

**4. PROJECT DESCRIPTION.** Provide a brief summary of your proposal, including a general description of the project, including proposed development, number of lots (if applicable), roads, and land use activities.

The proposed development includes construction of facilities necessary for initial development, operation and closure of an underground metallic mineral mine. Access to the mine operations area will be by existing gravel roads that will be subject to ongoing maintenance and improvements for safety. The area to be rezoned from a General Management (M-GN) to a Planned Development (P-DP) subdistrict encompasses approximately 528.2 acres. Impervious surfaces throughout the property represent a total of 19% of the total footprint. Building structures represent an area of 2.8 acres, lined facilities represent an area of 96.0 acres (including 91.7 acres for a lined tailings facility). The total impacted or cleared area is 135.1 acres.

The project will be completed in four phases:

Phase 1 Permitting

Phase 2 Construction

Phase 3 Operations

Phase 4 Restoration, Reclamation and Monitoring

These Phases are described in greater detail in the **Project Description** presented on the following pages.

**Proposed Zoning.** List all proposed zoning designations (contact the [LUPC office that serves your area](#) if you have questions).

**⚠** If your proposal includes rezoning lands to or from one of the following subdistricts, be sure to provide as **EXHIBIT G**, the necessary documentation, data, and/or maps that support the proposed change:

Aquifer Protection (P-AR) Subdistrict;

Soil and Geology Protection (P-SG) Subdistrict; or

See page v of the instructions for more detail regarding this exhibit.

Fish and Wildlife Protection (P-FW) Subdistrict;

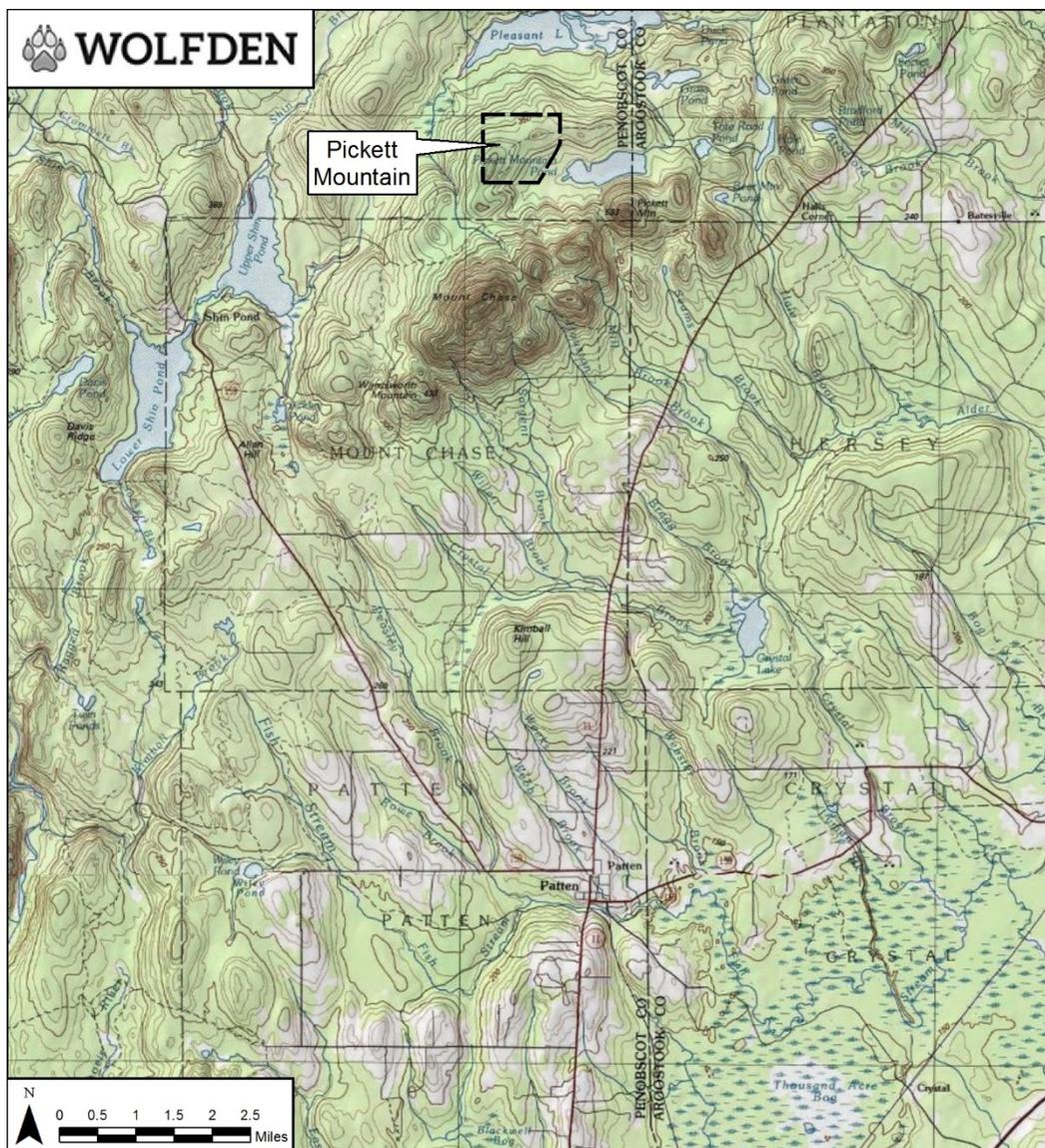
Wetland Protection (P-WL) Subdistrict

Proposed Project Name (if applicable) *Pickett Mountain Mine*

## Project Description

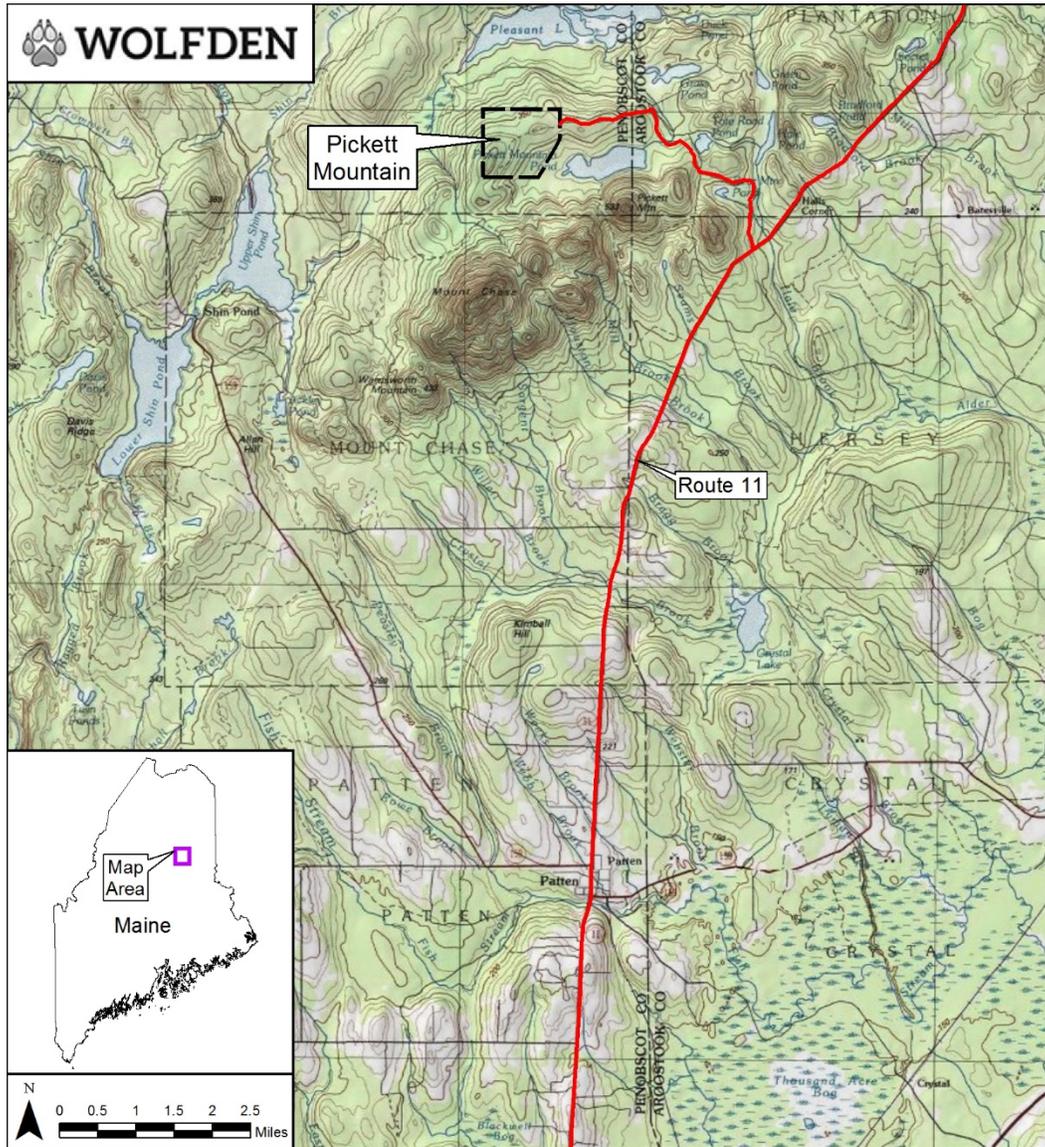
Wolfden Mt. Chase LLC (Wolfden) is requesting a subdistrict change to a 528.2 acre area of land that is currently within a General Management subdistrict in order to allow for construction, mining, milling, closure and reclamation activities to occur over an estimated duration of 10-15 years. This specific area is required for subdistrict change due to the nature of mining operations. The geological resource has been identified in this location and in order to safely, and responsibly extract the minerals, the project site is fixed. The design takes advantage of topographic relief in a manner that supports future closure of the property with little impact to the original landscape.

The project has been named Pickett Mountain and is located north of Patten bordering both Penobscot and Aroostook Counties as shown in the following location map.



Location Map of Proposed Project

Access to the project site is via an existing logging road. The road is constructed in a manner that is sufficient to support the concentrate truck fleet, as well as delivery logistics and employee traffic. The road width currently ranges between 12-15 feet. In order to support safe travel of additional traffic, a road expansion of ~7 feet to ~22 feet is required over the total road length of 5.1 miles.

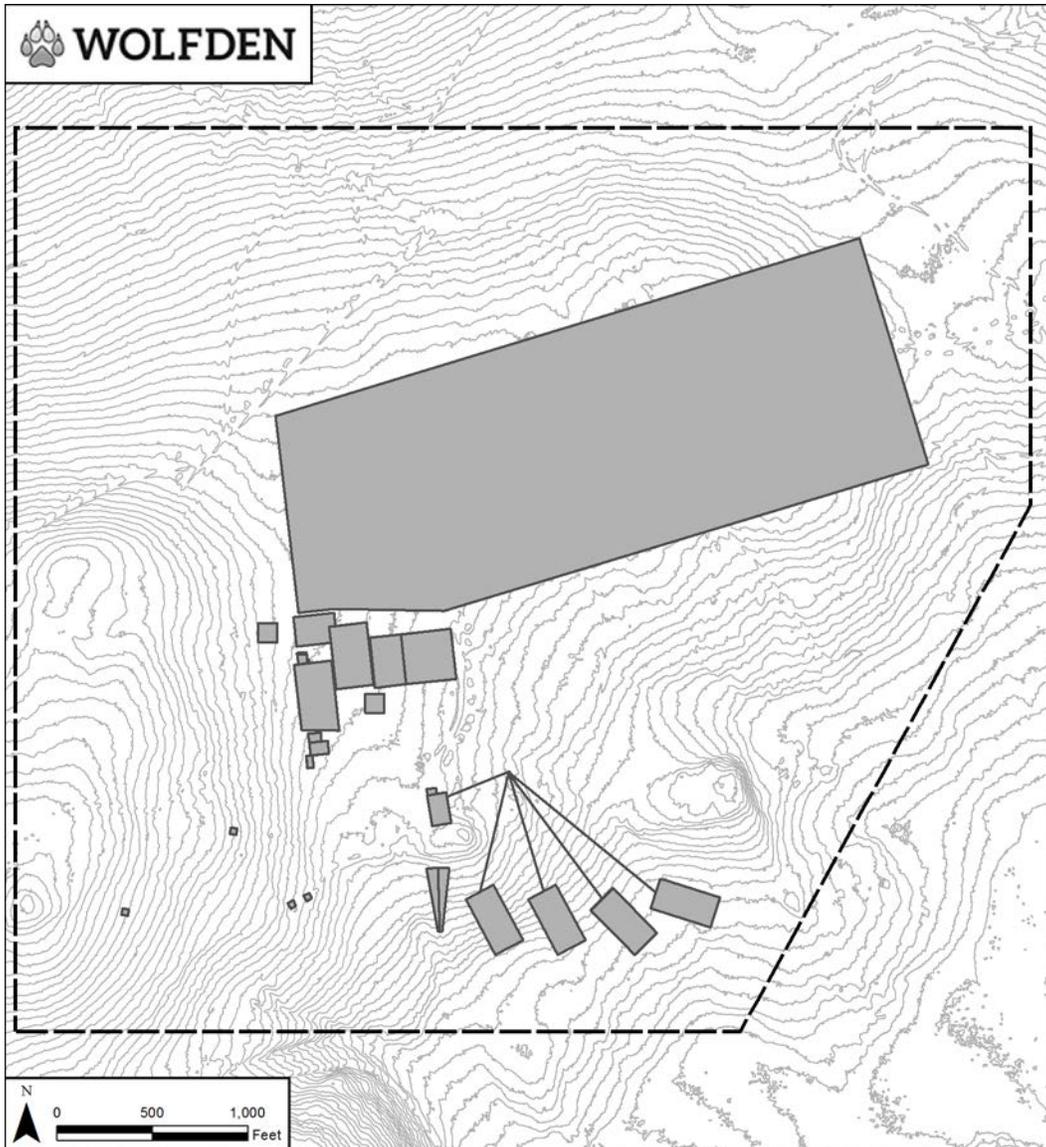


**Site Access from Route 11 North of Patten Maine.**

Pickett Mountain, is a high-grade base metal deposit primarily composed of Zinc, Lead, Copper, Silver and Gold as economic minerals of interest. The intended process is to excavate valuable minerals (ore) from underground via drilling and blasting the in-situ material in order to fragment it to a manageable size, then to load it into underground haul trucks to carry it to a temporary surface stockpile. Once on the stockpile, the material is crushed, milled and fed into

an onsite concentrator at a nominal rate of 1000 tonnes per day (tpd). The concentrator will pulverize the material into a fine dust and then use flotation technology to separate the valuable minerals (concentrate) from the non-valuable minerals (tailings). Three concentrates will be produced—copper, lead and zinc—with each being generated sequentially, dewatered and stored separately for transportation to a selected smelter outside the State of Maine. Transportation will be facilitated using truck and trailer combinations with optimized capacity for the amount of concentrate produced. Waste byproduct (Tailings) will be dewatered and hauled to the dry stack tailings management facility (TMF). These tailings will be thickened into a “tacky sand” consistency and delivered via trucks and dozers to an approved Tailings Management Facility (TMF) where they can be shaped and contoured. The TMF will be lined in such a way as to ensure decant water, precipitation, or other water introductions to be collected and not allowed to contact the water table below. The total footprint of the tailings facility will be 91.7 acres. However, this footprint incrementally managed throughout the project life. Increments of 30.6 acres will be operated and closed in order to manage exposure and closure practices. All water collected from the TMF will be and pumped back into the milling circuit described above along with some make up water. The milling process have a net negative water balance, meaning that it will require injection of minimal of water to keep the process working.

A series of ancillary activities will be required to support the project. These include electrical generation/distribution, maintenance/mechanical support, security, water management and treatment, warehousing and procurement, accounting, human resources management, health and safety management, environmental management and community relations. All ancillary activities will occur on the project site. The conceptual location of each of these activities is shown in the following figure. The building designations, including their functions and approximate sizes and types are identified in Exhibit D-2. The tallest structure on the project site will be the concentrator building at an estimated 60 feet tall.



**Conceptual Location of Buildings and Facilities**

The project will also, separate from this Petition, establish a new power transmission service line to supply additional needed electrical power for the project.

The power transmission route has been discussed with Emera Maine and would run from their substation located on Route 11, located approximately 0.6 miles south of downtown Patten, Maine. The transmission line would run north and northeast along Route 11 for approximately 9.5 miles then follow the same gravel access road proposed for the mine for approximately 5.1 miles. The corridor width for the power transmission route is considered in the forecasted road width.

The life of the project can be broken down into four phases. Permitting, Construction, Production and, Reclamation/Remediation. Each of these phases will occur sequentially

however the latter three phases will also overlap to ensure smooth transitions, including concurrent reclamation, as described below.

### **Phase 1 – Permitting:**

The permitting steps for this project under chapters 10, 12 and 13 of the LUPC's rules and DEP's Chapter 200 rules are as follows:

- Rezoning for appropriate land use.

The land that the Picket Mountain deposit is located on is currently zoned as General Management subdistrict (M-GN). For construction, operating and rehabilitation work to take place, it must be rezoned to a Planned Development subdistrict (P-DP) which allows for development work outside of standard development. The process of rezoning is to:

- Establish a conceptual project plan.
- Submit a rezoning petition outlining the details and potential impacts of the plan.
- Confer with the LUPC and public identifying all opportunities and risks and mitigation plans to address risks.
- Receive the LUPC's approval of the rezoning petition.

Once the land has been rezoned for project development, a mining permit application may be submitted to the DEP. The following steps would be taken as part of submitting a mining permit application for approval:

- Design of the baseline study work for environmental, biological, and archeological status of the property.
- Review and approval of the baseline work with the DEP.
- Complete baseline study work for environmental, biological, and archeological status of the property.
- Submit the baseline study results as well as detailed construction, operation, and reclamation plans for the life of the project including the project outcomes such as economics and anticipated impacts on the environment, population, economy, infrastructure, etc.
- Receive DEP's conditional approval of the mining permit application.

### **Phase 2 - Construction:**

Upon completion and approval of the mining permit application, the project may move forward to construction. Construction of the Pickett Mountain Mine project will include the following activities (not necessarily in this order):

- Removal of trees and grub the land to be used will happen throughout the construction on an as needed basis to ensure no over stripping of land.
- Construction of roadways to various locations at site.

- Construction of mineralized and waste rock pads.
- Installation of temporary explosives magazines (Rental from supplier).
- Installation of ground and surface water monitoring locations.
- Installation of air monitoring systems.
- Construction of the water management ponds and discharge structures.
- Construction of the water treatment facility.
- Construction of temporary shop facility.
- Excavation of the mine portal and installation of temporary mining services (compressed air, power generation, ventilation, process water).
- Commence mining development.
- Excavation of ventilation raise to surface.
- Installation of potable water system.
- Installation of security infrastructure.
- Installation of mine offices and dry facility (Change house).
- Installation of warehouse and laydown area.
- Installation of electrical substation
- Tie in electrical infrastructure to newly installed grid (Completed by others)
- Construction of TMF stage 1.
- Construction of concentrator and supporting facilities.
- Construction of permanent shop facility.

Grubbed material will be managed on-site. Most of the timber and stumps are small, and to the extent timber removed has limited or no economic value, it will be chipped on-site for use as erosion control materials, including stumpage. Stumps too large for chipping will be stored with the organic topsoils in pens and allowed to decompose until used at the end of the project during reclamation. Identified solid waste facilities (Casella) have verbally confirmed that they do not have capacity to take the stumpage. The final design will reevaluate alternatives for stumpage.

Construction will typically utilize as much local or state skill sets as possible and the majority of material used during construction will be sourced locally or within the State of Maine. Specialty skillsets, services, and materials will be sourced externally as required and are expected to include such items as the flotation and ball mill equipment and services within the concentrator, as well as initial or contract mining services. As programs advance through construction, skillsets will be built and trained locally to continuously convert external services to in-state services.

### **Phase 3 – Operation:**

As the site is constructed and the concentrator facilities are finalized, development of underground workings will continue to take place. Waste rock excavated from the mine will be deposited and stored on the surface pad and mineralized material will be stored on the mill feed pad. The mineralized ore will be stockpiled on the pad and used during the

commissioning of the concentrator. Upon completion of commissioning of the concentrator, regular operations of mining, crushing, concentration and shipping will commence. During this phase of steady-state operations, significant and continuous training to upskill a local workforce is anticipated related to the mining, processing and support services which are currently estimated to last 8-9 years. Programs in training and education will occur to facilitate a working pool of employees to ensure stability of the operation support of the local workforce.

All activities will occur continuously during the operation phase in order to explore, develop, extract, concentrate and sell minerals from the project. As the project nears final completion, activities will stop sequentially.

Exploration will continue during the operation phase of the project with the intent to define additional reserves for mining and processing through the operation. Activities included in exploration are as follows:

- Diamond Drilling
- Exploration Geology, Geophysics, Mapping, Soil Sampling, Trenching
- Drilling, Core Logging
- Geotechnical Drilling and Logging
- Geological Modelling and Reserve Estimation

Development activities will occur to provide access and service drifts (tunnels) from surface to the deposit. If deeper extensions of the ore deposit are discovered during the mining process, a shaft from surface may be necessary to access and haul ore from these deeper areas. Various types of underground workings include:

- A portal (opening at surface) for the commencement of a ramp (decline) will be used from surface to access the underground workings and act as a haulage route for manpower, materials, rock and ventilation.
- Lateral drifts on each working level connect the ramp to the deposit underground.
- Ventilation raises are near vertical tunnels that are used to provide clean air or exhaust to and from all of the drifts and ramps in order to provide workers with a clean air environment.
- Auxiliary raises/drifts are tunnels used to carry services such as compressed air, process water, dewatering, electrical, secondary and escape routes for the mine.
- Underground infrastructure with short termination (dead-end drifts) include, refuge stations, water collection sumps and pumping stations, electrical distribution substations, material storage areas, remucks (Rock storage areas), explosives storages, and washroom facilities.

Activities used for development will include:

- Horizontal development drilling is typically completed using an hydrolic jumbo drill (carrier mounted drills) and an operator in the larger drifts. Small drifts may be mined by jackleg.
- Vertical or inclined openings may be mined by a jackleg, stoper or wagon drill.
- Blasting is performed using hand-held pneumatic loaders or by hand loading emulsions sticks into the drilled holes. Blasting occurs, typically two to three times per day once everyone is confirmed out of the mine.
- Mucking is a term to describe the removal of the rock (ore or waste) from a development heading typically with a scoop tram (Low profile front end loader). The rock is placed into a low profile truck for haulage to surface or remuck location for further handling.
- Haulage is completed using underground low profile haul-trucks that are loaded by the scoop trams. The trucks are used for hauling rock (ore and waste) out of the mine as well as hauling waste rock and cement back into the mine during the backfilling phase.
- Ground support such bolts, screen/mesh and rebar are typically used as required to ensure rock stability of the walls and roof of the underground workings in order to ensure safety for all workers throughout the project life. This is completed according to an engineering procedure and planning and varies based on type of rock, locations, duration of opening, etc. The tasks included in ground support are drilling holes, installing a steel mesh screen over the rock face and securing it in place using various tendons or "rock bolts".
- In addition to ground support, other underground construction may include cement work, timber work, steel work, plumbing, electrical work, in order to provide necessary services and improve safety.

Extraction/production activities will be continuous and repetitive compared to other activities that take place in the mine. Once various production areas in the mine are prepared, production miners will take over and accomplish the following activities in order to provide ~1000 tonnes per day of ore mill feed material to surface:

- Production drilling at Pickett Mountain will comprise near vertical holes on rings within a production area or panel (stope). These rings are drilled in a distributed grid to effectively distribute explosives throughout the panel for optimized fragmentation of the rocks.
- Blasting practices are similar in process to development but on a larger scale and in vertical holes vs horizontal holes. These activities are typically performed by hand including the loading of explosives into the drilled blast holes.
- Mucking is similar to the development activity. However, mucking for production is sometimes done via remote control in order to reduce the risk of injury to the operator.
- Haulage of ore is similar to the haulage of development rock activity.

- Backfilling is complete after a production area has been completed and there is a significant void left behind to be filled. Backfilling can occur using a scoop tram dumping waste material back into the void. This material is typically waste rock that has been hauled to surface during the development phase. Another backfilling method is by utilizing tailings from the concentrator and blending it with the waste rock and sometimes with some cement as binder.

Concentration of ore mill feed takes place on surface via the concentrator facilities and is described in detail in another section of this Petition. The activities that will occur within the concentrator to separate the valuable minerals from the non-valuable minerals will include the following:

- Comminution is the act of crushing and grinding the ore mill feed material to a fine powder. The grain size of the powder is specifically targeted to liberate or expose the valuable minerals within the rock with the least amount of grinding and energy.
- Flotation is a process that involves mixing several reagents with the ground rock in a series of baths then injecting air bubbles. The chemicals cause the valuable minerals to selectively attach to the bubbles. The bubbles then float to the top of the bath and overflow producing concentrate. The materials that are not selectively floated (sank in the bath) are collected, cleaned and sent to the TMF.
- Reagent mix is completed to ensure that various chemicals within the process are prepared and delivered when and where designed.
- Each of the products generated from the flotation process are thickened to a thick paste then dried to a predetermined specification. This is typically performed by a type of pressure filter.
- Tailings (waste byproduct) is the remaining ground rock that did not float into a valuable concentrate. This material is cleaned and thickened so that it can be stored on surface within an engineered facility in order to mitigate any potential impacts to the environment that could be caused by this material. The full management of tailings is discussed in detail in another chapter of this Petition.

The concentrator will generate three separate concentrates of copper, lead and zinc that will be transported and sold to a smelter for further refinement into metals that can be used by industry. Transportation from Pickett Mountain will be via truck and trailer designed to haul concentrates and hauled on the existing highways infrastructure. A description of this process is described in greater detail further below.

#### **Phase 4 – Reclamation/Remediation**

The overall design and operational strategy at Pickett Mountain is to limit and maintain a small environmental impact throughout all phases of the project (construction and operation). For example, as the project generates tailings from production, they will be stored in separate cells,

such that a completed cell will be closed and reclaimed while the next cell is in use. This will spread the closure and reclamation over the life of the project, rather than at the end. Ongoing closure can be monitored and adjusted to maximize efficiencies and effectiveness.

Upon completion of the mine and processing of all ore, final reclamation activities will take place. These activities will be based on a previously engineered and approved reclamation plan required by the mining application. A description of this process is described in greater detail in a subsequent section of this Petition.

The majority of the required reclamation work will be completed by a skilled workforce from the state and include

- Decommissioning, sale and salvage of steel and site buildings.
- Ground surface cleanup and contouring.
- Spreading overburden, soils and buffer capping material on the impacted sites and tailings.
- Construction of underground opening blockages (plugs.)
- Removal of pond and storage pad infrastructure.
- Continued operation of water treatment facility and monitoring of water quality.

A high-level schedule of the 4 project phases is shown in the following chart.

Year	Years From Mining Permit Approval														
	-1	-2	0	1	2	3	4	5	6	7	8	9	10	11	12
<b>Permitting Phase</b>															
Conceptual Plan															
Rezoning Petition Submission															
Dialogue with Commission															
Approval of Rezoning															
Mining Application Initiated															
Baseline Study Work Proposal															
Baseline Study Work Approval															
Baseline Study Work Execution															
Mining Application Final Submission															
Mining Permit Approval															
<b>Construction Phase</b>															
Removal of trees and grub the land.															
Construction of roadways and working areas															
Construction of mineralized and waste rock pads.															
Installation of Temporary Power Generation.															
Installation of temporary explosives magazines (Rental from supplier).															
Installation of ground and surface water monitoring locations.															
Installation of air monitoring systems.															
Construction of the water management ponds and discharge structures.															
Construction of the water treatment facility.															
Construction of temporary shop facility.															
Excavation of the mine portal and services															
Begin mining development.															
Excavation of ventilation raise to surface.															
Installation of potable water system.															
Installation of security infrastructure.															
Installation of mine offices and dry facility.															
Installation of warehouse and laydown area.															
Installation of electrical substation															
Tie in electrical infrastructure grid															
Construction of TMF stage 1.															
Construction of Concentrator and supporting facilities.															
Construction of permanent shop facility.															
<b>Operations Phase</b>															
Mine Development															
Mine Production Ramp Up															
Commercial Production															
Production Ramp Down															
Mine Closure															
<b>Reclamation Phase</b>															
Decommissioning of site buildings															
Site final cleanup and contouring															
Capping and closure of tailings facility															
Spread stored overburden and capping material on impacted sites															
Construction of underground blockages (Plugs)															
Removal of Pond and storage pad infrastructure															
Operation of water treatment facility															
Removal of water treatment facility															
Ground and surface water monitoring program															

### High Level Schedule of Mine Permitting, Construction, Operation and Reclamation