
Appendix 4D
Spatial Boundaries for Project and
Activities Included in the Cumulative
Effects Assessment

SPATIAL BOUNDARIES FOR PROJECT AND ACTIVITIES INCLUDED IN THE CUMULATIVE EFFECTS ASSESSMENT

1.0 INTRODUCTION

The Project Inclusion List (PIL) presented in **Appendix 4C** lists all relevant and substantial projects and activities in the Non-Traditional Land Use Regional Study Area (NTLU RSA) of the Project. Spatial boundaries for these projects and activities have been identified for the following land use types as listed in the PIL:

- Community;
- Mining;
- Forestry;
- Infrastructure (transportation, utilities);
- Agriculture;
- Crown land tenures;
- Hunting;
- Fishing;
- Recreation; and water licenses.

Where possible, the spatial footprint of a project was captured to enable area calculations. Projects and human activities where area calculations could be generated are presented in **Figure 1**. Activities taking place in a variable manner within a larger area are presented in **Figure 2**. Information presented in these maps will be used for the Cumulative Effects Assessment (CEA) for each of the Valued Components (VC).

The following section describes the methodology used to determine spatial boundaries for the Project and activities.

2.0 METHODS

Figures and area calculations were generated for the CEA, by investigating and rationalizing items on the PIL, to represent past, present, and future activities within the Local Study Area (LSA) and Regional Study Area (RSA) of the various disciplines. Layers were mapped for the extent of the NTLU RSA and focused for RSAs and LSAs of each discipline.

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Research and mapping methodologies and Record of Contacts (ROCs) are summarized below:

Community: Municipal and town boundaries were incorporated from the regional district electoral area spatial layer. This included the main areas and outlier communities of the Municipality of Vanderhoof and the Village of Fraser Lake.

Mining: Research into prospecting activities and active mining projects was accomplished by investigating the mineral deposits and mineral tenures spatial layers from the BC Ministry of Energy and Mines (BC MEM).

Mrs. Bambi Spyker, Operations Coordinator at BC MEM was contacted by phone and e-mail to obtain data on Notices of Work (NOWs) for exploration programs conducted nearby the Project.

Information was gathered from the websites of exploration companies on NOWs while publically available documents were sourced to obtain maximum footprints of current and proposed mining projects. The BC Major Projects Inventory (June 2013) from the BC Ministry of Jobs, Tourism and Skills Training (BC MJTST) was examined to identify the status of proposed mining projects.

Where detailed information was readily available, drilling holes (30-m diameter) and prospecting tracks (10 m total width) were buffered to represent the footprint of current activities. Where prospecting activities could be confirmed, but not pinpointed to a specific footprint, the full extent of the mineral tenure was mapped and labelled to enable a description by discipline leads for their various cumulative effects sections. Quarries from the crown tenure purpose spatial layer was incorporated to include areas where sand and gravel are sourced and rock-crushing activities are taking place. Proposed mining projects that have been withdrawn or put on hold were not included.

The following data hosts were contacted to verify scientific judgments and hypothesis:

- Prince George Operations Coordinator, BC MEM; and
- Sue Bergin, MFLNRO Information Management Branch, Sue.Bergin@gov.bc.ca, (250) 387-9168.

Forestry: The BC Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) uses three different spatial data layers to manage silviculture operations in the Vanderhoof Forest District. The *silviculture obligations spatial layer* captures areas with intended forest management activities on crown land. The *operational activities spatial layer* reflects operational activities for cut blocks contained within harvesting authorities. Active cutblocks from these two layers were combined to represent the spatial footprint of present silviculture operations. Retired cutblocks were selected to represent past effects. The harvesting inventory spatial layer analyzes all vegetation types in terms of age, species, volume, height, and growth for potential harvesting. These areas represent likely future activities for the purposes of the CEA.

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Private license holders were included by incorporating the woodlot license spatial layer. Active licenses were classified as present effects with pending licenses representing future effects. A woodlot license is a legal agreement that grants the license holder exclusive rights to manage and harvest Crown timber within a parcel of land. To follow a conservative approach, it was assumed that the entire parcel would be harvested. Active woodlot licenses were classified as present effects with pending licenses classified as future effects.

Planned activities by private companies were included by obtaining pending applications for expansions from CANFOR not yet processed by BC MFLNRO. These areas were critical as they fall within the ungulate winter range along the west-facing slopes of Mount Davidson. Forestry Service Roads (FSRs) and associated logging roads were buffered, using the Digital Road Atlas spatial layer, to represent the width of the right of way (ROW):

Main FSRs (Kluskus, Kluskus-Ootsa, Kluskus-Blue).....	40 m total width
Other FSRs (Messue, Malaput, Nataalkuz etc.)	30 m total width
Logging roads.....	15 m total width

The following data hosts were contacted to verify scientific judgments and hypothesis:

- Jayne Wynrib, BC MFLNRO GeoBC, Jayne.Wynrib@gov.bc.ca, (250) 952-4776; and
- Ian Niblett, Vanderhoof Forest District, (250) 567-6474.

Infrastructure (transportation, utilities): The BC Major Projects Inventory (June 2013) from the BC MJTST was examined to identify the status of infrastructure projects over \$15 million. Energy production, transportation and utility ROWs as well as verified biomass and wind energy projects, were included from the crown tenure purpose spatial layer. Airports, airstrips, and waterdromes were added as point locations.

Agriculture: Range tenures were included as mapped for the NTLU RSA with emphases placed on those overlapping the various LSAs. Active range tenures were classified as present effects with pending tenures classified as future effects. The Nechako Agricultural Land Reserve, incorporating various extensive, intensive, and grazing crown tenures, was also included.

Crown Land Tenures: Crown land tenures referred to various land use types and available information was presented under mining, agriculture, and infrastructure.

Hunting: Wildlife management areas, guide outfitters, and traplines were incorporated on the activity figure with emphases placed on those overlapping with the various LSAs.

Harvesting statistics for the wildlife management units 5 to 12, 5 to 13, 7 to 11, and 7 to 12 were obtained by contacting Doug Heard (BC MFLNRO, Prince George, via e-mail).

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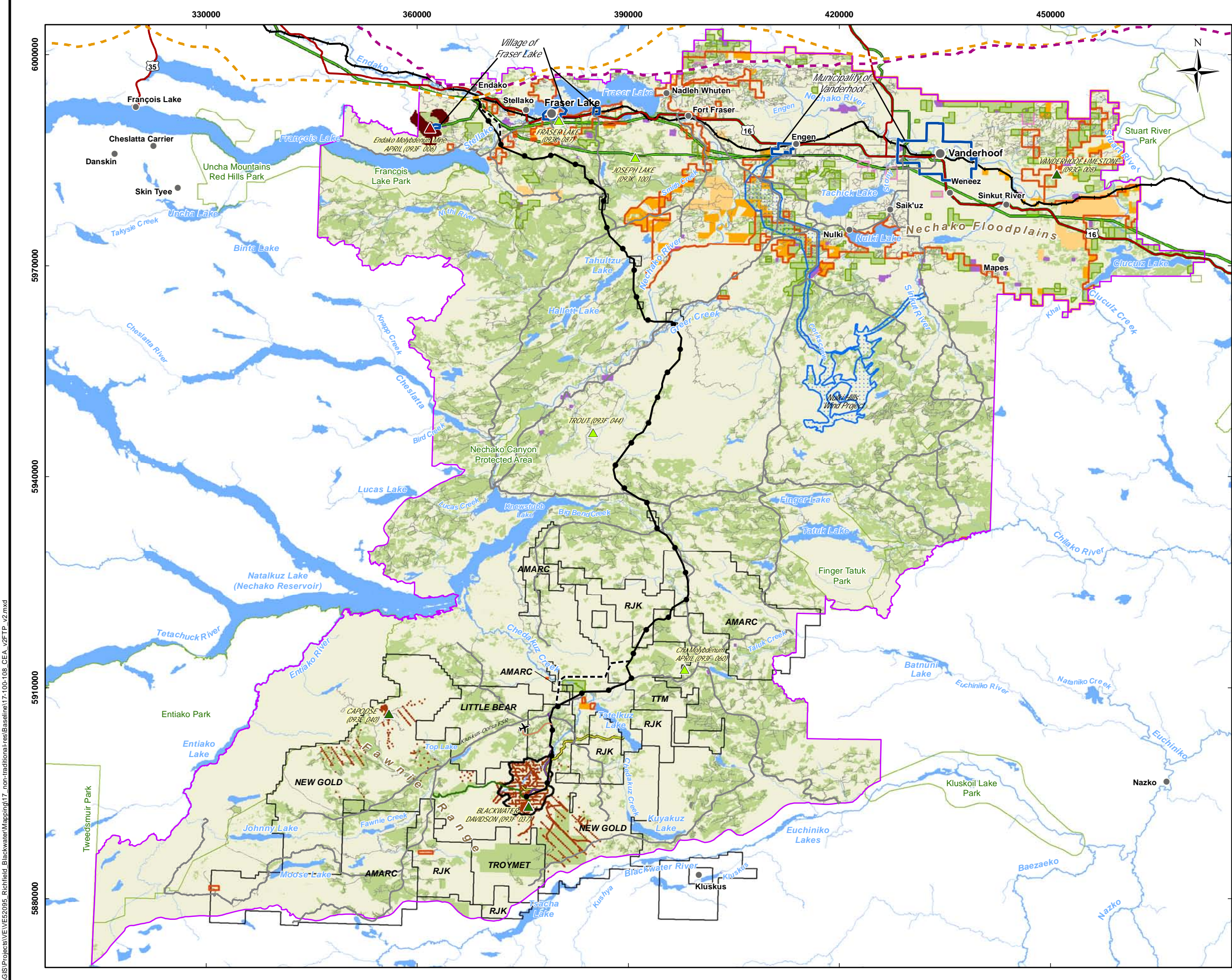
Fishing: Waterbodies known for recreational fishing activities as presented in the Non-Traditional Land Use Baseline Report (AMEC, 2013) have been labelled in the figures.

Recreation: Recreation sites and trails, and lodges were incorporated on the activity figure with emphases placed on those overlapping or near the various LSAs (AMEC, 2013).

Water Licenses: Due to the high number of groundwater wells, drinking water sources and water wells, only those falling within the largest LSA were incorporated on the activity figure (Noise, 5 km buffer). Locations falling within the Aquatic RSA were highlighted as the most critical.

REFERENCES

AMEC Environmental & Infrastructure (AMEC) (2013). Proposed Blackwater Gold Project, Non-Traditional land Use Baseline, prepared for New Gold Inc., July 2013.



Legend

- Populated Place
- 16 Highway
- Parks
- Municipal Boundaries

PROJECT COMPONENTS

- ✈ Proposed Airstrip
- Exploration Road
- Proposed Transmission Line
- - - Proposed Re-routes (Stellako, Mills Ranch)
- Proposed Water Pipeline Route
- Proposed Airstrip Access Road
- Proposed Mine Site

AGRICULTURE

- Nechako Valley Agricultural Land Reserve

Crown Tenure Purpose

- Extensive
- Grazing
- Intensive

Cumulative Effects Study Area

- Non-Traditional Landuse RSA

FORESTRY

- Forest Cutblocks
- Logging Roads (ROW)

Woodlot Licenses

- Active (Present)
- Pending (Future)

INFRASTRUCTURE

- Nulki Hills Wind Project
- Proposed Pacific Gas Looping Project
- Proposed Coastal GasLink Pipeline Project

MINING

Mineral Deposits

- ▲ Producer
- ▲ Developed Prospect
- ▲ Prospect

Mining Activities

- Active Mining
- Current Prospecting
- Quarries (Tenure Purpose)

Mineral Tenures

- Currently prospecting

Scale: 1:530,000

0 5 10 20 Kilometres

Reference

BC Government GeoBC Data Distribution
 NRCAN Geobase
 Ministry of Forests, Lands and Natural Resource Operations

CLIENT: **newgold**

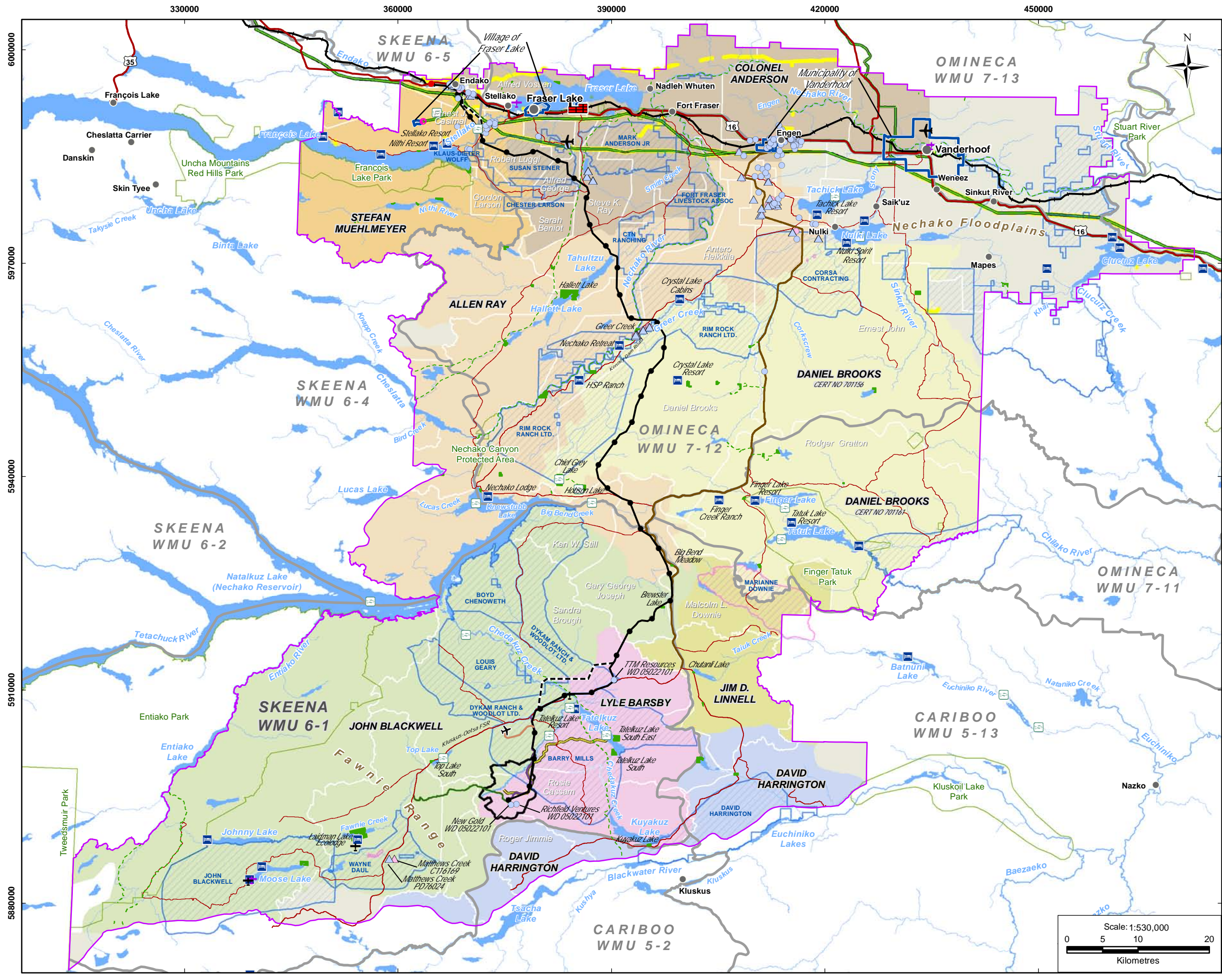
PROJECT: **Blackwater Gold Project**

Disturbed Areas of Projects and Human Activities Included in the Cumulative Effects Assessment

DATE: November, 2013	ANALYST: AA	Figure 1
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GIS FILE: 17-100-108_CEA_v2FTP_v2.mxd		amec
PROJECTION: UTM Zone 10	DATUM: NAD83	

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Legend

- Highway
- Kluskus FSR
- Other FSRs
- Parks
- Municipal Boundaries

PROJECT COMPONENTS

- Proposed Airstrip
- Exploration Road
- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Transmission Line Re-routes
- Proposed Fresh Water Pipeline
- Proposed Airstrip Access Road
- Proposed Mine Site

AGRICULTURE

Range Tenures

- Active Range Tenures (Present)
- Pending Range Tenures (Future)

HUNTING

- Wildlife Management Units

Guide Outfitters

- Colonel Anderson
- Lyle Barsby
- John Blackwell
- Daniel Brooks
- David Harrington
- Jim D. Linnell
- Stefan Muelmeyer
- Allen Ray
- Other

INFRASTRUCTURE

- Airport
- Airstrip
- Waterdome
- Sawmill Biomass Project
- Crown Tenure Purpose (ROW)
- Energy Production
- Transportation
- Utility

Traplins

- Near the LSAs
- Cumulative Effects Study Area

RECREATION

- Recreation Lodge
- Recreation Fishing Location
- Active Recreation Trails
- Active Recreation Sites

WATER LICENSES

In the Aquatic RSA and near the LSAs

- Drinking Water Source
- Groundwater Well
- Points of Diversion Water License
- Water Licensed Works

Reference
 BC Government GeoBC Data Distribution
 NRCAN Geobase
 Ministry of Forests, Lands and Natural Resource Operations

CLIENT:			
PROJECT:		Blackwater Gold Project	
Location of Human Activities Included in the Cumulative Effects Assessment			
DATE:	November, 2013	ANALYST:	AA
JOB No:	VE52277	QA/QC:	MY
GIS FILE:		17-100-109_CEA_v2ACTIV_v2.mxd	
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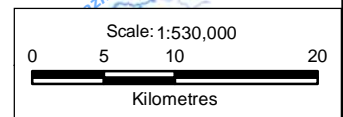


Figure 2

PDF FILE: 17-100-109_CEA_v2ACTIV_v2.pdf