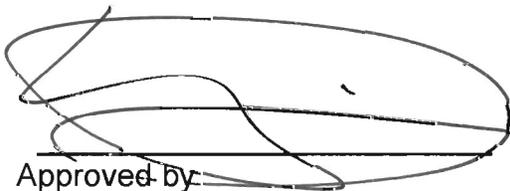


Kluane Lake East Timber Harvest Plan

**FOREST MANAGEMENT BRANCH
ENERGY MINES AND RESOURCES
YUKON GOVERNMENT**

**Within the Beaver Creek/Burwash Landing/Destruction Bay Annual
Allowable Cut Unit**

PREPARED: March 4, 2013



Approved by:
Lyle Dinn
Director, Forest Management branch

March 4, 2013
Date



Submitted by
Lauren Waters
Area Forester, Forest Management branch

March 4, 2013
Date

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Executive Summary

The *Forest Resources Act (FRA)* requires that a Timber Harvest Plan (THP) be prepared and approved prior to the issuance of commercial timber harvesting licences or forest resources permits greater than 25 m³ (*FRA, Section 29(4)(d)(ii)*).

This THP identifies fuel wood harvesting opportunities on the east shore of Kluane Lake where the majority of the spruce trees have been killed by the spruce bark beetle. The area is approximately 127 hectares (84 net hectares) with an estimated salvageable timber volume of 5,040 m³. This THP has been designed to meet the requirements of the *FRA and Regulations* and satisfy local demand for fuel wood. This THP is required in order to issue commercial harvesting licences.

The First Nations were invited to participate in the development of this THP as per the *FRA Regulations*. In addition to this prior to issuing a harvesting licence the public and any First Nations, whose traditional territory falls within the area of application, must be notified. The First Nation and public may make representations to the Branch Director on the application for a period of no less than 30 days (*FRA, Section 18*).

In addition, any applications that trigger an environmental assessment would require a submission to the Yukon Environmental and Socioeconomic Assessment Board (YESAB), Designated Office.

1.0 Introduction

1.1 Purpose/Background

The purpose of the *Forest Resources Act (FRA)* is to promote the sustainable use of forest resources for the benefit of current and future generations by ensuring that the environmental, economic, social and cultural interests of all users of the forest are considered with the need to promote the health of forests.

The objective of this Timber Harvest Plan (THP) is to establish a forest harvesting area in spruce bark beetle impacted forests, while maintaining other identified values.

This THP has been prepared in response to an application by a local, small scale commercial operator to harvest dead spruce fuel wood during the winter months.

1.2 Eco-region and Drainages

This THP lies within the Ruby Range of the Boreal Cordillera Eco-zone. This region is one of the driest in the Yukon, as it lies in the rain shadow of the St. Elias Mountains. The elevation range is 781-850 metres above sea level.

The area consists primarily of old growth boreal forest dominated by white spruce with spruce seedlings growing in the understory. Balsam poplar, and trembling aspen are also observed within this area.

This Eco-region is characterized by either rolling plateau or subdued mountainous topography overlain by a variety of parent materials including moraine, colluvium, and glaciofluvial materials. The soils are commonly Eutric Brunisols, and Turbic Cryosols, many of them with a layer of the White River tephra (ash).

Land uses reflect high recreational, tourism, and hunting values in alpine and subalpine sections. This THP is located in the Simple Upland Natural Disturbance Type (NDZ 3) and consists of relatively uniform stands of pure white spruce or white spruce with a minor trembling aspen component.

1.3 Socio-Economic Considerations

This is a relatively small THP, and is designed to meet the needs of small commercial fuel wood harvesters. This area is near the communities of Destruction Bay and Burwash Landing, which are on the west side of Kluane Lake. Many residents in this area and small businesses rely on fuel wood harvesting as an economical heating alternative throughout the winter. Presently there is only one operator who has applied to harvest in this area; however, there may be additional commercial harvesting opportunities for other small scale commercial harvesters.

2.0 Planning Area Description

The Kluane Lake East THP is located in the southwest Yukon in the Kluane District, approximately 204 km northwest of Whitehorse, 83 km northwest of the village of Haines Junction, along the eastern shoreline of Kluane Lake. It is approximately 6 km east of Destruction Bay on the opposite side of the lake.

This THP area is approximately 127 gross hectares (84 net hectares), with an estimated total volume of 5,040 m³, of which approximately 3,793 m³ is beetle killed spruce. There is an existing all season road that bisects this unit. This area can also be accessed in the winter across the frozen lake.

TABLE 1: Area and Volume Summary

Estimated Volume/ Hectare (m ³ /ha)	Slope (%)	Aspect	Size Gross/Net(ha)	Species Composition
40-60m3/ha dead	0-20%	West	127.2/84.3	Sw70%,A30%

Sw- white spruce, Sb-black spruce, A-aspen

2.1 Wildlife

The characteristic wildlife species in the area include caribou, grizzly and black bear, sheep, moose, beaver, fox, wolf, hare, raven, rock and willow ptarmigan, peregrine falcon and golden eagle. The spruce/aspen forest is also home to great gray owls and gray jays that nest early in spring. Ruby-crowned kinglets, slate-coloured juncos and boreal chickadees nest until late July. Snowshoe hares use the forest for shelter from predators such as the lynx and feed in willow thickets and burn areas. Red fox and coyotes hunt for small mammals and bird's eggs.

There are two wetland areas, one directly north and one northeast of this THP area. Wildlife frequents these wetlands and may be impacted by development. All site plans and operational development will be consistent with current wildlife standards (FRA, Wildlife Features Standards). These standards were developed to ensure that integrated resource planning occurs with respect to wildlife and forest resources. Timber harvesting will concentrate on salvage harvesting beetle affected trees and will help promote regeneration of an early seral stage, healthy and vigorous forest. Wildlife trees/snags with cavities suitable for nesting birds will be retained post harvest. Harvested stands will continue to provide important wildlife habitat throughout the stages of succession.

2.2 Biodiversity

The forest cover in this area is comprised of white spruce, balsam poplar and trembling aspen. Understory and ground cover includes kinnikinnick, rose, bedstraw, toadflax, soapberry, yarrow, fireweed and peavine. The natural disturbance regime for this forest area is wildfire, as well as the more recent spruce bark beetle epidemic, which has created a mosaic of forest cover landscape, and a significant expanse of primarily dead spruce. The terrain is primarily on the toe of the slope, with some hummocky terrain, with relatively coarse soils, and slopes averaging between 0 to 20%.

2.3 Riparian and Water Resources

All site plans and operational development must be consistent with the current riparian and wetland management standards (*FRA, Riparian Management on Streams and Lakes Standards and Guidelines, Wetlands Riparian Management Standards and Guidelines*).

This area is adjacent to Kluane Lake. A riparian reserve and management zone will be established as per the FMB's Riparian management guidelines. Protection of the riparian area from disturbance will maintain the water resources and fish habitat as well as the terrestrial edge habitat around these areas.

2.4 Recreation and Visual Impact

Recreational opportunities along the shore of Kluane Lake is a value that is of high importance. Much of this recreation occurs in undeveloped landscape.

It is important to maintain visual buffers along important lakeshores to ensure a wilderness

and aesthetic values for tourism and recreation. This unit is approximately 5 km from the Alaska Highway, and may be visible from the highway and by boaters on Kluane Lake. Mitigation of visual effects will be achieved through selective removal of dead trees, irregular boundaries and high amounts of tree retention within the area. A visual /riparian/heritage values reserve/management zone will be maintained along the lakeshore.

2.5 Cultural Values/Heritage and Archeological Sites

This area is within the traditional territories of the Kluane First Nation (KFN) and the White River First Nation (WRFN). KFN Settlement block (KFNR18B) is north of the THP boundary area.

Traditional uses within this area include, but are not limited to hunting, fishing, trapping, berry picking, medicine gathering, spiritual and cultural uses.

A heritage resources impact assessment was conducted on the proposed development area during the summer of 2012. The report (Appendix C) identifies the presence of pre and post contact heritage sites. Where recommended in the report, these areas will be protected from disturbance (harvesting or skidding) as per the requirements of the *FRA Historic and Archaeological Resources Standards*. Selective harvesting of the dead spruce outside of these reserve areas will have a low impact on cultural values.

2.6 Traditional Land Users

A copy of the draft THP was sent to trapping concession holders (#185), outfitters (#12) and guides operating in this area. There are no mining claims, quartz/placer or coal overlapping this THP.

3.0 Harvesting Section

Harvesting Applications/Notification: All applicants for timber harvesting are required to meet the submission requirements of the Forest Resources Act (FRA, Sec19 (1)). The applications for harvesting licences require notification to the affected First Nation in the area of the application, and public notification. The First Nation and the public may make representations to the Director of the Forest Management branch on the application for a period of no less than 30 days, (FRA, Section 18).

In addition, applications that trigger a Yukon Environmental and Socioeconomic Assessment, require a submission to the local Designated Office for assessment prior to issuance.

Site Plans: Prior to issuing a cutting permit, a site plan must be prepared according to the requirements of the *Forest Resources Regulation (Division 4, Sections 19-21)*. As defined in the *FRR*, the purpose of a site plan is to identify the location, and specific methods of timber harvesting, as well as any existing or proposed access. The requirements of the *FRR* will be met when preparing the site plans, the following information in this section will guide the preparation of the site plans.

The proposed harvest methods in this THP are ground based hand falling, and skidding.

Schedule and Season: This THP is anticipated to provide guidance for small scale commercial harvesting and the use of forest resources for a minimum of 5 years. The harvesting schedule/season is constrained by site conditions, and lake access. Operations will be authorized in dry or frozen ground conditions and will aim to minimize damage to existing regeneration and retention trees.

Table 2: Area and Volume Summary

Gross Area (ha)	Reserves (ha)	Net Area (ha)	Approx. Dead Vol/ha (m ³)	Approx. Dead Vol (m ³)	Approx. Total volume *(m ³)	Season
127.2	42.9	84.3	45	3,793	5040	Dry/ Frozen

Sw- white spruce, A-aspen; (total volume estimated @ 60m³/ha)

3.1 Silviculture System

The silviculture system planned for this area is a selective removal of the dead spruce, with a small percentage of green timber harvest being permitted. A minimum of 20% retention will be reserved within these blocks to maintain vertical and horizontal structure and complexity, while maintaining aesthetics and contributing to coarse woody debris in the future. Retention of aspen, immature spruce, as well as mature green spruce will be maintained as in block variable retention. The site plan prepared pre-harvest for each block must outline how this will be achieved.

3.2 Soil Conservation

All harvesting operations will follow approved *FRA Soil Conservation Standards*. These standards will ensure that the integrity of soils is maintained across all sites. Harvesting will only be permitted during dry summer or winter conditions in order to mitigate any risks to soil. Utilizing existing access in the area will help minimize any soil compaction in the harvest areas.

3.3 Reforestation

Natural regeneration of this stand is the preferred method of reforestation. Some areas have white spruce understory consisting of saplings and poles, and aspen which will be reserved where operationally feasible and contribute to the future stand. The minimum stocking standards for each block will be outlined in each site plan prepared prior to harvest, and assessed post-harvest.

4.0 Access Management

Site plans must dictate when harvesting may occur and identify any seasonal access requirements and constraints. The proposed method of accessing this unit is by crossing Kluane Lake and utilizing the approximate access locations shown on the map.

There is one existing road running through this block. This access may be utilized if required. If road upgrades are desired additional archaeological assessments would be required, plus it would need to be screened through YESAB prior to permitting this activity. The construction of new "all season" roads in the THP area is not permitted. Skid trails are permitted.

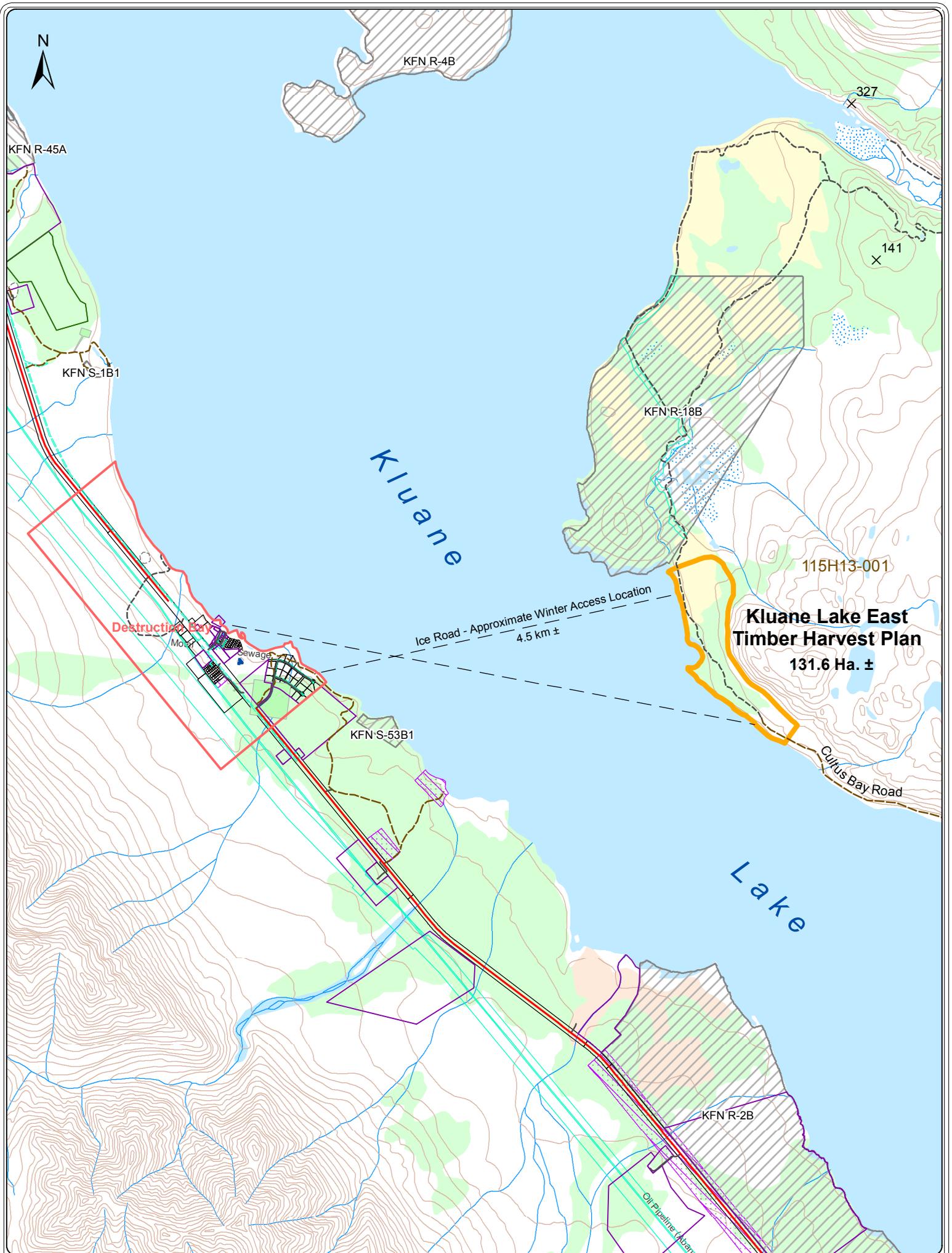
5.0 References and Acronyms

Legislation and operational standards are located on the Forest Management branch website (<http://www.emr.gov.yk.ca/forestry/index.html>).

Acronyms	FRA – Forest Resources Act
	FRR – Forest Resources Regulations
	THP - Timber Harvest Plan
	FMB - Forest Management Branch
	EMR - Energy Mines and Resources
	KFN – Kluane First Nation
	DFO – Department of Fisheries and Oceans
	YESAB – Yukon Environmental and Socioeconomic Assessment Board

APPENDICES

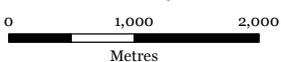
- Appendix A: 1:60,000 –Kluane Lake East Timber Harvest Plan Overview Map
- Appendix B: 1:20,000 –Kluane Lake East Timber Harvest Plan Map
- Appendix C: Heritage Resources Assessment Interim Report – YESAB version for review
- Appendix D: Representation Summary



**Appendix A:
Kluane Lake East
Timber Harvest Plan Overview**
Kluane / Haines Junction District
Champagne Ashihik Management Area

For more timber harvest information
Web: www.emr.gov.yk.ca/forestry
Phone: 1.867.456.3999

Date: February 28, 2013



1:60,000 Yukon Albers
NAD 83

Forestry spatial data managed and maintained by the Forest Management Branch, Yukon Government. All other spatial data provided by Geomatics Yukon.



Project Specific Features

- Existing Access
- - Proposed Access
- Timber Harvest Plan Area

First Nation Administration

- ▨ A: Surface and Subsurface Rights
- ▨ B: Surface Rights
- ▨ FS: Fee Simple

Forest Cover - Leading Species

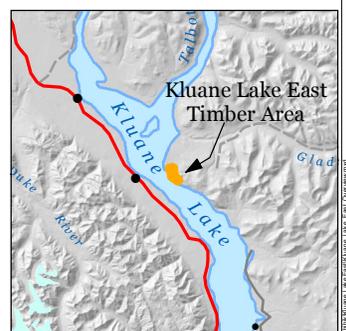
- Black Spruce
- White Spruce
- Subalpine Fir
- Lodgepole Pine
- Balsam Poplar
- Birch
- Larch
- Trembling Aspen
- Non-Forested

National Road Network

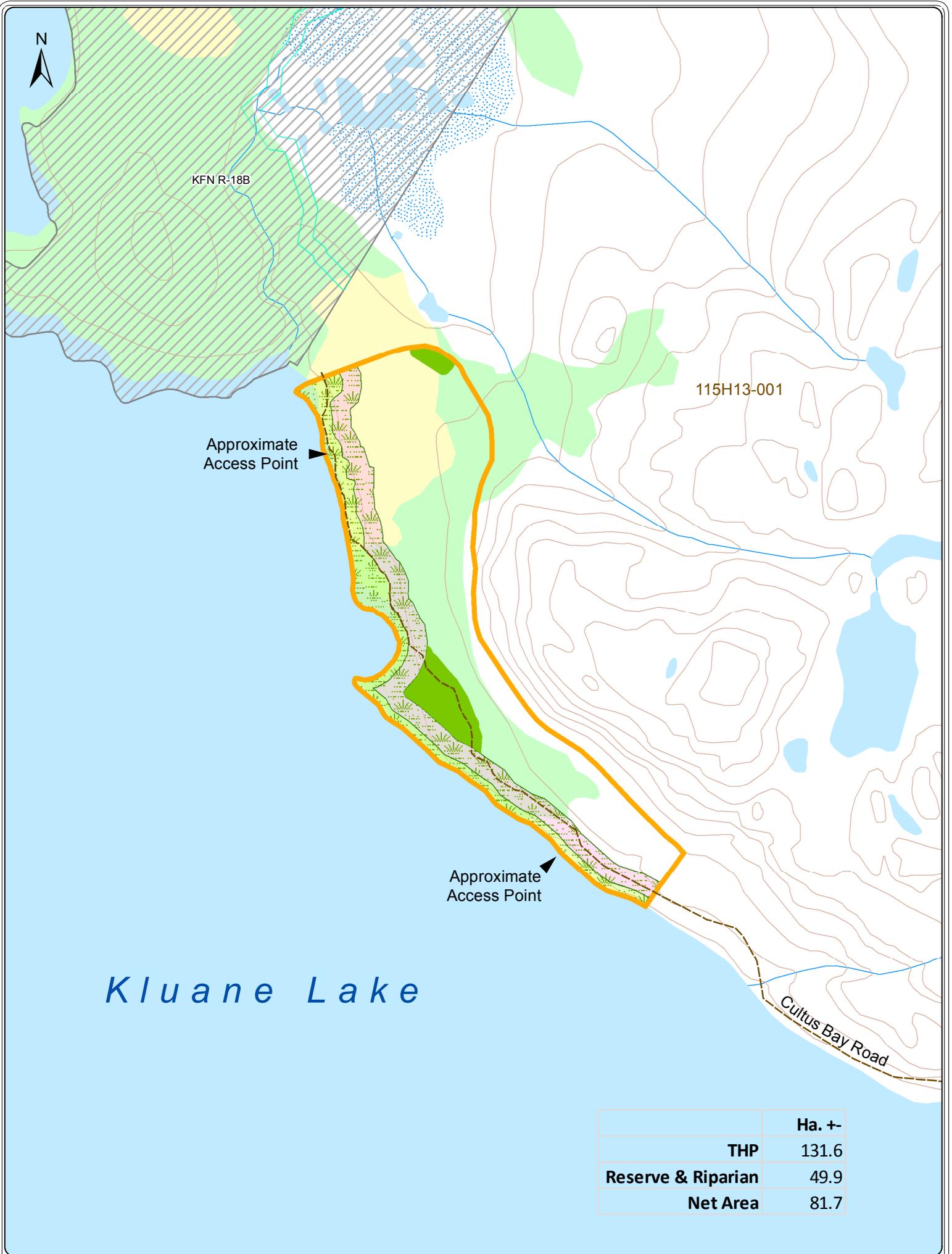
- Alaska Highway
- Local Roads
- Resource / Recreation

Land Administration

- Agricultural Land Dispositions
- Land Dispositions
- Land Licenses
- Surveyed Land Parcels
- Surveyed Easements
- YESAA Mapped Communities



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Kluane Lake

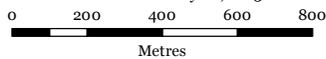
Cultus Bay Road

Appendix B: Kluane Lake East Timber Harvest Plan

Kluane / Haines Junction District Champagne Ashihik Management Area

For more timber harvest information
Web: www.emr.gov.yk.ca/forestry
Phone: 1.867.456.3999

Date: February 28, 2013



1:20,000 Yukon Albers
NAD 83

Forestry spatial data managed and maintained by the Forest Management Branch, Yukon Government. All other spatial data provided by Geomatics Yukon.



Project Specific Features

- Existing Access
- Timber Harvest Plan Area
- Riparian Reserve
- Riparian Management Zone

Forest Cover - Leading Species

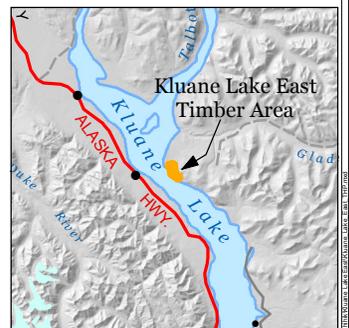
- Black Spruce
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- Subalpine Fir
- Lodgepole Pine
- Balsam Poplar
- Birch
- Larch
- Trembling Aspen
- Non-Forested

Land Administration

- Agricultural Land Applications
- Agricultural Land Dispositions
- Land Applications
- Land Dispositions
- Land Licenses
- Notations
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- Surveyed Easements

First Nation Administration

- A: Surface and Subsurface Rights
- B: Surface Rights
- FS: Fee Simple



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**Heritage Resources Impact
 Assessment Interim Report**
**Block Kluane
 Lake East**

Administration			
Permit #	12-20ASR		
Report Date	November 20, 2012	Matrix File Number	Y12-025-Kluane
Heritage Branch Contact	Ruth Gotthardt ☎ (867) 667-5983 ☎ (867) 667-5377	Permit Holder & Report Author	Ty Heffner / Jodie MacMillan

Proponent			
Proponent	Yukon Forest Management Branch Box 2703 Whitehorse, Y.T. Y1A 2C6	Contact	Mark Pedersen ☎ (867) 633-7909 ☎ (867) 667-3138

Geographic Reference			
NTS Mapsheet	115 G/02, 115 G/07		
UTM	07 V E 624450 N 6793535	Area (ha)	Total: 127, Surveyed: 44
Ecoregion	Ruby Ranges	Elevation (m)	790 – 855
Maps Attached	NTS Location Map, Field Survey Map, Site Maps		

First Nation(s)			
First Nation(s)	Kluane First Nation White River First Nation	Contact(s)	Geraldine Pope ☎ (867) 841-4274 ☎ (867) 841-5900 Glenn Stephen ☎ (867) 862-7802 ☎ (867) 862-7806

Survey Description			
Survey Date	August 30 & 31, 2012	Survey Type	HRIA
Field Director	Ty Heffner	Participation	Field crew
Survey Crew	Ty Heffner, Jodie MacMillan (Matrix) and Marissa Mills (KFN)		

Development Description	
Development Type: Proposed forest harvest block.	
Location: The proposed development is located in southwest Yukon in the Kluane District, approximately 204 km northwest (288°) of the city of Whitehorse, 83 km northwest (312°) of the village of Haines Junction, along the eastern shoreline of Kluane Lake.	



Management Summary

Three pre-contact heritage sites and one post-contact heritage site were identified in the block. One extensive area and one smaller area considered to have elevated potential for subsurface pre-contact heritage resources were also identified within the block. These potential areas were not assessed through shovel testing because no Level 2 impacts were proposed in these areas (please refer to Section 9.0 of the "Heritage Potential Mapping Study for the Champagne and Aishihik Traditional Territory: Forestry Planning" by Christian Thomas (2006) for details on determining levels of impact).

In addition, numerous axe-cut stumps were also identified within the block.

Archaeological Potential

Matrix Research Ltd. was asked to conduct a heritage resources impact assessment of the proposed development area by the Yukon Forest Management Branch.

Prior to fieldwork a Heritage Resources Overview Assessment (HROA) was completed for the Yukon Forest Management Branch by Ecofor Consulting Ltd. The results of the HROA indicated that various portions of the proposed block were of high heritage resources potential.

Field inspection confirmed the presence of heritage resource potential. Further details are provided below.

Survey Methodology

Transects: Crews of two to three people conducted traverses (15 m apart, 20 m visibility) of the northern and western portions of the proposed block.

Previous Disturbances / Exposures: An existing road runs through the length of the western side of the proposed block. Wind and water erosion have created extensive exposures along the lakeshore area of the block boundary. All available surface and subsurface exposures including thin ground cover and erosional exposures, cut lines, tree throws and occasional game trails were inspected for cultural materials.

Total Number of Shovel Tests in Block: 1

Survey Results

Pre-Contact Heritage Sites Found: 3

Post-Contact Heritage Sites Found: 1

Moderate Potential Zone 1 (MPZ 1):

Area (m):	75 m NW/SE X 25 m NE/SW	Number of Shovel Tests:	0
Testing Strategy:	N/A	Results:	No heritage resources were identified within MPZ 1.

Hydrology: A mainly dry, grassy meadow is located immediately north of this zone. A small, unnamed stream flows northwest through the meadow.

Vegetation: Forest cover is comprised of white spruce and trembling aspen. Understory and ground cover includes kinnikinnick, rose, bedstraw, toadflax, soapberry, yarrow, fireweed and peavine.

Terrain: This zone is located on a raised terrace-like feature set back ~40 m from a meadow. The terrace-like feature is elevated ~15 m above the meadow. The edge of the feature slopes down 15-20° with northern aspect.

Sediments: Unknown.

Remarks: This zone was not shovel tested because there are no development activities currently proposed for this area that could result in Level 2 impacts (Please refer to Section 9.0 of the "Heritage Potential Mapping Study for the Champagne and Aishihik Traditional Territory: Forestry Planning." by Christian Thomas (2006) for details on determining levels of impact).

High Potential Zone 1 (HPZ 1):

Area (m):	3000 m NW/SE X 100-400 m NE/SW	Number of Shovel Tests:	1
Testing Strategy:	Judgemental	Results:	Three pre-contact heritage sites and one post-contact heritage site were identified within this zone.

Hydrology: An unnamed stream is located west of the northern extent of this zone.



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todd@matrix-research.ca

Vegetation: Forest cover is comprised of white spruce and trembling aspen. Understory and ground cover includes kinnikinnick, rose, bedstraw, toadflax, soapberry, yarrow, fireweed and peavine.
Terrain: This zone is located on varied terrain, including terraces, benches on gentle slopes, and subdued relief morainal ridges.
Sediments: Unknown.
Remarks: This zone was not shovel tested because there are no development activities currently proposed for this area that could result in Level 2 impacts (Please refer to Section 9.0 of the "Heritage Potential Mapping Study for the Champagne and Aishihik Traditional Territory: Forestry Planning." by Christian Thomas (2006) for details on determining levels of impact).

Low Potential Zone: Remainder of the survey area.
Hydrology: Kluane Lake is located to the west / southwest of the proposed block.
Vegetation: Forest cover is comprised of white spruce and trembling aspen. Understory and ground cover includes kinnikinnick, rose, bedstraw, toadflax, soapberry, yarrow, fireweed and peavine.
Terrain: This zone consists of variable terrain and it ranges from steep terrain to subdued knolls and low ridges with indistinct edges set back some distance from the lakeshore.
Sediments: Unknown.

Results Summary

Three pre-contact heritage sites, **TSN M12-KE-1**, **TSN M12-KE-2** and **TSN M12-KE-3**, and one post-contact heritage site, **TSN M12-KE-4**, were identified within the proposed development area.

Features indicative of more recent use were also identified within and adjacent to the block, namely axe cut stumps (n=>86). Additional axe-cut stumps may be located within the block.

Pre-Contact Heritage Site(s)					
Borden Number:	Pending	Temporary Number:	TSN M12-KE-1		
Site Type:	Surface, lithic	Site Centre (UTM):			
Site Dimensions (m):	25 m N/S X 15 m E/W	Assessment Status:	Incomplete		
Site Boundary Flagging:	None	Site Buffer Width (m):	30 m		
Site Location:					
Terrain: The site is situated on a slight ridge feature with a 10° slope down to the west/southwest. The top of the ridge is level.					
Feature Dimensions (m):	100 m N/S x 30 m E/W	Number of shovel tests:	1		
Hydrology: Kluane Lake is located west of this site.					
Site Disturbance: Disturbance to this site includes road construction and use.					
Artifact Type, Quantity and Collection Status:					
SURFACE FIND #	ARTIFACT NUMBER AND TYPE	RAW MATERIAL TYPE	MAXIMUM LENGTH (cm)	DEPTH BELOW SURFACE (cm)	COLLECTED Y/N
SF 1	Primary Flake (n=1)	Grey chert	6.74 cm	0	Y
Site Summary: Current information suggests the site is a small-sized, pre-contact heritage site consisting of one primary flake found in an exposure. One shovel test excavated immediately adjacent to the findspot was negative for archaeological material. The site is located on a ridge feature located to the north / northeast of Kluane Lake. The site boundary was not determined. The artifact was recorded and collected for curation at the YG Archaeology Office.					



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 fax: 780.737.4332
 todd@matrix-research.ca

Borden Number:	Pending	Temporary Number:	TSN M12-KE-2
Site Type:	Surface, lithic	Site Centre (UTM):	
Site Dimensions (m):	90 m NW/SE X 30 m NE/SW	Assessment Status:	Incomplete
Site Boundary Flagging:	None	Site Buffer Width (m):	30 m

Site Location:

Terrain: The site is situated on relatively level terrain, set back from the break in slope down to Kluane Lake.

Feature Dimensions (m):	N/A	Number of shovel tests:	0
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Hydrology: Kluane Lake is located to the west/southwest of this site.

Site Disturbance: Disturbance to this site includes road construction and use.

Artifact Type, Quantity and Collection Status:

SURFACE FIND #	ARTIFACT NUMBER AND TYPE	RAW MATERIAL TYPE	MAXIMUM LENGTH (cm)	DEPTH BELOW SURFACE (cm)	COLLECTED Y/N
SF 2	Flake (n=1)	Jasper	0.8 cm	0	Y
SF 3	Flake (n=1)	Jasper	1.27 cm	0	Y
SF 4	Flake (n=1)	Jasper	1.66 cm	0	Y
SF 5	Flake (n=1)	Jasper	1.99 cm	0	Y
SF 6	Flake (n=1)	Jasper	0.82 cm	0	Y
SF 7	Retouched Flake (n=1)	Grey/green chert	2.54 cm	0	Y
SF 8	Flakes (n=3)	Chert	1.18 cm	0	Y
SF 9	Flake (n=1)	Jasper	1.15 cm	0	Y
SF 10	Biface Fragment (n=1)	Obsidian	2.96 cm	0	Y

Site Summary: Current information suggests the site is a small-sized, pre-contact heritage site consisting of 11 lithic artifacts. The site boundary was not determined. The artifacts were recorded and collected for curation at the YG Archaeology Office.

Borden Number:	Pending	Temporary Number:	TSN M12-KE-3
Site Type:	Surface, lithic	Site Centre (UTM):	
Site Dimensions (m):	70 m NW/SE X 30 m NE/SW	Assessment Status:	Incomplete
Site Boundary Flagging:	None	Site Buffer Width (m):	30 m

Site Location:

Terrain: The site is situated on gently sloping terrain, set back from the break in slope down to Kluane Lake.

Feature Dimensions (m):	N/A	Number of shovel tests:	0
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 tel: 780.263.8100
 fax: 780.737.4332
 todd@matrix-research.ca

Hydrology: Kluane Lake is located to the west/southwest of this site.

Site Disturbance: Disturbance to this site includes road construction and use.

Artifact Type, Quantity and Collection Status:

SURFACE FIND #	ARTIFACT NUMBER AND TYPE	RAW MATERIAL TYPE	MAXIMUM LENGTH (cm)	DEPTH BELOW SURFACE (cm)	COLLECTED Y/N
SF 11	Flakes (n=3)	Chert	1.41 cm	0	Y
SF 12	Flake (n=1)	Chert	1.36 cm	0	Y
SF 13	Flakes (n=2)	Chert	0.95 cm	0	Y
SF 14	Flake (n=1)	Chert	1.25 cm	0	Y

Site Summary: Current information suggests the site is a small-sized, pre-contact heritage site consisting of 7 lithic artifacts. The site boundary was not determined. The artifacts were recorded and collected for curation at the YG Archaeology Office.

Post-Contact Heritage Site(s)

Borden Number:	Pending	Temporary Number:	TSN M12-KE-4
Site Type:	Post-contact features	Site Centre (UTM):	
Site Dimensions (m):	200 m NW/SE X 60 m NE/SW	Assessment Status:	Incomplete
Site Boundary Flagging:	None	Site Buffer Width (m):	30 m
Site Location:			

Terrain: The site is situated on a level terrace feature with a 10° slope down to the west/southwest.

Feature Dimensions (m):	275 m NW/SE x 120 m NE/SW	Number of shovel tests:	0
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Hydrology: Kluane Lake is located to the west/southwest of this site.

Site Disturbance: None noted.

Site Summary: Current information suggests the site is a medium-sized, post-contact heritage site consisting of the remains of a probable brush structure, the remains of a log framed feature, a pile of axe-cut poles, and at least 48 axe-cut stumps. The probable brush structure consists of a number of axe-cut poles 6-13 cm in diameter that form a corner and are positioned between four mature spruce trees that have been delimbed to a height of 2 m. A separate pile of axe-cut poles is located 20 m south of the probable brush structure. In the southern portion of the site is a 6 m by 1 m rectangular log frame feature consisting of axe-cut logs 15-20 cm in diameter. The logs on the long axis of the feature have been set between 4 trees that were notched to receive them. Shorter logs were placed between the long logs to act as cross braces. The exact function of this feature is unclear but it may have been a cache. The relationship between these features is uncertain. This area also has considerable potential for subsurface precontact heritage resources.

Other Site Types and/or Remarks

Axe cut stumps: Axe-cut stumps are located in small clusters within the block. They are generally of small diameter, ranging from 8-15 cm, and their height above ground ranges from 30 cm to 50 cm, most likely indicating summer cutting.

These features, unless situated within a protected site, are not automatically protected as heritage sites due to their recent age but it is recognized that Kluane First Nation and White River First Nation may have some interest in these features as they relate to traditional land use activities. It is suggested that the proponent contact KFN and



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WRFN to discuss management options for these features.

Potential Impacts

Precontact heritage sites **TSN M12-KE-1**, **TSN M12-KE-2**, and **TSN M12-KE-3** and post-contact heritage site **TSN M12-KE-4** are located within the proposed development area and will sustain impact if the proposed development proceeds as planned.

It is not anticipated that any other protected heritage resources will sustain Level 2 impact during harvesting operations within the proposed development area providing the boundaries are not modified to include unassessed areas.

Recommendations

Management strategies designed to minimize impacts to precontact heritage sites **TSN M12-KE-1**, **TSN M12-KE-2**, and **TSN M12-KE-3** and post-contact heritage site **TSN M12-KE-4** have been outlined below.

- 1) Avoidance. No potentially ground or surface-altering development within the vicinity (30 m) of the sites, other than ongoing vehicle use of the existing road surface. This could be accomplished by altering the proposed development plans to exclude the heritage sites.

If the proponent intends to proceed with development in the site areas, then the following strategy may be implemented:

- 2) Mitigation of the sites through systematic data recovery (detailed recording, mapping and collection of heritage artifacts and features).

Provided the above recommendation #1 is followed and no development activities that could result in Level 2 impacts are proposed for areas identified as having elevated heritage potential, no further heritage resource inspections are recommended for the proposed development area.

The above-mentioned site(s) are protected by the *Historic Resources Act* (RSY 2002) and the *Archaeological Sites Regulation* (OIC 2003).

To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that the proponent inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the site must be suspended immediately. The Heritage Branch must be notified as soon as possible of the existence of the heritage resources and the nature of the disturbance.

The present study was designed solely as a Heritage Resources Impact Assessment. It is not the intent of this report to comment on or evaluate traditional aboriginal use of the proposed development area.



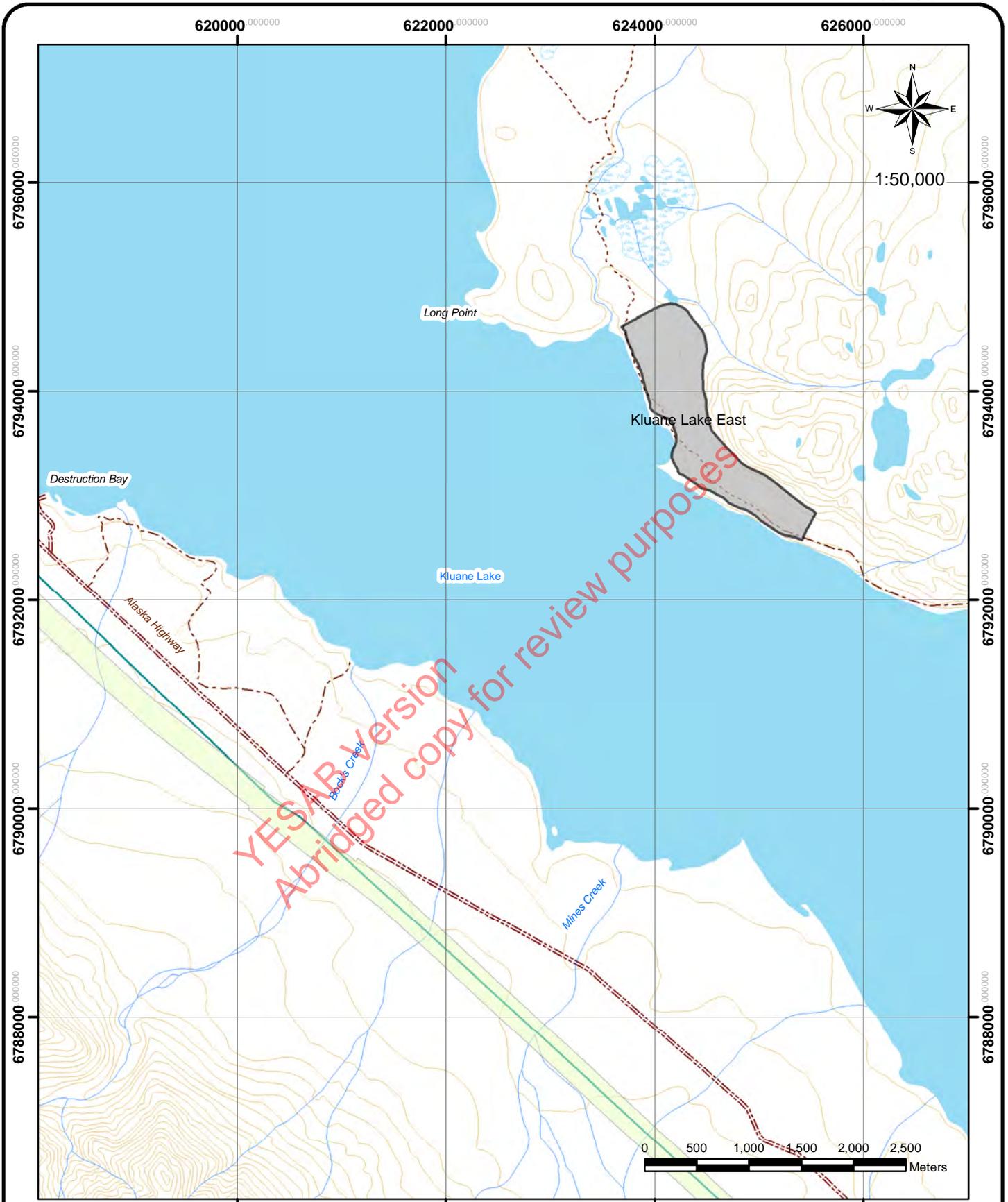
Signed by Ty Heffner, M.A., R.P.C.A. _____



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NTS LOCATION MAP: Kluane Lake East

Proposed Development



MAPSHEETS:
NTS: 115 G/02,
115 G/07

LOCATION: Kluane Lake
UTM: E 624450 N 6793535
PROJECTION: NAD83 Zone 7

PROONENT: Yukon
Forest Management Branch
JOB #: Y12-025-Kluane

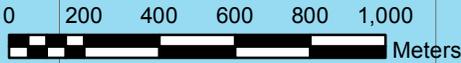
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Kluane Lake East

Kluane Lake



	Proposed Development		Wetland
	Stream		River/Lake
	30m Contour		Transect Buffer
	Trail		Potential Zone
	Heritage Potential-Ecofor		Axe-cut Stump
	Heritage Site Boundary		Newly Identified Heritage Site

FIELD SURVEY MAP: Kluane Lake East



MAPSHEETS:
NTS: 115 G/02,
115 G/07

LOCATION: Kluane Lake
UTM: E 624450 N 6793535
PROJECTION: NAD83 Zone 7

PROPONENT: Yukon
Forest Management Branch
JOB #: Y12-025-Kluane

Appendix D: Representation Summary

Kluane Lake East Timber Harvest Plan

A total of nine comments were received during the notification period on the Kluane Lake Timber Harvest Plan held from January 11, 2013 to February 25, 2013.

Comments were received from:

- Christian Thomas, YG, Heritage Resources Unit
- Cathryn Paish, YG, Tourism Branch
- Bernie Crossi/Jeff Marynowski – YG – Highway Land Management
- Ross Burnett, YG, Land Claims and Implementation Secretariate, ECO
- Jason Kurtz, Department of Fisheries and Oceans
- Ross Elliot, Ruby Range Outfitters Ltd.
- Frank Patch – YG – Environment
- Colin Wright – Kluane First Nation

The following table contains a summary of the comments received..

Kluane Lake East Timber Harvest Plan

Name/ Organization	Comment	Consultation Comment Response
Christian Thomas Development Assessment Archaeologist, YG Heritage Resources Unit	Consider rewording a portion of the Heritage Section(2.5) to state that “Heritage Resources’ were identified and FMB had decided to buffer the sites from harvesting.	Wording in the draft THP has been changed to reflect this, and to include reference to FMB Standards – <i>FRA Historic and Archaeological Resources</i> .
Cathryn Paish, YG, Tourism Branch	Questioned what is a defined visual objectives? Page 4, 1 st paragraph, there is a word missing about mitigation. Stated that maintaining visual buffers along important lakeshores is critical to ensure wilderness and aesthetic values for tourism and recreations.	Section 2.4. Minor wording changes to improve clarity.
Bernie Cross/Jeff Marynowski – YG- Highway and Land Management	The Cultus Bay road is a YG unmaintained road. Access permits are not issued for this type of road, not included in the Highways Act, Schedule 1 A “work in the right of way” permit is required for any and all works proposed within the surveyed right of way or 30 meters either side of the existing centerline of the road.	The proponent will be responsible to obtain required permits if necessary.
Ross Burnett, YG, Land Claims and Implementation Secretariate, ECO	Executive summary: The FRA reference should be 29(4)(d)(ii). Were both WRFN and KFN notified? Section 2.5 Minor rewording suggested. Heritage assessment – what is meant by “reserves have been established” – do you mean reserves recorded in the records of Land Management Branch, or are they just “no-go areas in your own records to be identified in site plans? Section 2.6 The correct term is trapping concession holder. Section 3.0 – YESAA review process is a public and First Nation review process.	The reference will be corrected WRFN and KFN were notified. The following has been added to the Background section “This THP has been prepared in accordance with the Forest Resources Regulation. Changed wording about KFN and WRFN traditional territories. Reserves are “no-harvest” areas identified in the site plan. Reference to the FMB Standards - <i>FRA Historic and Archaeological Resources</i> . Wording has been changed. Wording will be changed to clarify the YESAA review. Corrected map legend to delete Riparian reserve identified twice.

Kluane Lake East Timber Harvest Plan

	Appendix B – Riparian reserve is identified twice in the legend, with different symbols.	
Jayson Kurtz, Department of Fisheries and Oceans	DFO will not be providing comments. If there are specific works, undertakings or activities (as opposed to those in the plan) that might impact fish or fish habitat, then refer to the Working Near Water website www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm	No action required
Ross Elliot, Ruby Range Outfitters Ltd.	Overall he thinks that selectively removing the dead spruce is a good thing.	No action required.
Frank Patch Environmental Assessment Analyst, YG, Department of Environment	Wildlife and Habitat groups raised few concerns with this THP, given the size and proposed harvest rate. If access to this area was up the east side from Silver City, Environment would wish to provide comments through YESAB. All equipment should be certified free of oil and fluid leaks and have strict requirements for route testing and dealing with ridges and cracks on the ice. Appropriate spill response kits should be on hand in the event of a spill. Care should be taken to reduce the risk of the spread of non-native species. Suggest that equipment be cleaned.	No response required regarding access from Silver City. If upgrades are required, then YESAB would be necessary. Clean equipment, route testing, and appropriate spill kits will be covered in the cutting permit terms and conditions.
Colin Wright Environment Officer Kluane First Nation	1.2 Eco-region and Drainages The area consists of old growth boreal forest dominated by white spruce with spruce seedlings growing in the underbrush, balsam poplar and trembling aspen stands can be observed throughout the area of the THP. Some white spruce located within the THP area display signs of spruce bark beetle infestation which has	1.2 - Minor wording changes have been made to include this information.

Kluane Lake East Timber Harvest Plan

	<p>resulted in mortality.</p> <p>2.1 Wildlife There are two wetland areas, one directly north and one east, of the TH unit. Wildlife is known to frequent these wetlands and may be impacted by developments of a timber harvest block in this area. Timber harvesting shall be limited to dead standing and beetle affected trees, with minimal harvest or clearing of green trees, so as to reduce the impact on wildlife moving through the area. The proponent shall observe 10% snag retention and preserve trees with cavities within harvest blocks in order to provide suitable habitat for wildlife including nesting birds.</p> <p>2.3 Riparian and Water Resources KFN is aware that for the Forest Resources Regulation, Riparian management on Streams and Lakes Standards and Guidelines identifies Kluane Lake in Lake Class L1 (>50m² area). The reserve zone width from the high water mark of the lake shall be between 40-60 meters, the management zone 80-140 meters, and the total riparian management zone shall be between 120-200 meters in width. As these standards may change, it is appropriate to refer to the standards set by the Yukon Government, without being prescriptive, however we wish to acknowledge the importance of including riparian reserves in the THP. KFN recommends the THP include language identifying the riparian reserve as being reserved from harvesting for commercial purposes.</p>	<p>2.1 Minor wording changes have been made to include the presence of wetlands outside this area, and wildlife tree retention.</p> <p>2.3 FMB Riparian Standards will be incorporated into the site plan.</p>
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Kluane Lake East Timber Harvest Plan

	<p>3.2 Soil Conservation Harvesting shall be permitted only during winter conditions in order to mitigate any risks to soil. No new access routes shall be developed to reach the site. Snow mobile trails may be established to traverse the site during winter months only.</p> <p>Refuelling activities shall be performed in such a manner as to reduce the potential of environmental contamination. Snow machines and other tools used to harvest timber in this THP shall be in sound condition and free of leaks.</p> <p>4.0 Access Management This THP unit shall only be accessed across Kluane Lake by snow machine during winter months from December 15 to April 15. Access shall be across Kluane Lake and utilize access locations identified on the map.</p> <p>The road running through the block shall not be used to access the THP unit. No road upgrades shall be done for the purposes of accessing this timber harvest block. The construction of permanent trails and/or roads in the THP is not permitted. Trails are permitted during the winter months only.</p> <p>Cultural Values/ Heritage Resources A high number of heritage resources were identified in this area by Matrix Research in the Heritage Resources Assessment Report for the Kluane Lake East THP Block. Locations of the artifacts have been identified and flagged as reserve areas by</p>	<p>3.2 As stated, FRA Soil Conservation Standards will be adhered to.</p> <p>4.0 The exact timing of “winter harvest” is not stated in the THP, as ice conditions change yearly. If any road upgrades are required in the future, a YESAB assessment would be required.</p> <p>2.5 The site plan and cutting permit will refer to the requirements if any further heritage sites are found.</p>
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Kluane Lake East Timber Harvest Plan

	<p>the Forest Management Branch, YG. If new archaeological artifacts or sites are found during the process of timber harvesting, the proponent shall make every reasonable effort to avoid disturbing the site, mark the site with a gps point, photograph the site (if possible) and inform the Kluane First Nation, Lands, Resources and Heritage Department (867-841-5501 ext 233 or environment@kfn.ca) at the earliest convenience.</p>	
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