

Existing Logging Access Road

- The existing 1.4 km access road, formerly developed as a logging road, has been upgraded and slightly widened in some areas to enable handling of the trucking and hauling needs of the AEP and potential mining.
- The connection to PTH#39 has been restored.
- The straightening avoided stream crossings and lake shores, and is the shortest route that disturbs the least amount of environment.
- Crushed limestone was used for the upgrades



Looking East Toward AEP Site Along Existing Access Road (2011)



Looking West Along Existing Access Road (2011)

Freshwater Supply

- There is no use of surface water at the site.
- Water for domestic use (except drinking water) is derived from groundwater wells developed at the site (License 2012-025).
- Bottled water from a local supplier is provided as the drinking water source.



Groundwater Wells

Water Management

- Process water is pumped from a groundwater well located on the site to supply office, dry, shop, and underground operations.
- Discharge process water is retained in an on-site polishing pond.
- Sewage is collected in sewage holding tanks and trucked to a licensed facility off site.



Polishing Pond

Electrical Power

- Provided by diesel generators on site.
- Fuel for generators is stored in SCAT tanks located at the site.
- Generators are enclosed and equipped with engineered controls to minimize noise to the maximum extent possible.



Generators and Power Lines



Domestic Waste and Hazardous Materials Management

- Garbage collection bins have been established on site. Will be sent for recycling and/or disposal at local approved facilities.
- Hazardous materials, waste oil, lubricants and other petroleum products are appropriately stored on-site until disposed of or recycled by a petroleum supplier.

Groundwater Management

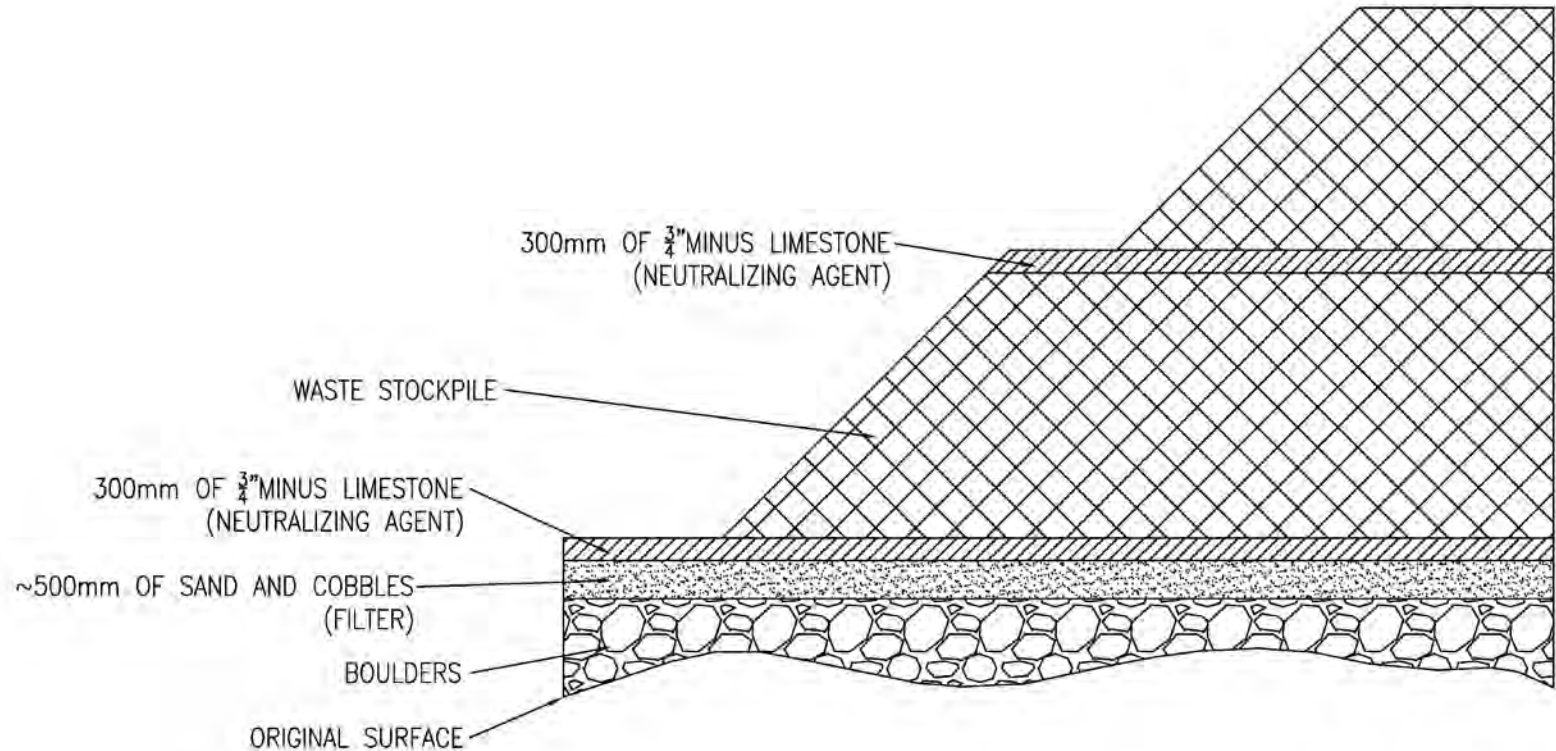
- High pressure grouting practice will minimize groundwater seepage during underground activities.
- Groundwater encountered during underground operations will be discharged to the polishing pond.
- Water from the polishing pond may be used as a water supply source for fire suppression.

Waste Rock Management

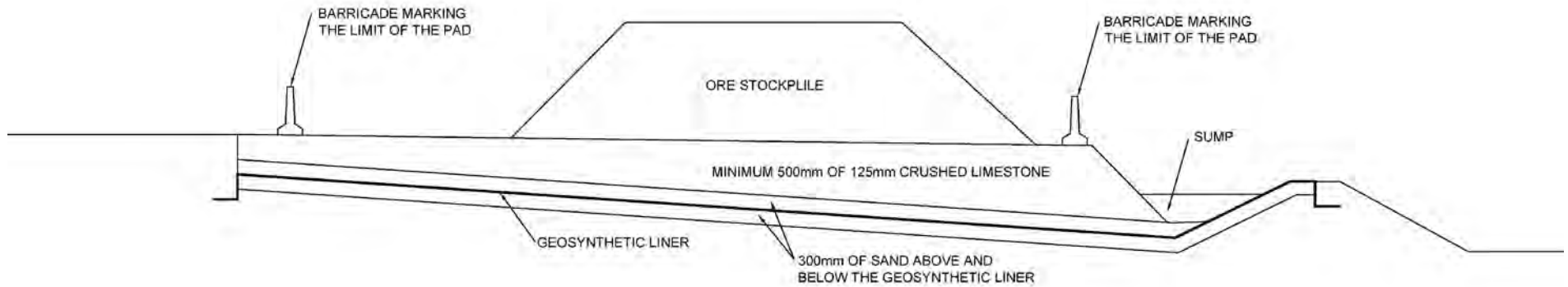
- All waste rock is transported to 20,000 m² waste rock storage pad for stockpiling.
- An ore storage pad capable of holding 5,000 tonnes will also be developed on-site.
- Storage pads will be lined where required.
- Waste rock (NAG and PAG) will be placed back underground as backfill.



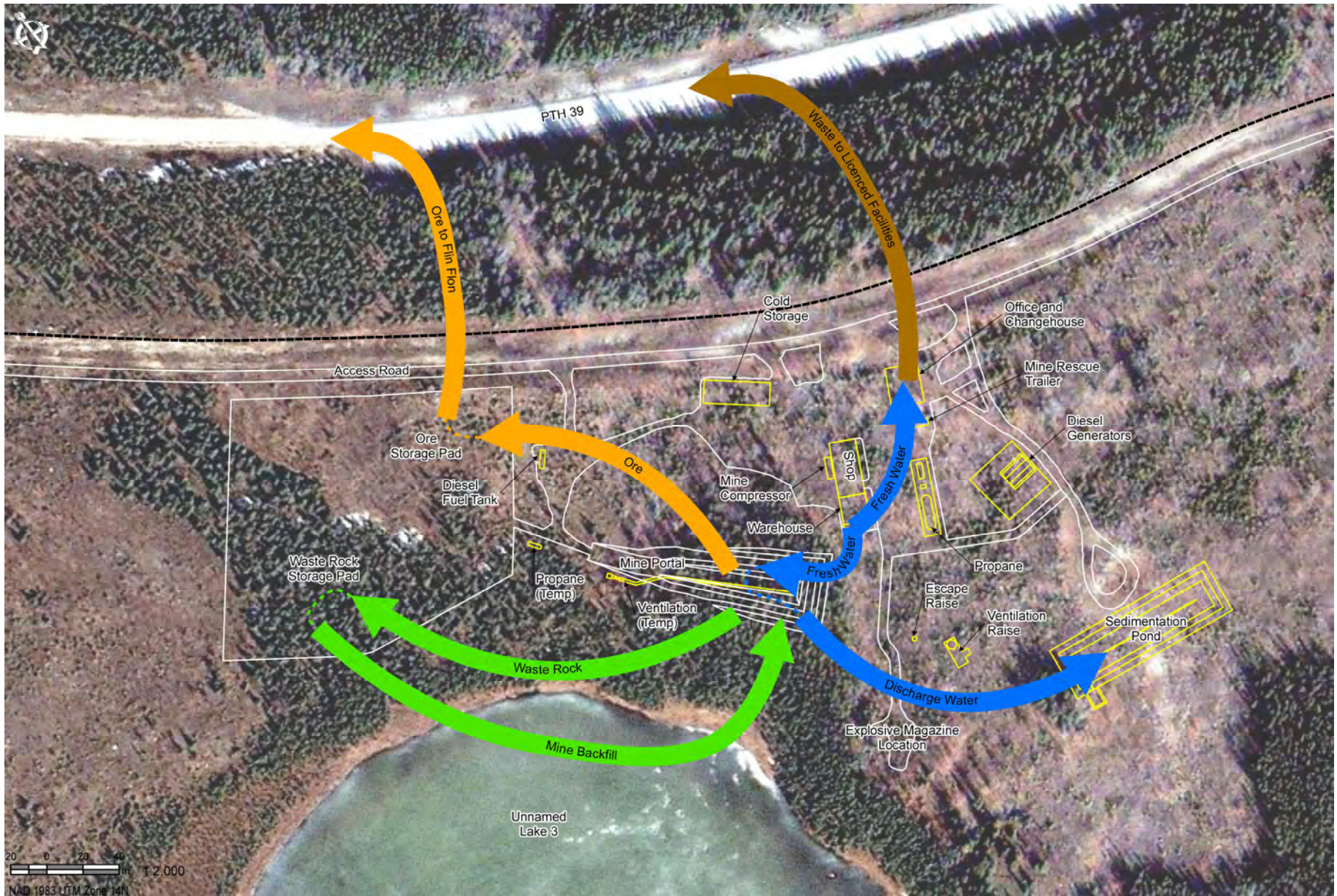
Cross-section of Waste Rock Pad



Cross-section of Ore Pad



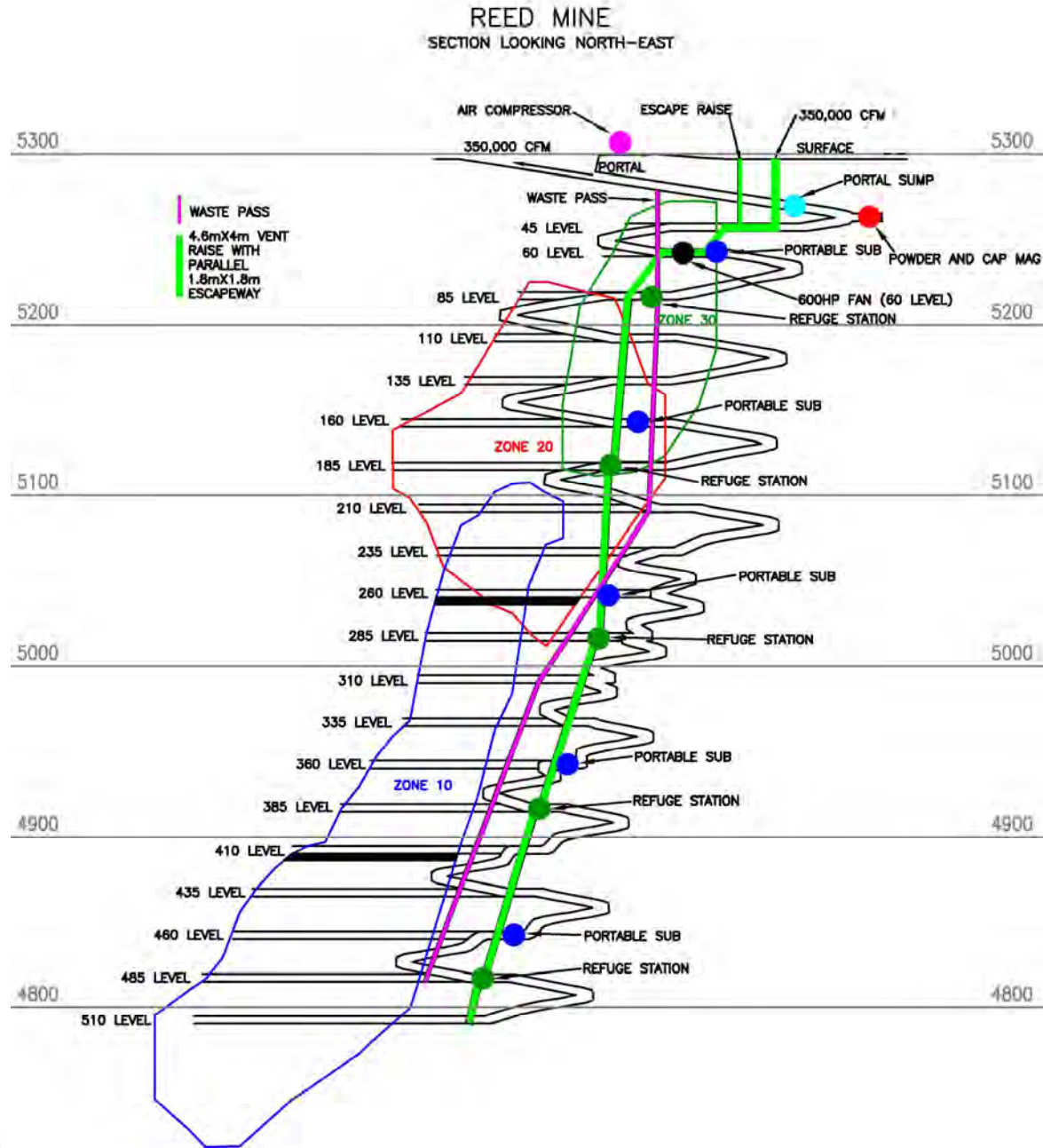
Operations on Site



Underground Development

- 2,000 m long ramp (5.5 m x 4.5 m) at a -15% grade.
- Bulk samples will be extracted from three zones on two levels:
 - Zone 30 on 135 level
 - Zone 10 and 20 on 260 level
- Level accesses, 5.5 m X 4.5 m in size, will be driven at +3% to allow for drainage.
- Early production will commence in Zone 30, and subsequently Zone 20.

Reed AEP Longitudinal Section



Reed AEP Proposed Infrastructure

- Diesel Generators and Fuel Storage Tanks
- Polishing Pond
- Two Sewage Holding Tanks
- Freshwater Tanks
- Office/“Dry Complex”
- Maintenance Facility
- Core Storage
- Electrical Office
- Compressor Building
- Parking Lot
- Vent Raise to Surface
- Explosive Magazine with new Access Road
- Storage Sea Cans
- Laydown Area
- Waste Pad
- Ore Pad
- Campsite (30 person)

Reed AEP Built Infrastructure

- Diesel Generators and Fuel Storage Tanks
- Polishing Pond
- Three Sewage Holding Tanks
- Freshwater Tanks (None)
- Building Complex, including:
 - Maintenance Facility
 - Core Storage
 - Electrical Office
 - Pumphouse
- Compressor Building
- Parking Lot
- Vent Raise to Surface
- Explosive Magazine (No New Access Road)
- Storage Sea Cans
- Laydown Area
- Waste Pad
- Ore Pad
- Campsite (increase from 30 to 42 person camp)

Additional Development Needed for Reed Mine

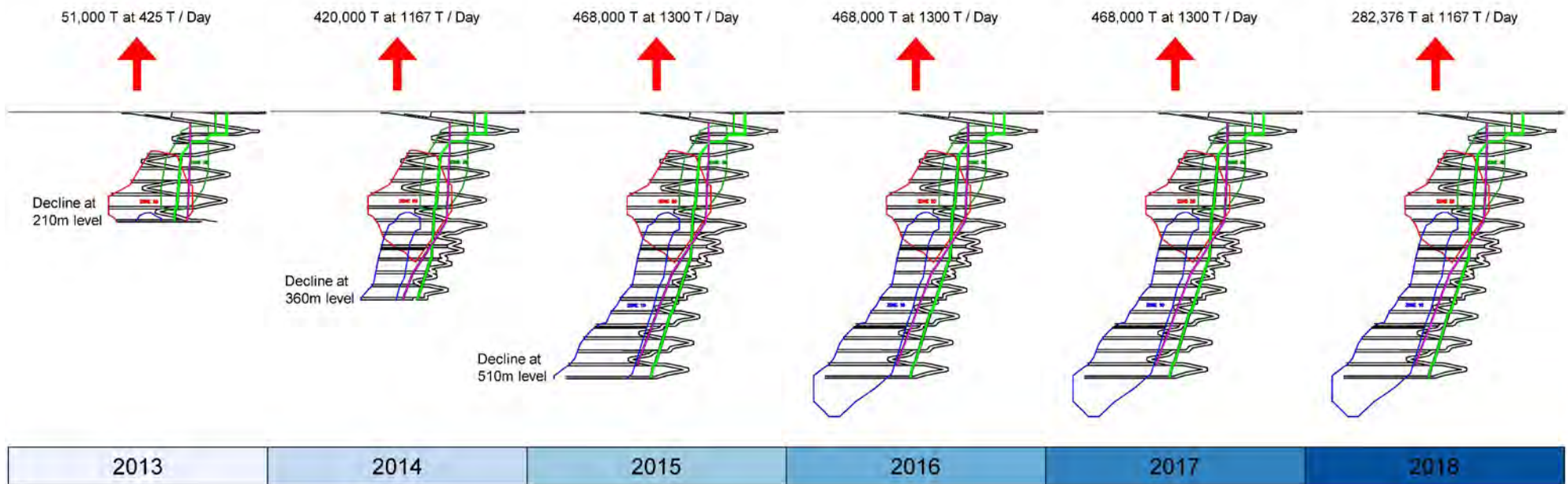
- Underground Backfill Raise
- Deeper underground ramp and level development
- Campsite (increases from 42 to 50 person camp)

Reed Mine Management Practices

Current environmental management practices at Reed AEP will continue through the Reed Mine development, for example:

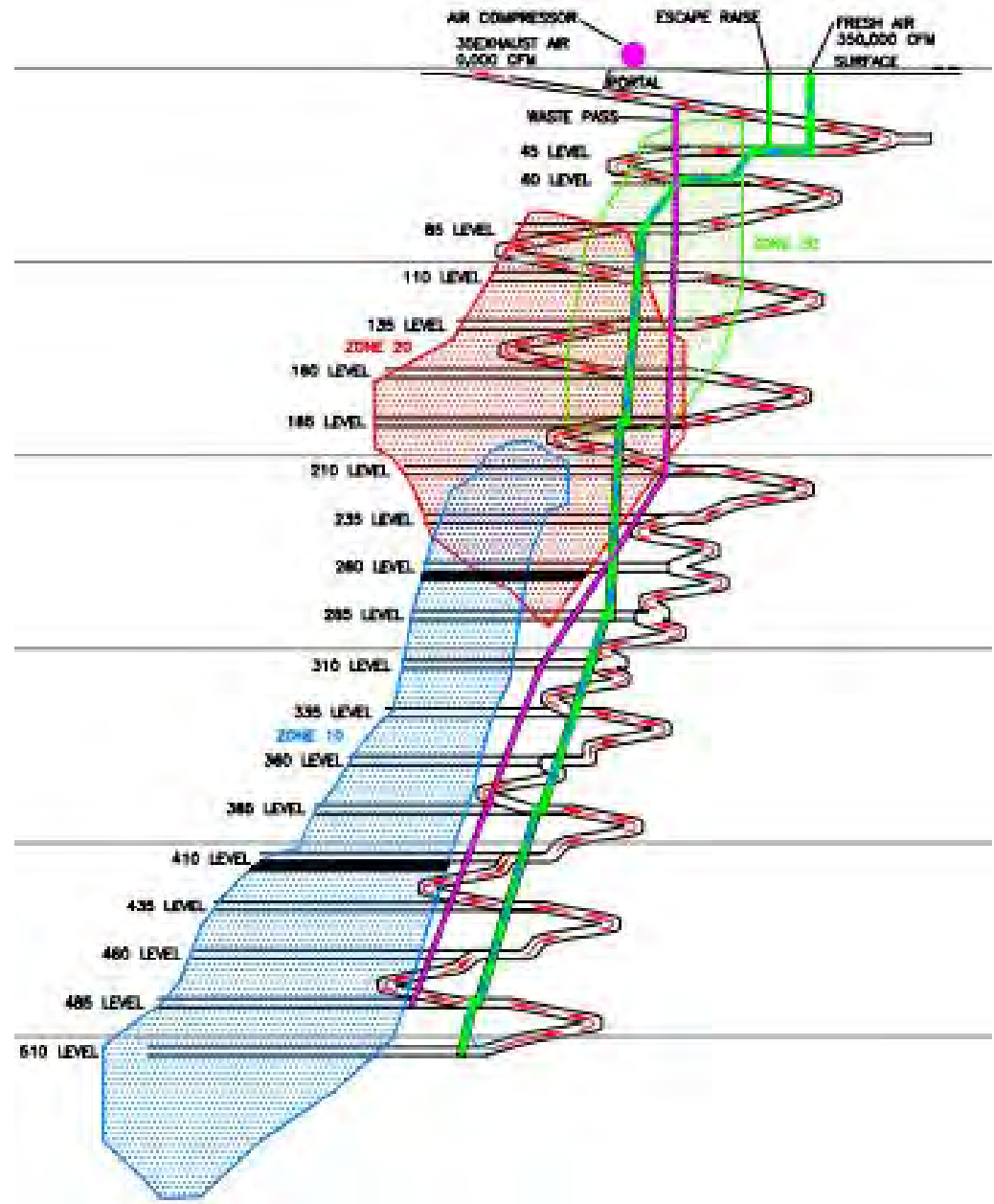
- Freshwater for operations will continue to come from groundwater sources.
- Sewage will continue to be collected in sewage holding tanks on site and disposed of at a licensed facility.
- All waste rock will continue to be transported to 20,000 m² waste rock storage pad for stockpiling and eventually returned underground as backfill.
- All garbage will continue to be sent for recycling and/or disposal at local approved facilities.
- Hazardous materials, waste oil, lubricants and other petroleum products will continue to be appropriately stored on-site until disposed of or recycled by a petroleum supplier.

Mine Development Process



Reed Mine Conceptual Ventilation Circuit

- During the production phase, underground mining operations will require 165 m³/s (350,000 cfm) of fresh air
- Ventilation fans (45 kW, 60 hp) will be installed on every active level to ventilate the working areas.
- During winter, the air entering the ventilation raise will be heated with a 30 million BTU/hr propane heater.

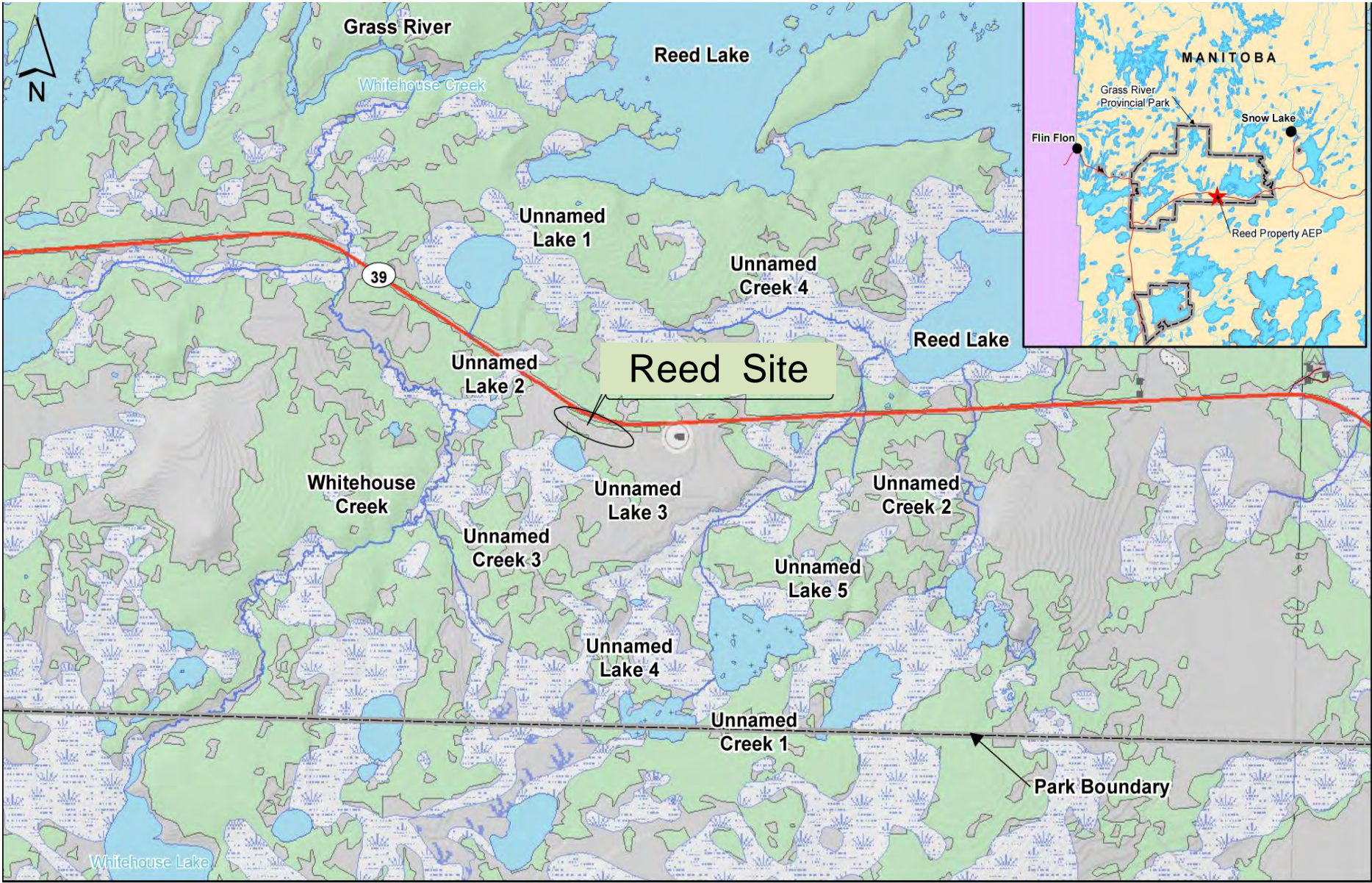


Environmental Setting

- Three distinct floral communities:
 - Clear-Cut Area (re-growth, immature trees)
 - Mature Mixed Forest (high diversity and productivity)
 - Wet Fen (sphagnum mats, pitcher plants, low wildlife value)
- Several bird and mammal species (including Woodland Caribou) in the project region (within 10 km of Reed site).
- Water bodies in the region include Whitehouse Creek, Grass River and Reed Lake and several unnamed lakes and creeks.



Reed Area Water Bodies



Environmental Effects Assessment



- AECOM completed an environmental baseline assessment at site in 2010 and 2011.
- No significant adverse environmental or socio-economic impacts are expected from the construction and operation of the Reed Mine.
- It is anticipated that the site will have returned substantially to its native conditions within 5 to 10 years after closure of the Reed Mine.

Environmental Assessment Process

- Define project components (including support infrastructure and facilities)
- Define existing environment
- Identify potential environmental inputs/outputs required for project
- Evaluate interactions between the project and existing environment
- Develop management and mitigation measures to reduce or eliminate potential environmental effects
- Determine residual impact remaining after mitigation

Environmental Components Examined

Physical

- Topography
- Geology
- Soil
- Air
- Noise and Vibration
- Climate
- Groundwater



Aquatic

- Surface Water Hydrology
- Bathymetry
- Surface Water Quality
- Sediment Quality
- Aquatic Invertebrates
- Fish and Fish Habitat



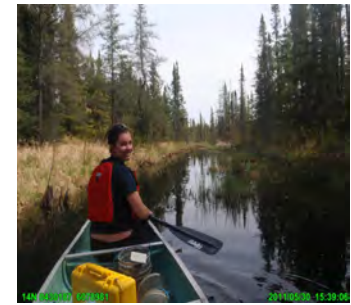
Terrestrial

- Flora and Fauna



Socio-Economic

- Heritage Resources
- Economy
- Recreation
- Resource Use
- Aesthetics
- Accidents and Malfunction



Scope of the Assessment

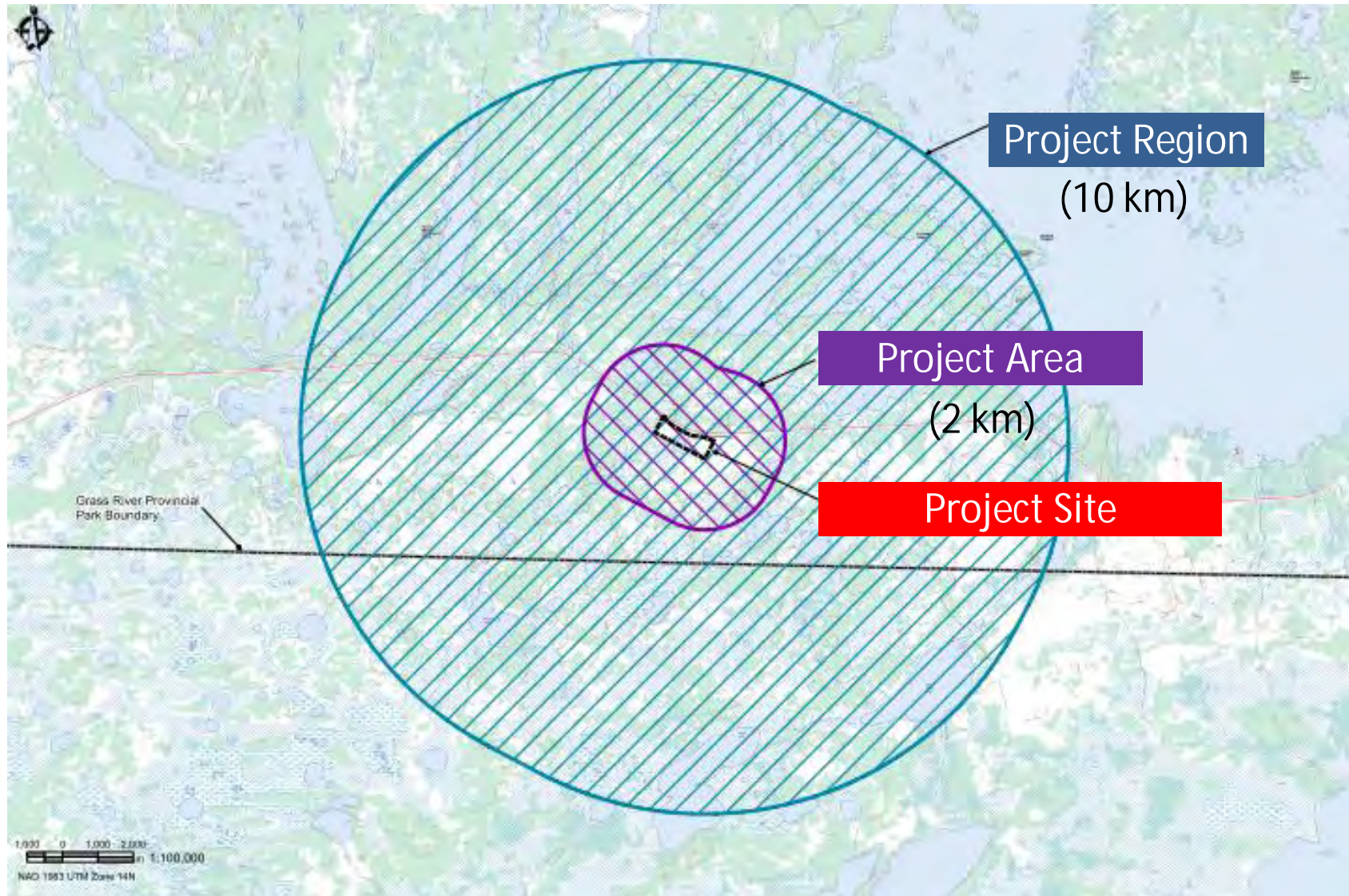
Temporal Boundaries

- Pre-Production Phase – Upgrades to existing AEP infrastructure in 2012 to enable ore extraction.
- Production Phase – production mining from 2013 to 2018.
- Closure Phase – anticipated to occur from 2018 into the future.

Geographic Boundaries

- Project Site - Includes the Reed Mine site
- Project Area - includes any area, up to 2,000 m beyond the Project Site
- Project Region includes an area up to 10 km beyond the Project Site that may be affected by project activities.

Scope of Assessment



Environmental Effects Assessment

Soil and Geology

- Since the site has been previously cleared as part of the AEP, no additional impact to soils and geology is expected during pre-production.
- During production, any impacts due to ARD will be mitigated by lining storage pads.
- The closure phase will involve the reapplication of appropriate soils to the site, to return the site to native conditions to the extent practical.
- Remediation of contaminated soil will be conducted, if required

Environmental Effects Assessment

Vegetation and Wildlife

- Habitat within the Project Site is not considered unique to the area, as such no critical wildlife habitat is expected to be disturbed.
- Habitat disturbance limited to the project site and kept to a minimum.
- Mitigation measures will be implemented to minimize impacts to vegetation and wildlife (eg. participation in regional caribou-related initiatives).



Environmental Effects Assessment

Vegetation and Wildlife

- As part of the closure phase, the site will be re-vegetated with appropriate vegetation species.
- At closure, the access road will be scarified to prevent access to the site and promote growth of natural vegetation in the area.
- There will be negligible impact on vegetation and wildlife habitat.



Environmental Effects Assessment

Aquatic Resources

- No impacts on aquatic resources from pre production activities.
- Overflow from polishing pond will be discharged through an adjacent marsh, which flows into Unnamed Lake 3.
- Unnamed Lake 3 is a shallow waterbody, with limited connectivity and an average depth of 1.1 m. It contains no large-bodied fish, and has no recreation or commercial fishing value.



Looking Down on Unnamed Lake 3

Environmental Effects Assessment

Aquatic Resources

- Re-vegetation during closure will reduce the amount of surface runoff to surrounding waterbodies
- Negligible impacts to aquatic resources and no impacts to fish are expected in the surrounding waterbodies.



Small Pike from Reed Lake

Environmental Effects Assessment

Groundwater

- Storage of explosives will include spill containment measures.
- Charges will be designed to be as small as possible to minimize blast residues.
- Emulsion type explosives will be used in wet areas to minimize the potential for ammonium nitrate to dissolve in groundwater.
- Potential effects from ARD during surface storage will be mitigated by lining waste pads with limestone and a sand filter, and ore pad with a geosynthetic liner and limestone.

Environmental Effects Assessment

Air Quality and Noise

- Mature tree buffer maintained with the highway and around site.
- No crushing on site will minimize noise and dust.
- Ventilation fan will be installed underground, resulting in reduced noise.
- Speed limit of 40 km/hr on access road and 20 km/hr on site will minimize dust generation
- Due to the isolated nature of site and surrounding vegetation, negligible noise effects to wildlife and human receptors expected.
- Engineered controls will be installed at potential noise-producing structures, and operational controls will be implemented as a mitigation measure if required.

Environmental Effects Assessment

Traffic



Source: MIT, 2011

It is expected that the project will result in an increase of 45 vehicles per day on PTH 39.

Environmental Effects Assessment

Heritage Resources

- Reed Property lies within the Grass River Provincial Park.
- No heritage resources located at the Reed site.
- Nearest known heritage resources are pictographs at Tramping Lake, located 30 km east of the Reed site.
- No impact to heritage resources is anticipated.

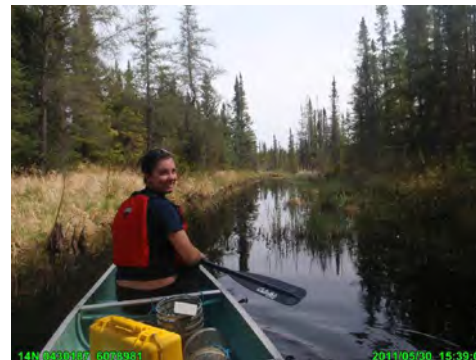


Pictographs at Tramping Lake

Environmental Effects Assessment

Recreational Use

- No cottages, lodges or campgrounds located within area of the Reed site.
- No water bodies of recreation or commercial value located within the Project Area.
- Hunting is not permitted within 300 m of roadways located in Provincial Parks (Manitoba Conservation). This buffer zone would include the Reed Mine site and access road.



Environmental Effects Assessment

Economic Benefits

- A number of employment opportunities are associated with the pre-production, production and closure phases of the Reed Mine.
- Local contractors, supply services and other businesses in Snow Lake, Flin Flon and Cranberry Portage would also benefit from the Reed Mine and associated activities.



Environmental Effects Assessment

Community Support

- Closure of the Trout Lake Mine in Flin Flon has resulted in the displacement of 145 employees.
- Development of the Reed Mine will provide employment for approximately 88 people.
- Without ore from the Reed Mine, the Flin Flon Metallurgical Complex will be short of the feed required to operate at full capacity.
- As a result, development of the Reed Mine has received positive support from residents in and around Snow Lake and Flin Flon.
- Discussions with First Nations are ongoing.

Closure Planning

- Hubbay has successfully completed reclamation on many mining operations across Canada, with several of these sites located in the Flin Flon and Snow Lake region
- The area will be returned, to the extent possible, to its natural state following the procedures outlined in Manitoba *Mine Closure Regulation 67/99*



Konuto Lake Mine
(Post Closure)

Conclusion

- Development of the Reed Mine would be a significant economic benefit to Northern Manitoba.
- Project will have minor, mitigable and reversible impacts to the surrounding environment, including vegetation, wildlife and aquatic resources.
- Continued operation of the Flin Flon Metallurgical Complex provides additional socio-economic benefit to the City of Flin Flon, Town of Snow Lake and the Province of Manitoba.



Project Schedule – Reed Mine

- Submission of EAP in Winter 2012
- EAP approval required by Spring 2013 to accommodate early production from shallow ore zone
- Mine development to deeper zones to commence in or after Summer 2013 following extraction of the 10,000 tonne bulk sample
- Production of 1,300 tonnes/day is expected to occur in 2014
- Mine closure in 2018 (based on current known reserves)

Comments and Questions

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