GeoStabilization International

Annual Geotechnical Engineering Conference

Trevor Ames, P. Eng.

Nov 2024

Confidential – Not for Circulation

GeoStabilization International®

ETHISPHERE® WORLD'S MOST ETHICAL COMPANIES® 2019-2020

BEST COMPANIES TO WORK FOR IN COLORADO 2017 WINNER

INTRODUCTION

Trevor Ames, P. Eng.

ABOUT GSI®

- ✓ **70+ experienced crews**
- ✓ **Lowest EMR Rate in the industry at 0.62**
- ✓ **Design-Build Geotechnical Contractor**
  - ✓Exclusively on GeoHazard mitigation.
  - ✓ 58 Engineers.

- **Slope Stability** - **Retaining Walls**
- **Rockfalls / Rockslides** - **Sink Holes**
- **Portal Stability** - **Settlement Control**
- **Dam resurfacing** - **Soil Stabilization**
- **Landslides** - **Grouting**
- **Bridge Repairs**

AGENDA

1 GSI Overview and Relevant Services

2 Texas Quarry – ENR Project Award

3 Questions and Answers

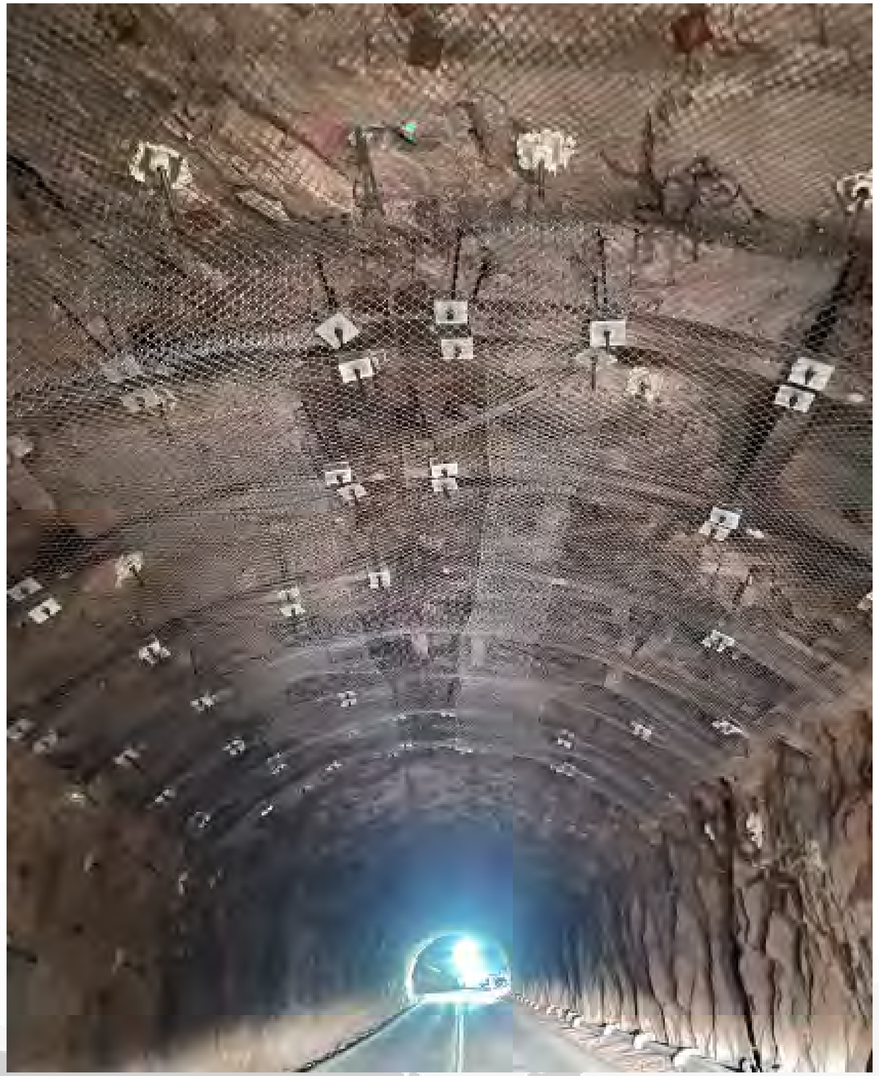
ROPE ACCESS SCALING

ROCKFALL BARRIER AND DRAPE MESH

PORTAL BREAK THROUGH - ATTENUATOR / BARRIER

RING NET DRAPE MESH

TUNNEL REHAB



PORTAL REPAIR – NEAR COMPLETION

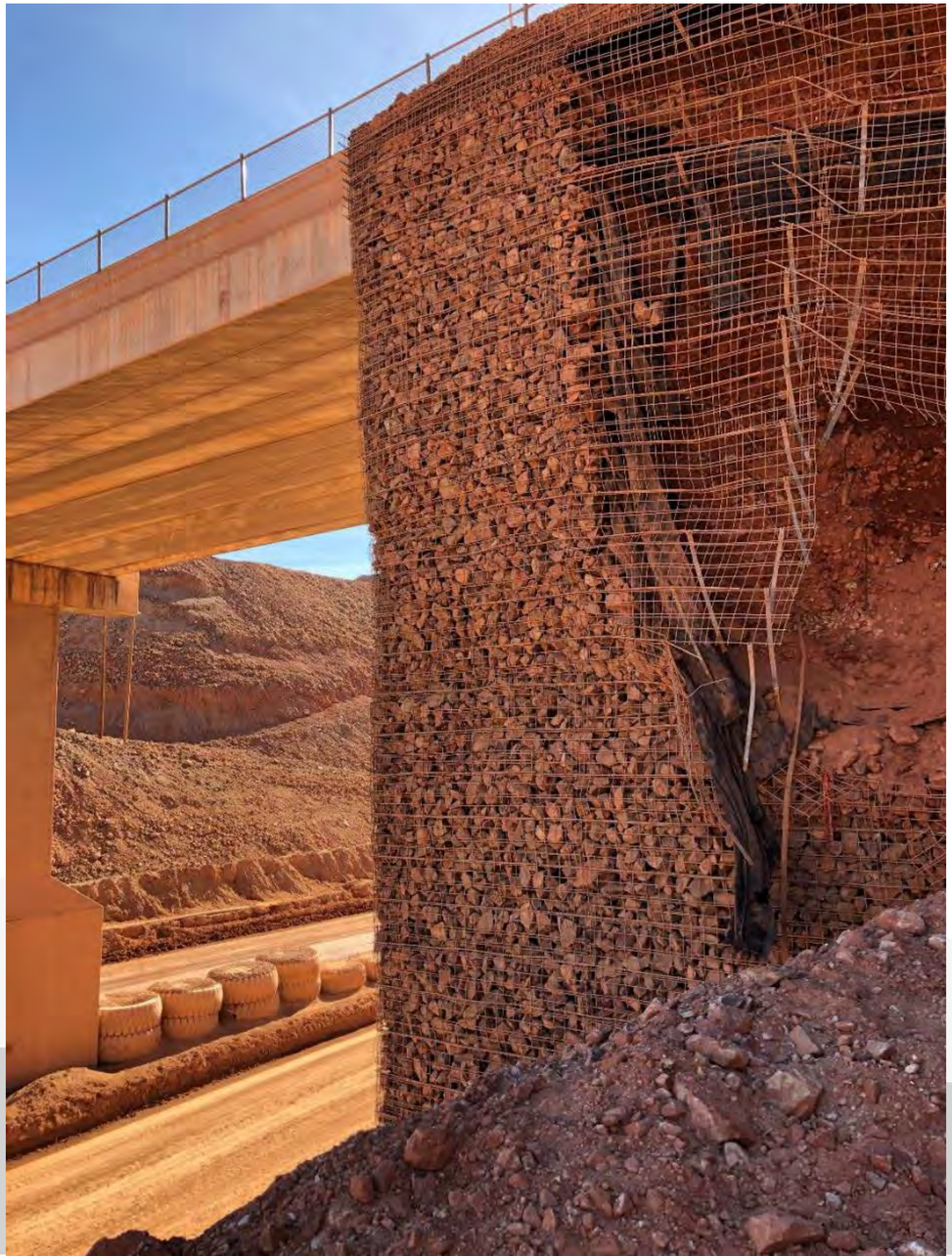
PORTAL REPAIR

SPIDER DRILL / EXCAVATOR

RECENT RESPONSE

BENCH FAILURE

BRIDGE ABUTMENT FAILURE

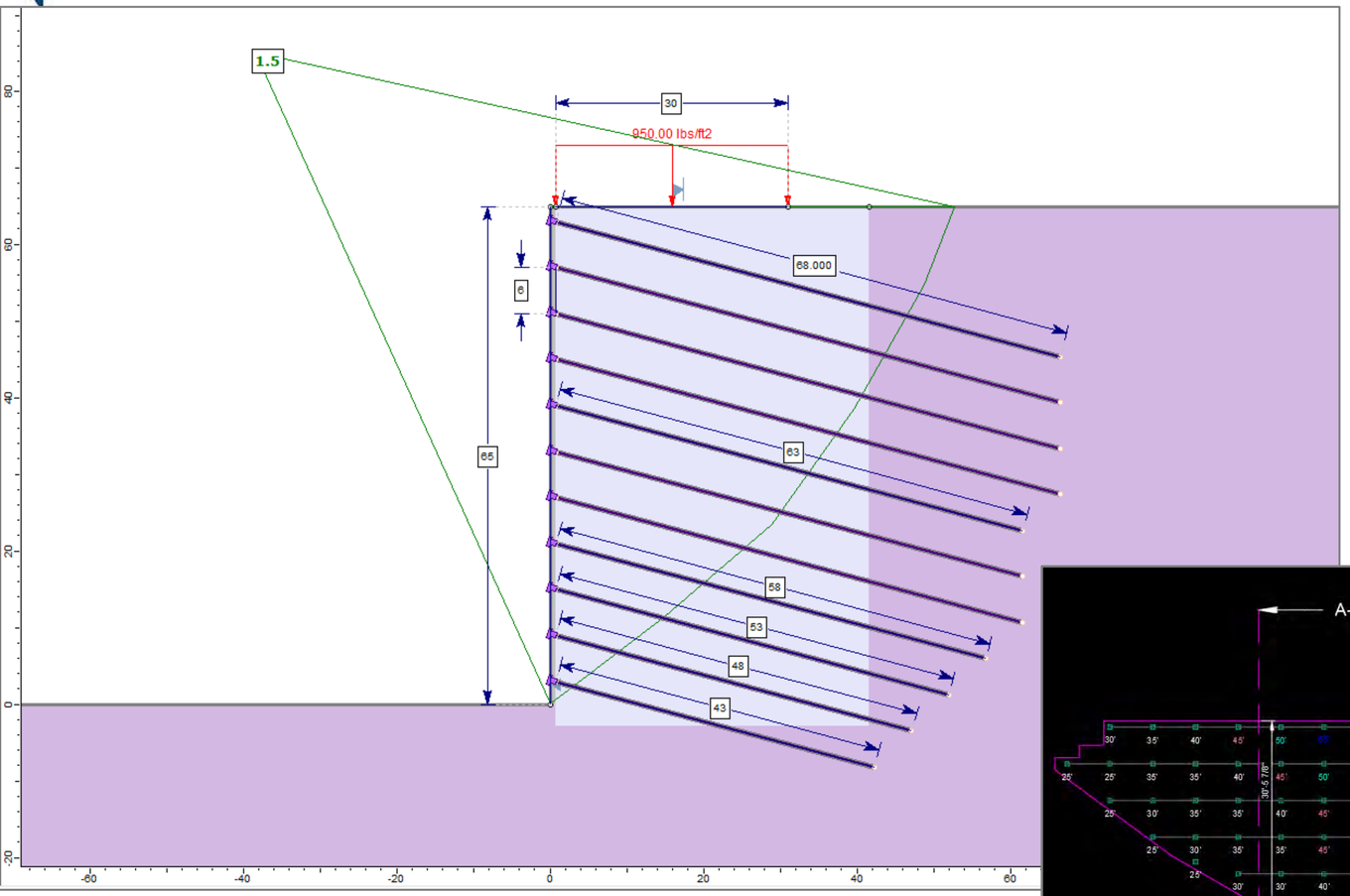


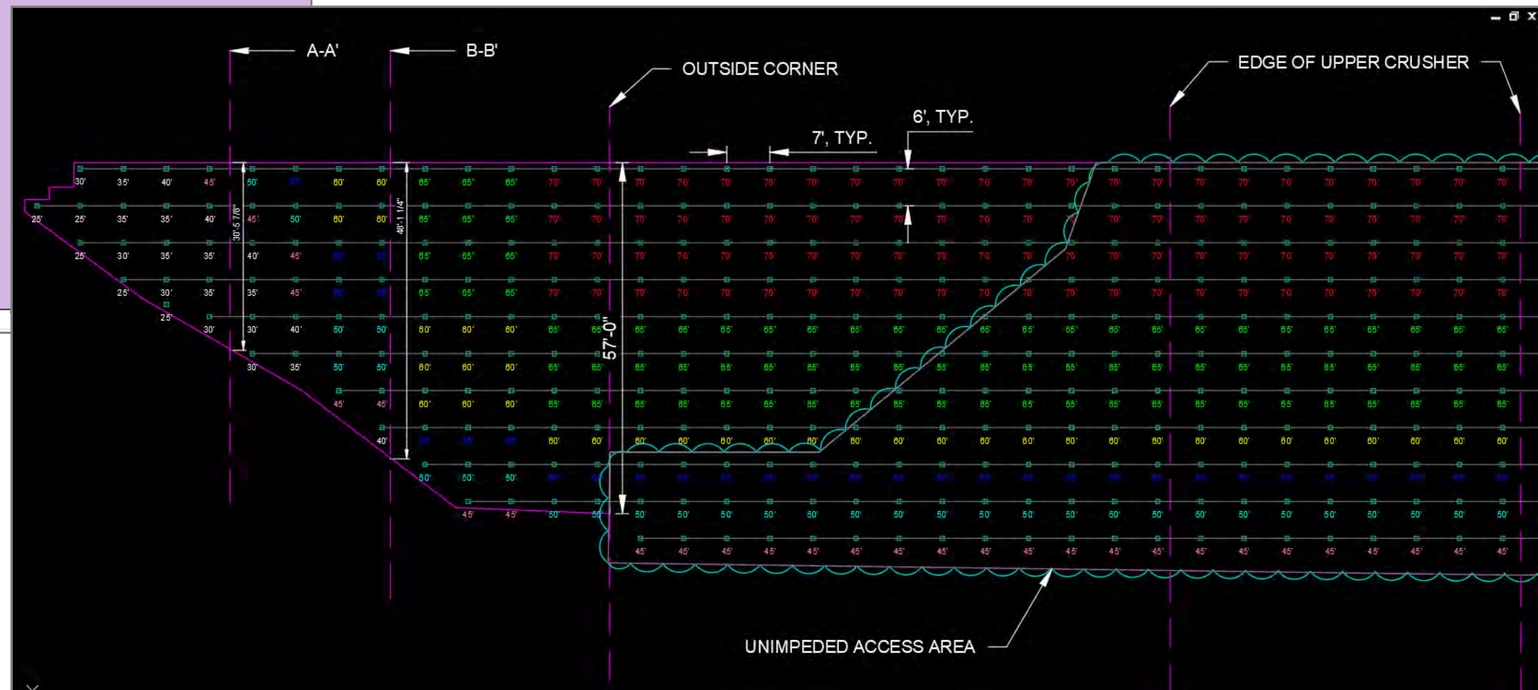
NEARING COMPLETION

Headwall Reinforcement

The stability model calibration is not considered exact; nevertheless, there is sufficient calibration input that stability inferences should be considered. Based on the model, the typical factor of safety of the reinforcement layers is about 0.7 when the live load for a heavily loaded truck is included. The standard of care is to achieve a factor of safety of 1.82 or greater at the end-of-service after 25 years of corrosion is presumed to occur. Without the inclusion of a truck live load, the factor of safety is estimated by the model to be about 0.9 using yield strength criteria. If breaking strength were assumed, the factor of safety would

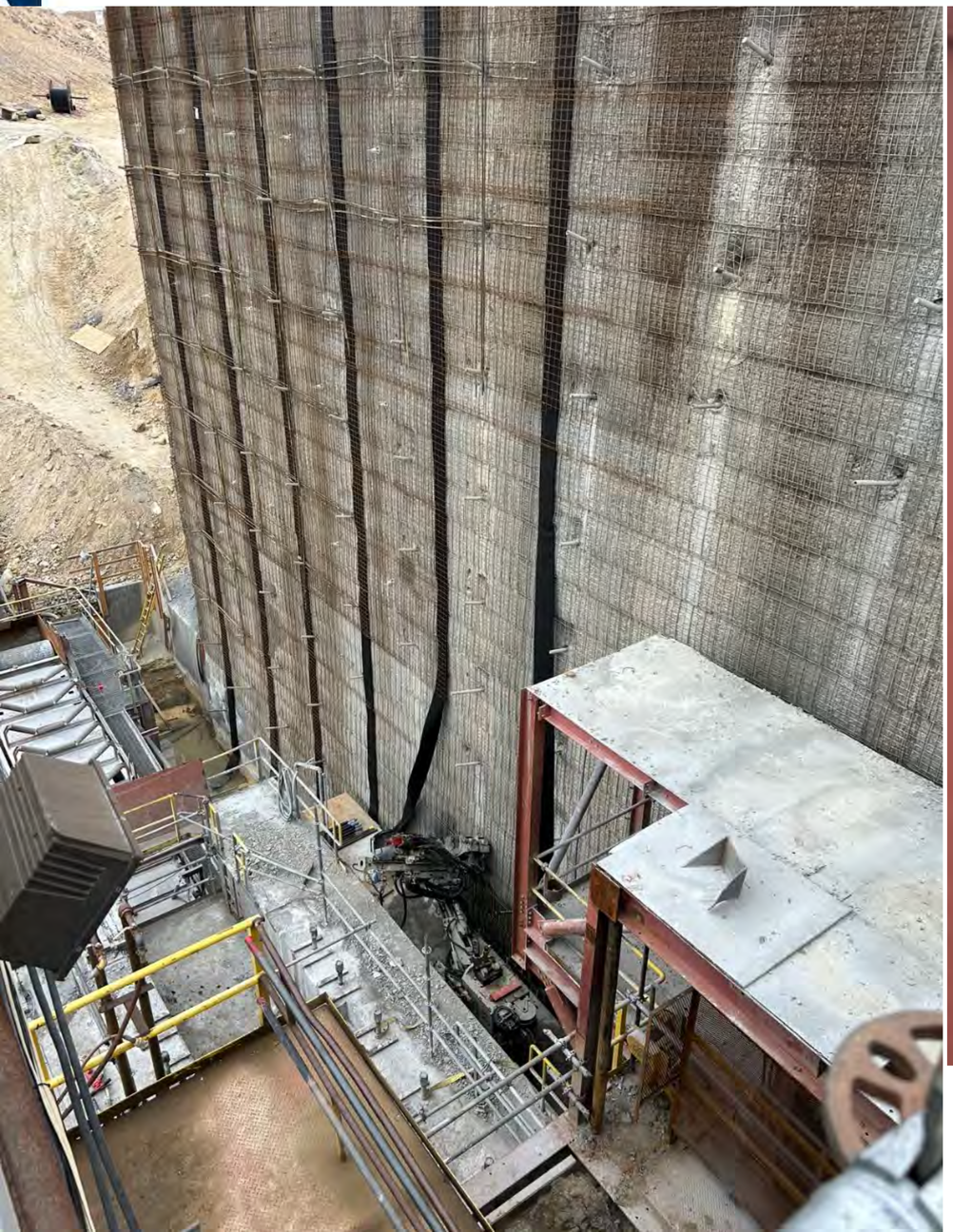
Headwall Reinforcement





Headwall Reinforcement

Headwall Reinforcement



Headwall Reinforcement

DECLINE RAMPS

RETAINING WALLS / HEADWALL

SOIL NAIL WALL FOR DECLINE RAMP

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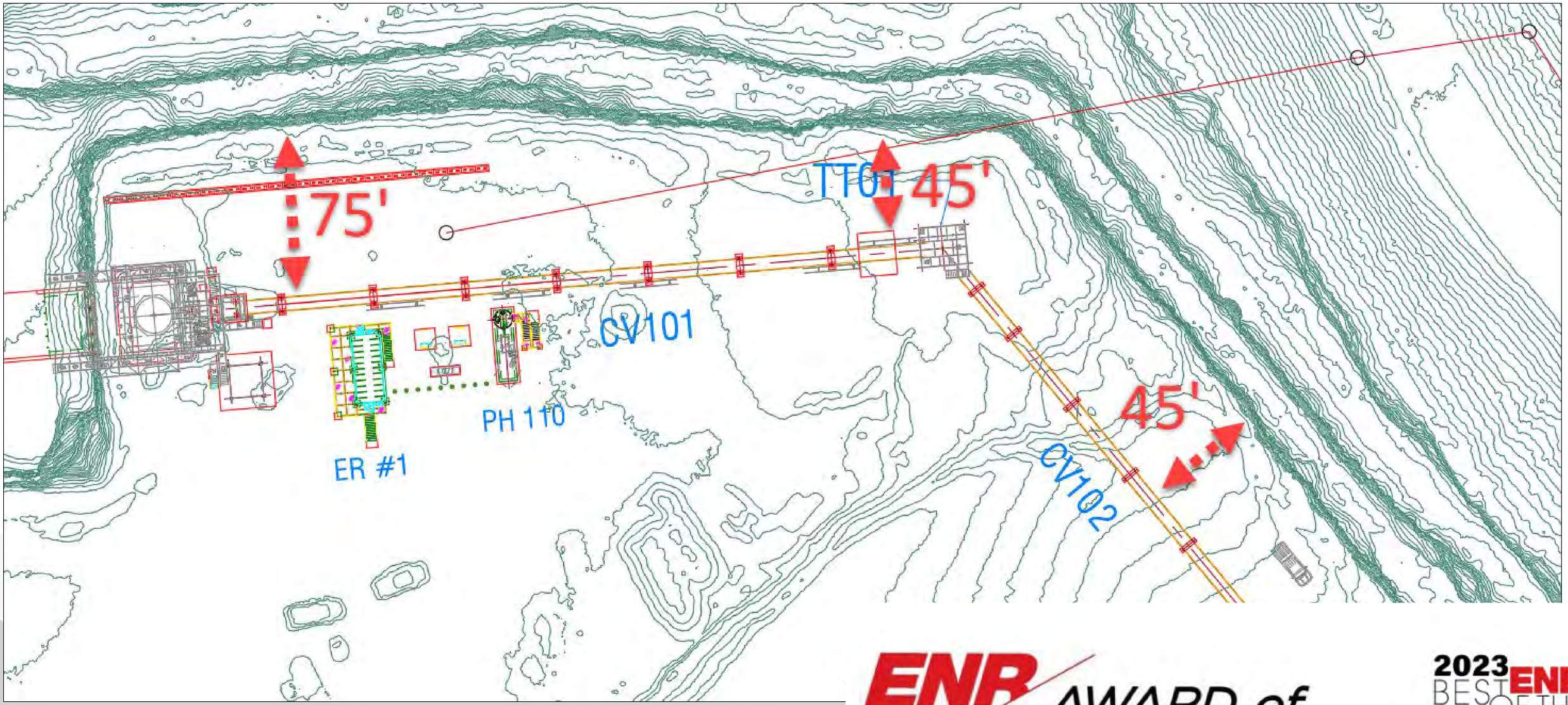
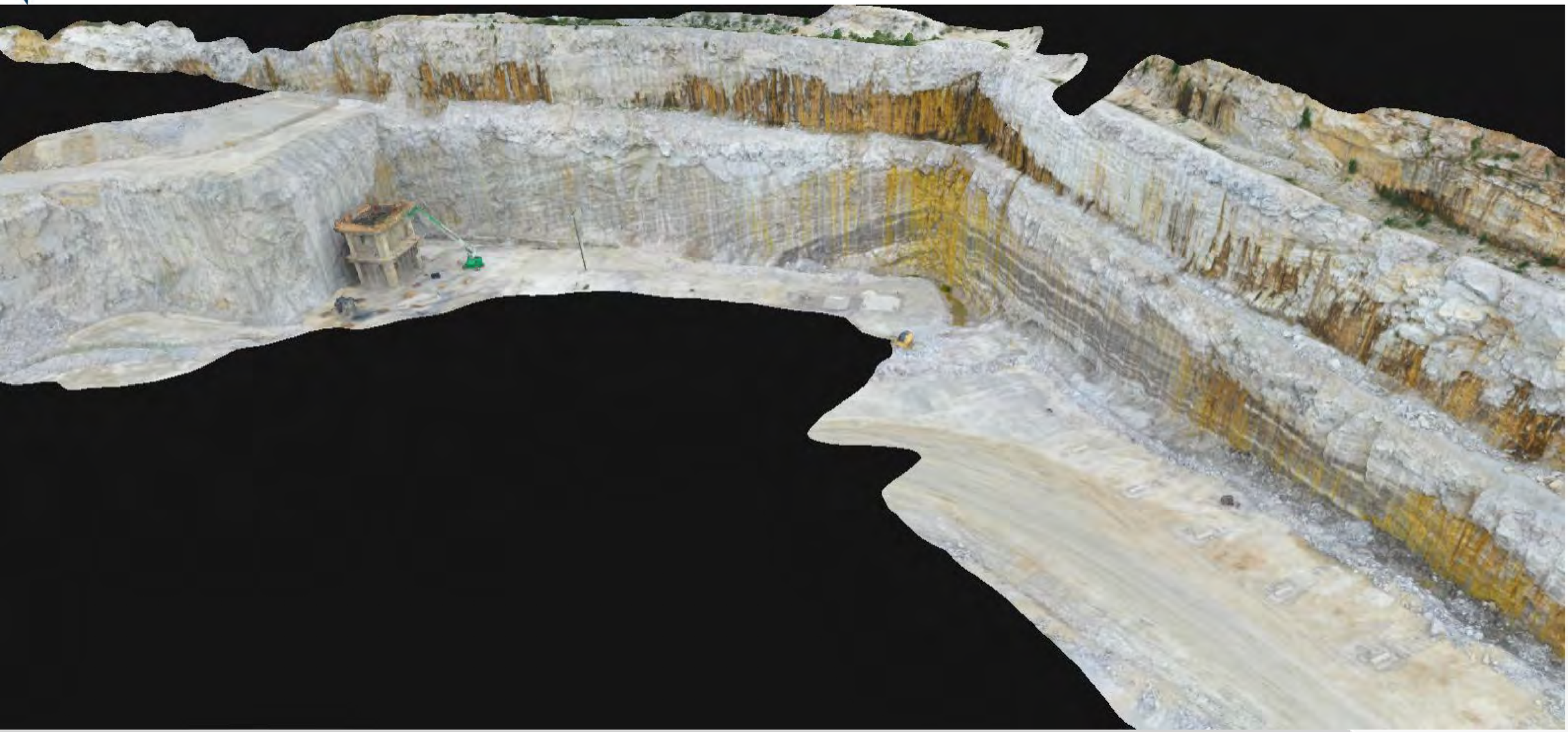
NEW PRIMARY CRUSHER STATION



ENR AWARD of EXCELLENCE

2023 BEST OF THE BEST ENR

NEW PRIMARY CRUSHER STATION

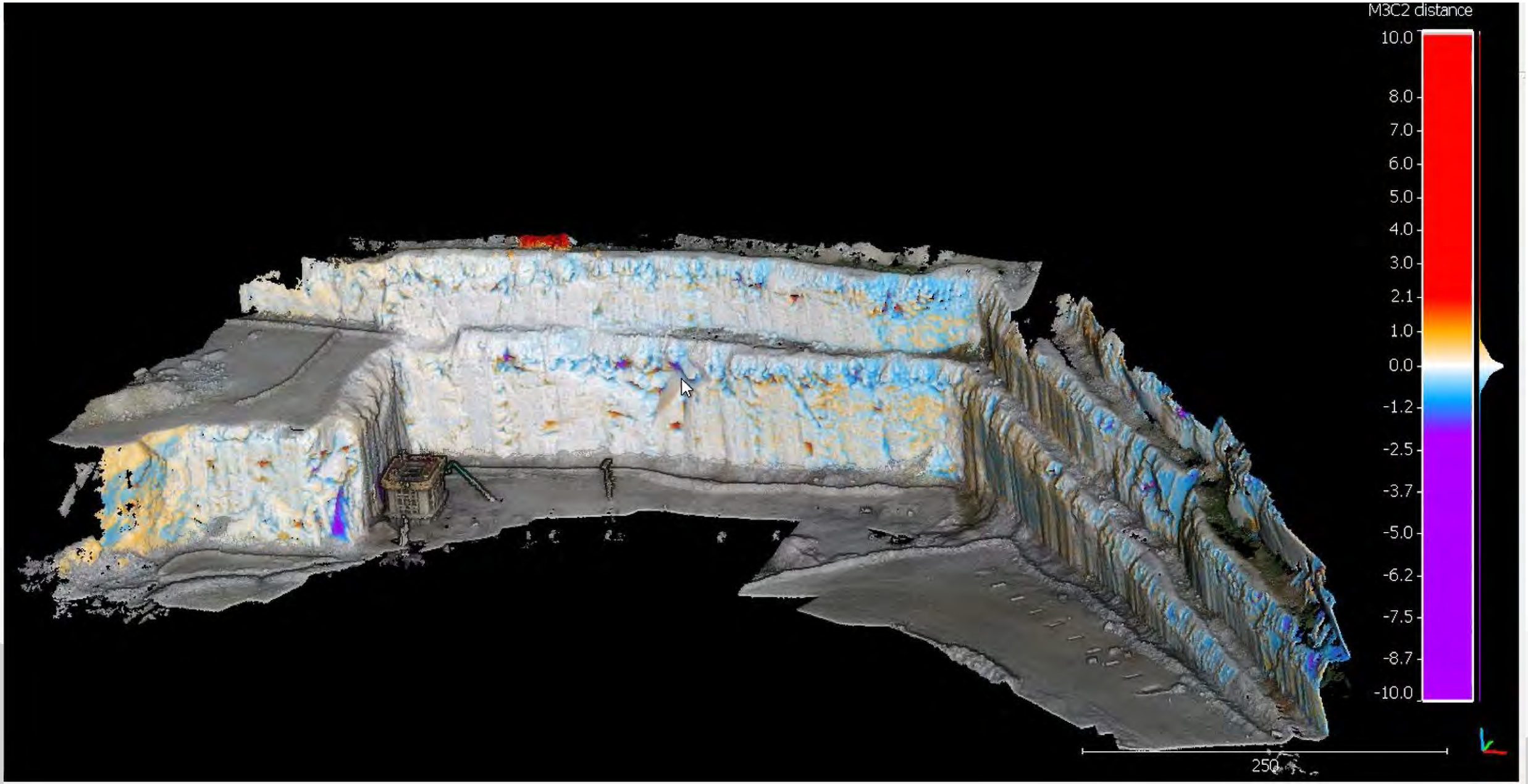


INITIAL SITE VISIT

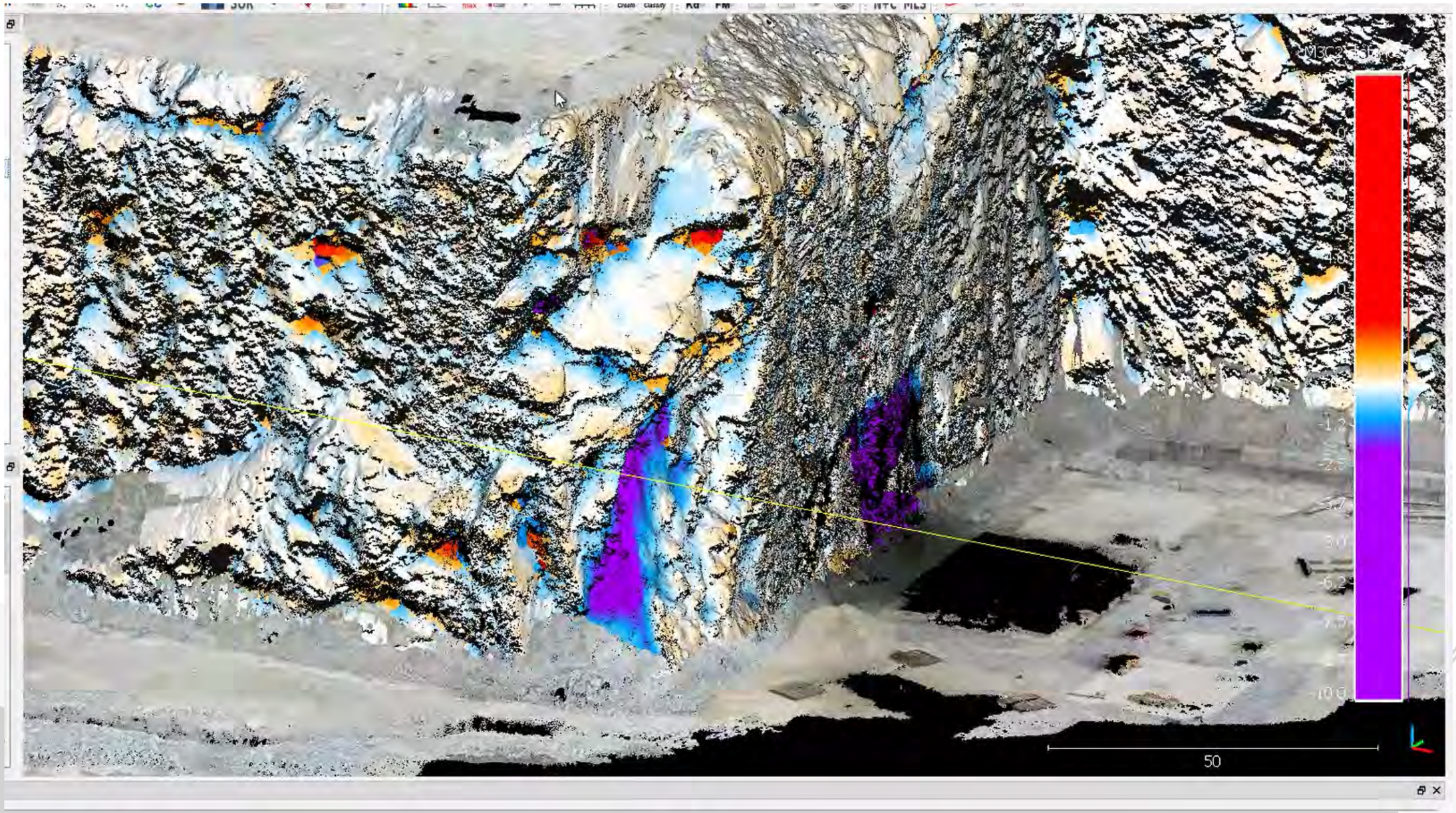
INITIAL DRAPE MESH

NEW PRIMARY CRUSHER STATION

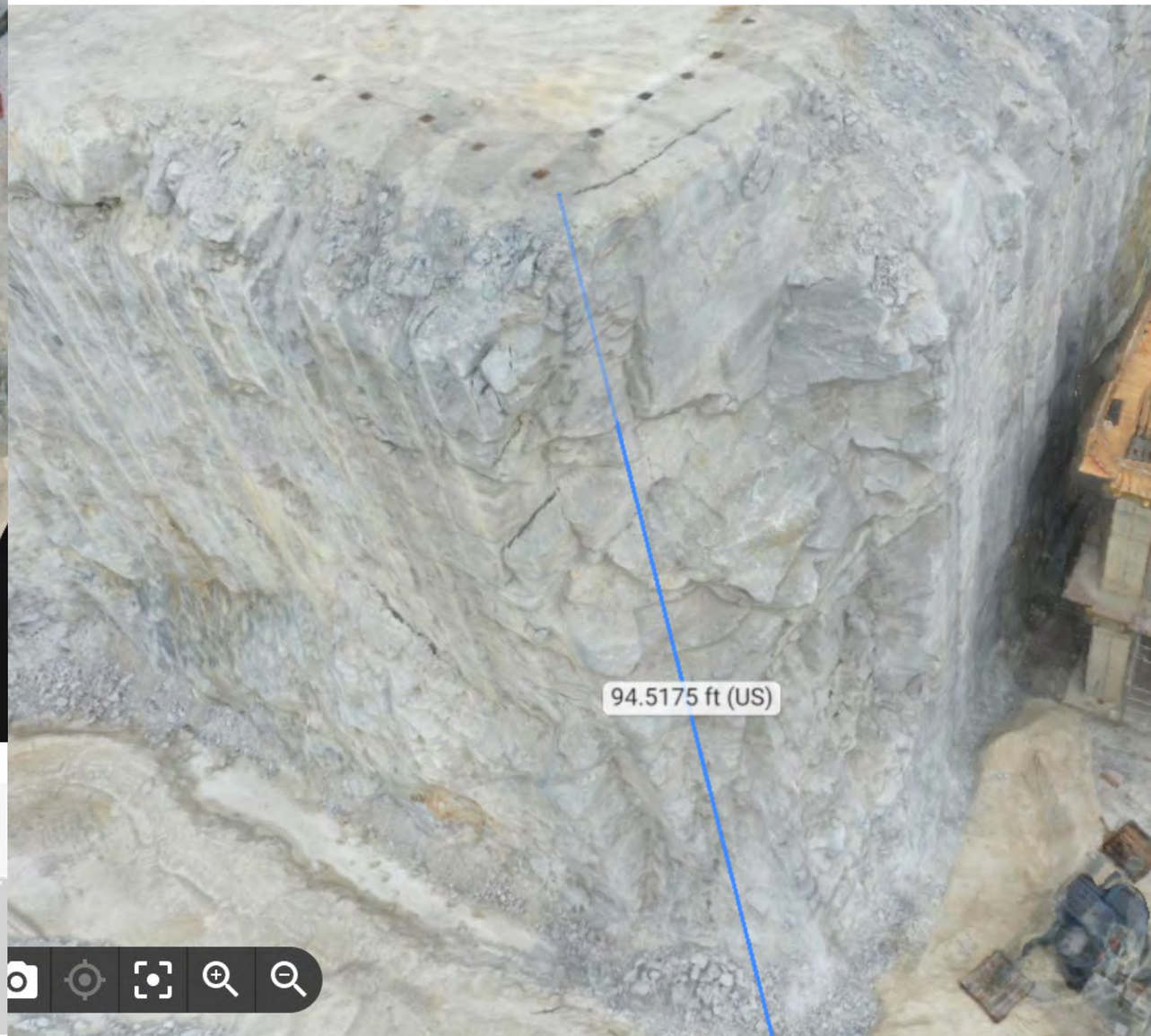
CHANGE DETECTION



CHANGE DETECTION



NEW PRIMARY CRUSHER STATION



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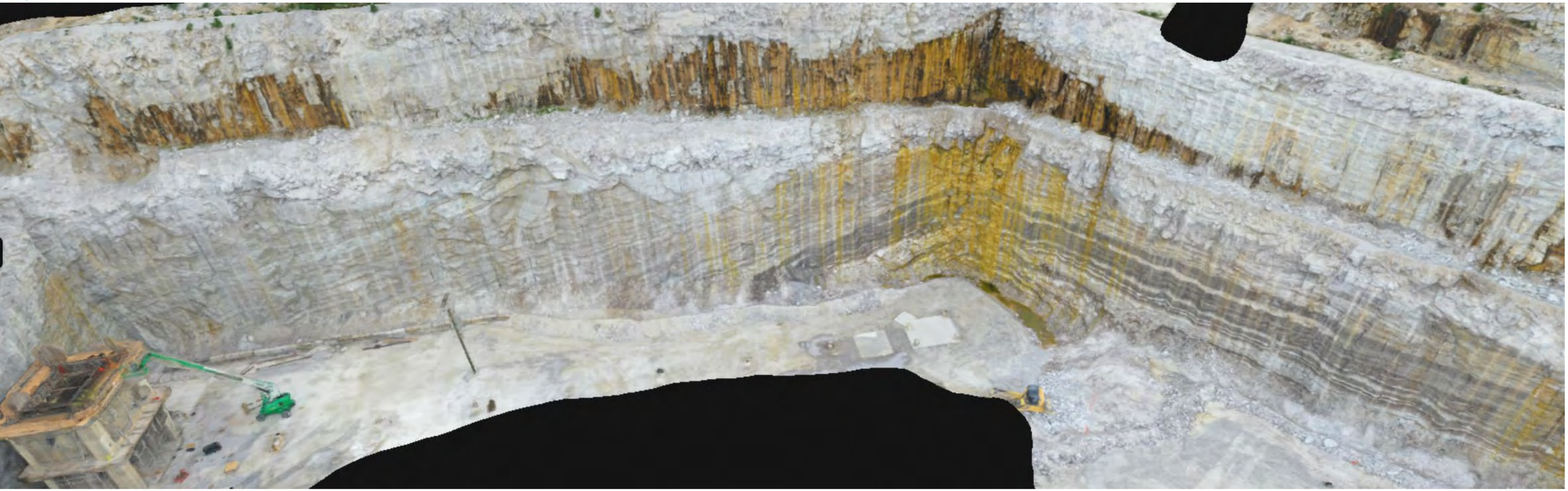
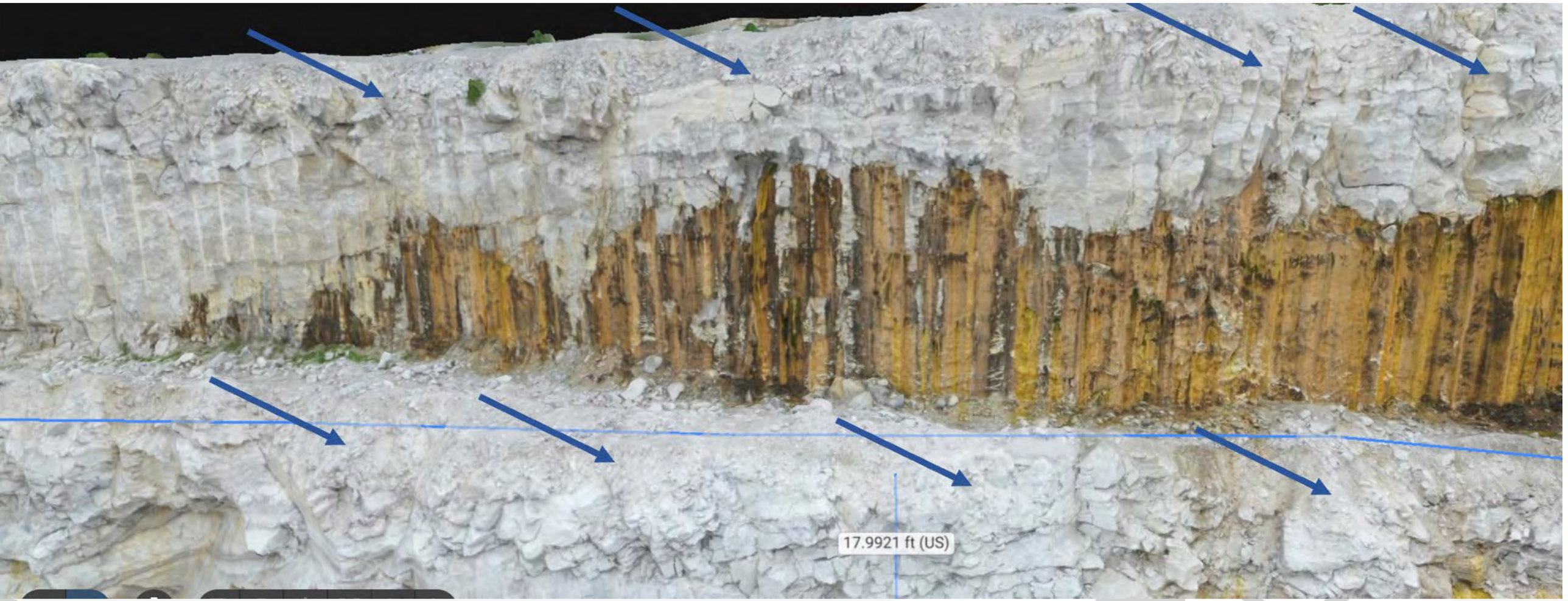


HEAVILY FRACTURED GROUND



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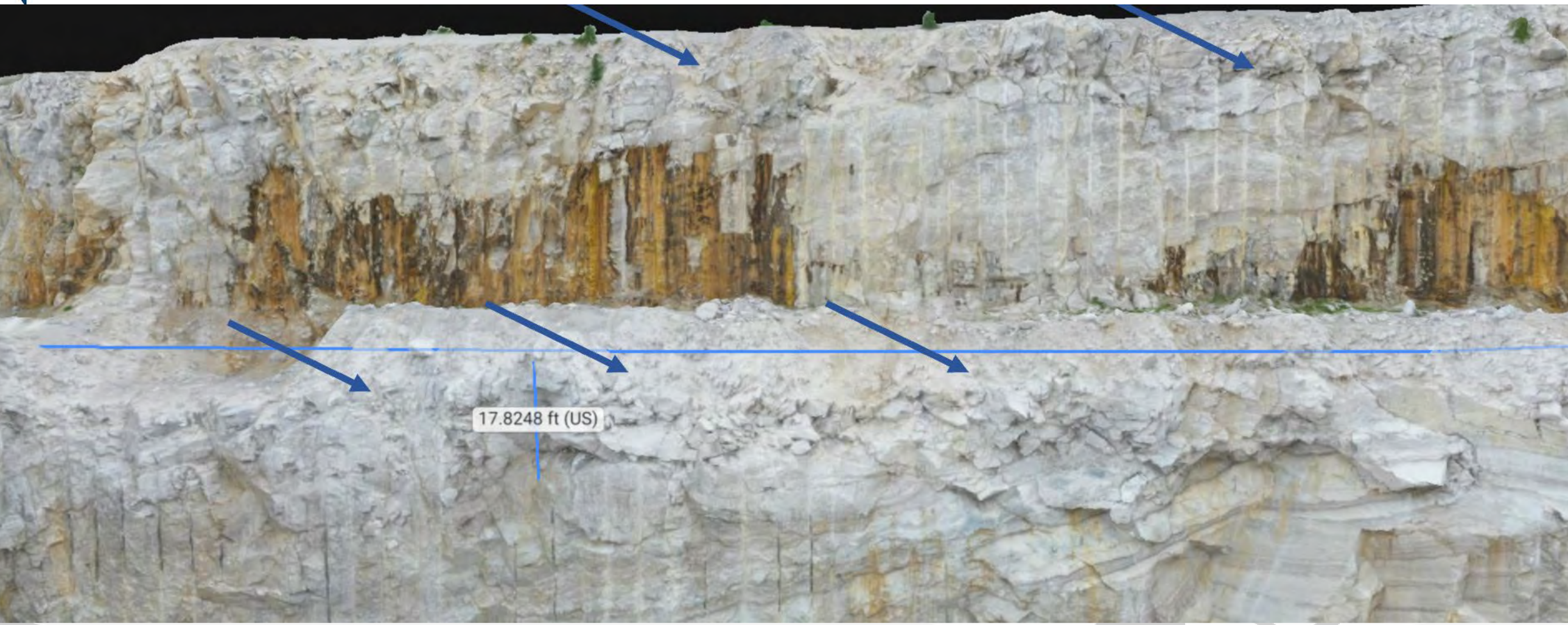
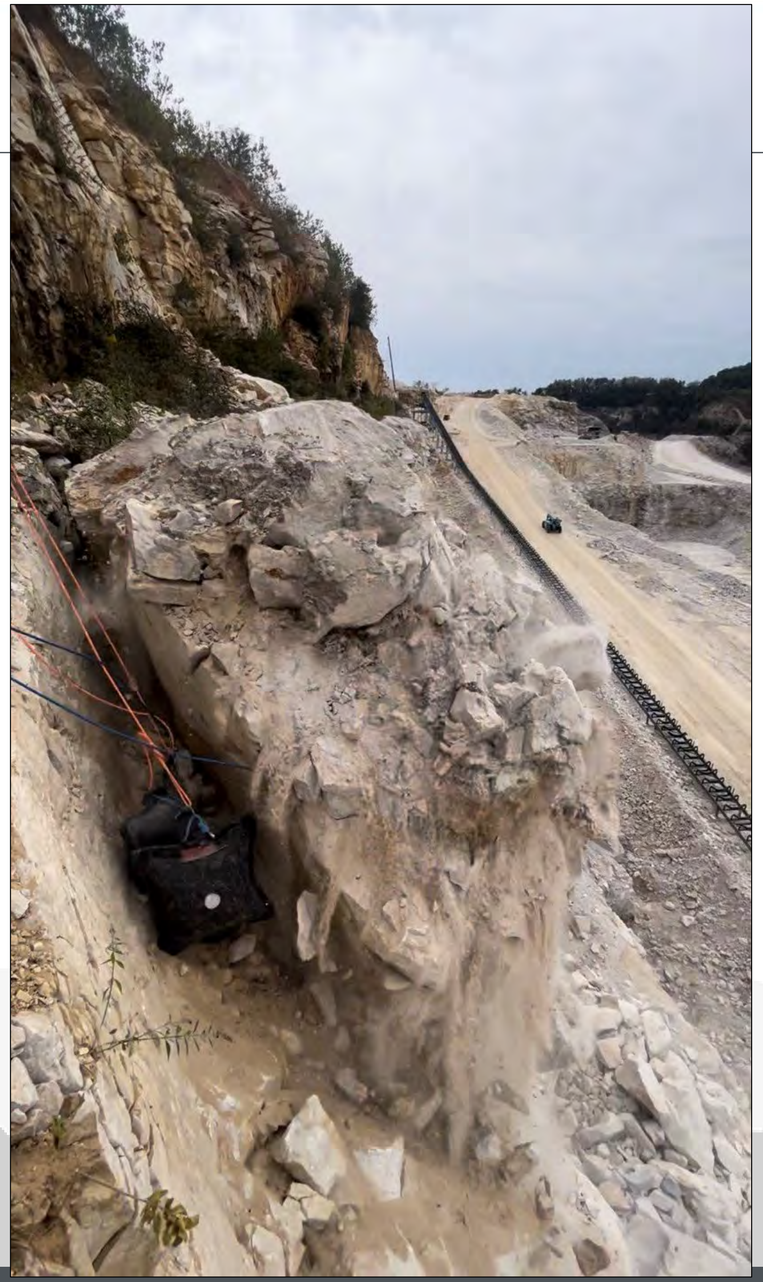
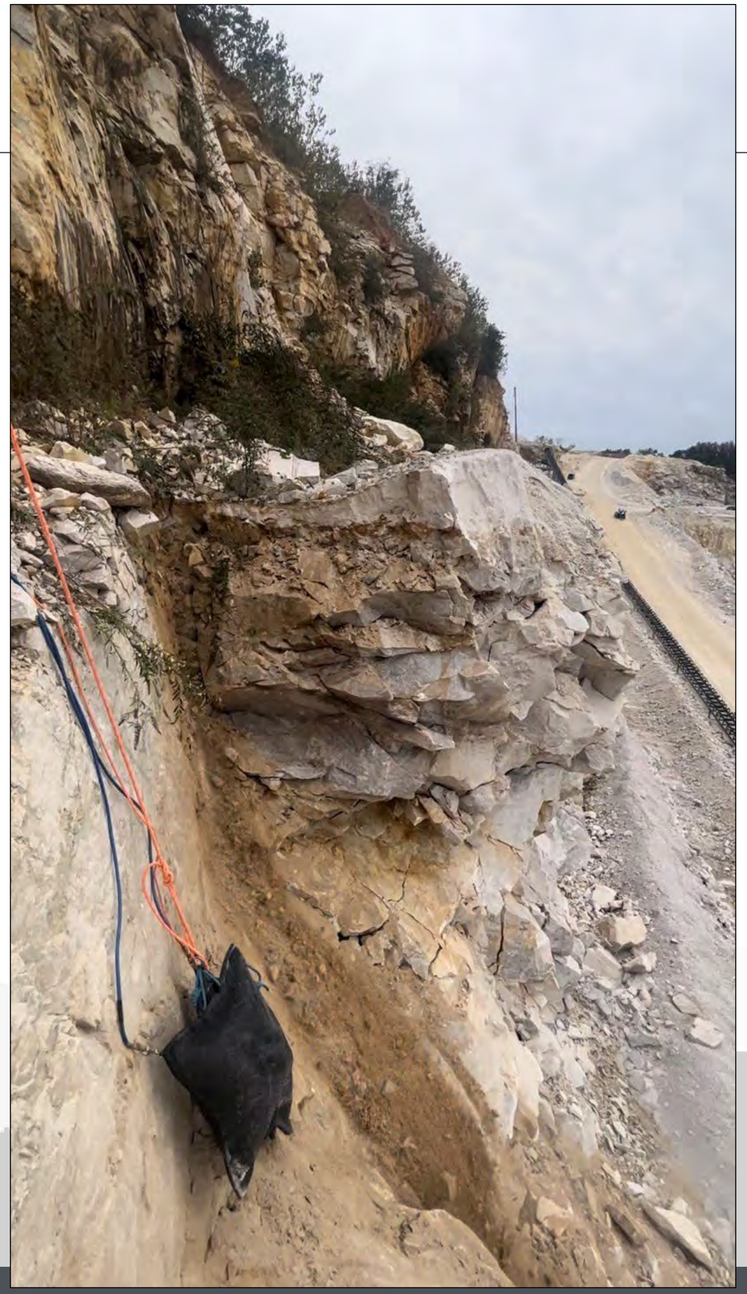


INITIAL SCALE

AIR BAGGING



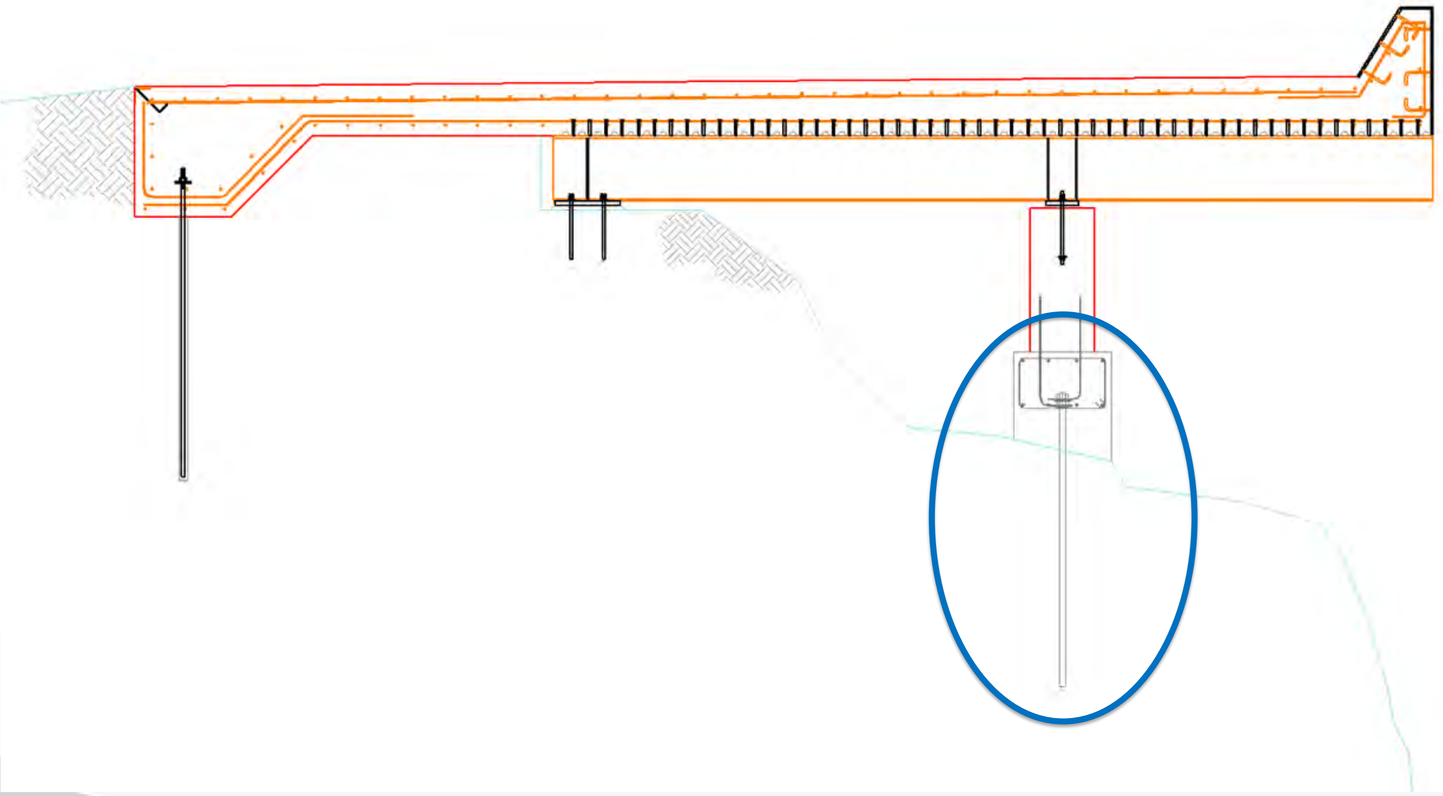


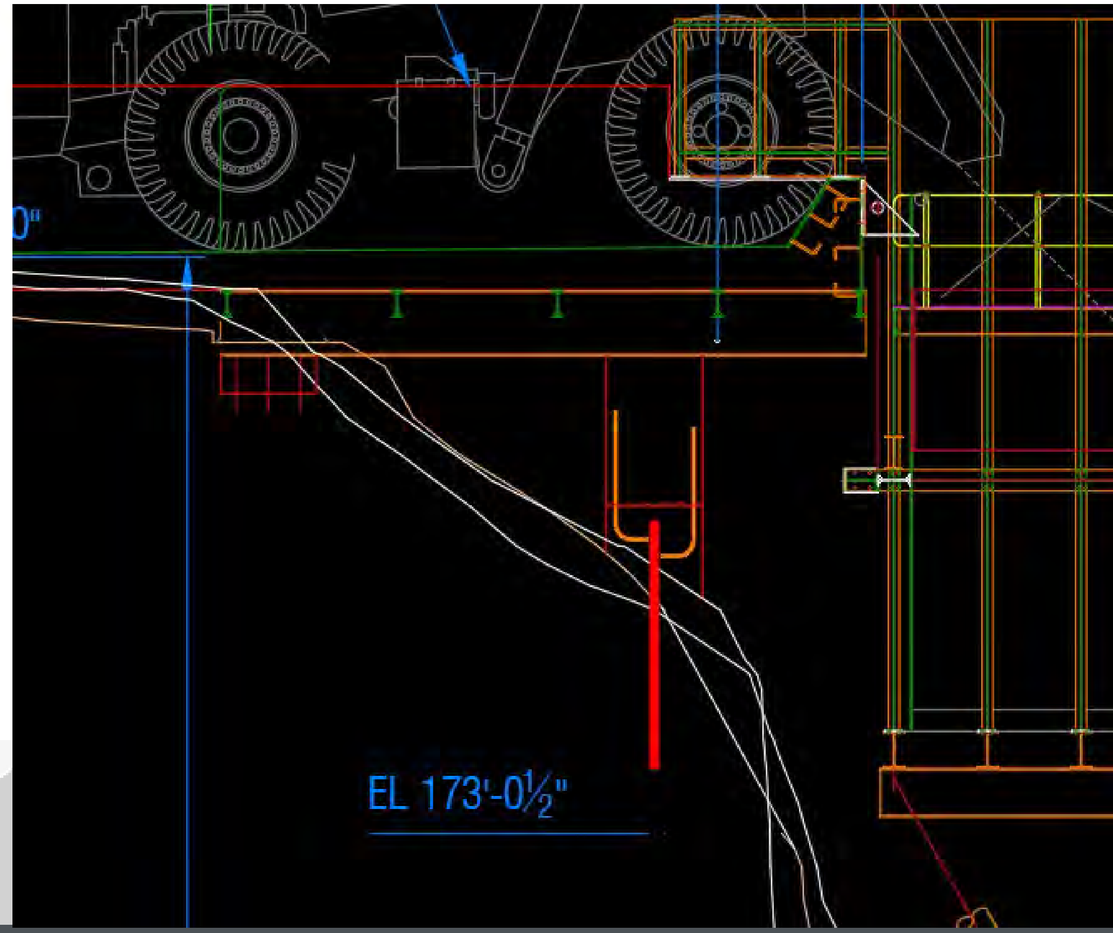
ROPE ACCESS SCALING CREW

INITIAL SCALE

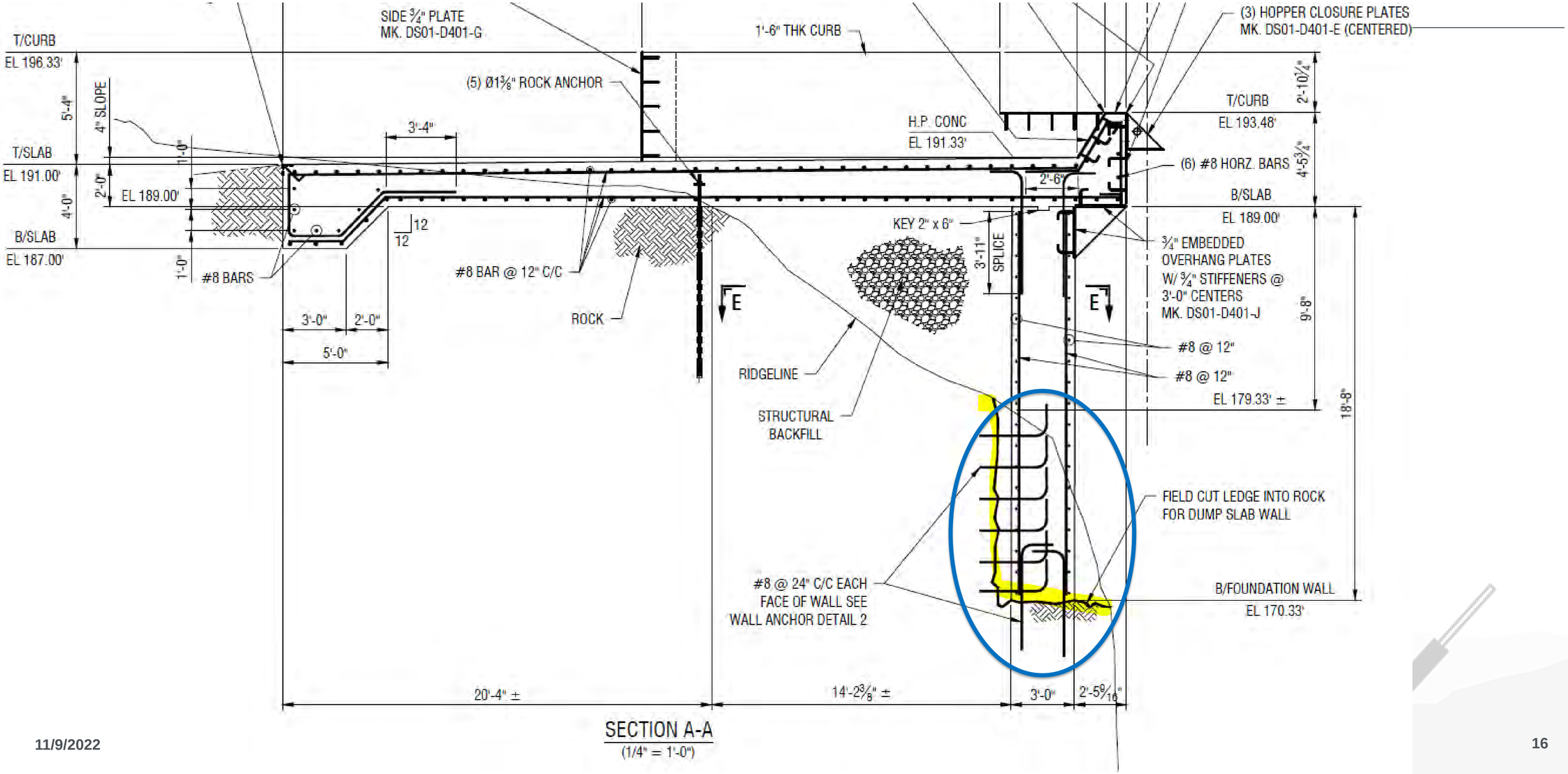
SPOT BOLTING

MICROPILE FOOTING





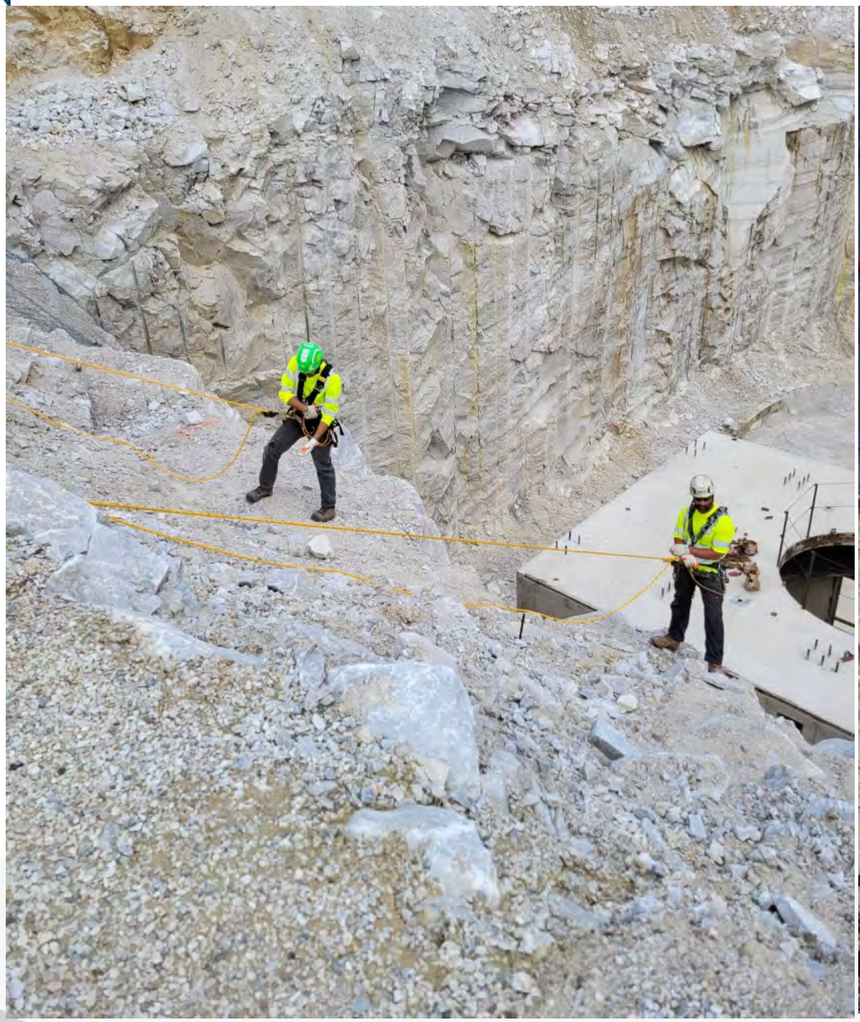
MICROPILE FOOTING



SECTION A-A
(1/4" = 1'-0")

BENCH CLEAN UP

INITIAL SCALE



FACE PREPARATIONS

SUSPENDED MESH - ADDITIONAL PROTECTION

Extra Mesh for Containment

SURVEY MP CAP

DRILLED ELEMENTS – START FORM WORK

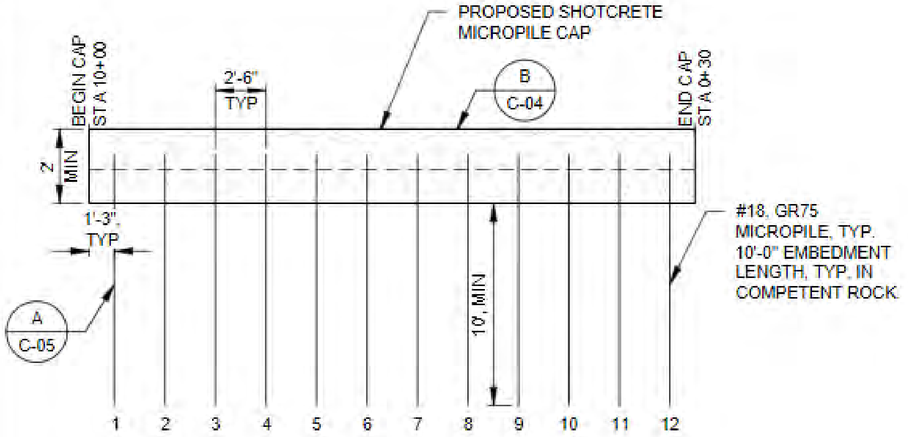
MP INSTALLED / CRIBBING

CONCRETE POUR

POST CONCRETE POUR

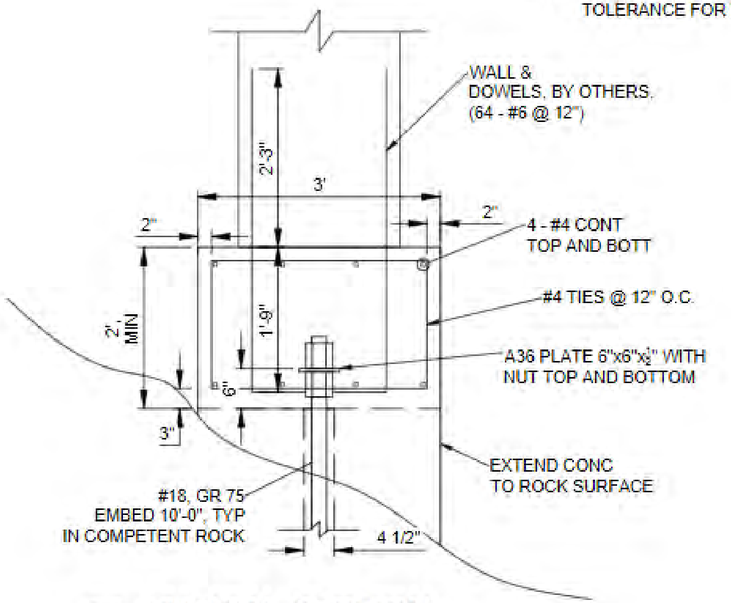
REMOVING FORMS

FINAL DESIGN



A TYPICAL PROFILE
SCALE: 1" = 6'

NOTES:
- DESIGN CORROSION PROTECTION FOR PLAIN #18, GR75, MICROPILES PROVIDED BY SACRIFICIAL STEEL.
- TOP OF HOLE INSTALLATION TOLERANCE FOR MICROPILES = 3".



B TYPICAL SECTION
SCALE: 1" = 1'

ISSUED FOR CONSTRUCTION

Professional Certification. I hereby certify that these documents were approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 58070, Expiration Date: 08/09/2023

SHEET REVISIONS

DATE	DESCRIPTION	NO
7/22/22	ISSUED FOR REVIEW	IFR
7/25/22	ISSUED FOR CONSTRUCTION	IFC
8/4/22	ADD MSHA TRAINING NOTE	REV1
8/22/22	ADDED SCALING SCOPE	REV 1
9/12/22	MP CAP & SCALING REV	REV 2

PROJECT NAME: *TEXAS QUARRY PRIMARY*

SHEET TITLE: *PROFILE VIEWS*

DRAWN BY: SSE

CHECKED BY:

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Questions?

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