Silvertip Mine

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JDS SILVER

Allnorth

TABLE OF CONTENTS

1 PROJECT OUTLINE 1

2 PROJECT HIGHLIGHTS 1

3 DESCRIPTION 2

4 MAJOR COMPONENTS 4

4.1 Process facilities 4

4.2 Access Road 5

4.3 Camp Facilities and Infrastructure 5

5 COMPLEXITY 6

6 SOCIAL AND/OR ECONOMIC BENEFITS 7

7 ENVIRONMENTAL BENEFITS 7

8 MEETING THE CLIENT'S NEEDS 8

9 PROJECT TEAM 8

1 PROJECT OUTLINE

JDS Silver needed to develop the Silvertip mine quickly and keep expenditures low. Allnorth's ingenuity and pragmatic engineering helped create a successful project within an industry plagued by low commodity prices and diminishing investments. Silvertip was designed and constructed within 10 months, which led to significant cost savings over a conventional mine development approach. Silvertip now provides valuable economic benefits and is one of only nine operating metal mines in the province.

2 PROJECT HIGHLIGHTS

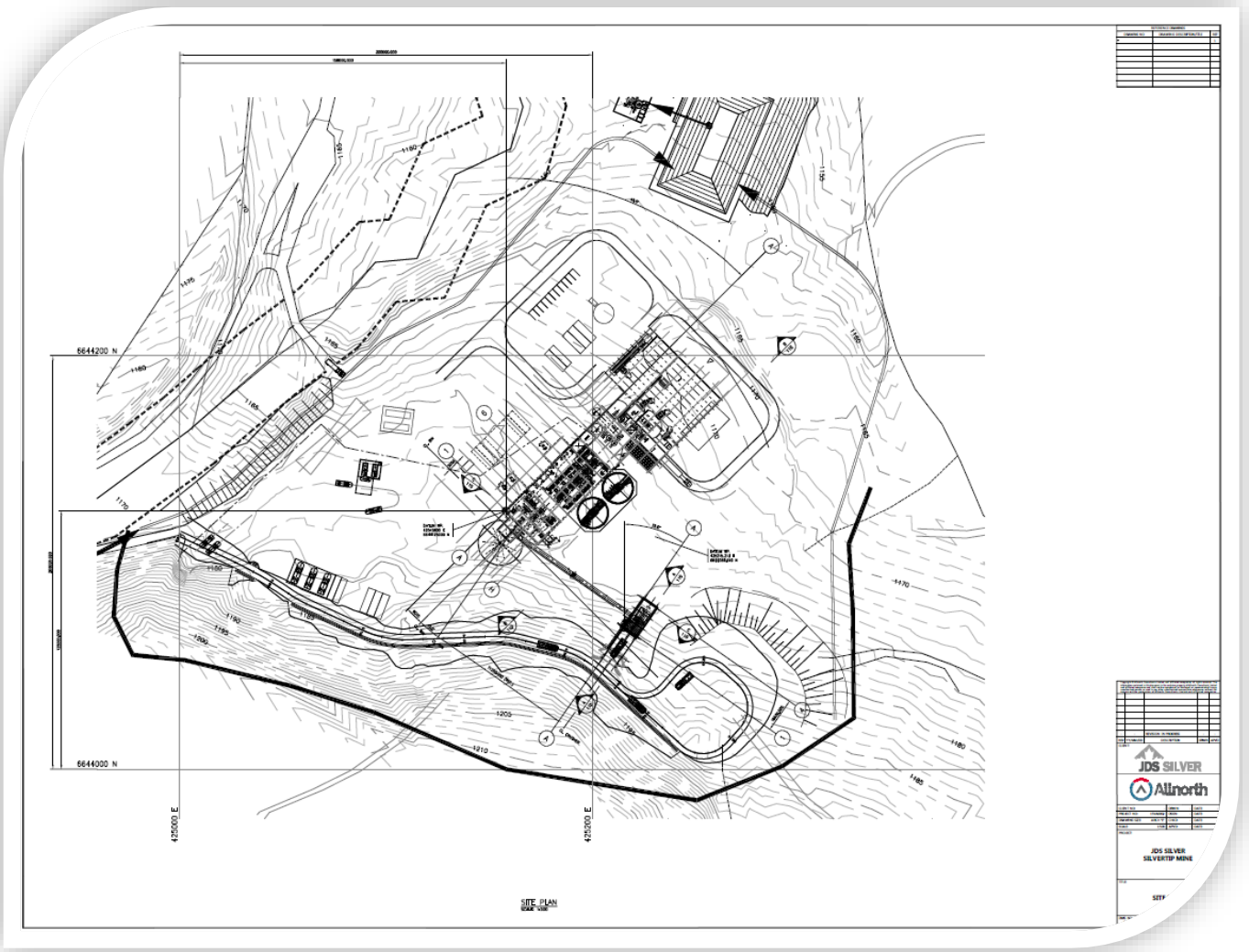
Previous owners of the Silvertip mine had invested over $200M in the property, however, the costs associated with conventional mine development had made the project uneconomical and unattractive. Commodity prices had fallen by 25% in the previous year and the average return on capital in the mining sector fell to 4% from a high of 24% in 2011.

JDS Silver identified Silvertip as a viable economic opportunity, seeing potential to unlock value in the asset. They needed a new and innovative approach to develop the project in order to provide a significant return for their investors, and in a very short time frame. The conventional mine development phases of engineering, procurement, construction and commissioning was consider too expensive and lengthy to be an option.

With almost every large mine operator looking at liquidating assets to keep afloat, this project took this as an opportunity and began with the procurement of major components from other mines. These used components were purchased for a fraction of the cost of original equipment. The time required to de-construct and transport to Silvertip was highly expedient and allowed the project to fast track the engineering and construction phases.

The Sa Dena Hes underground mine owned by Teck resources provided the majority of the buildings, the generator, crusher, and concentrator equipment. All the structural steel was recovered, including the fuel and water tanks. In addition, an unused paste plant was purchased from Diavik Diamond Mine and two used 50-person camps were re-commissioned.

This innovative approach meant the engineering was done while construction was ongoing. Allnorth was able to provide expedited results while the project was in constant motion. The ability to be flexible and adapt to changing conditions was key to delivering on the compressed project schedule. Allnorth was also able to re-utilize engineering from Sa Dena Hes for much of the foundation, structural, mechanical and electrical elements. To mitigate lost time Allnorth was providing field engineering to onsite crews to ensure an expedited response to any unexpected construction conflicts or challenges.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SITE PLAN
JDS SILVER
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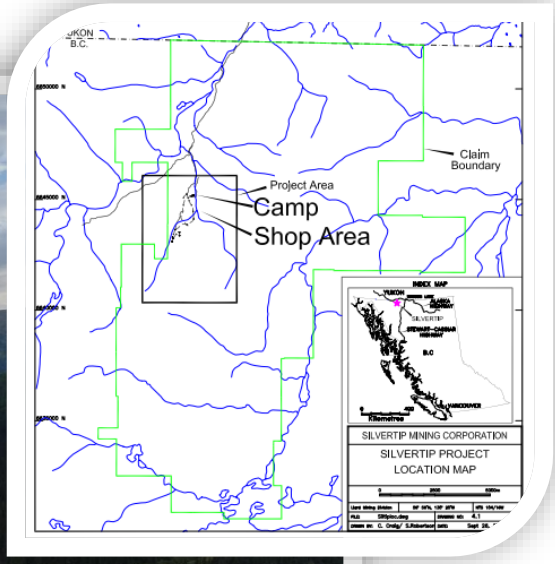
JDS SILVER
SILVERTIP MINE

Site Plan

3 DESCRIPTION

Silvertip is an underground silver-lead-zinc mine located in northern British Columbia, approximately 16 km south of the Yukon border and 90 km southwest of Watson Lake. The site is located within the Silvertip Creek valley, in the Tootsee River Watershed. The Silvertip Project property has a long history of mineral exploration dating back to the 1957 discovery of the Silvertip Deposit. Since then, several companies have held mineral claim and undertaken extensive exploration activities on the property. The property contained significant existing site infrastructure and 20 years of environmental baseline data.



Site Location

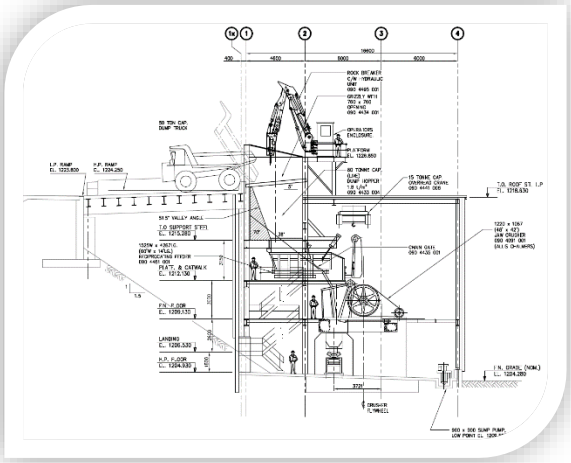
Mine Site Construction

JDS Silver Inc. is a private Canadian mine development corporation that was formed for the purchase of the Silvertip Project. JDS Silver purchased the project in late 2013. The permit application was submitted in November 2014 and the mine permit was approved and received in June 2015. The project officially started with the access road upgrades and Rancheria River bridge construction in December 2015.

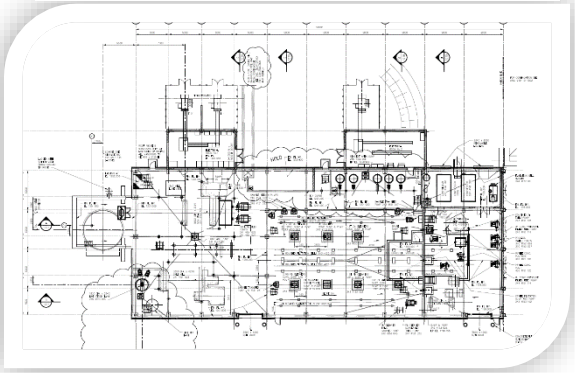
4 MAJOR COMPONENTS

4.1 Process facilities

- 1,200 tpd mill
  - Generator building and equipment (2x 2MW and 2x 1 MW)
  - Crusher building and equipment (jaw crusher)
  - Concentrator building and equipment (SAG mill, ball mill, regrind, flotation, dewatering)
  - Warehouse building
  - Maintenance building
  - Fuel tank
  - Water tank
- Paste Plant
  - 2 paste pumps (2 x 300hp motors per pump)
  - Paste mixer
  - Disc filter
  - Blower



Crusher Building



Concentrator Building

Paste Plant

4.2 Access Road

- 0km -15km in Yukon Territory and 15km - 23.5km in British Columbia

Rancheria River Bridge Installation

  - New 120ft bridge installed at 0km (and approaches)
  - 6 major road crossing culverts installed (all culverts on road washed out in 2012)
  - Road padding at multiple locations using borrow pits from road widening
  - Extensive ditching
  - Roadside pull-out's constructed every kilometer

4.3 Camp Facilities and Infrastructure

- Existing 50 person camp and kitchen re-commissioned
- 2 used 49 person camps installed including:
  - Septic system (field system and tank) to accommodate 22,000 L/day
  - 2 additional water wells drilled, pumps and pressurized systems
  - Two 175 kW generators
  - Earthworks and parking
- Water Treatment Plant
- Water Ponds
- Dry Stack Tailings Area
- LNG Power Plant

Camp

- 5 x 1.3 MW generators
- 1 x 1.5 MW diesel backup generator
- Total install 7.3 MW (4.4 MW operating load)

- LNG Supply and Storage
  - Cryopeak transportation, storage and regasification, remote monitoring, and emergency response
  - Cryopeak supporting LNG sourcing

LNG Power Generators and Storage

5 COMPLEXITY

To make the project economical in a period of depressed commodity prices the majority of mechanical and electrical equipment would need to be used and the mine needed to start production as quickly as possible in order to generate a positive cash flow. With those conditions in place, Silvertip was ultimately going to be an unconventional engineering project in that it did not follow discrete and typical sequences of engineering, procurement, construction and commissioning and would require significant flexibility and capability for fast and responsive design processes.

Mill Disassembly

In order to meet the client's schedule, over seventy-five different personnel worked on the project across eight different offices. The project moved fast and conditions at the mine site were in constant flux. The Northern climate was a contributing factor to the short construction schedule as many components had to be completed before the outside temperatures became too cold and snow covered the ground. Coordination with the construction team and the engineering leads required daily contact. Efficient and effective project management was critical to the execution as many different disciplines from civil, structural, mechanical, piping, electrical and instrumentation were active simultaneously.

Winter Construction

With process and structural engineering underway, major mechanical and electrical components were still being sourced. Consequently, engineers had to anticipate and accommodate the design for numerous unknown factors to ensure the final design would be successful.

The 23 km long access road began in the Yukon Territory and crossed into British Columbia and each governing body had their own rules and regulations.

6 SOCIAL AND/OR ECONOMIC BENEFITS

The mine will create up to 200 fulltime jobs over the next 20 years. These jobs will be created in a region that has one of the highest unemployment rates in the province. The local unemployment rate is 20% higher than the provincial average and is 50% higher than that of Greater Vancouver according to Statistics Canada. These skilled jobs pay above average salaries and provide numerous economic benefits to nearby communities.

Located in the traditional territory of the Kaska First Nation, JDS Silver is fully committed to keeping safety, tradition and the natural heritage at the forefront of the mine development and operation. JDS Silver and the Kaska First Nation have a social economic partnership agreement that will allow the Kaska First Nation to benefit significantly from the successful operation of the mine. The project was able to source localized talent and approximately 25% of the persons employed on site were First Nations, 80% of which were from the Kaska First Nation.

Chief Ruby Johnny, Dease River First Nation -

"The Kaska First Nation thanks both JDS Silver and the Ministry for their hard work to ensure that the Silvertip Mine will be a truly sustainable operation and that our traditional territory will be protected. The Kaska people look forward to continuing to work with the Company on development and operation of the Silvertip Mine. Our involvement throughout the project continues to be seen positively by our people and represents the standard for collaborative development of First Nation Resources."

7 ENVIRONMENTAL BENEFITS

JDS Silver and the Ministry of Mines and Energy's personnel, with support from the Kaska First Nation, worked diligently to ensure that the Silvertip Mine will be one of the most environmentally responsible operations in the province. JDS Silver has committed to dry-stack tailings versus a conventional tailings pond, resulting in very little post-closure impact on the environment. The company intends to leave the land with minimal impact while maximizing benefits to all of its stakeholders and their partners, the Kaska First Nation.

The vast majority of material that went into the construction of Silvertip was reused from other mining operations. The process of reusing local equipment reduced the overall environmental footprint of the project, as the resources required to create, transport and install new equipment were negated.

The mine site is in a remote corner of the province, isolated from North America's electrical grid. Thermal generation options included diesel and liquefied natural gas (LNG) as the energy source. A highly efficient LNG power plant was selected. LNG is beneficial over diesel as it produces less greenhouse gas emissions and is not vulnerable to spills and ground contamination.

8 MEETING THE CLIENT'S NEEDS

Allnorth successfully met the client's overall requirements and were able to deliver on JDS Silver's three primary mandates when it came to the development of Silvertip, it had to be zero harm, on time and on budget.

These successes are demonstrated with over 22,000 hours of detailed engineering and onsite commissioning that were performed with no recorded safety incidents.

Allnorth completed project on time and production at the mine commenced 10 months after the start of the project.

The detailed engineering and onsite commissioning was delivered on budget and accounted for less than 5% of the final project cost.

9 PROJECT TEAM

Client / Project Owner:	JDS Silver
Engineering:	Allnorth
Project Management:	JDS Energy & Mining Inc.
Construction:	JDS Energy & Mining Inc.