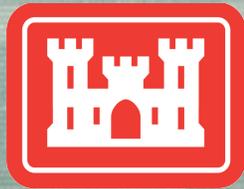


UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks



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UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks

In 2013, structural engineers in LRP-EC-N evaluated the U/S boule and D/S poiree dams used at Emsworth, Dashields and Montgomery L/Ds.

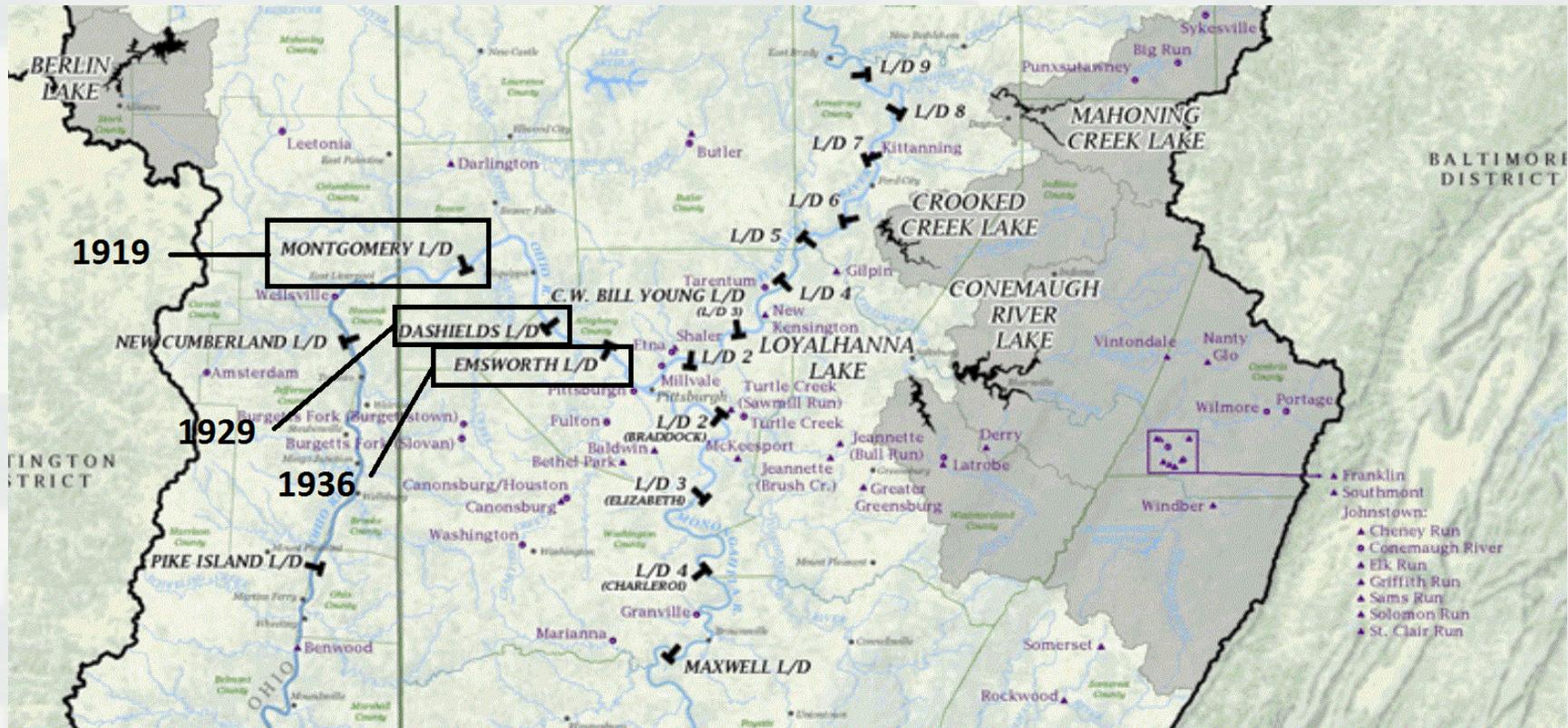
CONCLUSION: “...they are not capable of resisting the hydrostatic loads exerted by a dewatering of a lock chamber even at normal pool. As a result of this evaluation, the Chief of Engineering & Construction Division provided a memorandum stating the boule and poiree dams are not fit for service, effectively red-tagging them...”



ER 1110-2-8157



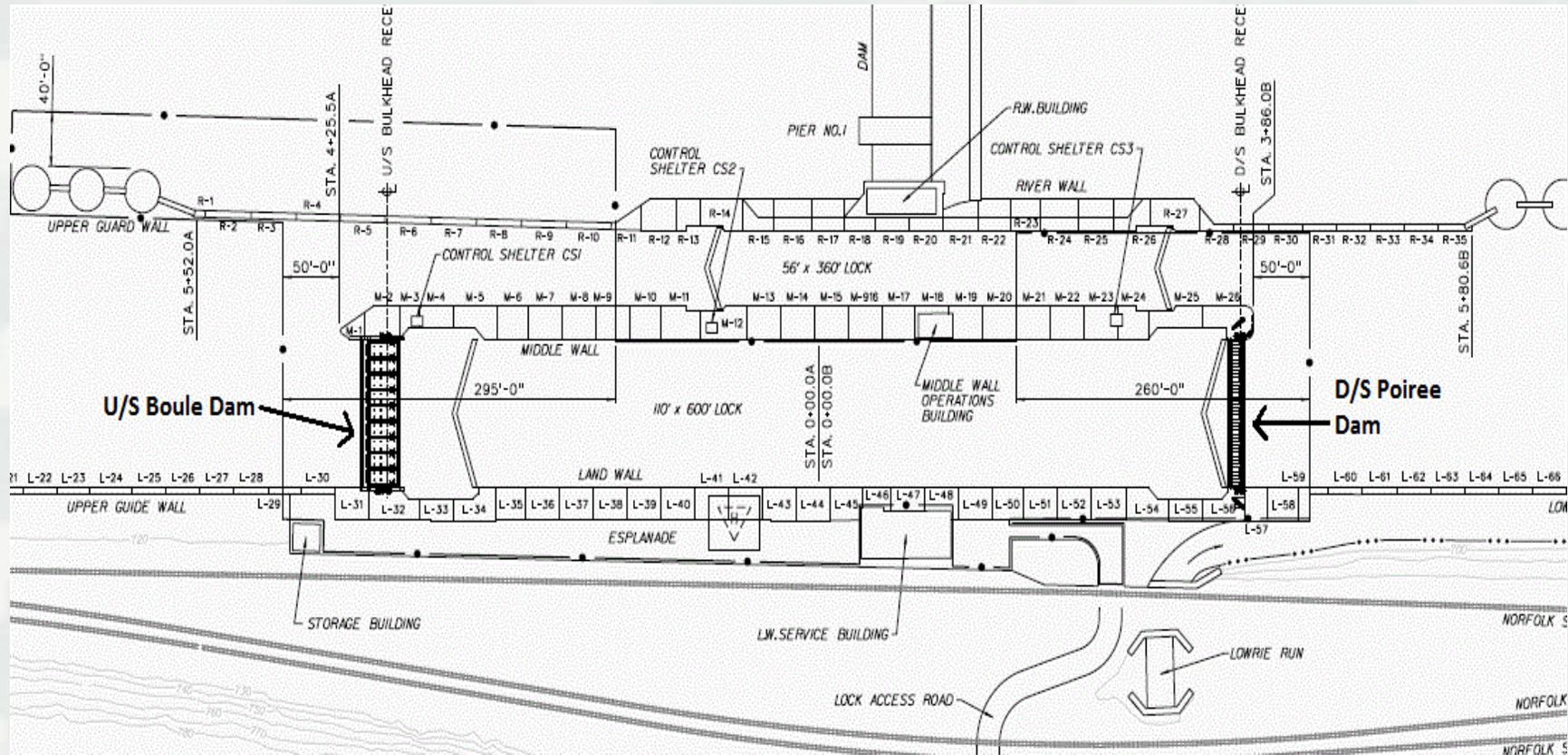
UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks



23 L/Ds, 16 Reservoirs.
Remaining Ohio River L/Ds are 110' x 1200' long



Emsworth L/D – U/S Boule Dam Phase II; Slots (General Overview)



UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks

Large Chambers – 110' wide x 600' Long

- U/S Boule Dam
- D/S Poiree Dam

Small Chambers – 56' wide x 360' long

- U/S Needle Dam
- D/S Poiree Dam



Dashiels D/S Poiree Dam converted by KTR several years back prior to RETROFIT Actions.



UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks

RETROFIT Plan (6 years)

FY14 – Dashields U/S Boule Dam (Phase I & II) – Lock complete.

FY15 – Emsworth U/S Boule Dam (Phase I & II)

→ FY16 – Montgomery U/S Boule Dam (Phase I & II)

→ FY16 – Emsworth D/S Poiree Dam (Phase I)

FY17 – Emsworth D/S Poiree Dam (Phase II) – Lock complete.

FY18 – Montgomery D/S Poiree Dam (Phase I)

FY19 – Montgomery D/S Poiree Dam (Phase II) – Lock complete.



Phase I – Underwater Sill work
Phase II – Slot work (i.e. Install liner)



UPDATE – Retrofit Closure Devices on the Upper Ohio River Locks

FY15 – Presentation on U/S Phase I Underwater Boule Dam Sill Modifications (DASH14).

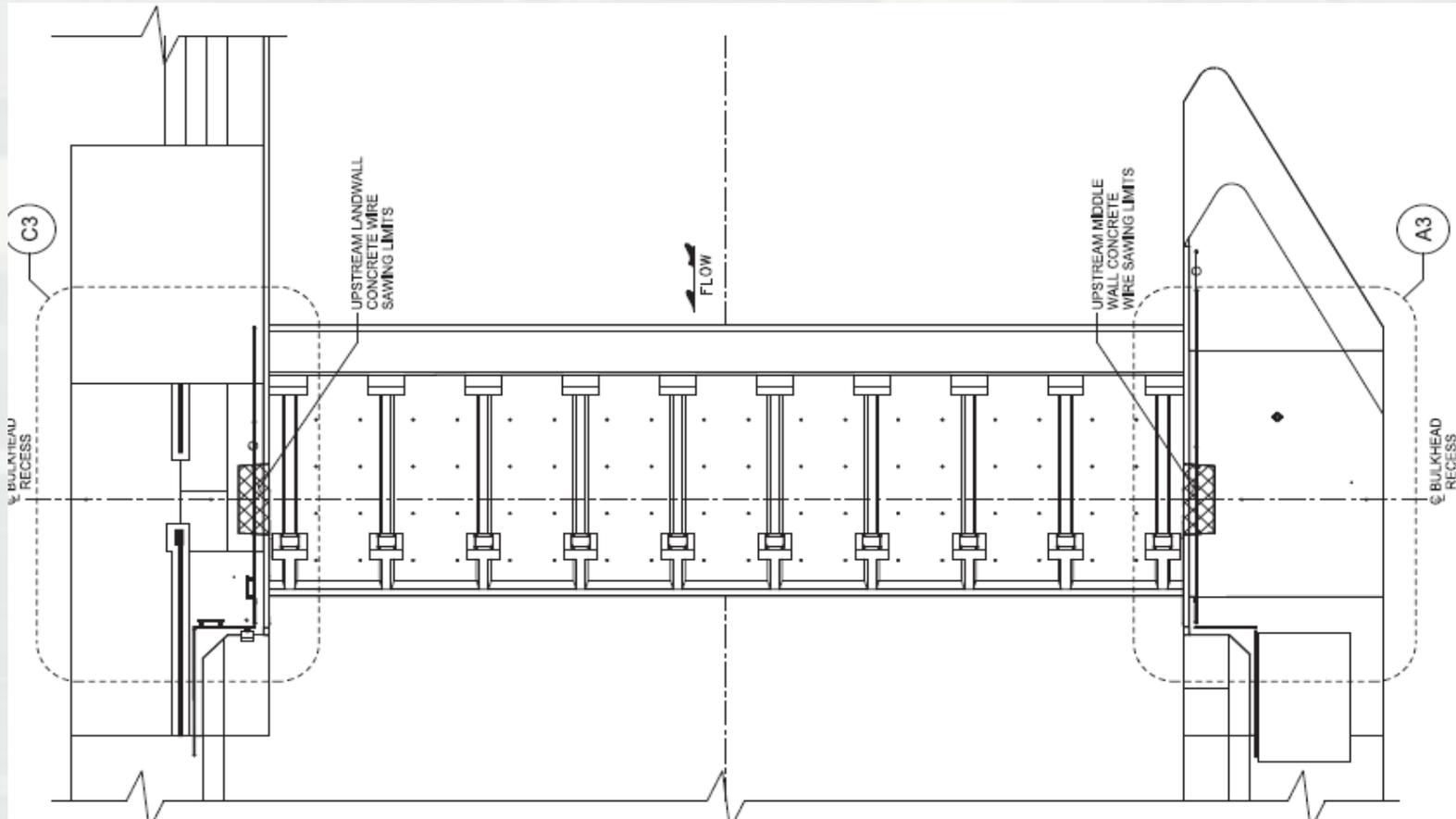
- Underwater removal of support beams.
- Underwater formwork for Open Bulkhead seal and Chamber Bulkhead pedestals.



- Underwater concrete placement.



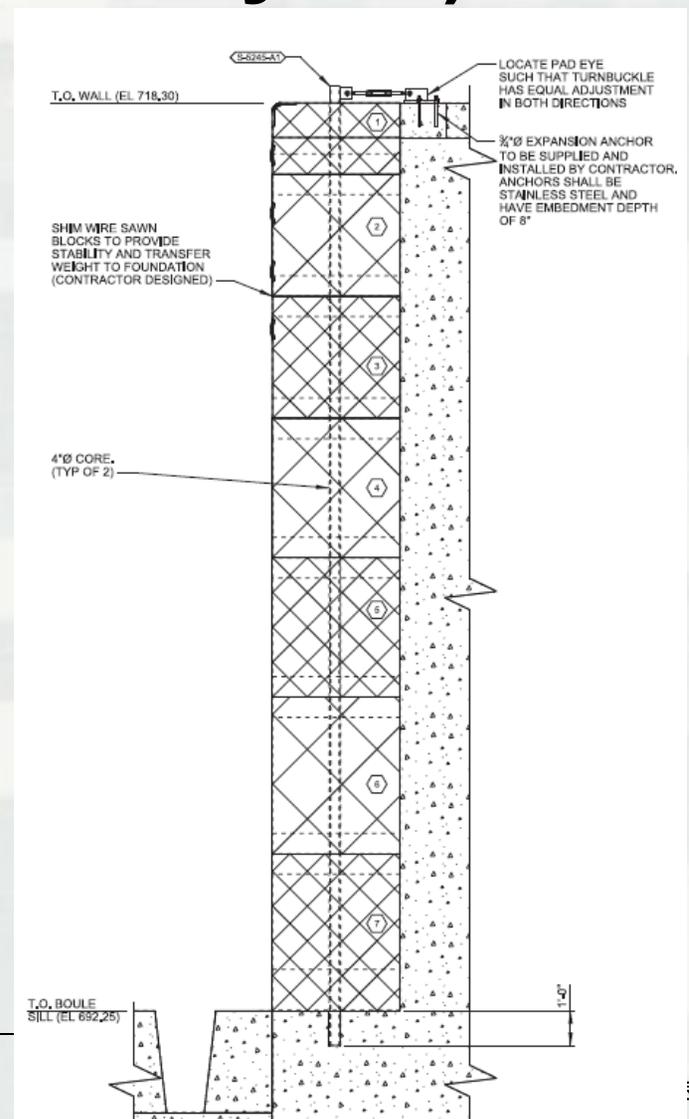
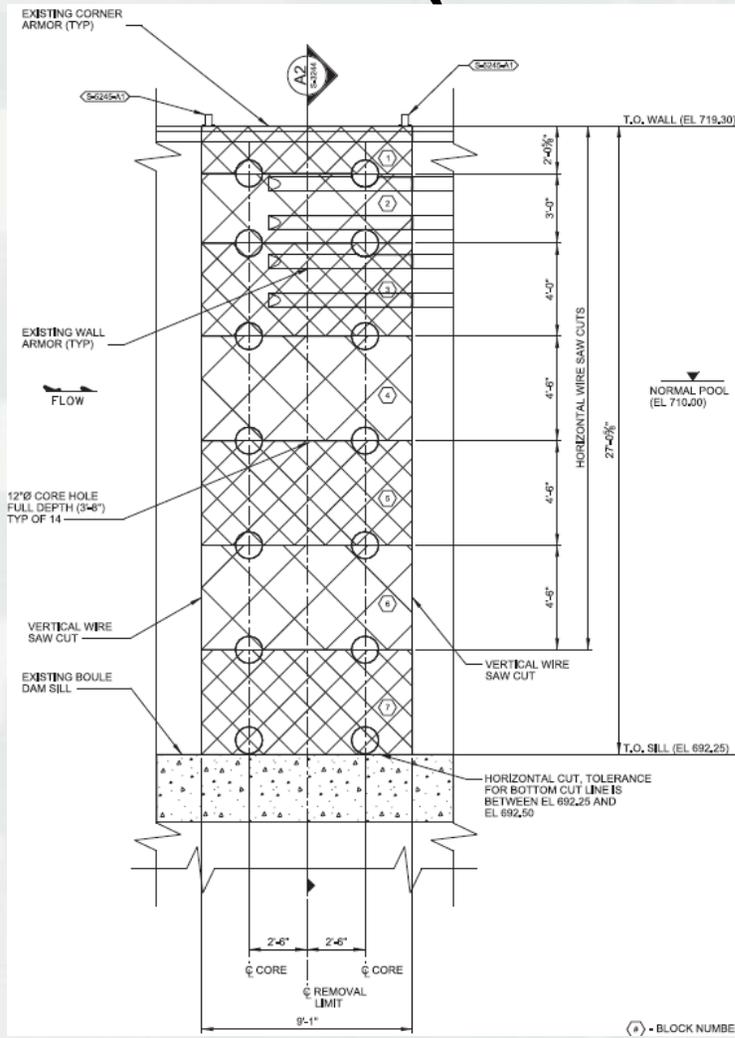
Emsworth L/D – U/S Boule Dam Phase II (Sawcutting/Slot Layout)



Sawcutting Contract



Emsworth L/D – U/S Boule Dam Phase II (Sawcutting/Slot Layout)



Blocks = 22,000#

Emsworth L/D – U/S Boule Dam Phase II (Block Removal)



\$21K



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Emsworth L/D – U/S Boule Dam Phase II (Block Removal)



Emsworth L/D – U/S Boule Dam Phase II (Set/Seal Bulkhead)



Emsworth L/D – U/S Boule Dam Phase II (Level Floor of Sawcut)



Emsworth L/D – U/S Boule Dam Phase II (Profile Sawcut – Bushing Tools)



Emsworth L/D – U/S Boule Dam Phase II (Drilling, Rebar Placement)



Emsworth L/D – U/S Boule Dam Phase II (Trim Liner)



Emsworth L/D – U/S Boule Dam Phase II (Install Liner)



Emsworth L/D – U/S Boule Dam Phase II (Set/Secure Liner)



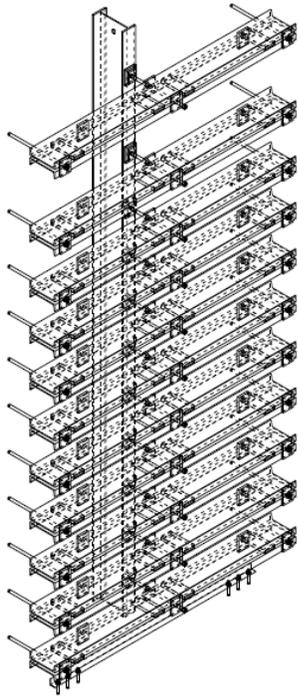
08.14.2015



Emsworth L/D – U/S Boule Dam Phase II (Finish top of Liner Assembly)



Emsworth L/D – U/S Boule Dam Phase II (Whaler System)



Emsworth L/D – U/S Boule Dam Phase II (Concrete Testing/Placement)



Emsworth L/D – U/S Boule Dam Phase II (Concrete Testing/Placement)



SCC – 4500psi
(7/28 day – 4000/6800 psi)
Air – 5-7
Slump 9-11”
Flow 18-24”



Emsworth L/D – U/S Boule Dam Phase II (Completed Concrete)



Emsworth L/D – U/S Boule Dam Phase II (Installed Recess Filler)



