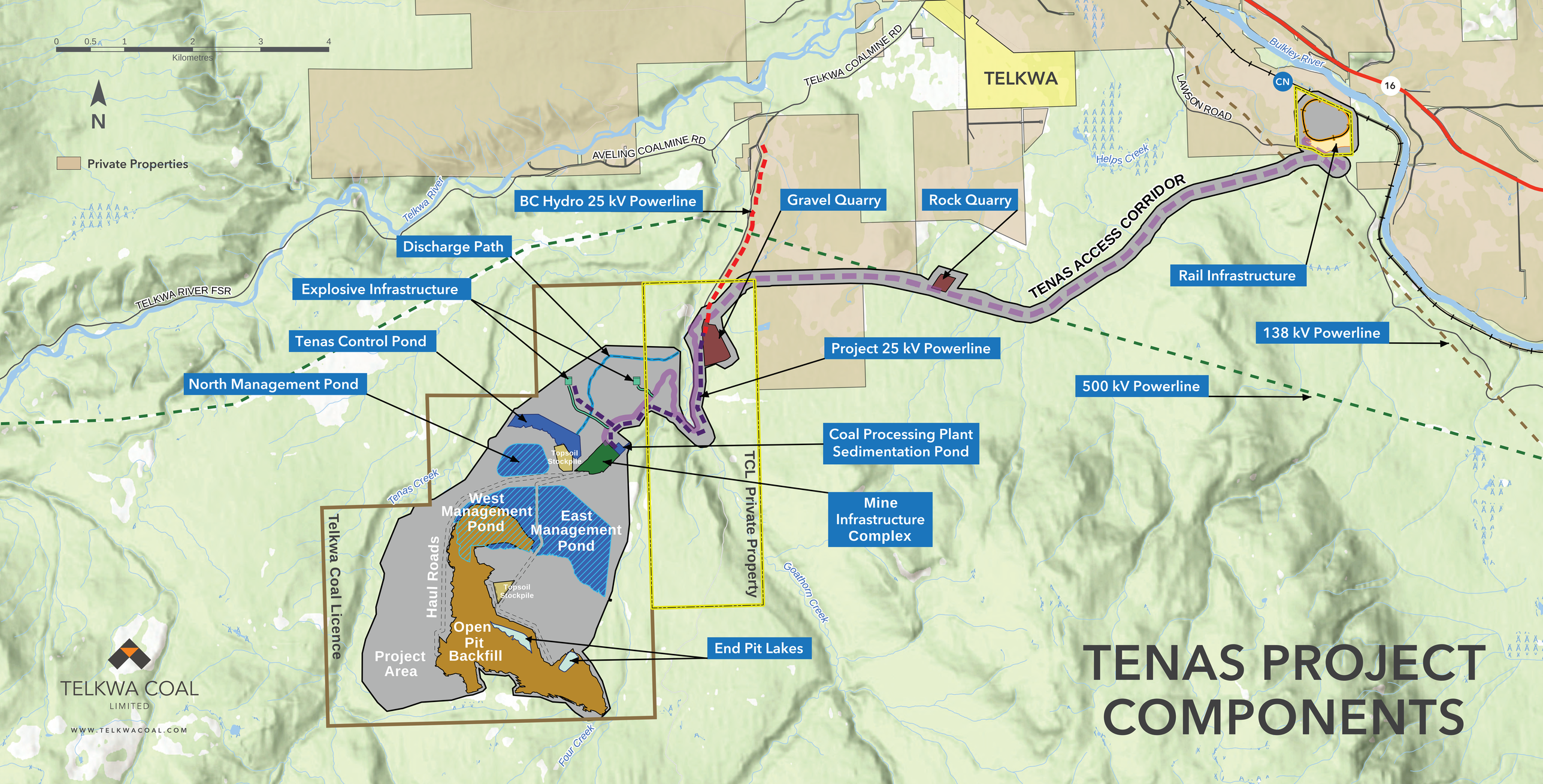
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Kilometres
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Private Properties
TELKWA
TELKWA COALMINE RD
AVELING COALMINE RD
TELKWA RIVER FSR
Telkwa River
Bulkley River
CN
16
LAWSON ROAD
Helps Creek
BC Hydro 25 kV Powerline
Gravel Quarry
Rock Quarry
TENAS ACCESS CORRIDOR
Rail Infrastructure
Discharge Path
Explosive Infrastructure
Tenas Control Pond
North Management Pond
Project 25 kV Powerline
138 kV Powerline
500 kV Powerline
Coal Processing Plant Sedimentation Pond
Mine Infrastructure Complex
End Pit Lakes
Tenas Creek
Goathorn Creek
Four Creek
Topsoil Stockpile
West Management Pond
East Management Pond
Haul Roads
Open Pit Backfill
Project Area
Telkwa Coal Licence
TCL Private Property
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TENAS PROJECT COMPONENTS

ATMOSPHERIC ENVIRONMENT – AIR QUALITY

TENAS PROJECT

Telkwa Coal Assessed the Potential Project-related Effects on the Atmospheric Environment Valued Component

Valued Component	Subcomponent	Potential Effects Assessed
Atmospheric Environment	Air Quality	Increase in Ambient Criteria Air Contaminants (CAC) Concentrations

- Air quality in the Local and Regional Study Areas are affected by natural air emissions (e.g., wind-blown dust), residential emissions (e.g., wood burning), forestry activity, vehicle traffic, and road dust.

Particulate matter sampler.

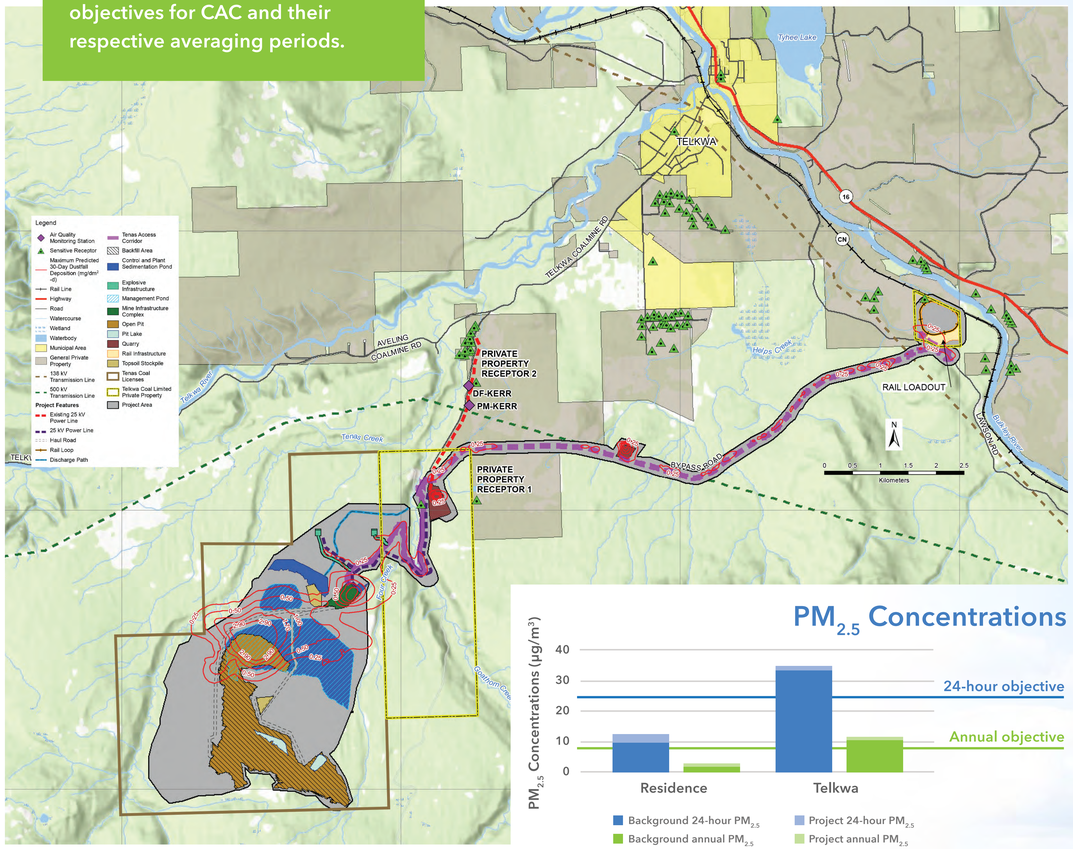
Particulate Matter (PM) represents the main air quality concern in the Local and Regional Study Areas, with existing PM concentrations within populated areas exceeding the relevant BC air quality objectives up to 8% of the time.

Dustfall deposition rates near unpaved roads also tend to be high, occasionally exceeding the rescinded BC provincial objectives for existing conditions. Dustfall deposition rates in more remote parts of the study areas tend to be lower.

Water truck managing dust on roads.

Project contribution to ambient CAC concentrations are measurable but are anticipated to remain below relevant BC ambient air quality objectives for CAC and their respective averaging periods.

Designated Receptors and Predicted Project Dustfall Contours



$PM_{2.5}$ Concentrations

Example Mitigation Measures

- Build, maintain, and use the Tenas Access Corridor (TAC) for hauling processed coal to the Rail Infrastructure.
- Use dust suppression agents on rail cars.
- Cover super B-train trucks when hauling processed coal from Coal Processing Plant to Rail Infrastructure.
- Use water and chemical agents on the TAC, and Minesite service and haulroads.
- Use best management blasting techniques.
- Implement a fleet maintenance program to support optimal operation of vehicles and equipment.
- Fund a program to assist personnel to replace their wood or oil burning stoves with alternative lower emission or higher efficiency heating systems.

Residual Effects

- Changes in ambient CAC concentrations due to the Project will not result in any new exceedances of the BC ambient air quality objectives.

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AQUATIC RESOURCES

TENAS PROJECT

Telkwa Coal Assessed the Potential Project-related Effects on the Aquatic Resources Valued Component

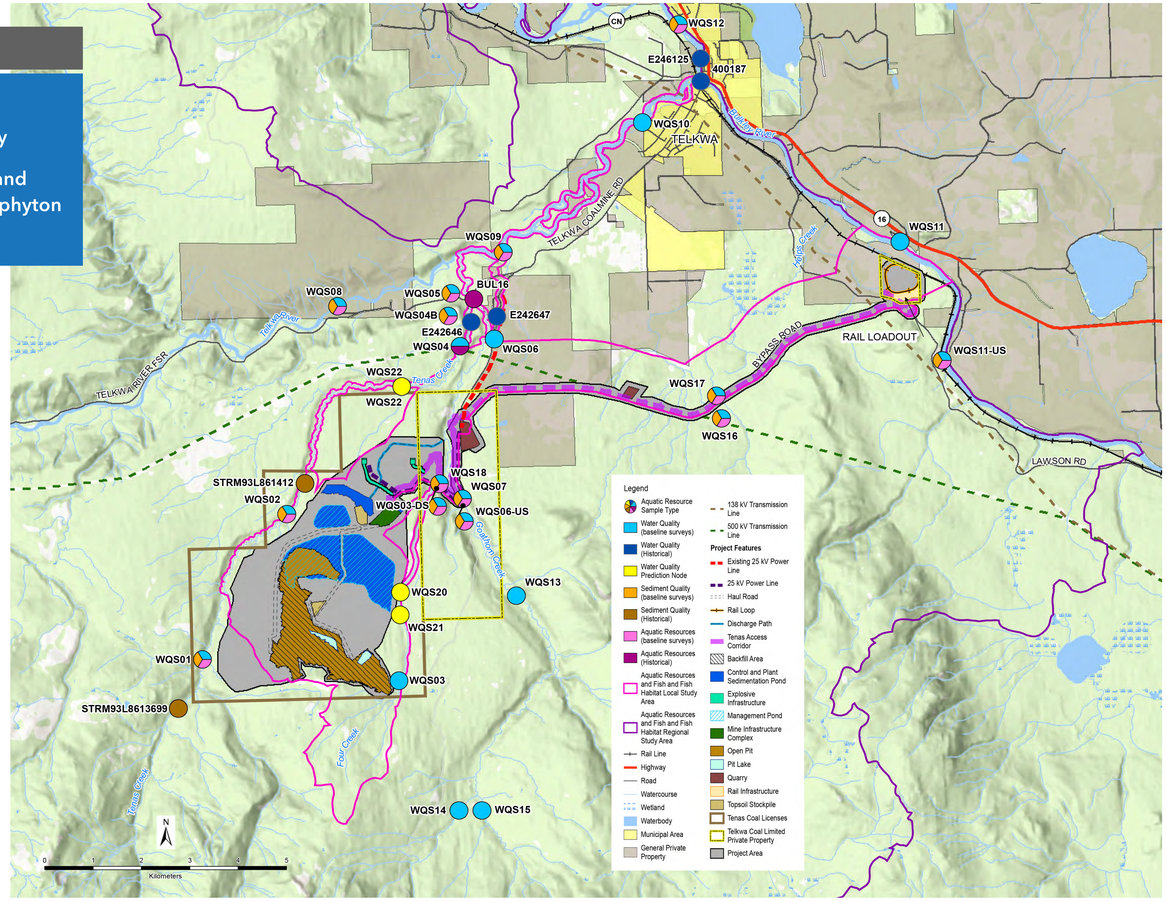
Valued Component	Potential Effects Assessed
Aquatic Resources	• Changes in Water Quality • Changes in Sediment Quality • Changes in the Abundance and Community Structure of Periphyton and Benthic Invertebrates

Baseline programs were conducted between 2017–2020:

- Periphyton sampling
- Benthic invertebrate sampling
- Sediment sampling

- Periphyton biomass was higher in the larger rivers than the smaller tributary creeks.
- Periphyton communities were dominated by either Bacillariophyceae (diatoms) or Cyanophyceae (blue-green algae).
- Invasive Didymosphenia ("rock snot"), identified in Tenas Creek, the Telkwa River, and the Bulkley River.
- Benthic invertebrate abundance displayed high temporal and spatial variability.
- Benthic invertebrate abundances were generally highest in the Bulkley River, and lowest in Four Creek.
- Sediment metal concentrations varied across Project Area streams.
- Sediment arsenic, iron, manganese, and nickel concentrations appear to be elevated in the Project Area at all sites, including upstream of the Project.

Aquatic Resources Sampling Locations, 2017 - 2020



Example Mitigation Measures

- Use overburden bentonite liners for management ponds to reduce the amount of groundwater seepage and potential effects on surface and groundwater quality.
- Sedimentation and control ponds will have sufficient storage capacity for 1 in 10-year storm events and will be designed to withstand a 1 in 200-year storm event; total suspended solids (TSS) and/or turbidity will be monitored prior to release.
- Monitor and control water discharges from Tenas Control Pond to a tributary of Goathorn Creek based on downstream water flow rates and water quality to meet in-stream guidelines and flow requirements.
- Spill prevention and response measures will be implemented during vehicle and equipment travel/operations.
- Sediment and erosion control measures will be implemented.

Residual Effects

- The residual effect is not expected to alter the integrity of the Aquatic Resources Valued Component within the Regional Study Area beyond an acceptable level.

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ACID ROCK DRAINAGE (ARD)

TENAS PROJECT

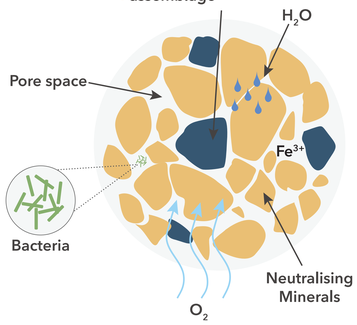
Acid Rock Drainage (ARD) Refers to the Outflow of Acidic Water from Rock

This is a natural chemical oxidation reaction which occurs when sulphide minerals (such as pyrite) are exposed to air and water where these minerals release sulphuric acid and metal oxides into watercourses downstream.

Bedrock buried in the Earth is chemically stable as it is not exposed to air, but when it becomes exposed to air and water the rock becomes destabilized through chemical and physical changes.

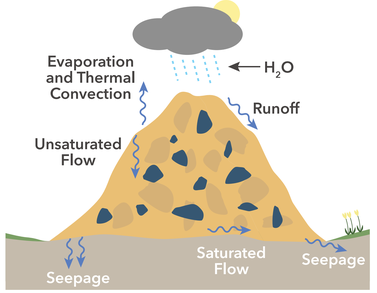
Sulphide Minerals

- type of mineral
- surface area
- crystallinity
- morphology
- composition
- assemblage

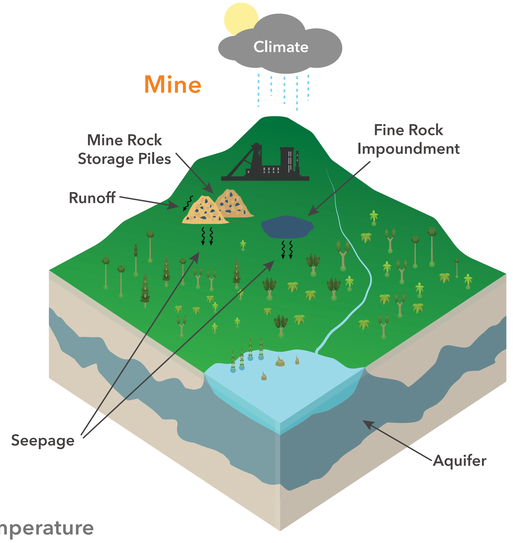


pH, temperature, particle size, bacteria

Mine Material



Mine



pH, temperature

Factors that Affect Oxidation Rate

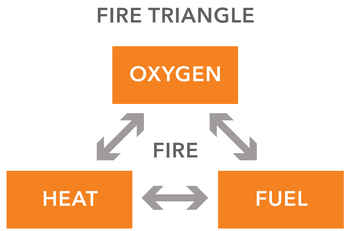
Factors that Modify Mine Dainage

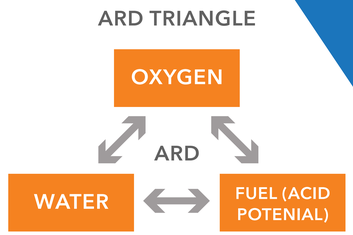
While these processes occur naturally, exposing and physically disturbing sulphide-bearing rock can accelerate ARD generation.

When mining begins bedrock is primarily undisturbed and unweathered, with weathering and oxidation beginning as mining exposes open pit walls and places non-economic materials into storage piles, backfill, or embankments and buttresses..

The components of the ARD reaction can be thought of in the same manner as the combustion reaction for fire, in that almost the same three inputs are required for the ARD reaction to occur.

Much like the fire triangle, the ARD triangle shows the reaction can be prevented if one of the inputs is removed.





- In advance of, and during mining, TCL proposes to progressively construct three management ponds for the permanent submersion of PAG material.
- PAG material will be submerged under at least 2 m of water once the management pond has met its PAG material storage requirements. During interim period, PAG materials are submerged under 1 meter of water within an average of 6 months but no longer than 12 months after placement.
- The North Management Pond will be completed first, followed by the East Management Pond and finally the West Management Pond.
- A layer of non-PAG rock will be placed on top of the submerged PAG material below the active water level of the respective management pond, followed by a layer of overburden and reclamation materials (surface soils) to create a dry landform above water, similar to pre-Project development.

The most effective approach for mitigating the effects of ARD is avoidance, which can be accomplished by proactive identification and segregation of Potentially Acid Generating (PAG) rock for management.

TCL has developed a Metal Leaching /Acid Rock Drainage Management Plan (ML/ARDMP) to address the management of of potential acid generating materials, and the plan will be implemented for all Project phases.

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AVIAN SPECIES

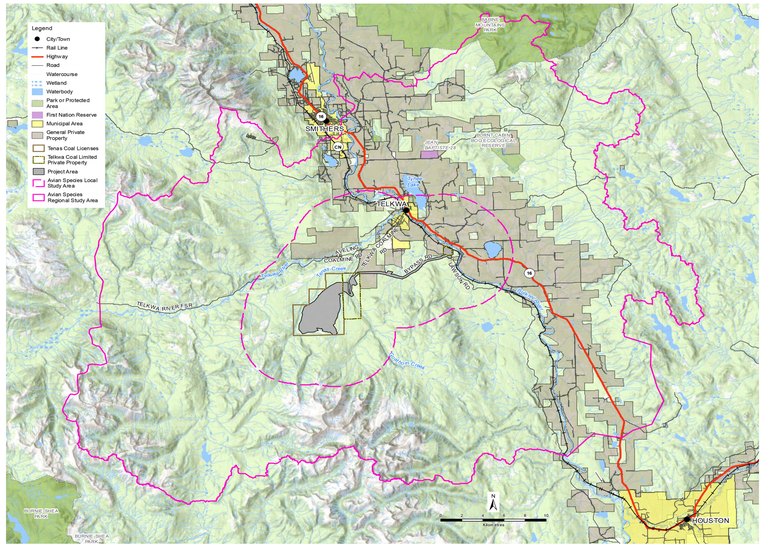
TENAS PROJECT

Telkwa Coal Assessed the Potential Project-related Effects on the Avian Species Valued Component

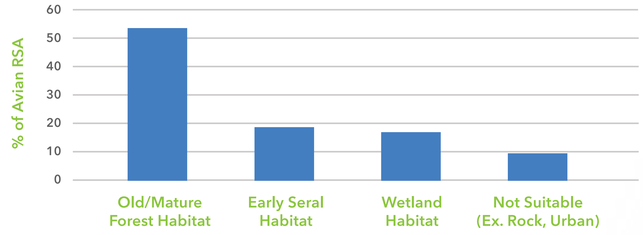
Valued Component	Subcomponent	Potential Effects Assessed
Avian Species	Migratory Breeding Birds, Listed Birds Species, Raptors	• Alteration and/or loss of habitat • Change in mortality • Change in movement patterns

A program of field surveys was designed and conducted between 2017-2019

- Avian Species Regional Study Area (RSA) provides a variety of aquatic and terrestrial habitats for avian species.
- Elevation range is narrower within the Avian Species Local Study Area (LSA) and Project Area which limits the diversity of available avian species habitats compared to the RSA.



Habitat Suitability Modelling Results for the Avian RSA



Example of mature forest habitat interspersed with regenerating cutblocks in the Project Area

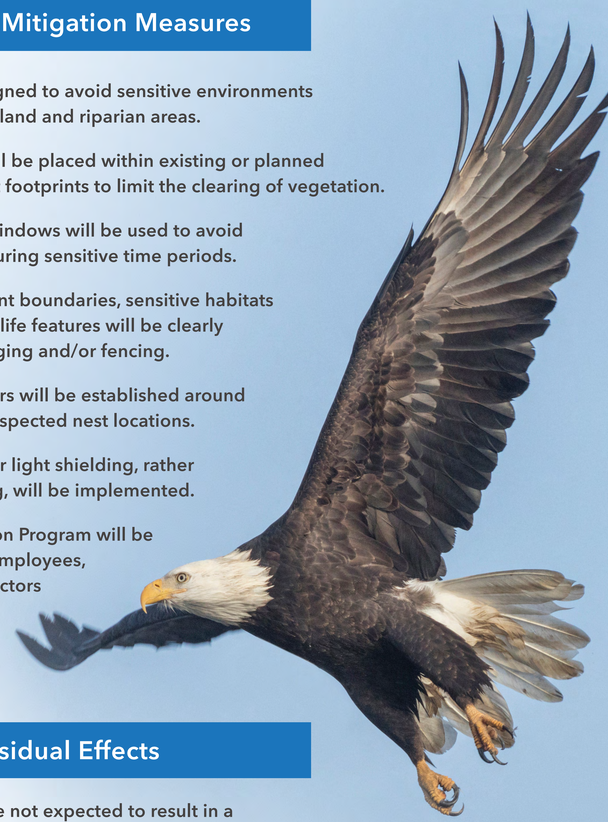
Example of open habitat interspersed with forest habitat along the Tenas Access Corridor

Seasonally flooded pond in a cultivated field near the Rail Infrastructure

- The Migratory Breeding Birds subcomponent is made up of landbirds and waterbirds. Landbirds present in the RSA include game birds (grouse, ptarmigan), woodpeckers, hummingbirds, and passerines (songbirds). Waterbirds (i.e., waterfowl, riverine birds, shorebirds, loons, grebes) are predominantly found in the lower elevations of the RSA.
- Of the avian species selected to inform the assessment of the Listed Bird Species subcomponent, barn swallow and olive-sided flycatcher were detected during baseline studies.
- Of the raptor species selected to inform the assessment of the Raptors subcomponent, northern goshawk was detected during baseline studies.

Example Mitigation Measures

- The Project is designed to avoid sensitive environments such as known wetland and riparian areas.
- Project features will be placed within existing or planned Project component footprints to limit the clearing of vegetation.
- Least-risk timing windows will be used to avoid Project activities during sensitive time periods.
- The Project footprint boundaries, sensitive habitats and identified wildlife features will be clearly delineated by flagging and/or fencing.
- "No Activity" buffers will be established around active nests and suspected nest locations.
- Directed lighting or light shielding, rather than broad lighting, will be implemented.
- A Wildlife Education Program will be implemented for employees, visitors, and contractors in accordance with the Wildlife Management Plan.



Residual Effects

- Residual effects are not expected to result in a change to the Avian Species Valued Component and are not expected to alter its population viability or persistence within the RSA beyond an acceptable level (i.e., the composition and population are expected to remain sustainable and available to contribute to biodiversity and ecosystem function).

TELKWA COAL LIMITED

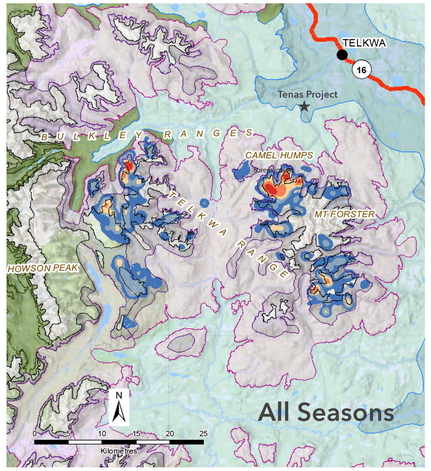
CARIBOU

Wildlife Valued Component – Caribou Subcomponent

- Telkwa Caribou Herd's range is currently centred on the Telkwa and the Howson mountain ranges.
- Telkwa Caribou used alpine habitat during all seasons and years more than expected based on habitat availability.
- The amount of disturbed habitat currently exceeds the 35% disturbance threshold in most of the Caribou study areas.
- Caribou were not detected within the Project Area during the two years of baseline studies.
- Based on movement analysis Telkwa Caribou are unlikely to use the Project Area and would move through the Wildlife Local Study Area infrequently.
- Telkwa Caribou mortality from predation is the main factor limiting herd growth.

The current state of the Telkwa Caribou Herd and their range was based on the most recent and relevant information available.

Seasonal Distribution of Telkwa Caribou Collar Locations, 1994-2018

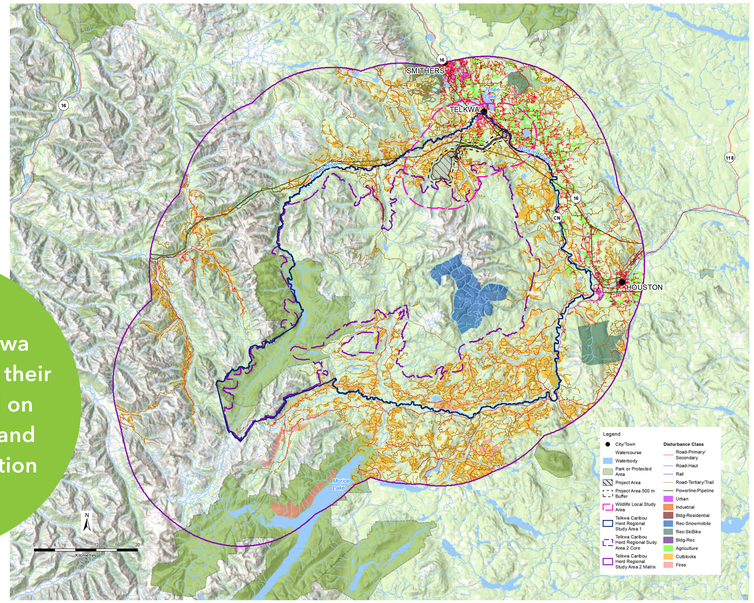


Legend

Location Density
- negligible
- very low
- low
- moderate
- high
- very high

BEC Group
- Alpine (BAFA, CMA)
- Subalpine (ESSF Parkland variants)
- ESSF Forested (ESSFmc, ESSFmk, ESSFwv)
- SBSmc2
- SBSdk
- Coastal (CWH, ICH, MH variants)
- City/Town
- Highway
- Watercourse
- Waterbody

Existing and Project-related Disturbance



- There is minimal overlap between the Project Area and recorded Caribou movements; therefore the Project will not act a barrier to Caribou movement.
- Direct mortality is unlikely from vehicle or train collisions because the Project Area does not overlap with habitat types selected by Caribou. Indirect mortality of Caribou could occur through:
  1) apparent competition with more productive alternative prey species, and
  2) facilitated predation by wolves.

Example Mitigation Measures

- Place Project features within existing or planned Project component footprints to limit the clearing of vegetation.
- Project footprint boundaries, sensitive habitats and identified wildlife features will be clearly delineated by flagging and/or fencing.
- A Wildlife Education Program will be implemented for employees, visitors, and contractors in accordance with the Wildlife Management Plan.
- If caribou are observed within the Project Area, the BC Regional Wildlife Biologist for the Skeena Region will be notified.
- Traffic and access control measures will be implemented.

Residual Effects

- The Project is expected to minimally add to existing levels of habitat disturbance and is not predicted to increase the herd's risk of being unable to sustain a regional subpopulation.
- While the small herd size makes the Telkwa Caribou more susceptible to changes in mortality, additional mortality attributable to the Project is unlikely due to the spatial separation of the current Caribou range and the Project Area.
- Changes in Caribou movement are unlikely due to the Project.

TELKWA COAL LIMITED

CLIMATE CHANGE

TENAS PROJECT

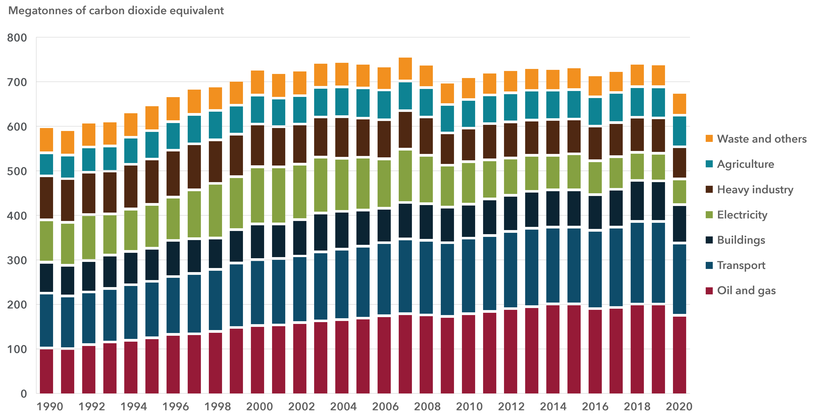
What is Climate Change?

- Climate change is a global concern, and its effects pose increasingly widespread risks to all industries and activities, including the mining sector.
- Climate change is caused by the increase in concentrations of greenhouse gases (GHGs) in the atmosphere. GHGs trap heat in the Earth's atmosphere, just as the glass of a greenhouse keeps warm air inside.

Greenhouse Gas (GHG) Emissions

- Canada's emissions in 2020 reached 672 million tonnes of carbon dioxide equivalent (Mt CO_2e), which made up 1.5% of global GHG emissions.
- Transportation (i.e., road, rail, air, marine traffic), and the oil and gas industry represented the largest contributors.
- In 2020 total GHG emissions in BC were estimated to be 61.7 Mt CO_2e, approximately 9% of the national total.

National GHG emissions by economic sector, 1990 to 2020

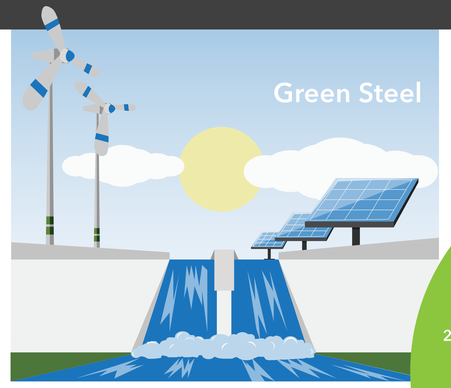


Tenas Project GHG Emissions

- Total annual GHG emissions associated with the Project are estimated to be 68,973 CO_2e (tonnes).
- The largest sources are fuel combustion in mobile mine equipment and fugitive releases of coalbed methane.
- Total Project-related GHG emissions are 0.10% of existing GHG emissions in BC and 0.010% of existing GHG emissions in Canada.

GHG Emission Intensities for Metallurgical Coal Mines

FACILITY	Equivalent Carbon Dioxide Emissions in metric tonnes (t CO_2e)	Processed Coal Production in millions of tonnes (Mt)	Green House Gas Intensity (metric tonne of equivalent carbon dioxide per 1000 tonnes of processed coal) (t CO_2e/kt coal)
Grassy Mountain Coal Mine (proposed)	362,000	3.8	95.3
Fording River Operations (operating)	912,713	10.0	91.3
Roman Coal Mine (proposed)	181,392	2.1	86.4
Line Creek Operations (operating)	301,525	3.5	86.2
Tenas Project (proposed)	68,973	0.8	83.9
Elkview Operations (operating)	654,000	7.9	82.8
Brule Mine (operating)	101,760	2.0	50.9



Requires A Massive Amount Of Renewable Energy

553,672 kilowatts

1Mt Green Steel

To displace 2020's 1.4 billion tonnes of blast furnace steel by green steel, roughly 1,367 Site C dams or 1.99 billion 400 watt solar panels, or 1.59 million 2 megawatt wind turbines would be required.

Steel demand is growing annually at 2% so by 2050 the above value will need to double to meet just blast furnace steel.

To meet the Paris Accord goals, all vehicles will need to be electric and all electricity would need to be generated without the use of fossil fuels which would increase the above numbers by 4,467 Site C dams or 6.50 billion 400 watt solar panels, or 5.20 million 2 megawatt wind turbines would be required.

Again by 2050 these values will likely double.

Telkwa Coal Limited has incorporated several mitigation measures in the Project's design and/or operational procedures to reduce emissions including:

- Limit the Project Footprint and Project Area, by clustering project components, aligning linear features, and minimizing the length of haul roads.
- Use centrifuges for dewatering of processed coal, which replaces coal and/or natural gas fuelled processed coal dryers and to reduce GHG emissions.
- Use buses and/or vans for employees and contractors as much as practical.
- A fleet maintenance program will be implemented to support optimal operation of vehicles and equipment. Deficiencies will be corrected and worn parts replaced as soon as practicable.
- Provide funds to assist employees to purchase electric vehicles or related charging equipment and provide funds to assist employees to convert inefficient home wood or oil burning heating systems to lower emission or higher efficiency heating systems.

TELKWA COAL LIMITED

ABOUT COAL

Metallurgical Coal and Production of Steel

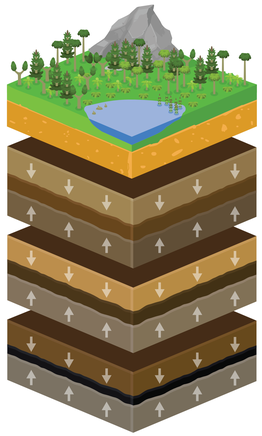
TENAS PROJECT

Coal Formation

- Starts when plants store energy from the sun, through photosynthesis.
- Build-up of silt and sediments, along with movements of the earth's crust (tectonic movements) buries plants in swamps and peat bogs.
- Buried swamps and peat bogs subjected to high temperature and pressure conditions and a lack of oxygen which stops the decay process and causes plant material to be transformed into peat and then coal where energy is locked in.

Coal quality is determined by a variety of factors:

- Type of vegetation
- Depth of burial
- Temperature
- Pressure
- Length of time the coal has been forming



Huge forests grew around 300 million years ago covering the earth's surface

Vegetation decays and forms peat

The peat is compressed between sediment layers to form lignite

Further compression forms bituminous and subituminous coal

Eventually, with enough pressure, heat, and time, anthracite forms

Coal Mining

TELKWA COAL LIMITED

Coal is mined from seams using two methods:

- Surface or "open pit" mining, and
- Underground mining.

Excavated coal is separated (processed) from mine rock material to prepare it for commercial use.

The harder the coal is, the higher its energy value and rank. Harder, blacker coal contains more carbon and less moisture and ash than lower grade coal.

The type of coal and its caking ability (coal's ability to be converted into coke which is a pure form of carbon that can be used in basic oxygen furnaces in steel mills) is determined by the coal's rank.

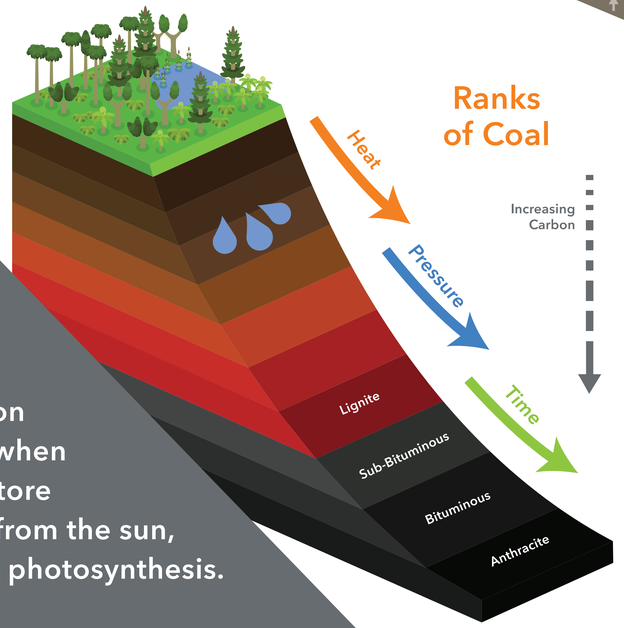
- Rank is a measure of the amount of volatile matter, degree of metamorphism, mineral impurities and the coal's ability to melt, swell and solidify when heated.

Canada is the third largest exporter of metallurgical coal, after Australia and the US:

- Alberta and BC produce 85% of Canada's coal based on 2018 data, and
- Canada produced 62.3 million tonnes of coal in 2018 with 49% being metallurgical coal for steel manufacturing.

Canada is the world's third largest exporter of metallurgical coal.

Metallurgical coal differs from thermal coal due to its higher carbon content and its ability to swell.



Ranks of Coal

Coal formation begins when plants store energy from the sun, through photosynthesis.

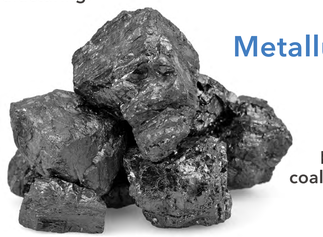
Metallurgical Coal

Differs from thermal coal due to its carbon content, ability to swell, and caking ability:

- Fed into ovens and subjected to high temperature conditions without oxygen to prevent combustion.
- Heated to approximately 1,100 degrees Celsius.
- Removes volatile compounds and impurities to leave pure carbon (coke).
- Coke is then fed into a blast furnace with iron ore and limestone to separate the iron from its ore to create Pig Iron.
  - Pig Iron is further refined to make steel.

Tenas coal is mid-volatile (24 to 29%) semi-soft coking coal:

- Limited global supply of mid-volatile semi-soft coking coal.
- Preferred by steel mills since it fits more uniformly into coke oven blends.
- Current semi-soft coal market is dominated by high-volatile (>32%) semi-soft coals from Australia.



Metallurgical Coal

Before processing, coal is reduced to coke.

Iron Ore

70% of steel is produced using the blast furnace process while 30% is produced by the electric arc furnace (EAF) process. EAF uses scrap metal, while the blast furnace method uses coal to produce pig iron and steel through the reduction of iron ore.

Steel

World steel production was more than 1,690 million tonnes in 2017. Steel is delivered as coils, plates, sections or bars and is a necessary component of transportation, energy generation, and infrastructure.

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HERITAGE RESOURCES

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Cultural Use

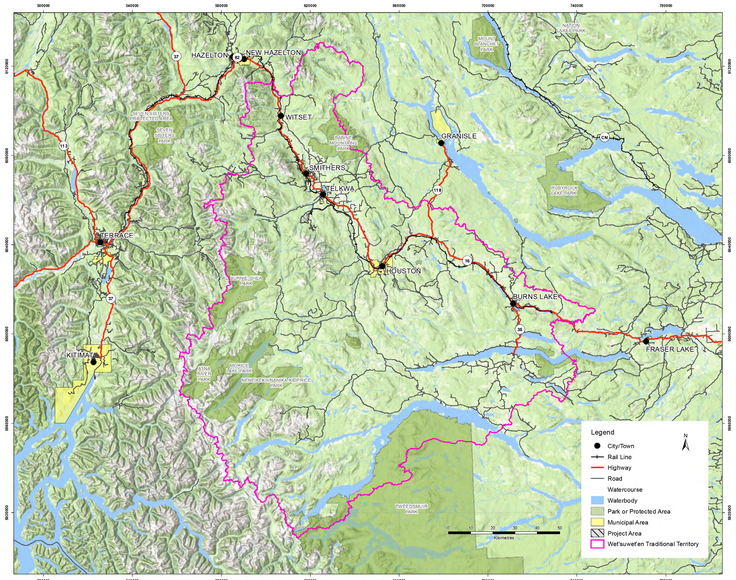
- The Project is within Wet'suwet'en traditional territory, specifically the C'inilh K'it territory of the Gitdumden Clan's Cas'Yex House and Cosl'et Bin territory of the Laksilyu Clan's Kwen Bea Yex House.
- Telkwa Coal Limited (TCL) acknowledges and respects the unceded rights, title, interests, culture, and aspirations of the Wet'suwet'en to 22,000 km^2 of traditional territory, including the lands where the Project is located.
- A Cultural Use Study was conducted to compile a baseline inventory of cultural heritage resources pertaining to Wet'suwet'en communities, including an examination of pre-existing cultural, social, historic, and economic data.

Heritage Resources

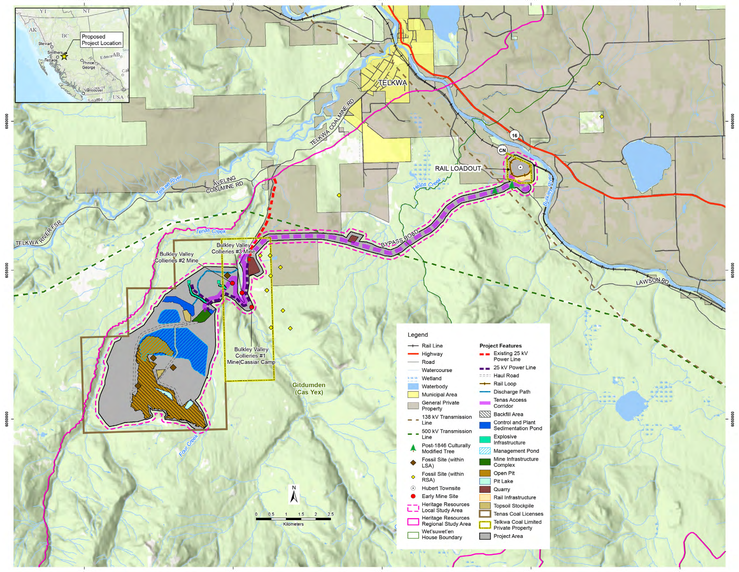
- Archaeological studies were undertaken between 2017 to 2019, including an Archaeological Overview Assessment, Preliminary Field Reconnaissance, and an Archaeological Impact Assessment.
- A desktop based Fossil Impact Assessment Preliminary Study was conducted to inventory palaeontological resources within the Regional Study Area.
- There are no known Archaeological Resources within the Local Study Area (LSA).
- Historic and cultural sites within the LSA area include 3 culturally modified trees, 3 areas with evidence of historic mining activity, the Hubert town site, and 4 known fossil sites.

TCL investigated several locations for the Rail Infrastructure. The location selected will avoid any areas with known archaeology sites.

Wet'suwet'en Traditional Territory



Known Historical and Cultural Sites



Example Mitigation Measures

- The Project has been designed to avoid known archaeological, cultural, and heritage resources.
- Implement a Heritage Resources Management Plan.
- Chance Find Procedures for both Heritage and Palaeontological Resources.
- Avoidance by the establishment of buffer zones for newly discovered or existing archaeological resources.
- For known Historic and Cultural Sites, including palaeontological sites, not automatically protected under legislation, TCL will consult with the affected communities to determine preferred mitigation measures.

Residual Effects

- Following the implementation of proposed mitigation measures and management strategies no residual effects to Heritage Resources Valued Component were identified.

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FISH AND FISH HABITAT

TENAS PROJECT

Telkwa Coal Assessed the Potential Project-related Effects on the Fish and Fish Habitat Valued Component

Valued Component	Subcomponent	Potential Effects Assessed
Fish and Fish Habitat	Fish Habitat	• Change in Fish Habitat
	Fish	• Change in Fish Health

Baseline programs were conducted between 2017 – 2020:

- Fish habitat assessments
- Fish community sampling
- Fish tissue metals sampling
- Watercourse crossing surveys
- Environmental Flow Needs (EFN) assessments
- Fish abundance sampling

FISH HABITAT

Goathorn Creek

- The lower 15 km of Goathorn Creek is accessible to fish from the Telkwa River.
- Habitat in the upper reaches of Goathorn Creek is more favorable for trout and char species.
- Most smaller tributaries to Goathorn Creek provide poor access for fish and limited potential fish habitat.

Tenas Creek

- The mainstem is accessible to fish from its mouth at Goathorn Creek for approximately 16.5 km to a 20 m waterfall.
- Moderate over-wintering and migration habitat.
- More low velocity sections suitable for fry rearing than Goathorn Creek.

Four Creek

- Adequate flows to support a small resident Dolly Varden population in its upper reaches.
- Lower reach of Four Creek (to culvert beneath a Telkwa Coal private road) offers potential spawning for fish from Goathorn Creek.

Helps Creek

- Habitat potential is primarily for spawning and rearing, while over-wintering habitat appears limited.

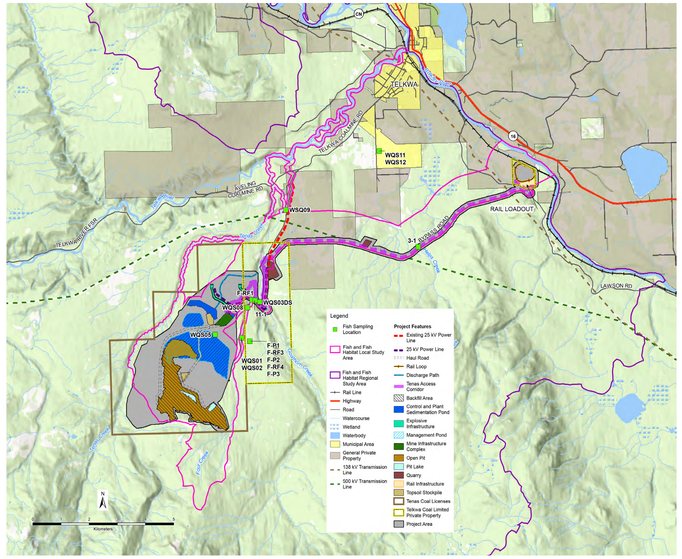
Watercourses within Minesite

- Three unnamed tributaries (TN6, TN7, and TN8) to Tenas Creek flow into the Tenas Creek mainstem from the east.
- All three are non-fish-bearing tributaries of Tenas Creek, and none directly support fish or provide fish habitat upstream of their confluence with Tenas Creek.

FISH COMMUNITIES

- Fish sampling to determine fish presence and species composition was completed in six watercourses in 2017 and 2018.

Fish Sampling Locations



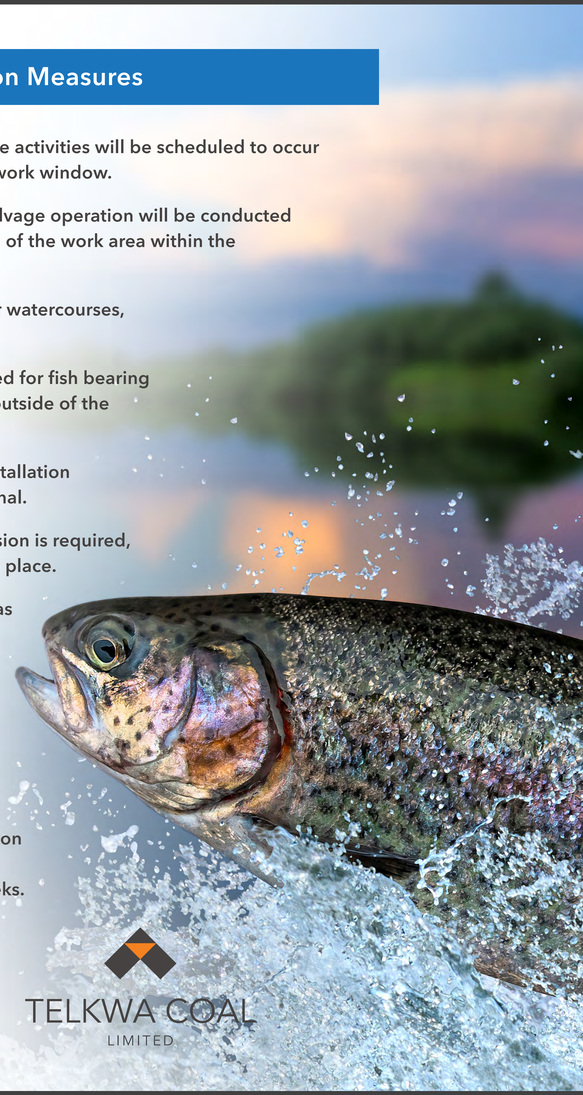
Watercourse	Species
Goathorn Creek	Coho salmon, Dolly Varden, Steelhead/rainbow trout
Tenas Creek	Dolly Varden, Steelhead/rainbow trout
Four Creek	Dolly Varden, Steelhead/rainbow trout
Unnamed tributary to Four Creek	No fish caught
Bulkley River	Coho salmon, Lamprey, Steelhead/rainbow trout, Sucker (general), Chinook salmon, Dolly Varden, Longnose sucker, Minnow (general), Northern pikeminnow, White sucker
Telkwa River	Coho salmon, Steelhead/rainbow trout, Mountain whitefish, Dolly Varden

Example Mitigation Measures

- When feasible, Construction Phase activities will be scheduled to occur within the reduced risk instream work window.
- At watercourse crossings a fish salvage operation will be conducted where instream works or isolation of the work area within the watercourse will occur.
- While clearing and grubbing near watercourses, runoff patterns will be monitored.
- Clear-span bridges will be installed for fish bearing streams with abutments located outside of the bankfill water level of the stream.
- Culverts will be designed, and installation overseen by a qualified professional.
- Where water withdrawal or diversion is required, the necessary approvals will be in place.
- Disturbed banks and riparian areas will be seeded with an approved native grass mixture or planted with shrubby riparian species.

Residual Effects

- Changes in fish habitat are expected to arise from the diversion of water currently conveyed in tributaries to Tenas and Four Creeks. After implementation of fish habitat offsetting for the change in fish habitat due to the Project, a net gain habitat productivity is predicted.



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GROUNDWATER

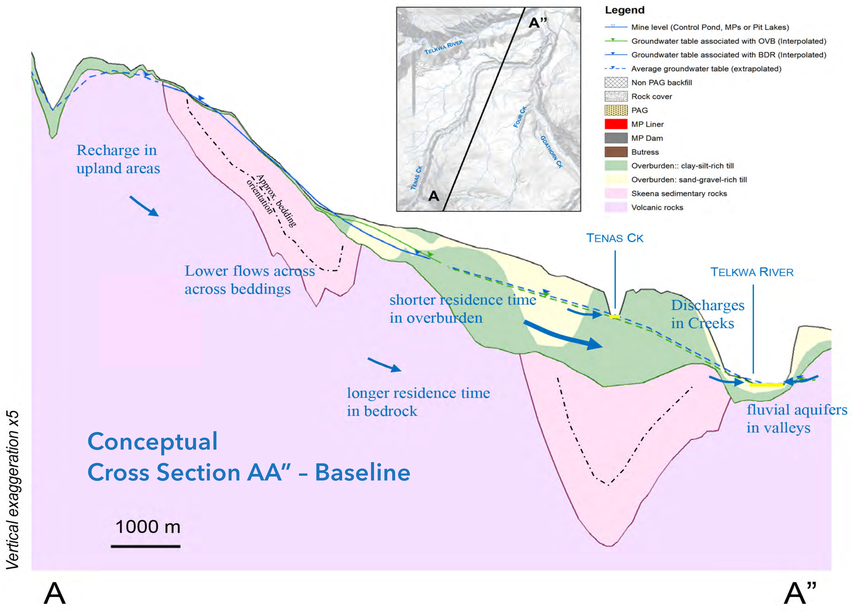
TENAS PROJECT

Telkwa Coal Assessed the Potential Project-related Effects on the Groundwater Valued Component

Valued Component	Subcomponent	Potential Effects Assessed
Groundwater	Groundwater Quantity	• Change in Groundwater Level in Areas of Private Wells • Change in Groundwater Discharge Rates to Creeks and Rivers
	Groundwater Quality	• Change in Groundwater Quality in Areas of Private Wells • Change in Quality of Groundwater Discharging to Creeks and Rivers

Groundwater Quantity

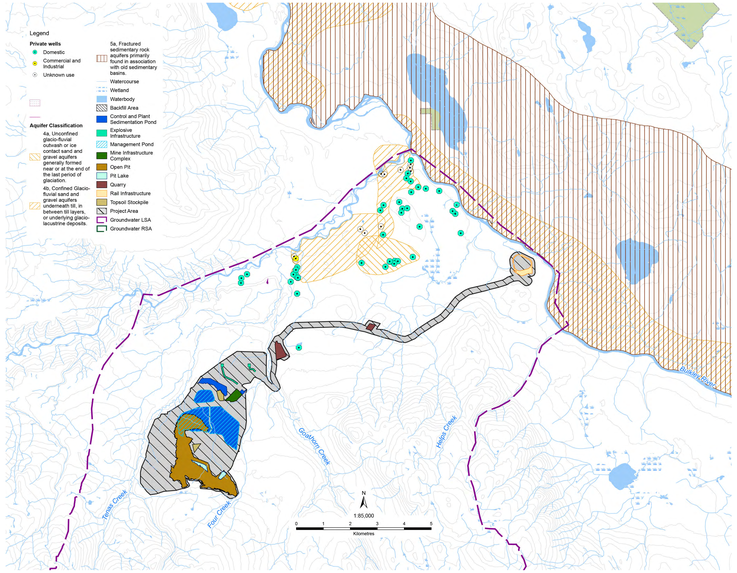
- Conceptually, the groundwater system is divided into two sub-systems: deep bedrock and shallow overburden.
- Groundwater in both systems flows towards the valleys, moving away from the open pit towards Tenas Creek, the Telkwa River, and Goathorn Creek.
- Static water levels are generally less than 2 metres below ground surface (mbgs) in the south part of the Project Area, to more than 20 mbgs in the north part of the Project Area, where overburden thickens.



Groundwater Quality

- The overburden system is characterised by local unconfined systems with relatively short residence times and low concentrations of dissolved solids, while the bedrock system has a large lateral extent and is characterised by confined flow, relatively long residence times in the subsurface, and higher concentrations of dissolved solids.
- Baseline groundwater samples exceeded the BC Water Quality Guidelines (WQG) for the protection of Freshwater Aquatic Life (FAL) for fluoride, ammonia, and dissolved aluminum, cadmium, chromium, copper, iron, and silver, and the BC WQG Drinking Water Standards (DWS) for fluoride, and dissolved iron, cobalt, manganese, and mercury.
- Five private wells were sampled as part of the baseline program and exceedances of the BC WQG FAL and DWS guidelines for total arsenic, total manganese, total and dissolved iron, total phosphorus, and total organic were observed.

Aquifers and Private Wells within the Groundwater Local Study Area



Example Mitigation Measures

- The management ponds, and the Tenas Control Pond have been designed with low permeability liners to minimize the seepage of water from these facilities into the groundwater system.
- Identify and segregate potentially acid generating (PAG) material while mining the open pit, and place and submerge PAG material underwater in management ponds to prevent acid rock drainage (ARD).
- After the Operation Phase is complete, the open pit will be allowed to flood with a combination of contact and non-contact water to raise groundwater levels in the Post-closure phase to existing conditions.

Residual Effects

- Changes to groundwater levels will be localized and are not predicted to reach any of the private domestic wells affecting their production capabilities. Seepage from mine sources has the potential to reach the groundwater system utilized by private domestic well users but when mixed with background groundwater, no constituent is predicted to exceed the British Columbia Water Quality Guidelines for Drinking Water Standards.
- Changes in groundwater quality and discharge rates to watercourses are not expected to result in an unacceptable change that will alter watercourse integrity within the Regional Study Area.

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HUMAN HEALTH

TENAS PROJECT

Telkwa Coal assessed the potential Project-related effects on the Human Health Valued Component

Valued Component	Potential Effects Assessed
Human Health	Change in Human Health due to Changes in Air Quality Criteria Air Contaminants (CACs) Change in Human Health due to Changes in Environmental Media Quality Change in Human Health due to Changes in Noise

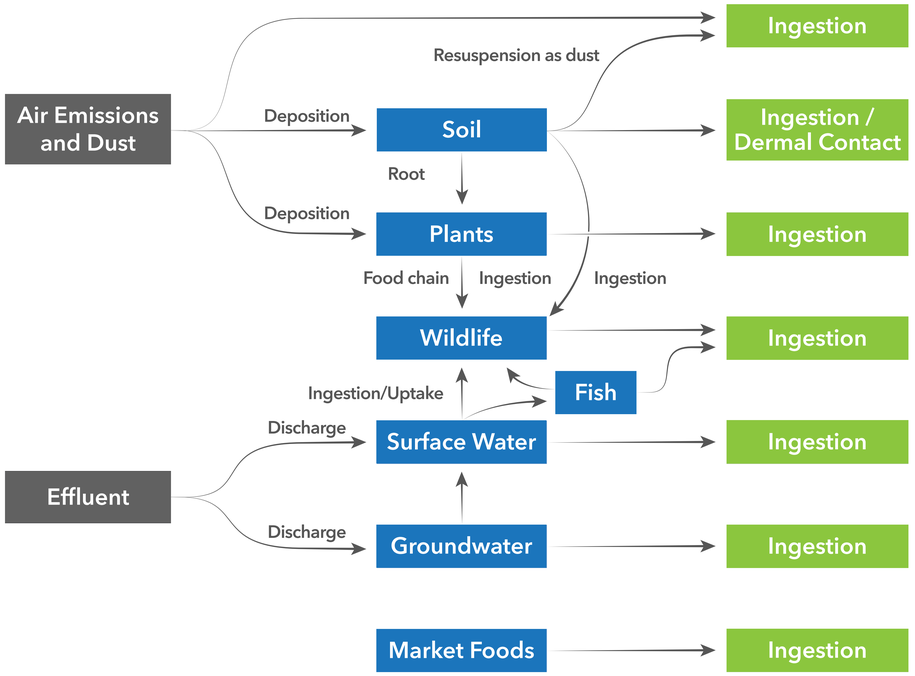
A Human Health Risk Assessment (HHRA) was conducted to support the assessment of potential effects on the Human Health Valued Component.

- Objective of the HHRA was to identify incremental changes that may occur to human health between the Baseline (or Base Case) and future Project Case conditions should the Project go ahead.

- To identify these changes, evaluations of health risk to people who may be exposed to contaminants of potential concern (COPCs) in the Local Study Area (LSA) under both scenarios were completed following standard risk assessment methodology.
- Two categories of people and age groups who have the highest potential for risk were selected for the human health evaluation:
  1. Indigenous and non-Indigenous Resident Land Users (toddlers and adults) living year-round in the study area, and
  2. Recreational Land Users (toddlers and adults) who visit the LSA.

There are 3 main potential transport pathways through which Contaminants of Potential Concern / Contaminants of Concern may be transferred from the Project to the environment where people could come into contact with them:

- Inhalation of air emissions and dust.
- Deposition of fugitive dust that can then be taken up by plants and thus ingested by people.
- Effluent discharge to surface water and groundwater that can then be ingested by people, and fish and wildlife used as subsistence food.



Example Mitigation Measures

- Build, maintain, and use the Tenas Access Corridor (TAC) for hauling processed coal to the Rail Infrastructure for the duration of all Project phases.
- Use water and chemical agents on the TAC to reduce fugitive dust emissions, where and when appropriate.
- Use dust suppression agents on the rail cars to reduce fugitive dust generation.
- Monitor actual blast results and implement improvements as required as per the adaptive management.
- Establish and implement a policy prohibiting shooting, hunting, and fishing within the Project Area.
- Spill prevention and response measures will be implemented in accordance with the Fuel Management and Spill Control Plan.
- Hazardous materials will be managed in accordance with the Fuel Management and Spill Control Plan.

Residual Effects

- The concentration ratio (CR) threshold of 1 is already exceeded in Telkwa under existing conditions and the predicted increase in CR is less than 5%, based on comparison with regulatory guidelines.
- The residual effect of change in environmental media COPC/COC concentrations as a result of the Project is not expected to alter its integrity within the Human Health LSA to an unacceptable level.
- Project-related nighttime noise will be below the permissible sound level of 40dBA and health-based thresholds for percent highly annoyed.

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