

May 16, 2016 (Version 3.0)

FREP *Protocol for*

Cultural Heritage

Resource Stewardship Monitoring

This protocol replaces Version 2.0 CHR protocol (June 2011). For the most current version of this document, please consult the FREP web site:

<http://www.for.gov.bc.ca/hfp/frep/indicators/table.htm#heritage>

For other FREP information, please go to: <http://www.for.gov.bc.ca/hfp/frep>

This protocol will remain in DRAFT for the 2016 field season, if you have any comments or corrections please contact one of the following:

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Acknowledgements: check for people to add (new CHR team members since 2011)

Version 3.0 is based on the original FREP CHR protocol prepared by Lisa Levesque and the Cultural Heritage Resource Working Group in 2005. Revised in April of 2016 by Kathleen Hebb, Nicole Pressey and Peter Bradford; B.C. Ministry of Forests, Lands and Natural Resource Operations.

This protocol and associated field cards are the products of many individuals' insight, hard work, knowledge, and creativity. Thanks to all those who have provided comments on early versions of this protocol, participated in field visits throughout its development, or contributed insights that have helped to shape this work. Particular thanks to the Forest and Range Evaluation Program (FREP) Cultural Heritage Resource Working Group members, both past and present, who have helped to make this program a reality.

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Forest and Range Evaluation Program Background:

British Columbia's Forest and Range Evaluation Program (FREP) is led by the Ministry of Forests, Lands and Natural Resource Operations (FLNRO), in partnership with the Ministry of Environment (MOE). The *Forest and Range Practices Act* and Regulations provide for a results-based, forest and range management framework in British Columbia that includes professional reliance as a foundational principle. Under the results-based model, government evaluates compliance with the law (compliance and enforcement) and evaluates the effectiveness of forest and range practices in achieving management objectives, including sustainable resource management (FREP).

FREP Mission:

Collect and communicate the best available natural resource monitoring information to inform decision making, improve resource management outcomes and provide evidence of government's commitment to environmental sustainability.

FREP Objectives:

1. Assess the impacts of forest and range development on the 11 FRPA resource values to determine if on-the-ground results are sustainable
2. Identify resource value status, trends and causal factors, and
3. Identify opportunities for continued improvement of practices, policies and legislation.

FREP Guiding Principles:

- Collect and analyze **high quality** monitoring data for all FRPA resource values that is fully relevant to resource professionals and natural resource management decision makers
- **Communicate** science-based information to enhance the knowledge of resource managers, resource professionals, First Nations and others to inform balanced decision making and continuous improvement of British Columbia's forest and range practices, policies and legislation
- Ensure **continuous improvement** of a high-quality program that is as effective and efficient as possible and provides maximum value for resources invested (including informing decisions related to policy, practice and legislative change)
- Recognize and develop the **people** who deliver FREP
- **Collaborate and link** with cumulative effects assessments, the NRS monitoring and evaluation collaborative and climate change monitoring needs
- Develop a meaningful and collaborative role for **First Nations** in natural resource monitoring and evaluation

Goal of Cultural Heritage Resource (CHR) Value Monitoring

CHR stewardship monitoring is undertaken on forest and range tenures to help answer the following questions:

1. How are known CHRs actively managed and what strategies are used?
2. How has conservation or protection maintained the site integrity and (or) value?
3. Are results on the ground consistent with First Nations' expectations?
4. Do site planning documents contain information about CHR management?
5. Are results on the ground consistent with site planning and site alteration permit commitments or requirements?

6. Is/was site damage due to unavoidable operational factors?
7. What management practices are resulting in adequately protecting, managing and/or conserving CHR values?
8. What management options may have improved CHR management on the site?
9. In what format, and how readily available, is CHR information?

Current Strategies for Cultural Heritage Resource Management

Conserving, and where necessary protecting, CHRs involves preventing the loss of, or minimizing damage to, sites or features. To achieve this, forest managers frequently use one or more of the following approaches to manage site-specific CHRs:

- Modify the cutblock boundary to avoid the feature (“site avoidance”).
- Retain a buffer around the site or feature.
- Retain the feature with no buffer where safe to do so (“log around”; e.g., leave a CMT standing with no buffer).
- Modify tree crowns or stands.
- Conserve the feature in a temporary retention area or permanent reserve.
- Stub CMT above scar.
- Stubbing all trees in and around a CHR area/feature
- Record the location and (or) date the feature with subsequent conservation or protection of the feature.
- Record the location and (or) date the feature before forestry activities proceed.
- Alter silvicultural practices (e.g., selective harvesting to maintain understorey plant communities).
- Undertake detailed or systematic archaeological data recovery or preservation through record.
- Monitor for additional archaeological site information during forestry activities.

Selecting which sites to Sample (FREP CHR Site Selection)

When the Master FREP list is released each year, there are some options when selecting sites for FREP CHR. A minimum of half of your sites must be randomly selected from the Master list, and up to half can be targeted. Staff, a First Nation or a forest/range licensee may inform the targeted site selection; from previous consultation efforts, or as sites are discovered in the field.

In order to be consistent with population of randomly selected blocks, targeted sites should not have been logged more than three years prior to assessment and must be at least one year (winter) post-harvest. Random sites are selected from the FREP Master random list.

To plan and execute the field portion of CHR stewardship monitoring, a review of all existing cultural heritage information for each sample site (cutblock) is essential. Although cultural information is increasingly documented in written form, British Columbia's indigenous peoples traditionally passed on knowledge orally (e.g., through stories, legends, or song) and therefore a considerable amount of written information may simply not exist (Tobias 2000). As well, First Nations' concerns are often communicated verbally to either a proponent or government staff (e.g., in an information sharing meeting, informal conversation held during a field visit, etc.) and may not be well documented. For these reasons, the review and consideration of both **documented** and **undocumented** sources of CHR information should be done.

Common undocumented sources of CHR information include:

- Informal conversations (phone calls meetings, field visits with an elder or other community member)
- Formal communication (meetings hosted by a licensee to discuss CHR concerns; pre-work field visits)
- Oral histories (sometimes recorded on tapes, CDs, or DVDs)
- Hereditary Chiefs, elders, knowledge keepers, or other resource users in the community.

Undocumented information sources are clearly more difficult to access in a systematic way. One additional step is to contact: (a) First Nation(s) whose traditional territory/territories overlap with the study area, and (b) proponents responsible for forestry operations on the site to determine whether any additional information is available regarding the presence or management of CHRs on the site (i.e., information not already gathered using documented information sources).

Common Documented Sources of Information for site selection:

The Remote Access to Archaeological Database (RAAD), Archaeological Impact Assessments (AIA), Site Alteration Permits associated with an AIA, Preliminary Field Reconnaissance (PFR), Traditional Use Studies (TUSs, and district CHR databases (if available) are good sources of information to compare to the Master FREP list. Some licensees have their own data CHR data

bases. Licensees in at least one district review the FREP master list against their internal data base for potential CHR sites.

Traditional Use Study Sites (TUS sites)

Traditional Use Study sites are a valuable source of information for resource managers. Often, TUS sites are post-1846 and therefore management of TUS sites falls under *Forest and Range Practices Act* (FRPA), as opposed to pre-1846 sites which fall under the *Heritage Conservation Act* (HCA). During past assessments, some TUS sites have resulted in ‘no finds’ during FREP CHR assessments. Unless a First Nation, archaeologist (via an AIA or PFR) or a forest licensee has confirmed the presence of a TUS site, they should not be relied upon as the sole indicator of a CHR when selecting sites for assessment.

Areas of Potential (AOP)

Areas of Potential (also referred to by some archaeologists as High Potential Zones or HPZs) are appearing increasingly in CHR management documents, in an attempt to save time and resources. Archaeologists are asked to conduct a Preliminary Field Reconnaissance (PFR). A PFR is a walkthrough of a proposed development area by an archaeologist where they identify above ground CHR; CMTs, trails, cultural depressions or surface lithics. There is no shovel testing. A PFR may not identify CHRs, but can confirm the potential for such features. A PFR does not entail shovel testing, so the CHR site boundary is unknown. In its place an AOP is identified. Often, the management strategy is to avoid the AOP. A buffer may or may not be recommended. If a random or targeted site has an AOP, it qualifies for a FREP CHR assessment, as FREP is assessing management effectiveness. The downfall is that there may be no CHR feature on the ground. These sites are generally assessed to determine whether they have been managed as per the archaeological recommendations, which may include avoidance (unharvested), and to assess whether there has been any windthrow or other damage.

Site Plans (SP)

Site plans identify planned roads and cut blocks as well as strategies for adhering to legislative standards. These plans are prepared by licensees but are not approved by government.

Other potential sources of information may include: GAR orders for cultural management areas, cultural management guidance/ direction in legal and non-legal land use plans.

Priorities for Cultural Heritage Resource Monitoring

The monitoring procedures outlined in this protocol only assess the post-harvest management effectiveness of **known and site-specific CHR sites or features**. For this protocol, “known” sites are those recorded or identified by a First Nation, and of which forest managers and decision makers should therefore be aware. These sites or features may have been recorded in various ways (e.g., recorded through a TUS, identified and documented through information sharing processes recorded during a pre-harvest CHR assessment, etc.), and the exact physical location

may or may not be recorded or known. For example, records may indicate the existence of an important ceremonial site in a given watershed, but ground verification of the exact site location may not have been completed.

In collaboration with our First Nations partners, the CHR team identified seven general categories of CHRs on which to focus:

- Culturally modified trees (CMTs)
- Cultural trails
- Traditional, ceremonial, and spiritual use sites or areas
- Cultural plants
- Ecological features with cultural significance
- Archaeological resources (e.g. pre-1846 CMTs, cultural depressions, lithics etc.)
- Monumental cedar

This above list is not final, complete, or universally applicable across the province, but serves as a useful starting point for this protocol. This list of categories will be revisited as we build our knowledge base and relationships with First Nations.

Most First Nations make little or no distinction between archaeological resources and CHRs as both contribute to a broader understanding of how First Nations people lived, and continue to live, on the land. For this reason, it is not possible or practical to consider them independently during resource stewardship monitoring, even though each is governed by separate legislation.

Information collected by FREP staff related to the management of archaeological sites or resources will be communicated to the Archaeology Branch at the Ministry of Forests, Lands and Natural Resources Operations.

Detailed descriptions of each CHR category follow, including examples of the specific site or feature types considered during FREP field evaluations.

Culturally Modified Trees (pre- and post- 1846) The Culturally Modified Trees of British Columbia handbook defines a culturally modified tree (CMT) as:

- A tree that has been altered by aboriginal people as part of their traditional use of the forest (B.C. Ministry of Small Business, Tourism and Culture 2-001:1).
 - Pre-1846 CMTs are automatically protected under the *Heritage Conservation Act* (HCA).
 - Post-1846 CMTs are managed under FRPA.

Many different types of CMTs exist, including:

Aboriginally logged: canoe; barberchair stump; basin stump; felled; flat stump; log; notched; planked; undercut; sectioned; step stump; test holes

Bark stripped cambium stripped; girdled scar; large rectangular scar; other scar; tapered scar

Other: arbourglyph; arbourgraph; blazed; burned; delimbed; kindling collection; knotted tree; marker; message; pitch collection; sap collection; totem pole

Most First Nations consider all CMTs to be important evidence of past and current use relevant to ongoing rights and title cases. However, there are differing views among First Nations regarding the level of protection required for CMTs as well as what constitute acceptable management practices for this resource. Some First Nations advocate for the protection of all CMTs, while others selectively advocate for this protection and will support other management approaches in some circumstances (e.g., stumping dead pine CMTs above the scar).

Aboriginal peoples in British Columbia used more than a dozen tree species. On the Coast, western redcedar (*Thuja plicata*) and yellow-cedar (*Chamaecyparis nootkatensis*) were predominantly used; Interior peoples frequently used lodgepole pine (*Pinus contorta*) and birch (*Betula* spp) among other species.

Cultural Trails

Trails, ancient and new, tell the story of human interaction with the land in British Columbia. Historically, trails represented important social, recreational, cultural, and commercial or trade networks for both First Nations and settlers of European descent. Trails connected settlements and villages, provided access to spiritual and ceremonial areas, and facilitated resource gathering and use. Heritage trails are a living reminder of First Nations' historical connection with the land base, and contemporary trails and trail networks provide a continuing connection to a culturally important areas and resource within First Nations traditional territories. Trails pre-dating 1846 are automatically protected under the *HCA*, and post-1846 trails may be designated and protected as provincial heritage sites (Heritage Trails) under Section 9 of the *HCA*.

FREP monitoring will consider all historical trails (pre-1846); designated and undesignated contemporary (post-1846) cultural use trails, and trap lines.

Cultural Plants

For millennia, First Nations people have used plants for spiritual, medicinal, material, and subsistence purposes (Peacock and Turner 2000; Lepofsky and Lertzman 2008). A complex array of social and ecological factors, including the loss of habitat and of access to traditional and contemporary gathering areas, have contributed to a decline in these activities in some areas of the province (Turner and Turner 2008).

Some plant species are widely used by several First Nations for a wide variety of purposes. For example, the same species may be used as a staple food, an important medicine, and a critical component of ceremony. As Garibaldi and Turner (2004) observed, just as certain species of plants or animals appear to exhibit a particularly large influence on the ecosystem they inhabit (ecological "keystones"), the same is true in social systems. They suggest that certain organisms can be considered "cultural keystone species," defined as:

The culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices (Baribaldi and Turner 2004).

A few examples of cultural keystone plant species used in British Columbia might include western redcedar, birch (*Betula* spp), Devil's club (*Oplopanax horridus*) or camas (*Camassia quamash*).

Many other plants may be used more locally or for more limited uses, and are no less critical from a cultural use perspective.

Specialized knowledge related to the use, cultivation, processing, or spiritual practices associated with various plant species differs across nations, and among knowledge keepers or families in individual communities. In some cases, only one person or family holds knowledge, and sharing this information is considered a taboo. Increasing recognition of intellectual property rights has led to important dialogue regarding the protection, use, and dissemination of indigenous peoples'

Traditional Use, Spiritual or Ceremonial Areas, Sites or Features

This broad category represents a wide range of site types including, but not limited to:

- Plant harvesting site (e.g., food, materials, medicines, spiritual plants)
- Hunting/trapping site (e.g., corral, pit, snare, fence, butchering site, hunting blind, trap deadfall)
- Sweatlodge
- Cremation site
- Monumental art (crest pole; memorial pole; mortuary pole)
- Supernatural area (e.g., wishing rock)
- Legendary site/transformer site
- Cedar bark strip area

Some areas may contain several different cultural heritage sites or features, which may or may not have physical evidence of past, or current use (Mason and Bain 2003). As well, the size of these sites may vary considerably, from a small campsite to areas of several thousand hectares.

Ecological Features with Cultural Significance

Many First Nations have considerable interest in the management of wildlife within their traditional territories. Much of this interest lies with ensuring continued access to certain animal species for hunting and trapping purposes, while some is focussed either on conversation or on maintaining traditionally strong cultural or spiritual connections with certain animal species. For example, the Haida Bear Mother Story explains Haida peoples' close relationship with bears, and bears are considered to play an important role in the well-being of the land (Council of the Haida Nation 2004).

Two types of ecological features with cultural significance are considered in this protocol:

- Dens (e.g., bear, cougar, coyote, etc.)

- Nests (e.g., eagle, goshawk, etc.)

Archaeological Resources

Archaeological resources are protected under the HCA through designation or automatic protection (B.C. Ministry of Tourism, Sports and Arts 2007). Many types of surface and sub-surface archaeological resources may be encountered in the field, including:

- **earthwork features:** fortification, mound, trench embankment
- **habitation features:** cultural depression (housepit, maternitylodge, menstruallodge, plank house, sweatlodge); cave; house post; mould; platform; refuge; rock shelter
- **subsistence features:** cultural depression (cache pit, roasting pit, steaming pit); hearth, post mould; bird hunting (bird hunting blind, bird net feature)
- **rock art:** petroglyphs (rock carvings) and pictographs (rock paintings)
- **cultural materials:** subsurface or surface (faunal, floral, firebroken rock, lithics, plant fibre, quarry, shell midden, wood)
- **human remains:** burial cairn, burial box, cave, grave goods, grave house, ledge, rock shelter, stone ring, talus, tree

Many British Columbia First Nations have established, or are working towards establishing, heritage policies, guidelines, agreements, bylaws, or protocols, and some have implemented community-based cultural resource permitting or equivalent systems (Mason and Bain 2003; Budwha 2005).⁷ These efforts reflect the desire of many First Nations to have a more dominant role in the practice of archaeology and control over cultural resource management in their traditional territories (Nicholas 2006).

⁷ Mason and Bain (2003:14) provide a list of British Columbia First Nations with these processes in place (to 2003) (http://www.ubcic.bc.ca/files/PDF/REP-0429-final_draft.pdf).

Resource stewardship monitoring will also help to:


- build awareness and understanding of locally important CHRs;
- clarify First Nations' concerns that may require monitoring at different scales (traditional territory, regional, provincial);
- lead to a better understanding of practical, cost-efficient, and effective management practices for CHRs; and
- inform statutory decision makers.

Completing the FREP CHR Field Forms

Confidentiality Note: When accessing, collecting or using CHR information, it is critical to observe and respect all documented and verbal conditions expressed by a First Nation related to data confidentiality. This is particularly important where information held by a band, Nation, or community is shared with FREP staff for monitoring purposes. Please consult with your First Nations advisors and local First Nations PRIOR to sharing of FREP CHR results.

There are three FREP CHR field forms:

- **Form A**
 - side 1 -- Block and feature identification
 - side 2 – Reference codes and descriptions
- **Form B**
 - Side 1 – Feature description/assessment
 - Side 2 – Feature management effectiveness assessment
- **Form C**
 - Side 1 – Block summary
 - Side 2 – Additional notes and photo descriptions

		Cultural Heritage Resource Value Resource Stewardship Monitoring		Form A Side 1 SITE FORM (complete 1 per cutblock)	
1. Opening Information					
Date(mm/dd/yy) 08/13/2012		Assessed by Kathleen Hebb		District DVA	
Opening ID 1307757		Licence # A80762	CP #	Block # 2	
Proponent BCTS		Year of Harvest 2009	First Nations' place name or Block name Chutanli Lake		
BEC subzone variant and site series SBSmc3-04		General Location 4 km on Blue 1000 Rd, adjacent to Chutanli Lake		<input type="checkbox"/> Targeted Sample <input type="checkbox"/> Random Sample	
2. First Nation and/or Proponent Contacts					
Include dates and names, Use card C-Side 2 if needed				Contacted	Attending on site
BCTS - Bruce Middleton & Karen				<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No
Lhoosk'uz Dene Nation				<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
Skintyee Nation				<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
Saik'uz First Nation				<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
3. Summary of Known Cultural Heritage Sites and Features					
Feature ID	Description Code1	Information Source2	Associated Feature(s) [provide feature ID(s)]	Comments	
1	A	AIA	2	FiSc-94 - in WTP	
2	A	AIA	1	FiSc-10 - in WTP	
3	A	AIA		FiSc-89	
4	A	AIA		FiSc-92	
5	A	AIA		FiSc-93	
6	A	AIA		FiSc-90	
7	A	AIA		FiSc-91	
8	CMT	AIA		Throughout block boundaries post-1846	
9					
10					

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Section 1 Opening Information

Fill out one Form A for each OPENING

- Date (mm/dd/yy) – date of assessment
- Assessed by – FLNR lead and others present
- District – FLNR Resource district
- Opening ID – from RESULTS (identifies a single (one cutblock) or multi-tenure opening (multiple cutblocks). This is a provincially unique number with no associated letters.
- License Number – Tenure holder number (forest or range)
- CP – cutting permit (if applicable) – if no CP put NA
- Block # -- A continuous discrete unit used in FTA. Uses both letters and numbers and is unique only to a licensee
- Proponent – Name of tenure holder or proponent
- Year of harvest – year of harvest completion
- First Nations' place name or Block name – if provided by First Nation, otherwise NA
- BEC subzone variant and site series – from RESULTS
- General location – description of general geographic area (e.g., KM 15 on Carson FSR, north side)


Section 2 First Nation and/or proponent names

- Record the names and dates of the individuals you contacted to provide information and/or invited onsite. Indicate both if contacted and if attending on site.


Section 3 Summary of Known Cultural Heritage Sites and Features

- Feature ID – each feature should be given a number (1-10 – if more numbers needed, use Form C side 2)
- Description Code – use only feature description codes on Form A side 2 (Feature Codes)
- Information Source – use only information source codes on Form A side 2 (Information source codes)
- Associated Features – Identify where a site or feature is associated with one or more other sites or features (e.g., a cultural trail associated with CMTs and an adjacent berry gathering site)
- Comments -- provide any relative, interpretative or other comments that will be useful in data analysis and interpretation.

Form A side 2 – reference card

		Cultural Heritage Resource Value Resource Stewardship Monitoring	Form A Side 2 Reference Card
Reference Card			
Feature Codes		Information Source Codes	
Archaeological Resource		Archaeological Impact Assessment	AIA
A		Archaeological Overview Assessment	AOA
Culturally Modified Tree	CMT	CMT survey	S - CMT
Cultural Plants	P	Consultation/referral records	C
Cultural Trail	CT	FRA/FRO Areas of Interest	FRA or FRO
Ecological Features with Cultural Significance	EF	Personal Communication	PC
		<i>(please specify in comments)</i>	
Traditional Use, Spiritual, or Ceremonial Sites or Features	TUA	Preliminary Field Reconnaissance	PFR
Area of Potential	AOP	Pre-harvest CHR survey or assessment report	S - PH
High Potential Zone	HPZ	Site Plan or Silviculture Prescription	SP (1) or SP (2)
Other	O	Traditional Use Study	TUS
		Other	O
Reserve Codes (reserve type)			
PR Patch riparian	Treeed patch left within a riparian management area. Use riparian designation regardless of patch being classified as WTP on site map.		
PW Patch wildlife	Treeed patch left outside of RMA and designated as a wildlife tree patch.		
PO Patch other	Tree patch left outside of RMA for purpose other than PR, PW and anticipated to remain for the full rotation.		
PT Patch Temporary	Treeed patch that will likely be harvested before rotation end (e.g., indication on map that this is a temporary deferred area).		
PU Patch unidentified	A patch found in the field but not mapped. No indication on map regarding patch purpose and patch not in RMA.		
DR Dispersed riparian	Dispersed trees left within a RMA. Use riparian designation regardless of other coding from map.		
DW Dispersed wildlife	Dispersed trees left outside of RMA and designated as wildlife trees.		
DO Dispersed other	Dispersed trees left outside of RMA for purpose other than DR, DW, and anticipated to remain for the full rotation.		
DT Dispersedtemporary	Dispersed trees that will likely be harvested before rotation end (e.g., indication on map that trees are left as part of a commercial thin or shelterwood).		
CC Clearcut	Zero retention stratum.		
AOP Area of potential	Area of potential		
HPZ High Potential Zone			
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Form B side 1 (site form)

		Cultural Heritage Resource Value Resource Stewardship Monitoring		Form B Side 1 SITE FORM (complete 1 per feature)	
Opening ID <u>1307757</u>		Feature ID(s) (from Form A) <u> </u>			
4. Site or Feature Description Individual feature Composite site or feature: Composite ID# (please assign)					
<input type="checkbox"/> Cultural trail - designated <input type="checkbox"/> Burial site <input type="checkbox"/> Nest (eagle, goshawk, other)					
<input type="checkbox"/> Cultural trail - undesignated <input type="checkbox"/> Cremation site <input type="checkbox"/> Den (bear, cougar, coyote, other)					
<input type="checkbox"/> CMTs <input type="checkbox"/> Ceremonial site <input type="checkbox"/> Cave or other Karst feature					
<input type="checkbox"/> Traditional use site <input type="checkbox"/> Cedar bark strip area <input type="checkbox"/> Rock outcrop					
<input type="checkbox"/> Spiritual site <input type="checkbox"/> Individual monumental cedar <input type="checkbox"/> Other (describe):					
<input type="checkbox"/> Cultural Depression <input type="checkbox"/> <input type="checkbox"/> Other (describe):					
<input type="checkbox"/> Lithics					
Description of site or feature and location description:					
FISc-90 = two cultural depressions (cache pits). Flagged with red and yellow tape machine Free Zone flag and an aluminum tag					
Size of Feature influenced by management area: Length m OR Area .024 ha					
Is this CHR a registered archaeological site? Yes Borden #: FISc-90					
5. Location UTM Coordinate: Zone E N					
Check all that apply, if known:					
<input type="checkbox"/> In harvested area <input type="checkbox"/> Adjacent to block <input type="checkbox"/> Adjacent to, or in close proximity to water <input type="checkbox"/> Other					
<input type="checkbox"/> Entire outblock area <input type="checkbox"/> In reserve - type: (see references)					
6. Age Check all that apply: <input type="checkbox"/> Pre-1846 <input type="checkbox"/> Post-1846 <input type="checkbox"/> Age unknown <input type="checkbox"/> Historical use					
7. Management Planning					
		Recommendation(s) by First Nation(s) (specify First Nation(s))		Recommendation(s) in AIA or site alteration permit	
Management Strategy		<input checked="" type="checkbox"/> No First Nations provided management recommendations		<input type="checkbox"/> No permit issued <input type="checkbox"/> Yes Permit #	
Identified in site plan		<input type="checkbox"/> No management strategies noted in SP			
Modify block boundary to avoid the feature		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Retain a buffer or 50 m around site or feature		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Retain in harvest area - no buffer		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Crown or stand modification		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Conserve in rotational reserve type:		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Conserve in temporary retention area type:		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Date the feature		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Stub (some/all) CMT(s) above scars		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Stub (some/all) non-CMT(s)		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Leave standing where safe to do so		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Alter silviculture activities		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Other: Stub all trees within MFZ to		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Other: Obtain a s.12 site alteration		<input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> No <input type="checkbox"/> Yes	
<input checked="" type="checkbox"/> Additional comments on Form C					
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Complete one Form B for each individual or composite feature

Section 4

- Opening ID – use the same opening ID as Form A side 1 section 1
- Feature ID(s) (from Form A) – use numbers assigned on Form A section 3.
- Site or Feature Description – tick individual or composite feature. If composite feature, assign a letter (e.g., features 1 and 2 as a composite are identified as “A”). A site or feature associated with one or more other sites/features (as per Form A, Section 3) can be evaluated separately as Individual Features or together as one Composite Feature. A Composite feature may be managed using a single strategy or more than one strategy may be employed. The decision to assess multiple sites or features individually or as a composite may change once the management strategies used have been confirmed in the field – evaluators should assess based on what is most logical to them.
- Tick all appropriate feature/site types (e.g., cultural trail, CMT)
- Written description of feature/site

- Size of feature influenced by management area – record area/length and width surrounding feature/site that is impacted by management (e.g., a 300m CT within a block with a 5m MFZ would be 300m x 5m OR 0.15 ha)
- Is this CHR a registered archaeological site – tick yes or no, if yes, provide Borden number from RAAD

Section 5 location

- Location – provide UTM
- Check all that apply – identify where site or feature is relative to the cutblock (adjacent, within etc.). Use only reserve codes on Form A side 2.


Section 6 Age

- Age – identify if pre-1846, post- 1846 or unknown. If unknown, but use is not current, tick historical use

Section 7 Management Planning

- Tick box “First Nations provided management recommendations” – tick “no” box if no recommendations provided. If recommendations are provided, tick strategies from menu below. Use “other” if strategy not listed – describe “other” if additional room needed, use Form C side 2

Form B Side 2 Site Form Management Effectiveness

		Cultural Heritage Resource Value Resource Stewardship Monitoring		Form B Side 2 SITE FORM (complete 1 per feature)	
8. Management Effectiveness (field portion) <input type="checkbox"/> Unable to locate the feature					
For composite features: <input type="checkbox"/> One mgmt. strategy used for all features <input type="checkbox"/> Different mgmt. strategies used <input type="checkbox"/> N/A (Individual feature)					
Check all that apply:					
<input type="checkbox"/> No management of the site or feature		<input type="checkbox"/> Partially conserved in permanent reserve type: _____		<input type="checkbox"/> Fully conserved in permanent reserve type: _____	
<input type="checkbox"/> Modified block boundary to avoid the feature		<input type="checkbox"/> Partially conserved in temporary reserve type: _____		<input type="checkbox"/> Fully conserved in temporary reserve type: _____	
<input type="checkbox"/> Retained a buffer of _____ m around site or feature		<input type="checkbox"/> Retained in harvest area - no buffer		<input type="checkbox"/> Stabbed (some / all) CMF(s) above scars	
<input type="checkbox"/> Completed crown or stand modification		<input type="checkbox"/> Dated the feature		<input type="checkbox"/> Other: _____	
<input type="checkbox"/> Left standing where safe to do so		<input type="checkbox"/> Altered silviculture activities			
Q1 Is there evidence of damage to the site or feature? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Q2 Where damage has occurred, what is the most likely cause?					
<input type="checkbox"/> Harvesting activities <input type="checkbox"/> Silviculture activities <input type="checkbox"/> Recreation use <input type="checkbox"/> Road building <input type="checkbox"/> Wind throw <input type="checkbox"/> Site modif					
Description of damage (where applicable): 2 depressions located, undisturbed, small site. Planted trees adjacent to depressions. Only stubbed boundary trees; harvested to ground within site					
Q3A Has the feature been irreversibly damaged or rendered unsuitable for continued use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't know					
Q3B If yes, explain in Q7					
Windthrow management <input type="checkbox"/> Was the retention area/trees windfirm? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Windthrow management techniques applied: None <input type="checkbox"/> Retention buffer <input type="checkbox"/> Topping <input type="checkbox"/> Pruning <input type="checkbox"/> Feathering <input type="checkbox"/> Other: <input type="checkbox"/> If other please describe: _____					
Trail Features: <input type="checkbox"/> Can the trail still be located? <input type="checkbox"/>					
With respect to management area <input type="checkbox"/> Is there evidence of damage? <input type="checkbox"/>					
<input type="checkbox"/> Has the trail been made less passable? <input type="checkbox"/>					
Estimated % of trail length in or adjacent to the block with evidence of damage: _____ %					
6. Feature Summary Observations					
Q4 Were there operational factors that limited CHR management options for this feature? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
The site plan management strategy mirrors AIA recommendation. It was not implemented on the ground and therefore is not appropriate.					
Were there management strategies and/or practices used for this feature that were particularly effective? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Are there management strategies and/or practices that could have been used to reduce the impact on this CHR feature? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Follow the site plan/AIA recommendations. Better communication of information to operators during sale and pre-work. Post-harvest follow-up.					
To what extent did practices for this feature maintain CHR value(s) given the recommendations and opportunities that were available? <input type="checkbox"/> Very poorly <input checked="" type="checkbox"/> Poorly <input type="checkbox"/> Moderately <input type="checkbox"/> Well <input type="checkbox"/> Very well <input type="checkbox"/> Don't know					
Rationale: Operator did not follow site plan strategy (mirrors AIA recommendation). Harvested trees to ground within the site - only the boundary was stubbed. Planted within site - this is a low impact and					
<input type="checkbox"/> Additional comments on Form C					


Section 8 – Management effectiveness

- Unable to locate feature – tick if feature cannot be found in the field (this applies to sites/features where their exact location is not known ahead of time and they could not be located in the field). If site/feature with a known location has/have been removed/damaged beyond identification, do not tick – provide rationale for management effectiveness rating in question 3
- For composite features – tick appropriate management strategy
- Check all that apply – tick all management strategies/activities used to manage feature/site. If no management, tick “no management of the site or feature”
- Q1 – tick ‘yes’ if any damage evident
- Q2 – identify likely cause from list, if “other” please describe (use form C side 2 if necessary). Describe damage in enough detail to determine continued use/existence of feature and effectiveness of management practices
- Q3A – tick yes if site/feature has been damaged to the point of no future value

Section 9 Feature Summary Observations

- Q4 – Were there operational factors that limited CHR management options for this feature? -- tick yes/no and describe any valid operational limitations to management of CHRs (e.g., fire destroyed, safety, no alternative road locations/stream crossings etc.).
- Q5 – Were there management strategies and/or practices used for this feature that were particularly effective? – tick yes/no and describe any practices that resulted in a well to very well managed feature/site. Of particular interest are new and/or innovative practices.
- Q6 – Are there management strategies and/or practices that could have been used to reduce the impact on this CHR feature? Tick yes/no and describe operationally feasible practices that could have been used to result in a “well/very well” managed feature.
- Q7 – To what extent did practices for this feature maintain CHR values given the recommendations and opportunities that were available – assessment/rating should consider the condition of the feature, planning recommendations (Form B side 1, section 7), management effectiveness (Form B side 2), impacts beyond the licensee control (e.g., recreational impacts, other industries etc.), operational opportunities/options and First Nations and licensee input (if on site). Rate as very well, well, moderately, poorly or very poorly. Rate as “Don’t Know” only if feature cannot be found and if exact location was not previously ground-truthed. Rate management effectiveness if a known feature has been removed or destroyed to such an extent that it cannot be found (see Q3)
- Additional comments on Form C – use form C side 2 for all additional comments

Form C Side 1 -- Site Form (Block Summary)

	Cultural Heritage Resource Value Resource Stewardship Monitoring	Form C Side 1 SITE FORM
4. Block Summary (complete only if more than one feature)		
Q1 Were there operational factors that limited CHR management options on this block?		
<input type="radio"/> Yes <input checked="" type="radio"/> No Description: Operator could have left stubs within each arch site as recommended in AIA and as part of SP management strategy, with only minor loss to volume harvested		
Q2 Were there management strategies and/or practices used on this block that were particularly effective in managing CHR values?		
<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A Description: Site in WTP are well protected from any potential windthrow		
Q3 Are there management strategies and/or practices that could have been used to reduce impacts on CHR values on this block?		
<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A Description: Stub all trees with each site and not only the boundary. Sites should be managed as a whole, not for individual features within the site (per communication with Frank Craig, Archeologist)		
Q4 To what extent did practices on this block maintain CHR values given the recommendations and opportunities that were available?		
Moderately Rationale: Features/sites with WTP were well protected. Site within harvested area were no managed as per AIA recommendation or the SP. BCTS staff are addressing issues with archaeologist and will provide training to their staff internally to prevent future problems with monitoring operations		
Additional comments on Form C 1		
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Section 4 Block Summary – complete this form only where there is more than one feature and/or more than one composite feature on a block.

- Q8 – Were there operational factors that limited CHR management options on this block – tick yes/no. Provide any comments in addition to those already made in Q4 (Form B side 1). Consider the block as a whole versus on an individual feature basis. If no additional comments, record “see Q4”
- Q9 -- Were there management strategies and/or practices used on this block that were particularly effective? – tick yes/no and provide any comments in addition to those already made in Q5 (Form B side 1). Consider the block as a whole versus on an individual feature basis. If no additional comments, record “see Q5”
- Q10 – Are there management strategies and/or practices that could have been used to reduce the impact on this block? tick yes/no and provide any comments in addition to those already made in Q6 (Form B side 1). Consider the block as a whole versus on an individual feature basis. If no additional comments, record “see Q6”
- Q11 – To what extent did practices on this block maintain CHR values given the recommendations and opportunities that were available – assessment/rating should consider the overall condition of all features, planning recommendations (Form B side 1, section 7), management effectiveness (Form B side 2) site operational

opportunities/options and First Nations and licensee input (if on site). Rate as very well, well, moderately, poorly or very poorly. Rate as don't know only if feature(s) cannot be found (if exact location was not previously identified).

Form C side 2 – Photo record and Additional comments

- Record photo #, Date and description. If you encounter confidential or sensitive sites/features that were previously unknown, please ensure the First Nation is made aware. If the site is possibly pre-1846, Archaeology Branch should also be contacted.

FREP
Forest Range
Evaluation Program

Cultural Heritage Resource Value
Resource Stewardship Monitoring

Form C Side 2
SITE FORM

Opening ID

Photos

Photo #	Date	Description
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Additional Comments

Comments/photos related to: Block Feature General

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MRVA Rating – MRVA ratings are automatically derived based on individual feature (Q7 and Q11) and overall block ratings as follows:

Block rating (Form C, side 1 Q. 11)	Individual Features (Form B, side 2, Q. 7)	MRVA rating (resource development impact rating)
Very well	One or more individual feature with VP or P	Low
	No individual features with VP or P	Very Low
Well	One or more individual feature with VP or P	Low
	No individual features with VP or P	Very Low
Moderately	One or more individual feature with VP or P	Medium (Borderline)
	No individual features with VP or P	Low
Poor	Not considered	High
Very Poor	Not considered	High
Don't know	N/A	No MRVA rating

References

Adam, M.C. and D. Kneeshaw. 2008. Local level criteria and indicators: A tool used to assess aboriginal forest ecosystem values. *Forest Ecology and Management* 255: 2024-2035.

B.C. Ministry of Agriculture and Lands. 2007. Morice Land and Resource Management Plan.

Integrated Land Management Bureau, Victoria, B.C.

http://ilmbwww.gov.bc.ca/slrp/lrmp/princegeorge/morice/plan/files/morice_lrmp_july_2007.pdf
(Accessed October 1, 2008)

B.C. Ministry of Small Business, Tourism and Culture. 2001. Culturally modified trees of British Columbia: a handbook for the identification and recording of culturally modified trees. Version 2. Archaeology Branch for the Resources Inventory Committee, Victoria, B.C.
<http://www.for.gov.bc.ca/hfd/pubs/docs/mr/Mr091?cmthandbook.pdf> (Accessed April 17, 2009).

http://ilmbwww.gov.bc.ca/slrp/srmp/Background/docs/RAG/RAG_Dec04.pdfB.C. Ministry of Sustainable Resource Management. 2004. Resource analysis guide for sustainable resource management planning. Forests, Lands, and Marine Branch, Victoria, B.C. (accessed March 10, 2009)

B.C. Ministry of Tourism, Sport and the Arts. 2006. Using the archaeological site inventory form and detailed data table to record CMT features. Archaeology Branch, Victoria, B.C. Information Bulletin No. 16
http://www.tca.gov.bc.ca/archaeology/bulletins/recording_culturally_modified_trees.pdf
(Accessed April 2009).

Technical Note #6: Methodologies for Converting FREP Monitoring Results to Multiple Resource Value Assessment (MRVA) Resource Development Impact Ratings

https://www.for.gov.bc.ca/ftp/HFP/external/!publish/frep/technical/FREP_Technical_Note_06.pdf

_____. 2007. British Columbia archaeological resource management handbook for foresters. Archaeology Branch, Victoria, B.C.
http://www.tca.gov.bc.ca/archaeology/docs/handbook_for_foresters.pdf (Accessed March 10, 2009)

Berkes, F. 1993. Traditional ecological knowledge in perspective: concepts and cases. J.T. Inglis (editor). International Development Research Centre, Canadian Museum of Nature, Ottawa, Ont.

Berkes, Fikret 1999. Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Taylor and Francis, Philadelphia, Penn.

Berkes, F. and I. Davidon-Hunt. 2006. Biodiversity, traditional management systems, and cultural landscapes: examples from the boreal forest of Canada. *International Social Science Journal* **58**(187): 35-47.

Budwaha, R. 2005. An Alternative Model for First Nations Involvement in Resource Management Archaeology. *Canadian Journal of Archaeology* 29(1): 20-45.

Charnley, S.A., Paige Fisher, A. and E.T. Jones (2007). Integrating traditional and local knowledge into forest biodiversity conservation in the Pacific Northwest. *Forest Ecology and Management* **246**: 14-28.

Chehalis Band and Chilliwack Forest District. 2008. Kweh-Kwuch-Hum (Mt.Woodside): Spiritual Areas and Forest Management. A Policy Pilot Project by the Chehalis Indian Band and the Chilliwack Forest District. Final report, June 2008.
<http://www.for.gov.bc.ca/dck/Stewardship/KKH%20Final%20Report.pdf> (accessed March 10, 2009)

Council of the Haida Nation (2004). Haida Gwaii Yah'guudang (*respect for this place*): Haida Land Use Vision. Council of the Haida Nation, Haida Gwaii, B.C.: 18 pp.

<http://www.ecologyandsociety.org/vol9/iss3/art1/main.html#concept> Garibaldi, A. and N.Turner. 2004. Cultural Keystone Species: Implications for Ecological Conservation and Restoration. *Ecology and Society* **9**(3) (accessed March 10, 2009)

Karjala, M.K., Sherry, E., and S.M. Dewhurst. 2002. Criteria and indicators for sustainable forest planning: a framework for recording Aboriginal resource and social values. *Forest Policy and Economics* **6**: 95-110

Lepofsky, D. and K. Lertzman. 2008. Documenting ancient plant management in the northwest of North America. *Botany* **86(2)**: 129-145
http://www.ubcic.bc.ca/files/PDF/REP-0429-final_draft.pdf

Mason, A. and D. Bain. 2003. The Evolution of British Columbia's Heritage Environment: An overview and discussion of First Nations issues. Final report submitted to the Union of B.C. Indian Chiefs. Golder Associates, Burnaby, B.C. (accessed March 10, 2009)
<http://www.ecologyandsociety.org/vol9/iss3/art2/>

Moller, H., Berkes, F., Lyver, P.O., and M. Kislalioglu. 2004. Combining Science and Traditional Ecological Knowledge: Monitoring Populations for Co-Management. *Ecology and Society* **9(3)**: 2.

Nicholas, G.P. 2006. Decolonizing the archaeological landscape: The practice and politics of archaeology in B.C. *North American Indian Quarterly* **30(3/4)**: 350-380

Peacock, S.L. and N.J. Turner (2000). "Just like a garden": traditional resource management and biodiversity conservation on the Interior Plateau of British Columbia In *Bio. In: Biodiversity and native America*. Minnis, P.E., Elisens, W.J. (editors). University of Oklahoma Press, Norman, Okla., pp. 133–179
http://www.for.gov.bc.ca/hfp/frep/site_files/indicators/Indicators-SLBD-Protocol-2008.pdf

Province of British Columbia (2008). Protocol for Stand-level Biodiversity Monitoring: Steps for field data collection and administration. Forest and Range Evaluation Program. B.C. Ministry of Forests and Range and BC Ministry of Environment, Victoria, B.C. (Accessed January 2009)

Simeone, T. 2004. Indigenous Traditional Knowledge and Intellectual Property Rights. Political and Social Affairs Division, Library of Parliament, Ottawa, Ont.

Stephen, S. 2000. Handbook for culturally responsive science curriculum. Alaska Science Consortium and the Alaska Rural Systemic Initiative, Fairbanks, Alaska.
<http://www.ankn/uaf/edu/publications/handbook/handbook.pdf> (Accessed April 2009)

Tobias, T. (2000). Chief Kerry's Moose: A guidebook to land use and occupancy mapping, research design and data collection. A joint publication of the Union of BC Indian Chiefs and Ecotrust Canada, Vancouver, BC. http://www.ecotrust.org/publications/Chief_Kerrys_Moose.pdf (Accessed January 2009).

- Trusler, Scott, and Leslie Main Johnson (2008). "Berry Patch" As a Kind of Place—the Ethnoecology of Black Huckleberry in Northwestern Canada. *Human Ecology: An Interdisciplinary Journal* 36 (4): 553-568.
- Turner, N.J. and K. Turner. 2008. "Where our women used to get the food": cumulative effects and loss of ethnobotanical knowledge and practice; case study from coastal British Columbia. *Botany* **86**: 103-115
- Turner, N. J. and W. Cocksedge. 2001. Aboriginal Use of Non-Timber Forest Products in Northwestern North America: Applications and Issues. *Journal of Sustainable Forestry* **13**(3/4): 31-60
- United Nations. 1992. Convention on Biological Diversity. New York, N.Y. Article 8: In-situ conservation. <http://www.cbd.int/convention/articles.shtml?a=cbd-09> (Accessed April 2009).
- Wyatt, S. (2008). First Nations, forest lands and "aboriginal forestry" in Canada: from exclusion to co-management and beyond. *Canadian Journal of Forest Research* **38**(2):171-180