

FORT HILL STEPS

February 21, 2019

ABCD Outstanding Bridge Awards

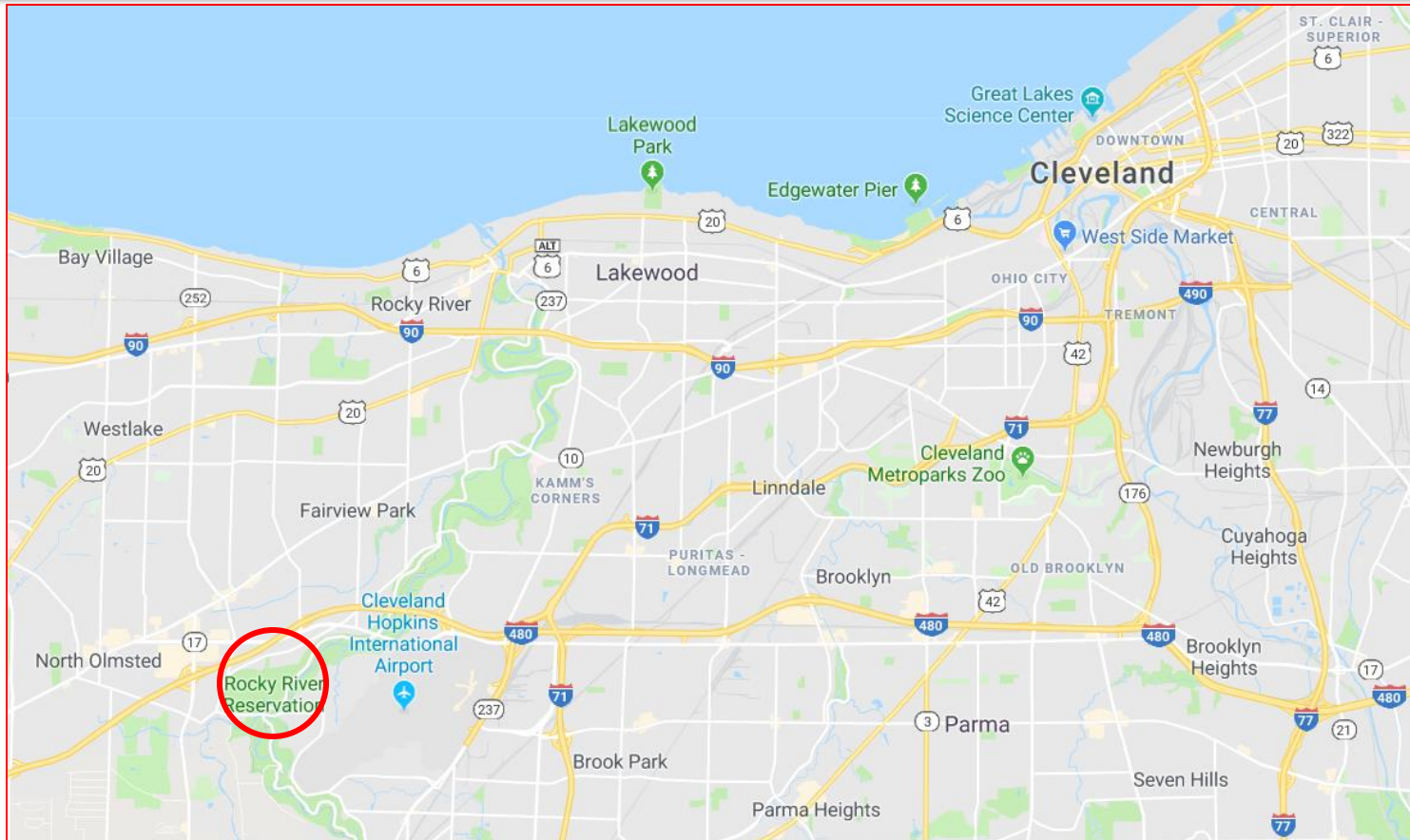
FORT HILL STEPS

- Design-Build Project
- Objective – replace the existing stairs with a series of new steps and landings to provide users with a safe yet exciting means of climbing the east face of Fort Hill without negatively impacting the natural resource
- Budget – \$450,000

PROJECT TEAM

- Owner –  Cleveland Metroparks
- Contractor –  SCHIRMER CONSTRUCTION LLC
- Engineer –  E.L. ROBINSON
ENGINEERING
- Architect –  CSS
Landscape Architects
- Fabricator –  ALLFASTENERS®
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PROJECT LOCATION



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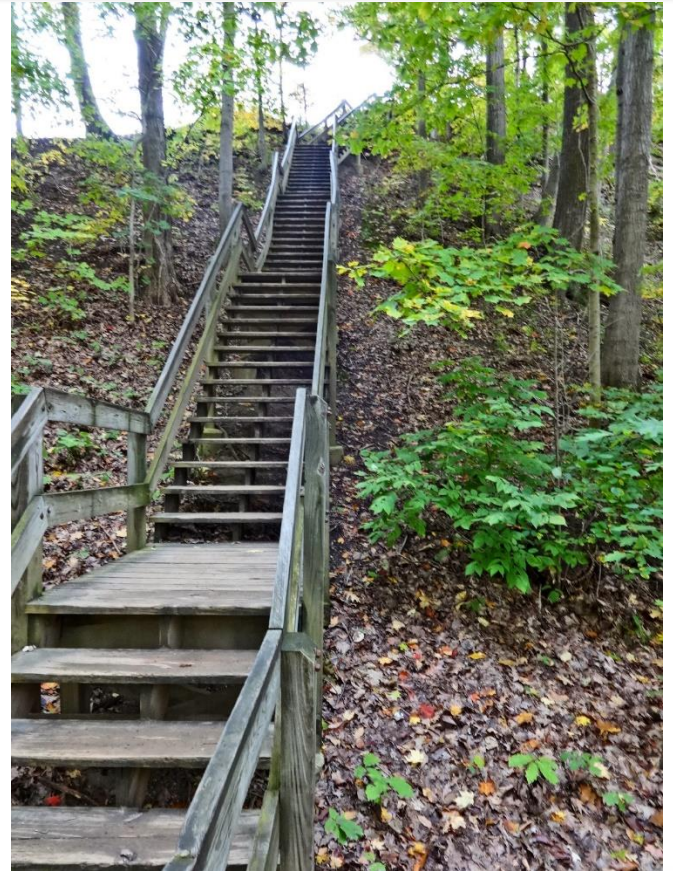
PROJECT LOCATION



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EXISTING STAIRS

- Constructed 1982
- Connect lower trail with upper trail with upper trail
- Elevation difference 95 feet
- Closed due to erosion of the hillside



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STAIR USAGE

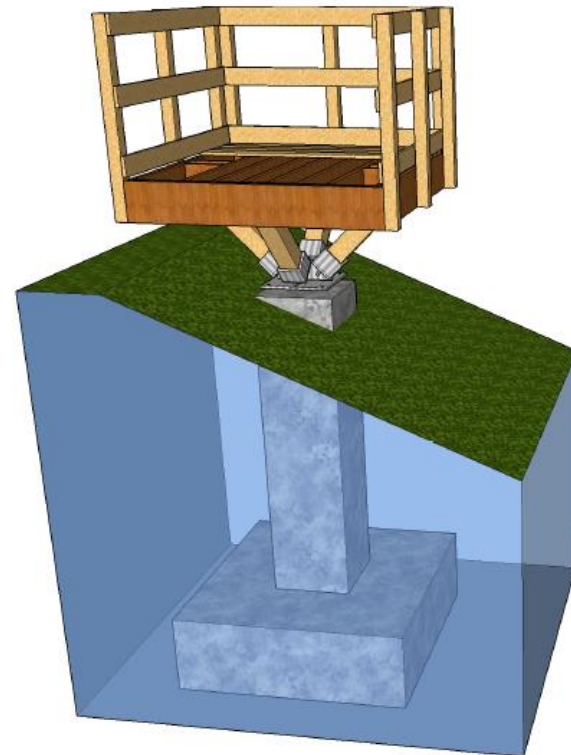
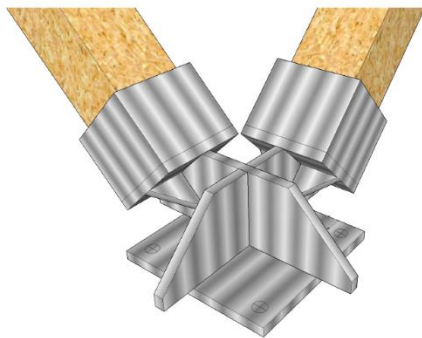
- Rocky River Nature Center highly visited, 2nd only to the zoo
- Approximately 19,000 stair users per month
- Fitness use
- Private donations funded \$153,000



CONCEPT AND DESIGN

PLATFORM CONCEPT

- The “tree” & “cups”
- Single point of contact
- Minimize tree removal and disruption of the existing slope



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FULL SCALE MOCK-UPS

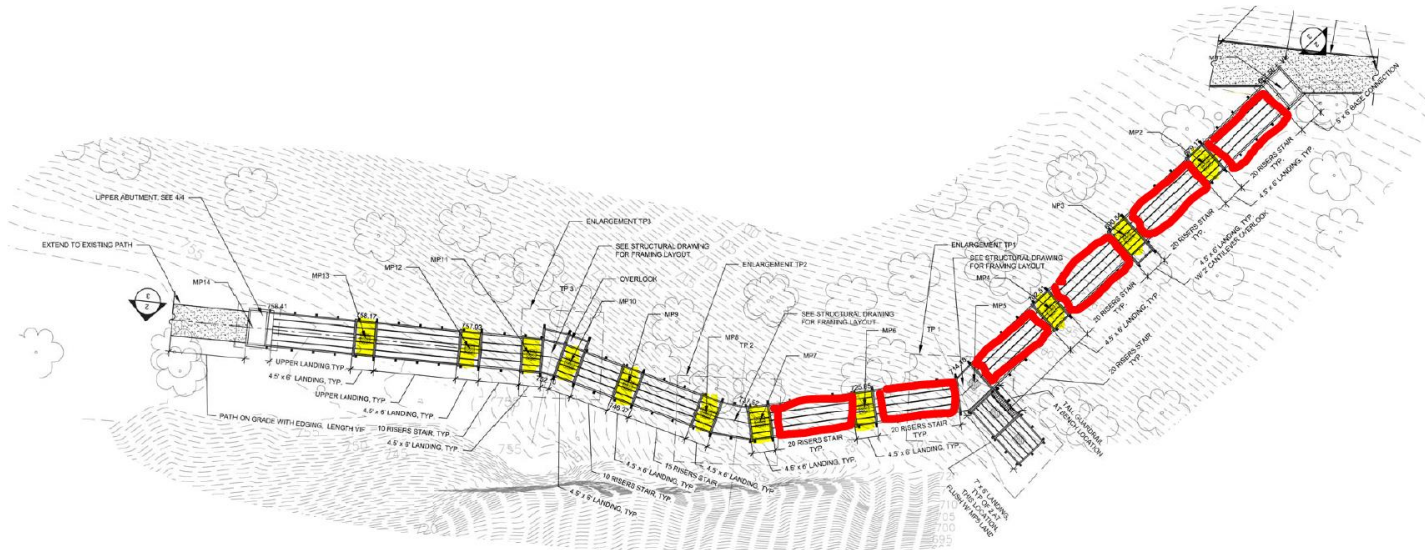
- “cups” & platform



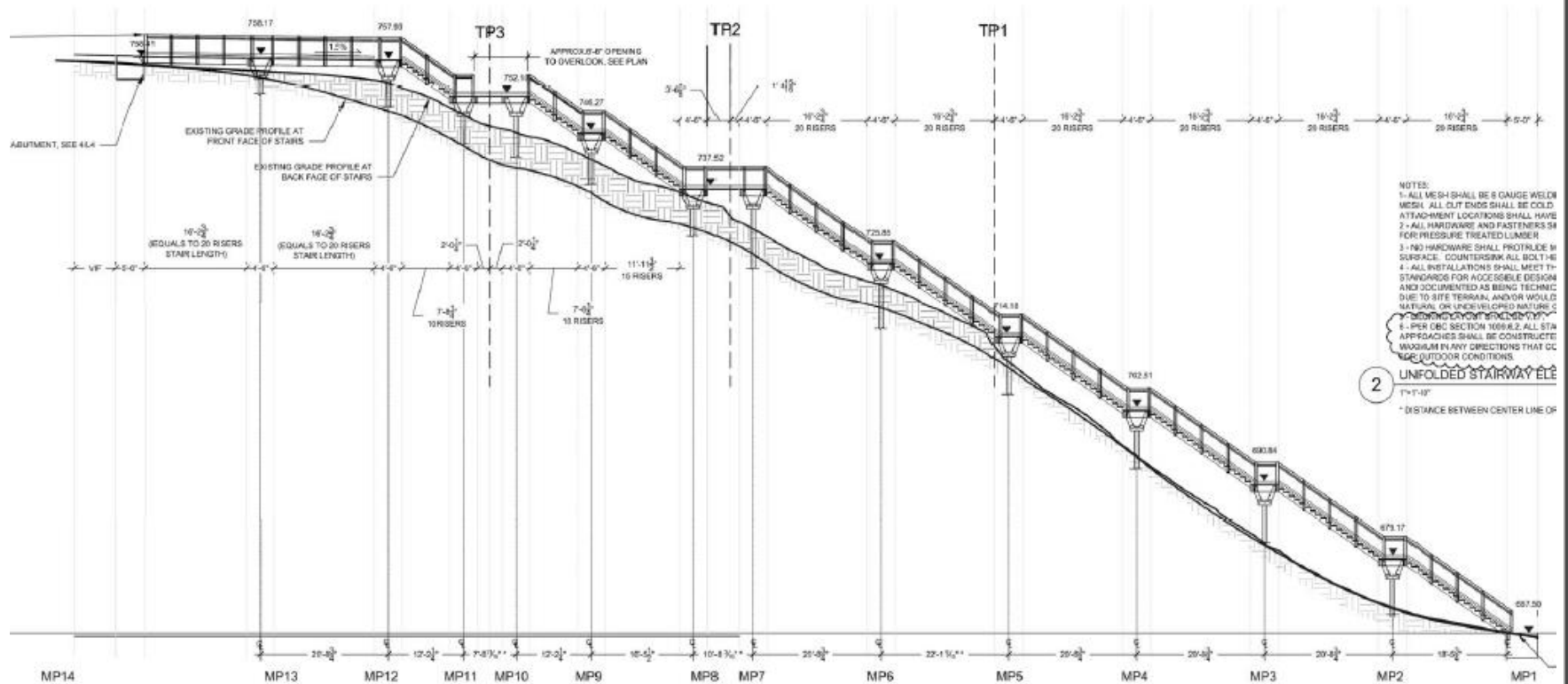
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LAYOUT

- Length 225', 155 steps
- Standard platforms & stair lengths
- Turning points & observation platforms



PROFILE



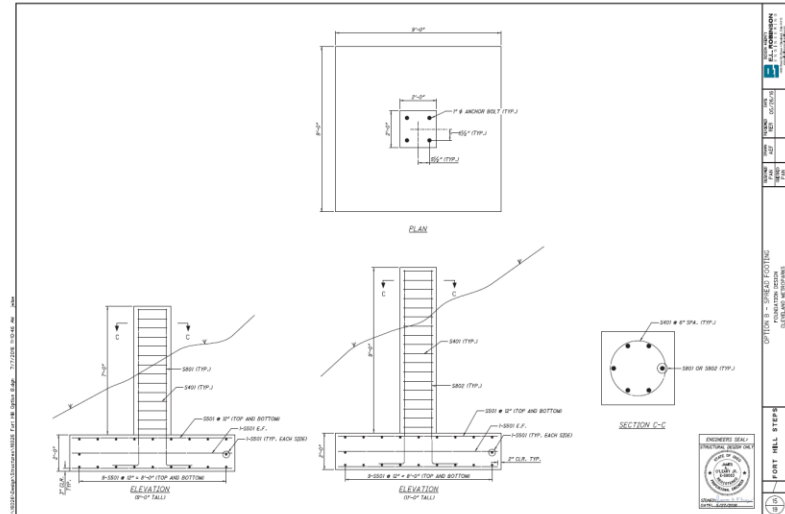
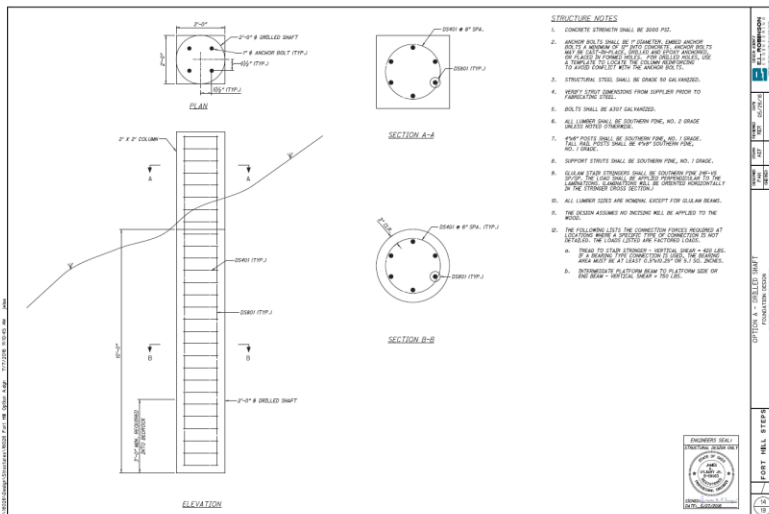
STRUCTURAL DESIGN

- AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges
- AASHTO LRFD Bridge Design Specifications
- 90 PSF Live Load



FOUNDATION – 2 OPTIONS

- Drilled Shaft
- Spread Footing



CONSTRUCTION

- 30 different types, total of approximately 180 fabricated pieces
- Each std platform - 17 steel parts, 15 unique pieces
- Pre-fabrication coordination meeting – all pieces color coded on stair layout

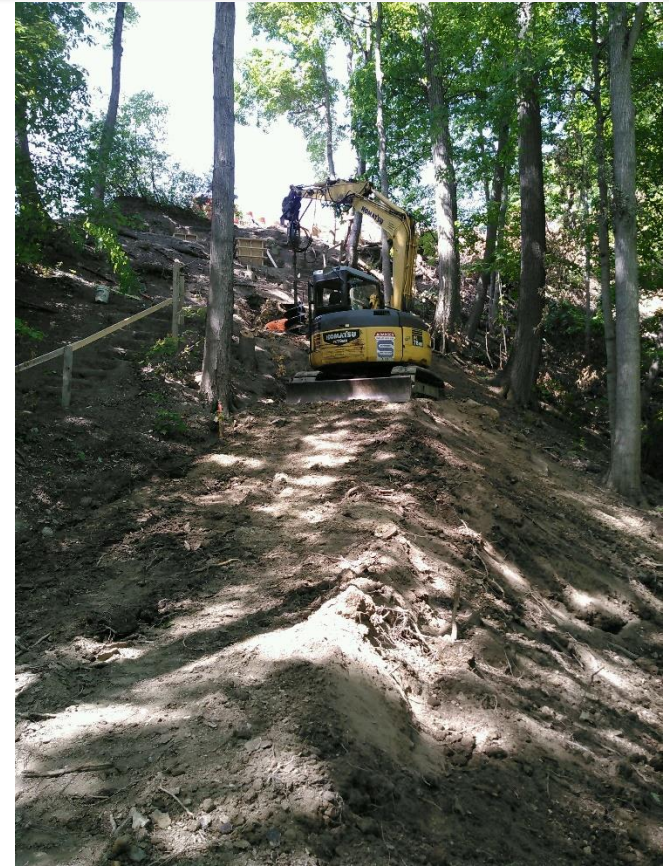


TIGHT FIT



FOUNDATIONS

- All drilled shafts
- Track-mounted excavator equipped with an auger drill
- Several physically hand dug





CRANE USED TO “FLY-IN” MATERIALS



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Questions/Comments

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