

# THE PEBBLE PROJECT

The **Future** of U.S. Mining & Metals

## A Pathway to Permitting

September 2017



Northern Dynasty Minerals Ltd.



# A World Class Mineral Resource

## Resources

- 6.44 B tonnes of Measured & Indicated
- 4.46 B tonnes of Inferred  
(10.8 Bt)

	Measured & Indicated	Inferred
Copper	57 B lb	25 B lb
Gold	70 M oz	37 M oz
Molybdenum	3.4 B lb	2.2 B lb
Silver	344 M oz	170 M oz

\* Refer to table of Measured, Indicated and Inferred Resources in Appendix





***Northern Dynasty Minerals Ltd.***



## **THE PEBBLE PROJECT**

**The Future of U.S. Mining and Metals**

December 2012

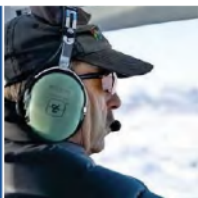


## A World-Class Mineral Resource

- 5.9 B tonnes of Measured & Indicated
  - 4.8 B tonnes of Inferred
- (10.7 Bt)

Measured & Indicated	
Copper	55 B lb
Gold	67 M oz
Molybdenum	3.3 B lb
Inferred	
Copper	26 B lb
Gold	40 M oz
Molybdenum	2.3 B lb

*\* Refer to table of Measured, Indicated and Inferred Resources in Appendices*



## Preliminary Assessment – Processing Summary

Item	Unit	Investment Case	Reference Case	Resource Case
Mine Life	Years	25	45	78
Processing Rate	M ton/yr	80	84	84
Processing Rate	Tons/day	219,000	229,000	229,000
Total Processed	B ton	2.0	3.8	6.5
% of M+I+I Resource	%	17	32	55

A Preliminary Assessment is preliminary in nature, and includes Inferred mineral resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no assurance that the Preliminary Assessment will be realized.



25-Year IDC Case

(2.0 Bt)

Starter Pits 1E 1W

45-Year Reference Case

(3.8 Bt)

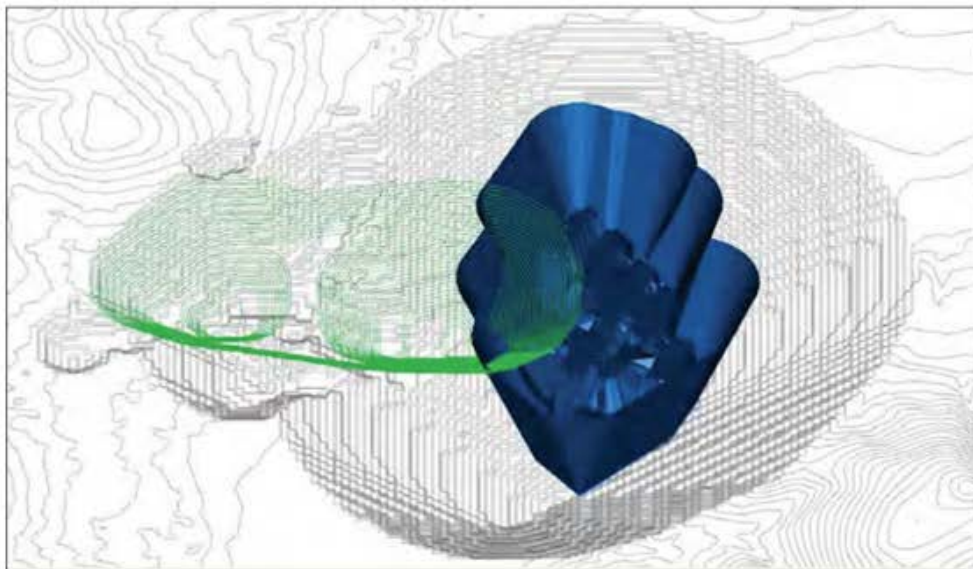
78-Year Resource Case

(6.5 Bt)





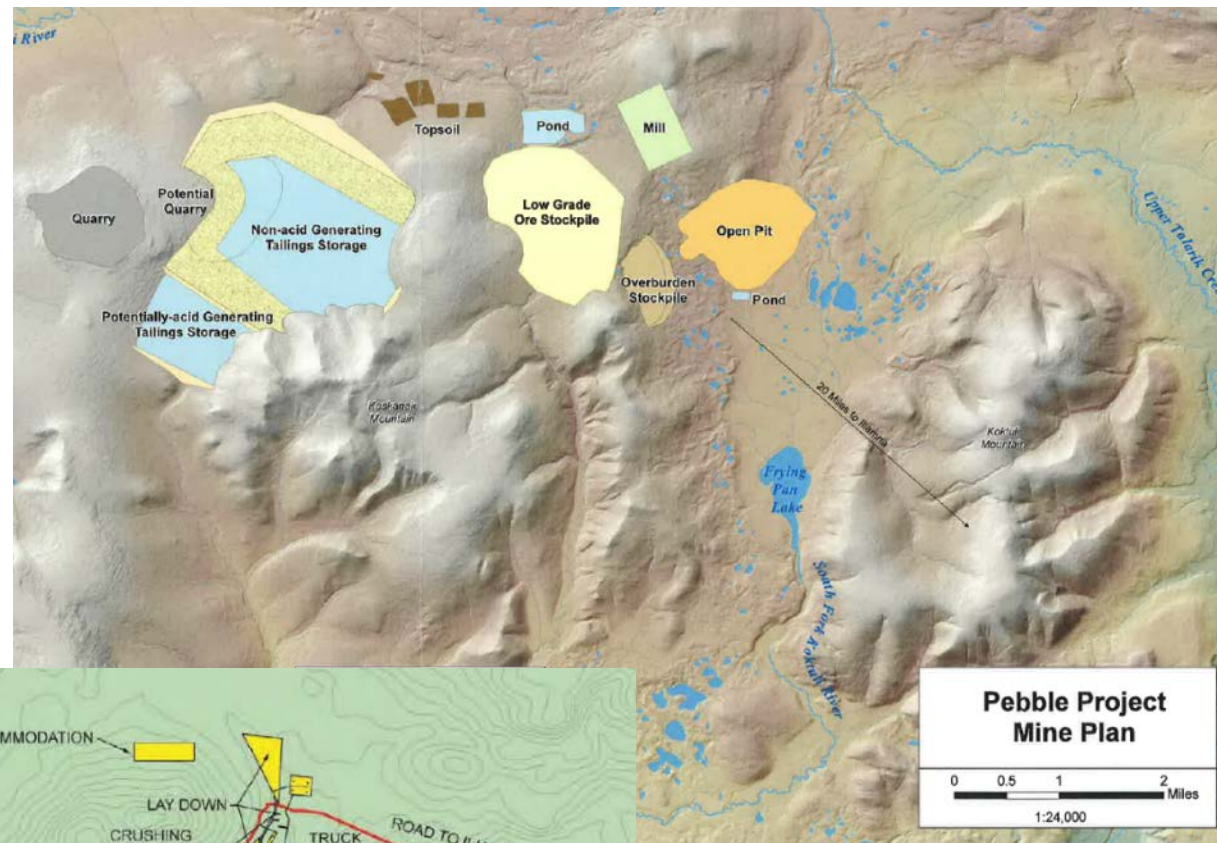
## Preliminary Assessment – Combined Open Pit & Block Cave



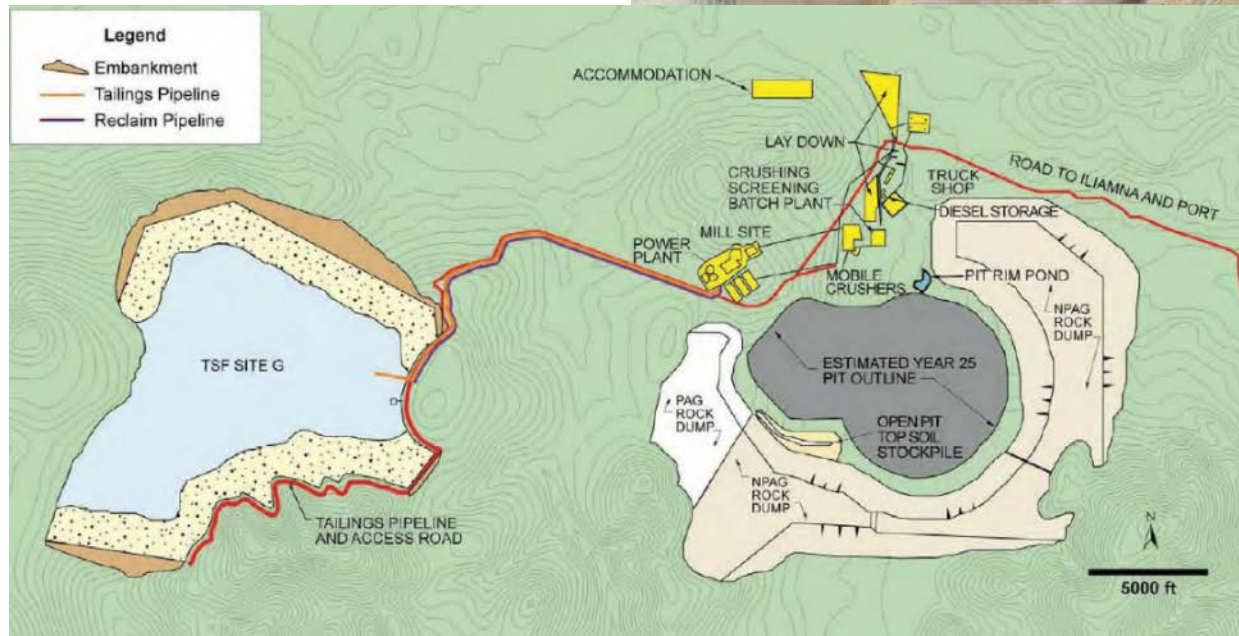
### Block cave – open pit interaction

- Limits life of open pit
- Deposit open to west

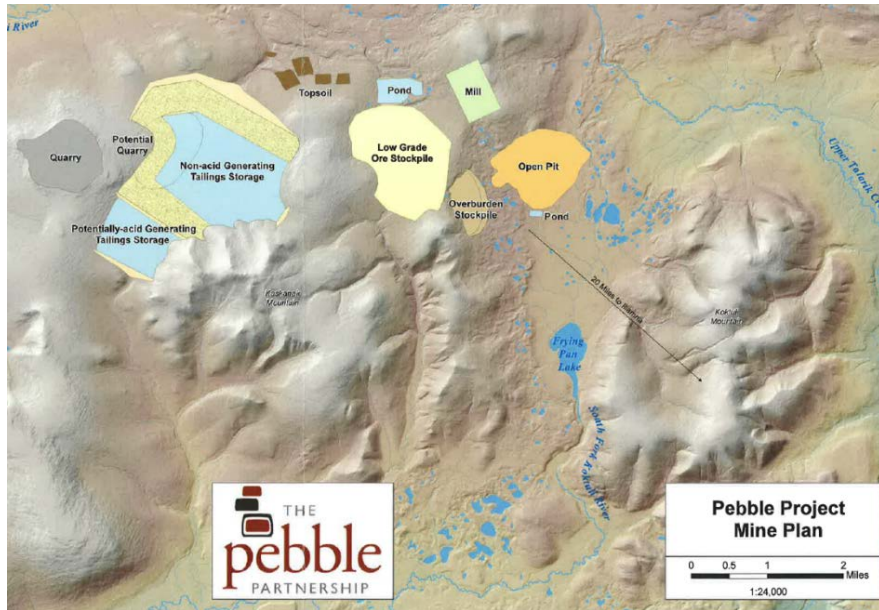
2017 20-year 1.2 B tons →



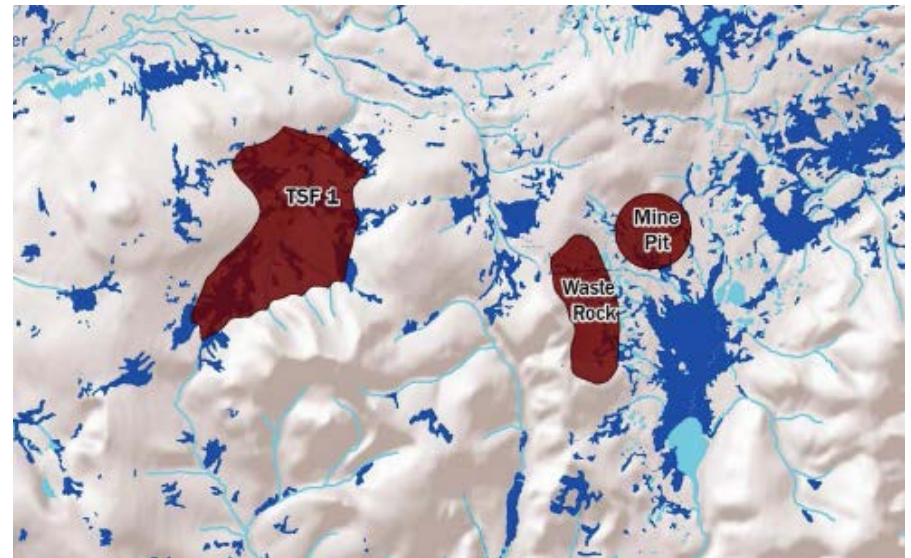
2012 25-year 2.0 B tons



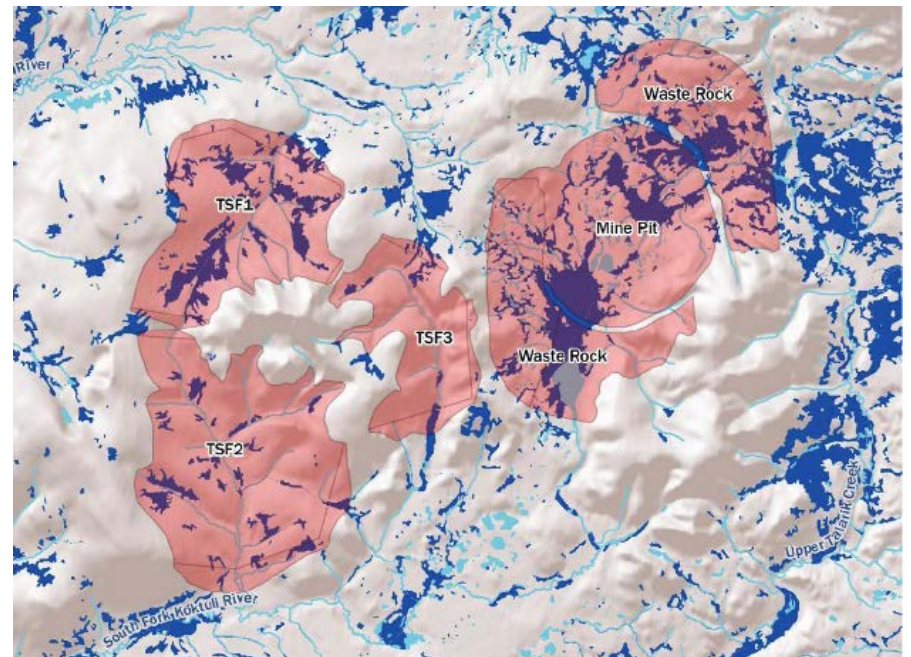




2017 20-year 1.2 B tons



EPA 0.25 Billion Tonne Scenario

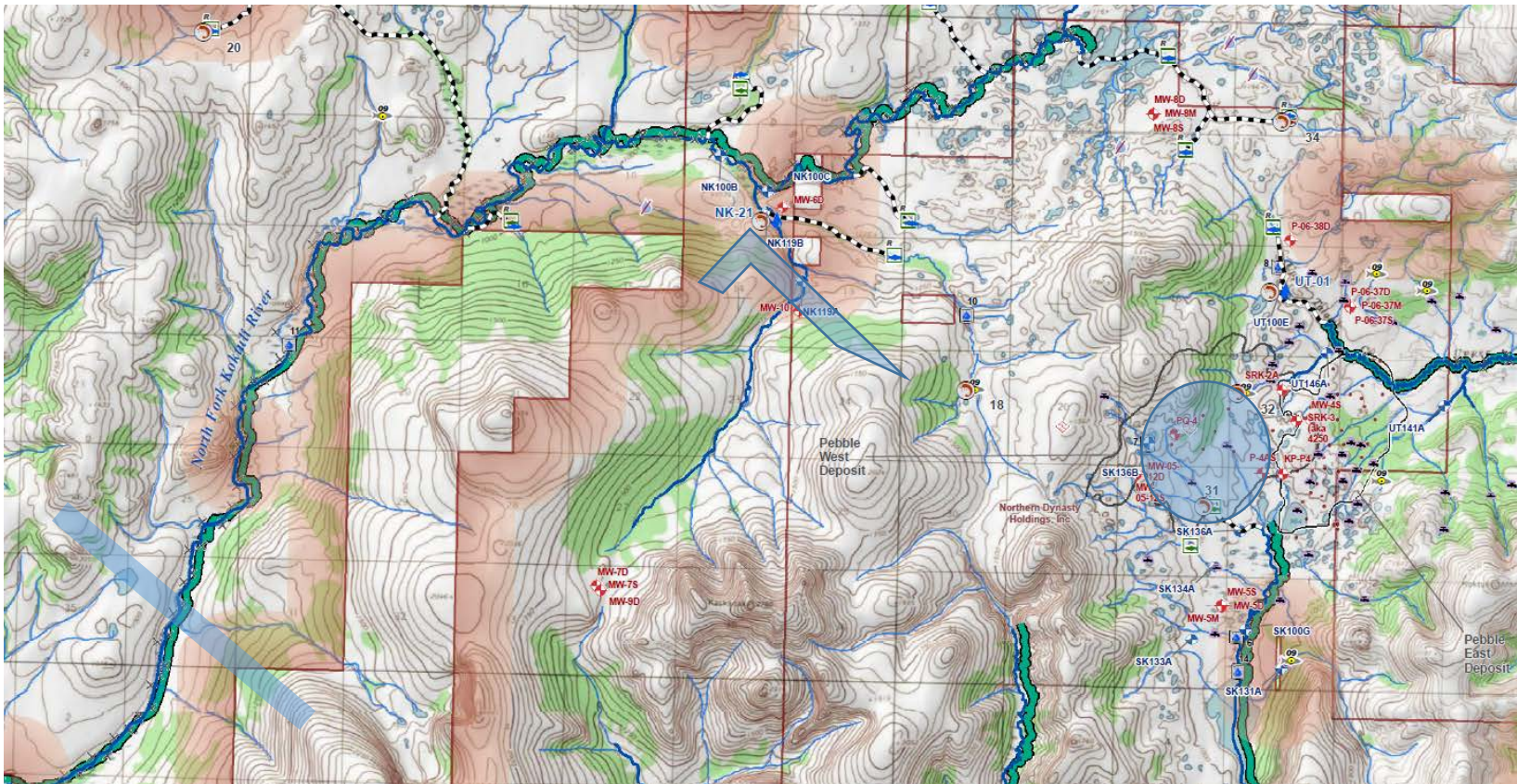


EPA 6.5 Billion Tonne Scenario



## No 2012 PLP layouts for 6.5 Bt and 10.7 Bt plan buildouts

- Bigger open pits
- Underground block caving
- Additional location for an additional 9 billion tonnes of tailings
- Additional location for an additional 25 billion tonnes of waste rock





## ADDITIONAL MINING?

