



GRINDING TOWARDS INNOVATION IN THE SOO

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Technology Services



FABICK
TECHNOLOGY SERVICES



**TELEDYNE
TECHNOLOGIES**
Everywhereyoulook™



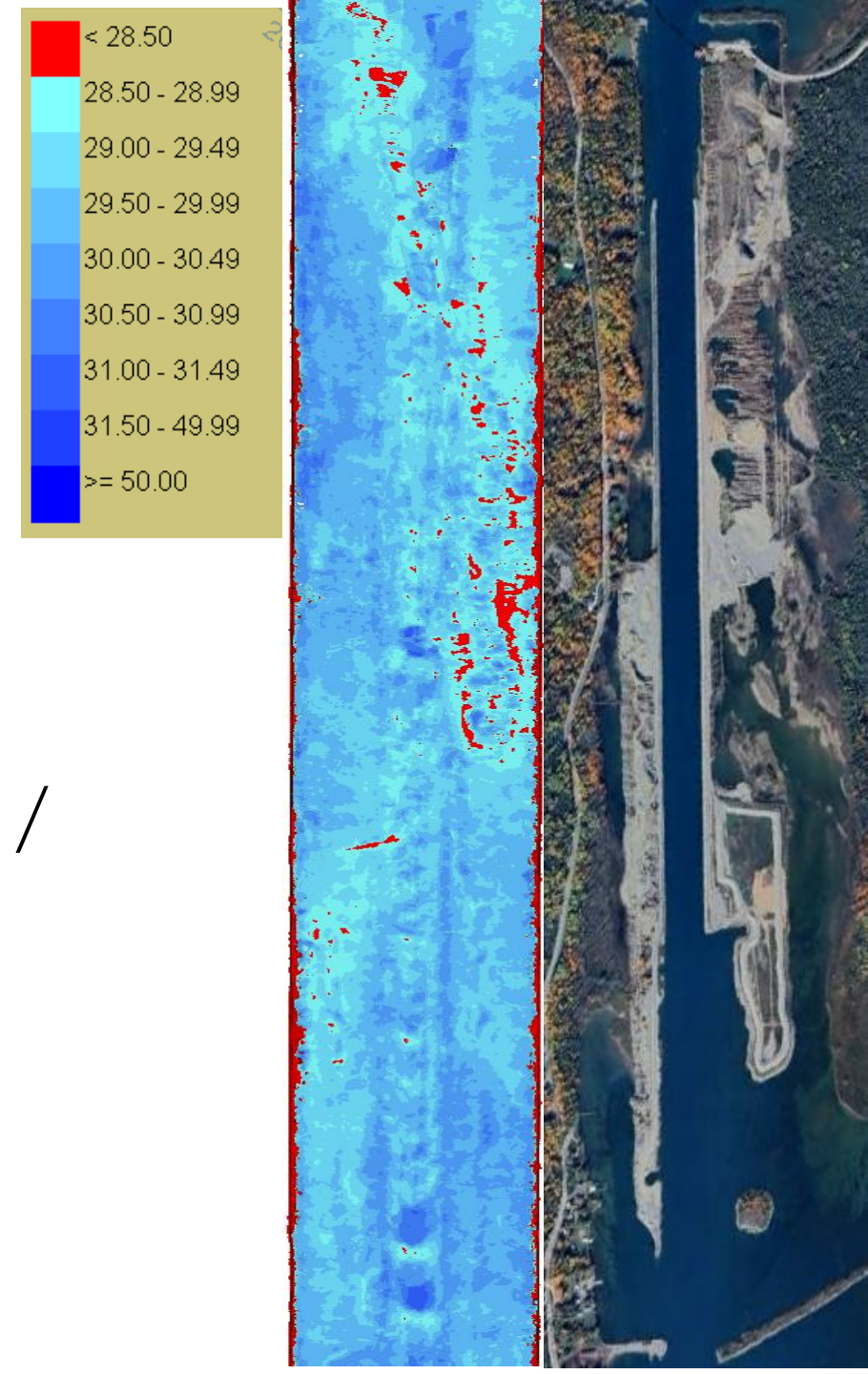
Trimble®

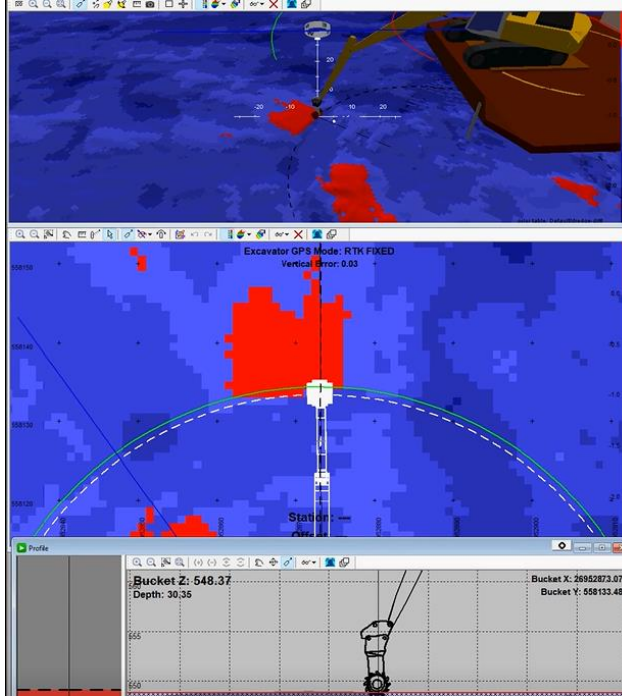


Seafloor™

PROJECT OVERVIEW

- USACE Detroit District
- Navigation Channel South of Sault St. Marie
- Rock formations above navigation depths
- Challenge: Rough Material / Scattered Targets / Survey Intensive





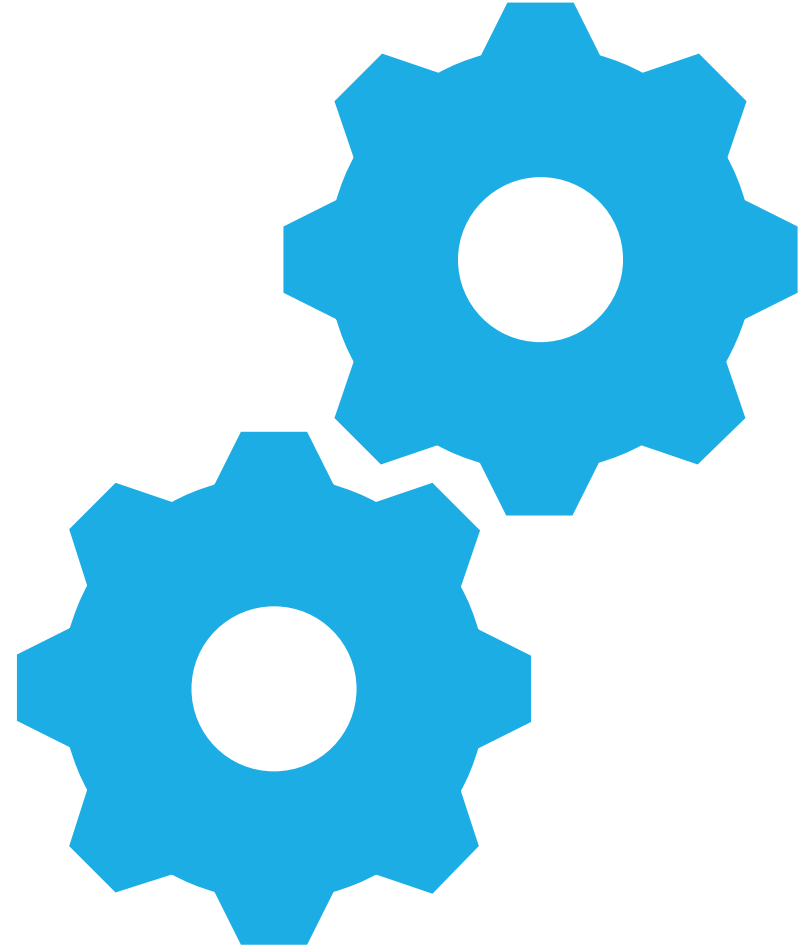
EQUIPMENT UTILIZED

- Hydraulic Excavator with Rock Grinding Attachment
- Trimble Marine Construction Software & Corrections
- Teledyne Bargevision Pro



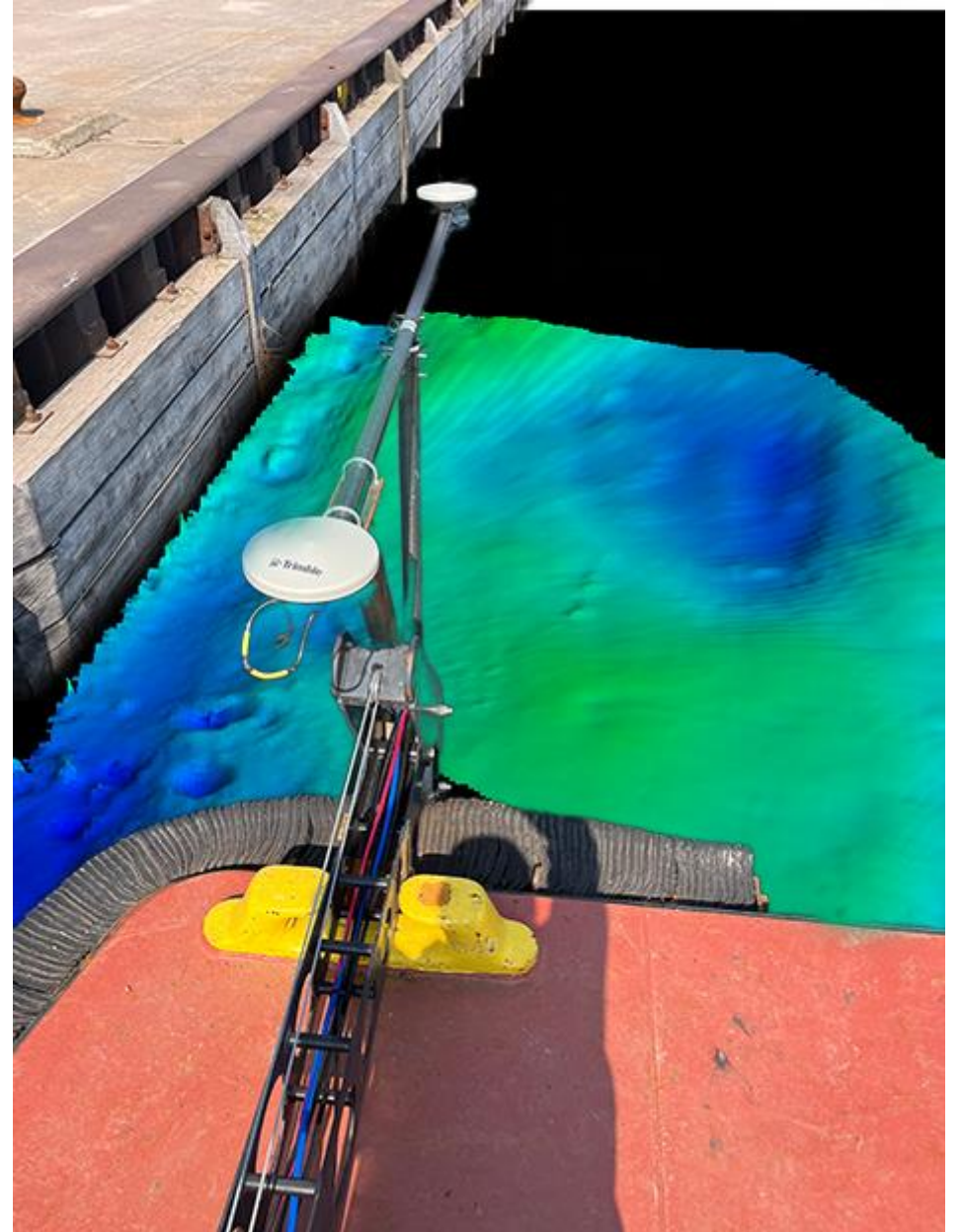
PROPOSED WORKFLOW

- Equipment Is Mobilized
- Work Begins
- Operators make decisions based on assumed GNSS Updates
- Interim Surveys
- Data Processing
- Models are updated & Uploaded to Machines
- Cycle Continues until work is “Done”
- Final Survey is preformed
- Equipment is Demobilized



A CHANGE IN WORKFLOW

- Equipment Is Mobilized
- Work Begins
- Models are updated in real time
- Operators make accurate & confident decisions
- Cycle Continues until work is “Done”
- Final Survey is preformed
- Equipment is Demobilized



THE DIFFERENCE

Proposed Workflow

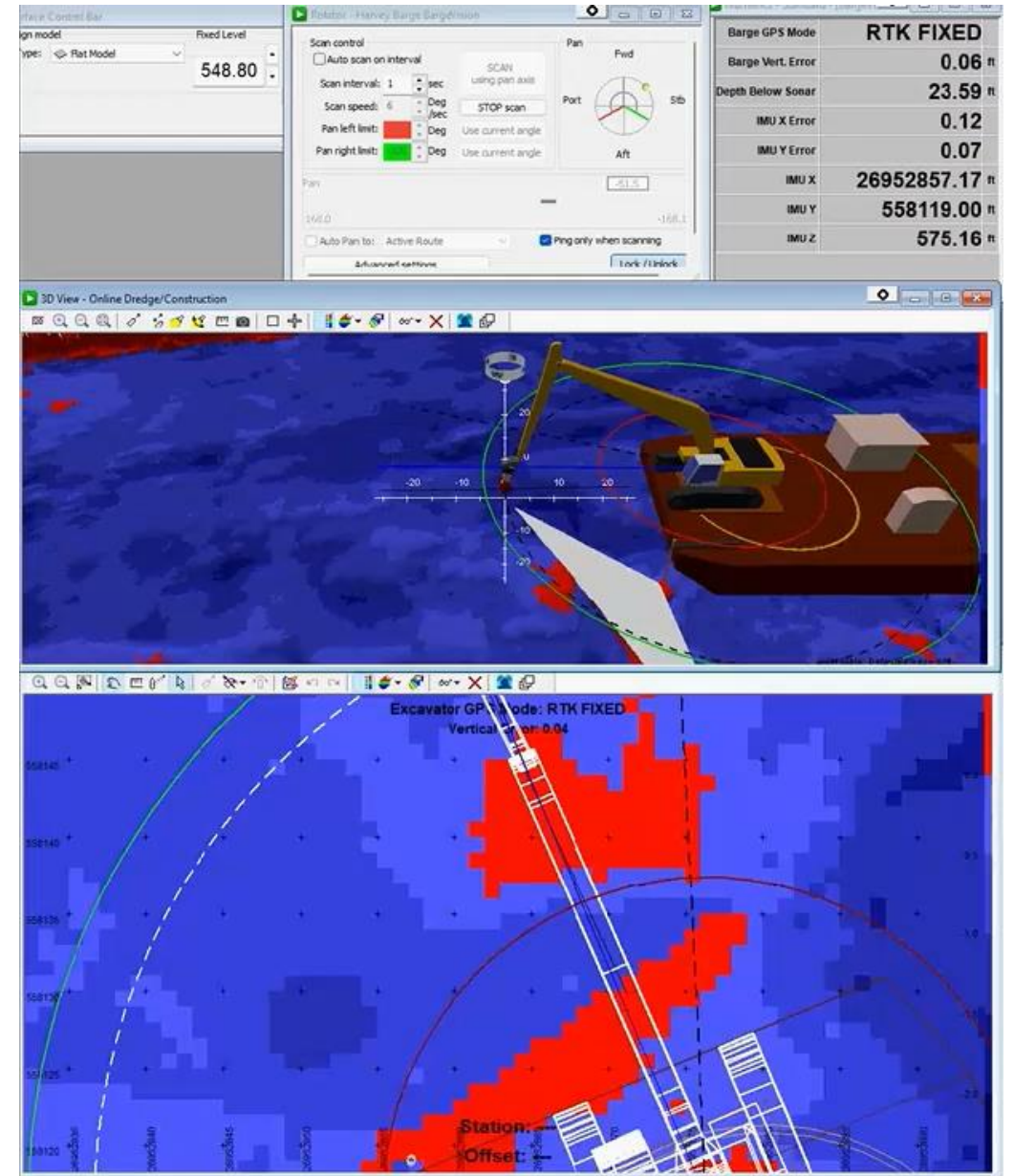
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Innovative Workflow

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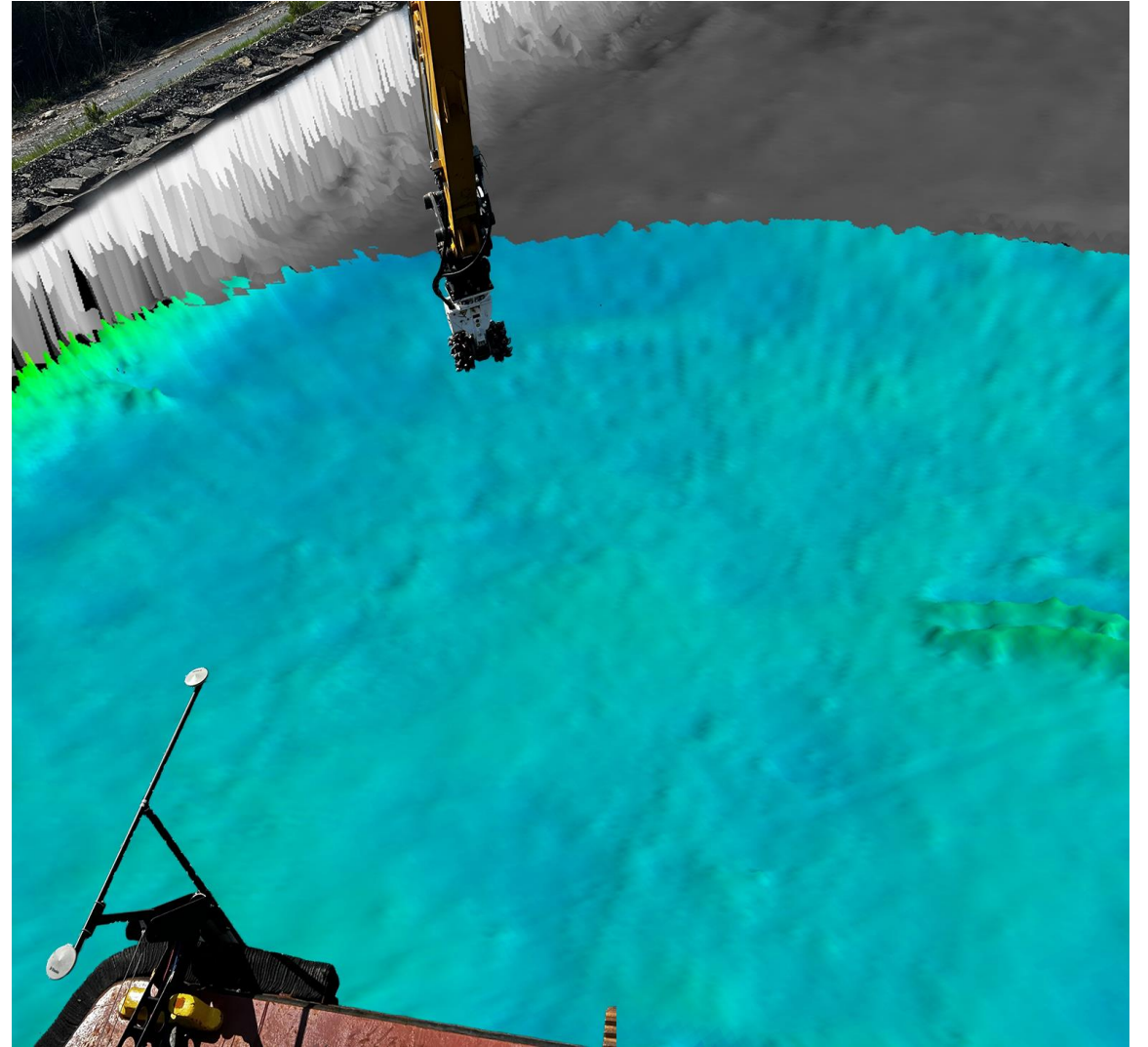
INNOVATION AT WORK

- **Accurate & Reliable Positioning**
 - Used to display survey & design information
 - Excavation guidance while utilizing multiple unique attachments
- **Real Time Survey Feedback**
 - Used to confirm material displacement
 - Increased production through efficient & accurate survey



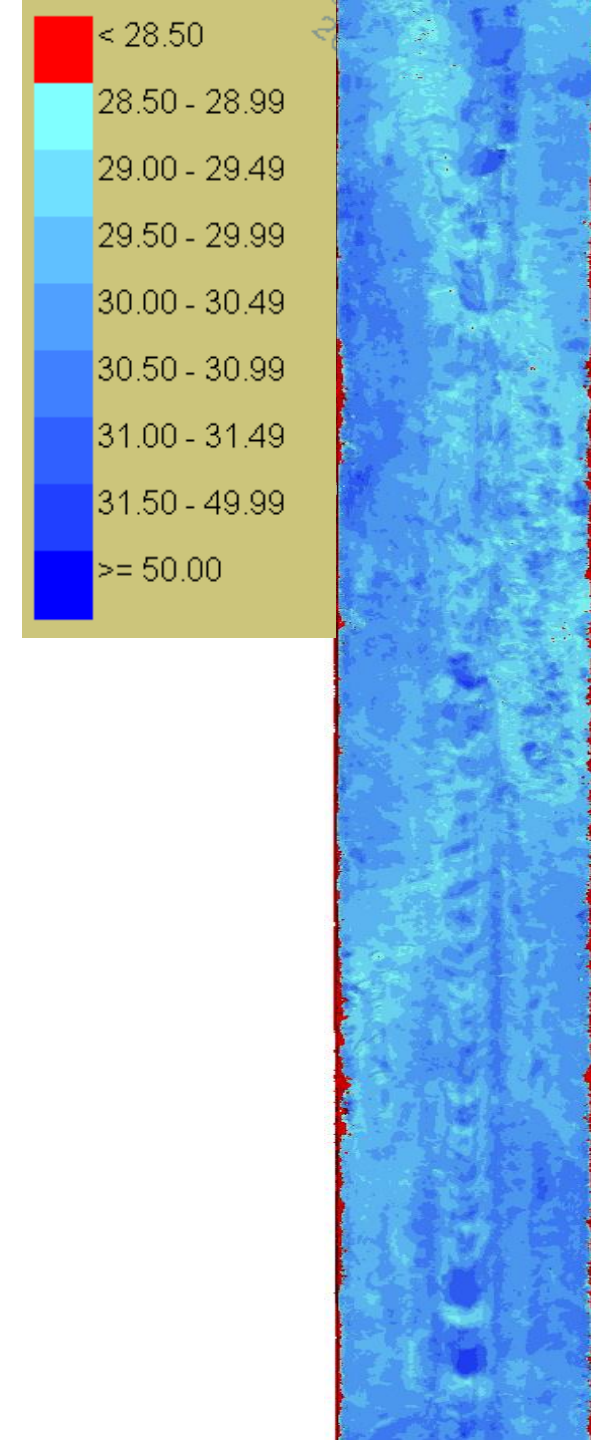
TECHNOLOGY ADVANCEMENTS

- GNSS precisions sub .1 USFT utilizing non RTK solution
- Precise machine guidance accomplished from advanced measure up procedures
- Accurate bathymetric data from a barge mounted solution
- Machine models updated from both GNSS machine guidance & multibeam data



THE RESULT

- Project completed with improved workflow & results
- Today's technology put to the test in a challenging environment & proven to USACE standards
- FTS received valuable feedback from USACE & will work to improve technology further alongside Trimble & Teledyne
- USACE has set a new standard for technology utilization & capabilities



QUESTIONS

