

# Heritage Silver Trail, Cobalt

## Road Tour of a Historic Silver Mining Camp



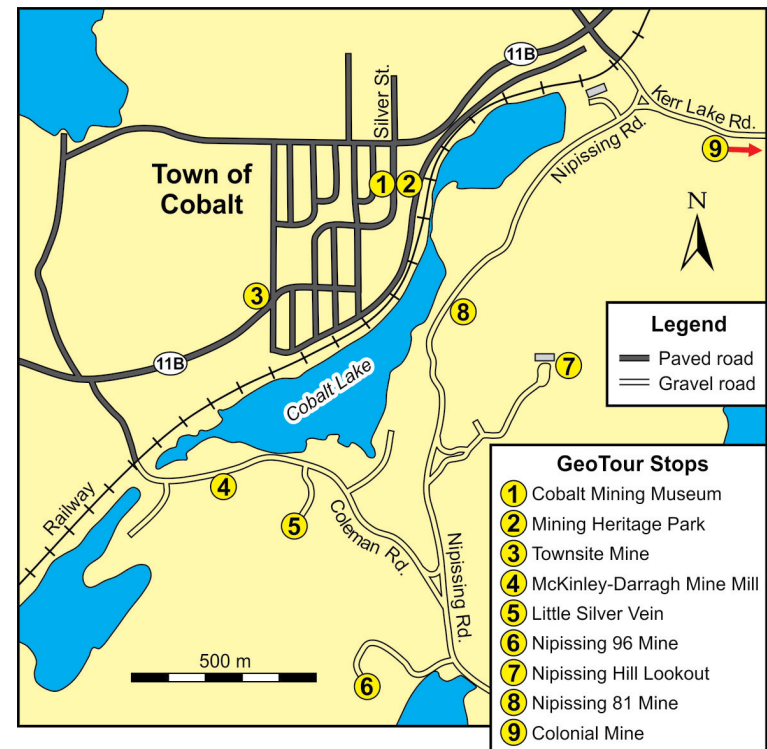
The Right-of-Way Mine headframe rises above the shores of Cobalt Lake on the outskirts of Cobalt.

## How to get to the Heritage Silver Trail

Cobalt is 210 km by highway northeast of the City of Greater Sudbury. Highway 11B through town becomes Silver Street, where the Cobalt Mining Museum is located. You can pick up a trail guide and map for the Heritage Silver Trail at the museum. This self-guided tour, best done by car or bike, takes visitors through the back roads of the Cobalt mining camp. There are 20 sites along the trail, each marked with interpretive signs that explain the history and mining practices of this once booming mining camp.

This GeoTour guide focuses on a few of the Heritage Silver Trail sites that best tell the story of mining and geology of the Cobalt camp.

The famous silver mining town of Cobalt has earned the distinction of being Ontario's most historic town. Cobalt is one of only 3 mining camps in Canada—Dawson City in Yukon and Barkerville in British Columbia are the others—to be designated as a National Historic Site. Cobalt is rich with mining history. You can walk the streets of this historic town, tour a former underground mine, or visit nearby historic mine and mill sites on the Heritage Silver Trail.



A map of GeoTour stops at Cobalt.

# Heritage Silver Trail, Cobalt

## Silver rush! The billion dollar bonanza and cradle of Canadian mining

Silver was discovered on the shores of Cobalt Lake in the summer of 1903. Within a few years, Cobalt became one of the largest silver producers in the world, supplying an astonishing 333 million ounces, or more than 10 000 tonnes, of silver by 1922 from 100 mines. In fact, Cobalt's silver fortunes far exceeded those made from Klondike gold. But like many mining rushes, the glory days of Cobalt were relatively brief. Mining at the early busy pace continued until the 1930s, after which there was a gradual decline to the 1970s.

Because of those first 3 decades, however, Cobalt's silver mines can lay claim to being the birthplace of hard rock mining in Canada. While the nickel mines of Greater Sudbury had been operating since the late 1880s, Cobalt's ores were near the surface, and men with limited experience and means could prospect, begin mining and improve their skills as they mined deeper. Many miners learned their trade in Cobalt, and then moved on to discover gold in Kirkland Lake, Timmins and elsewhere. The hundreds of relatively small mines developed early in Cobalt's history were consolidated over the years into bigger mining companies that went on to develop mines elsewhere.

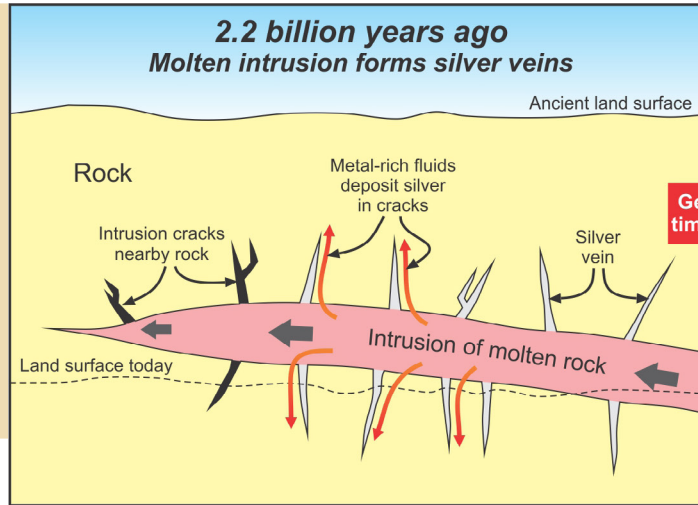
The Cobalt Stock Exchange relocated to Toronto to become the Toronto Stock Exchange, and Cobalt mines greatly increased the wealth of Canadian banks. Moreover, the riches from Cobalt funded railways that opened up Northern Ontario. Mining technology was pioneered at the mines in Cobalt, and generations of mining specialists who trained at the nearby Haileybury School of Mines went on to develop mines across Canada and around the world.



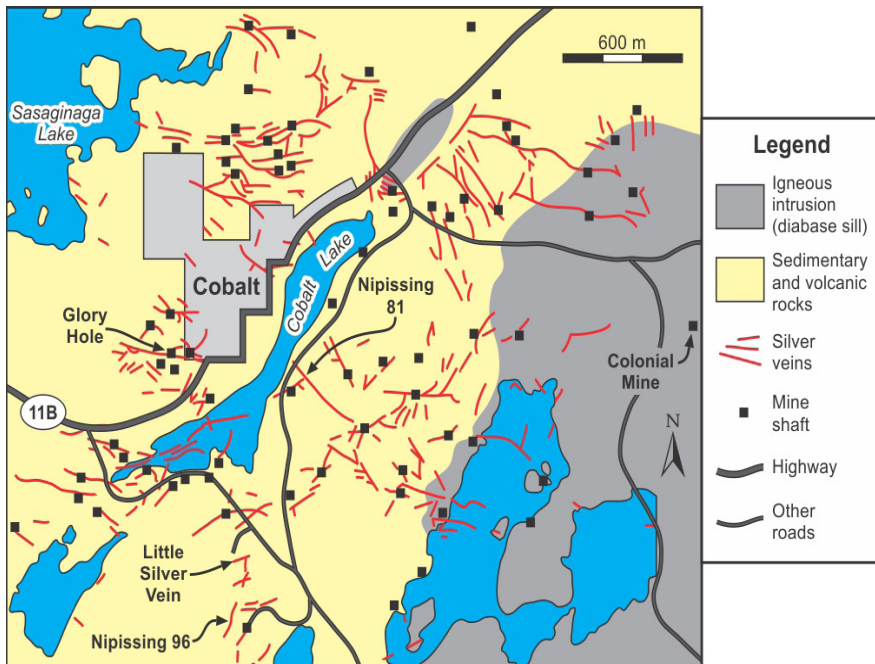
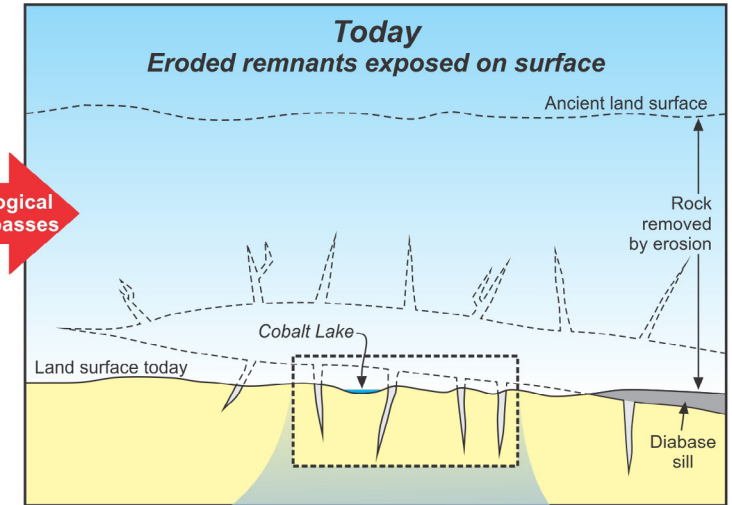
A miner drilling underground at Cobalt. *Photo courtesy of the Cobalt Mining Museum.*

# Heritage Silver Trail, Cobalt

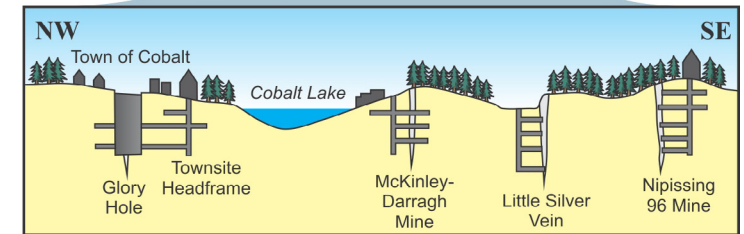
A cartoon showing the possible geological origin of the Cobalt silver veins. This illustration is a generalized cross-section showing the Cobalt area along a line from the northwest to southeast. The diabase sill is exposed on surface only in the southeast, but it is believed that it once extended across the entire area.



Geological time passes



A map showing the distribution of silver veins and mines near Cobalt.



## What made Cobalt so rich?

The many mines and great silver wealth of Cobalt reflect the occurrence of a dense cluster of small but rich veins near Cobalt. The veins formed during the intrusion of a great molten sheet of magma deep in the Earth 2.2 billion years ago. This igneous intrusion cracked the surrounding rock as it forced its way in, and hot silver-rich fluids related to the intrusion deposited silver and related metals in the cracks. The flat-lying intrusion, or *sill*, crystallized to a dark-coloured, coarse-grained layer of rock, called diabase, about 300 m thick. Erosion has removed much of the diabase sill and only remnants of the original silver veins and diabase remain.

# Heritage Silver Trail, Cobalt

## ➤ Stop 1: Cobalt Mining Museum

GPS co-ordinates: N47° 23.734', W79° 41.149'

Make the Cobalt Mining Museum your first stop in Cobalt. The museum has one of the finest collections of silver ore in the world as well as photographs, artifacts and memorabilia that bring the history of the Cobalt mining camp to life. At its peak, the town of Cobalt had a population of 10 000. It was the first town in Northern Ontario to have a street car system, professional hockey teams, a provincial police detachment, an opera house and even a stock exchange.

Museum staff can help you plan your visit to Cobalt. Obtain a guide for a historic walking tour of the town or the Heritage Silver Trail. Tours of an underground mine and a nearby mine headframe depart from the museum.



**Stop 1:** The small front of the Cobalt Mining Museum disguises the actual size of the seven-room display of Cobalt's history.

**Stop 1:** This piece of native silver ore from a mine near Cobalt is part of a unique chain of office created for the Mayor of Cobalt. Cobalt-bearing minerals commonly occurred in the silver veins, and gave the town its name.



# Heritage Silver Trail, Cobalt

## ➤ Stop 2: Mining Heritage Park

GPS co-ordinates: N47° 23.734', W79° 41.149'

Across the street from the museum is a small park with an interesting cluster of sculpture, historic mining equipment, commemorative markers, outcrop of conglomerate and a headframe.



**Stop 2:** The Pan Silver headframe across the street from the Cobalt Mining Museum is the Willet Green Miller Memorial, Site #14 on the Heritage Silver Trail. The headframe was moved to the site from a nearby mine when the mine ceased production in 1978.



**Stop 2:** A bronze relief sculpture commemorates the miners of Cobalt.

# Heritage Silver Trail, Cobalt



**Stop 2:** The outcrop in the park is a rock composed of cobbles. This rock, known as conglomerate, occurs throughout the Cobalt area and formed from an ancient gravel deposited by glaciers more than 2.2 billion years ago.

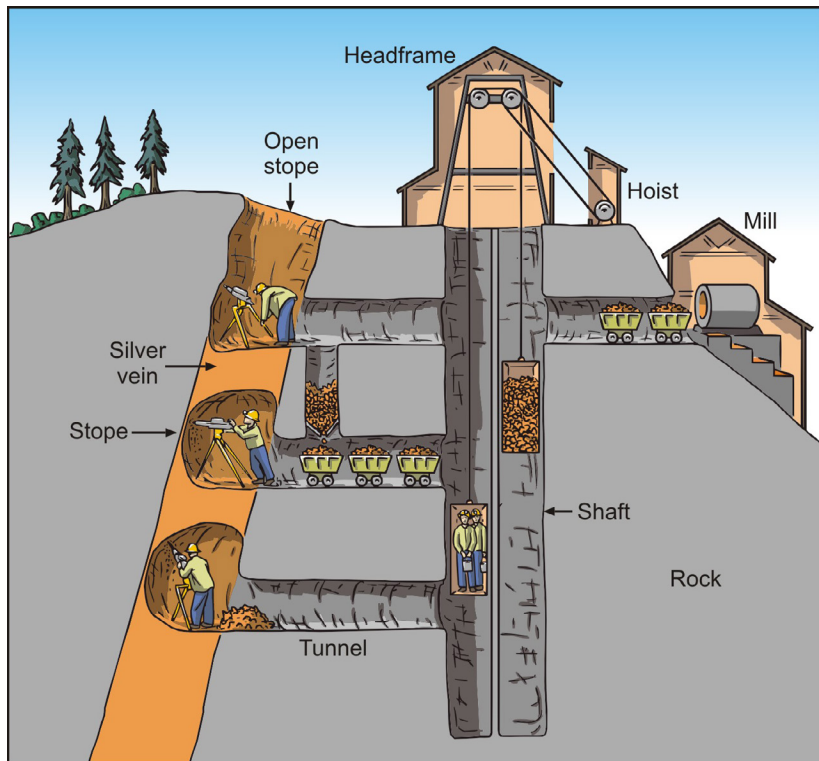
**Stop 2:** A plaque honours Willet Green Miller, Ontario's first Provincial Geologist. Miller read the secret of the rocks at Cobalt. He identified the ore minerals for miners, and determined the structure of veins that led to further discoveries. His research began the study of the geology and mineral wealth of Ontario by government geologists that continues today in the work of the Ontario Geological Survey.

# Heritage Silver Trail, Cobalt

## ➤ Stop 3: Townsite Mine and glory hole

GPS co-ordinates: N47° 23.534', W79° 41.429'

The first and second sites on the Heritage Silver Trail are the Townsite Mine and glory hole along Highway 11B at the south end of Cobalt. Headframes are the iconic mine buildings of Cobalt, the visible part of the largely subterranean mine workings. A sink hole by the headframe is a reminder of the miles of mine tunnels below the town of Cobalt. A short walk leads to the glory hole, a deep opening that connects to the mine workings below your feet.

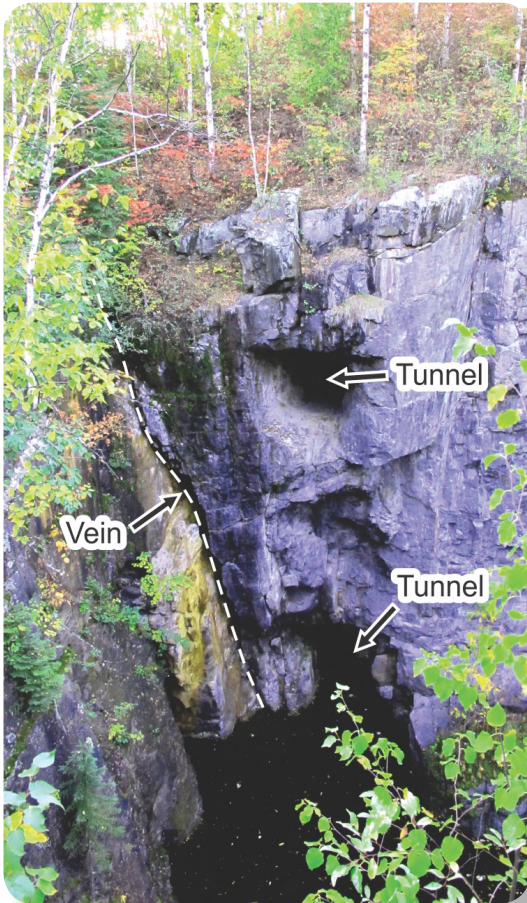


**Stop 3:** A headframe is a tower constructed above the mine shaft house cable and pulleys. Cables thread through the pulleys and connect to a powered hoist, raising and lowering cages with miners, equipment and ore. Stopes are openings, or rooms, made in the rock when ore is extracted.

**Stop 3:** The Townsite Mine building included a headframe and adjacent mill. The building sits beside a fenced sink hole caused by the collapse of the surface into underlying mine workings.



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**Stop 3:** A glory hole is formed when underground mining comes to surface, creating a surface opening. This glory hole was created by mining a vein from the lower levels of the Townsite Mine. The ore was removed from below and carried in rail cars through a tunnel to the Townsite Mine shaft for hoisting to the surface. The walls of the glory hole provide a glimpse of the mine workings.

## ➤ Stop 4: McKinley–Darragh Mine mill site

GPS co-ordinates: N47° 23.290', W79° 41.504'

Many mills operated in the Cobalt camp, processing the silver ore by crushing and separating the ore minerals from waste rock. The foundations of the McKinley–Darragh Mine mill, the first to operate in the Cobalt mining camp, illustrate the scale of these mills. This mine was named for the discoverers of the Cobalt camp, James McKinley and Ernest Darragh. They found glittering rocks on the shores of Cobalt Lake in August of 1903 while working on construction of the Temiskaming and Northern Ontario Railway. They had learned to test nuggets by biting them with their teeth and recognized soft native silver in the shiny shoreline rocks.

**Stop 4:** The foundations of the former McKinley–Darragh mill. This mill was built on a hillside so that crushed ore would flow downward by gravity through the various milling stages in the plant.





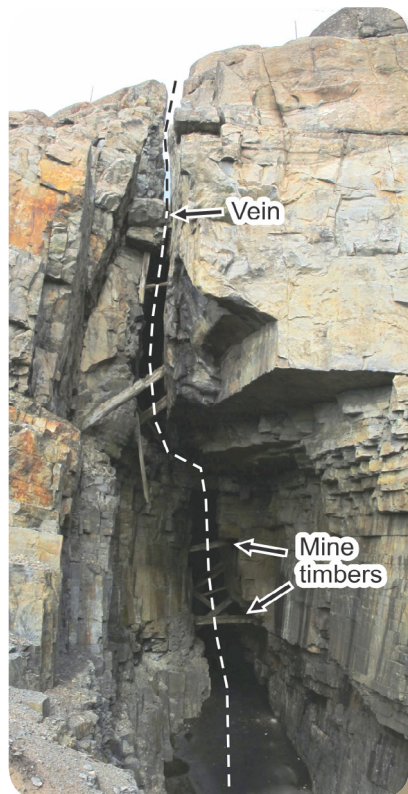
# Heritage Silver Trail, Cobalt

## Stop 5: Little Silver Vein

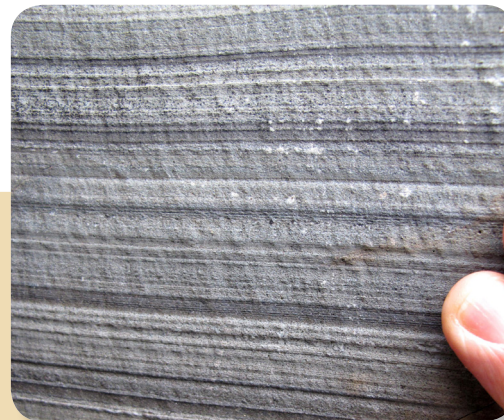
GPS co-ordinates: N47° 23.157', W79° 41.244'

Cobalt is famous for the abundance of silver veins nearby. The Little Nipissing silver mine site provides a profile view of mine workings along one such silver vein named the Little Silver Vein. The cleft-like workings of the mined-out vein are exposed in a cliff face and allow you to imagine both confined life of a Cobalt miner underground, as well as the narrowness of the vein that was the miner's prize.

The Little Nipissing silver mine site also displays one of the local rock types that host the veins. The finely layered rocks formed from ancient silt and mud that accumulated on the floor of an ancient sea during a glaciation more than 2.2 billion years ago. At the top of the cliff is a layer of conglomerate that overlies the layered rocks, and like the conglomerate at Stop 2, was deposited by glaciers on the ancient seafloor.

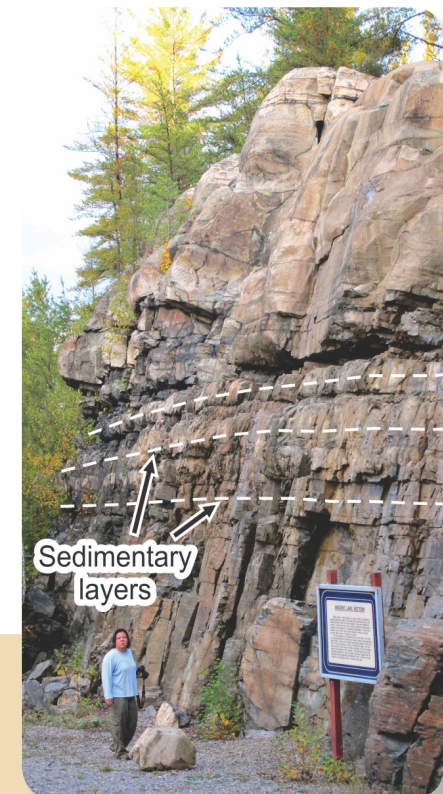


**Stop 5:** A close-up of finely layered rock exposed in the cliff.



**Stop 5:** The underground workings of the Little Nipissing silver mine are exposed on a cliff face 20 m high. The narrow workings followed the Little Silver Vein that averaged only 20 cm wide but produced 700 000 ounces of silver.

**Stop 5:** Sedimentary layers exposed on a cliff at Little Silver Vein.



# Heritage Silver Trail, Cobalt

## ➤ Stop 6: Nipissing 96 Mine

GPS co-ordinates: N47°23.003', W79° 41.184'

The Nipissing 96 Mine site showcases a well-preserved headframe with its hoist room as well as a striking view of the crevasse-like opening of the former underground mine workings. This deep gash in the hillside is all that remains of silver vein No. 96. The vein was discovered by trenches dug down through the soil to the bedrock surface.

The vein was mined upwards from several tunnels that intersected the vein at various depths. The resulting open cut extends for a length of 142 m on surface and is 75 m deep.



**Stop 6:** The headframe of the Nipissing 96 Mine was used from 1968 to 1972.



**Stop 6:** A viewing platform straddles the narrow opening of the Nipissing 96 Mine, and allows the visitor a view into the former mine workings.

# Heritage Silver Trail, Cobalt

## ➤ Stop 7: Nipissing Hill lookout

GPS co-ordinates: N47° 23.466', W79° 40.797'



**Stop 7:** Nipissing Hill lookout is built on the foundations of the Cobalt camp's largest mill. Situated at the top of Nipissing Hill, the lookout provides a panoramic view of Cobalt and surrounding area. Much of the ore for the mill came from the Nipissing 73 Meyer Shaft Mine across the valley in Cobalt by way of an aerial tram.

**Stop 7:** Most silver ores from the Cobalt area also contained cobalt minerals. This cobalt-bearing sample of silver ore displays characteristic pinkish "cobalt bloom". This mineral coating results from weathering of cobalt-bearing minerals and was a helpful guide to prospectors looking for silver ore.

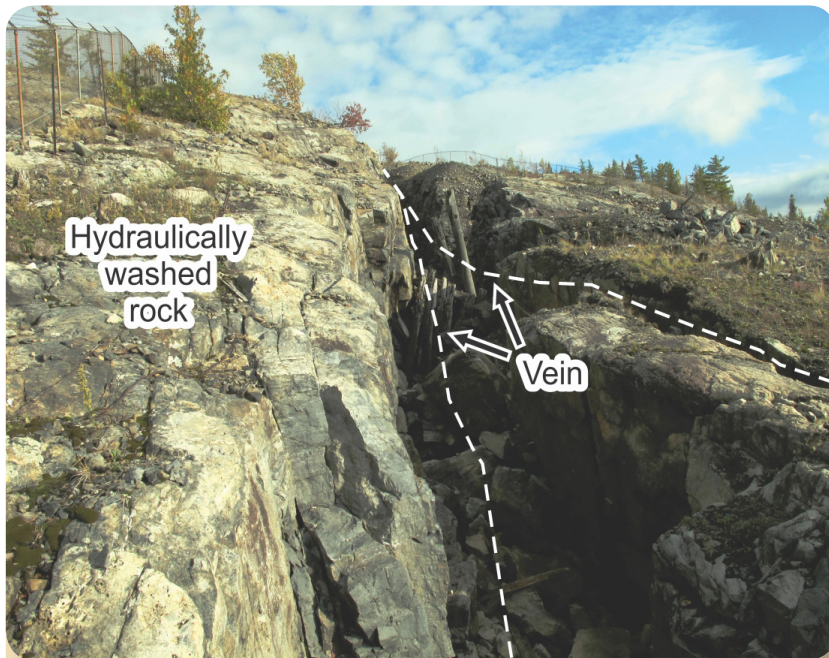


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## ➤ Stop 8: Nipissing 81 Mine site

GPS co-ordinates: N47° 23.525', W79° 41.039'

The Nipissing 81 Mine site sits on the flank of Nipissing Hill across Cobalt Lake from the town of Cobalt. Once covered with soil and trees, the hill was swept clean in 1914 by high-pressure hydraulic hoses in search of silver veins. Pressurized water was pumped from a plant on the shores of Cobalt Lake. The lack of vegetation on Nipissing Hill reflects this historic exploration practice which would not be allowed now.



**Stop 8:** The open cut of the Nipissing 81 Mine was mined from surface. The adjacent bare rock surface reflects hydraulic stripping of soils to expose the underlying silver veins.

## ➤ Stop 9: Colonial Mine underground mine tour

GPS co-ordinates: N47° 23.696', W79° 39.692'

The Colonial Mine operated from 1907 to 1937 and produced 1.25 million ounces of silver. The underground tour of the Colonial Mine provides an excellent sense of the dark, dank and cool working conditions of one of Cobalt's early mines. Visitors enter the mine through a horizontal tunnel, or *adit*, blasted into the hillside of diabase rock.



**Stop 9:** A guide explains early mining practices during a tour of the historic Colonial Mine.

# Heritage Silver Trail, Cobalt

**Authors:** Bob Turner and Marianne Quat (Natural Resources Canada), Ruth Debicki (Ontario Geological Survey), Phil Thurston (Laurentian University)

**Acknowledgments:**

Technical editing: Marg Rutka (Ontario Geological Survey)

Review: Christine Hutton (Natural Resources Canada), Tom Watkins (Ontario Geological Survey)

Graphic layout: Ashley Hubert (Ontario Geological Survey)

Graphic illustration: Richard Franklin

Assistance with research: Anne Fraboni and Reg Holdsworth (Cobalt Mining Museum), Jim Ireland (Ontario Geological Survey)

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