



Kitasoo/Xai'xais Cultural Feature Identification Standards Manual

Version 1

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Acknowledgements

This manual is an adaptation of the Council of the Haida Nation – Cultural Feature Identification Standards Manual.

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These standards have been adapted from the Council of the Haida Nation – Cultural Feature Identification Standards Manual by the Central Coast Indigenous Resource Alliance for use by the Kitasoo/Xai'xais Nation for the implementation of the Great Bear Rainforest Land Use Objectives Order.

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BACKGROUND

Purpose of this Document

This document describes the field survey procedures for carrying out a Cultural Features Identification Survey. Cultural Features Identification Surveys detect the presence of cultural features and must be conducted prior to the development and approval of road and timber harvesting plans and permits, or other major projects within Kitasoo/Xai'xais Territory (for map see Appendix D).

Connection to Higher Level Plans and Objectives

Great Bear Rainforest Land Use Order

The First Nations section¹ for the Central and North Coast in the 2016 **Great Bear Rainforest Land Use Order (GBRLUO)** prescribes requirements for forest management, including carrying out field reconnaissance or field assessments for cultural features. These surveys are required to maintain and protect cultural features that may be affected by logging, road construction and associated activities. The cultural features identification standards in this manual are designed to ensure the proper identification of cultural features and to support the successful implementation of the objectives found within the GBRLUO.

Kitasoo/Xai'xais Stewardship Plans

Protection of Kitasoo/Xai'xais culture and heritage is guided by the *Kitasoo/Xai'xais Integrated Marine Use Plan* (2011) and the *Kitasoo/Xai'xais Land and Resource Protection and Management Plan* (2000) in accordance with Kitasoo/Xai'xais laws and customs. Core values and principles from these plans include:

- Kitasoo/Xai'xais consent is required for all activities within the Territory.
- Activities within the Territory must protect or enhance the wellbeing of Kitasoo/Xai'xais people, forests, fish, wildlife and the complex interactions of all life.
- Conservation of cultural and natural resources guides all activities in the Territory. Activities in ecologically or culturally sensitive sites may be prohibited.
- Protection of Kitasoo/Xai'xais environmental and cultural values is paramount and will be carefully monitored and managed.

¹ See Part 2, Division 2 of the 2016 Great Bear Rainforest Land Use Objectives Order.

- Kitasoo/Xai'xais legal principles of respect, reciprocity, balance, and intergenerational knowledge are foundational to all activity, planning and development.

To ensure these principles are followed, it is a requirement under the **Kitasoo/Xai'xais Policy on Surveying Cultural Features** (2017) that an individual or company must conduct a preliminary field assessment to identify cultural features within the area of interest before the commencement of site-specific planning work, and that this assessment must follow the survey standards in this manual.

Who Can Use These Standards?

This manual establishes the procedures that must be followed when carrying out Cultural Features Identification Surveys in potential Development Areas within Kitasoo/Xai'xais Territory.

To conduct a Cultural Features Identification Survey, a surveyor must successfully complete all of the training modules designed to teach feature identification and the field survey protocols, and must be on the list of qualified surveyors for the Kitasoo/Xai'xais Stewardship Authority (KXSA). Qualified surveyors can direct the work of field crews who have some training and experience but who are not on the list of qualified surveyors. However, **the qualified surveyor must take full responsibility for the survey results.**

More detail on qualifying as a surveyor is provided in Section 7.0.

FIELD SURVEYS

1.0 Cultural Features

There are five types of Cultural Features that are described in this Standards Manual. These do not represent a complete or absolute list of features integral to Kitasoo/Xai'xais culture. These feature types are specific to the objectives in the GBRLUO (Part 2, Division 2, Objectives 5-9). For forestry companies the management requirements for these features are set out in the Order. The KXSA may also require protection of these features when other types of development are planned for Kitasoo/Xai'xais Territory.

The five types of Cultural Features are:

- Aboriginal Heritage Features;
- Aboriginal Forest Resources;
- Culturally Modified Trees;
- Aboriginal Tree Use; and,
- Western Yew.

The definition and keys for identification of each type of Cultural Feature is provided in detail in Section 5.

2.0 Surveying for Cultural Features

Cultural Features Identification Surveys are necessary to meet the requirements of the GBRLUO to identify and locate cultural values. **Surveys should be carried out prior to laying out forestry blocks or roads to ensure that cultural features are protected when designing forestry activities, and to allow time for any additional archaeological surveys.**

Preliminary Field Reconnaissance

Cultural Feature Identification Surveys are equivalent to what the Provincial Heritage Branch may call a non-permitted Preliminary Field Reconnaissance. Carrying out these surveys does not remove a forest licensee's obligation to consult a professional archaeologist or comply with requirements under the Provincial *Heritage Conservation Act* (HCA). If an archaeological resource is disturbed during development all work must be stopped, and the HCA requires that a Heritage Inspection or Investigation Permit is required before work recommences.

Archaeological Impact Assessments

Archaeological Impact Assessments (AIA) are detailed inventories carried out by a professional archaeologist to determine the presence and impact to both surface and sub-surface archaeological resources. The need for a more detailed archaeological assessment may be identified during a Cultural Features Identification Survey. However, it is ultimately the responsibility of the practicing forester or licensee who is planning the project to determine when an AIA is required. This determination should be made in consultation with the KXSA and Kitasoo/Xai'xais First Nation. Proper management for cultural heritage features can be further informed by a more detailed survey carried out by a professional archaeologist.

Recommending an Archaeological Impact Assessment

At a minimum, an AIA or the consultation of a professional archaeologist should be recommended within the Cultural Feature Identification Report if any of the following describe a Development Area:

- Any Aboriginal Heritage Features are found;
- More than one Culturally Modified Tree is found;
- Where development is planned to occur between at least two archaeological features (e.g. CMTs) that are within 100 metres of each other;
- Where the surveyor suspects a likelihood of subsurface features;
- Where archaeological evidence is documented or known to occur in an adjacent area (e.g. known traditional use site, village, camp, trail).

Other variables may inform the need for an AIA, based upon the discretion of the practicing archaeologist, forester, the Provincial Heritage Branch, or the KXSA.

While a Cultural Feature Identification Survey may identify an archaeological resource, it is the responsibility of the proponent (*e.g.* forest company) to employ a registered professional archaeologist for any further assessments, and to record the site(s) under the provincial archaeological site registry.

Kitasoo Requirement for Archaeological Studies

Where development is planned conducting archaeological studies is a requirement under the ***Kitasoo/Xai'xais Land and Resource Protection and Management Plan*** (2000) for the following Integrated Use Areas:

- Aristazabal
- Surf Inlet
- Aaltanhash/Butedale
- Green Inlet/Carter Lake
- Tolmie Chanel (including special assessments for Cougar Bay & Alexander Inlet)
- Pooley/Roderick Islands (including special assessments for Windy Bay, Griffin Pass, and James Bay)
- Swindle/Price Islands (including special assessment near Klemtu)
- Mathieson Channel/Dowager Island
- Mary's Cove
- Roderick Lake

3.0 Planning and Preparation for a Field Survey

This section provides instructions to guide the KXSA and surveyors in preparing for a field survey and determining the appropriate level of survey intensity.

3.1 Steps to Carrying out a Field Survey

Cultural Feature Identification Surveys always follow these basic steps:

1. Identify survey area (*e.g.* Development Area or block)
2. Carry out a pre-field assessment – including communicating with the KXSA, review of background information (*e.g.* traditional use and ethno-historical data) and maps of the area
3. Determine survey intensity and block stratification
4. Establish survey route, including:
 - a. Identify and mark a starting point
 - b. Lay out transects (including strip-lines and stations)
5. Survey along transects, mapping and recording cultural features
6. Process data and prepare final report

It is expected that every Cultural Feature Identification Survey will have:

- correct identification and classification of features (see Section 5)
- appropriate survey coverage of the Development Area (see Section 3)
- accurate spatial location of features (see Sections 4 & 5)
- identification of the need for additional surveys (as required – see Section 2)

3.2 Pre-field Site Assessment and Data Review

The pre-field assessment of the survey area will help establish the survey type and stratification needs. Pre-field assessments should include:

- Review of available maps, data, and predictive models for:
 - proximity to coast or major water bodies;
 - potential for raised beach features;
 - existence of known and/or registered archaeological sites both in and adjacent to the Development Area; and
 - existence of known Cultural Features both in and adjacent to the Development Area.

- Review of any relevant technical data, including (but not limited to):
 - timber type(s);
 - elevations;
 - mapped ecological site series;
 - surveyed streams, gullies, rock outcrops, and other features.
- Review of any specific instructions from the KXSA regarding Cultural Features and interests that have been identified for this survey including community traditional use knowledge.

Based on this review the surveyor can begin to build a strategic approach for how to best survey the proposed Development Area.

3.3 Survey Plan - Block Stratification

When planning a Cultural Feature Identification Survey, it is important to know what Biogeoclimatic Ecosystem Classification (BEC) site series forest types are found within the proposed Development Area. Certain types of Cultural Features may have a correlation with specific ecosystems or BEC site series², and those BEC site series would require a more thorough or higher intensity survey. A proposed Development Area may cover more than one type of ecosystem. Where a Development Area has more than one forest type (site series), the area to be surveyed can be divided (stratified) in to strata (*e.g.* Strata 1, Strata 2) for more efficient surveying.

Determining stratification in a Development Area is at the joint discretion of the KXSA and the surveyor. Pre-existing divisions in the Development Area can be used, for example the Development Area may be sub-divided by:

- site series,
- terrain types, or
- forest inventory or timber types.

Subdividing a Development Area in to strata is not mandatory and may not be necessary for some areas. When using strata a justification should be provided for the stratification of the survey area and spatial data/map indicating the boundaries/units must be developed and shared with the KXSA and the surveyor. Stratification makes sense where different areas within the same survey project require different levels of survey intensity. See Figure 1 for an example.

The surveyor must determine and record the level of survey intensity to use for each of the strata following the guidelines provided in Section 3.4. More details on when to use strata as an efficient survey strategy can be found in sections 3.4 – 3.6.

² For more information on Biogeoclimatic Ecosystem Classification visit:
<https://www.for.gov.bc.ca/hre/becweb/>

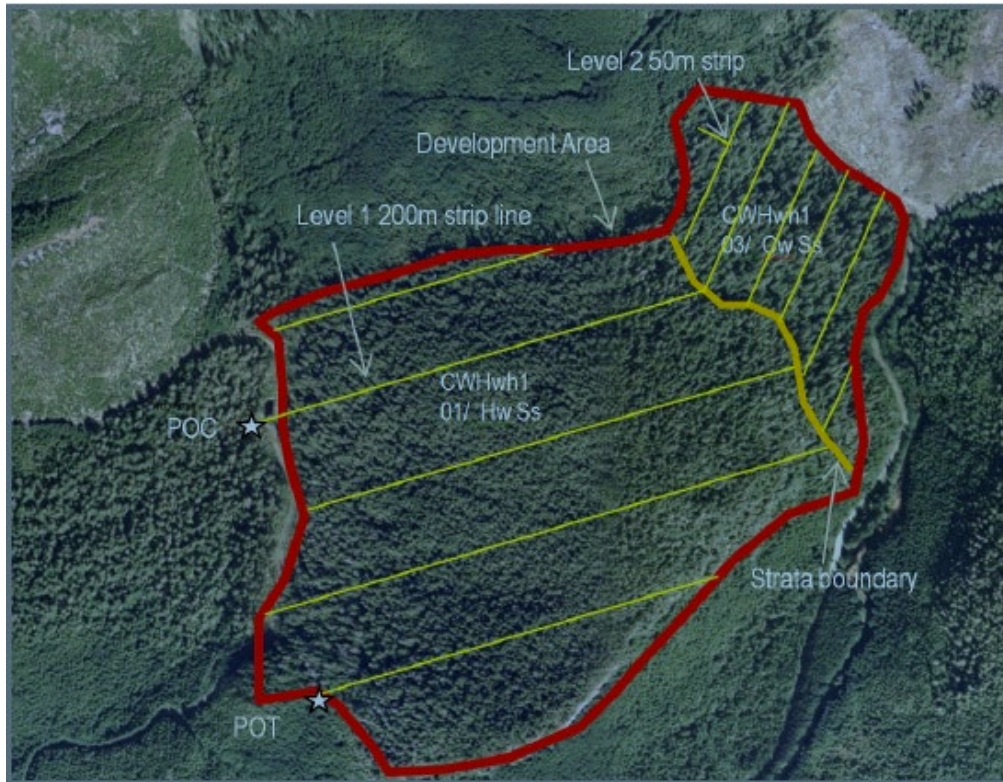


Figure 1. Example of block stratification. In this case the left, or western most area, denoted by the 01 Site Series (western hemlock/Sitka spruce), is a Level 1 survey intensity and requires less than 100% block coverage. The right, or eastern most area, denoted by the 03 Site Series (western red cedar/Sitka spruce) with potential for a high concentration of Cultural Features, is a Level 2 survey intensity and requires 100% block coverage.

3.4 Determining Survey Intensity

There are two (2) levels of survey intensity:

- **Level 1 Survey** – Is a less intensive site level reconnaissance. It involves visual inspection of at least 25% of the Development Area or the stratified portion(s)³ of a Development Area, but less than 100% of that area;
- **Level 2 Survey** – Is the most intensive site level survey. It involves visual inspection of 100% of the Development Area or the stratified portions of a Development Area.

It is required that a surveyor and crew use transects (see Section 4.3) when conducting a Cultural Features Identification Survey. Transects are assumed to provide a visual inspection of an average of 25 metres on each side of the transect centre line. To ensure

³ A Development Area that is ecologically diverse or large may be subdivided or stratified. For more on block stratification see section 3.3.

surveys are evenly distributed over the Development Area, surveyors should space them according to the table below.

| Survey Level | % Coverage | Spacing (m) |
|--------------|---------------|-----------------|
| 1 | 25 – 50 – 75+ | 200 – 100 – ~60 |
| 2 | 100 | 50 |

The intent of allowing two different survey types or levels is to match the concentration of survey effort with the potential concentration of cultural features. While minimum survey requirements are acceptable in some cases, **it is always the responsibility of the surveyor to identify the cultural features within a Development Area.**

When establishing a survey all surveys begin as a Level 1. A Level 2 survey is automatically required when:

- The Development Area is less than 5 hectares;
- Any Culturally Modified Trees are encountered;
- More than one Monumental Cedar is encountered;
- A Type 1 or 2 Aboriginal Heritage Feature is encountered;
- Knowledge of a high likelihood for encountering important Cultural Features.

Other variables that lead to a change in survey level are at the discretion of the surveyor. If there is any question that there is a higher probability of feature occurrence based on site type/ecology or predictive model then a Level 2 survey should be conducted. Surveyors and the KXSA will work together to document their reasons for selecting the final survey intensity. These reasons should be recorded on their field form and in the final project report.

3.5 Level 1 Site Level Reconnaissance Survey

The objective of a Level 1 Survey is to identify cultural features by surveying only part of the Development Area so that a minimum coverage of at least 25% of the Development Area, or 25% of the stratified portions of a Development Area can be met.

Level 1 surveys would be used when an area has almost no features and the likelihood of finding features is considered very low. To use a Level 1 survey the surveyor should consider the stand type, geography, and knowledge of the area, and must provide supporting information (such as survey results from adjacent stands).

Data collection transects in a Level 1 survey should not be more than 200 metres apart (*i.e.* 200 metres between survey centre lines). The survey method used must meet the minimum 25% block coverage, but may cover more than 25% of the block. To cover more of the block (or increase the survey intensity) the surveyor should decrease the distance between the transects – see Figure 2.

Increasing block coverage is at the discretion of the surveyor. When more features are identified, it generally indicates a higher probability of features throughout a survey area and should trigger tighter transect spacing (*i.e.* higher survey intensity), as illustrated in Figure 2.

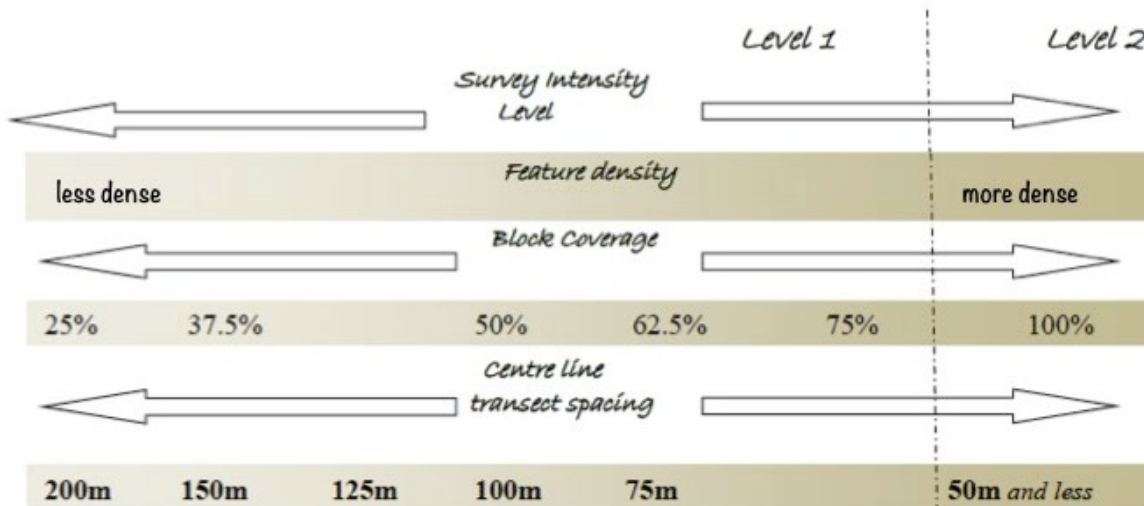


Figure 2. Survey intensity level in relation to block coverage.

3.6 Level 2 Intensive Site Level Survey

The objective of a Level 2 Survey is to identify cultural features by visually surveying 100% of the Development Area, or in a stratified portion of a Development Area. When establishing transects for a Level 2 Survey **the maximum required spacing between centre lines is 50 metres.**

Transects are assumed to provide a visual inspection of an average of 25 metres on each side of a survey line. For areas where a Level 2 Survey is required and a distance of 25 metres cannot be seen from a centre line, the distance between transect lines can either be reduced accordingly or a surveyor can leave a survey centre line to visually inspect the area, as shown in Figures 3 and 4.

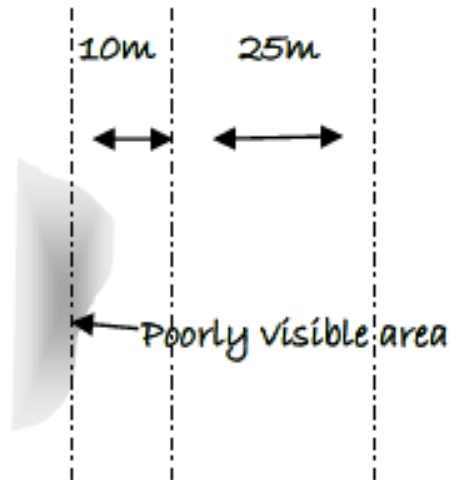


Figure 3. Narrow transect spacing to account for poor visibility.

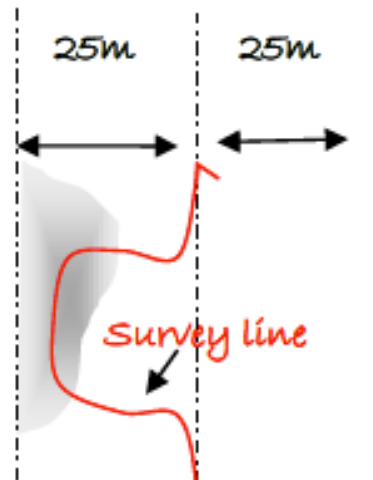


Figure 4. Survey off of centerline to account for poor visibility.

4.0 Carrying Out Field Surveys

This section outlines minimum standards and recommendations to be used when doing a Cultural Feature Identification Survey. The methods for carrying out a Cultural Feature Identification Survey follow a transect-based survey protocol, and the use of a GPS. This section also identifies whether each survey component is mandatory or recommended.

In Field Survey Establishment

4.1 Tie-Points

The tie-point is the navigation tool used by the surveyor to locate the Point of Commencement (POC). A Cultural Feature Identification Survey tie-point should be a permanent topographic feature distinguishable both on air photos and on the ground. The tie-point can be a location like a creek junction, road location, or a forestry falling corner. Once identified, choose a healthy tree closest to this tie-point as the tie-point tree.

The tie-point tree should be well marked (*e.g.* three strands of plastic flagging tape). The flagging tape should include labeling that provides clear information about the project, including:

Project–Dev. Area(s)–TiePoint–POC = (distance/bearing)–Survey Type–Date–Crew

While the tie-point is an important point for survey establishment, it is not a required attribute for data submissions under these standards.

4.2 Point of Commencement (POC)

The point of commencement must be a map feature (*e.g.* creek, road junction, falling corner) or GPS station that is accessible and within or on the edge of the Development Area. For forestry surveys where there is more than one cut opening proposed for a Development Area, use only one POC for surveying all of the areas.

A POC is a required attribute for data submissions under these standards. Location of the POC should include GPS coordinates and a written description of its location.

If a tie point is not used the surveyor should mark the location of the POC with plastic flagging tape and clearly label it following similar standards to the tie point. For example:

Project–Dev. Area–POC–Survey Type–Date–Crew Initials

Example: AlexInlet-Alex1B-POC-CFI survey-2018/05/30-RC, VB, AF

Field Surveying

4.3 Transects

Prior to heading out into the field maps of the Development Area should be uploaded to the GPS unit for guidance in the field. The surveyor will work with the KXSA to discuss optimal strategies for surveying the Development Area. To sample the Development Area parallel transects will be established following the spacing guidelines established under sections 3.4-3.6. Ideal transect placement and spacing may be determined during pre-field survey planning; however, **the final placement and spacing of the transects is the responsibility of the surveyor.** Despite pre-planning in the field adjustments may be required to establish appropriate survey intensity for the site (section 3).

GPS spatial coordinates must be recorded for the beginning and end of each transect. The surveyor may choose to record GPS coordinates for stations along the transect or the surveyor may choose to use GPS tracks to record the location of the transect. The recommended spacing for stations is approximately 50 metres or less. When recording stations with GPS coordinates it is important that stations are easily distinguished from features.

4.4 Marking and Mapping Features

Surveys are conducted following transects that travel the length of the area to be surveyed. While walking these lines, the surveyor will be doing a visual inspection of the site 25m to either side of the transect.

Mapping Features

When a cultural feature is discovered, the feature will be mapped with a GPS according to spatial accuracy standards outlined in this field manual (see Sections 4.6 and 6.0) and any feature-specific guidelines in Section 5. At the same time as the feature is mapped, data will be collected about the feature following the standards and using the templates found in Section 5, and Appendices A and B or on the GPS tablet data form. **When mapping features ensure GPS points include the feature type and associated feature number as part of the spatial data.**

A feature should never be bisected by the boundary of the Development Area. Records for patchy features should be entirely within the boundary of a Development Area.

Marking Features

Most features should be flagged for easier identification in the field. Features that require flagging include: Aboriginal Heritage Features (AHFs), historic and contemporary Culturally Modified Trees, Monumental Cedar, and yew trees. Aboriginal Forest Resources (AFRs) do not require flagging. Patchy features (such as certain AHFs and yew trees) should have a GPS coordinate taken from the centre of the patch, and the location of the patch features should be marked with flagging either a tie point or centre point.

Note: When using a tie point to mark a feature take good field notes explaining the location of the tie point relative to the location of the feature including distance and bearing. The flagging tape must also be clearly labeled with the distance, bearing and the feature type.

Flagging must be labeled with a permanent marker. Labels must include the following information:

Project – Dev.Area – Feature Type – Feature # – Date – Surveyor/Crew Initials
OR

Project – Dev.Area – Tie Point/POC – Survey Type – Date – Surveyor/Crew Initials

example: AlexInlet-Alex1B-HCMT-03-2018/05/30-RC,VB, AF
OR

AlexInlet-Alex1B-TiePoint-POC=20m@180°-CFIsurvey-2018/05/30-RC,VB, AF

When flagging trees, ensure that the flagging tape extends all the way around the feature (e.g. entire circumference of a CMT or Monumental).

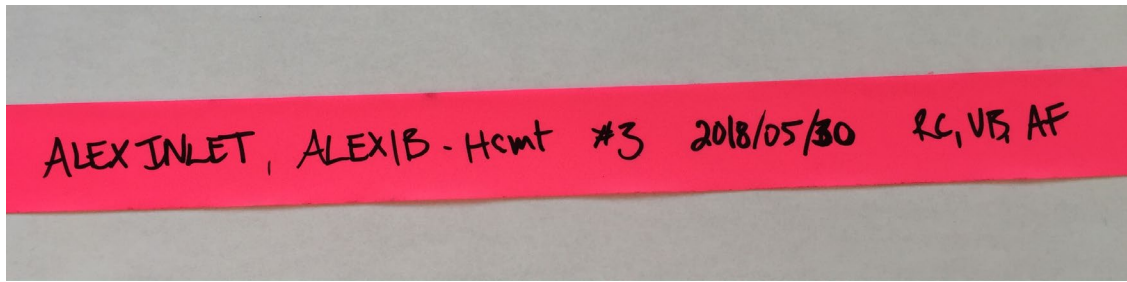


Figure 5. Flagging tape showing appropriate labeling of a feature

4.5 Spatial Accuracy

Spatial accuracy for all GPS points should be within ± 10 metres. This is achievable using the following GPS protocol.

Protocols for the use of GPS

The GPS must store data that can be differentially corrected and points must be fixed with the following minimum specifications /configurations for all static (point) surveys:

| | |
|---|------------|
| (Position Dilution of Precision) PDOP | 8 |
| General DOP (only if PDOP is not available) | 10 |
| Minimum of satellites | 4 |
| Degrees elevation angle | 15 |
| Signal to Noise Ratio (SNR) | 33 |
| Minimum occupation time | 30 seconds |

5.0 Identification of Cultural Features

The cultural features identified in this section of the manual do not represent a full or absolute list of features used by the Kitasoo/Xai'xais. The listing of these features is specific to the GBRLUO as it describes criteria for the management of these values in relation to forestry as regulated by the Province of British Columbia.

5.1 Aboriginal Heritage Features

There are two types of Aboriginal Heritage Features identified in Schedule I of the GBRLUO.

Type 1 Aboriginal Heritage Features

Village Sites – Nearly every headland and waterway that meets the ocean may have these important heritage sites on the Central Coast. These sites may have terracing or platforms, and are likely associated with significant midden deposits (*i.e.* shell, faunal, and/or fire altered rock).

Seasonal Camp Sites – Important sites used continuously for travel, hunting, fishing, and harvesting. These sites may be associated with lakeshores, rivers, rock shelters, and inland places of work. There may be a light scatter of cultural artifacts associated with the site.

Burial Site – May include: a mortuary pole (*i.e.* a carved pole with a hollow at the top where a box containing human remains were placed); tree burial (*i.e.* box or platform holding human remains that is placed in a tree); a rock shelter/cave; or interments.

Identified Oral History site (< 2 ha) – Identified through oral tradition and ethnography as significant historical cultural sites within Kitasoo/Xai'xais Territory.

Identified Spiritual site (< 2 ha) – Areas of spiritual significance to the Kitasoo/Xai'xais, as identified through current practice, oral tradition and ethnography.

Type 2 Aboriginal Heritage Features

Fish Trap – A fishing device built in shallow estuaries, rivers, and streams consisting of a barrier of rocks and/or wooden stakes that allows water to pass through, but stops the movement of fish. Indicators of stone, fish traps on the coast include 1 to 2 metre high stone walls that may be under water especially at higher tides.

Fish Weir – A fishing device most often built of wooden stakes that form a fence like barrier across part of a shallow river or stream channel. The fish weir allows water to pass through but constricts the paths that fish can travel. Indicators of fish weirs include

short wooden stake knobs that often remain blackened where air has come in contact with them. Located in rivers, streams or seeping freshwater at coastlines. Can occur several kilometres upstream from the mouth.

Petroglyph – Petroglyphs are symbols or designs pecked, carved or incised on rock surfaces. Found on boulders or bedrock in the intertidal zone; also found on relatively smooth rock outcrops.

Pictograph – Pictographs are symbols or designs usually found painted on smooth rock faces. Pictographs are often found on smooth rock outcrops that are protected from rain or elements by an overhang.

Historical Trail – Often marked with blazes on trees (*i.e.* CMTs), exposed and compacted soil, and will often follow natural features such as rivers, valleys or alpine ridges. These trails tend to be less meandering than game trails.

Canoe Run – A type of petroform where a strip of beach is cleared of stones so that the hulls of canoes are not damaged when hauled onto the beach. Usually in a sheltered or semi-sheltered location. Canoe runs can also be associated with canoe skids: a series of large sticks or planks laid parallel to the beach and held in place with stakes. These are seen as parallel lines of wooden stakes running between high and low tide lines. In some cases one side of the canoe run may have rocks built up higher to for a dock for use at various tides.

Midden Sites – One of the most common archaeological site types. May be either subsurface or surface features that are not necessarily located beside the ocean (paleo/raised beach and paleo/shoreline habitation sites). Indicators include dark soil, marine shells, mammal bone, fire altered rock, charcoal, and artifacts. Commonly associated with village sites (seasonal and permanent), there are several ways to locate a midden: the most common way is to visually inspect the roots of a tree throw/blow down, and exposures. Middens may include shell-free deposits, which can be identified by the colour and texture of soil (are commonly dark and greasy/silty), and occasionally associated with fire altered rock.

Clam Beds – Clam beds (also known as clam gardens) are a beach terrace located in the tidal zones of a beach, and are demarcated by a rock wall at the low tide line of the beach. These are areas that have been built up to increase the productivity of clams and other intertidal traditional foods by creating ideal growing conditions.

Plant Gardens – These are areas where culturally important plants grow in patches that have been intentionally cultivated to increase their abundance. These plants are or were important for food, medicine, social and/or ceremonial purposes.

Remember: Identification of either a Type 1 or Type 2 feature during a survey necessitates an independent Archaeological Impact Assessment, and automatically triggers a Level 2 survey (100% coverage).

5.2 Culturally Modified Trees (CMT)

An historic **Culturally Modified Tree (CMT)** is defined by the GBRLUO as a tree that was modified at least 80 years ago by local Indigenous people as part of their cultural use of the tree. This is distinctly different than the definition of a CMT under the BC Heritage Conservation Act ([s.13(2)(d)(g)]), which only includes modifications to trees that occurred before 1846. For the purposes of the GBRLUO, modifications to trees that are 80 years or older was determined to better capture all historical culturally modified trees.

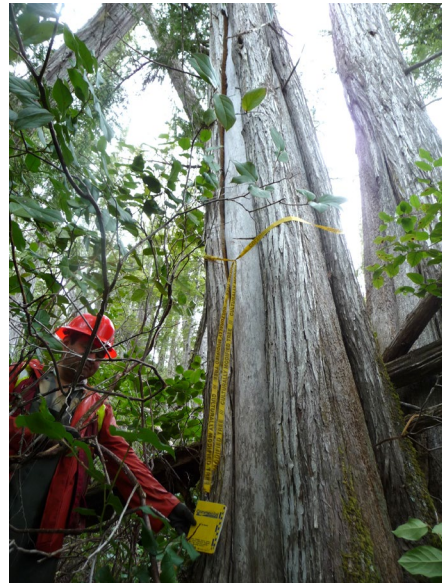
Contemporary CMTs (those modified within the last 80 years) can be protected for current and future use under the objective for Aboriginal Tree Use (Section 5.4).

Many different types of CMTs are found in Kitasoo/Xai'xais Territory. The most commonly found CMTs on the Central Coast are bark-stripped trees (tapered or rectangular), trees with test holes, and felled trees with the medial (middle) section missing (often used for a canoe, house post, or totem pole). For the purposes of this feature identification manual, only a few of the most common CMTs are detailed here. Otherwise, detailed descriptions for the identification of CMTs can be referenced in *A Handbook for the Identification and Recording of Culturally Modified Trees* (2001)⁴.

Bark-stripped Tree (BS):

A class of CMT characterized by the presence of one or more areas of removed bark and exposed wood referred to as bark-strip scars. There are several types of bark-stripped trees, including tapered scar (BS-T), rectangular scar (BS-R), girdled (BS-G) or other (BS-O). Indicators for the most common types of bark-stripped trees on the Central Coast are as follows.

Figure 6. Example of a tapered (type) bark-strip (class) CMT. (photo credit: Aaron Blake Evans)



Tapered Bark-strip (BS-T)

Indicators include:

- ‘Scar-crust’, which forms as smooth bark against a smooth wood face (most often dark/black in colour)
- Tapered scar from the base of the tree to a tip (elongated triangle in shape)
- Scar on the clear face of the tree (often the shaded side with fewer branches)
- Presence of healing lobes on either side of the scar
- Presence of tool marks, or
- Absence of bark on face of scar

⁴ Resources Inventory Committee. 2001. *A Handbook for the Identification and Recording of Culturally Modified Trees*. Version 2.0. Archaeology Branch B.C. Ministry of Small Business, Tourism and Culture, Victoria B.C.

Rectangular Bark-strip (BS-R)
(also known as ‘Bark-board’)

Indicators include:

- Tool marks at the base and top of scar
- Healing lobes taper, making the scar appear less parallel
- ‘Scar-crust’ present on inside of healing lobes, or
- Edges of scar face (‘window’) run parallel to each other



Figure 7. Two examples of rectangular (type) bark-strip (class) CMTs.
(photo credits R to L: Jacob Earnshaw & Rosie Child)

Aboriginally-Logged Trees (AL)

Logged trees are trees that were felled by Indigenous peoples. Types of Aboriginally-Logged Trees include: a tested tree (AL-T), undercut tree (AL-U), felled tree (AL-F), sectioned tree (AL-S), notched tree (AL-N), planked tree (AL-P), and canoe tree (AL-C). Descriptions of indicators of the most common types of Aboriginally Logged Trees are as follows.

Felled Trees (AL-F)

Also known as ‘stump and logs’, these typically have a stump and a log that has been felled beside it. Stumps may be:

- Flat (level or sloping on a single plain)
- Step (characterized by a level top with a higher and lower surface separated by a vertical step)
- Barber chair: a distinctive spike of wood on one side of the stump
- Basin: a concave top with sides that slope down gradually from the outside of the tree towards the centre



Sectioned Trees (AL-S)

As with felled trees, these features have stumps, but the logs have been cut into two or more sections. Often sections have been removed. Sections are commonly referred to as the butt section (closest to the stump), medial (middle) section(s), and crown section (section at the top of the tree, often with limbs). Use these section names when you are describing sectioned trees in your field notes about the feature.

Figure 8. Example of adze or tool markings on an aboriginally logged (class) CMT. (photo credit: Aaron Blake Evans)

Canoe Trees (AL-C)

A felled or sectioned tree where the log is partially shaped into a canoe. These can have varying degrees of completion for a shaped bow or stern, sides and/or sheer line.

Tested Trees (AL-T)

A test hole is a four-sided hole cut into a standing tree. Normally the hole has a flat bottom and top that slopes down into the hole. Tool marks (wedge or splitting-adze marks) may be found. Test holes can range in size – widths and lengths can exceed 50cm. Note that if the two sides are not cut, but have healing lobes, and the hole is of significant size with a prominent and slanting top side, then it is recorded as an *undercut scar* (not recorded as a *test hole*).

Figure 9. Example of a test tree (type) Aboriginally logged (class) CMT. (photo credit Jacob Earnshaw)





Other Tree Modifications (OM)

There are various other ways that the Kitasoo/Xai'xais and other Indigenous peoples of the Central Coast may have modified trees, including: delimbed tree (OM-D), message tree (OM-M), arboglyph tree (OM-A), arbograph tree (OM-G), blazed tree (OM-B), sap collection tree (OM-S), and other (OM-O).

Figure 10. Example of an arboglyph (type) CMT from Kitasoo/Xai'xais territory.

(photo credit KXSA)

5.2. Aboriginal Forest Resources

Schedule J of the GBRLUO identifies a list of specific **Aboriginal Forest Resources** (AFRs) including tree, shrub, plant, and fungi species that have food, social, medicinal or ceremonial use and importance. These species are to be protected or enhanced during forestry activities. Additional species of importance may be identified and added to this list during discussions between forest licensees and the Kitasoo/Xai'xais.⁵

The names listed include: Sgüüxs (the language of the Kitasoo, indicated by 'S'), Xai'xais (the language of the Xai'xais, indicated by 'X')⁶, English, and the scientific name.

Tree

- **sxán mó.lks*** (S), **lhénxm'ás** (X), **Pacific Crab Apple** (*Malus fusca*)

Shrub

- | | | | |
|-------------------------------|-------------------------|-------------------------------|----------------------------------|
| • ga m'a'I (S), | t'ilhás (X), | Saskatoon Berry | (<i>Amelanchier alnifolia</i>) |
| • haláxsi n'axn'ox (S) | | Common Juniper | (<i>Juniperus communis</i>) |
| • kw'alə máxs (S), | púy'ás (X), | Labrador Tea | (<i>Ledum groenlandicum</i>) |
| • sxánwó.'ms (S), | wíq'ás* (X), | Devil's Club | (<i>Oplopanax horridus</i>) |
| • wáe.kyil (S), | q'ism'ás (X), | Stink Currant | (<i>Ribes bracteosum</i>) |
| • | tsn'y'ás (X), | Black Swamp Gooseberry | (<i>Ribes lacustre</i>) |
| • no known name (S/X) | | Trailing Black Currant | (<i>Ribes laxiflorum</i>) |
| • k'ó7o (S), | l'qáxell'ás (X), | Thimbleberry | (<i>Rubus parviflorus</i>) |
| • mi7ó.st (S), | gúl'ás (X), | Salmonberry | (<i>Rubus spectabilis</i>) |
| • ló7ots (S), | k'íp'ás* (X), | Red Elderberry | (<i>Sambucus racemosa</i>) |
| • çñçáe.ngm m'a7i (S), | siák'wnalh (X), | Oval-Leafed Blueberry | (<i>Vaccinium ovalifolium</i>) |
| • wíliis (S), | gwát'ás (X), | Red Huckleberry | (<i>Vaccinium parvifolium</i>) |
| • sxántháiya (S), | t'ély'ás (X), | Highbush-cranberry | (<i>Viburnum edule</i>) |

Herbs & Geophytes

- | | | | |
|--------------------------|------------------------|--------------------------|---------------------------------------|
| • siyáe.n (S), | tlxsa'aém (X), | Silverweed | (<i>Argentina anserina</i>) |
| • sxánmiyú.p (S), | xwúk'wás (X), | Northern Riceroor | (<i>Fritillaria camschatcensis</i>) |
| • layó.n (S), | gísdm (X), | Cow Parsnip | (<i>Heracleum maximum</i>) |
| • no known name (S/X) | | Cloudberry | (<i>Rubus chamaemorus</i>) |
| • | t'x'sús* (X), | Springbank Clover | (<i>Trifolium wormskioldii</i>) |
| • státç (S), | dúxwa (X), | Stinging Nettle | (<i>Urtica dioica</i>) |
| • hú.lns (S), | a7áuçwsúlt' (X) | Indian Hellebore | (<i>Veratrum viride</i>) |

Ferns & Lichens

- | | | | |
|---------------------------|----------------------|---------------------------|-----------------------------------|
| • 7a7 (S), | t'ibám (X), | Spiny Wood Fern | (<i>Dryopteris expansa</i>) |
| • ts'igə7aém (S), | ts'ga'am (X), | Licorice Fern | (<i>Polypodium glycyrrhiza</i>) |
| • naga ganá.w (S), | hapa7 (X), | Oregon Lung Lichen | (<i>Lobaria oregana</i>) |

Fungi

- Edible Mushrooms (Various)

⁵ It is the responsibility of the KXSA and the forest licensee to communicate any additional species of importance to the surveyor(s) before the start of the Cultural Features Identification Survey for a site.

⁶ For help with pronouncing the Sgüüxs or Xai'xais names it is best to ask a speaker of these languages; however, where one is not available pronunciation guides and recordings have been made for many of the species that are on the list of Aboriginal Forest Resources. To access these guides and recordings visit:

- Sgü ü x s (see Sm'algyax): <http://web.unbc.ca/~smalgyax/>
- Xai'Xais (see Hailhzaqvla): <http://roedoejet.github.io/#!/dictionary>

Identification and Description

To facilitate the identification and description of Aboriginal Forest Resources during the field survey process, this section has a description for how to record the presence of each species listed under Schedule J.

For species that are rare or are vulnerable to the impacts of logging, each individual occurrence is treated as a feature regardless of density or distribution.

For species that are more common, less threatened by logging, or where it is impractical to record individual plants, a patch of plants can be recorded as a feature with a single spatial coordinate marking the centre of the patch. Figure 11 outlines the types of plant distributions used to help record patches of a species as a single cultural feature.








| Distribution Codes | | |
|---------------------------|---|--|
| <i>Code</i> | <i>Image</i> | <i>Description</i> |
| 1 |  | Individual, a single occurrence |
| 2 |  | Few sporadically occurring individuals |
| 3 |  | Several sporadically occurring individuals |
| 4 |  | Continuous uniform occurrence of well-spaced individuals |
| 5 |  | Single patch or clump of a species |
| 6 |  | A few patches or clumps of a species |
| 7 |  | Several well-spaced patches or clumps |

Figure 11. Distribution codes used for identifying a feature.

Recording and Classification of Aboriginal Forest Resources

This section gives the names of the Aboriginal Forest Resource species and the criteria for their feature classification.

Instructions for when and how to record AFR features fit one of three categories:

| Category | Record when: | What to record: |
|-----------------|-------------------------------|----------------------------------|
| 1 | individual or group of plants | feature with spatial coordinates |
| 2 | group of plants | feature with spatial coordinates |
| 3 | individual or group of plants | presence or absence |

In general the surveyor should follow these guidelines for recording AFRs; however, there are likely to be instances where the surveyor will have to exercise their best judgment on how to record AFRs (such as making the call for when to record a group of individual plants with a distribution code of 6 as a single or two separate features).

When recording and mapping an AFR surveyors must provide a detailed description of the plant(s) they have found, including (but not limited to): plant distribution (Figure 11); an estimate of the number of plants in a patch; the approximate size of the patch; observations on the health and quality of the plants; a picture of the patch; other notes on location and importance of the patch.

Category 1 - Record Individual or Group of Plants as a Feature

- **Saskatoon Berry** (*Amelanchier alnifolia*)
- **Northern Riceroot** (*Fritillaria camschatcensis*)
- **Cow Parsnip** (*Heracleum maximum*)
- **Common Juniper** (*Juniperus communis*)
- **Labrador Tea** (*Ledum groenlandicum*)
- **Pacific Crab Apple** (*Malus fusca*)
- **Devil's Club** (*Oplopanax horridus*)
- **Stink Currant** (*Ribes bracteosum*)
- **Black Swamp Gooseberry** (*Ribes lacustre*)
- **Salmonberry** (*Rubus spectabilis*)
- **Red Elderberry** (*Sambucus racemosa*)
- **Oval-Leafed Blueberry** (*Vaccinium ovalifolium*)
- **Red Huckleberry** (*Vaccinium parvifolium*)
- **Highbush-cranberry** (*Viburnum edule*)

In general, an individual occurrence of all Category 1 species is treated as a feature. When there is only 1 individual the surveyor should note this as an individual in survey comments for the feature.

Where there is a group of individuals, these features can be recorded as a patch when the density of individuals is greater than 5 plants/ m² OR when few to several sporadically occurring individuals occur (see figure 11, distribution codes 2 and 3), and the distance between plants is less than or up to approximately 20 meters (see Figures 12 and 13). In these cases, patches can be recorded with a single spatial coordinate.

When recording patches the number of individuals in a patch should be recorded in the following groupings:

- 5-10 stems
- 11-20 stems
- 21-30 stems
- 31-50 stems
- > 50 stems

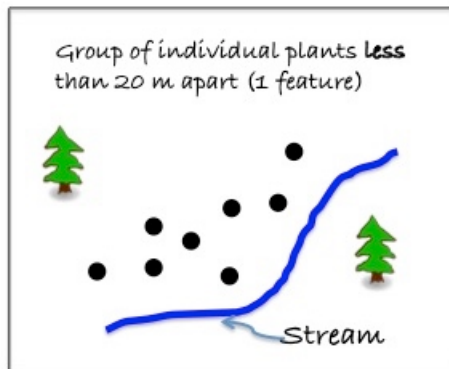


Figure 12. A group of individual plants that constitute one feature.

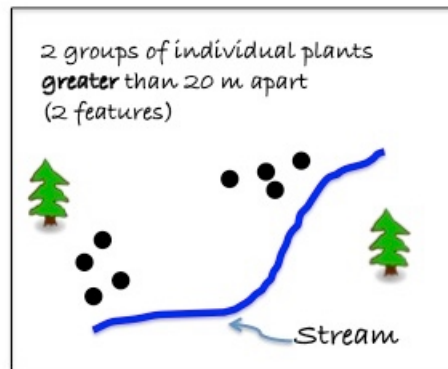


Figure 13. Two groups of individual plants that constitute two features.

Category 2 - Record Only Groups of Plants as a Feature

Each species in this category has species-specific instructions for when and how to categorize plants of this species as a feature. Species in this category include:

- **Stinging Nettle** (*Urtica dioica*)
- **Indian Hellebore** (*Veratrum viride*)

Stinging Nettle (*Urtica dioica*)

Feature: A patch (figure 11, distribution code 5) where the density is greater than 5 plants/m² is considered a feature.

Multiple patches (figure 11, distribution code 6 or 7) can be considered one feature where the distance between them is less than 20 metres (figures 12 and 13).

Individual occurrences are not considered a feature.

Indian Hellebore (*Veratrum viride*)

Feature: A patch is considered a feature. A patch (figure 11, distribution code 3 to 7) is either where:

- There is a continuous uniform layer of plants (distribution code 4), OR
- The density of a clump of stems is greater than 5 plants/m², OR
- The distance between several sporadically occurring individuals (distribution code 3) is less than or up to approximately 20 metres of each other (the patch size is at the discretion of the surveyor) OR
- Multiple patches (figure 11, distribution code 5-7) have a distance between them of less than 20 metres (figure 12 and 13).

Approximate size of patch should be recorded under the description of the feature.

Individual occurrences or few sporadically occurring individuals (figure 11, distribution code 1 and 2) are not considered a feature.

Category 3 - Presence/Absence Recording of Aboriginal Forest Resources

The following species have been identified as more locally abundant plants in Kitasoo/Xai'xais Territory. Management and protection measures for these plants are less specific to the location, distribution, and abundance of these plants within the Development Area. The focus for feature identification is on recording presence/absence within a site, as opposed to spatially locating features.

- | | |
|---------------------------------|-----------------------------------|
| • Thimbleberry | (<i>Rubus parviflorus</i>) |
| • Silverweed | (<i>Argentina anserina</i>) |
| • Springbank Clover | (<i>Trifolium wormskioldii</i>) |
| • Spiny Wood Fern | (<i>Dryopteris expansa</i>) |
| • Licorice Fern | (<i>Polypodium glycyrrhiza</i>) |
| • Oregon Lung Lichen | (<i>Lobaria oregana</i>) |
| • Trailing Black Currant | (<i>Ribes laxiflorum</i>) |
| • Cloudberry | (<i>Rubus chamaemorus</i>) |
| • Edible Mushrooms | (Various) |

An individual occurrence or a patch is equally recorded as species presence within the Development Area. The presence of the following species may influence the placement of protective measures that ensure wellbeing of other AFRs or another EBM feature reserve or management zone. To record the presence of a species from this list the surveyor should make a record of this species on the first sighting. In the description or comments they surveyor should comment on the relative abundance of the species within the Development Area. Future sightings of a Category 3 species do not need separate records. A separate record would only be required if there is something to note about a change in distribution of this species within the Development Area.

Field Identification of Aboriginal Forest Resources – Seasonality/ Plant Phenology

Depending on what time of year a survey is completed, plants can be identified in a variety of life stages with winter identification being the most difficult and sometimes not possible. Fortunately, many of the Aboriginal Forest Resources are woody perennials (Saskatoon berry, Devil’s club, Highbush cranberry, Pacific crab apple, Stink currant, Black swamp gooseberry and Trailing black currant) and therefore may be recognizable throughout the year. Otherwise, forest planning (from the administrative onset through engineering of cutblocks) should occur 6 months to 1 year prior to harvest to ensure species can be identified. Plan ahead (or encourage a forest licensee to plan in advance) so that surveying can occur within the optimal time period of May 15th to September 31st.

The AFRs that are seasonally present and most likely to be missed during an out of season field survey include:

Most easily missed most of the year:

- **Edible Mushrooms** (Various)

Missed if out of optimal season:

- **Thimbleberry** (*Rubus parviflorus*)
- **Northern Riceroor** (*Fritillaria camschatcensis*)
- **Silverweed** (*Argentina anserina*)
- **Springbank Clover** (*Trifolium wormskioldii*)
- **Cloudberry** (*Rubus chamaemorus*)
- **Stinging Nettle** (*Urtica dioica*)
- **Indian Hellebore** (*Veratrum viride*)
- **Cow Parsnip** (*Heracleum maximum*)

5.4 Aboriginal Tree Use

There are many types of **Aboriginal Tree Use** (ATU). This objective is designed to protect sufficient quantities and quality of cedar and other tree species for present and future use to meet the needs of Kitasoo/Xai'xais community members (including shelter, transportation, tools, fuel, and art).

Types of forest features surveyed for, and protected under this objective include:

- Contemporary CMTs;
- Monumental Cedar (both living and dead); and,
- Cultural Cedar Stands.

For the purposes of this field identification manual, contemporary CMTs and Monumental Cedar have detailed notes for field identification. Cultural Cedar Stands will be identified by the KXSA after fieldwork. Other types of forest features may be identified by the Kitasoo/Xai'xais and added to a survey.

Monumental Cedar Identification and Attributes

This section outlines the criteria for a tree being classified as a Monumental Cedar for the purposes of implementing Ecosystem Based Management in Kitasoo/Xai'xais territory. Carving needs will vary between carvers and over time, and as such, the criteria outlined in this section are subject to change. The GBRLUO defines a monumental as:

“A large old western red-cedar or yellow-cedar tree that has the attributes necessary to fulfill the Aboriginal Tree Use needs of the First Nation, primarily for totem poles, canoes, or long beams and poles to build long houses, community halls or similar community structures.”

The following section includes descriptions of important attributes for a Monumental Cedar, including minimum standards to qualify a tree as a CMT, and standards for evaluating the potential Monumental Cedar for signs of rot and other defects. All of these steps for identifying a Monumental Cedar are summarized in a key on the next page.

Minimum Standards for a Monumental Cedar

These are the minimum standards that must be met by a cedar tree for that tree to be recorded as a Monumental Cedar. If a tree meets these standards it can be recorded and protected; however, it is also important to protect the best quality cedar trees. To ensure quality the surveyor should be familiar with identifying the signs of defects, and take any observed defects into consideration when classifying a tree as a Monumental Cedar.

Minimum Diameter at Breast Height: A Monumental Cedar should have a diameter at breast height equal to or greater than 100 cm. Diameters are taken at breast height

regardless of flare⁷.

Visibly Sound: A Monumental Cedar should be visibly sound, meaning it has externally sound wood (outer 2/3rds of tree). Heart rot may be acceptable for some cultural uses, however a tree with heart rot has a higher risk of damage during falling and transport, which may render it unusable. A tree with heart rot may be less suitable for protection over the long term as it may be more susceptible to death and disease.

Suitable Face: At least one face of the log is suitable for cultural use, where a face is measured as 1/3rd of the circumference of a log (Figure 14).

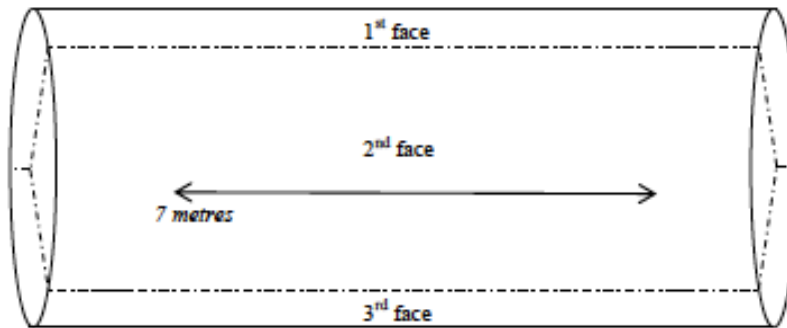


Figure 14. Face of a monumental log is one-third of its circumference and the log length is minimum of 7 metres with one face that meets the defect allowances.

⁷ Flare is the bottom part of the stem (tree trunk) that is typically wider than the main trunk.

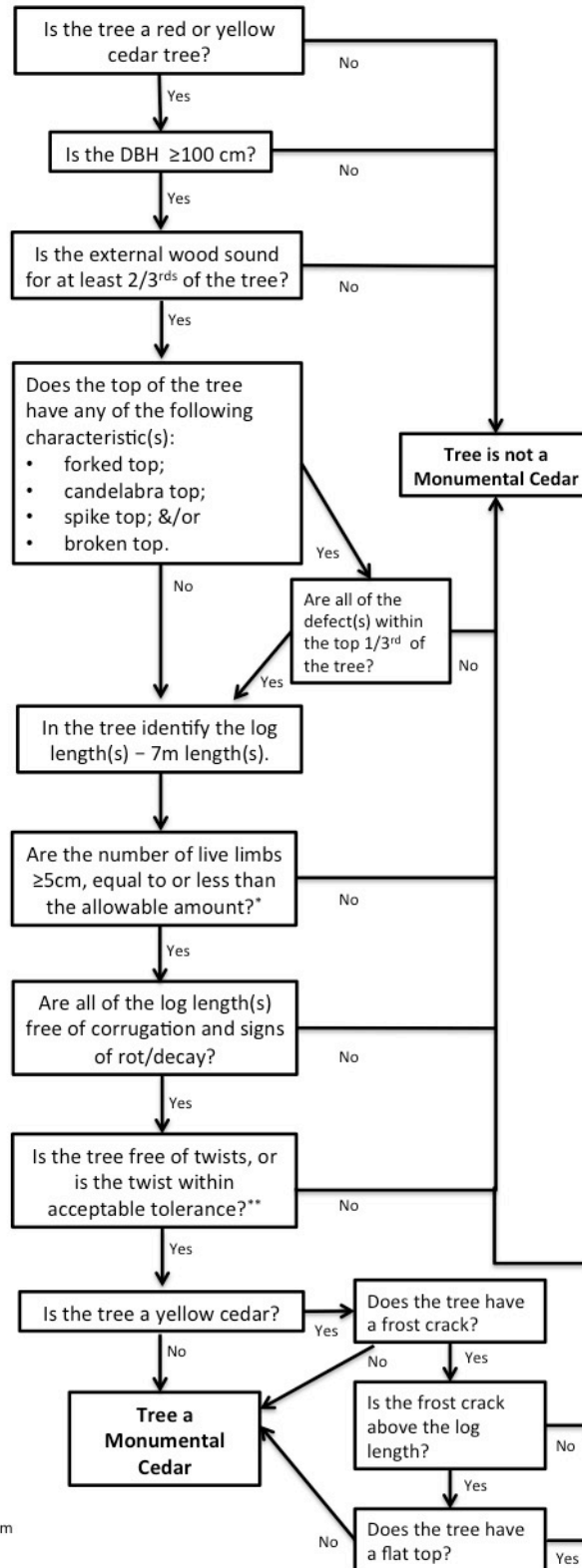
Identification of Monumental Cedar

Minimum standards for a Monumental Cedar

Assessment of tree for defects

| | |
|-----------|------------|
| *Tree DBH | kts/length |
| 100-120cm | 1 knot |
| 120-150cm | 2 knots |
| 150-200cm | 3 knots |
| >200cm | 4 knots |

| | | |
|------------|--------|--------|
| **Tree DBH | RHT/1m | LHT/1m |
| 100-150cm | 20cm | 5cm |
| >150cm | 25cm | 5cm |



Tree Defect Guidelines for Monumental Cedar

This section outlines tolerances for tree defects. Note that tolerance for each type of defect should not be judged in isolation of other defects. **While this section describes allowable tolerances for individual defects, a combination of multiple defects may contribute to a tree not being classified as a monumental. This consideration should weigh whether the tree is suitable for cultural use now, or suitable for cultural use into the future (if reserved for a prolonged period).** Observed defects can be signs of vulnerability to rot and decay. In this way, defects may serve as indicators that the tree may not be suitable for use in the future.

Note on Log Length: Log length is measured as a minimum 7 metre length with at least one face that meets the defect allowances set out in the section below. Log length is measured starting above the flare of the tree. The flare of the tree is the bottom of the stem that is typically wider than the main trunk. Tree flares exist to provide greater stability and general wind firmness.

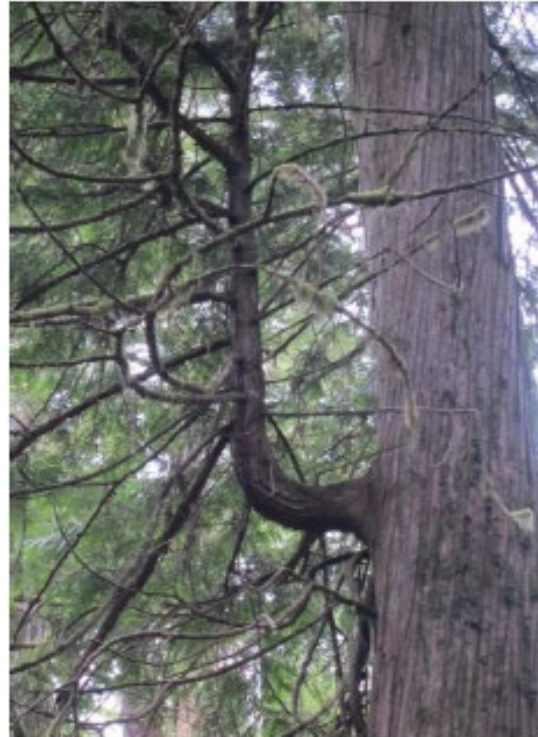
Live Limbs: Live limbs create knots in the wood that may make a tree less suitable for certain uses. Occasional sound knots less than 5 cm diameter (estimated as the diameter inside bark thickness) are acceptable. The **allowable tolerance for live limbs/knots greater than 5cm diameter on a log length** ($\geq 7\text{m}$ – see figure 16) is as follows:

Tree DBH

| | |
|------------------|----------------------|
| 100-120cm | 1 knot >5cm/ length |
| 120-150cm | 2 knots >5cm/ length |
| 150-200cm | 3 knots >5cm/ length |
| +200cm | 4 knots >5cm/ length |

Candle Limb(s): A candle limb should be counted as a regular live limb (see above). Candle limbs are sometimes called candelabra limbs, but note: candle limbs should not be mistaken for candelabra tops.

Candle limbs may be a sign of a branch that is not strongly attached to a tree (also known as *epicormic branching*). *Epicormic branches* are branches that do not originate from the heart of a tree and are not strongly secured to the trunk. They form as a result of injury or stress, and can signal defects that may affect the quality of the wood for cultural uses.

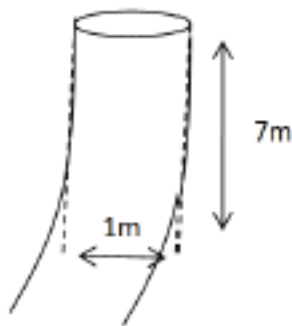


Corrugation: Seams of bark, or creases of bark that are deep into the trunk of a tree, will have an effect on the aesthetics of the tree. While the lower portion of a trunk may have some corrugation, the log length must be free of significant corrugation.

Scar: Scars are acceptable as long as there is no visible decay or rot and that the scar covers less than a 1/3rd of the log length.

Additional considerations for corrugation and scars

Corrugation or a scar within the log length is equal to a live limb greater than 5cm. For example, a 117 cm DBH cedar meets all the Monumental Tree requirements and defect allowances except that its log length has 1 live limb or knot greater than 5cm AND it has corrugation. The combination of these defects would mean the tree is NOT a monumental.

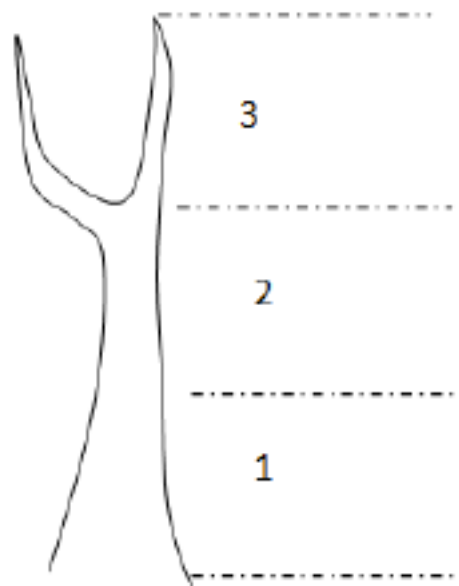


Sweep: If the trunk of the tree is curved or bowed it is called a sweep. Sweep is a defect that will cause a reduction in the diameter of usable wood. Therefore only moderate sweeps in logs over 120cm DBH may be considered on the condition that you can get a straight 100cm by 7m section out of the tree. If you can get your **log length** above the sweep and the tree is greater than 120cm DBH, then it can be considered a Monumental.

Figure 15. Potentially acceptable sweep in a log.

Forked Top: If the tree has 2 leaders it is considered a forked top. A forked top is acceptable as long as it is in the **upper** one-third of the tree and does not significantly affect the wood quality of the **log length**.

Figure 16. Divisions of a tree into 3rds for measuring forked tops.



Candelabra Tops: Candelabra tops are when a tree has more than 2 leaders (either live or dead) or has a multiple forked top (either live or dead). If the tree has more than 2 leaders or multiple forked top it may only be considered Monumental if the DBH is over 100cm and the leaders occurs in the upper one-third of the tree.

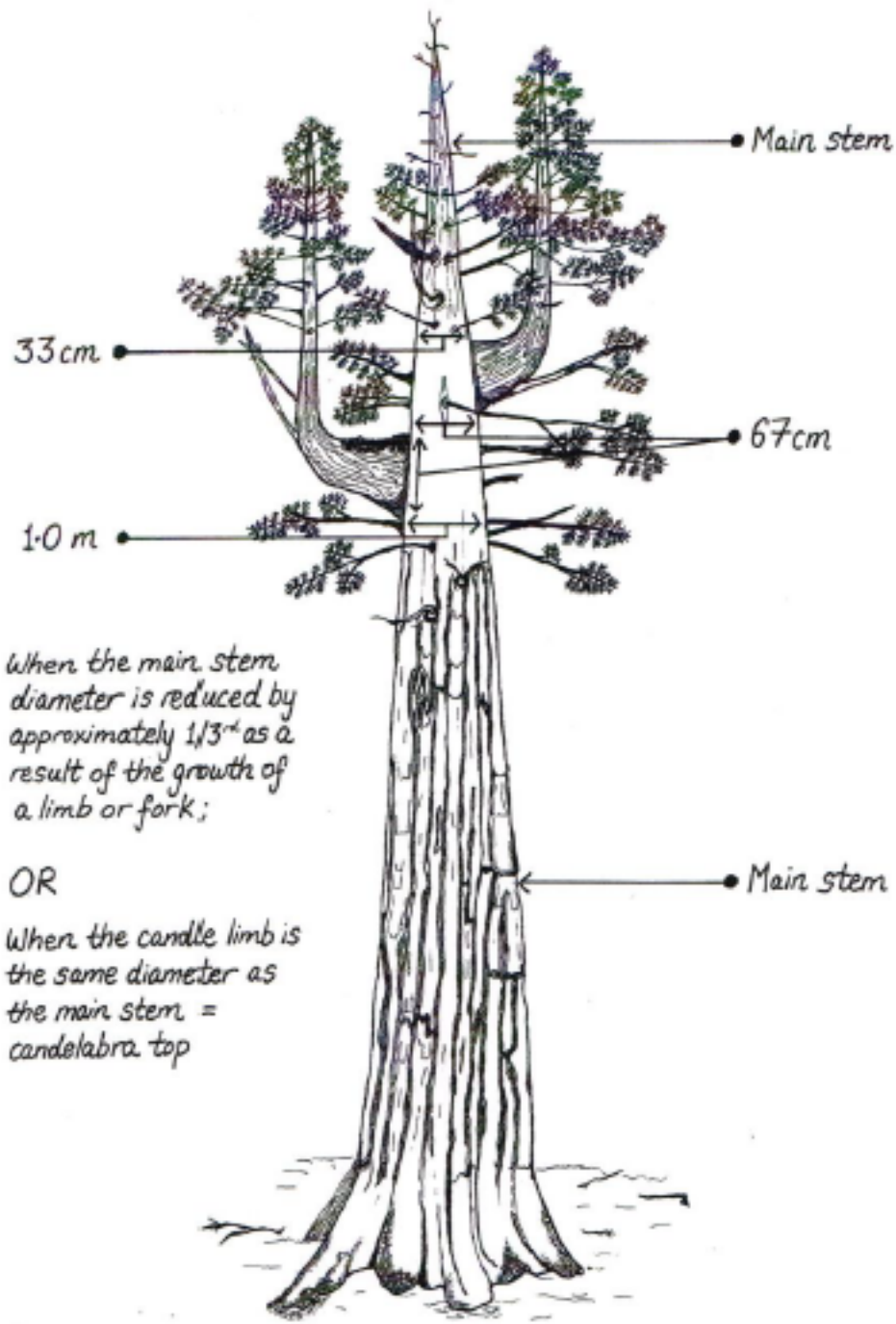


Figure 17. General rules for candelabra top classification (illustration by A.Geraghty).

Spike Top: A spike top is the pointed dead tip on a living tree from which most of the needles and branches have fallen off the dead top. A cedar with a spike top up to one-third of the height of the tree is considered a Monumental. If more than 1/3rd of the tree is dead the tree should not be considered a Monumental.



Figure 18. Examples of spike tops on cedars.

Broken Top: If a western red cedar has a broken top and it is exposed for long enough, it may affect the internal soundness of the wood. However, if the broken top is in the upper one-third of the tree and does not significantly affect the quality of the **log length** (meaning there are no visible cracks), then it can be considered a Monumental.

If a yellow cedar has a broken top, it is not considered a Monumental.

Twist: Twist, or spiral grain, is divided into different tolerance classes for right-hand (Figure 20) and left-hand (Figure 21) twist. Significant left-handed twist or spiral grain is not considered a Monumental, as per maximum tolerances outlined in Figure 19.

| Diameter Class | Right-hand Twist | Left-hand Twist |
|-------------------------|-----------------------|-----------------|
| 100-150 cm DBH | 20 cm over 1m length | 5 cm over 1m |
| Greater than 150 cm DBH | 25 cm over 1 m length | |

Figure 19. Maximum acceptable twist.

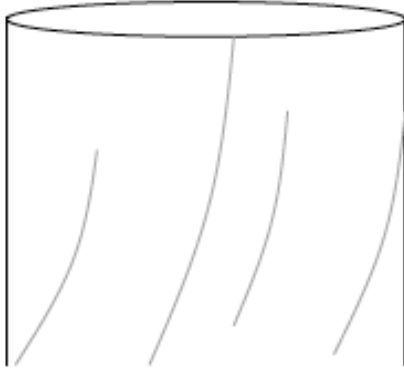


Figure 20. Example of right hand twist.

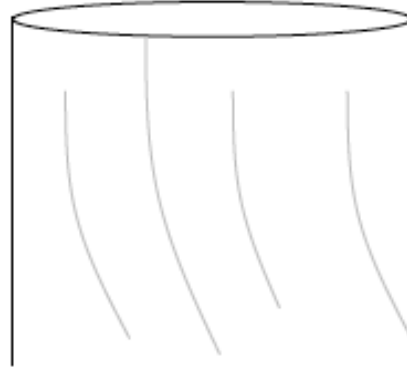


Figure 21. Example of left hand twist.

Additional Defects for Yellow Cedar

Frost Cracks: Yellow cedar trees with frost cracks above the **log length** are not considered Monumental Cedar.

Flat Tops: Yellow cedar trees with frost cracks (regardless of their placement on the tree) **in addition** to flat tops are not considered Monumental.

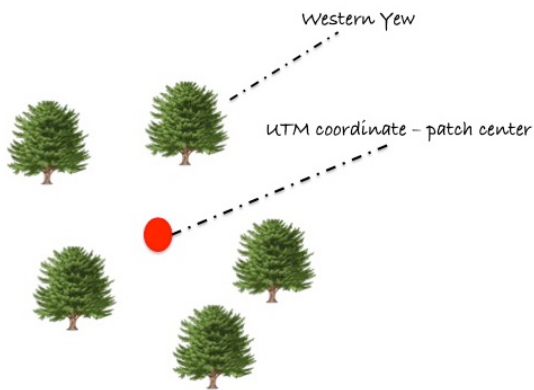
Contemporary Culturally Modified Tree

In the GBRLUO, a **Contemporary CMT** is a tree that has been modified less than 80 years ago by Indigenous people as part of their cultural use of the tree.

5.5 Western Yew

The GBRLUO includes an objective for western yew that calls for the retention of yew trees. Individual western yew trees are considered a feature. (For the purpose of this objective within the GBRLUO, **a tree is considered to be >2m tall**). Spatial coordinates are not required for individual yew trees when the distance between trees is less than or equal to 20 metres. In these cases, a spatial coordinate can be taken at the geographic centre of a group of trees and the centre point should be marked with flagging tape. In all cases, the number of stems must be recorded. When counting stems only count those stems > 2 m in height.

Example



Layering, or epicormic/adventitious rooting sometimes occurs with western yew trees. This is when a branch or stem sends new roots into the ground and establishes a semi-independent tree, as shown in Figure 22. In these cases, each new stem is considered a separate tree for the purposes of patch identification.

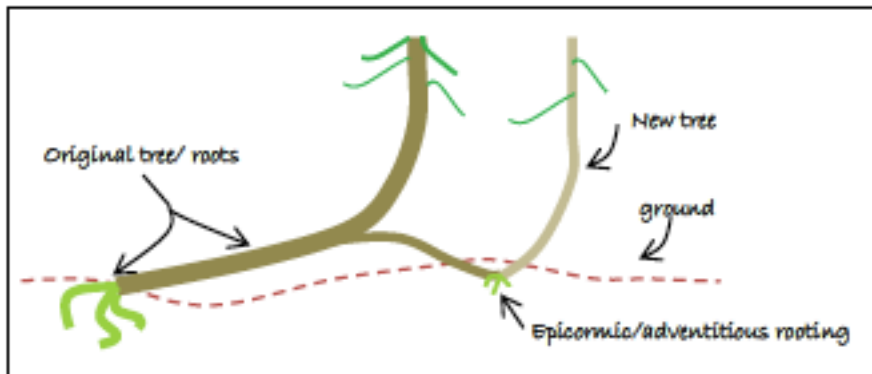


Figure 22. Epicormic rooting in western yews.

DATA & REPORTING

6.0 Data Gathering Standards

6.1 Data Collection

The identification of cultural features requires the collection of a series of data that surveyors will report to the KXSA where it will be maintained and stored. The KXSA will disclose all relevant information to forest licensees to support meeting the management objectives established under the GBRLUO.

This section outlines both required and optional data to be gathered during a survey. An example Cultural Feature Identification Field Tally Sheet is included in Appendix A. This tally sheet contains the required and optional data fields. It may be used to collect data in the field or data may be collected using an electronic data form.

Instructions on completing the form, including which information is mandatory and optional are found in Appendix B.

Remember that on the field forms surveyors should document the reasons for decisions about survey intensity or methodology so that they are clear for any follow-up or subsequent field checks.

All Cultural Feature Identification Survey data must be submitted to the KXSA as soon as possible upon completion. Data should be downloaded daily (if possible). This information is necessary for drafting the final report.

6.2 Minimum Reporting Requirements

Appendix C is a template that includes the minimum reporting requirements for a Cultural Feature Identification Survey once a survey has been completed in a Development Area. It is the joint responsibility of the surveyor and the KXSA to complete the final report, and final record of the field surveys. While **the data fields and report content are mandatory**, the reporting format is only a recommendation and may be modified by the surveyor.

All Cultural Feature Identification Survey reports should be shared with licensees or proponents as soon as possible upon completion. This information is necessary for development planning, and for the effective management of cultural values. Having reports submitted as soon as they are completed allows for easier accommodation of cultural heritage feature protection during development planning.

6.3 Digital Spatial Data

The format for the submission of data collected in the field by a cultural feature surveyor must meet the format requirements and standards set out by the KXSA. It is mandatory that data include the spatial locations (*e.g.* UTM's) of cultural features.

SURVEYOR TRAINING & QUALIFICATION

7.0 Qualifications for Cultural Feature Identification Surveyors

To be qualified to carry out Cultural Feature Identification Surveys, it is a requirement that the surveyor has:

1. Successfully completed a RISC – Archaeology and Culturally Modified Tree Inventory Training for Crew Members;
2. Successfully completed all of the additional training modules,⁸ and
3. Demonstrated competency in the material to the course instructors.

The names of individuals who have met these requirements will be kept in a registry of qualified surveyors maintained by the KXSA.

It is recommended that qualified surveyors participate in regular professional development courses, and mentorship opportunities, as they are available.

7.1 Right to Revoke

The KXSA retains the right to remove a surveyor from the list of qualified surveyors if their work is found to not meet the standards outlined in this document.

⁸ Training courses that cover the identification of ecotypes, plant identification and ethnobotany, forestry skills, and survey standards and methodology.

GLOSSARY OF TERMS

“aboriginal forest resource” means a forest plant resource listed in Schedule J of the GBRLUO, or other forest plant resource identified by the Kitasoo/Xai’xais during First Nation Engagement. An AFR is utilized for food, social, medicinal or ceremonial purposes.

“aboriginal heritage feature” means an artefact, feature, or site of the general types listed in Schedule I, other than a Contemporary Culturally Modified Tree or a Historical Culturally Modified Tree. An AHF may be previously known, found during a survey, or identified during First Nation Engagement and is important to the cultural practices, knowledge or heritage of a First Nation.

“aboriginal tree use” means the use of Monumental Cedar, other cedar, or other tree species to fulfill the domestic needs of the Applicable First Nation for such things as shelter, transportation, tools, fuel, and art, but does not include the use of Monumental Cedar, other cedar or other tree species for purposes of commercial production.

“contemporary culturally modified tree” means a tree that was modified less than eighty years ago by First Nations people as part of their cultural use of the tree.

“cultural feature” means a feature with cultural significance for the Kitasoo/Xai’xais including, but not limited to: aboriginal forest resources, aboriginal heritage features, culturally modified trees, monumental cedar trees, yew trees, and other tree species of value for the Kitasoo/Xai’xais.

“dbh” means diameter at breast height (where breast height is approx. 1.3 meters above the ground).

“development area” means a specific location defined by boundaries shown on a site plan or multiple site plans where an activity (*ie* timber harvesting and/or road construction) is planned or carried out. It includes any area that is being protected from disturbance, including: management zones, reserve zones, mapped reserves or other areas where timber harvesting is restricted or managed.

“First Nation engagement” means reasonable efforts to communicate, share information, engage in dialogue, and identify and resolve issues with Applicable First Nations and includes provision and consideration of all relevant information about potential impacts on Aboriginal Interests.

“GPS” means Global Positioning System.

“historical culturally modified tree” means a tree that was modified more than eighty years ago by First Nations people as part of their cultural use of the tree.

“monumental cedar” means a large, old, western red cedar tree or a large, old, yellow cedar tree that has the attributes necessary to fulfill the Aboriginal Tree Use needs of the Applicable First Nation primarily for totem poles, canoes, or long beams and poles to build longhouses, community halls or similar community structures.

“POC” means Point of Commencement and is commonly used as a reference point in forest surveying.

“tie-point” means a specific location, marked or identified, that can be used to locate a survey Point of Commencement or a point along a survey/transect.

“transect” means any straight line survey that crosses an area that is to be surveyed. Transects can be laid parallel to one another, and are used to strategically and methodically sample a site.

“Site Series” means a site capable of producing the same late seral or climax plant communities within a biogeoclimatic subzone or variant.

“UTM” means a Universal Transverse Mercator position format or units for determining geographic location.

APPENDIX A - FIELD TALLY SHEET

| Cultural Feature Identification | | Date yy/mm/dd | | Project ID | |
|---------------------------------|--|----------------------------------|--|----------------------|--|
| Field Sheet v. 1.0 | | | | | |
| Development area | | Surveyor & Crew | | | |
| Client | | Access point location | | | |
| Tie point info | | Distance to POC | | | |
| | | Bearing to POC | | | |
| POC-Location | | POC Description | | | |
| POC - UTM zone | | POC Easting | | POC Northing | |
| Strata 1 Surv. Level | | Strata 2 Surv. Level | | Strata 3 Surv. Level | |
| Strata 4 Surv. Level | | | | | |
| Site Description | | Survey comments/borderline calls | | | |
| | | | | | |

[illegible]

APPENDIX B – FIELD TALLY DATA FIELDS

DEVELOPMENT AREA - SURVEY INFORMATION

Note: Features marked with a star * require flagging in the field. For more specifics on flagging refer to Section 4 in the CFI Manual.

1. **(Mandatory)** Date: yy/mm/dd – on paper form. Electronically this field will automatically fill with the date of the survey.
2. (Optional) Project ID: name of the project provided to surveyor by the KXSA.
3. **(Mandatory)** Development Area: name of the block or Development Area;
4. **(Mandatory)** Client: name of the licensee authorized for cutting under the Forest Act and/or Forest and Range Practices Act or name of the proponent that has proposed the project or development;
5. **(Mandatory)** Surveyor and crew: the name of the qualified surveyor (on the list) as well as any assisting field crew. On paper forms please circle the name of the lead surveyor;
6. (Optional) Access point location: general description of the point of access. *e.g.* Rocky beach on north side Brown Cove off of Alexander Inlet;
- *7. (Optional) Tie Point Info: description of tie point. *e.g.* Triple flagged, yellow-25cm Hw. Coordinates for tie point can be put under the Site Description section;
8. (Optional) Dist to POC: distance in metres from the tie point to the Point of Commencement (POC);
9. (Optional) Bearing to POC: bearing from the Tie Point to the Point of Commencement;
- *10. **(Mandatory)** POC description: description of the POC. *e.g.* Triple flagged, red-33cm Ss.
11. (Optional) POC - Location: General descriptions of access to the POC. *e.g.* Creek crossing at 0+75m- go upstream 40m for log crossing;
12. (Optional) POC UTM Zone: the UTM zone of the POC;
13. **(Mandatory)** POC easting: the UTM or BC Albers easting of the POC;
14. **(Mandatory)** POC northing: the UTM or BC Albers northing of the POC;

15. **(Mandatory)** Strata 1 Survey Level to Strata 4 Survey Level: the survey type per stratum identified in the block. Mark with either a L1 or L2⁹;

16. (Optional) Site Description: Record a description of the survey area including: an overview of dominant tree species and understory species (including density and distribution); any notes on site history or historic use of the area; description of terrain; aspect; presence of water features.

17. (Optional) Survey comments/borderline calls: Any survey comments, including transect spacing used for Level 1 surveys and/or description of borderline calls for features including location, feature type and call (e.g. Strip-line 1, Sta 0+99 (or UTM/BC Albers) = borderline Monumental, not a feature).

FEATURE INFORMATION

1. **(Mandatory)** Strata No.: The number that represents the stratified portion of a block. Note that there may be as little as 1 strata for a block;

2. (Optional) Transect: The number that represents the transect on which the feature is located;

3. **(Mandatory)** Feat No.: The feature number. Begin at 01 for each Development Area. Ensure that feature numbers are continuous across Development Area strata. For digital data collection this number will be auto-generated;

4. **(Mandatory)** Feature types:

AHFs

*i. (a) Digital – AHF: Select the type of Aboriginal Heritage Feature from the form. Acceptable attribute values include those listed under the instructions for paper forms (i. b).

(b) Paper - AHF: check ☐ if the feature is an Aboriginal Heritage Feature: Acceptable attribute values to be entered under #5 *Description* include:

| | |
|------|------------------------------|
| V/VS | Village/Seasonal Village |
| SC | Seasonal Campsite |
| BS | Burial Site |
| IOHS | Identified Oral History Site |
| ISS | Identified Spiritual Site |

⁹ Remember to include a map showing the location of the strata within the Development Area as part of the final Cultural Heritage Feature Identification Report.

| | |
|-----|-------------------------------|
| M | Midden Site |
| FT | Fish Trap |
| FW | Fish Weir |
| PTG | Petroglyph |
| PCG | Pictograph |
| T | (Historic) Trail |
| CR | Canoe Run |
| CB | Clam Bed |
| G | Plant Garden |
| O | Other – (include description) |

Note: For trails the surveyor should also record: trail direction, condition, and other characteristics under “Description” for paper forms or under the trail description field for the digital data form.

CMTs

*ii. (a) Digital – CMT:

- Select the type of Culturally Modified tree from the form. Acceptable attribute values include those listed under the instructions for paper forms (ii. b).
- Select if the CMT is historic (>80 yrs) or contemporary (<80 yrs).
- Record the DBH (in cm¹⁰) and the tree species (see list under ii(b) for acceptable attribute values).
- For Bark Stripped CMTs only – record the healing lobe thickness (in cm), scar length (in m) and width (in cm), and the height of the scar above the ground (in cm).

¹⁰ When measuring DBH always round measurement to the nearest whole cm.

ii. (b) Paper – H-CMT or C-CMT: check ☐ if the feature is a historical Culturally Modified Tree (80 yrs +) or a contemporary Culturally Modified Tree (<80 years). Acceptable attribute values to be entered under #5 *Description* include:

- Type of CMT:

| | |
|------|---|
| BS-T | Bark-stripped, tapered scars |
| BS-R | Bark-stripped, rectangular scars |
| BS-G | Bark-stripped, girdled scars |
| BS-O | Bark-stripped, other scars |
| AL-T | Aboriginally logged tree, tested tree |
| AL-U | Aboriginally logged tree, undercut tree |
| AL-F | Aboriginally logged tree, felled tree |
| AL-S | Aboriginally logged tree, sectioned tree |
| AL-N | Aboriginally logged tree, notched tree |
| AL-P | Aboriginally logged tree, planked tree |
| AL-C | Aboriginally logged tree, canoe tree |
| OM-P | Other modified tree, pitch collection tree |
| OM-K | Other modified tree, kindling collection tree |
| OM-D | Other modified tree, delimbed tree |
| OM-M | Other modified tree, message tree |
| OM-A | Other modified tree, arborglyph tree |
| OM-G | Other modified tree, arborgraph tree |
| OM-B | Other modified tree, blazed tree |
| OM-S | Other modified tree, sap collection tree |
| OM-O | Other modified tree, other |

- Tree Species

| | |
|----|-------------------------|
| CW | Western red cedar |
| YC | Yellow cedar |
| HW | Western hemlock |
| PL | Lodgepole pine |
| BA | Amabilis fir |
| SS | Sitka spruce |
| HM | Mountain Hemlock |
| FD | Douglas Fir |
| EP | Paper birch |
| O | Other (include species) |

- Record the DBH (in cm¹¹)
- For Bark Stripped CMTs only – record the healing lobe thickness (in cm), scar length (in m) and width (in cm), and the height of the scar above the ground (in cm).

¹¹ When measuring DBH always round measurement to the nearest whole cm.

AFR

iii. (a) Digital – AFR:

- Select the plant species name from the form. Acceptable attribute values include those listed under the instructions for paper forms (see iii (b)).
- For Category 1 and 2 AFRs record the number of plants. Acceptable numbers include those listed under the instructions for paper forms (see iii (b)).
- (optional) For Category 1 and 2 AFRs record:
 - plant distribution (see Figure 6);
 - approximate size and shape of the patch;
 - observations on the health and quality of the patch

iii. (b) Paper – AFR: check ☐ if the feature is an Aboriginal Forest Resource. Acceptable attribute values to be entered under #5 *Description* include:

Category 1:

- | | |
|--------------------------|-------------------------|
| • Black Swamp Gooseberry | • Oval-Leafed Blueberry |
| • Common Juniper | • Pacific Crab Apple |
| • Cow Parsnip | • Red Elderberry |
| • Devil's Club | • Red Huckleberry |
| • Highbush-cranberry | • Salmonberry |
| • Labrador Tea | • Saskatoon Berry |
| • Northern Riceroor | • Stink Currant |

Category 2:

- | | |
|--------------------|-------------------|
| • Indian Hellebore | • Stinging Nettle |
|--------------------|-------------------|

Category 3:

- | | |
|----------------------|--|
| • Cloudberry | • Springbank Clover |
| • Licorice Fern | • Thimbleberry |
| • Oregon Lung Lichen | • Trailing Black Currant |
| • Silverweed | • [Common Name of Culturally Important Mushroom] |
| • Spiny Wood Fern | |

(optional) For patches of Category 1 and 2 AFRs also record:

- an estimate of the number of plants within the patch. Acceptable numbers include:

- | | |
|---------|---------|
| • 1-4 | • 21-30 |
| • 5-10 | • 31-50 |
| • 11-20 | • >50 |

- plant distribution (see Figure 6);
- approximate size and shape of the patch;
- observations on the health and quality of the patch

MON

*iv. Digital & Paper – MON: Check ☐ if the feature is a Monumental Cedar: Acceptable attribute values to be entered under #5 *Description* include:

| | |
|----|-------------------|
| CW | Western red cedar |
| YC | Yellow cedar |

AND

Diameter at Breast Height (DBH in cm¹²).

YEW

*v. Digital & Paper – YW TREE: check ☐ if the feature is a western yew tree or patch. Acceptable attribute values to be entered under #5 *Description* include:

| | |
|-------|---|
| 01-99 | The number of individual stems in the patch |
|-------|---|

Reminder each stem must be considered a yew tree, meaning the tree must be 2m or taller.

5. **(Mandatory)** Paper – Description: Fill out the descriptor for the feature, as defined in the previous section - Section 4 (i-v);

6. **(Mandatory)** DBH: Diameter at breast height. This field is only filled out for CMTs and Monumental features. Note that there are different management objectives for monumental trees greater than (>) 100 cm DBH, therefore care must be taken to ensure accurate measurements;

7. **(Optional)** UTM Zone: Enter the Universal Transverse Mercator zone;

8. **(Mandatory)** Easting: Enter the UTM/BC Albers easting;

9. **(Mandatory)** Northing: Enter the UTM/BC Albers northing.¹³

¹² When measuring DBH always round measurement to the nearest whole cm.

¹³ There is one exception where the Easting and Northing are not required. This is for AFRs that only require a presence absence record (see Section 5 for more info).

APPENDIX C – REPORTING TEMPLATE

Cultural Feature Identification Report

Project ID: _____

Developer:

Contact: [INSERT NAME]
Phone:
Email:

General Location: _____ Survey date(s): _____
(watershed)

Surveyor name: _____

Development Area(s): _____
Crew name(s): _____

Block size (Ha): _____

Total Traverse (m): _____

Percent Surveyed (%): _____

Report Prepared by: _____ Report date: _____

Survey Level by Stratum

| Strata No. | Survey Level | Strata description (including forest type) | Traverse (m) | Area (Ha) |
|------------|--------------|--|--------------|-----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Survey Comments:

Archaeological Concerns and Recommendations:

Feature Report

| Dev. Area | Strata | Feat. No. | | Feature type | Description | DBH | | |
|--------------|--------|--------------|--|--------------|-------------|-----|--|--|
| | | | | | | | | |
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I certify that the identification of cultural features was completed to the Standards set out by the Kitasoo/Xai'xais:

_____ (surveyor signature)

Note: In the Feature Type column of the report, make sure to sort features by location and then by type. For example record all Monumental Cedars in a group.

Impact Assessment

Recommendations

[INCLUDE MAPS & PICTURES]

APPENDIX D – MAP OF KITASOO/XAI'XAIS TRADITIONAL TERRITORY

