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2005 INFRASTRUCTURE SYSTEMS CONFERENCE

MARMET LOCKS AND DAM LOCK REPLACEMENT PROJECT

by
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CELRH-EC-DS

3 August 2005

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Marmet Locks and Dam

67.7 Miles from the Mouth
of the Kanawha River

Approximately 20 Minute Drive
to the State Capital in Charleston, WV

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Marmet Locks and Dam Existing Project

- Authorized by River and Harbors Act of 1930
- Began operations in 1934
- Twin 56 by 360 feet lock chambers
- Standard barge design vessel
- Five 110 feet roller gates
- Nine feet navigable depth

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Marmet Locks and Dam
Existing Project

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Marmet Locks and Dam
Existing Project

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Marmet Locks Original Construction

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Marmet Locks Original Construction

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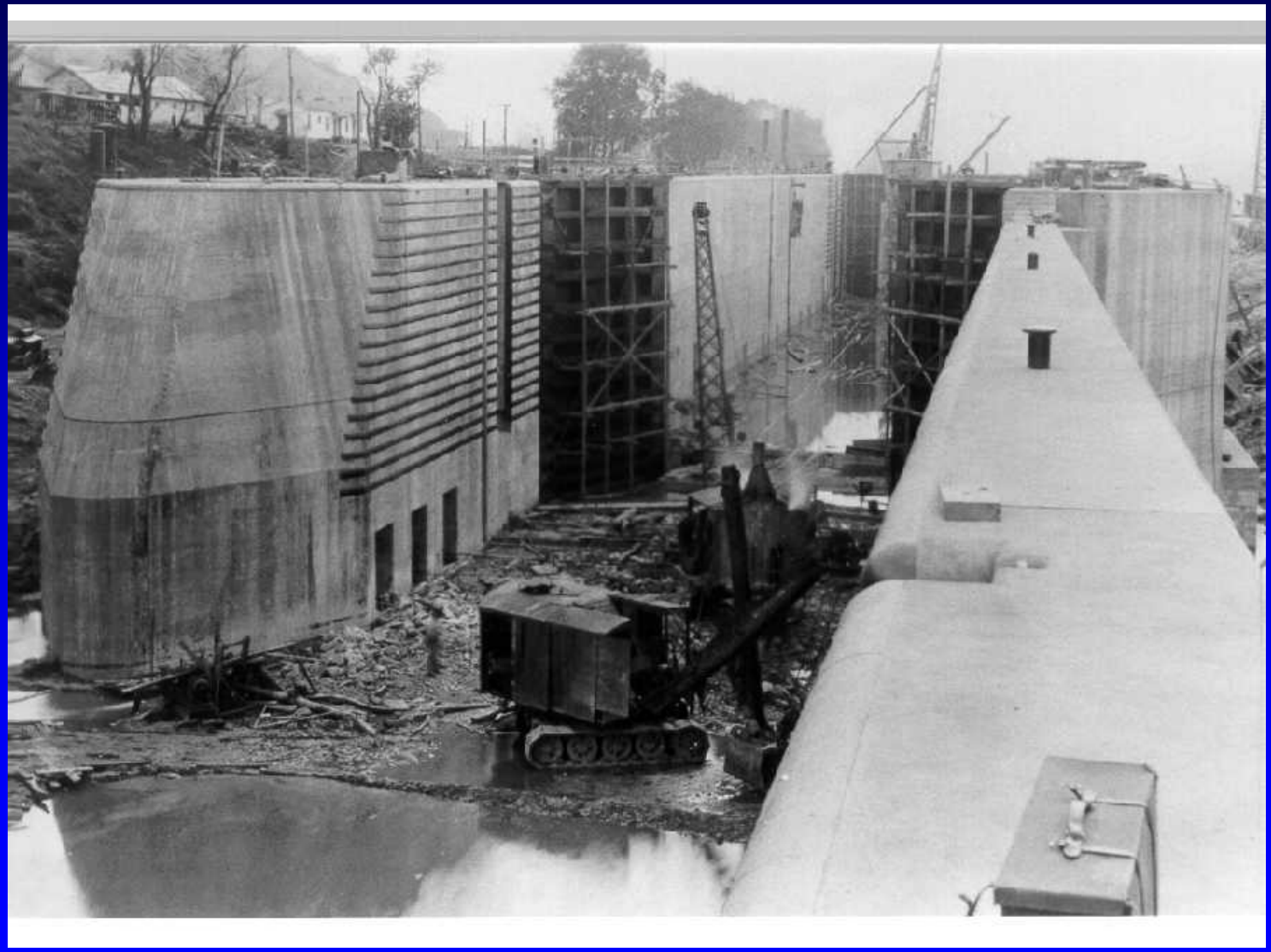
Marmet Locks Original Construction



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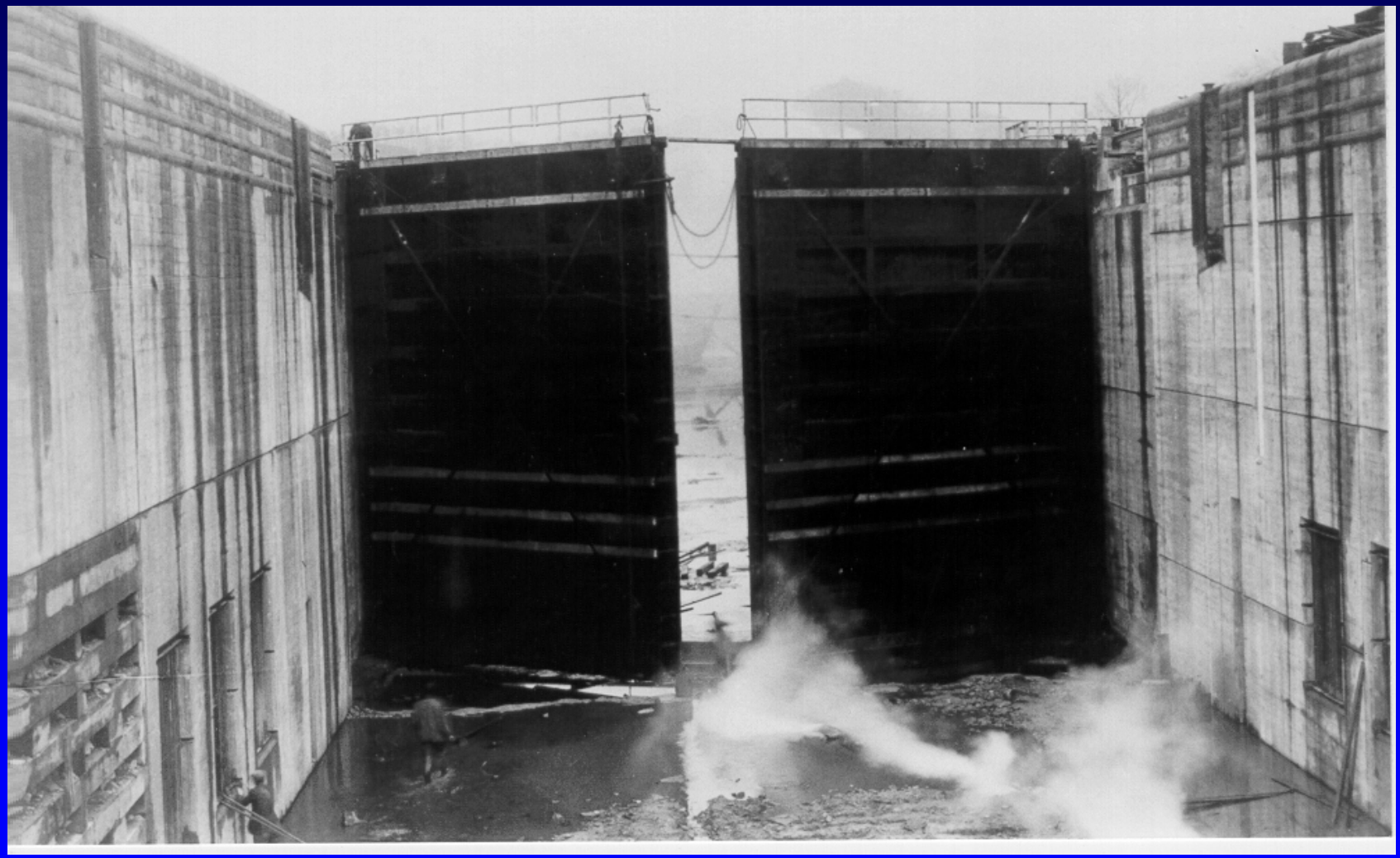
Marmet Locks Original Construction



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Marmet Locks Original Lock

Deteriorating Concrete

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Marmet Lock Replacement Project

Twin 56’ by 360’ locks
13.8 million tons (95% Coal)
5 Lockages per tow
Average Delays 4.7 hours/tow

216 Tracts Real Estate
252 Relocations
New 110’ by 800’ lock
Contract Award May 02
Total Project Cost: $333 M

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Marmet Lock Replacement Project

- Authorized by Water Resources Development Act of 1996
- New 110-ft by 800-ft additional lock
- Acquisition of about 250 structures
- Construction contract award May 02
- Scheduled completion June 09
- Total project cost $333 M

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Marmet Lock Replacement Project

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Marmet Lock Replacement Project

Project Schedule

• Initiate Real Estate Acquisition	FY 98
• Complete Plans & Specs	FY 01
• Complete Phase 1 & 2 Real Estate	FY 01
• Initiate Construction	FY 02
• Complete Phase 3 Real Estate	FY 02
• Lock Operational	FY 08
• Completion	FY 09

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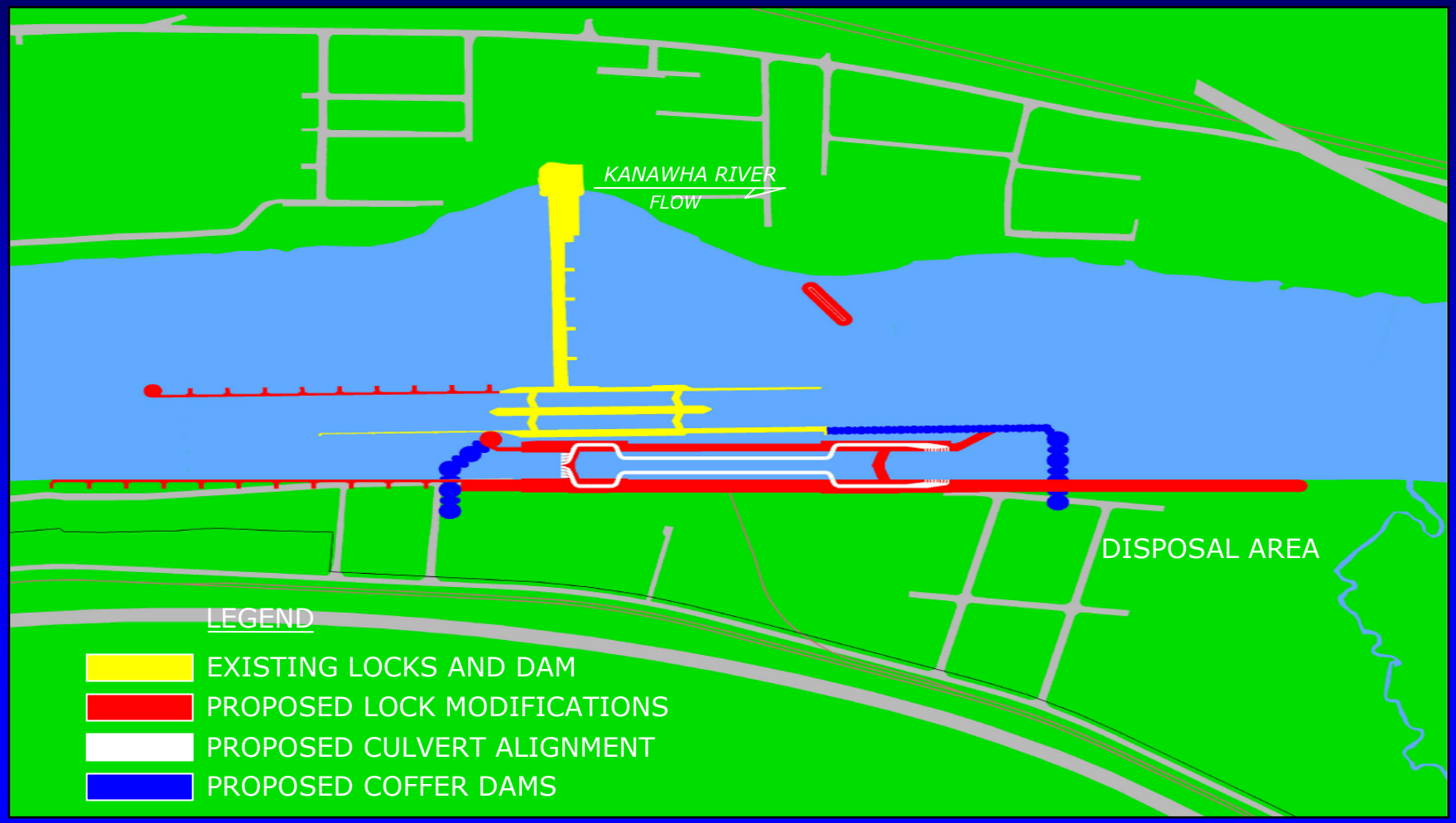
Marmet Lock Replacement Project



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Marmet Lock Replacement Project

Estimated Quantities

• Soil Excavation	2,900,000 CY
• Rock Excavation	110,000 CY
• Steel Sheet Piling	145,000 LF
• Rock Anchors	39,800 LF
• Concrete	290,000 CY
• Concrete Reinforcement	3,800,000 LB
• Portland Cement	714,500 CWT
• Pozzolan (Fly Ash)	215,000 CWT
• Structural Steel	1,800,000 LB

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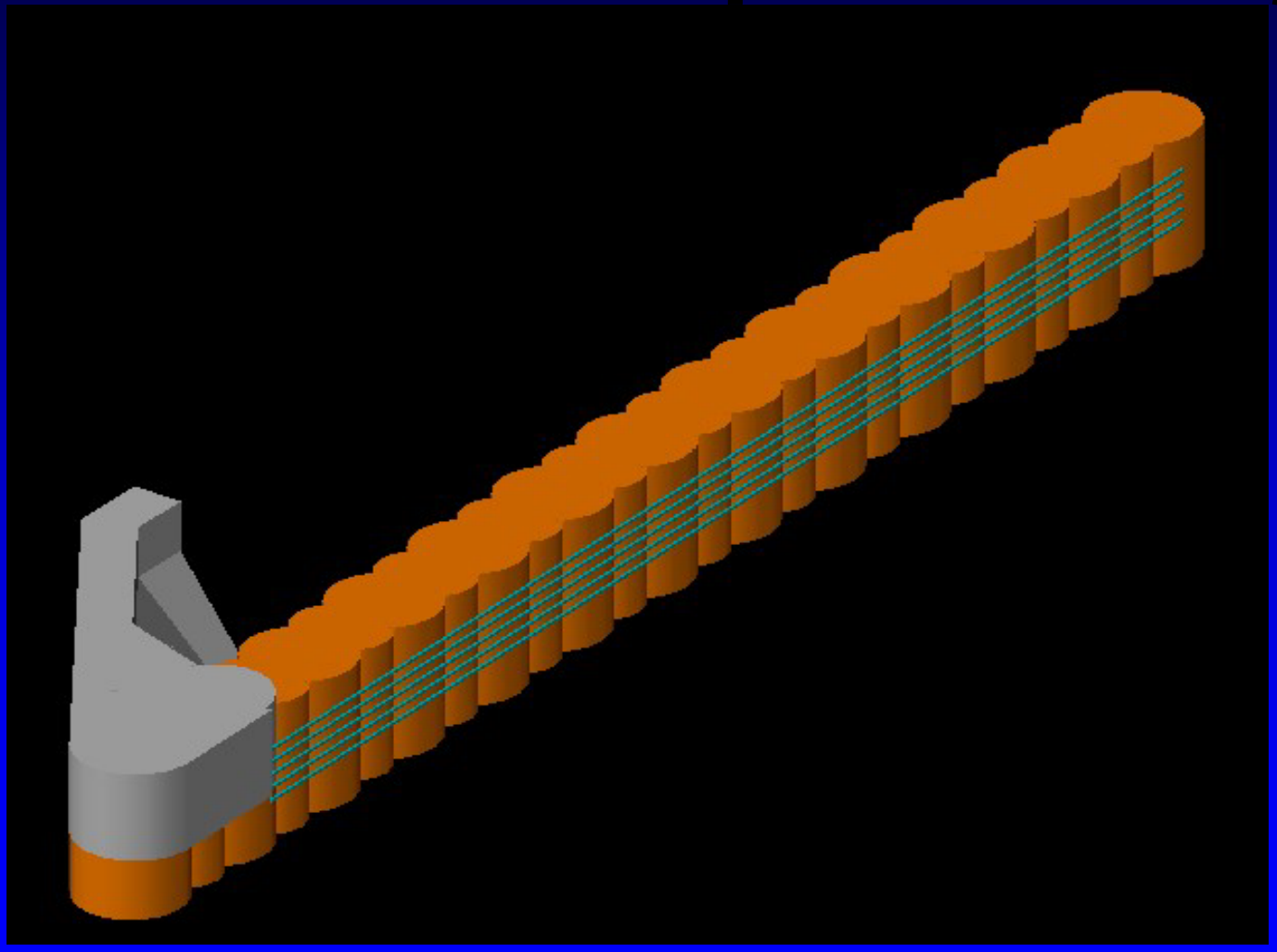
Marmet Lock Replacement Project



Cofferdam New Lock Tie-In

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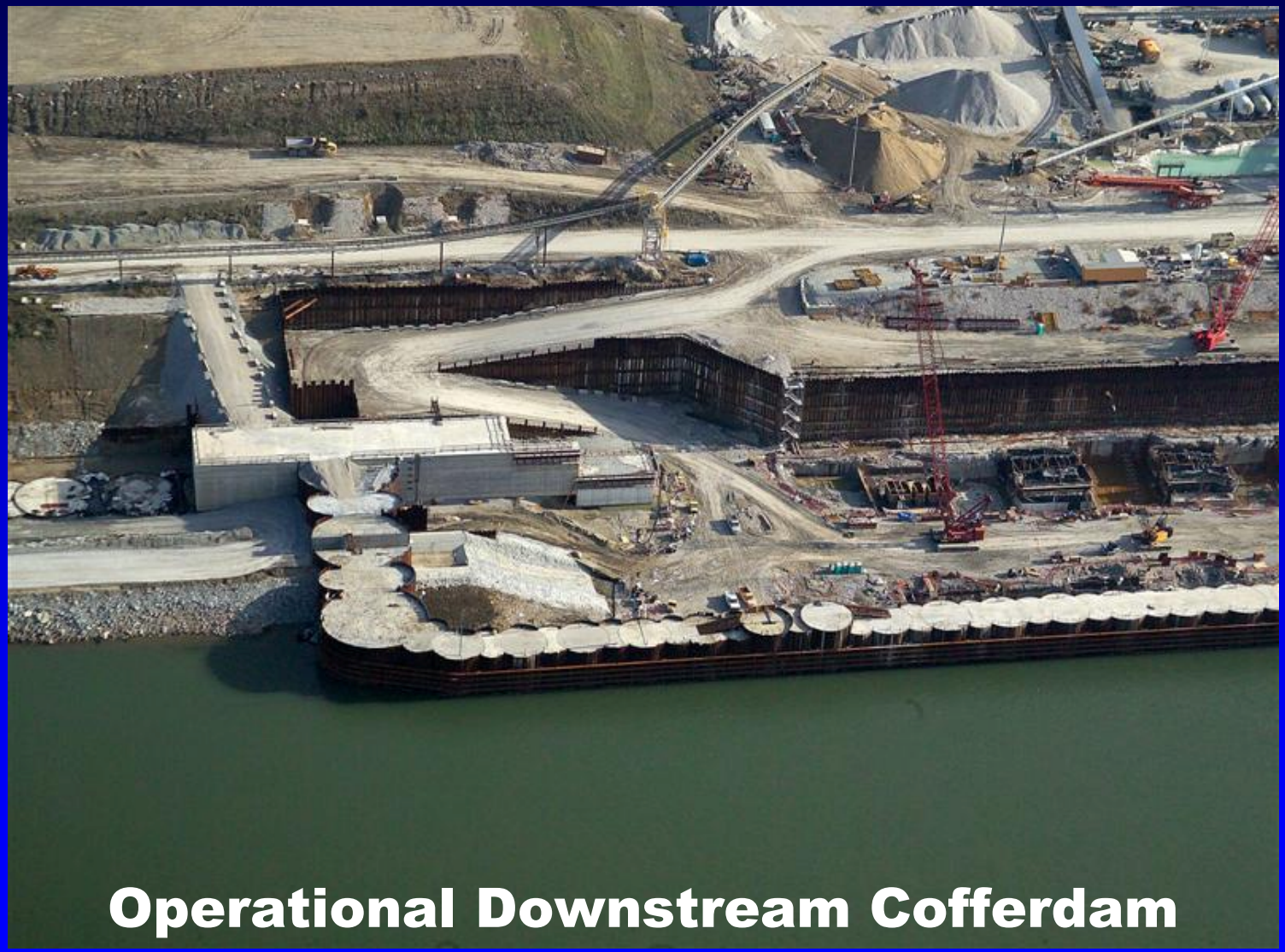
Marmet Lock Replacement Project



Operational Downstream Cofferdam

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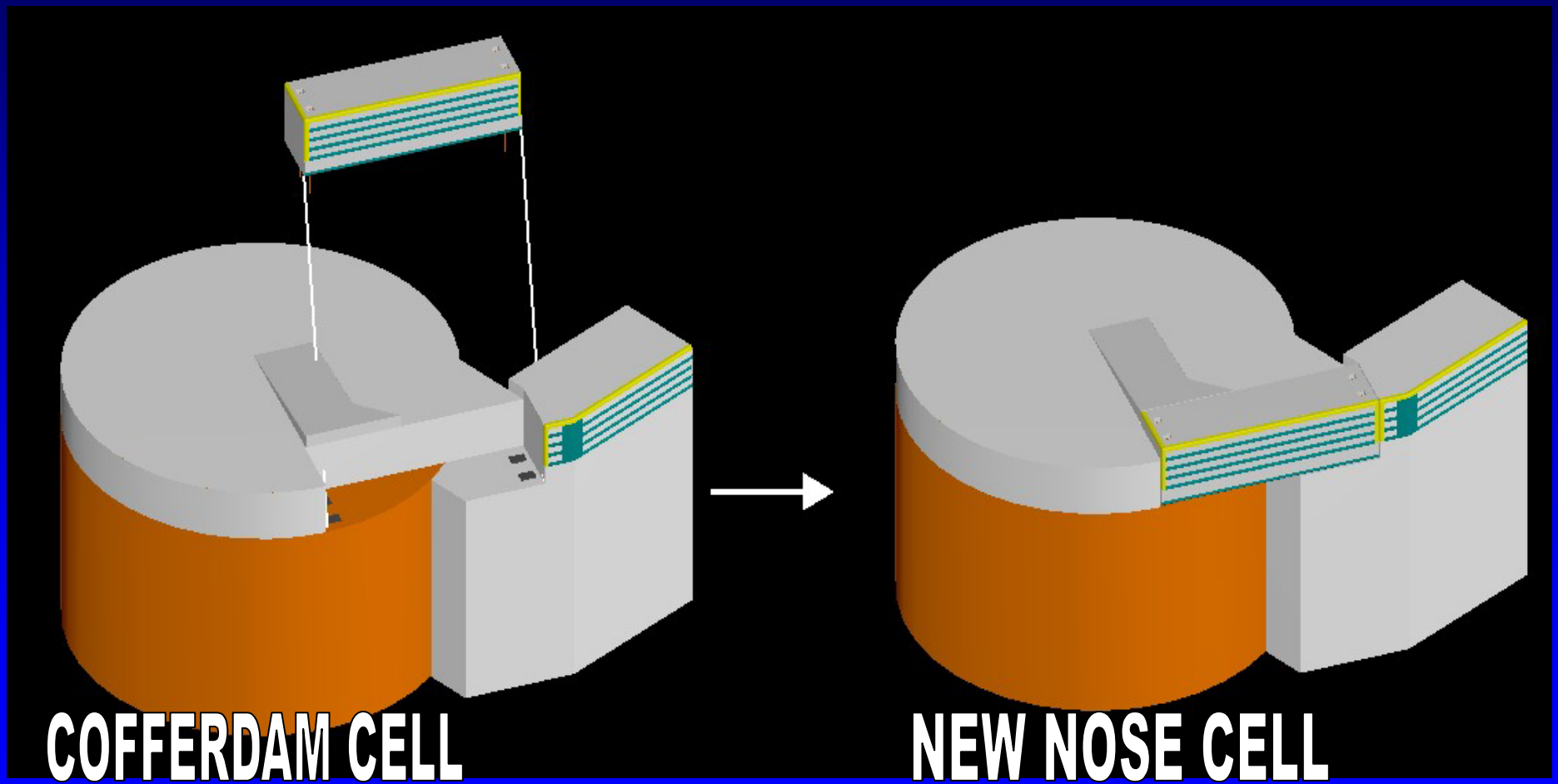
Marmet Lock Replacement Project



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Marmet Lock Replacement Project

Operational Upstream Cofferdam

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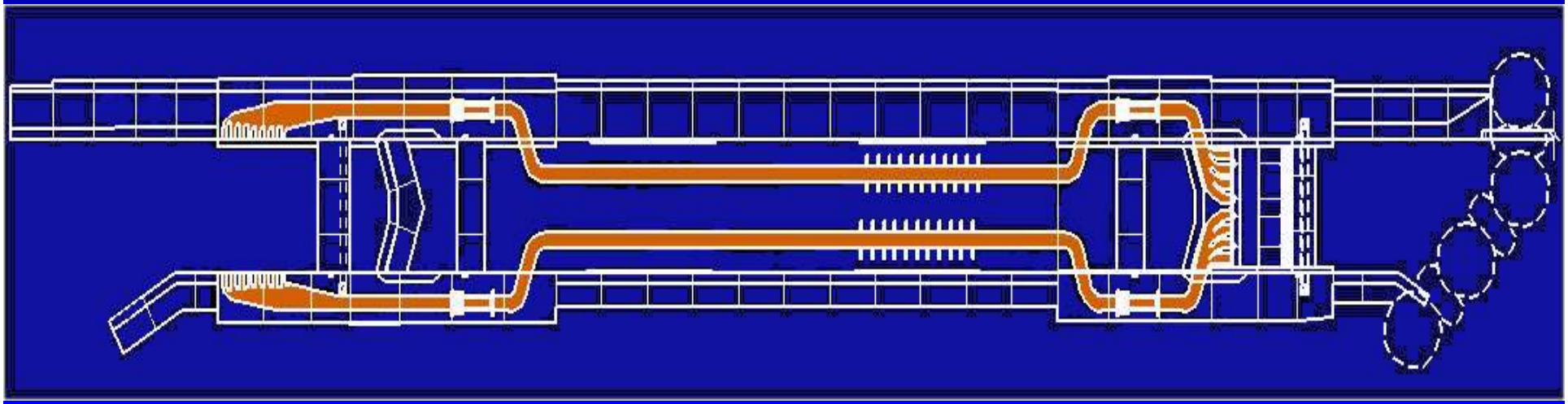
Filling and Emptying System



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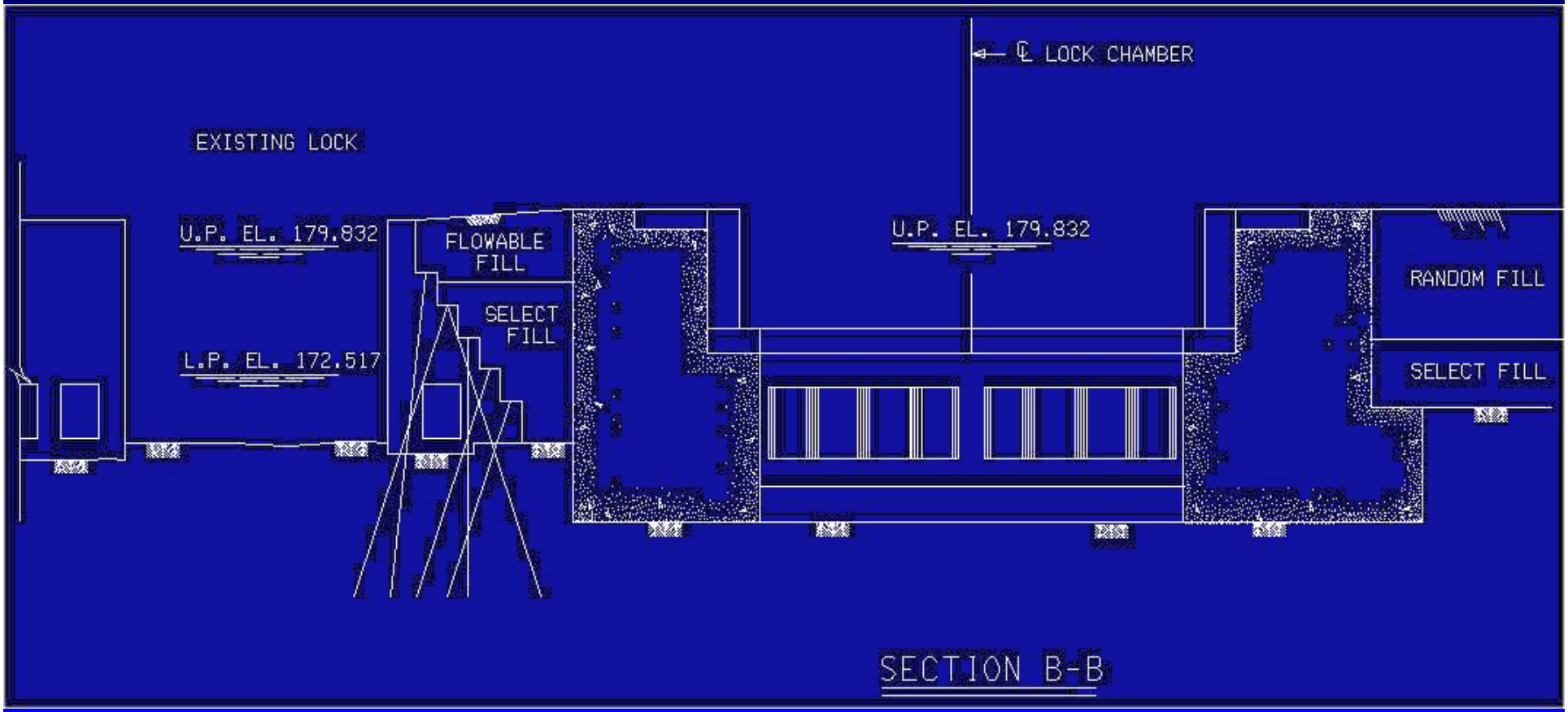
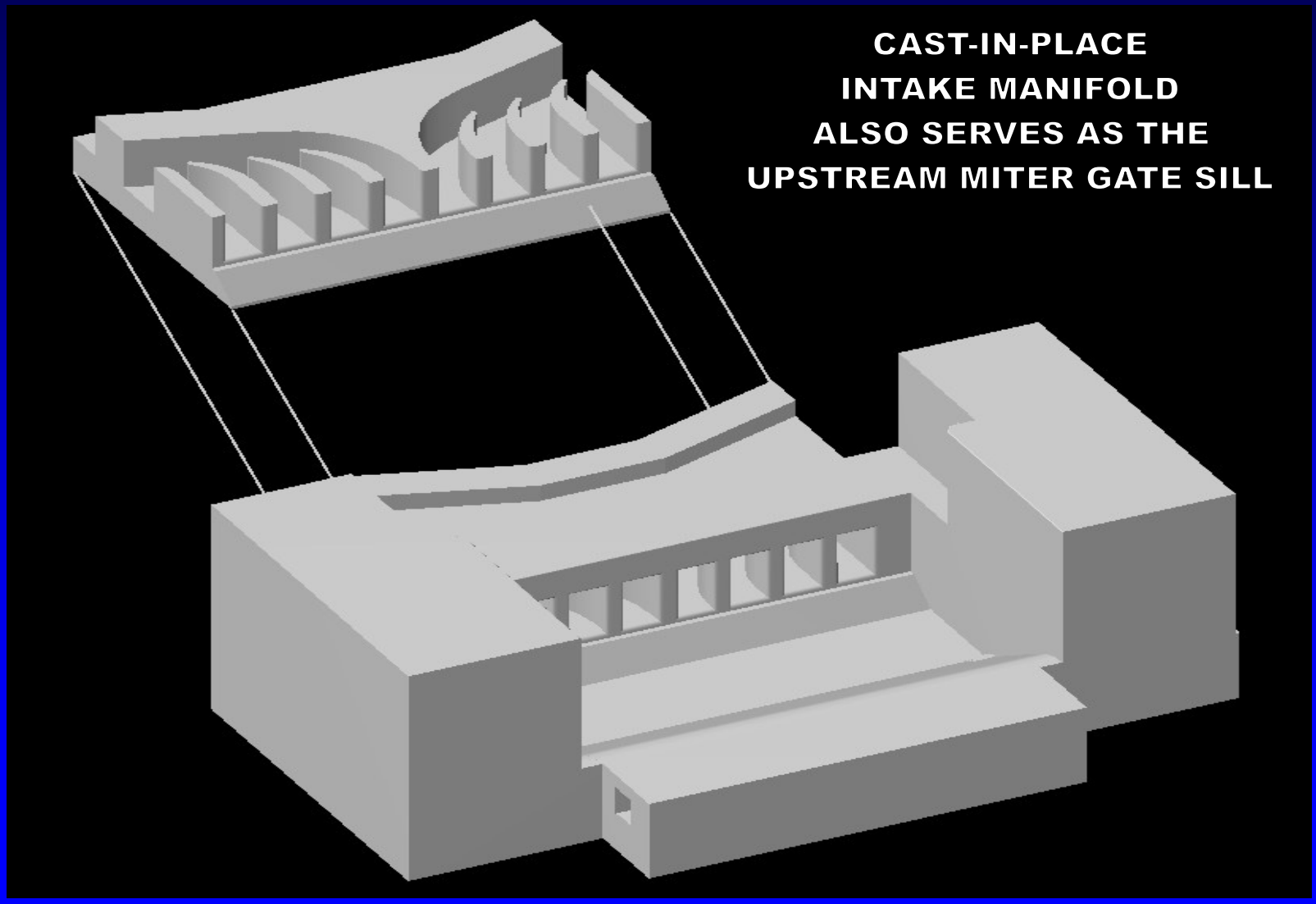
Through-the-Sill Filling Intake



Through-the-Sill Filling Intake



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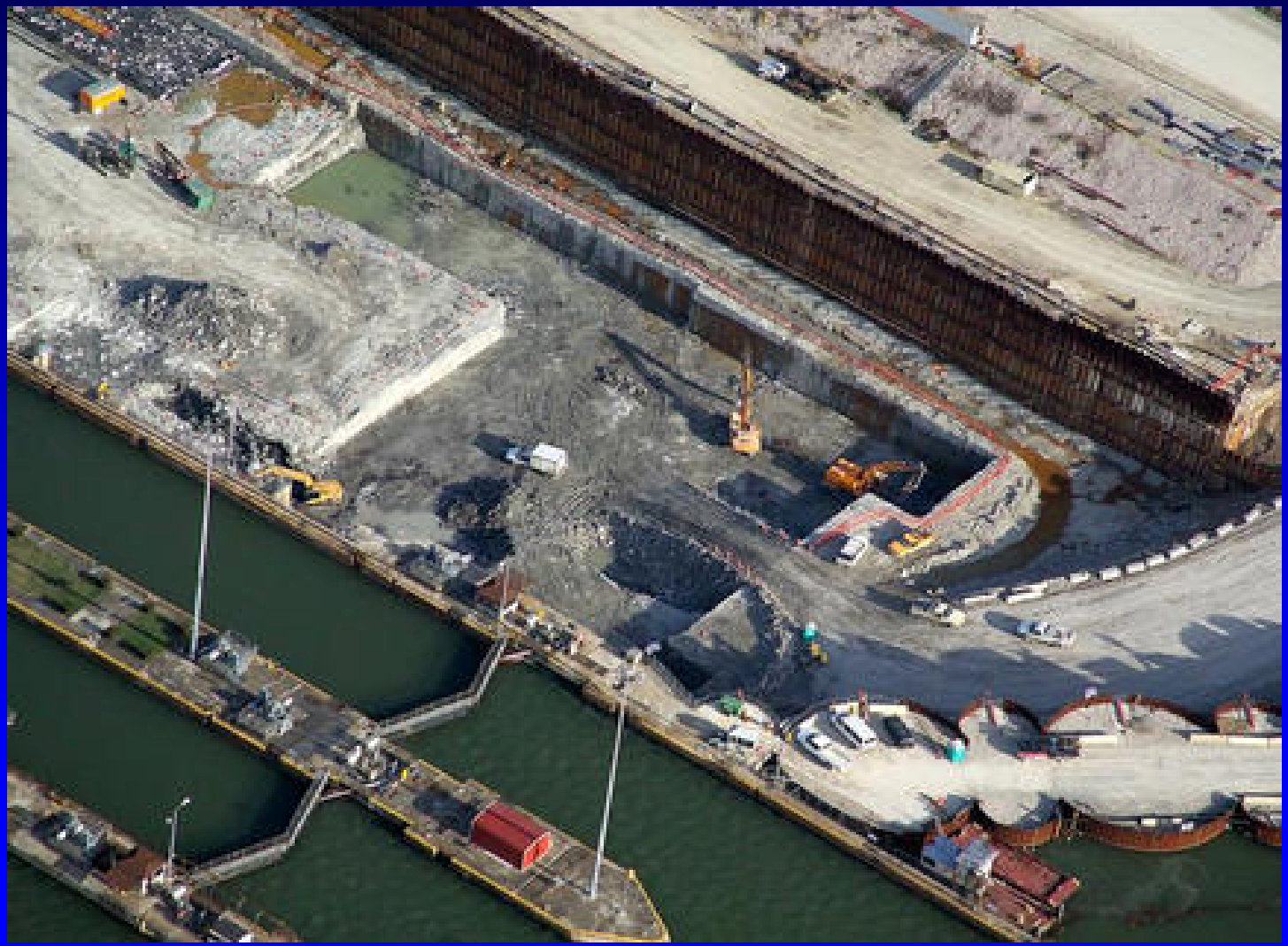
Upstream Sill Excavation



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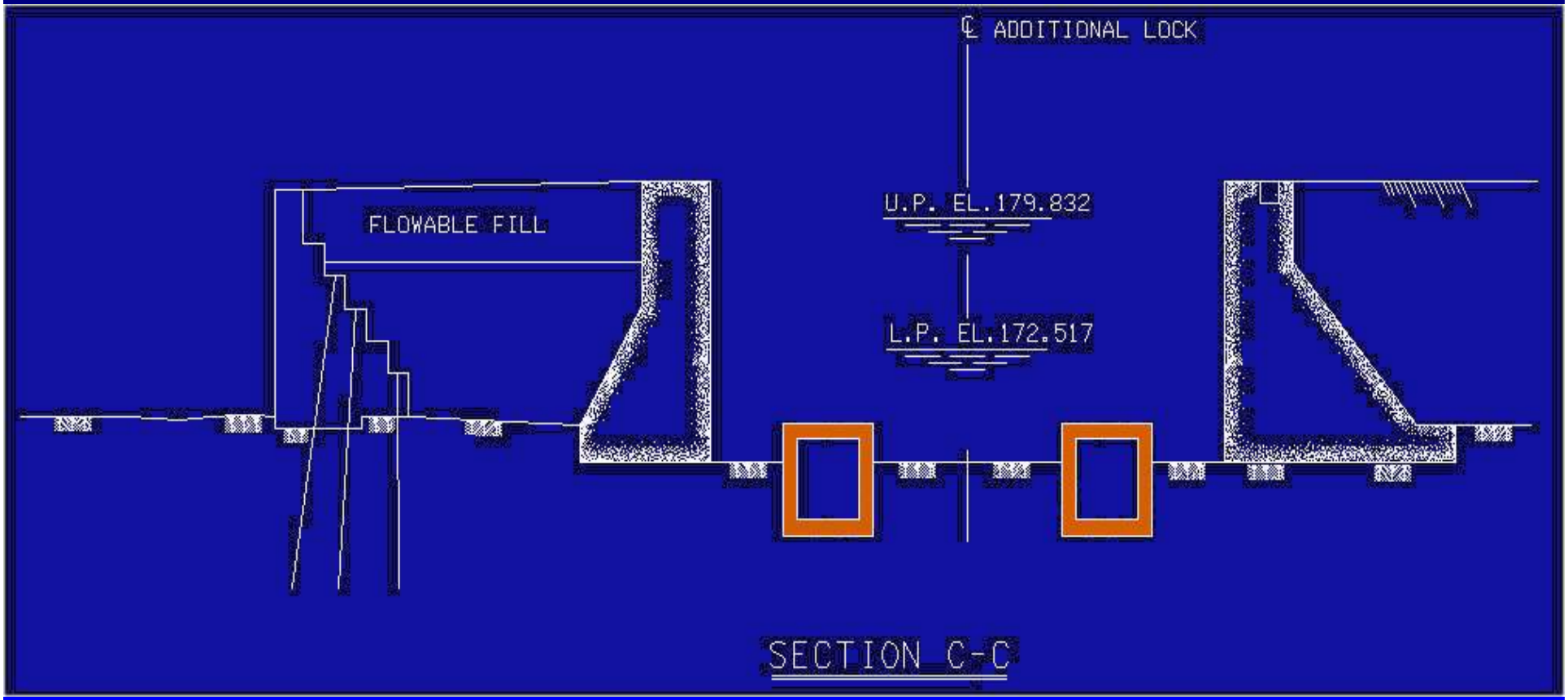
Filling and Emptying Culverts



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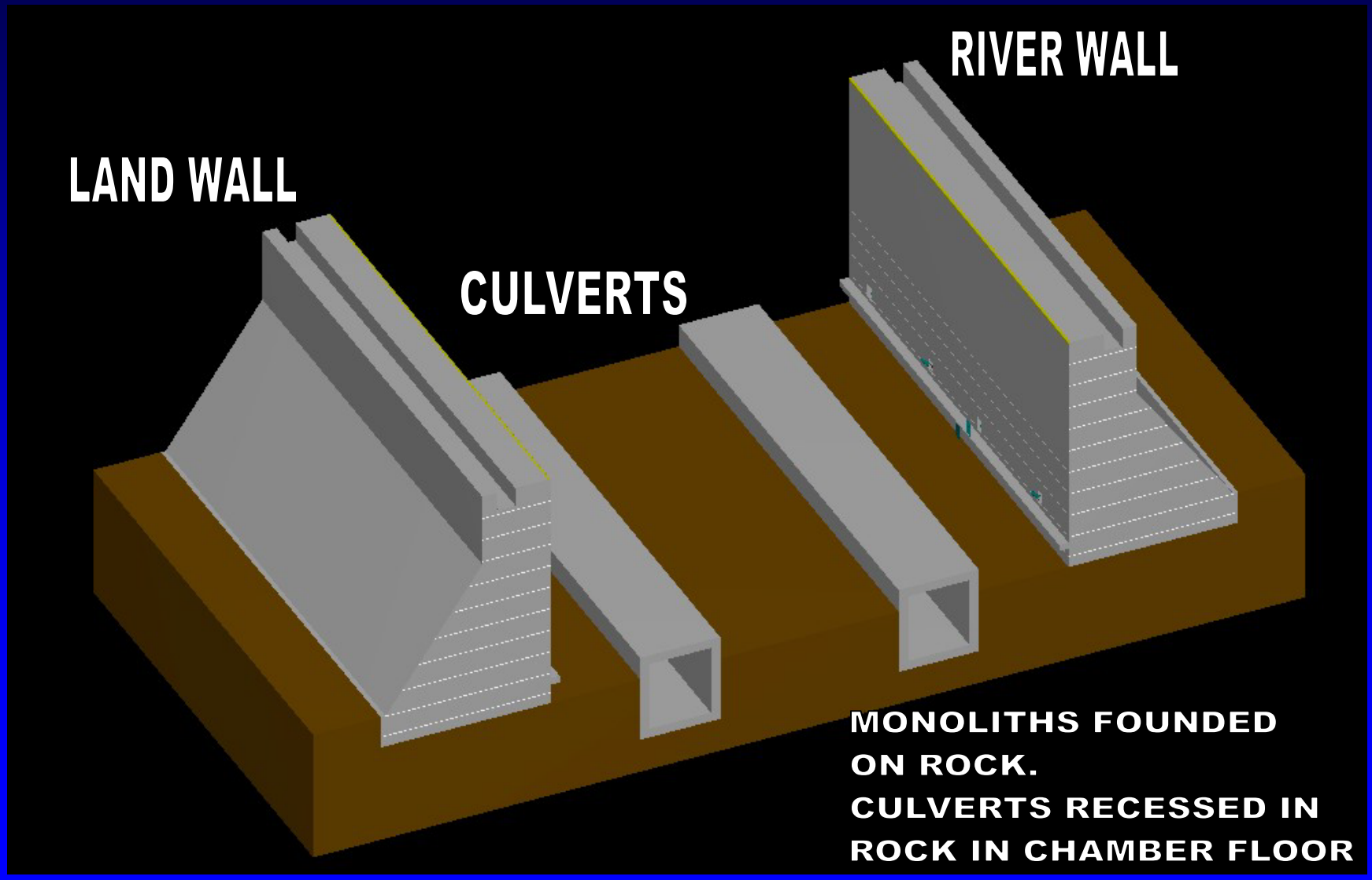
Typical Chamber Configuration



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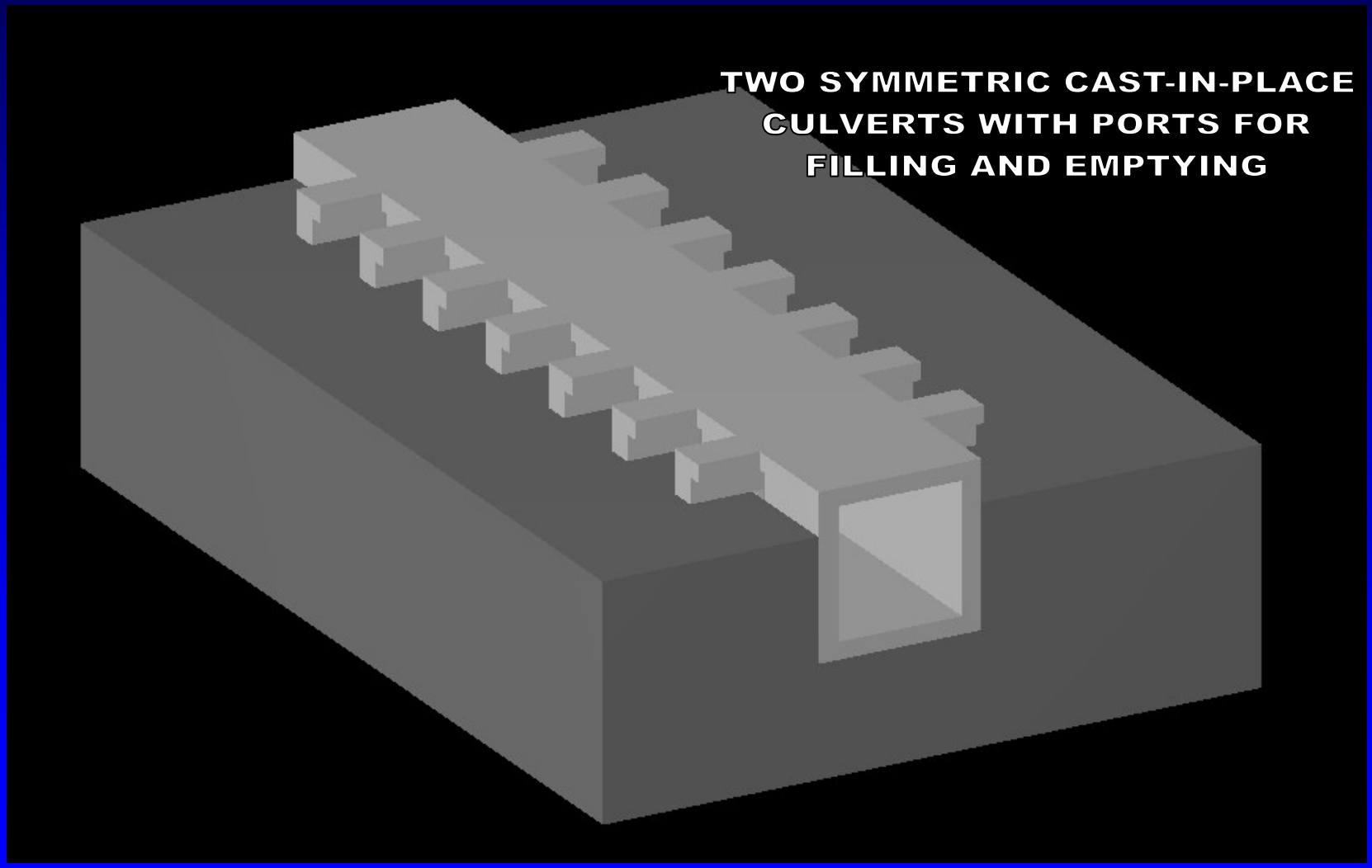
Typical Culvert Port Configuration



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Culvert Rock Excavation

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Typical Downstream Guide Wall

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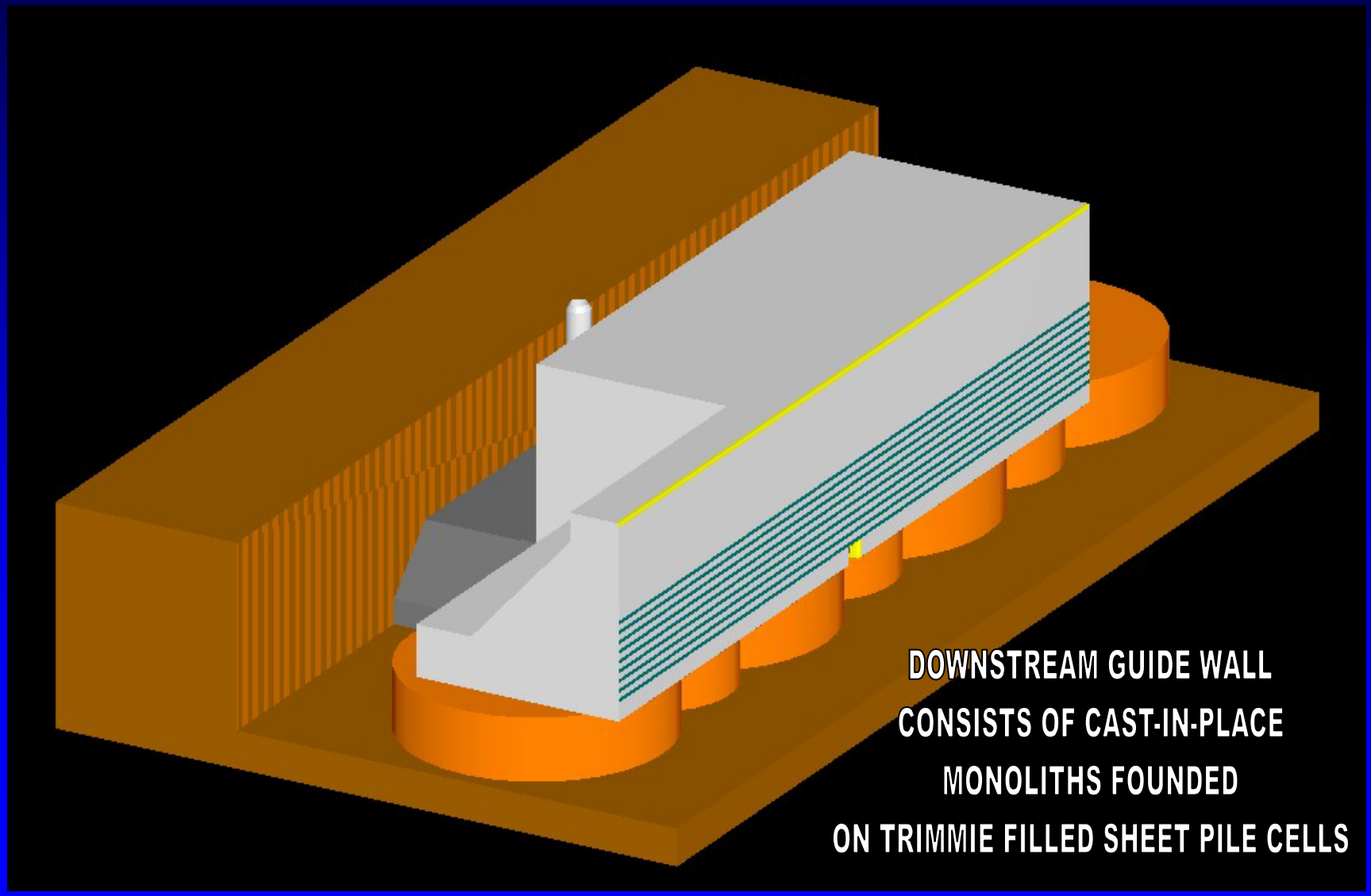
Typical Downstream Guide Wall



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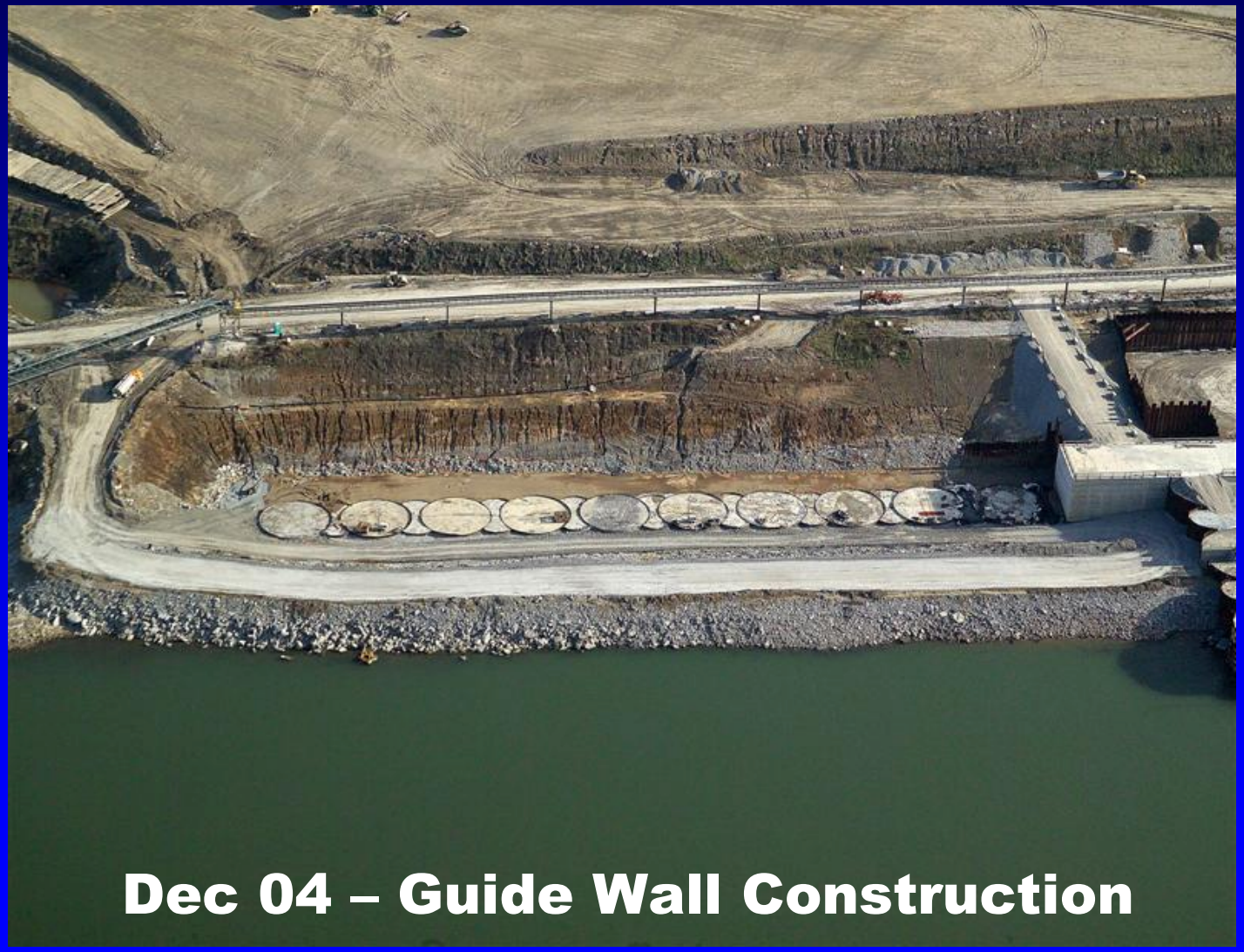
Typical Downstream Guide Wall



Dec 04 – Guide Wall Construction

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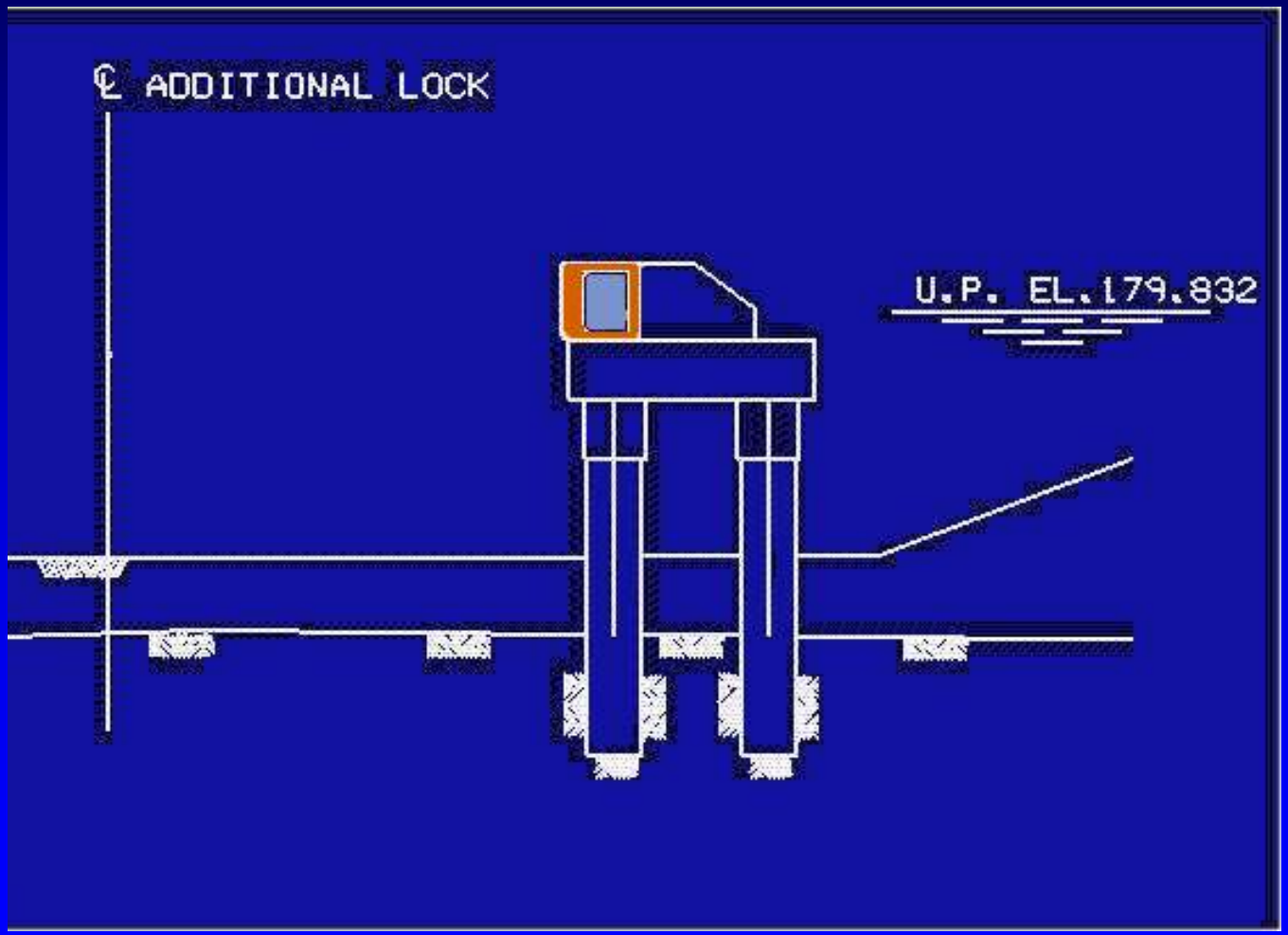
Typical Upstream Guide Wall



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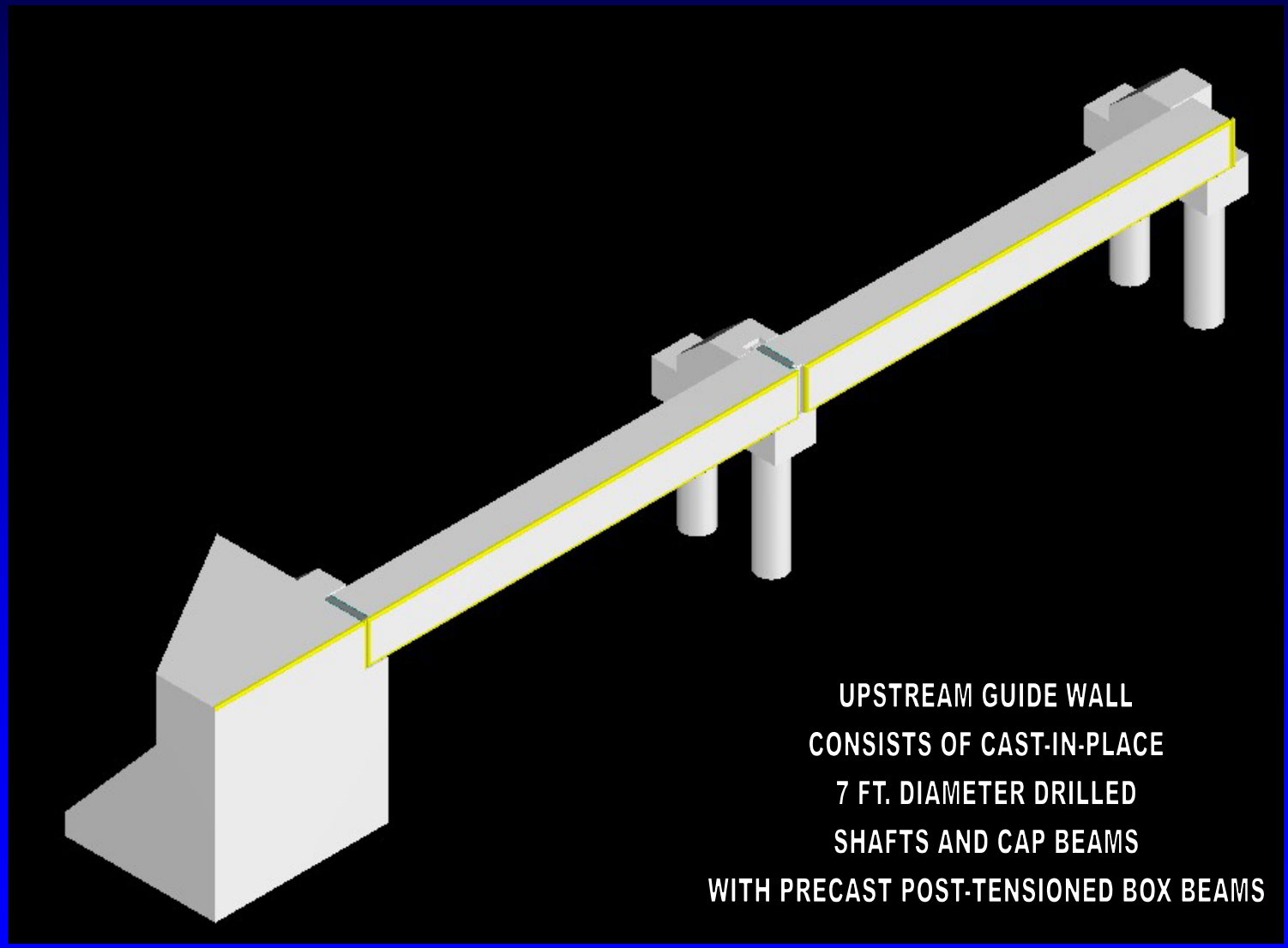
Typical Upstream Guide Wall



UPSTREAM GUIDE WALL
CONSISTS OF CAST-IN-PLACE
7 FT. DIAMETER DRILLED
SHAFTS AND CAP BEAMS
WITH PRECAST POST-TENSIONED BOX BEAMS

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Typical Upstream Guide Wall

INSTALLING 7 FT. DIAMTER CASING THRU SOIL TO ROCK
DRILLING 7 FT. DIAMETER SHAFTS WITH BAER BG-40
PLACING SHAFT CONCRETE WITH TREMIE CONCRETE

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Typical Upstream Guide Wall

Forming and Casting Post-Tensioned Box Beam

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Lock Wall Concrete Placement

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Lock Wall Concrete Placement

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Lock Wall Concrete Placement

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Proposed Finished Lock

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?? QUESTIONS ??