Adventures in Construction Observation

2017 IECA Mountain States Chapter Conference

Mike Sarmento, SET, CFM
Senior Construction Manager
Watershed Services
MEP Construction Observation

Protecting People, Property, & the Environment
Typical MEP Projects

Protecting People, Property, & the Environment
Typical MEP Projects

Protecting People, Property, & the Environment
Typical MEP Projects

Protecting People, Property, & the Environment
Typical MEP Projects
Water Control

• Purpose: Protect improvements; prevent erosion and sediment transport; permit compliance

• Various methods: Structural or pumping

• Well points and sumps for nuisance flows and seepage

• Requires engineering design and knowledge of the watershed: Ag ditch releases, fire hydrant flushing, USACE releases.
Sheet Pile
Diversion Channels
Other Diversions
Other Diversions

Protecting People, Property, & the Environment
Other Diversions
Other Methods

Protecting People, Property, & the Environment
Unlined Diversion Channels
Unlined Diversion Channels
Typical Hydraulic Structures

• Check Structures – Delaying mechanism Not used for overbank stabilization. Typically sheet pile, concrete, occasional boulders, riprap.

• Drop Structures – Used to create a stable longitudinal channel section. Can take many forms.

• Outfall structures – convey flow to the stream while prevent scouring, upslope headcutting, etc.

• Other: Stilling basins, energy dissipaters, etc.
Check Structures
Drop Structures
Check Structure Failures
Check Failures

Protecting People, Property, & the Environment
Trying to get ahead of the curve!
Structural Failure

Protecting People, Property, & the Environment
Check replaced by Drops
Drop Structures
Piping Failures
Drop Structures: Subgrade
Drop Structures: Subgrade
Crest Cutoffs

Protecting People, Property, & the Environment
Sheet Pile Cutoffs
Drop Structures: Rejects

Protecting People, Property, & the Environment
Water Control (Again)

Protecting People, Property, & the Environment
Perimeter Cutoffs
Grouted Boulder Rundowns

Protecting People, Property, & the Environment
Inadequate Well/Sump Point
Grouting
Good Grouting

Protecting People, Property, & the Environment
Storm Sewer Outfalls & Rundowns

Protecting People, Property, & the Environment
Storm Sewer Outfalls & Rundowns
Temporary Sediment Basins
Things that make you go “Hmmm”
Innovative Thinking (?)
Seedbed Preparation
Phasing

Protecting People, Property, & the Environment
Seeding
ECB Stakes