



Link Operations and Maintenance Facility: East

GRANITE[®]

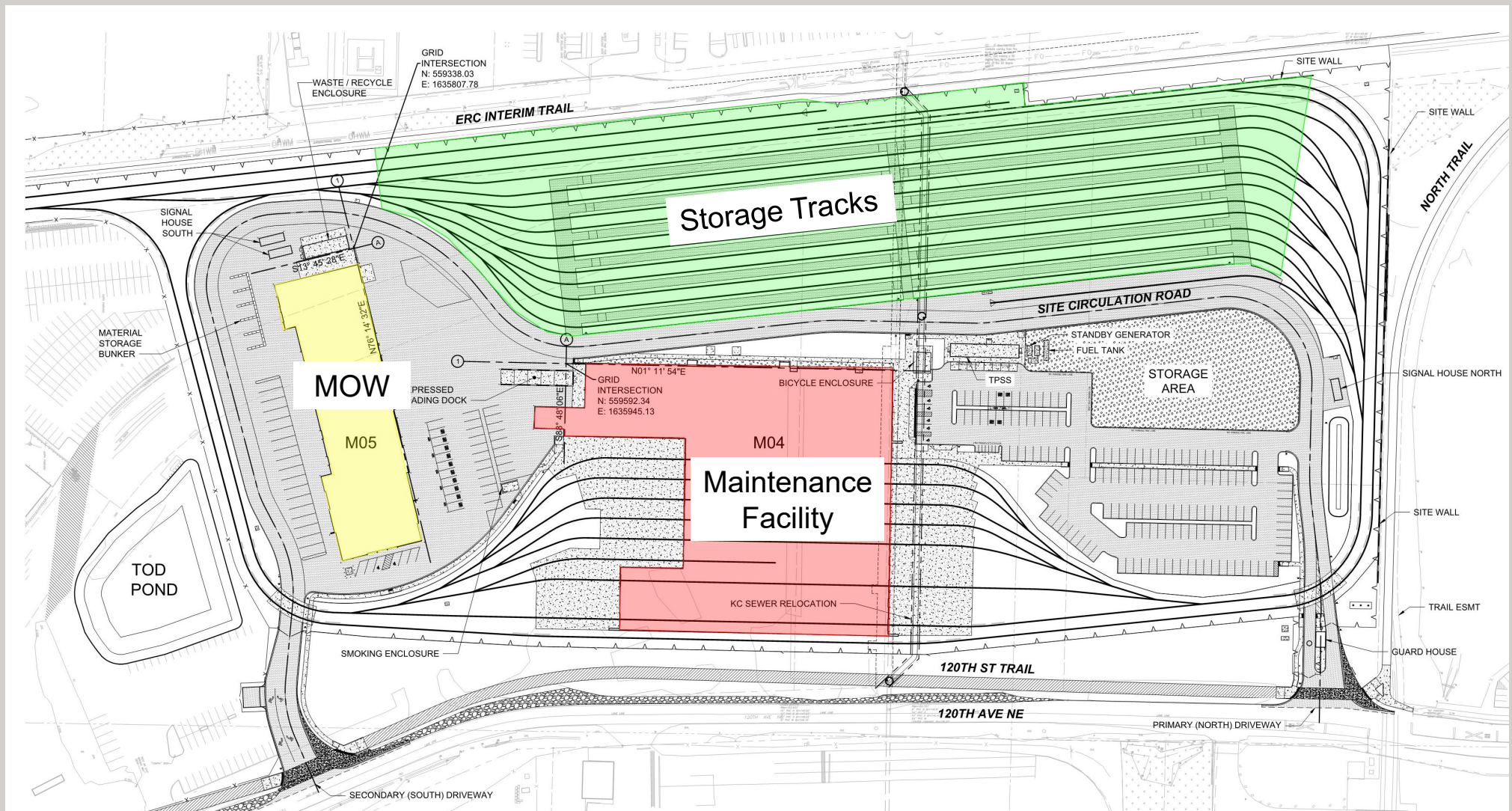
Connor Lee
Project Engineer

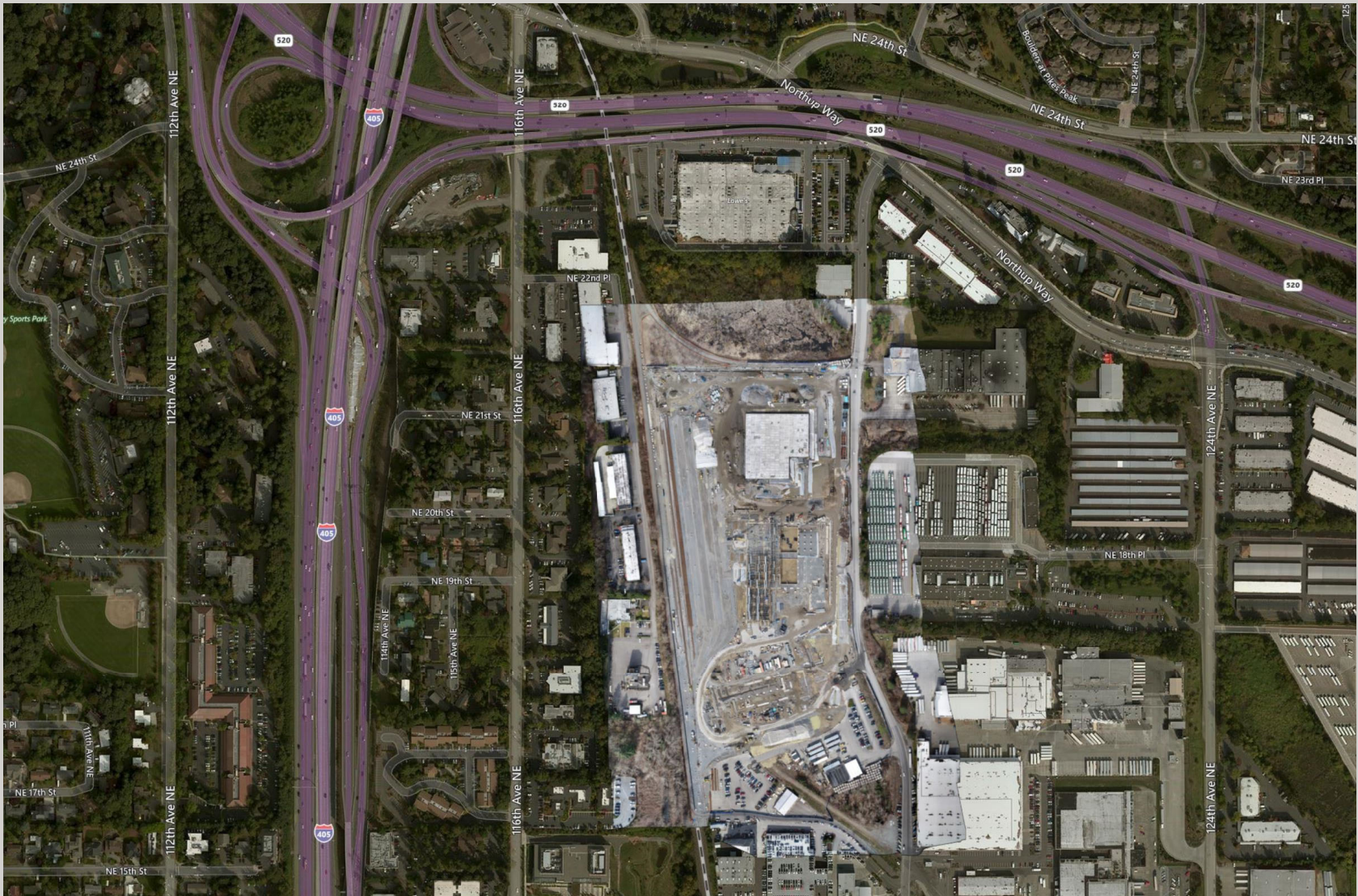
Agenda

- Project Overview
- Granite's Role
- Project Highlights
- Challenges
- Questions

Project Overview

- **Maintenance facility and storage for East Link Expansion**
- **Owner: Sound Transit**
- **Value: \$220 Million**
- **Substantial Completion: September of 2020**
- **Design/Build**
- **30 acre site**





Project Overview

- **Project Team**
 - Hensel Phelps: Prime
 - Stantec: Designer
 - KPFF: Civil Designer
 - O'Neill Service Group: 3rd Party Quality Control



HENSEL PHELPS
Plan. Build. Manage.

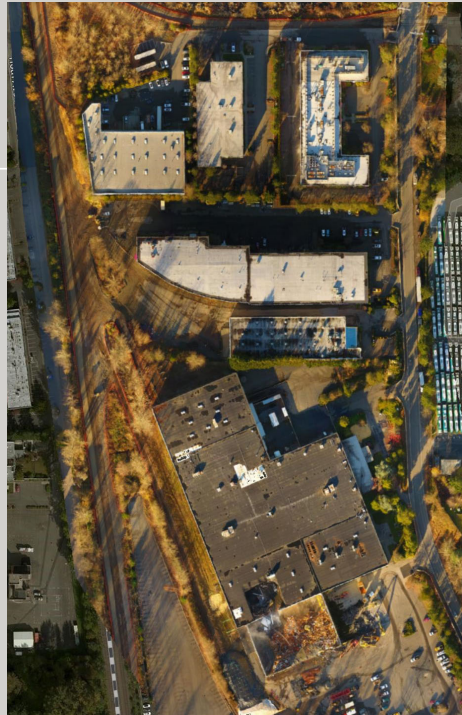


Stantec



Granite's Role

- **Subcontractor to Hensel Phelps**
- **Original Contract Value: \$28.3 Million**
- **48,000 Man Hours**
- **Scope:**
 - Demo/Clearing
 - Earthwork/Grading
 - Utilities
 - Storm Water Detention Vaults
 - Water
 - Storm
 - Sanitary Sewer
 - KC Sewer Expansion
 - Hardscapes
 - Concrete flatwork
 - Asphalt paving
 - Site retaining walls
 - Erosion Control



- Subcontracted to Rhine Demolition
- 6 concrete buildings
- 350,000 SF footprint
- 2 month duration

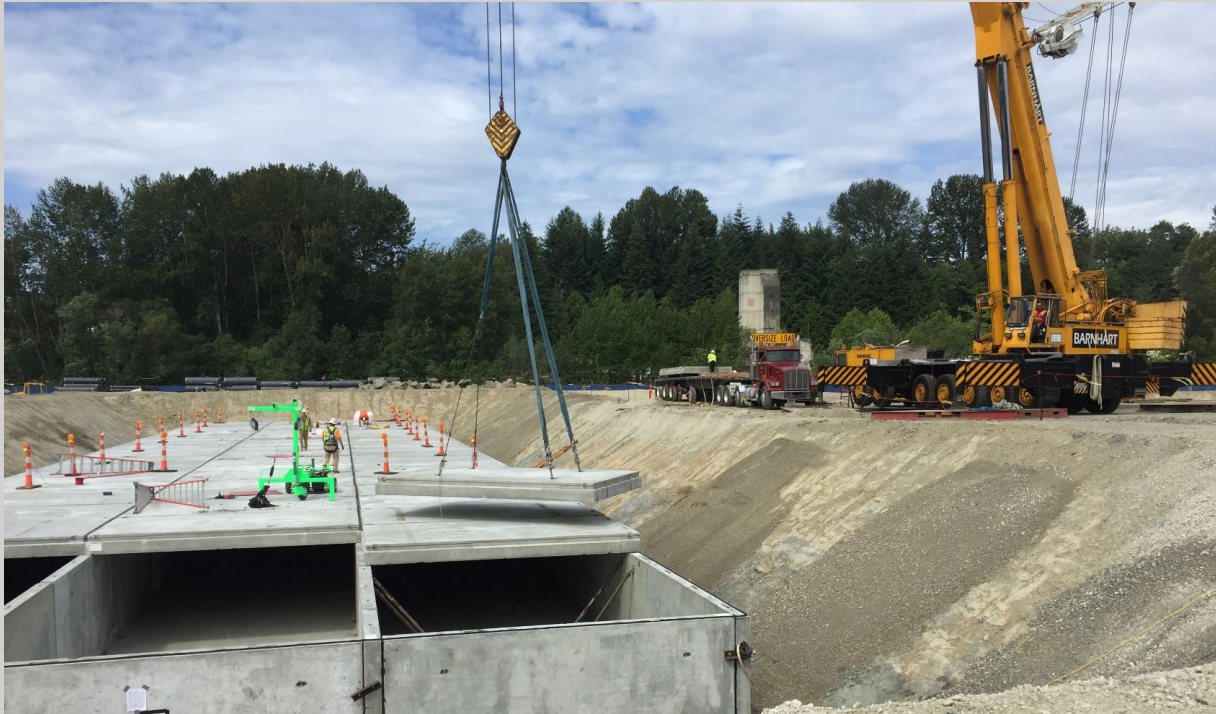
Demolition



- 55,000 CY waste off-hauled
- 22,000 CY surcharge material
- 10,000 CY of cement treatment
- 4,900 CY Unsuitable material
- 94,000 SY finish grading
- GPS machine control



Earthwork / Grading



- 3 vaults
- 200 – 800 precast panels each
- 12,500 – 52,000 SF footprints
- 620,000 – 3,150,000 gal capacity
- 47,000 CY excavated
 - 25,000 CY from North Vault

Stormwater Detention Vaults



- 750 FT long
- 66" diameter Fiberglass Reinforced Pipe
- 2 tie ins
- Removal of old 54" concrete pipe

King County Sewer Upgrade



- 1000 GPM chitosan water treatment system
- Dust control
- Track out management

Erosion Control

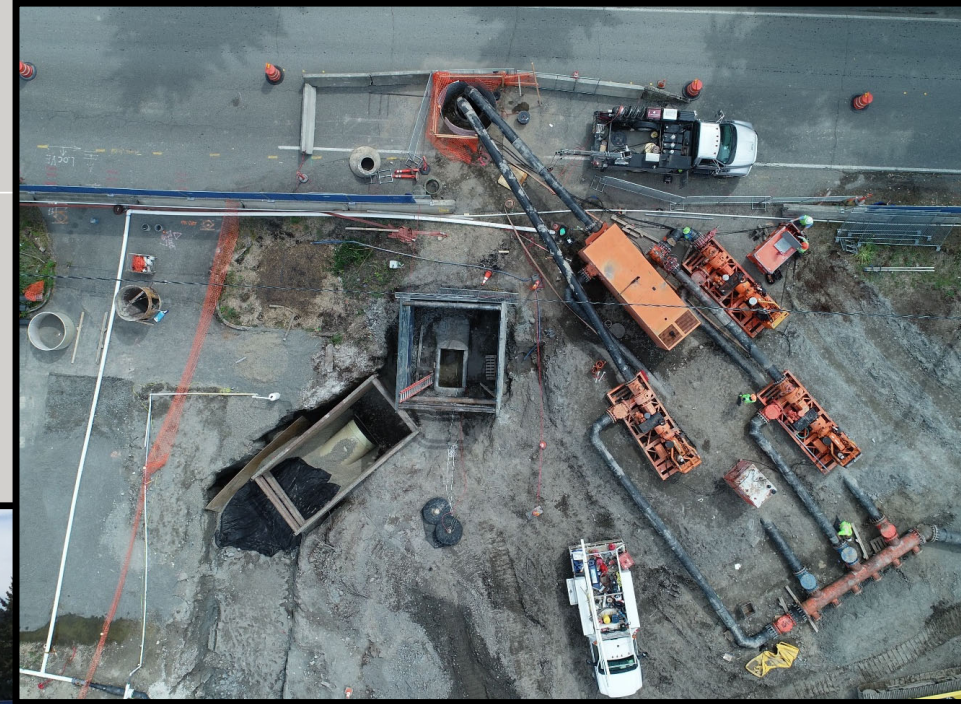
Project Highlights

- **Recycling concrete from building demo**
 - 22,000 tns of recycled concrete
 - Reduced import material cost
 - Reduced waste off-hauling



Project Highlights

- **King County Sewer Upgrade**
 - Extended life and reduced maintenance with FRP vs concrete (corrosion)
 - Lowered cost
 - Subcontracted scope to KLB



Project Highlights

- **Stormwater Detention Vaults**
 - 21 panels/day
 - Construction of all 3 completed
 - Backfilling final, largest vault



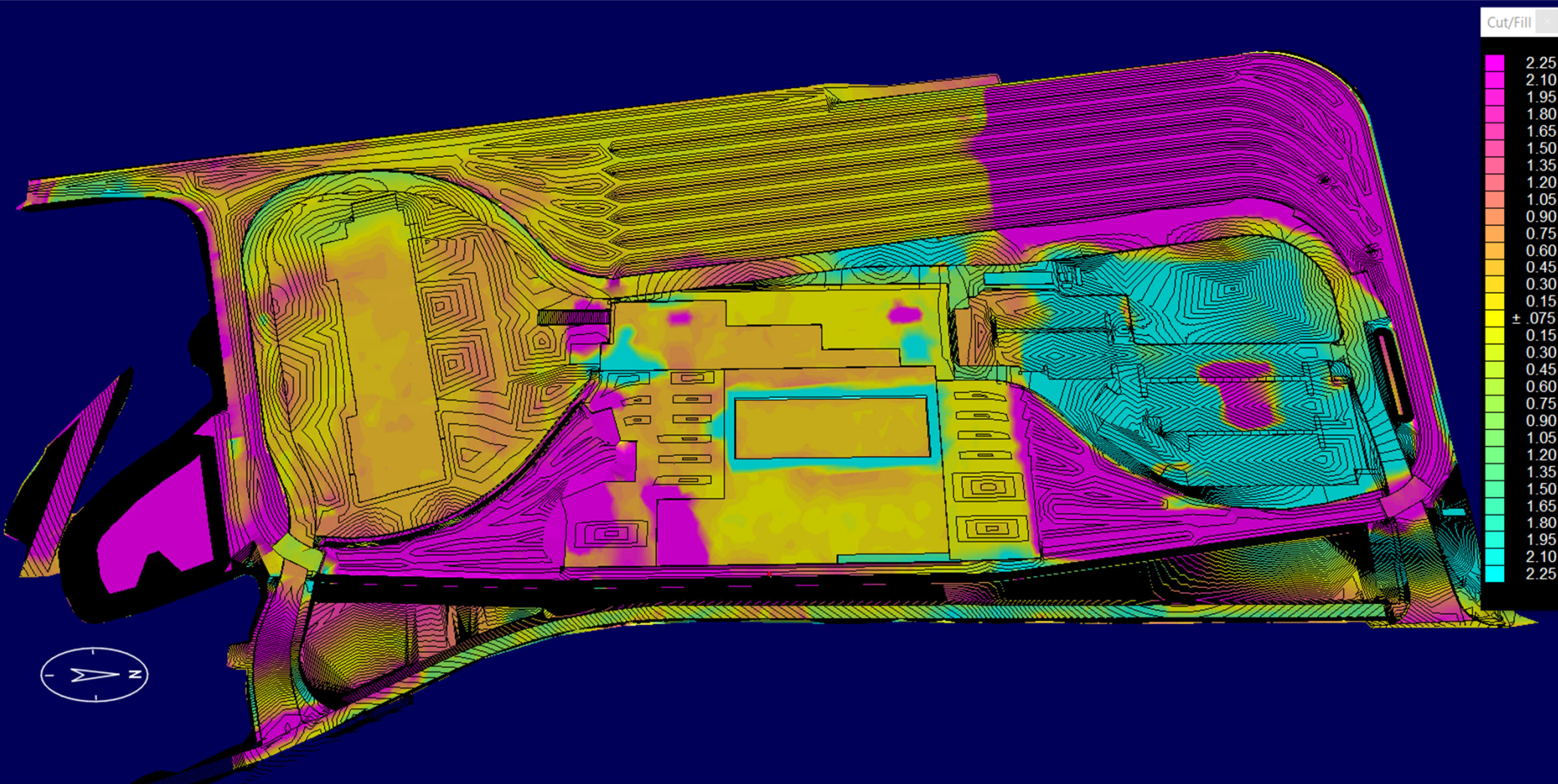
Project Highlights

- **GPS and mmGPS**
 - Machine Control and Rovers
 - D6 Dozer
 - Cat 140H Grader
 - JD Skidsteer
 - Two rovers/data collectors
 - Accuracy
 - +/- 0.05' horizontal and vertical with RTK
 - +/- 0.01' vertical with mmGPS



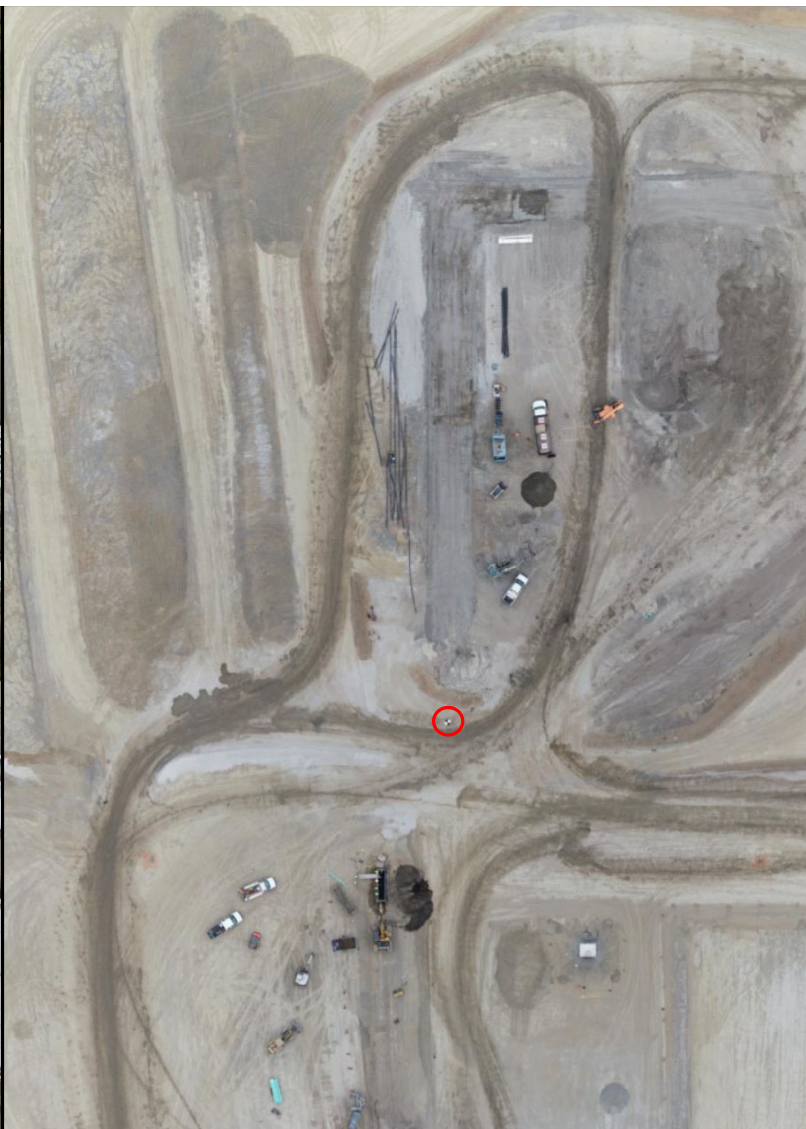


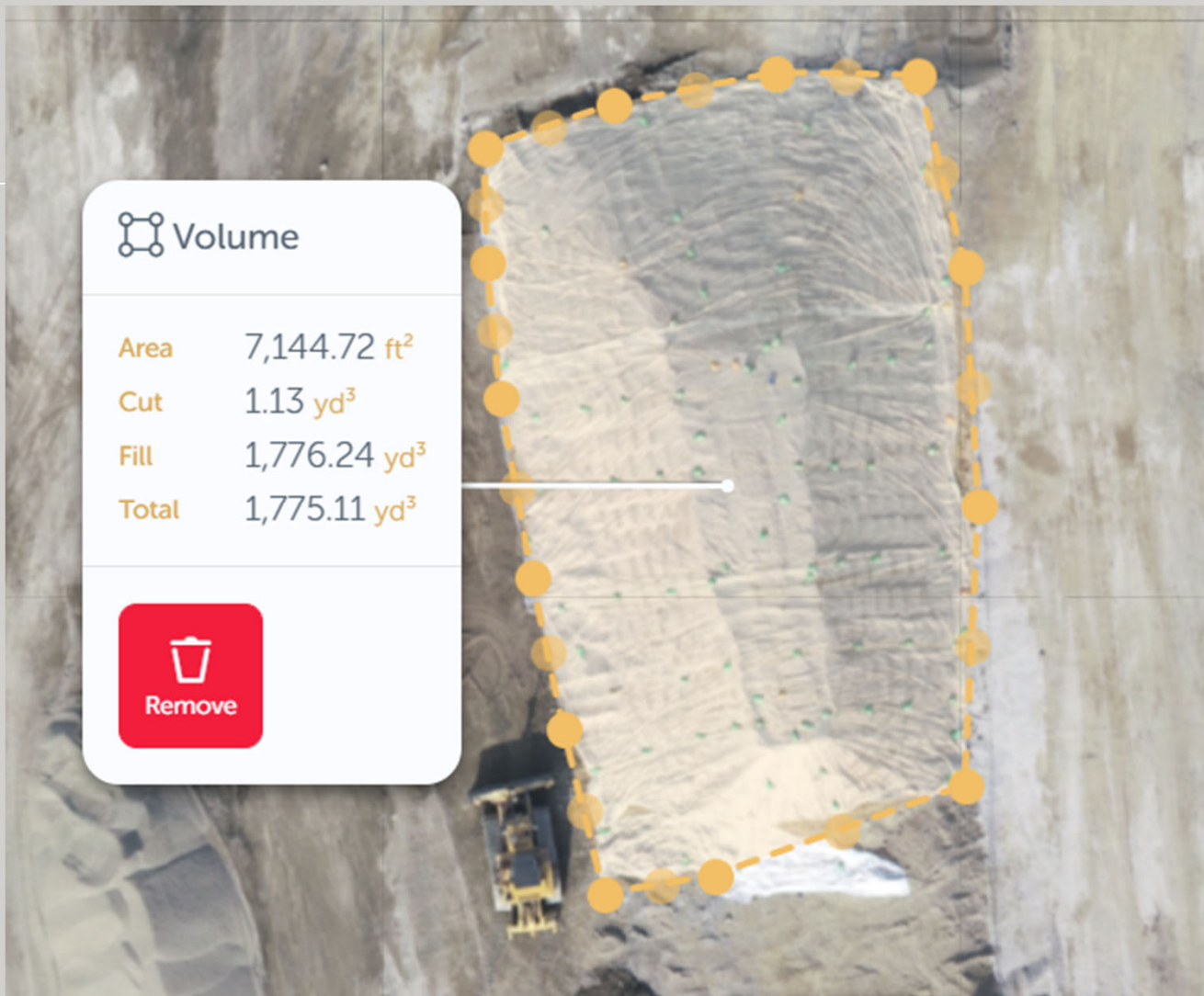


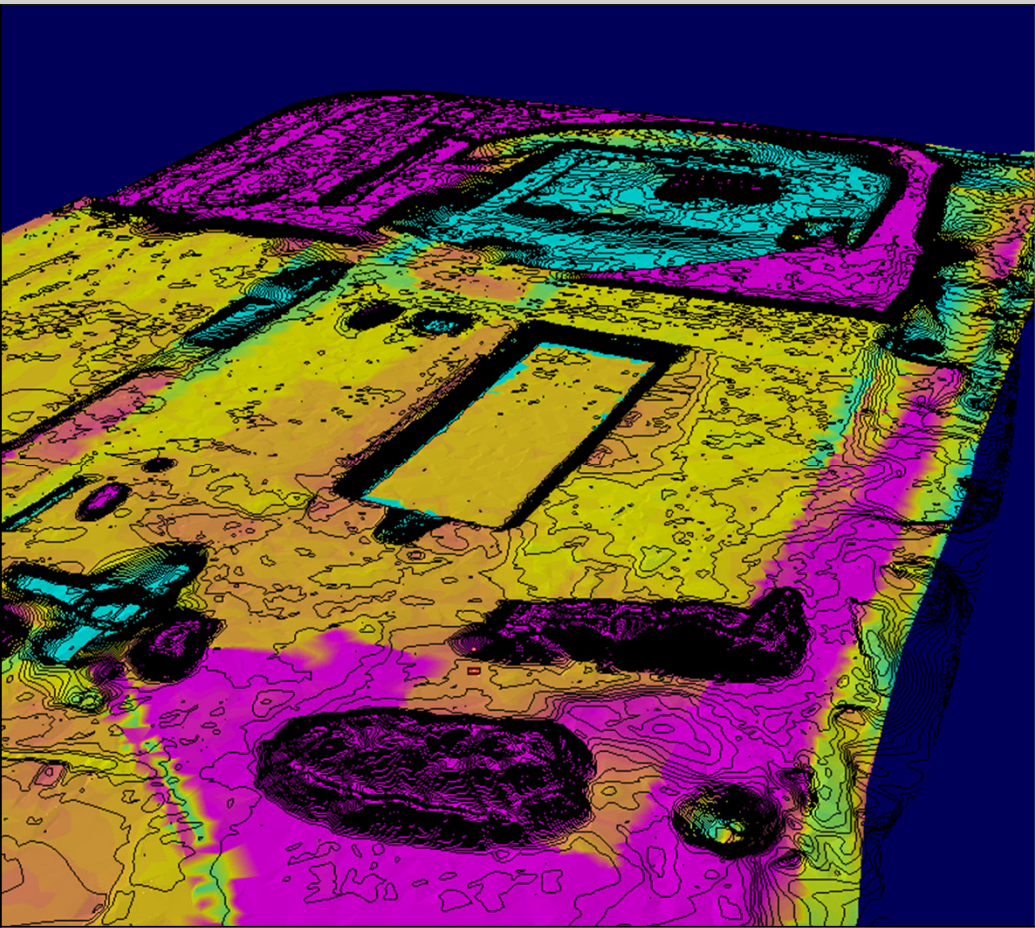


Project Highlights

- **Drones**
 - Progress photos
 - 30 min flight
 - 3rd party processing
 - 24 hr turn around for high resolution imagery
 - Quantities
 - Quick local measurements
 - Overall cut fill balances with control points/GPS
 - Survey cost savings







Challenges

- **Soil infiltration issues requiring redesign**
 - Larger detention vaults required
 - Overall storm drainage redesign



Challenges

- **Poor soil conditions on north end**
 - 3' over-excavation required under largest vault
 - 13,000 TN of spalls
 - 6,500 CY of unsuitable material





Challenges

- Congested work areas
- Design/Build coordination



An aerial photograph of a large-scale construction project. In the foreground, a parking lot is filled with numerous green and white shipping containers. The construction site itself is expansive, with a large building's steel framework under construction in the center. To the right, a large, flat-roofed structure is partially completed. The background features a dense urban skyline with various high-rise buildings, a body of water, and distant mountains under a clear blue sky.

Thank you | Questions?