

# What is Mining?



# What is mining?

- Mining is extracting ore or minerals from the ground
- An ore is a natural material with a high concentration of economically valuable minerals that can be mined for a profit





# Types of Mines

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○ There are two main types of mines.

1) Surface Mining

2) Subsurface Mining



# Surface Mining

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- Mineral deposits are on or near the surface of the Earth and are removed.
- There are 3 types of surface mines:
  1. Open-pit: removes large, near surface deposits of minerals such as gold and copper. Mined downward in layers
  2. Quarries: stone, crushed rock, sand, gravel
  3. Strip Mining: removing surface coal in strips up to 50 m wide x 1 Km long



# Vulcan Quarry – Kennesaw, GA

Numerous minerals including siderite, stilbite, calcite, pyrite, and epidote. Some micromineral potential

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The Big Wall



# Vulcan Quarry – Kennesaw, GA

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**BIG Rock Sorter**



# Vulcan Quarry – Kennesaw, GA



Big Rock Truck



# Vulcan Quarry – Kennesaw, GA



Quarry Views 



# Vulcan Quarry – Kennesaw, GA

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**Blast Hole Driller**



# Vulcan Quarry – Kennesaw, GA



**Blast Holes Drilled**



# Chimney Rock, Bridgewater, NJ



**Bridgewater Sports Arena**



# Rt 78 near Watchung Reservation





# Bernardsville Quarry, NJ



Images from Google Maps



# Subsurface Mining

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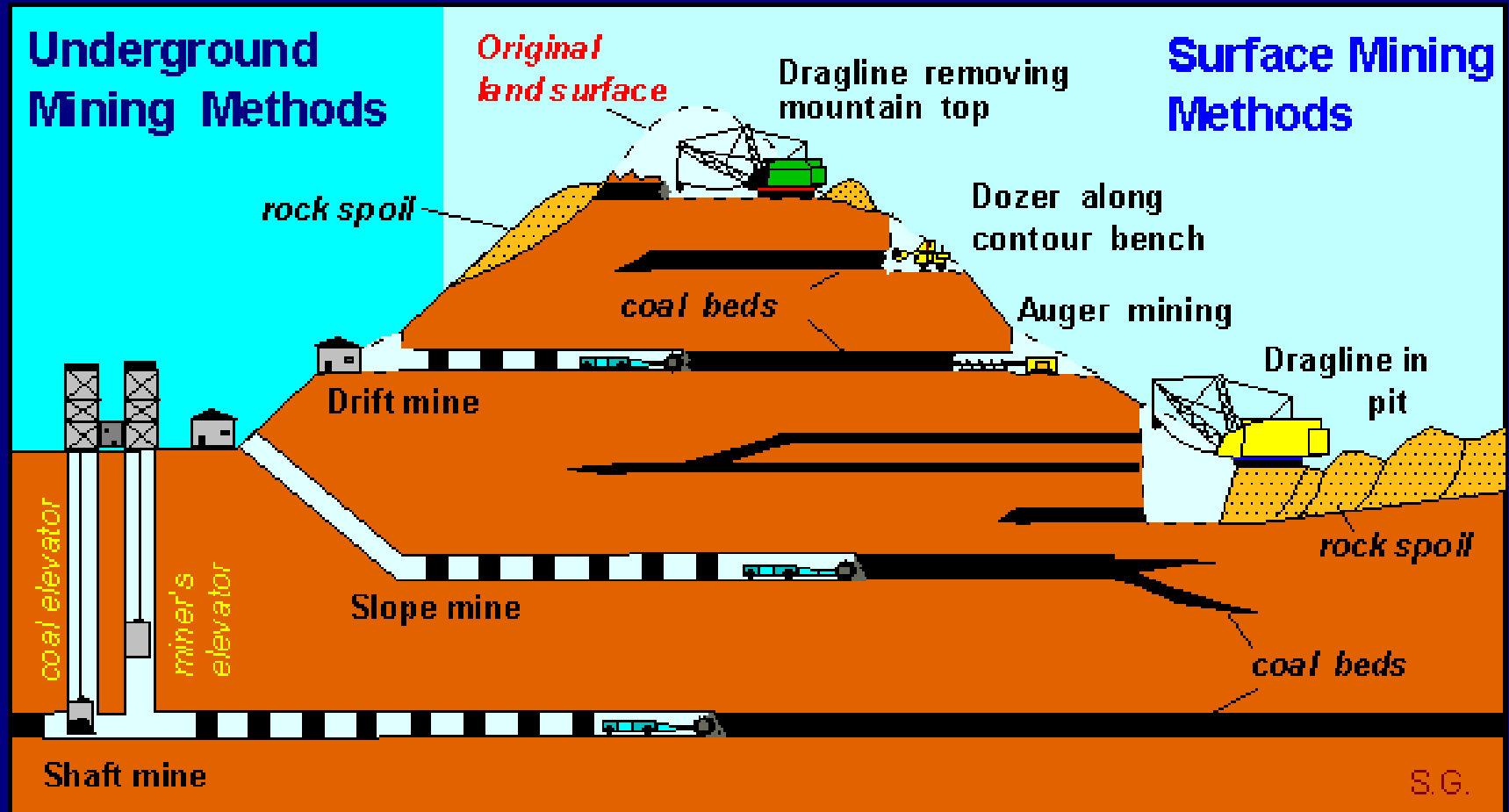
- ◉ Minerals are located too deep for surface mining
- ◉ Shafts and passageways are dug into the ground to reach the ores.



# Subsurface Mining

## Underground Mining Methods

## Surface Mining Methods





# Sterling Hill Mine

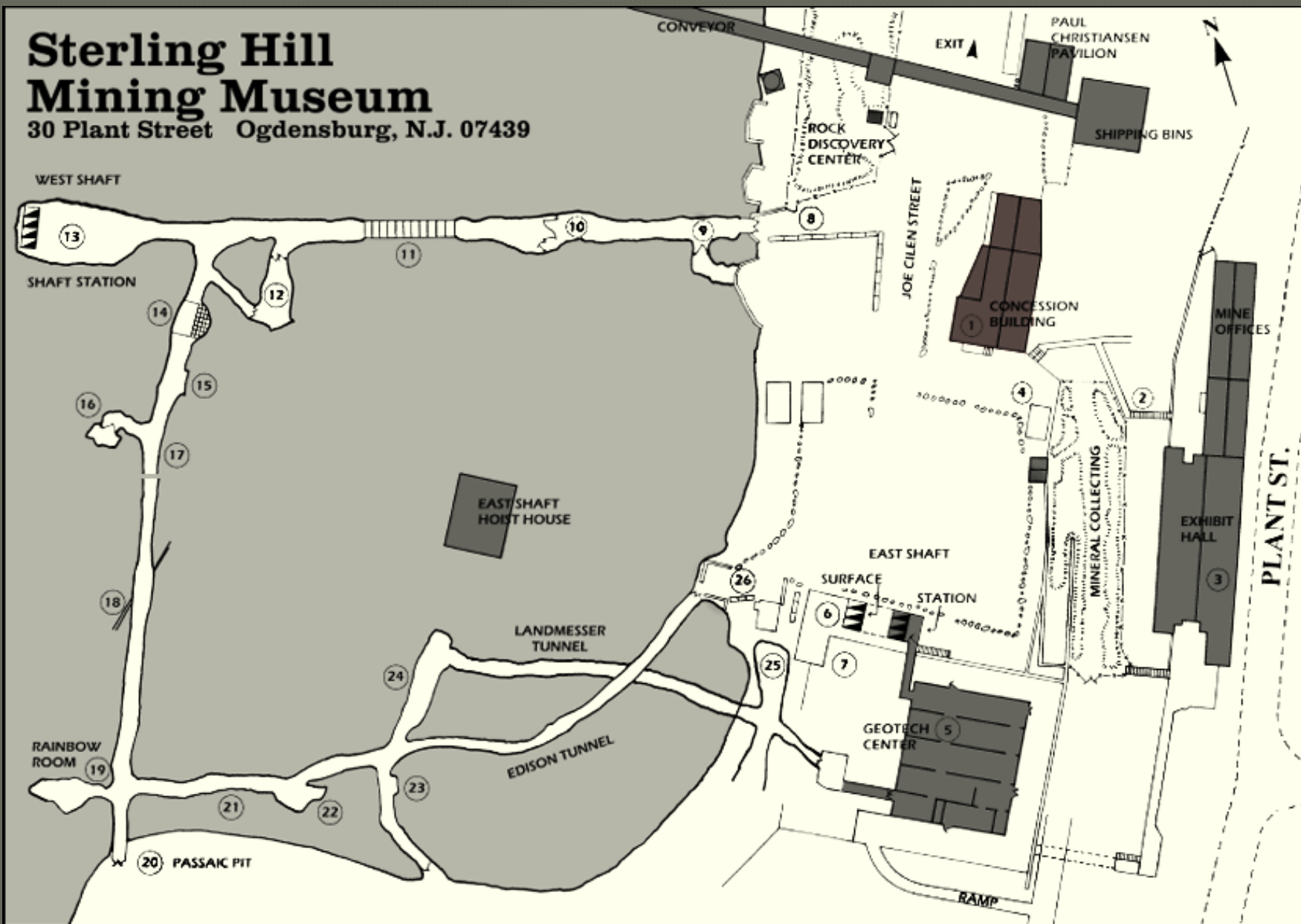
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- Last operating underground mine in New Jersey.
- Closed in 1986 after more than 138 years of almost continuous production.
- Produced more than 11 million tons of zinc ore
- Depth of more than 2,550 ft below the surface through tunnels totaling more than 35 miles in length.



# Sterling Hill Mining Museum

30 Plant Street Ogdensburg, N.J. 07439





# Reclamation

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- Mining can destroy or disturb habitats
- Waste products can pollute water systems
- When a mine is no longer being used, the land should be returned to its original state or better = Reclamation
- Surface Mining and Reclamation Act of 1975



# Reclamation



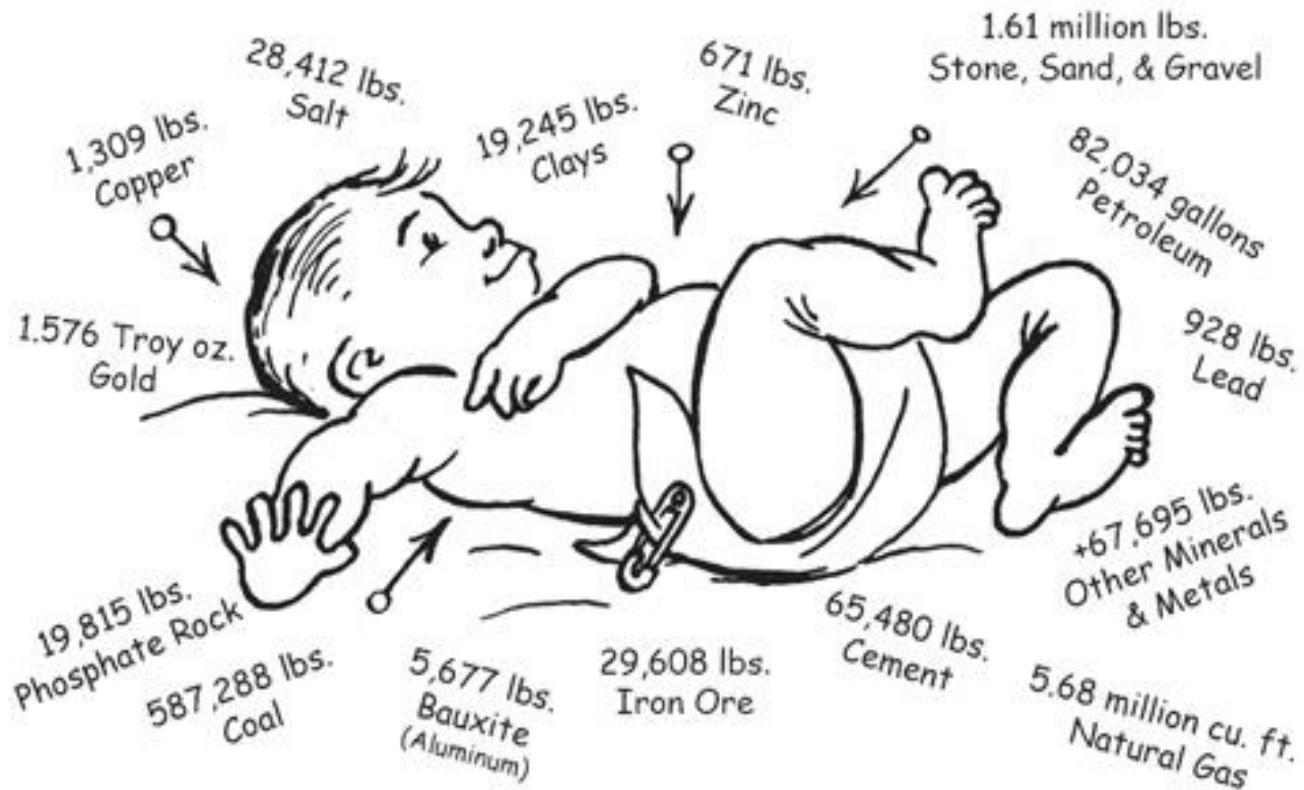
Mine Albert, Quebec, before and after reclamation. Government of Quebec

<http://www.abandoned-mines.org/home-e.htm>



# Why do we need mines?

## Every American Born Will Need . . .



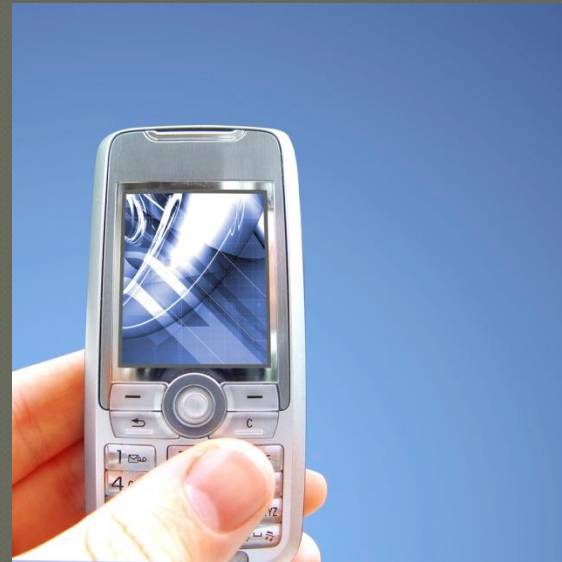
**3.6 million pounds of minerals, metals, and fuels in their lifetime**



# Why do we need mines?

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- Houses
- Cars
- Toothpaste
- Plumbing
- Wiring
- Planes
- Electronics
- Jewelry
- Glass



If we can't grow  
it, it has to be  
mined!