

IDEA Presentation Underground Best Practices

June 29, 2015

Design

Execution

Q&A

Team



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Elizabeth Nolder RMF Engineering



BOND



John Harmon

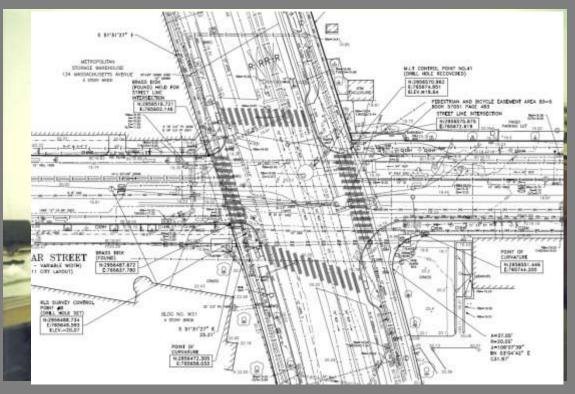
Chris Decker BOND

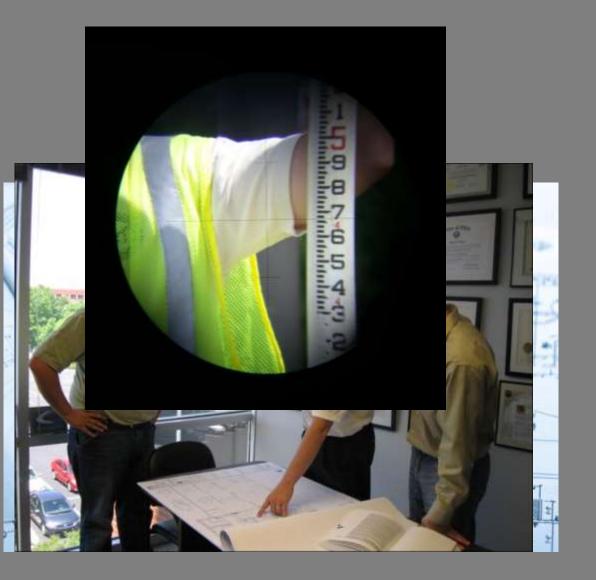
Team Design Execution

Q&A

Gathering Information

- Owner's Records
- Discussions with Facilities/Staff
- Topographic Survey





Existing Conditions – Topographic Survey

Execution

Design

• Property Lines

Team



Q&A

Existing Conditions

Design

Team

- Property Lines
- Utilities
 - Location
 - Ownership
 - Easements
 - Material
 - Hazards
 - Durability



Q&A

Execution

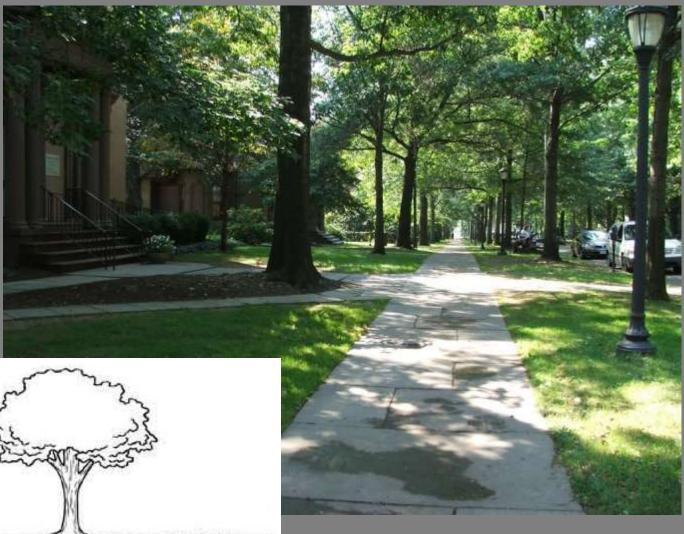
Existing Conditions

Design

Execution

Team

- Property Lines
- Utilities
 - Location
 - Ownership
 - Easements
 - Material
 - Hazards
 - Durability
- Trees



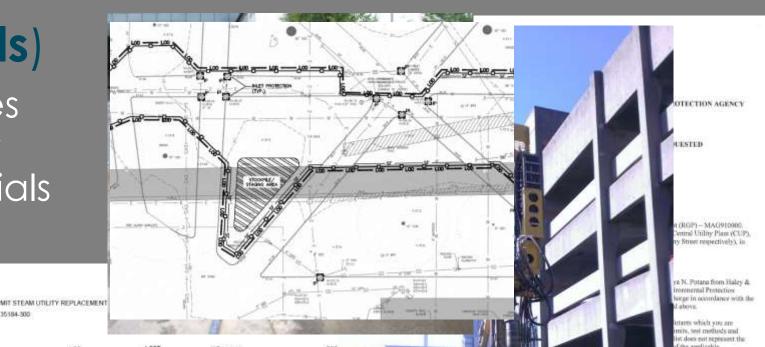
Q&A

Q&A

Geotech (Soils)

- Physical Properties

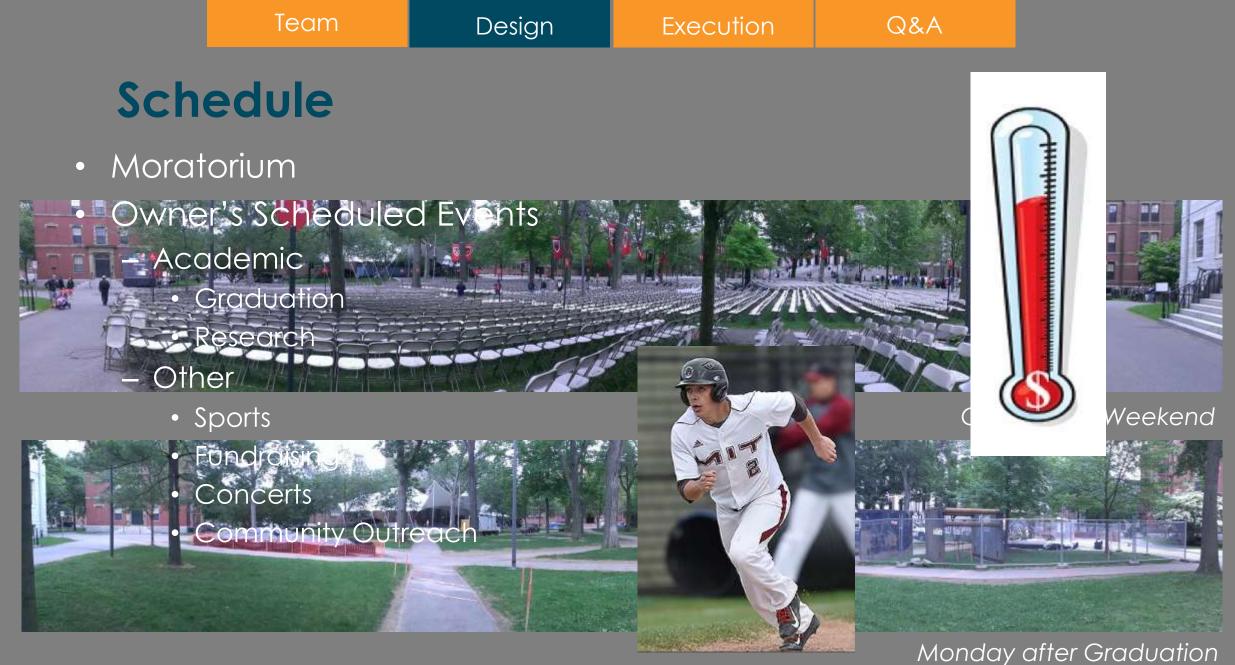
 Structural Stability
- Hazardous Materials
 - Testing
 - Disposal
- Stockpile
- Groundwater
 - Testing
 - Disposal
 - Recharge
 - Discharge



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Schedule

- Moratorium
- Owner's Scheduled Events
 - Academic
 - Graduation
 - Sports
 - Research
 - Other
 - Fundraising
 - Concerts
 - Community Outreach
- City's Scheduled Event
 - Circus
 - Parades
 - Street Cleaning
 - Sports



Schedule

• Adjacent/Related Projects

Team

Design

- Utility Outages
 - Off-hour Work
 - Live Work
- Weather
- Material Lead Time
- Permitting

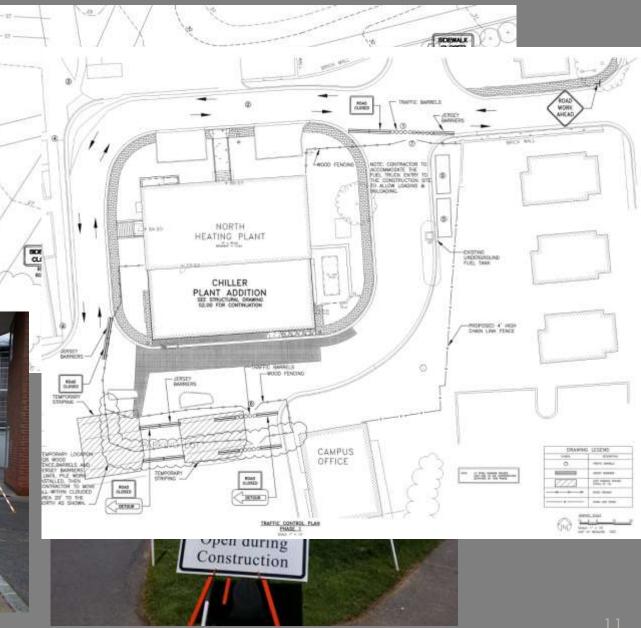


Team Design Execution Q&A

Traffic Control

- Vehicles
 - Emergency Access
 - Truck Traffic
 - Parking
 - Bicycle





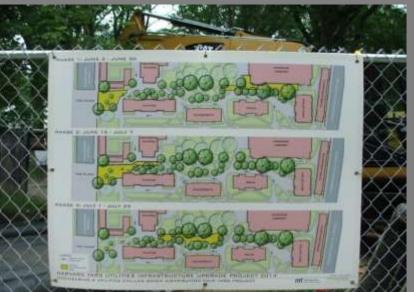
Design

Execution

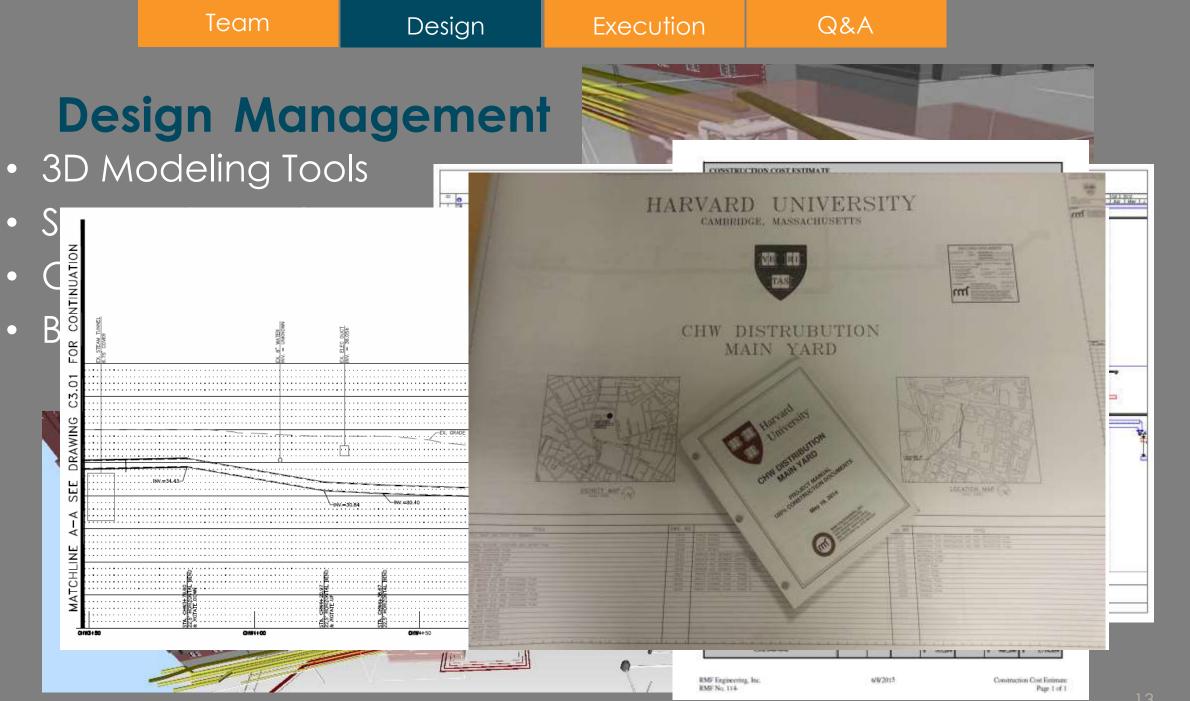
Q&A

Coordination

- Police Details
- Communications
 - Stakeholder Notice
 - Signage
 - Division of Scope on Adjacent Projects



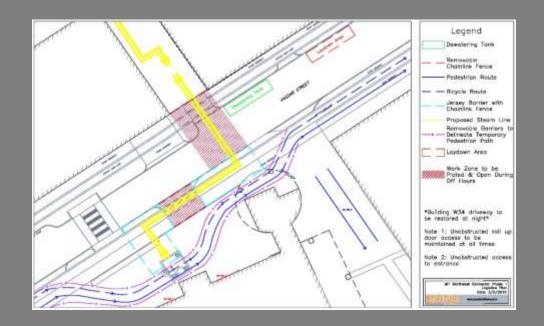


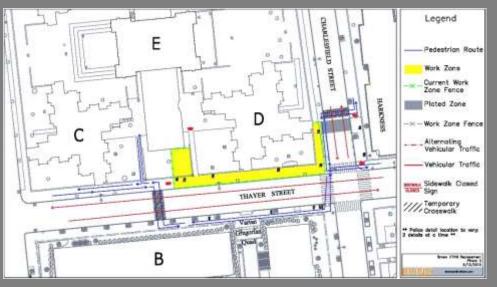


Q&A

Planning and Precon

- Logistics Planning
 - Day to Day operational impacts
 - Public v Private Complexities
 - Planning movements
 - Needs of user groups / stakeholders
 - Building Managers
 - Daily Deliveries
 - Students / Faculty / Staff / Public
 - Classroom Impact Noise/Access
 - Campus Environment
 - Academic Schedule
 - Events, Exams, Graduation
 - Pedestrian Traffic Flow
 - Traffic Plans
 - Way finding signage
 - Building / Facility Access/Egress
 - TREES!!!!!!!!!!!!



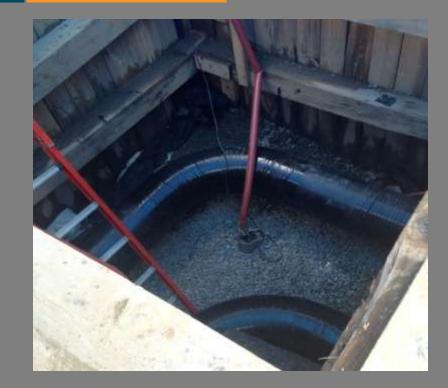


Q&A

Planning and Precon

- Systems Outages
 - Planning and minimizing impacts in relation to taking a system out of service
 - Preconstruction Services
 - Outage Preparation
 - ID Isolation Points
 - Lock Out / Tag Out
 - Equipment Protection
 - System Loops
 - Temporary Bypass
 - System Restoration
 - Testing / Commissioning
 - Resource Allocation to ensure timely return to service (planning)







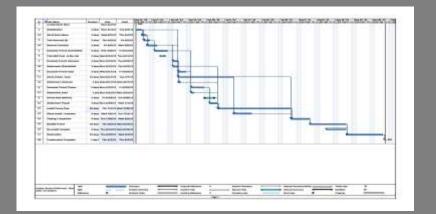
Q&A

Planning and Precon

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- Safety & Quality Focus
 - JHA / PTA
 - Sub Orientations
 - Tool Box Talks
- Schedule Development
 - Coordination
 - Incorporate Owner
 Requirements
 - Impact of Adjacent Projects
 - Schedule the ACTUAL Work



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Q&A

Installation & Restoration

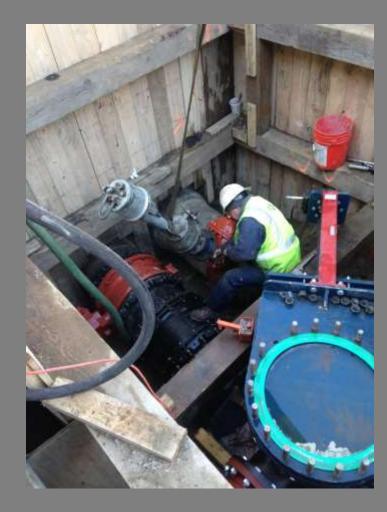
- Site preparation
 - Fencing, Barricades
 - Tree Protection
 - Street/Walkway Closures, Police Details, Signage
 - Dig Safe / Private
 Utility Locations
- Earthwork
 - SOE
 - Excavation
 - Existing Utility Support / Protection
 - Trucking / stockpiling / containment
 - Soil contamination issues
 - T&D Soils
 - Pre-characterization
 - ID disposal facilities
 - Facility/Owner Approvals
 - Wastestream tracking & management







Execution – Installation & Restoration



- Utility Installations
 - Útility Shutdowns and Isolation
 - Relocations & Bypass
 - Material Delivery
 - New Installation / Assembly
 - As-built / Records
 - Testing, Commissioning





Execution – Installation & Restoration





- Backfilling,
 - Material Selection
 Delivery
 - Flowable Fill Options
 - Import v Reuse
 - Compaction
 - Site Access
- Site Restoration
 - Existing Conditions
 - Area Features & <u>Sty</u>les







Design

Execution – Installation & Restoration



Team

- Horizontal Approach
 - Multiple sites
 - Linear Progression
 - Prep Site
 - Installation
 - Restore Site
 - Coordinating Multiple Impact Areas
 - Formula for Success = Planning, Planning,



Team Design	Execution	Q&A
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