

Alaska Railroad Corporation Yard Water Main Rehabilitation

Seawolf Engineering 2014



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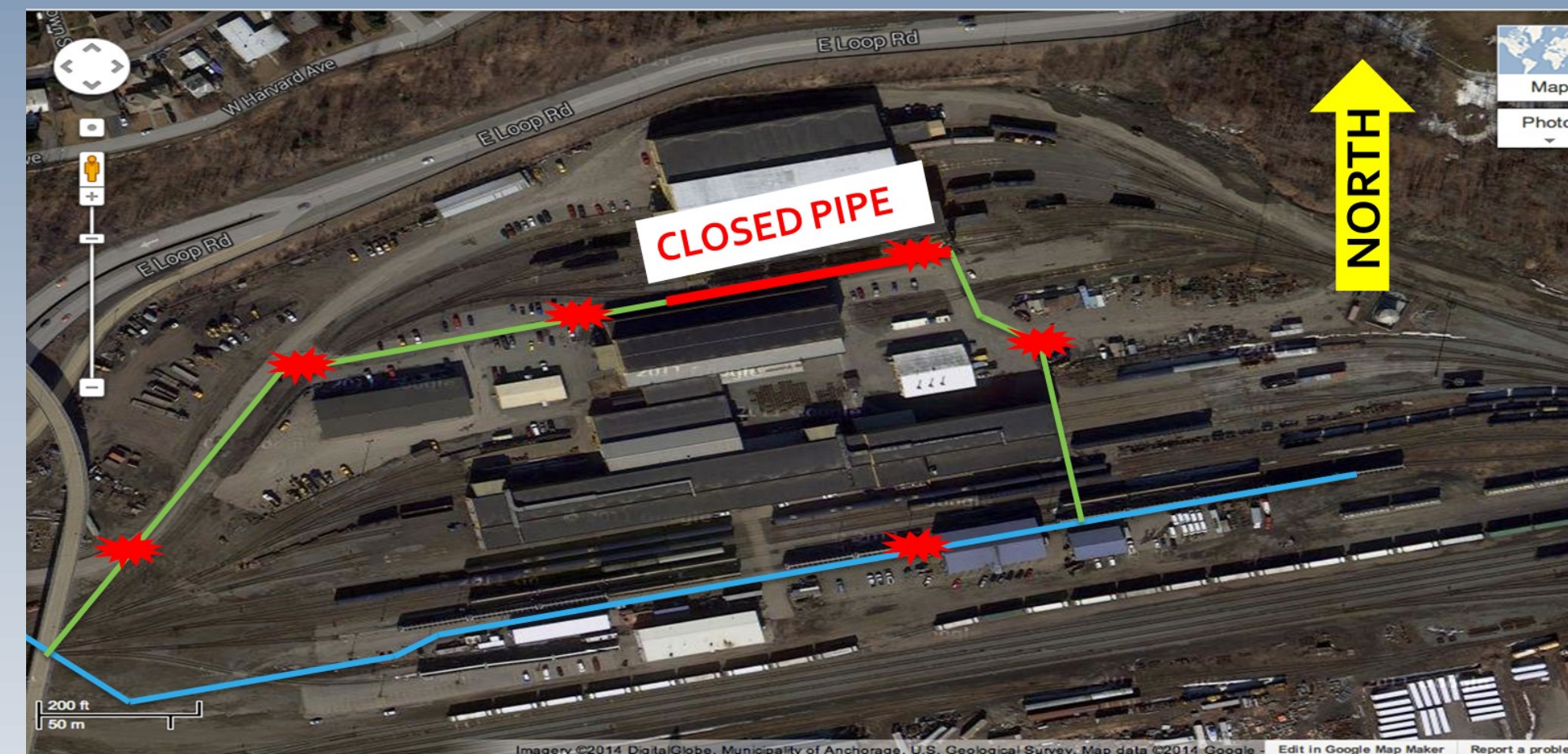
PROJECT LOCATION



INTRODUCTION

2000 linear feet of cast iron pipe was installed in the 1940's. Recent breaks due to corrosion have prompted AWWU to rehabilitate or replace the existing pipe alignment. The existing pipe is located under buildings and railroad tracks, which presents a challenge to current pipe maintenance. Seawolf Engineering has been tasked with developing and analyzing alternatives to replace or repair the 10 inch water pipe.

EXISTING CONDITION



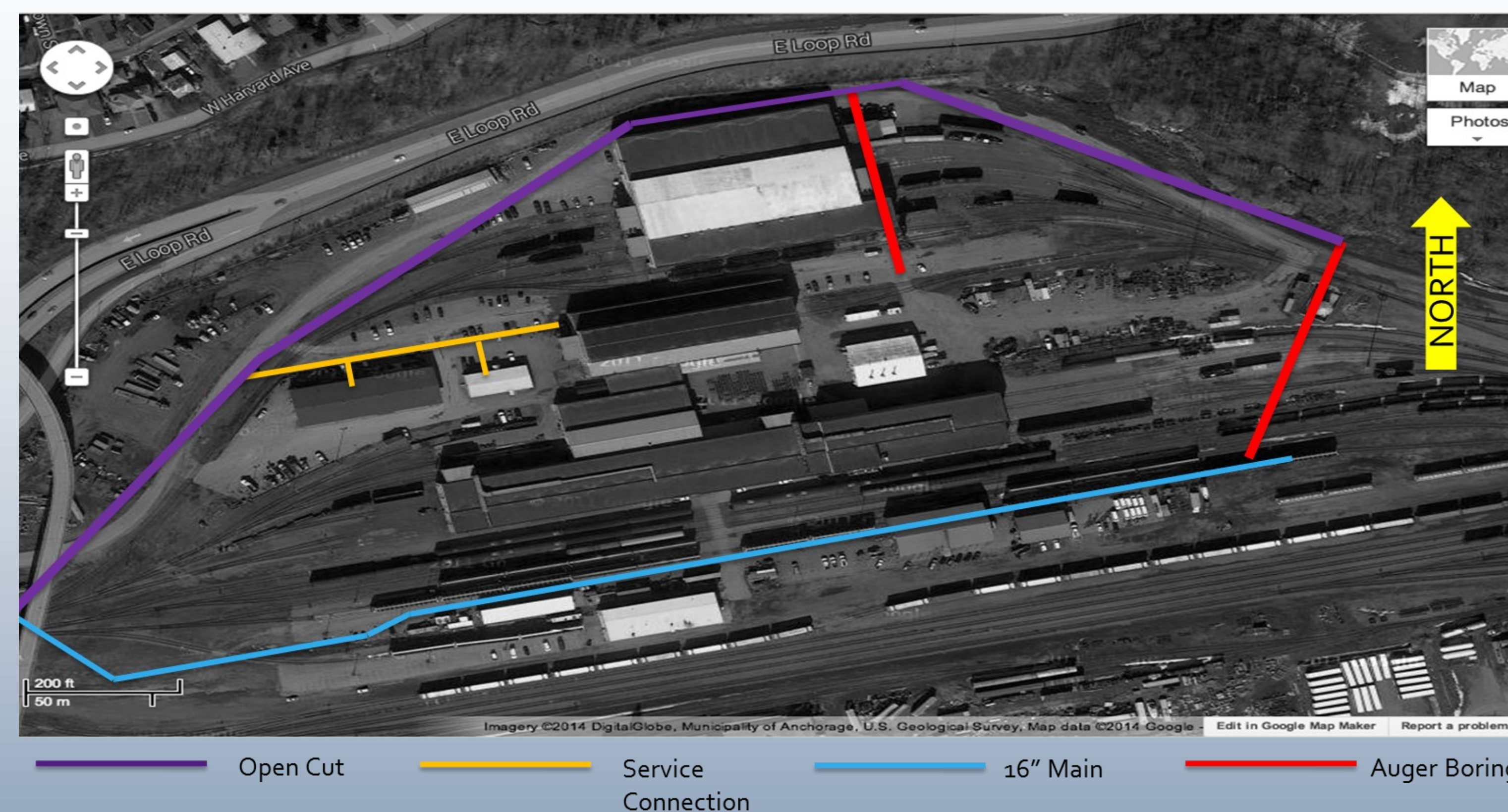
DESIGN CRITERIA

- Safety
- Ease of Maintenance
- Reliability
- Minimize Impact to Services
- Cost

MAJOR DESIGN CONSIDERATIONS

- Corrosive Soils
- Contaminated Soils
- Dewatering
- Track Settlement
- Fire Flow Requirements

RECOMMENDED ALIGNMENT



CONCLUSION

The recommended alternative was developed based off of the design criteria and major design considerations. This alternative provides ease of future maintenance, minimal disturbance of existing track and an economical design. Using trenchless technology, corrosion protection systems and limiting metallic materials the longevity of the design exceeds AWWU's recommended design life 70 years.

MATERIAL SELECTION

PVC (Polyvinyl Chloride)



Courtesy: realivingsbuckhead.com

HDPE (High Density Polyethylene)



Courtesy: eccua.ee/blog/product/pe-torud-4/

CIP (Cast Iron Pipe)



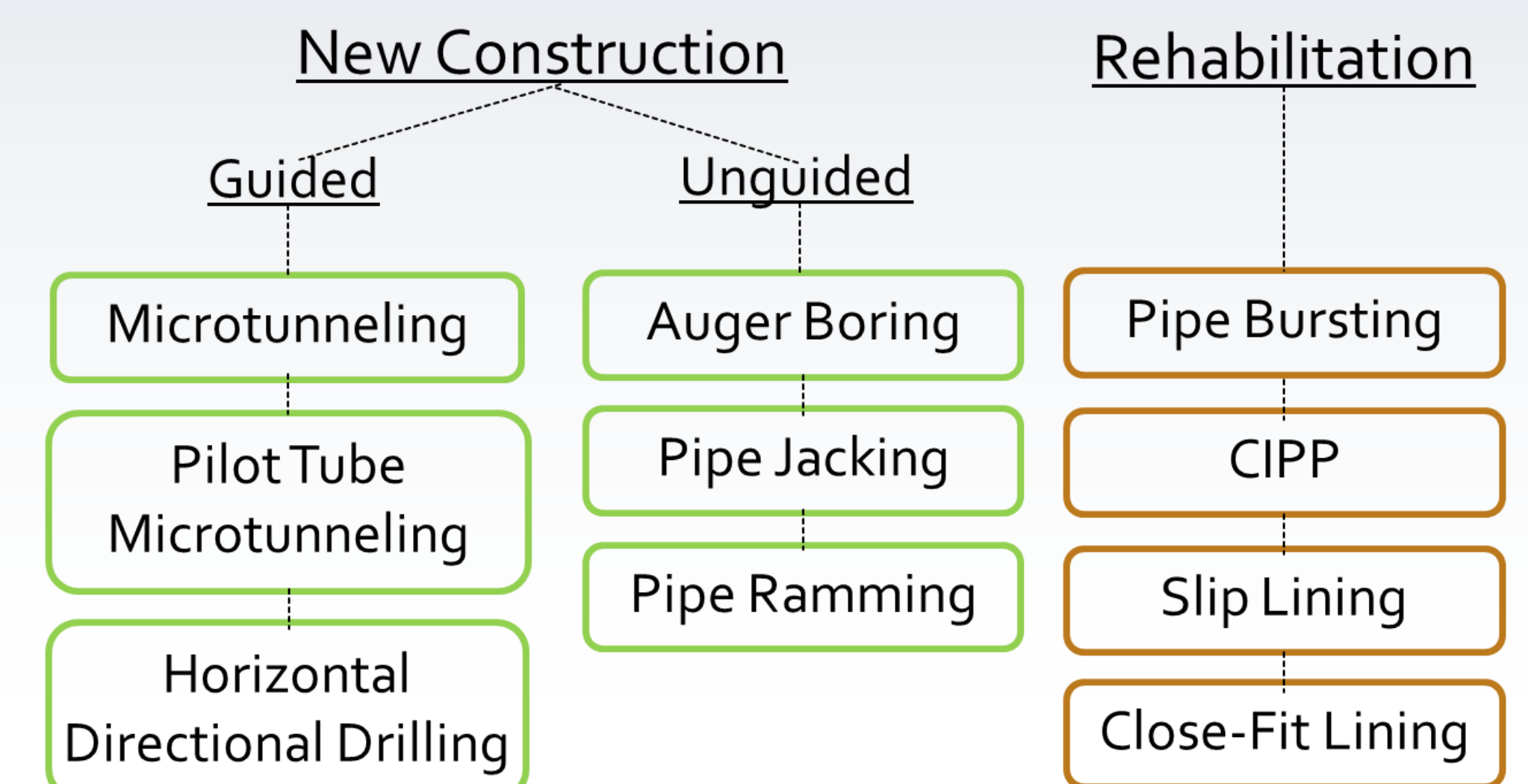
Courtesy: china-metals.com

DIP (Ductile Iron Pipe)

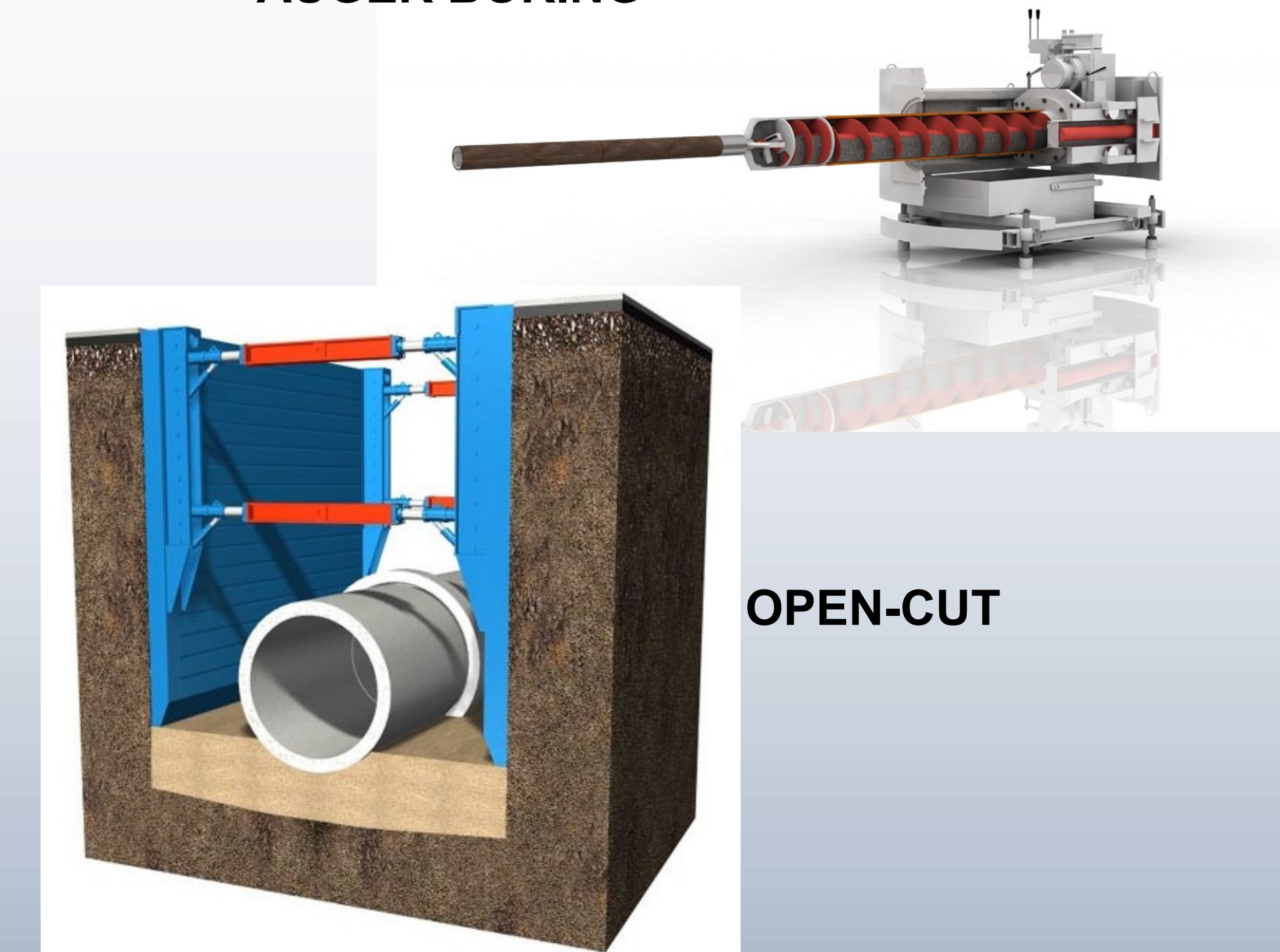


Courtesy: all-about-pipe.com

INSTALLATION METHODS



AUGER BORING



COST ESTIMATE

Engineering	\$1.72 million
Construction Management	\$1.15 million
Construction and Materials	\$2.30 million
Contingency	\$0.58 million

Project Total \$5.75 million