Dead twigs/branches—small-diameter, dead branches. Check box if present and indicate percentage and size (maximum diameter).

Broken/Hangers—broken or cut branches remaining in the crown. Record the number and size (maximum diameter).

Over-extended branches—check box if there are branches that extend beyond the tree's canopy or that are excessively long with poor taper.

Pruning history—check appropriate boxes if pruning is known and relevant:

Crown cleaned—pruning of dead, dying, diseased, and broken branches from the tree crown.

Thinned—selective removal of live branches to reduce crown density. Other pruning types include, but are not limited to, structural, pollarding, espalier, and vista, and may be included in your notes.

Raised—removal of lower branches to provide clearance.

Reduced—pruning to decrease tree height or spread by cutting to lateral branches.

Topped—inappropriate pruning technique used to reduce tree size; characterized by internodal cuts.

Lion-tailed—inappropriate pruning practice removing an excessive number of inner and/or lower lateral branches.

Flush cuts—pruning cuts through (or removal of) the branch collar, causing unnecessary injury to the trunk or parent branch.

Other—note any other pruning history that may affect the likelihood of failure.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction. Check box if present and describe briefly.

Lightning damage—often evidenced by a centrally located line of sapwood damage and bark removal on either side in a spiral pattern on the trunk or branch. Check box if present.

Codominant—branches of nearly equal diameter arising from a common junction and lacking a normal branch union. Check box if present and describe.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure. Check box if present.

Weak attachments—branches that are codominant or that have included bark or splits at or below the junctions. Check box if present and describe.

Cavity/Nest hole—openings from the outside into the heartwood area of the tree. Record the percentage of the branch circumference that has missing wood.

Previous branch failures—check box if there is evidence of previous branch failures and describe briefly. Check "similar branches present" if relevant.

Dead/Missing bark—check box if branches are dead or if areas of dead cambium are present where new wood will not be produced.

Cankers/Galls/Burls—check box if relevant and circle which one(s) are of concern:

> **Canker**—localized diseased areas on the branch; often sunken or discolored.

> **Gall**—abnormal swellings of tissue caused by pests; may or may not be a defect.

> **Burl**—outgrowth on the trunk, branch, or roots; not usually considered a defect.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the branch, or decay of dead or dying branches. If checked, you may circle "damage" or "decay" to indicate which one is present.

Conks (mushrooms, brackets)—fungal fruiting structures; common, definite indicators of decay. Check box if present and describe under Condition(s) of concern.

Heartwood decay—check box if present and describe.

Response growth—reaction wood or additional wood grown to increase the structural strength of the branch. Note location and extent.

Condition(s) of concern—conditions in the crown and branches that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write "none."

Part Size—a characterization of the part of the tree that may fail toward the target. Usually this is the diameter of the branch that can fall or the dbh of the tree. It may be appropriate to indicate the size of the part that could impact the target. Include units of measurement.

Fall Distance—if applicable, record the distance that the tree or tree part will fall before hitting a target; this may be relevant to the consequences of failure.

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable*, *possible*, *probable*, or *imminent*) for the crown and branches of greatest concern. If there is a main concern, this information should be transferred to the Risk Categorization chart.

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐

Codominant stems ☐ Included bark ☐ Cracks ☐

Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐

Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐

Cavity/Nest hole _____ % circ. Depth _____ Poor taper ☐

Lean _____° Corrected? _____

Response growth _____

Condition(s) of concern _____

Part Size _____ Fall Distance _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

Trunk

Dead/Missing bark—check box if a stem or codominant stem is dead or if areas of dead cambium are present where new wood will not be produced.

Abnormal bark texture/color—may indicate a fungal or structural problem with the trunk. Check box, if present, and add notes if it is a concern.

Codominant stems—stems of nearly equal diameter arising from a common junction and lacking a normal branch union. Note the size, location, and number, if relevant, under Condition(s) of concern.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure. Check box if present.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction. Check box if present and describe under Condition(s) of concern.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the trunk. If checked, you may circle "damage" or "decay" to indicate which one is present.

Cankers/Galls/Burls—may or may not affect the structural strength of the tree. Check box if present and circle which one(s):

    Canker—localized diseased area on the branch; often sunken or discolored.

    Gall—abnormal swelling of tissue caused by pests; may or may not be a defect.

    Burl—outgrowth on the trunk, branch, or roots; not usually considered a defect.

Sap ooze—oozing of liquid that may result from infections or infestations under the bark. May or may not affect structure or stability. Check box if present.

Lightning damage—often evidenced by a centrally located line of sapwood damage and bark removal on either side in a spiral pattern on the trunk or branch. Check box if present.

Heartwood decay—check box if present and identify/describe under Condition(s) of concern.

Conks/Mushrooms—fungal fruiting structures; common, definite indicators of decay when on the trunk. Check box if present and identify/describe under Condition(s) of concern.

Cavity/Nest hole—openings from the outside into the heartwood area of the tree. Record the percentage of the trunk circumference that has missing wood, and the depth of the cavity.

Poor taper—change in diameter over the length of the trunk, important for even distribution of mechanical stress. Check box if trunk has poor taper.

Lean—angle of the trunk measured from vertical. Record the degree of lean.

Corrected?—the tree may have been able to correct the lean with new growth in the younger portions of the tree. Note conditions related to lean in the space provided.

Response growth—reaction wood or additional wood grown to increase the structural strength of the trunk. Note location and extent.

Condition(s) of concern—conditions in the trunk that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write "none."

Part Size—a characterization of the part of the tree that may fail toward the target. Usually this is the diameter of the branch that can fall or the dbh of the tree. It may be appropriate to indicate the size of the part that could impact the target. Include units of measurement.

Fall Distance—if applicable, record the distance that the tree or tree part will fall before hitting a target; this may be relevant to the consequences of failure.

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable*, *possible*, *probable*, or *imminent*) for the trunk. If there is a main concern, this information should be transferred to the Risk Categorization chart.

— Roots and Root Collar —

Collar buried/Not visible ☐   Depth_____   Stem girdling ☐

Dead ☐   Decay ☐   Conks/Mushrooms ☐

Ooze ☐   Cavity ☐ _____% circ.

Cracks ☐   Cut/Damaged roots ☐   Distance from trunk _____

Root plate lifting ☐   Soil weakness ☐

Response growth ————————————————

Condition(s) of concern ————————————

Part Size ———————   Fall Distance ————

Load on defect   N/A ☐   Minor ☐   Moderate ☐   Significant ☐

Likelihood of failure   Improbable ☐   Possible ☐   Probable ☐   Imminent ☐

Roots and Root Collar

Collar buried/Not visible—check box if the root collar is not visible. If possible, determine and note the depth belowground.

Stem girdling—restriction or destruction of the trunk or buttress roots. Check box if it is a failure concern.

Dead—check box if one or more structural support roots are dead.

Decay—check box if present and identify/describe under Condition(s) of concern.

Conks/Mushrooms—fungal fruiting structures; common, definite indicators of decay. Fungal fruiting structures away from the trunk in the turf or mulch may be due to the presence of a mycorrhizal fungus and, if so, do not pose a threat to the tree. Check box if present and identify/describe under Condition(s) of concern.

Ooze—seeping or exudation that can result from pest infestations or infections under the bark. Check box if present and describe.

Cavity—definite indicators of heartwood decay. Measure the size of the opening and record the percentage of the tree's circumference affected.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction. Check box if present and describe.

Cut/Damaged roots—check box if present. Measure and record the distance from the trunk to the cut.

Root plate lifting—soil cracking or lifting indicates the tree has been rocking, usually in high winds. Check box if present, and note under Condition(s) of concern.

Soil weakness—check box if there is a soil condition affecting the anchorage of the tree's root system. Note under Condition(s) of concern if significant.

Response growth—reaction wood or additional wood grown to increase the structural strength of the roots or root collar. Note location and extent.

Condition(s) of concern—conditions in the trunk that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write "none."

Part Size—a characterization of the part of the tree that may fail toward the target. Usually this is the diameter of the branch that can fall or the dbh of the tree. It may be appropriate to indicate the size of the part that could impact the target. Include units of measurement.

Fall Distance—if applicable, record the distance that the tree or tree part will fall before hitting a target; this may be relevant to the consequences of failure.

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable*, *possible*, *probable*, or *imminent*) for the roots or root collar. If there is a main concern, this information should be transferred to the Risk Categorization chart.

PAGE 2—RISK CATEGORIZATION AND MITIGATION

The second page of the form focuses on categorizing the risk the tree poses and describing how the risk should be mitigated. It also provides space for additional notes or comments regarding any section from the first page. Use a separate sheet of paper if more space is needed.

Section 7—Risk Categorization

Risk Categorization

Target (Target number or description)	Tree part	Condition(s) of concern	Likelihood												Consequences				Risk rating (from Matrix 2)
			Failure				Impact				Failure & Impact (from Matrix 1)								
			Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely	Negligible	Minor	Significant	Severe	

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

This form uses the risk categorization methodologies presented in ISA's *Best Management Practices: Tree Risk Assessment*. The chart provided on the form is a tool to tie the data collected on the front of the form to the risk categorization process. You can rate the risk for up to four different conditions that may be found in the tree being assessed. Additional ratings may be made on an additional form. If there is only one condition of concern, only one line needs to be completed.

Target (Target number or description)—specify target number or a brief description from the first page of this form.

Tree part—specify the branch, trunk, or root of concern. For example, Condition Number 1 may be the broken branch over the house, and Condition Number 2 may be a branch over the driveway. The entries in the Tree part column would both be "branch." Other options for this column include "trunk" and "roots."

Condition(s) of concern—identify the concern(s) with the tree part listed. An example would be "large, dead branch over the house."

Tree risk has two components: (1) the likelihood of a tree failure striking a target, which is divided into the likelihood of failure and the likelihood of impact, and (2) the consequences of failure. Use your best judgment and the data available to assess the likelihood of failure (*improbable*, *possible*, *probable*, *imminent*) and the likelihood of impact (*very low*, *low*, *medium*, *high*). After these two decisions are made, use Matrix 1 (likelihood matrix) to determine the likelihood of failure and impact category (*unlikely*, *somewhat likely*, *likely*, *very likely*) based on your assessment.

The likelihood of failure can be categorized using the following guidelines:

Improbable—the tree or tree part is not likely to fail during normal weather conditions and may not fail in extreme weather conditions within the specified time frame.

Possible—failure may be expected in extreme weather conditions, but it is unlikely during normal weather conditions within the specified time frame.

Probable—failure may be expected under normal weather conditions within the specified time frame.

Imminent—failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is an infrequent occurrence for a risk assessor to encounter, and it may require immediate action to protect people from harm. The imminent category overrides the stated time frame.

Since these categories are time dependent, the time frame must be considered. The time frame is recorded on the first page.

The likelihood of impacting a target can be categorized using the following guidelines:

Very low—the chance of the failed tree or tree part impacting the specified target is remote. Likelihood of impact could be *very low* if the target is outside the anticipated target zone or if occupancy rates are rare. Another example of *very low* likelihood of impact is people in an occasionally used area with protection against being struck by the tree failure due to the presence of other trees or structures between the tree being assessed and the targets.

Low—there is a slight chance that the failed tree or tree part will impact the target. This is the case for people in an occasionally used area with no protection factors and no predictable direction of fall, a frequently used area that is partially protected, or a constant target that is well protected from the assessed tree. Examples are vehicles on an occasionally used service road next to the assessed tree, or a frequently used street that has a large tree providing protection between vehicles on the street and the assessed tree.

Medium—the failed tree or tree part could impact the target, but is not expected to do so. This is the case for people in a frequently used area when the direction of fall may or may not be toward the target. An example of a *medium* likelihood of impacting people could be passengers in a car traveling on an arterial street (frequent occupancy) next to the assessed tree with a large, dead branch over the street.

High—the failed tree or tree part is likely to impact the target. This is the case when there is a constant target with no protection factors, and the direction of fall is toward the target.

Matrix 1 (likelihood matrix) is used to determine the combined likelihood of failure and impact in a given time frame. The resulting terms (*unlikely*, *somewhat likely*, *likely*, *very likely*) are defined by their use within the matrix and are used to represent this combination of occurrences in Matrix 2 (risk rating matrix).

In the Consequences section, one category should be selected (*negligible*, *minor*, *significant*, *severe*). Consequences of failure are estimated based on the amount of harm or damage that will be done to a target. The consequences depend on the part size, fall characteristics, fall distance, and any factors that may protect the risk target from harm. The significance of target values—both monetary and otherwise—are subjective and relative to the client.

The consequences of failure can be categorized using the following guidelines:

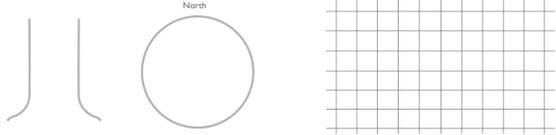**Negligible**—no personal injury, low-value property damage, or disruptions that can be replaced or repaired.

Minor—minor personal injury, low-to-moderate value property damage, or small disruption of activities.

Significant—substantial personal injury, moderate- to high-value property damage, or considerable disruption of activities.

Severe—serious personal injury or death, high-value property damage, or major disruption of important activities.

Risk rating—the risk rating of the individual part for a specified target. The risk rating is categorized using Matrix 2. Risk rating terms are *low*, *moderate*, *high*, and *extreme*.

Section 8—Notes, Mitigation, and Limitations

Notes, explanations, descriptions

_____

_____

_____

_____

_____

Mitigation options

1._____ **Residual risk** _____

2._____ **Residual risk** _____

3._____ **Residual risk** _____

4._____ **Residual risk** _____

Overall tree risk rating Low ☐ Moderate ☐ High ☐ Extreme ☐

Overall residual risk None ☐ Low ☐ Moderate ☐ High ☐ Extreme ☐ **Recommended inspection interval** _____

Data ☐Final ☐Preliminary **Advanced assessment needed** ☐No ☐Yes-Type/Reason _____

Inspection limitations ☐None ☐Visibility ☐Access ☐Vines ☐Root collar buried Describe _____

Upon completion of the assessment, use this section to illustrate potential areas of concern and to offer mitigation options. Any further recommendations or notes should be included in this section.

Notes, explanations, descriptions—describe any conditions or factors that are not well described elsewhere on the form. Include notes on anything you need to take into consideration for making ratings or recommendations.

The grid, stem, and circle templates are provided for sketching any applicable details related to the tree or site.

Mitigation options—list options for mitigating each risk described. List your preferred recommendation on the first line.

Residual risk—the residual risk is for the risk remaining after the mitigation you are recommending. Residual risk can be _low_, _moderate_, _high_, or _extreme_.

Overall tree risk rating—the highest risk determined for the tree and target of concern. If there is more than one part or target rating, the tree risk rating is the highest of the group.

Overall residual risk—risk remaining if the highest-risk tree part is mitigated.

The shaded rows in the Risk Categorization chart may be used to assess residual risk after proposed mitigation. For each mitigation action, rate the expected risk remaining after treatment using the same methodology for categorizing risk as before.

Recommended inspection interval—recommended time for reinspection or inspection frequency.

Data—use these boxes to indicate whether this assessment is final or preliminary.

Advanced assessment needed—note the reason for any advanced assessment recommended.

Inspection limitations—factors that limited your ability to inspect the tree. Check all that apply and describe briefly.