Link Operations and Maintenance Facility: East

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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
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
Demolition

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

- 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
King County Sewer Upgrade

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

- 1000 GPM chitosan water treatment system
- Dust control
- Track out management
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
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<tr>
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<td>Total</td>
<td>1,775.11 yd³</td>
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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
Thank you | Questions?