

**Little Salmon Carmacks First Nation
Socio-Economic Valued Components and Supporting Community-
Based Information for the Assessment
of the Mount Nansen Care and Maintenance Program**

Prepared for:

Government of Yukon

Assessment and Abandoned Mines

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INTRODUCTION

Study context and objectives

This report has been prepared with the engagement of the Little Salmon Carmacks First Nation (LSCFN) to inform the assessment of the proposed Mount Nansen Care and Maintenance (C&M) Project (Government of Yukon- AAM, 2017a & b) and its potential effects on the socio-economic conditions of the LSCFN. The report is the result of a study program with the following objectives:

- Identify information that should be collected from the community to validate and build on the statistics-based socio-economic existing conditions report (Government of Yukon- AAM, 2016);
- Identify information that should be collected from the community to enable the completion of a socio-economic effects assessment that considers the activities identified in the project description;
- Identify the methods of how information will be collected from the community;
- Identify how the collected information will be shared as well as be used to inform and be incorporated into the socio-economic existing conditions and effects assessment.

Central to the study program is the engagement of the LSCFN in the development of the program and concurrence with the proposed approach.

Site history and current situation

Mine opening and closure

The Mount Nansen Mine is a former gold and silver mine located 60 km west of Carmacks, Yukon, that operated briefly in the 1960s and 1970s and more recently between 1996 and 1999. It was abandoned in February 1999 due to financial difficulties, lower than expected recoveries of gold and silver and inability from the owner BYG Natural Resources Inc. to meet its water license requirements and other environmental concerns. Among other concerns, cyanide and arsenic levels in the tailing pond were elevated and proper treatment facilities were not in place (EDI, 2007).

Responsibility of the site was subsequently transferred to the federal government and, following the Devolution Transfer Agreement signed by Canada and the Yukon in 2003, the Yukon Government became responsible for managing the site. An Order-in-Council prohibits staking of approximately 1,200 ha of land covering the mine site (EDI, 2007; Lorax Environmental Services Ltd, 2011).

The Yukon Government now oversees the care and maintenance of the site. In May 2016, the Supreme Court of Yukon approved the remediation plan for the Mount Nansen Mine presented by the Government of Yukon, Assessment and Abandoned Mines Branch (AAM). The current receiver of the mine, PricewaterhouseCoopers, has selected three potential firms to purchase the property and implement the remediation plan (Government of Yukon-

AAM, 2017a). The evaluation of detailed proposals from the potential purchasers is currently on-going and transfer of ownership of the site is expected in the winter of 2017-18 (Government of Yukon-AAM, 2017a & b).

The water license for the property expired on December 31, 2001. Current care and maintenance activities are conducted under the emergency provisions of the Yukon Waters Act¹. The Yukon Government is in the process of submitting a proposal, subject to approval under the Yukon Environmental and Socio-Economic Assessment Act (YESAA)², to obtain a water license and other permits required for care and maintenance activities until ownership of the site is transferred. Once a purchaser acquires the property, a valid water license will be required to continue operations (Government of Yukon-AAM, 2017a).

The care and maintenance program

Following abandonment of the mine, the seepage collection dam was reconstructed in 2000. A pumping system pumps water from the seepage pond over the dam and into Dome Creek (Government of Yukon-AAM, 2017a). The water is currently untreated but a treatment plant for iron, zinc and possibly manganese has been proposed (Government of Yukon-AAM, 2017b).

In 2013, a safety review was done and a checklist of inspections was established for the site operators to conduct and report daily to the Government of Yukon's AAM Branch. These operations include monitoring the Dome Creek diversion channel and excavating if required, monitoring water level at the seepage pond and assessing any stability issue, monitoring of piezometers and thermistors, inspection of pumping system, generators, gasoline, propane, diesel tank levels and pipes, road, camp and power system maintenance, and monitoring of unauthorized entry on site. Water elevation in the tailing pond is monitored on a monthly basis. A bi-annual geotechnical inspection is completed on the tailings and seepage pond facilities (Government of Yukon-AAM, 2017a).

Approach and methods

The challenge

This report is supplementary to the report prepared by AAM entitled *Mount Nansen Remediation Project. Mount Nansen Socio-economic Existing Conditions*. The AAM report recognizes the data limitations and deficiencies associated with describing general socio-economic conditions of the LSCFN:

“Due to the lack of socio-economic data available specific to LSCFN, the Village of Carmacks is often the only group/area discussed within this report. The existing conditions presented on the Village of Carmacks still provides the closest available representation of the AYFN [Affected Yukon First Nation] given that this community has the highest proportion of LSCFN members.” (Government of Yukon-AAM, 2016)

¹ Waters Act, SY 2003, c 19. Accessed on March 1, 2017 from <http://www.gov.yk.ca/legislation/acts/waters.pdf>

² Yukon Environmental and Socio-economic Assessment Act (YESAA), (S.C. 2003, c. 7) Revised Statutes of Canada (1985, c. C-49). Accessed on March 6, 2017 from <http://laws-lois.justice.gc.ca/PDF/Y-2.2.pdf>

This situation is not unique as observed in the *Minto Mine Socio-Economic Monitoring Program Framework*:

“A general challenge for socio-economic impact assessment and monitoring in the Yukon is the limitations associated with community-level data that currently measure all but the most basic socio-economic conditions. Some data are suppressed to protect the identity of individuals living in small Yukon communities... or to protect any information deemed confidential. Other data have not been routinely collected in the Yukon either because policy has not provided for it or it has not been viewed as a necessity.” (Selkirk First Nation et al., 2013)³

This data deficient situation is exacerbated by a forced reliance on general population-level and non-aboriginal data as a proxy for aboriginal data describing the socio-economic living conditions of aboriginal people and aboriginal communities – the latter referring to any group, regardless of geography, that self-identifies as such. Profound differences between aboriginal and non-aboriginal peoples that manifest themselves at the community level as differences in worldviews, socio-cultural and socio-economic systems and belief systems have long been recognized as requiring different and unique approaches and methods to understand differences in related living conditions and what they mean and signify (Brody, 1981; Usher and Staples, 1988; Berger, 1977; Staples and Poushinsky, 1997; Weinstein, 1997; Duhaime et al., 2004). Indeed, these differences are implicitly acknowledged in some of the very purposes of the YESAA that are assigned in Section 5.2:

(d) to protect and promote the well-being of Yukon Indian persons and their societies and Yukon residents generally, as well as the interests of other Canadians;

(e) to ensure that projects are undertaken in accordance with principles that foster beneficial socio-economic change without undermining the ecological and social systems on which communities and their residents, and societies in general, depend;

(f) to recognize and, to the extent practicable, enhance the traditional economy of Yukon Indian persons and their special relationship with the wilderness environment;

(g) to guarantee opportunities for the participation of Yukon Indian Persons and to make use of their knowledge and experience in the assessment process.

Approach

The approach adopted in this report is community-centric and is informed by a general values framework that has been applied to rural, small town aboriginal communities in northern and arctic Canada in describing socio-economic conditions. The Aboriginal Peoples Survey and, more importantly, its Arctic Supplement and the Minto Mine Socio-economic Monitoring Program Framework provide guidance on how to understand and document specific socio-economic conditions in aboriginal communities like Carmacks and the LSCFN that are valued components of a larger First Nation social economy and cultural ecosystem. In general these systems or ways of life include some of the following features

³ See also Kischuck (2009).

(Selkirk First Nation *et al.*, 2013):

- Overall well-being and social problems are both related to a combination of other dimensions of living conditions including subsistence (domestic) and cash production, strength of cultural values, social participation, physical and mental health and a sense of local control;
- A combination of hunting, fishing and gathering and cash sectors of the economy continue to define the prevailing way of life;
- Traditional harvesting activities provide physical, cultural and spiritual connection to the land and contribution to the social cohesion of the community;
- Persistence of a mixed economy is both a matter of necessity for some and choice for others;
- Employment and business opportunities provide a means for participation in local and territorial economies, the capture of economic benefits and the development of economic self-reliance and wealth;
- Training and education are an important factor influencing participation in the northern cash economy and economic opportunities; and
- Positive contributions to sustainability from development avoid displacement of costs and create opportunities and benefits for future generations.

In the case of the Mount Nansen C&M Program, the selection of valued socio-economic components (VCs) has been scaled to the scope and scale of the program. The five that have been selected reflect the features listed above and in some cases represent a combination of living conditions (e.g. income, employment and training) with several indicators to measure their relative state (such as resilience or vulnerability).

Valued components (VCs)

The socio-economic VCs that matter most in a project assessment are the ones that an affected community can recognize as their own and ones that they have validated. The socio-economic VCs and related conditions that are described in this report are context-sensitive. They provide a basis for the assessment, operations and monitoring of the C&M program as it affects LSCFN.

The identification and determination of LSCFN socio-economic VCs and related baseline conditions described in this report are based on the following sources:

The LSCFN Integrated Sustainability Plan 2007

The plan provides a value-based framework for identifying VCs. In its words:

- *We value the Yukon River and natural environment that surrounds the community and provides valuable natural resources.*
- *We value a diverse economy that supports a prosperous and sustainable future.*
- *We value a physically, emotionally, spiritually and mentally healthy population.*
- *We value pride and unity as an integrated community.*
- *We value and respect our history, heritage and culture.*

The plan clearly establishes the concept of sustainability and legacy as foundational in the conservation and protection of the environment and the management of undertakings, including development, in the LSCFN traditional territory:

The concept of sustainability as articulated in the plan relies on the ability of people to meet their needs now without hindering the ability of others to do so in the future for seven generations. For LSCFN this means adapting to current circumstances without compromising the air, land, water, fish and wildlife and plants that rely on a healthy environment for their survival. It also means acknowledging the importance of today's infrastructure and service requirements as well as respecting the importance of traditional lifestyle pursuits such as hunting, fishing and gathering (LSCFN, 2007).

The Minto Mine Socio-Economic Monitoring Framework

This *Minto Mine Socio-Economic Monitoring Framework* was developed in partnership between Selkirk First Nation, the Government of Yukon and Capstone Mining Corp (Selkirk First Nation *et al.*, 2013) to monitor the socio-economic effects of the Minto mine, verify predicted effects, and implement adaptive management measures as necessary. The framework provides a basis for identifying and measuring the condition of VCs of relevance to the material and cultural well-being of LSCFN, with special attention to the underlying socio-cultural-ecological relationships as they are potentially affected by activities through a mine's full life cycle. These VCs are particularly relevant to the Mount Nansen case as many of the values identified by in the framework are values that are shared by LSCFN as expressed in the LSCFN *Constitution* and identified in the *Integrated Sustainability Plan*. The framework also provides a suite of indicators for measuring these VCs and a program to collect the information that supports them.

Identification and validation of candidate VCs by LSCFN

LSCFN personnel were directly engaged in the identification, review and confirmation of the VCs established to develop a socio-economic baseline for the assessment of the C&M program. Ongoing discussions with LSCFN were helpful in applying the general values articulated in the *LSCFN Integrated Sustainability Plan 2007* to the specific case of the C&M program.

On this basis, five socio-economic VCs and supporting indicators to measure their condition (Appendix 1) were selected for assessment of the C&M program on LSCFN. They are listed below. Appendix 2 provides an illustration of effects pathways that inform the identification of interacting VCs.

Food security

Rationale:

Traditional foods such as moose, fish and berries, are an important part of the "food basket" for LSCFN households. These types of foods are important nutritionally, economically and culturally (Wein and Freeman, 1995).

Indicators:

- Relative satisfaction with availability and quality of traditional foods

Interacting VCs:

- Connection to land and water
- Employment and income
- Human health
- Wildlife and wildlife habitat
- Fish and aquatic environment

Employment, income and training

Rationale:

LSCFN, like many aboriginal economies in northern Canada, is a mixed economy of earned and unearned income, and cash and non-cash- based activities and consumption. They are inextricably connected and contribute to material well-being.

Indicators:

- Employment rate/unemployment rate/participation rates/# social assistance cases
- Capacity to participate in training, employment and business opportunities

Interacting VCs:

- Connection to land and water
- Human health
- Sustainability and legacy

Connection to land and water

Rationale:

LSCFN traditional land use is fundamentally dependent on the strength of the connection to land and water and the traditional knowledge that is embedded in that relationship.

Indicators:

- Proportion of families participating in traditional activities
- Relative level of traditional use
- Areas of disturbance and displacement (encroachments/incremental loss, cumulative effects)
- Access to resources

Interacting VCs:

- Food security
- Employment and income
- Human health
- Wildlife and wildlife habitat
- Fish and aquatic environment
- Sustainability and legacy

Human health

Rationale:

Human health is a general VC often linked to community well-being. In the context of the C&M program it is largely linked to perceived threats and risks to LSCFN citizens using the general watershed of Victoria Creek that may result from mine's legacy and the C&M program's management of that legacy.

Indicators:

- Confidence in quality and supply of drinking water
- Availability of drinking water sources
- Community well-being index

Interacting VCs:

- Food security
- Employment and income
- Wildlife and wildlife habitat
- Fish and aquatic environment
- Sustainability and legacy

Sustainability and legacy

Rationale:

The socio-economic and environmental legacy of Mount Nansen specifically addresses key purposes of the YESAA and the core values of LSCFN. The C&M program plays an important role in defining and shaping that legacy.

Indicators:

- Confidence in site governance and programs
- Perceived state of the environment and legacy
- Perceived socio-economic legacy

Interacting VCs

- Food security
- Employment and income
- Human health
- Connection to land and water
- Wildlife and wildlife habitat
- Fish and aquatic environment
- Sustainability and legacy

Methods and limitations

Temporal boundary

The temporal boundary for describing the relative state of current and past conditions of the VCs extends from the date of Mount Nansen mine closure in 1999 to the current day (2017).

Spatial boundary

The spatial boundary for most VCs directly affected by the C&M program is largely confined to Victoria Creek watershed that circumscribes the mine site and C&M program area (Map 1). However, some of the perceived effects of mine site management extend to LSCFN citizens living in Carmacks. As well, the Mount Nansen Road corridor carries with it issues of access to and harvest competition for wildlife resources. The greater LSCFN traditional territory is important spatially in understanding the extent of LSCFN land use in other parts of the territory as it affects and is affected by traditional use in the area of the Victoria Creek watershed. From the standpoint of cumulative effects on the identified socio-economic VCs, the entire LSCFN traditional territory is relevant spatially.

Information and data sources

Appendix 1 identifies the information and data sources for each of the indicators associated with each VC. For descriptions of the general socio-economic setting of the LSCFN, administrative data and relevant literature and studies were reviewed. As indicated above, and consistent with other community-level baseline information, the best available information for LSCFN is very limited.

With respect to the socio-economic VCs and the associated indicators that are context-specific and relevant to LSCFN, the available information and data, again, are limited at best. This includes the adequacy and accuracy of data provided by Statistics Canada – for example, in 2011 reliable data for Carmacks and LSCFN simply does not exist (as a consequence of the abandonment of the mandatory long-form census and its replacement with the voluntary National Household Survey).

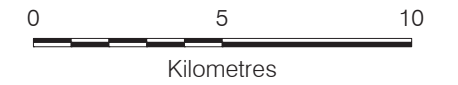
For the purpose of this report, efforts were made to collect primary information from LSCFN citizens in support of the indicators identified to describe the relative condition of the socio-economic VCs. A questionnaire (Appendix 3) and supporting base maps of the LSCFN traditional territory were developed and small group interview sessions were conducted with 8 participating LSCFN citizens and supplemented by consultations with two LSCFN government personnel (Appendix 4). A workshop was held with LSCFN representatives to confirm the VCs and verify the findings of the interviews. The sample size for the collection of spatial information is limited. For this reason, notwithstanding initial intentions, mapping the spatial distribution of traditional uses in the area can not produce a reliable picture of the extent of that use with specific geographic references.

Two older studies deserve special attention in understanding the evolving socio-economic conditions and ways of life of the LSCFN. Gotthardt (1986) and Pearse and Weinstein (1988) provide rich descriptions of LSCFN culture and land use as it adapted to changing social, economic and environmental conditions through the 20th century. The Pearse and Weinstein report, although dated, remains especially relevant today in documenting the challenges and threats facing many of the socio-economic VCs identified in this report.

Future information requirements

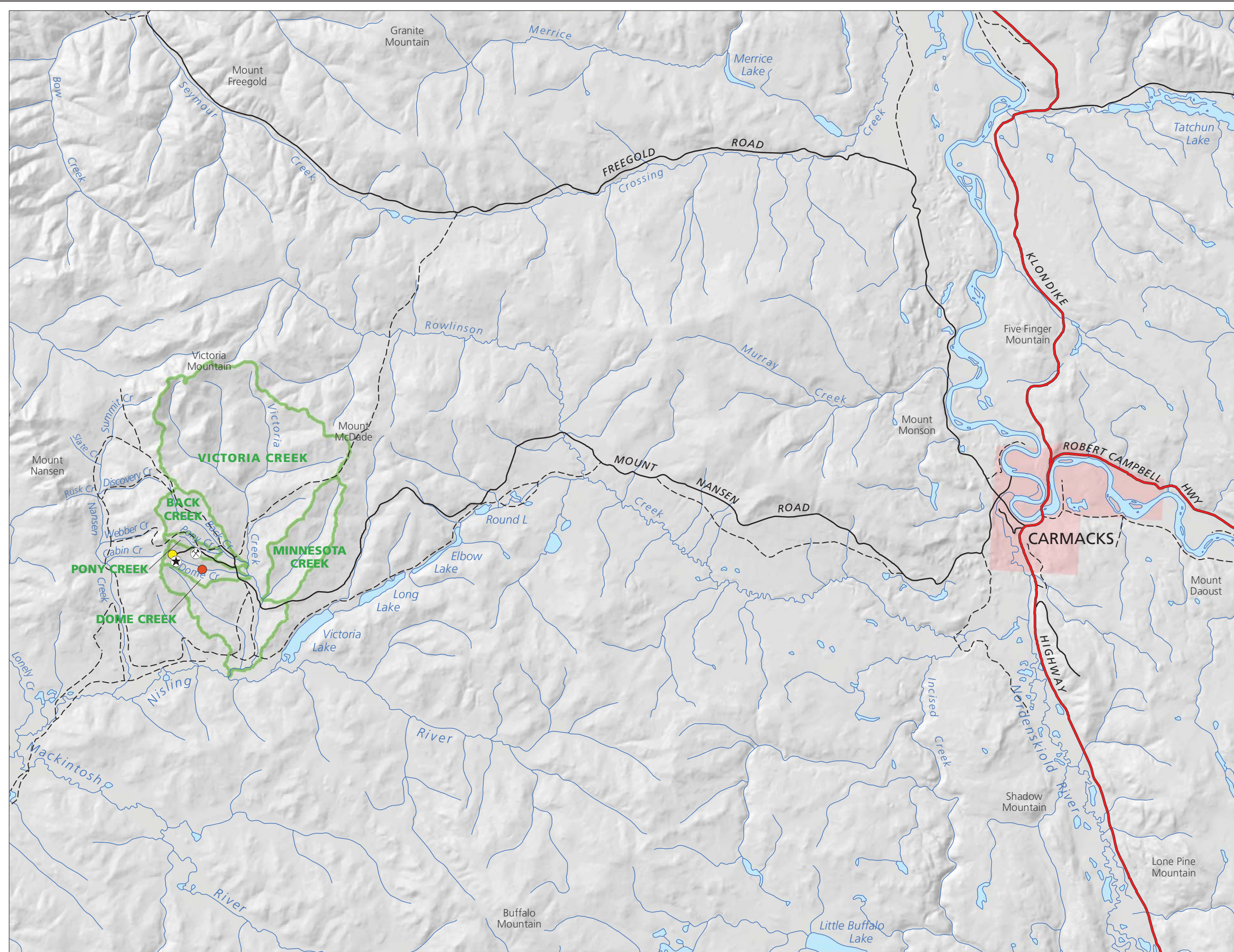
The C&M program is a transitional one and is a step towards the assessment and implementation of a comprehensive remediation program for the Mount Nansen mine. The data deficiencies and challenges faced in constructing a reliable socio-economic baseline for LSCFN for this report need not be repeated in the future. With time and appropriate resources, the implementation of a study program modeled, for instance, after the Minto Mine Socio-economic Monitoring Program Framework (Selkirk First Nation *et al.*, 2013) would be helpful in establishing a more complete picture of LSCFN socio-economic conditions and our understanding of how those conditions may be affected by a future remediation program and other developments in the area.

MAP 1
Mount Nansen Care & Maintenance Project
LSCFN Socio-Economic Baseline Study
REGIONAL OVERVIEW



Legend

- Mill Site
- Brown-McDade Pit
- Tailings Pond
- Bunkhouse/Kitchen
- Watershed
- Primary road
- Local road
- Trail



Data sources:
 Base data: 1:250K national Topographic Database (NRCAN);
 1:50K Mount Nansen mine site data (Environmental Dynamics Inc.);
 30m shaded relief (Environment Yukon)

Map projection: Yukon Albers

Client: Yukon Energy, Mines and Resources, Assessment and Abandoned Mines

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EXISTING CONDITIONS

General setting

The general setting described in this section, both repeats and supplements certain socio-economic conditions identified and described in Government of Yukon-AAM, 2016.

Population and community

Carmacks was incorporated in 1984. Its population was 543 people in 2016 (Government of Yukon, Bureau of Statistics, 2017b). In 2006, 72% of Carmacks residents identified as North American Indian (Statistics Canada, 2007). Carmacks has a relatively young population, with a high proportion of school age children (LSCFN, 2007).

In 2016, the LSCFN had a membership of 656 (Government of Yukon and Statistics Canada, 2017), half of which lived in the community of Carmacks.

Government, services and infrastructure

Following the signing of their Final Agreement with the Yukon and federal governments, LSCFN became self-governing in July 1997. The Nation follows a moiety system based on Wolf and Crow clans and is governed by a Chief and six Councilors, elected every four years. The Council consists of two members of the Wolf clan and two of the Crow clan, as well as one elder and one youth, selected by their respective councils. A general assembly is held every year to inform citizens of what is happening in the Governance Office (LSCFN, 2017).

Through its Constitution (LSCFN, 2015), the LSCFN aims at protecting its values and traditions and maintaining and improving the well-being of its people. It specifically says:

5.3.2 all decisions about economic development shall be balanced by the knowledge that all powers and authority are to be exercised to protect the lands and waters of Little Salmon/Carmacks First Nation for the conservation and enhancement of all living things which includes wildlife habitats and renewable and nonrenewable resources;

5.3.3 all powers and authority are to be exercised so as to protect, secure and enhance the spiritual, physical, mental, emotional and social well-being of all of the Citizens of Little Salmon/Carmacks First Nation, including future generations;

The Village of Carmacks provides sewer and water services, manages the community solid waste disposal facility and the waste water treatment plant, the cemetery, and is responsible for road maintenance within the municipality. It also operates a volunteer fire service and provides recreation services (LSCFN, 2007; Village of Carmacks, 2013).

The recreation facilities include a flexi-hall complex, outdoor ice rink also used in the summer for roller blading and skateboarding, a curling rink, a summer-use swimming pool, a campground, a boat launch, a tennis court, a playground, a baseball diamond, a school

library and gym and several parks. Numerous recreational trails exist in and around the community and are used by hikers, skiers, ATVers and snowmobilers. In summer, a number of canoeists and river travelers stop in the village to resupply on their way to Dawson City. Several historical and archeological sites are found near the community, including two locations known for their fossils. Stick gambling is also a popular game for LSCFN as it is for all Yukon First Nations (LSCFN, 2007, Amec, 2012).

Services provided by the Government of Yukon include a Lands and Forestry office, a territorial agent, a Highways maintenance camp, a police station (RCMP), a health centre and social services office, a post office and a public school (kindergarten to grade 12) (LSCFN, 2007, Amec, 2012). In 2016, 112 students were enrolled at the Tantalus public School (Government of Yukon, Bureau of Statistics, 2017c). A Yukon College campus also offers training and development opportunities (LSCFN, 2007).

Education, employment and income

In 2006, the population of Carmacks aged 15 years and older was 315, of which, 85 (27.0%) had a high school certificate, 40 (12.7%) had an apprenticeship or trades certificate or diploma, 40 (12.7%) had a college, CEGEP or other non-university certificate or diploma, 10 (3.2%) had a university certificate, diploma or degree and 130 (41.3%) had no certificate, diploma or degree (Statistics Canada, 2007).

Also in 2006, 240 (76.1%) of the 315 residents 15 years and older were part of the labour force. The unemployment rate was 18.8% in Carmacks, compared to 9.4% in the Yukon (Statistics Canada, 2007). Several employment opportunities are seasonal (tourism, mineral exploration, etc.) and long-term stable employment opportunities are limited. In 2001, only 29% of Carmacks residents worked throughout the year, compared to 46% for the Yukon. Unemployment is believed to cause some young workers, particularly between the age of 20 to 24, to leave the community (LSCFN, 2007). Proximity to Whitehorse and limited access to capital and financing in the community are factors that may discourage local entrepreneurial initiatives (Village of Carmacks, 2013).

LSCFN provides employment in administration, claims implementation, lands and resources, capital works, health and social services, fire protection as well as education. The First Nation is responsible for road maintenance and recreation facilities on their lands. In summer, it also operates an interpretive center and gift shop (LSCFN, 2007). Encouraging home-based business, developing training opportunities and local infrastructure projects could expand the local service sector, while building on community culture and history can contribute to community pride and increased tourism (Village of Carmacks, 2013).

In 2005, the median income for adults in Carmacks was \$22,912 compared to \$31,352 in the Yukon as a whole (Statistics Canada, 2007). On average, earnings represented 80.8% of the total income, whereas government transfers counted for 15.6% of the total income (Statistics Canada, 2007). In 2015, 32 businesses, providing employment to 81 workers, were based in Carmacks (Government of Yukon, Bureau of Statistics, 2017a).

Mining projects, including remediation of mining sites, offer local employment opportunities but may require specific skills and training. In order to maximize benefits for its citizens, LSCFN developed a Capacity Development Plan to identify the types of

employment and business opportunities that are anticipated with the mine closure and make recommendations for developing capacity (Precision Research/Cambio Consulting, 2010).

The decommissioning phase is usually of short duration, but may require more employees than the care and maintenance/monitoring phase that offers less employment but on a longer period.

According to the plan, skills are required in the following areas associated with the C&M program:

- Water treatment operations
- Environmental technical support/sampling
- Tradespersons (plumber, electrician)
- Inspections (geo-technical, re-vegetation, water...)
- Maintenance
- Site caretaking

whereas business opportunities may be:

- Building maintenance
- Chemical supply
- Lime Supply
- Road maintenance/access control
- Transportation
- Overall site management
- Water treatment operations

According to the Capacity Development Plan, the LSCFN expects that employment opportunities associated with the mine site are “lower level” jobs rather than longer-term employment at a high wage rate. LSCFN has an Employment and Training Officer but there is not clear sense of the skills capacity in the community, and citizens are not fully aware of the work and training opportunities. Many citizens are operating below their potential for different reasons, including social problems, need for upgrading in certain areas (reading, writing, math, etc.), lack of financial resources to receive training or lack of support from their family.

The study reports that there is a strong interest among citizens to participate in training, especially in equipment operation and environmental monitoring, and particularly if training is offered in Carmacks.

Existing programs that can provide specific training for the care and maintenance phase include programs offered by the Canadian Centre for Environmental Education, the Northwest Community College School of Exploration and Mining, the Yukon College or local consultants that could assist in developing a specific program. The Yukon Mine Training Association, the Government of Yukon Regional Economic Development Branch, the Government of Yukon Advanced Education Branch of the Department of Education as well as Indigenous and Northern Affairs Canada and the Government of Yukon Energy, Mines and Resources are potential and existing partners that may provide funding for training.

The plan recommends that LSCFN develop a clear framework for supporting skills development for unemployed or underemployed citizens. Two programs should be developed: heavy and light equipment operation and environmental monitoring. To be successful, these programs should be affordable, offered first to local community members, incorporate First Nation values and knowledge, respect people's health and wellness, incorporate safety and work ethics issues, include employment readiness skill building, provide recognized certification, involve on-the-job and hands on experience and be offered locally or jointly with other First Nations.

Culture

The Mount Nansen Mine site is located within the LSCFN Traditional Territory. The LSCFN people, who are part of the Northern Tutchone language and cultural group, lived in the area well before the arrival of Europeans. They were living in small groups distributed over the area, each defending use and occupancy of particular territories while understanding the necessity of sharing with people in need as a basis for collective survival. Land use was not based on the need to privatize or accumulate wealth but rather to harvest and distribute in a sustainable manner (Pearse and Weinstein, 1988).

Existence in a harsh environment required a deep understanding of the timing and location of resources, as well as development and use of techniques and tools to capture, process and conserve food. Every member of the community had a role in harvesting activities, and knowledge and skills were passed on from generation to generation (Pearse and Weinstein, 1988).

Today's LSCFN TT represents the main area used by the precursors of the LSCFN during the salmon run up the Pelly and Yukon rivers. In summer, people established one or two large fish camps and several smaller camps along the rivers to catch and later smoke and dry king salmon. In late summer and fall, berry picking, small game snaring and big game hunting for moose, caribou and sheep were the main activities. The Fortymile caribou herd, which numbered 400,000 until the late 1800s, was a major food source for people of the Dawson Range. From late winter until spring, as food source would become more scarce, people would disperse in smaller groups to hunt, fish and trap. Whitefish, jackfish, small game, muskrat, beaver and later ground squirrel and waterfowl would be added to the diet (Pearse and Weinstein, 1988).

Northern Tutchone people used the Dawson Range for their subsistence activities and traveled to Aishihik and Kluane lakes to engage in trading activities with the Coastal Tlingit. They were, in fact, the middle-men between the Chilkat Tlingit from the coast and the Ross River people. They would also travel and harvest down the Yukon River by boat and dogsled, to Selwyn, Coffee Creek, Kirkman Creek, Selkirk, Minto and even Dawson in summer (Pearse and Weinstein, 1988).

In the mid 1800s, the Hudson Bay company opened trading posts in the region, and early contacts with Europeans brought several epidemics that reduced the native population dramatically. By the end of the 19th century, a small group of Tutchone spent their summer at the confluence of the Nordenskold and Yukon River, where George Carmacks had established a trading post. Other Tutchone from the Little Salmon area joined them

following the death of about 150 people of their group. This area is now the location of the village of Carmacks (Pearse and Weinstein, 1988).

The opening of trading posts in the late 1800s until about 1930 had a big impact on the Tutchone culture. The availability of trade items and store-bought foods changed the movement of people in the region. They would congregate around these posts in fall and winter and concentrate their trapping activities in these areas. The use of steamboats on the Yukon River created a demand for fuel, thus creating seasonal job opportunities. Cash economy started replacing bush economy, new technology was introduced, as well as non-native institutions such as government, schools, wildlife management and regulations (Pearse and Weinstein, 1988).

Mining activities also started in the region at the end of the 19th century with a coal mine near Carmacks. At the same time, the Anglican Church came and tried to separate First Nation people from their spiritual environment by changing their names, discouraging the use of their own language and culture and establishing residential schools. There was increasing pressure for First Nations to settle in communities where First Nation and Non First Nation people lived mostly separately (Pearse and Weinstein, 1988).

The 1950s marked a turning point in the Northern Tutchone culture. Following a crash in the fur prices, several trading posts closed, including Fort Selkirk, which had become the regional centre. The road between Whitehorse and Dawson was completed, ending the river boat era and its associated demand for labour. New jobs became available but were not always compatible with seasonal traditional activities (Pearse and Weinstein, 1988).

The introduction of the Child Allowance program provided a significant and regular source of money but since children had to be enrolled in school for the families to benefit, this forced settlement. Introduction of motorized vehicles further changed the traditional patterns of land use, making hunting more efficient and new areas more easily accessible, but harvest efforts became concentrated along road corridors and rivers. More money was now required to obtain vehicles and fuel. A new trapline registration system was implemented, disrupting family group areas by making the use of traplines exclusive and payment of registration fee mandatory. Some First Nation people also had small outfitting businesses but pressure from Non Native people forced government to prevent First Nations from becoming guides with the result that all outfitting concessions were given to Non Natives. This period also coincides with the beginning of exploration and mining activities in the Mount Nansen area (Pearse and Weinstein, 1988).

Land and resource use/traditional economy

Harvesting activities

Land use and participation

Today, the Mount Nansen area is one of the most important harvesting areas for LSCFN citizens. According to those LSCFN people interviewed, more than half the LSCFN families use this area for harvesting activities, especially for moose, but also for caribou, small game, fish, waterfowl, berries and medicinal plants. The Mount Nansen road provides easy access to this area, and trails connect the Victoria Creek watershed to Aihishik Lake, the Nisling River,

Nansen and MacIntosh creeks, as well as the Freegold Road. The Freegold Road, like the Mount Nansen Road, provides access to important harvesting areas, but is not open in winter. The Mount Nansen Road is a public road and maintained year-round by the Yukon Government and provides access to the mine site for the C&M program. It is unclear if the road would be maintained once remediation of the site is completed.

Historically, the Mount Nansen area and Victoria Creek watershed have been used by LSCFN people for their subsistence activities as well as a trading route. People used to hunt and fish as they were traveling. Today, the area is still being used year-round by local people. In recent years, a few cabins have been built, including a community camp near Victoria Creek. There is a prospector cabin near the mine site, a trapper's cabin about half way between Carmacks and the mine, a cabin on Victoria Creek, upstream from the mine site, and several tent frames and a cabin near Victoria Lake. One old burial site is found near Discovery Creek and some artifacts were found at Dome Creek. There are also remnants of a caribou fence with old stumps cut with an axe near Victoria Lake. LSCFN citizens would like to see more archeological searches conducted in the area.

Today, LSCFN citizens hunt moose mostly in the river valleys and caribou on the hills. Some waterfowl are harvested around Victoria, Long and Elbow Lakes but this is not a main food source. Fewer ducks are found now, especially on Nisling River. Small game, mostly grouse, ptarmigan and rabbits are hunted incidentally.

Some trapping occurs in the area, mostly for marten, lynx, foxes, wolverine and wolves. LSCFN citizens pointed out that the current Yukon trapline registration system, introduced in the 1950s, is not compatible with the traditional way of managing traplines and furbearer populations. Map 2 shows Registered Trapping Concessions in the Mount Nansen area.

LSCFN citizens fish for grayling in the Nisling River. They used to fish at Victoria Creek, but people are now avoiding it because of a concern about contaminants. Some people are also concerned about fish harvested from Victoria Lake and Long Lake even if these lakes are upstream from the mine site. Jackfish and lingcod are fished in Long Lake and Round Lake. Nets were once used in Long and Victoria lakes, as well as another small lake near Round Lake.

High and low bush cranberries, blueberries, soapberries, cloudberry, mossberries, black and red currants, raspberries, mushrooms and caribou moss, as well as other medicinal plants, are picked in the summer and fall in the Victoria Creek watershed. LSCFN citizens don't trust berries and plants found below or near the mine site.

Food security and sustainability

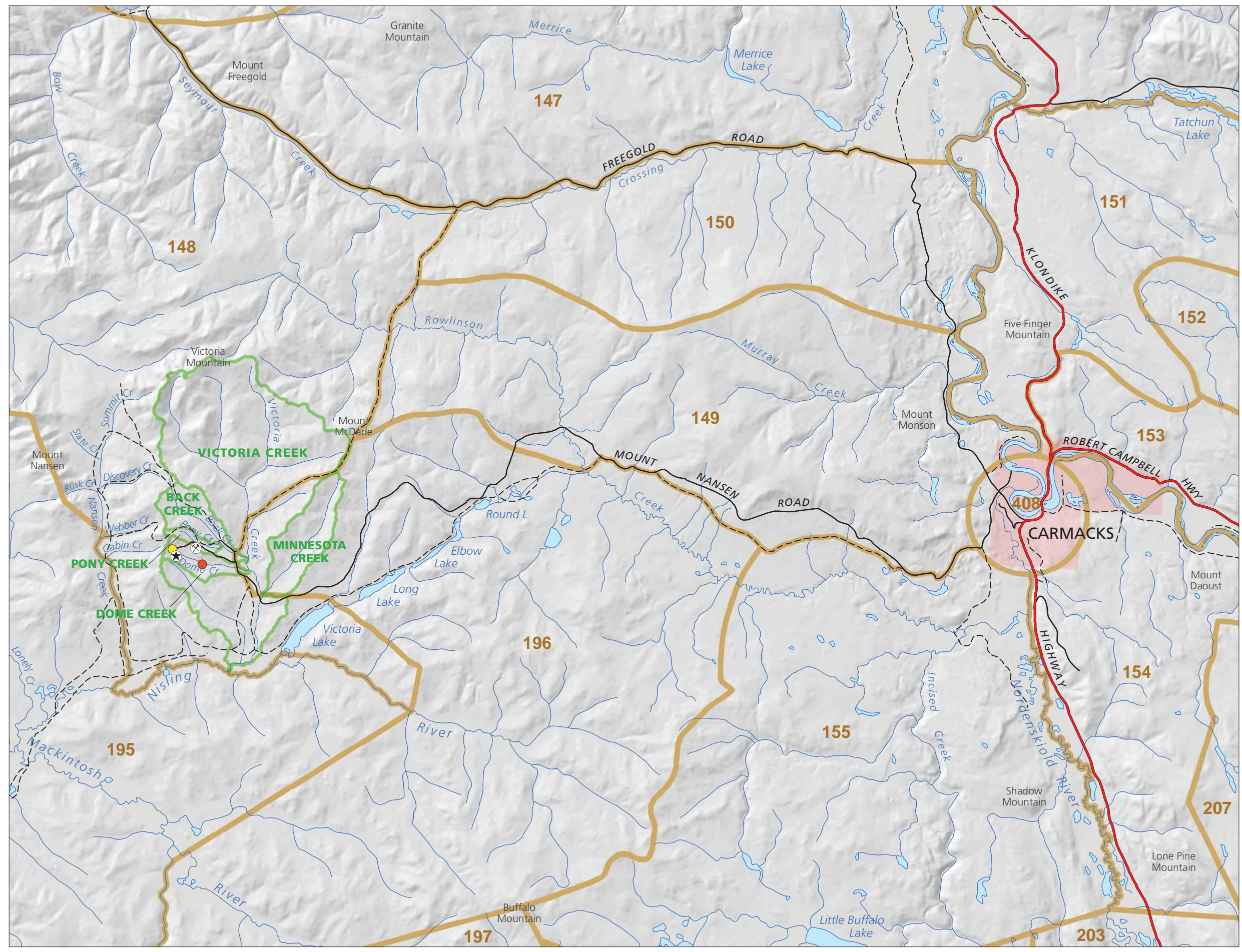
According to LSCFN citizens, big game animals have become more difficult to find since 1999. This has been attributed to an increase in industrial activities in the area as well as an increase in hunting pressure, both from people living in the community and people from outside. Currently, only LSCFN hunters can hunt moose in Game Management Subzone (GMS) 526 (Map 3), or other First Nations with permission from LSCFN. Moose hunting has been closed for licensed hunters in the area since 1989 and caribou hunting is only authorized under a permit system. An average of three caribou were killed by licensed hunters in GMS 526 since 1999 (Government of Yukon, Department of Environment, pers. comm., 2017).

MAP 2
 Mount Nansen Care & Maintenance Project
 LSCFN Socio-Economic Baseline Study
REGISTERED TRAPPING CONCESSIONS
IN THE MOUNT NANSEN AREA



Legend

- Trapline concession
- Mill Site
- Brown-McDade Pit
- Tailings Pond
- Bunkhouse/Kitchen
- Watershed
- Primary road
- Local road
- Trail



Data sources:
 Base data: 1:250K national Topographic Database (NRCAN);
 1:50K Mount Nansen mine site data (Environmental Dynamics Inc);
 Registered Trapping Concessions & 30m shaded relief
 (Environment Yukon)

Map projection: Yukon Albers

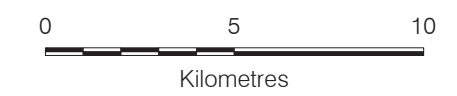
Client: Yukon Energy, Mines and Resources, Assessment and Abandoned Mines

Prepared by:
 NorthWest Resources Consulting Group

MARCH 6, 2017

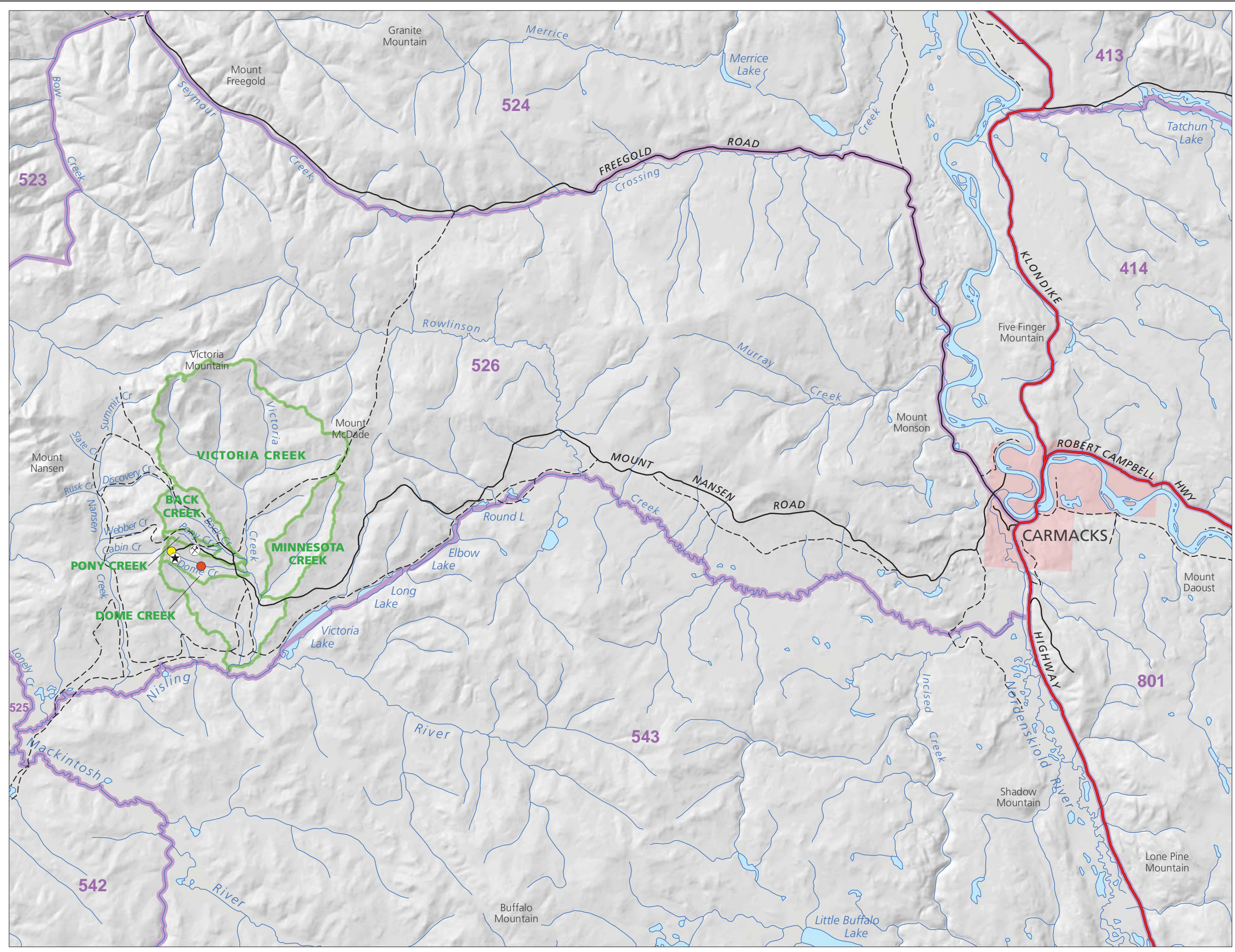


MAP 3
Mount Nansen Care & Maintenance Project
LSCFN Socio-Economic Baseline Study
GAME MANAGEMENT SUBZONES
IN THE MOUNT NANSEN AREA



Legend

- Game management subzone
- Mill Site
- Brown-McDade Pit
- Tailings Pond
- Bunkhouse/Kitchen
- Watershed
- Primary road
- Local road
- Trail



Data sources:
 Base data: 1:250K national Topographic Database (NRCAN);
 1:50K Mount Nansen mine site data (Environmental Dynamics Inc.);
 Game management Subzones & 30m shaded relief (Environment Yukon)

Map projection: Yukon Albers

Client: Yukon Energy, Mines and Resources, Assessment and Abandoned Mines

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Klaza caribou is the main herd found in the Dawson Range and the population was recently estimated at 1180 animals. Occasionally, Aishihik caribou are seen in the area. The Fortymile caribou herd used to occupy the area until its massive decline in the 1930s and 1970s. However, in 2013, Fortymile caribou were seen in the western part of the Dawson Range for the first time since the 1940s. The Klaza herd is at the edge of its range in the Mount Nansen area and therefore is not always present. A recent study conducted for the Yukon Government (Francis and Nishi, 2016) concluded that while the Klaza herd's winter range is difficult to access, some late-winter areas are now used infrequently or have been abandoned by the herd as a result of an increase in all-season development and human activities in the Mount Nansen area.

LSCFN citizens indicated that the wolf population increased in recent years, which may have an impact on moose and caribou populations and availability. In the past, trapping activities kept wolf populations at a lower level, but now fewer people trap or hunt wolves. Wolves are now able to successfully kill elk and bison, two species that were reintroduced to the Yukon respectively in the 1950s and 1980s. This may have caused a minor shift in their diet, reducing the pressure on moose and caribou, however, more food sources can also support a larger healthy wolf population, which in turn, may increase predation on all prey species. Bears are also known as predators of young moose and caribou.

Despite of the reduced availability of moose and caribou, LSCFN citizens mentioned that it was still possible to find a sufficient amount of traditional food in the region to meet their needs, and half of the people interviewed were optimistic that big game hunting would improve within the next five years. Encouraging people to hunt bulls only or closing all harvest for 10 years were suggestions put forward by LSCFN to help moose, and to a lesser extent caribou, populations recover. LSCFN citizens also indicated that moose and caribou started coming back last year.

Access and disturbance

The Mount Nansen Road provides easy access for harvesting activities for LSCFN citizens, but it also provides access to everyone else. More people now own ATVs, Argos and skidoos and can travel nearly everywhere in the area. Fewer people travel on the Mount Nansen Road in winter but summer traffic can disturb wildlife, modify their movement patterns and impact traditional activities. The Mount Nansen Road is used by licensed hunters to access elk and bison hunting areas. The increase in mining exploration has resulted in more traffic, more heavy equipment on the land, and more helicopters. People commented that "wherever we go, there is some activity".

Health and community well-being

Contaminants in animals and plants

Based on data collected from 1999 to 2008, SENES Consultants (2009) found elevated concentrations of copper in the tailing pond but concluded that concentrations of chemicals of potential concern (COPC) in the terrestrial environment around the Mount Nansen mine site would not result in adverse effects for wildlife with a terrestrial-based diet. According to their evaluation, copper and zinc in Dome Creek, the tailings pond, the Brown-McDade pit

and zinc concentrations in Pony Creek are unlikely to adversely effect the waterfowl population, but may have the potential to adversely affect individual birds (SENES Consultants, 2009).

A study conducted by EDI (2007) found high levels of arsenic, lead, antimony, silver and copper in lichens associated with past aerial contamination around the mine site. According to EDI, plant uptake of arsenic is generally low, and arsenic levels measured in willow were only slightly higher than natural maximum found in the Yukon. High levels of metals were found in vegetation around the mine site. Elevated levels of some metals may be present in wildlife around the site, but the results compare to what is found in other areas of the Yukon, except for copper and chromium in caribou and moose that were significantly higher near the mine. However, according to EDI, there is limited evidence that these higher levels are caused by the mine site.

Subsequently, ELR (2016a) determined metal concentrations in lichen, willow and berries at 44 locations near the mine site and compared their results to the maximum tolerance levels for animal intake. Their analysis focused on five metals having potentially significant impact on plants or animals: copper, lead, arsenic, zinc and cadmium. Results showed that elevated levels for lead, arsenic and cadmium were found at one or more sites proximate to the mine, but only 2 of these sites exceeded the maximum tolerance levels for animal intake (cadmium in willow and arsenic and lead in lichen).

Contaminants in water and aquatic communities

A study conducted by EDI (2007) in Dome, Pony, Back and Victoria Creek found elevated levels of zinc in the surface water of Dome Creek, as well as a higher mineralization levels and above-normal levels of metals in sediments in stream within and around the mine site. However, as noted by EDI, stream sediments may not be the best indicators of potential environmental impacts since their bioavailability depends on the form in which the metals are present. According to EDI, levels of metals found in fish did not show evidence that these contaminants were biomagnifying up the food chain.

Another study conducted between 2012 and 2014 by ELR (2016b) reported no fish in Dome and Pony creeks and found elevated arsenic, zinc, cadmium, lead, copper and silver concentrations in the sediments. In addition to these contaminants, SENES Consultants (2009) also found that levels of sulphate, un-ionized ammonia, antimony, iron, manganese and selenium in Dome Creek, Pony Creek, and Victoria Creek exceeded Canadian Council of Ministers of the Environment (CCME) water quality guidelines for the protection of aquatic life and/or CCME community water supply guidelines. Both these studies concluded that Dome and Pony creeks showed characteristics of impacted watercourses affecting aquatic resources as a result of mine site influences.

Victoria Creek showed very little evidence of the influence of mining activities at the Mount Nansen site (SENES Consultants, 2009), but had elevated concentrations of arsenic, as did reference stations (ELR, 2016b). Victoria creek had the most diverse benthic and periphyton communities, showed moderate habitat complexity and the presence of Arctic grayling, slimy sculpin and burbot was recorded (ELR, 2016b).

Health risk assessment

In 2003, the Department of Indian Affairs and Northern Development carried out a screening level risk assessment for human health at the Mount Nansen Mine site to determine if contaminants present in the environment may have an adverse effect on humans using or potentially using the site.

The risk assessment was considered for an adult and child camping at the site for 3 months of the year and consuming drinking water, fish, berries and wild game, and the assumption was that all food and water consumed was coming from the site and that levels of contaminants were maximal for each pathway. Under these conditions, the hazard quotient of antimony, copper, molybdenum, thiocyanate, uranium, zinc and petroleum hydrocarbons exceeded the reference value, and the risk of carcinogenic effects from arsenic exceeded the selected risk level (SENES Consultants, 2003).

Following this initial assessment, SENES Consultants conducted a human health and ecological risk assessment for the Mount Nansen mine based on data collected between 1999 and 2008, with the input and guidance of a group of LSC elders to identify and confirm ecological values and human use and activities in the area. It was noted in the report that contaminant loads measured were anticipated to increase in the future as sources reach peak oxidation rates and contaminants emerge and travel (SENES Consultants, 2009).

SENES Consultants observed that consumption of squirrel might have a potential adverse effect on humans due to cadmium concentrations in liver or kidney, but that this is unlikely since concentration of cadmium in flesh should be lower than in these organs. They concluded that there would be no adverse effects on humans from exposure to arsenic or to non-carcinogenic COPC at the Mount Nansen site.

EDI's analysis (2007) presented similar results. After calculating tolerable daily intake of several foods, they concluded that traditional use of plant tissues, such as Labrador tea and caribou moss, was unlikely to cause users to consume over the daily intake. According to EDI, consumption of small game such as ground squirrel was also unlikely to be of concern. They noted however that these results may not be representative considering the small sample size. Metal levels in moose and caribou hunted on or near the mine site were not of concern for human consumption beyond levels identified for other areas of the Yukon. Grayling is the only fish found in the study area likely to be consumed by humans, and daily maximum consumption should be restricted to 177 g for the liver or 1 kg of flesh, according to EDI. Despite these results, they recommend limiting collection of plants and animals in or immediately around the mine site to avoid the sources of contamination, and rinsing plant parts before consumption (EDI, 2007). Notwithstanding these data and conclusions, LSCFN citizens continue to express concern about contaminants in traditional food.

Drinking water sources

LSCFN citizens indicated the importance of an artesian well located just above the mine site, near the mill. The water coming from that well was characterized as "the best water in the Yukon" by local users. Since access to the mine site is now restricted, water from the well is no longer accessible to them. However, according to LSCFN citizens, workers on site are still using it.

LSCFN also raised concerns over adverse effects on LSCFN water rights resulting from water use by third parties and unaddressed cumulative effects. Access and use of unaltered water is clearly referred to under the LSCFN Final Agreement (DIAND, 1998):

14.8.1 Subject to the rights of Water users authorized in accordance with this chapter and Laws of General Application, a Yukon First Nation has the right to have Water which is on or flowing through or adjacent to its Settlement Land remain substantially unaltered as to quantity, quality and rate of flow, including seasonal rate of flow.

LSCFN indicated that this right has been brought to the attention of the Water Board in the context of the Minto Mine. The purpose of the Yukon Water Board is to provide for the conservation, development, and utilization of waters in a manner that will provide benefit for all Canadians and for the residents of Yukon. The protection of this right is one that may be pursued in the future by LSCFN in future licensing and permitting processes affecting LSCFN water use.

Perceived water quality and health risk

Water quality in the Victoria Creek watershed is considered “bad” by LSCFN citizens, downstream from the mine site but also upstream due to other mining exploration activities. It is often dirty, the level is unpredictable and often lower than what it used to be. People will not drink, and some will not even touch it. They always carry their own water when they travel or camp in the area. In the 1960s and 1970s, people didn’t know that the water was contaminated and used to drink from the creeks.

A water treatment plant has been requested by LSCFN at least since the mine was abandoned and there is growing frustration that nothing is being done to address their concern over the ongoing release of contaminants into the creeks. LSCFN would like to see all water protected, not just in this watershed.

There is general concern among LSCFN citizens that contaminants coming from the mine site and from other exploration activities in the area are spreading and are affecting wildlife and vegetation. It is believed that if nothing gets done to remediate the site, contamination will increase over time, influencing the quality of traditional foods. Local people avoid the mine site and will not consume anything harvested within two to five miles. Fish, berries and to a lesser extent waterfowl and small game are considered most affected and hazardous to consume. Because big game animals are moving in and out of the area, people are less concerned about eating moose or caribou harvested near the site.

Community well-being

The community well-being index is a Canadian Census based indicator of socio-economic well-being, developed by Aboriginal Affairs and Northern Development Canada, based on income, education, housing and labour force activities that can be used to compare well-being of people living in Aboriginal vs non-Aboriginal communities (AANDC, 2017).

- Income is calculated based on total income per capita.
- Education looks at how many community members have at least a high school

education and how many have attained a university degree.

- Housing looks at the number of community members whose homes are in an adequate state of repair and are not overcrowded.
- Labour force activity looks at how many community members participate in the labour force and how many labour force participants have jobs.

The CWB score can range from a low of zero to a maximum of 100. Table 1 shows the CWB scores for each indicator and globally for Carmacks and the Yukon for 1996, 2001 and 2006. The CWB score is limited by the absence of 2011 data for Carmacks from the National Household Survey.

Table 1. Community well-being index for Carmacks and the Yukon.

Carmacks (Yukon)	Income	Education	Housing	Labour Force Activity	CWB
1996	73 (78)	44 (50)	83 (82)	84 (86)	71 (72)
2001	73 (79)	46 (54)	78 (85)	79 (86)	69 (74)
2006	76 (85)	44 (55)	74 (86)	84 (86)	70 (76)

According to this assessment, the well-being of Carmacks citizens is lower than for people living in the rest of the Yukon whose conditions have been steadily improving. Most indicators remained stable for Carmacks except for a deterioration of the housing conditions.

Employment and capacity building

Employment and business opportunities

Over the years, a few local people were employed by the mining company (BYG) or the government as caretakers or water monitors. In at least one case, mentoring of a local person at the mine site allowed that person to subsequently obtain employment with an environmental firm. Similar opportunities are encouraged and may be supported financially by the Government of Yukon.

Currently, the company responsible for the daily care and maintenance operations on site is Denison Environmental. Two employees are on site 24 hours day for a continuous two-week shift, after which they are replaced for the next 2 weeks by two other employees. Out of these four people, one is a LSCFN citizen.

LSCFN citizens would like to see more employment opportunities in the community. It was mentioned by LSCFN that the current Yukon Government process and requirements to obtain a contract make it very difficult for individuals or small companies to submit a successful proposal.

Training and capacity development

Several Carmacks residents have the necessary training to work as heavy equipment operators or environmental monitors but more training opportunities, especially for young people, is always encouraged. Interviewees mentioned that qualified people, as well as all the equipment necessary, are available in Carmacks to provide training locally. Involving the younger generation of LSCFN citizens was seen as a good way to increase awareness of the impact of mining and the importance of good practice and environmental protection.

Sustainability and Legacy

Mining exploration, exploitation and cumulative impacts

Numerous active claims are situated northwest of the Mount Nansen mine (Map 4) and anticipated mineral development projects such as the Casino mine will further increase the level of disturbance on local people, wildlife and habitats. LSCFN expressed concerns that LSCFN R-Blocks may be affected by the cumulative effects.

Exploration activities can have a significant impact on the environment and LSCFN citizens indicated that they would like to see more inspections or monitoring of these activities by government, and certain exploration activities subject to remediation. It was noted that animals have been injured as they traveled through disturbed or dredged areas. Several ponds and creeks are contaminated with oil, grease, diesel, gas or even human waste.

Care and maintenance participation

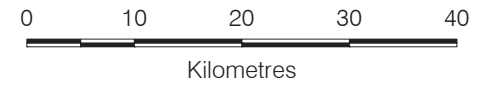
LSCFN citizens indicated that once the mine was abandoned and the federal government assumed management control of the site, maintenance and communication improved compared to when BYG was operating. Initially, under federal and territorial management, people felt they were consulted and were actively involved in the decision making process, or at least informed of the management situation and mine site conditions.

Having a trusted local person in charge of the C&M program for several years also helped to increase trust between LSCFN and the federal and territorial governments. LSCFN citizens used to go to the mine site, have tea with the caretaker and park their vehicle on site, knowing that nothing would happen to it while they were conducting their traditional activities. If they went missing for several hours, the caretaker usually knew where they were and would search for them. This provided a sense of ownership, of connection for local people to the site and its management. When the caretaker was back in the village, people would talk to him and stay current with the conditions on the mine site.

LSCFN indicated that the selection process for the mine site remediation options was well conducted and that the First Nation was involved and an active party in the discussions. At the time, a local coordinator was hired to liaise between the community and governments.

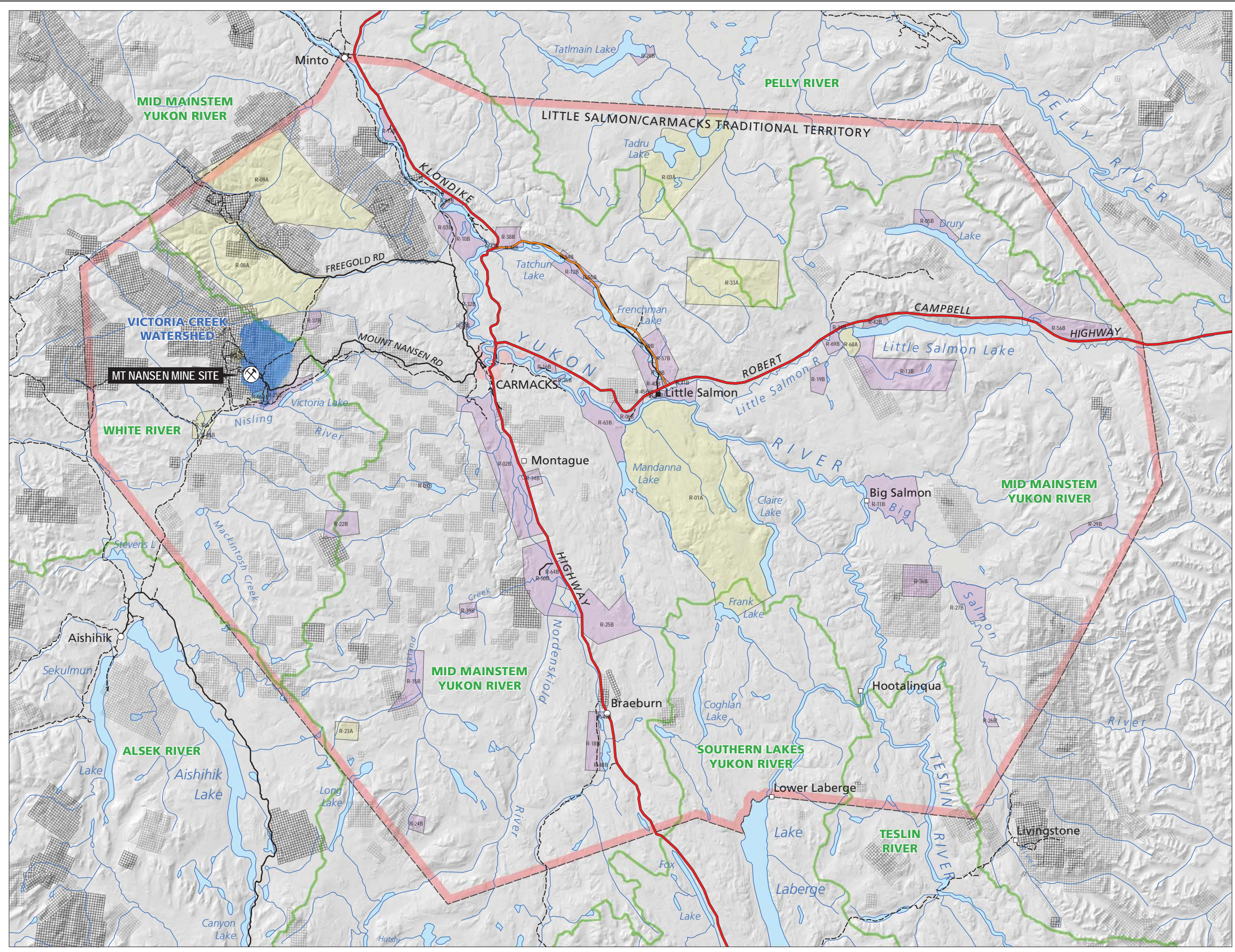
However, LSCFN expressed concern that in the last few years, due to new administrative procedures and requirements, the local caretaker was replaced by people hired by a bigger firm. Internal staffing and organizational issues within the LSCFN government have

MAP 4
Mount Nansen Care & Maintenance Project
LSCFN Socio-Economic Baseline Study
ACTIVE & EXPIRED MINING CLAIMS



Legend

- Little Salmon/Carmacks R-blocks**
- Category A
 - Category B
 - Mine site
 - Active mining claim
 - Expired mining claim
 - Victoria Creek watershed
 - Major watershed
 - Primary road
 - Secondary road
 - Local road
 - Trail



Data sources:
 Base data: 1:1M base data (Geomatics Yukon);
 1:50K Mount Nansen mine site data (Environmental Dynamics Inc.);
 1:50K mining claims, 1:1M R-blocks, 1:1M watersheds (Geomatics Yukon);
 30m shaded relief (Environment Yukon)

Map projection: Yukon Albers

Client: Yukon Energy, Mines and Resources, Assessment and Abandoned Mines

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contributed to the sense of disconnection from the C&M program experienced by LSCFN citizens. LSCFN is of the view that C&M program study results are currently not being communicated adequately to them. This view combined with restrictions on LSCFN access to the mine site, has exacerbated LSCFN mistrust and negative speculation about the program and what is happening on site.

Site governance

LSCFN citizens are generally dissatisfied with the current management situation and C&M program at the Mount Nansen mine site. Much of the concern focuses on the slow progress towards achieving an active remediation program for the mine site, especially in light of funds spent to date in establishing a recommended remediation management option and various other studies.

Current high levels of LSCFN frustration find their roots in the history of BYG's non-compliance with the mine's water license and the continuing release of water into Dome Creek that show concentrations of certain contaminants that exceed recommended guidelines. Mistrust in study results have given rise to LSCFN conducting its own water sampling and analysis. The absence of a water treatment plan, in spite of repeated past requests by LSCFN, contribute to this frustration.

LSCFN indicated greater direct involvement and a shared role in the management of the site could address the source of this frustration and mistrust. LSCFN would like to be informed more and have a say in what is happening within their Traditional Territory.

LSCFN concerns over site governance extend to the sale of the Mount Nansen property and the future remediation of the site. LSCFN remains uncertain as to how the collective interests of LSCFN citizens in employment and training, business opportunities and site management as it affects the mitigation of adverse effects will be addressed in the sale of the site and associated conditions.

Environmental and socio-economic legacy

Before the 1990s, the Mount Nansen mine was a relatively small and lower-impact mine site. Today it is viewed by LSCFN as local tragedy - that in the 1990s, this mine, which was never financially viable, could cause significant negative environmental and socio-economic impacts for a period that has now greatly exceeded its years of operation.

"Lots of talking but little action" is how LSCFN citizens characterize the situation at the Mount Nansen mine site. Mining projects, not just this one, are viewed as having a significant impact on the land and on traditional activities of LSCFN citizens. However, not all LSCFN citizens are against mining. It is understood that mining projects can provide local employment and business opportunities, and that some mines have been remediated successfully. Under such conditions, local people can benefit from mining projects developments.

However, LSCFN also expressed the view that if mine sites are not managed properly through their full life cycle, people inevitably become afraid of mining developments in

general. When the perception is that the net costs of the industry outweigh the benefits, people will not want any of it.

LSCFN indicated that the LSCFN Final Agreement provides an important foundation for a government-to-government relationship between LSCFN and the territorial and federal governments. On this basis and building on the experience of the shared positive and constructive party-to-party working relationships in the development of remediation options for the mine site, LSCFN expressed the view that the C&M program provides another opportunity for a long-term outcome that can contribute to a more positive and sustainable legacy for a mine that the First Nation regards as an ill-fated development rife with a history of bad management and undesirable consequences.

CONCLUSIONS AND RECOMMENDATIONS

Valued conditions not identified in this report are not insignificant. For example there are many facets of LSCFN socio-cultural well-being that are affected by the C&M program and future remediation of the site. LSCFN has a deep attachment to its entire traditional territory and to all that occurs within it, day-in and day-out. The depth of this attachment and the extent of the relationship between First Nations, like LSCFN, and the land and water that their ways of life depend upon, cannot be understated and are often poorly understood by Outsiders.

Indeed, the Dominion Diamond Corporation has observed in regards to its Ekati Mine (Dominion Diamond, 2014) that:

“Relationship to the land goes beyond the physical act of procuring resources, and extends to intangible aspects.”

“The diversity of human experience and the range of responses to a project have the result that every component of the socio-economic environment is important to at least some people. (...) All elements of economic, social and cultural life integrate and contribute to overall individual, family and community quality of life.”

Others have observed that uncertainties must be factored in and early warning monitoring mechanisms and indicators to monitor community health and well-being must be identified (Baffinland Iron Mines Corporation, 2012).

The Canadian Environmental Assessment Agency’s Cumulative Effects Assessment Practitioners Guide clearly indicates that early and continuous consultation in the decision-making process allows identification and incorporation of adequate mitigation measures into mining development, care and maintenance programs and remediation (Hegman *et al.*, 1999; DIAND and GNWT, 2010). Co-management and cooperation in data collection, interpretation and mitigation, ensure equal participation, facilitates exchange of information and improves relationship between parties. Community-based monitoring and consultation help find approaches, methods, formats, and frequencies to report that are suitable to the community (Baffinland Iron Mines Corporation, 2012).

These observations and recommendations from other mining development in remote regions of northern Canada were confirmed in the engagement of LSCFN in the construction and description of the VCs constituting the LSCFN socio-economic baseline for this report. The general message to emerge from this engagement with LSCFN is the importance of co-management, open communication and shared responsibilities between the LSCFN and federal and territorial government parties in the design and implementation of the Mount Nansen C&M Program and any future remediation and monitoring program implemented by a third-party owner.

REFERENCES

- AANDC (Aboriginal Affairs and Northern Development Canada). 2017. *The Community well-Being Index*. Accessed on February 28, 2017 from <https://www.aadnc-aandc.gc.ca/eng/1100100016579/1100100016580>
- Amec. 2012. *Socio-economic baseline report: Freegold road upgrade and Freegold road extension project*. Prepared for Casino Copper and Gold. Burnaby, BC.
- Baffinland Iron Mines Corporation. 2012. *Mary River Project. Final Environmental Impact Statement*. Accessed on February 5, 2017 from <http://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/08-FINAL%20EIS/FEIS/Vol%2004/120213-08MN053-FEIS%20Vol%204%20Part%2001-IT3E.pdf>
- Berger, T.R. 1977. *Northern Frontier, Northern Homeland. The Report of the Mackenzie Valley Pipeline Inquiry. Volume 1*.
- Brody, H. 1981. *Maps and Dreams*. Vancouver, British Columbia.
- DIAND (Department of Indian Affairs and Northern Development). 1998. *Little Salmon/Carmacks First Nation Final Agreement between the Government of Canada, the Little Salmon/Carmacks First Nation and the Government of the Yukon*. Ministry of Public Works and Government Services Canada. Ottawa, Ontario.
- DIAND and GNWT (Department of Indian Affairs and Northern Development and Government of the Northwest Territories). 2010. *Giant Mine Remediation Project - Developer's Assessment Report*. EA0809-001.
- Dominion Diamond. 2014. *Jay Project. Developer's Assessment Report*. Accessed on February 28, 2017 from <http://www.reviewboard.ca/upload/news/Jay%20DAR%20TOC%20with%20hyperlinks.pdf>
- Duhaime, G., Searles, E., Usher, P.J., Myers, H. and Frechette, P. 2004. "Social Cohesion and Living Conditions in the Canadian Arctic: From Theory to Measurement," *Social Indicators Research* 66: 295–317.
- ELR (Ecological Logistics and Research Ltd). 2016a (draft). *Mount Nansen Site. 2012-2014 terrestrial baseline studies report*. Report prepared for Yukon Government. Whitehorse, Yukon.
- ELR (Ecological Logistics and Research Ltd). 2016b (draft). *Mount Nansen fisheries and aquatics baseline studies report*. Report prepared for Yukon Government. Whitehorse, Yukon.
- EDI (Environmental Dynamics Inc.) 2007. *Mt Nansen terrestrial and aquatic effects study 2005-2006*. Vol. 1. Report prepared for Government of Yukon, Whitehorse, Yukon.

- Francis, S. and Nishi, J. 2016. *A range assessment for the Klaza caribou herd in the Dawson Range of west-central Yukon*. Prepared for Environment Yukon. Yukon Fish and Wildlife Branch Report MRC-16-01, Whitehorse, Yukon.
- Gotthardt, R. 1986. *Study of Culture and Land Use for the Little Salmon Carmacks Band*. Department of Anthropology, University of Toronto, Toronto.
- Government of Yukon-AAM (Assessment and Abandoned Mines). 2016. *Mount Nansen Remediation Project. Mount Nansen Socio-economic Existing Conditions*. Version #: 1.
- Government of Yukon-AAM (Assessment and Abandoned Mines). 2017a. *Mount Nansen Care and Maintenance – Project Proposal (Draft – February n.d. 2017)*.
- Government of Yukon-AAM (Assessment and Abandoned Mines). 2017b. *Mount Nansen Care and Maintenance – Project Proposal*. Presentation to LSCFN Socio-Economic Valued Components and Conditions Technical Workshop, Carmacks, Yukon, February 27, 2017
- Government of Yukon, Bureau of Statistics, 2017a. *Government of Yukon Socio-economic web portal. Carmacks businesses and workers*. Accessed on February 13, 2017 from http://sewp.gov.yk.ca/data?regionId=YK.CM&subjectId=ECON&groupId=ECON.ACTIV&dataId=YBS_BUSINESSES&tab=region
- Government of Yukon, Bureau of Statistics, 2017b. *Government of Yukon Socio-economic web portal. Carmacks population estimates*. Accessed on February 13, 2017 from http://sewp.gov.yk.ca/data?regionId=YK.CM&subjectId=POPCOM&groupId=POPCOM.POP&dataId=YBS_HCRF_POP_AGE_SEX&tab=region
- Government of Yukon, Bureau of Statistics, 2017c. *Government of Yukon Socio-economic web portal. Carmacks public school enrollment*. Accessed on February 13, 2017 from http://sewp.gov.yk.ca/data?regionId=YK.CM&subjectId=EDUC&groupId=EDUC.COMPULS&dataId=YBS_SCHOOL_ENROLMENT&tab=region
- Government of Yukon and Statistics Canada. 2017. *First Nation Community Profiles: Little Salmon/Carmacks First Nation-Community of Carmacks*. Accessed on February 12, 2017 from http://www.lscfn.ca/http://www.eco.gov.yk.ca/pdf/FN_Com_Profile_LSCFN_LH_Ed.pdf
- Hegmann, G., Cocklin, C., Creasey, R., Dupuis, S., Kennedy, A., Kingsley, L., Ross, W., Spaling, H. and Stalker, D. 1999. *Cumulative Effects Assessment Practitioners Guide*. Prepared by AXYS Environmental Consulting Ltd. and the CEA Working Group for the Canadian Environmental Assessment Agency, Hull, Quebec.
- Kischuck, P. 2009. *Yukon Socio-economic Data Gap Analysis*. Prepared by Vector Research and Submitted to Yukon Bureau of Statistics and Yukon Environmental and Socio-economic Assessment and Review Board.

- Lorax Environmental Services Ltd. 2011. *Mount Nansen Options for Closure*. Vancouver, British Columbia.
- LSCFN (Little Salmon/Carmacks First Nation). 2007. *Little Salmon/Carmacks integrated community sustainability plan 2007*.
- LSCFN (Little Salmon/Carmacks First Nation). 2015. *Little Salmon/Carmacks First Nation Constitution. 2015 Consolidated Edition*. Carmacks, Yukon.
- LSCFN (Little Salmon/Carmacks First Nation). 2017. *Little Salmon/Carmacks First Nation*. Accessed on February 12, 2017 from <http://www.lscfn.ca/>.
- Pearse, T. and Weinstein, M. 1988. *Opening the land. A study of the impacts of the Casino Trail on the Northern Tutchone of Pelly Crossing and Carmacks, Yukon Territory*.
- Precision Research/Cambio Consulting. 2010. *Capacity Development Plan: Mount Nansen Mine Closure*. Report prepared for Little Salmon Carmacks First Nation.
- Selkirk First Nation, Government of Yukon, and Capstone Mining Corp. - Minto Mine. 2013. *Minto Mine Socio-Economic Monitoring Program Framework: Components, Information and Program Requirements*. Accessed on March 6, 2017 from http://www.emr.gov.yk.ca/mining/pdf/mml_minto_socioeconomic_monitoring_program.pdf
- SENES Consultants. 2003. *Human health screening level risk assessment for Mount Nansen mine site*. Report prepared for Department of Indian Affairs and Northern Development.
- SENES Consultants. 2009. *Human health and ecological risk assessment for the Mount Nansen mine*. Report prepared for Yukon Government, Assessment and Abandoned Mines Branch. Richmond Hill, Ontario.
- Staples, L. and Poushinsky, N. 1997. *Determining the Impact of the Tulsequah Chief Mine Project on the Traditional Land use of the Taku River Tlingit First Nation*. A report prepared for the Environmental Assessment Office, Province of British Columbia.
- Statistics Canada. 2007. *Carmacks, Yukon Territory (Code6001012) (table). 2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Accessed on February 13, 2017 from <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>
- Usher, P.J. and Staples, W.L. 1988. *Subsistence in the Yukon*. A report prepared for the Council for Yukon Indians. Canada-Yukon Economic Development Agreement.
- Village of Carmacks. 2013. *Official Community Plan 2013*. Carmacks, Yukon.

Wein, E.E. and Freeman, M.M.R. 1995. *Frequency of Traditional Food Use by Three Yukon First Nations Living in Four Communities in Arctic*, Vol. 48, No.2 (June 1995).

Weinstein, M. 1997. *Getting to Use in Traditional Use Studies*. A paper presented to the Society for Applied Anthropology Annual Meeting, March 4-9, 1997. Seattle, Washington.

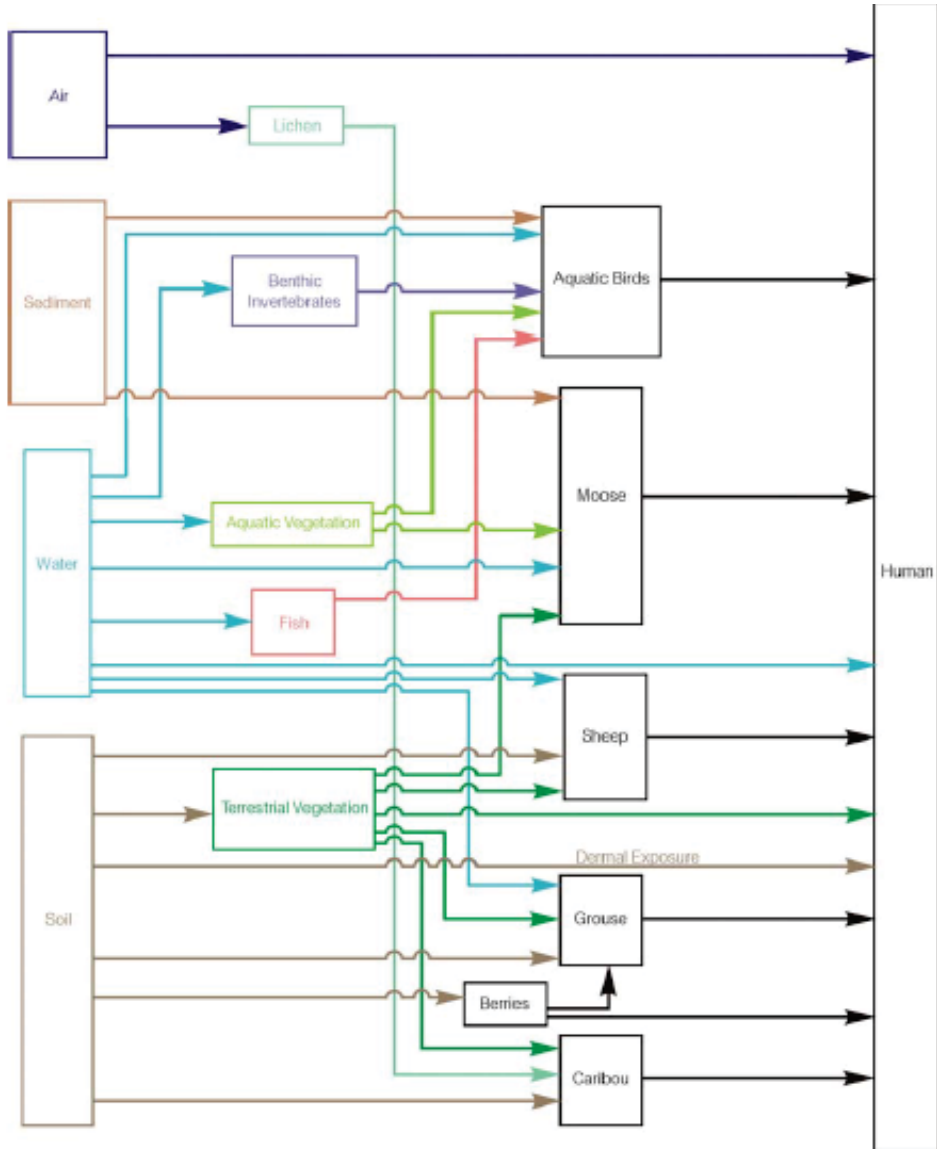
Appendix 1: Valued Components (VCs)

VCs	Indicators	Admin / literature	Interviews
Food security	Relative satisfaction with availability and quality of traditional foods		x
Employment, income and training	Employment rate/unemployment rate/participation rates/# social assistance cases	x	
	Capacity to participate in training, employment and business opportunities	x	x
Connection to land and water	Proportion of families participating in traditional activities	x	x
	Relative level of traditional use	x	x
	Spatial distribution of traditional activities	x	x
	Areas of disturbance & displacement (encroachments/incremental loss, cumulative effects)	x	x
	Access to resources	x	x
Human health	Confidence in quality and supply of drinking water	x	x
	Availability of drinking water sources	x	x
	Community well-being index	x	
Sustainability and Legacy	Confidence in site governance and programs		x
	Perceived state of the environment and legacy		x
	Perceived socio-economic legacy		x

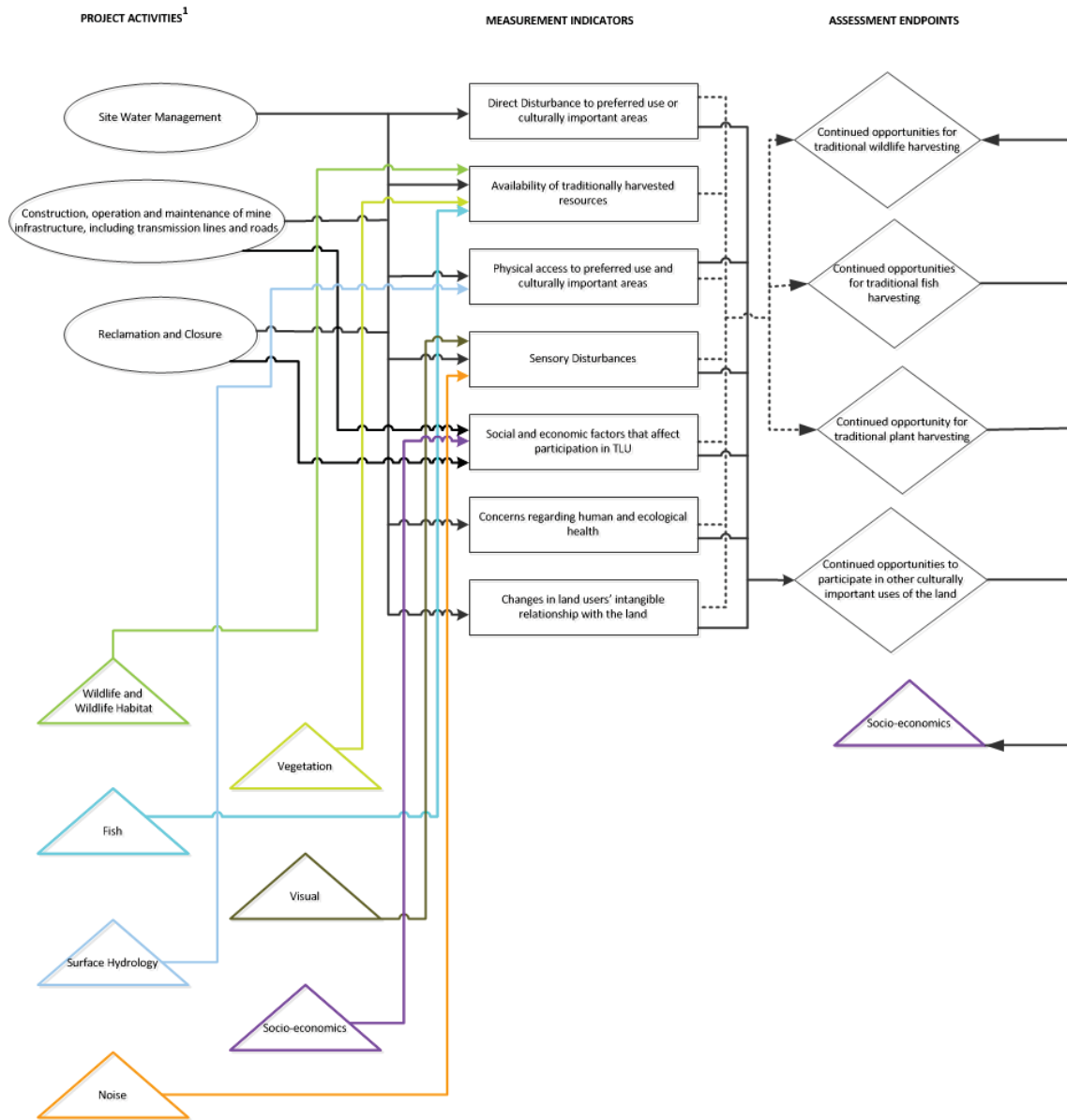
Appendix 2: Effects pathways

Exposure pathways for humans

(from SENES Consultants, 2003)



Potential effects on traditional land use
 (from Dominion Diamond, 2014)



Appendix 3: Interview questionnaire

Mount Nansen Care and Maintenance Project
Little Salmon Carmacks First Nations Data Collection Protocol

QUESTIONNAIRE

1. What are your names and birth dates?

PART 1 – Land Use (maps)

2. Since the mine closed (1999), where are the places that LSCFN citizens have routinely stayed out overnight in cabins or bush camps while hunting, trapping or snaring animals and birds, fishing, or travelling in the local and regional study area.

All sites are to be mapped only as points, not lines or polygons. These are places that are *typically and routinely* visited, if not frequently.

CA or BC •

I'm now going to ask questions about where LSCFN citizens routinely killed, trapped, or snared different kinds of animals and birds, and fished since the mine closed. "Trap" means setting traps or snares for the purpose of capturing and/or killing furbearers. "Snare" means setting snares for the purpose of capturing snowshoe hare. "Fish" means setting nets, trawling hook and line behind boats, casting with spinning rods, fly fishing, ice fishing through holes in the ice, etc.

I'm going to start by asking you about the large animals you or other LSCFN citizens killed since the mine closed in the study area.

3. Did you or other LSCFN citizens ever kill CARIBOU, MOOSE or SHEEP? Show some places.

CR - • or ~ or O

MO - • or ~ or O

SH - • or ~ or O

4. Did you or other LSCFN citizens ever kill any other big game? Show some places.

XX - • or ~ or O

I'm now going to ask you about the small game that you or other LSCFN citizens harvested since the mine closed in the study area.

5. Did you or other LSCFN citizens ever shoot or snare rabbit (snowshoe hare), grouse, squirrels, gophers, whistler/marmot or other small game. Show some places.

SG - • or ~ or O

I'm now going to ask you about the waterfowl that you or other LSCFN citizens harvested since the mine closed in the study area.

6. Did you or others ever shoot ducks, geese or other waterfowl? Show some places.

WF - • or ~ or O

I'm now going to ask you about furbearers that you or other LSCFN citizens have harvested since the mine closed in the study area.

7. Did you or other LSCFN citizens ever shoot, trap or snare fur bearers (fox, wolverine, beaver, lynx, wolf, coyote, muskrat, mink or marten)? Show some places.

FB - •

I am now going to ask you about the fish that you and other LSCFN citizens harvested since the mine closed in the study area.

8. Did you or others fish for arctic grayling, lingcod (burbot) or other fish? Show some places.

XF - •

I'm now going to ask questions about where you and other LSCFN citizens collected different kinds of plants and berries since the mine closed in the study area.

9. Did you or other LSCFN citizens collect berries such as raspberries, blueberries, or cranberries? Show some spots.

BR • or ~ or O

10. Did you collect medicinal plants (includes balsam bark, poplar bark, stoneberries, alderbark, mossberry tea, spruce bark, chaga, birch bark, spruce gum, red willow, mountain moss, sage, Labrador tea, pitch, rosehips, red alder, spruce tips)?

MP • or ~ or O

I'm now going to ask questions about a number of special sites and cultural sites.

11. If you know of any burial sites in the area, show the spots.

BU • or ~ or O

12. Do you know of other special places on the land or water? Show the spots. What kind of place is each site? Why is each site special?

Special places include gathering areas, valued fresh water sources, spiritual and sacred places to human and non-human beings.

XC • or ~ or O

*I'm going to ask questions about the routes LSCFN citizens take **routinely** when travelling to cabins, fishing locations, when hunting or trapping animals, going fishing, or collecting plants and berries, etc. since the mine has closed.*

Travel routes are drawn with lines only. Be sure to use different colours to clearly differentiate them. Avoided areas are represented as polygons.

13. Did you and other LSCFN citizens take some travel routes to go hunting, trapping, fishing, collecting berries, or to a cabin or camp by a snowmobile, dog team, car, truck, ATV, or quad? Show where.

TR ~

14. Did you or others travel by boat (with motor, canoe)? Show any BOAT TRAVEL routes. [*MAY NOT APPLY]**

BT ~

15. Are there traditional use areas that LSCFN citizens avoid? Show where and explain why.

AA O

PART 2 – Social Living Conditions (non-spatial)

16. Roughly what proportion of LSCFN families in the Yukon hunt, trap or fish or gather in the study area?

All or nearly all (over 75%) ___
Most (50-75%) ___
Some (25-49%) ___
A little (under 25%) ___
None ___

17. How does the proportion of LSCFN families in the Yukon hunting, trapping, fishing and gathering in the study area compare to other areas in the LSCFN traditional territory today?

Higher ___
Less ___
Same ___

18. What is the level of use of the local study area today for hunting, trapping, fishing and gathering compared to 1999 when the mine closed?

Higher ___
Less ___
Same ___

19. How satisfied are LSCFN citizens with the availability of traditional foods in the study area?

Very satisfied ___
Somewhat satisfied ___
Neutral/no opinion ___
Somewhat dissatisfied ___
Very dissatisfied ___
Why _____

20. How does the level of satisfaction of LSCFN citizens with the availability of traditional foods in the study area compare to 1999 when the mine closed?

Higher ___
Less ___
Same ___

Why _____

21. Over the next five years, do you think the availability of traditional foods in the study area is likely to increase, decrease or stay the same?

Increase ___
Decrease ___
Stay the same ___

22. How satisfied are LSCFN citizens with the quality of traditional foods in the study area?

Very satisfied ___
Somewhat satisfied ___
Neutral/no opinion ___
Somewhat dissatisfied ___
Very dissatisfied ___
Why _____

23. How does the level of satisfaction of LSCFN citizens with the quality of traditional foods in the study area compare to 1999 when the mine closed?

Higher ___
Less ___
Same ___

Why? _____

24. Over the next five years, do you think the amount of traditional foods you get from harvesting in the area is likely to increase, decrease or stay the same?

Increase ___
Decrease ___
Stay the same ___

25. Has the level of traffic on the Mount Nansen road increased, decreased or stayed the same since the mine closed?

Increased ___
Decreased ___
Stayed the same ___

Are there effects on LSCFN, and, if so, what are they?

26. Has the perceived level of industrial activity in the traditional territory increased, decreased or stayed the same since the close of the mine? If so, where has the pressure been the greatest?

Increased ___
Decreased ___
Stayed the same ___

Are there effects on LSCFN, and, if so, what are they?

27. What is the level of confidence held by LSCFN citizens in the quality and supply of drinking water in the local study area?

Very confident ___
Somewhat confident ___
Neutral/no opinion ___
Low confidence ___
No confidence ___

Why? _____

28. What is the capacity of LSCFN to participate in any training, employment and business opportunities associated with the mine's care and maintenance program?

29. What is the level of confidence held by LSCFNFN citizens in the governance and management of the site (program activities, monitoring programs, information sharing, communications, participation, etc.) since 1999?

- Very confident __
- Somewhat confident __
- Neutral/no opinion __
- Low confidence __
- No confidence __

Why _____

30. How is the management of the site perceived to affect the current state of the environment and underlying socio-ecological systems?

31. How is the management of the site perceived to affect the site's socio-economic legacy for future generations of LSCFNFN citizens?

Codes and Questionnaire

CODES

CA Cabin
BC Bush-camp
AA Avoidance areas

Large game animals

CR Caribou
MO Moose
SH Sheep
XX Other big game

Small game animals

SG Grouse, snowshoe hare, squirrel, gophers, other small game

Waterfowl

WF Ducks, geese, other waterfowl

Fur bearers

FB Fur bearers (wolf, coyote, lynx, fox, wolverine, mink, marten or muskrat)

Fish

XF Arctic grayling, slimy sculpin, burbot (lingcod), other fish

Plants and Berries

BR Berries (blackberry, blueberry, cranberry, raspberry)
MP Medicinal plants (balsam bark, poplar bark, stoneberries, alderbark, mossberry tea, spruce bark, chaga, birch bark, spruce gum, red willow, mountain moss, sage, Labrador tea, pitch, rosehips, red alder, spruce tips)
OP Other plants (spruce bark, willow, wild rhubarb, etc).

Bu Burials
BI Birthplaces
XC Special places

MAPPED FEATURES

Mapped features can be marked as points, lines or polygons depending on which part of the questionnaire you're working with.

Type of Information	Point, Line or Polygon
1) CABINS AND BUSH CAMPS	Point
2) ANIMAL, BIRD HUNTING AND FISHING PLACES	Polygon, Line or Point
3) PLANT COLLECTING LOCATIONS	Point, Line or Polygon
4) TRAVEL ROUTES	Line
5) SPECIAL AND CULTURAL SITES	Line, Point or Polygon

Each code appears with one of the following two map features:

Points Only = • only

Points or Lines or Polygons = • or ~ or O

Appendix 4: List of Little Salmon Carmacks First Nation individuals interviewed or consulted

Questionnaire interviewees

Shirley Bellmore
Benson Billy
Bill Johnny
Jordan Mullet
Johnny Sam
Allen Skookum
Mike Vance
Bruce Wheeler

Individuals consulted

Elizabeth Hawkins Skookum (Heritage Manager)
Fred Green (GIS/Data Technician)

Appendix 5: Communication log

Date	type	from	to	object
31-Jan	meeting			orientation meeting with AAM, NW and Ecofor
31-Jan	email	Cat	Fred	schedule a meeting on Feb 3
31-Jan	email	Cat	Bill	schedule meeting during the week
01-Feb	email	Fred	Cat	confirmation of meeting on Feb 3 at 8:30 am
01-Feb	phone	Bill	Cat	confirmation of meeting on Feb 3 afternoon
01-Feb	person/email/phone	Cat	Kirsten	obtain map from EMR to use at meeting in Carmacks. Get reports on wildlife study.
02-Feb	email	Cat	Fred	sent proposed workplan
02-Feb	meeting			meeting with Kirsten, Emilie Hamm and Patricia Randell on C&M project to answer my questions
02-Feb	email	Cat	Ecofor	ask for their workplan, VCs, study area and TOC when ready
02-Feb	email	Cat	Kirsten	ask for EDI report
02-Feb	email	Kirsten	Cat	sent Ecofor's contact info and asked who will be at the workshop
04-Feb	email	Cat	AAM, Ecofor, LSC	sent workplan as approved by LSC
06-Feb	email	Cat	Kirsten	answer question on workshop attendance, ask for more info on water treatment plant
06-Feb	email	Cat	Bill	ask if report on capacity development can be shared
06-Feb	email	Bill	Cat	answer regarding capacity development report
06-Feb	email	Cat	Fred	get copy of Ruth's report
07-Feb	email	Cat	Fred	send list of topics for EC report, study area and requested comments on these list of people to interview
07-Feb	email	Kirsten	Cat	sent report by EDI, said info on waterplan will follow
08-Feb	email	Cat	Fred, Bill	sent VC, study area, and asked for interview schedule
08-Feb	email	Liz	Cat	sent copy of report by Gotthardt as per my request
09-Feb	email	Cat	Fred	sent draft questionnaire for comments
09-Feb	email	Fred	Cat	accepted VC and table of contents, asked me to ask Liz for list of people to interview
09-Feb	email	Cat	Liz	asked to book people for interviews
09-Feb	email	Liz	Cat	said because of death in community, not possible to do interviews next week
09-Feb	email	Cat	Kirsten	follow-up to get shapefiles
10-Feb	email	Cat	Kirsten	sent draft TOC
10-Feb	email	Cat	Ecofor	sent draft TOC and asked if possible to get their VCs, workplan, TOC
10-Feb	email	Ecofor	Cat	explained their workplan and said they will send us their VCs next week
13-Feb	email	Lindsay	Fred and Liz	request interview schedule
13-Feb	email	Kirsten	Cat, Lindsay	sent ELR'S VCs
13-Feb	email	Cat	Bill, Kisten	Asked for copy of Lorax report
13-Feb	email	Kirsten	Cat	approved our worplan, asked about our interview schedule and questionnaire

13-Feb	email	Cat	Kirsten	explained that interviews may be delayed because of death in community but that questionnaire is almost ready
13-Feb	email	Lindsay	Kirsten	update on project and request for funding if we do interviews with non staff LSC citizens
13-Feb	email	Kirsten	Lindsay	money could likely be obtained for interviews once we have a list of people
14-Feb	email	Bill	Cat	responded to my request for report, will try to put on dropbox soon
14-Feb	email	Cat	Environment	requested harvest data
14-Feb	email	Lindsay	Kirsten	update on situation and delays due to funeral in village and office closed
15-Feb	email	YTG-Environment	Cat	request data will be sent next week
15-Feb	email	Jen	Cat	Ecofor sent their VCs and availability in case we need to meet
10-Feb	email	Emilie	Cat	sent road shapefiles
09-Feb	email	Emilie	Cat	sent watershed shapefiles
03-Feb	email	Bill	Cat	sent reports Capacity development, closure options analysis, HHERA meeting outcomes
02-Feb	email	EMR	Cat	sent map of TT with mine site and watersheds
01-Feb	email	Kirsten	Cat	sent figures of watersheds, ELR report-aquatic existing conditions
15-Feb	email	Kirsten	Cat	sent a draft description of the water treatment plant and will give me the Lorax report on a data stick to be picked-up. Asked about our interview questionnaire and list of people to interview.
15-Feb	email	Cat	Kirsten	answered that our questionnaire is being finalized but we are still waiting for LSC input and list of people to interview, but were unable to reach them as their office is closed.
15-Feb	email	Lindsay	Kirsten	confirmed that VCs and questionnaire will be sent to AAM tomorrow
16-Feb	email	Jen	Cat	asking if the workshop date might change since interviews are postponed
16-Feb	email	Cat	Jen	answered that workshop date will remain the same, but format may change. Agenda to be distributed shortly.
16-Feb	email	Lindsay	Bill, Fred	VCs and questionnaire, update on what needs to be done next week and workshop, reminder that we need to do interviews next week
16-Feb	email	Lindsay	Kirsten, Ecofor	VCs and questionnaire sent
16-Feb	email	Bill	Cat, Fred	comments on VCs
17-Feb	email	Lindsay	Ecofor, Kirsten, Bill, Fred	sent revised questionnaire
17-Feb	email	Lindsay	Kirsten	Sent comments on ELR'S VCs
20-Feb	email	Bill	Cat, Lindsay, Fred, Ecofor, AAM	comments on questionnaire
20-Feb	email	Cat	Fred	asking if they are back in the office and about doing interviews this week
20-Feb	email	Fred	Cat	said to coordinate interviews with Liz

20-Feb	email	Cat	Liz, Fred, Lindsay	asked about the possibility of doing interviews this week
20-Feb	email	Lindsay	AAM, Ecofor, LSC, Bill, Cat	sent revised questionnaire
20-Feb	phone	Cat	Liz	organize interview schedule, confirm that Cat will be coming to Carmacks on Tuesday for 2 or 3 days
20-Feb	email	Lindsay	AAM	confirm that we can pay for interviews and get reimbursed by YTG
21-Feb	email	Kirsten	Cat, Lindsay	asked for a meeting on Thursday to discuss what we are hearing in the interview and prepare their presentation at the workshop
21-Feb	email	Lindsay	Kirsten	answered Kirsten request for meeting, update on what we are doing, agenda to come tomorrow
20-Feb	email	Lindsay	Kirsten, Fred, Cat	asked to confirm we can get money for interviews
20-Feb	email	Kirsten	Lindsay	confirmed that we can get money for interviews. LSC to pay and YTG to refund.
22-Feb	email	Jen	Cat	asking about the workshop: time, location
22-Feb	email	Cat	Jen	location of workshop: LSC office, time and agenda to come soon
22-Feb	email	Lindsay	Kirsten, Ecofor, Bill, Fred, Cat	will circulate agenda tomorrow, meeting at 10 on Feb 27
22-Feb	email	Lindsay	Bill, Cat	general approach for workshop and request to present environmental VCs
23-Feb	meeting	Lindsay	AAM	go over workshop agenda, VCs, update on interviews
23-Feb	email	Lindsay	Kirsten, Ecofor, Bill, Fred, Cat	sent worksho agenda
23-Feb	email	YTG-Environment	Cat	received harvest data for GMS 526
21-23 Feb	meeting	Cat	LSC	interviews in the community
27-Feb	Meeting			workshop in Carmacks with LSC, AAM, Bill Slater, Ecofor, Lindsay, Cat
2 mar	email	Cat	Kirsten	Asked about 2 references (draft reports)
6 mar	Email	Kirsten	Cat	Answered regarding reference
6 mar	Email	Cat	AAM, LSC	Sent draft report

Appendix 6: Workshop summary

**Mount Nansen Care and Maintenance Program
LSCFN Socio-Economic Valued Components and Conditions
Technical Workshop
Carmacks, Yukon (February 27, 2017)**

Participants:

Lindsay Staples (North\West)
Catherine Pinard (North\West)
Fred Green (LSCFN)
Bill Slater (LSCFN)
Elizabeth Hawkins (LSCFN)
Kirsten Sylvestre (YG - AAM)
Emilie Hamm (YG-AAM)
Jen Herkes (Ecofor)

1. ELR Biophysical VCs and Baseline Report

Identified and included Biophysical VCs

surface water (quality and quantity) VC

- Lorax: few effects at the moment in Victoria Creek: measurable changes but nothing alarming; noticeable changes in water quality in Victoria Ck watershed: concerns associated with future flow and water quality resulting from cumulative effects from placer
- assumptions to date re Mt Nansen are project specific
- [note: Justin Straker: landscape ecologist: hydrology has been retained by LSC (Ryan MacDonald)]

aquatic ecosystem and fish VC

- consider: (a) as a treaty rights based VC; (b) water standard based VC (e.g. CCEM)
- affects treaty rights (LSCFN FA s. 14(5); s. 14(8) : rate of flow and seasonal rate of flow affecting settlement lands and LSCFN traditional use. The rights issue has been raised by SFN before the Water Board in regard to the Minto Mine. Difference between “not affecting water” and “protecting water”
- no observable effects according to science: no observable effects on fish in Victoria Ck, but effects on other components; no fish in Dome Ck:

wildlife and wildlife habitat

- focus is on transportation and access and associated disturbance
- no observable effects
- road is now maintained year-round because of the care and maintenance program and presents an effects pathway

Identified and excluded biophysical VCs

contamination of soil and vegetation

- contaminants pathways for vegetation and wildlife not considered for purposes of C&M program
- Bill raised concern in written comments that the wildlife assessment doesn't address this pathway: may or may not be considered by ELR
- ground water not addressed: there will be an effect on surface but no links to groundwater at this time

noise

- not a stressor with the C&M program

climate change

- not considered at this time as a driver of project effects or as a condition affected by the project
- longer term consideration in the remediation program

2. Identified socio-economic VCs

Food security

- this is an important and under-recognized VC in environmental assessments
- in-migration of buffalo from Aishihik disbursed moose from historic hunting areas; however, now moose are moving back into the area, improving accessibility
- elk have moved into the area as well. However, there is no LSCFN harvest or dietary preference for either bison or elk (or deer)
- elk are migrating more, some leave the herd and move on their own
- Aishihik caribou herd and Klazka caribou herd overlap in this area in the winter: Klaza occupy the area year-round
- historically caribou have been eaten as a dry meat: "can live-off moose; can't live off caribou."
- more wolves, not only in Nansen area
- people don't pick berries near the mine anymore
- sharing agreements with other FNs also assist with food security and scarcity

Connection to land and water

- the re-settlement and concentration of LSC people in Carmacks occurred in response to early mine development. This concentration of people had immediate impacts on the availability of and access to wildlife in the area (increased pressure)
- once roads are built, they are there forever
- confirmed as an important VC

Human health

- may be able to access some information from Ed Schultz
- availability of safe drinking water and public confidence in drinking water sources could be improved with the restoration of LSC access to the artesian well tap

Governance

- to address LSC confidence in site management a new form of government to government engagement is needed as well as improved communications with the public. Consider an intergovernmental accord or agreement for a shared management structure while respecting the jurisdictional authorities of each party. The Minto Mine Socio-Economic Monitoring Program Framework and tri-partite working group provide a potential model. Shared management may be preferable to contribution agreements that assign sole responsibilities (and burdens) to a single party and concerns about capacity (eg. over the last year, LSC has struggled with some capacity and organizational issues that have compromised their ability to carry-out some activities under the current contribution agreement with YG/AAM).
- the previous site monitor (Bruce Wheeler) was a trusted local resident who was always available to formally and informally provide information about the C&M program and to better accommodate local visitors to the site and provide a safer-support to travellers in the area. Unfortunately, revised contracting requirements, disqualified them from continuing. Today, communication with site monitors is very poor and LSC public awareness of C&M an ongoing and widespread concern.
- LSC raised the concern that the sale of the property for remediation purposes could seriously compromise long-term LSCFN participation in site remediation, both from a management perspective as well as with regard to employment and business opportunities at the site. These are matters that needed to be addressed as conditions of sale of the site.
- LSC has a deep attachment to its entire traditional territory and all that occur within it, day-in and day-out. This is an attachment that is often poorly understood by Outsiders. This special attachment needs to be recognized in the C&M program by YG and in the future remediation program by a third-party owner.