

GREAT LAKES DREDGING TEAM

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US Army Corps
of Engineers®

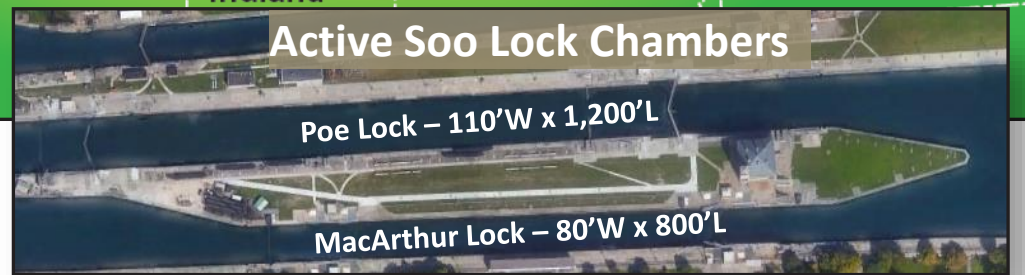
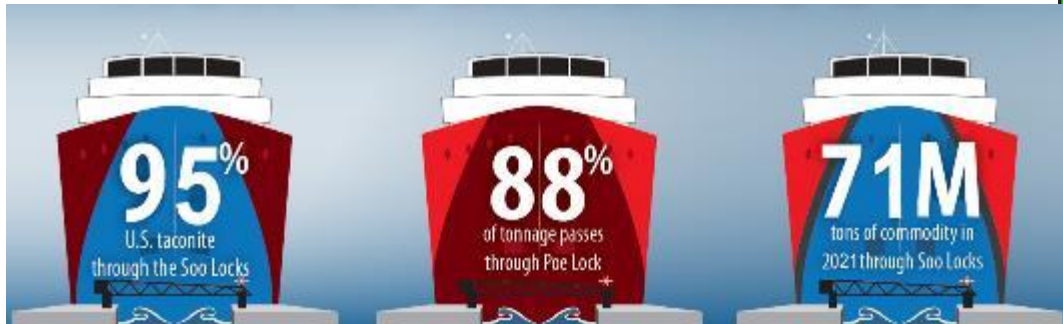


SOO LOCKS IMPORTANCE



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- 10% of our nation's waterborne domestic traffic transported on the Great Lakes Navigation System
- Nearly all domestically produced high strength steel is made with iron ore that transits the Poe Lock
- Within 2-6 weeks of an unscheduled Poe Lock outage, 75% of our nation's high strength steel production would cease
- Six-month unscheduled outage would result in 11 million jobs lost and \$1.1 trillion economic impact





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A Quick History of the Soo Locks



1798 First Lock on St. Marys River

To support the growing fur trade, the Northwest Fur Company built a canoe lock on the north shore of the river. This lock was approximately 40 feet-long and 9 feet-wide.



1855 "State Lock" opens

Built in only two years this tandem lock used two chambers each measuring 350' X 70' and each with a lift of 10 feet to bypass the rapids.

This lock was operated and maintained by the State of Michigan.



1896 Poe Lock opens

Built on the site of the former State Lock, the Poe lock was 800 feet long and 100 feet wide.



1919 Sabin Lock opens

An exact twin of the Davis Lock, it was begun even before the Davis was finished. It is also the only lock on the site named for a civilian, Louis Sabin, the only civilian to ever serve as the Detroit District Engineer.



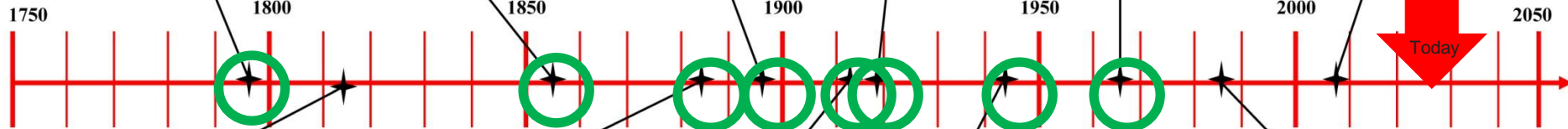
1968 Second Poe Lock opens

As the design for a new lock neared completion it became clear that an even larger lock would be needed as boats measuring 1,000 feet-long were being planned. Originally set to be 1,000 feet-long and 100 feet-wide it was redesigned to its current size of 1,200 feet-long and 110 feet-wide.



2009 Preparatory work for new lock completed

Funds were provided to build coffer dams at each end of the Sabin Lock and to dredge the approach channels to 28.5 feet.



1814 Lock Destroyed

During the War of 1812 American forces destroyed the British lock. Goods had to be unloaded and stored in warehouses at either end of the falls and transported on a railway running down Portage Avenue.



1883 Wietzel Lock opens

This lock was the first one to fill and empty the chamber through openings in the floor, reducing turbulence in the lock.

During its construction in 1881 the entire facility was transferred from the state to the U.S. Army Corps of Engineers.



1914 Davis Lock opens

At 1,350 feet-long the Davis lock held the honor of being the longest lock in the world when it opened.



1943 MacArthur Lock opens

Opening of a new, deeper lock became a matter of national security during World War II and the MacArthur Lock was built in 15 months. During the war thousands of soldiers were stationed at the Soo to protect the locks and the flow of iron ore.



1986 New Lock Authorized

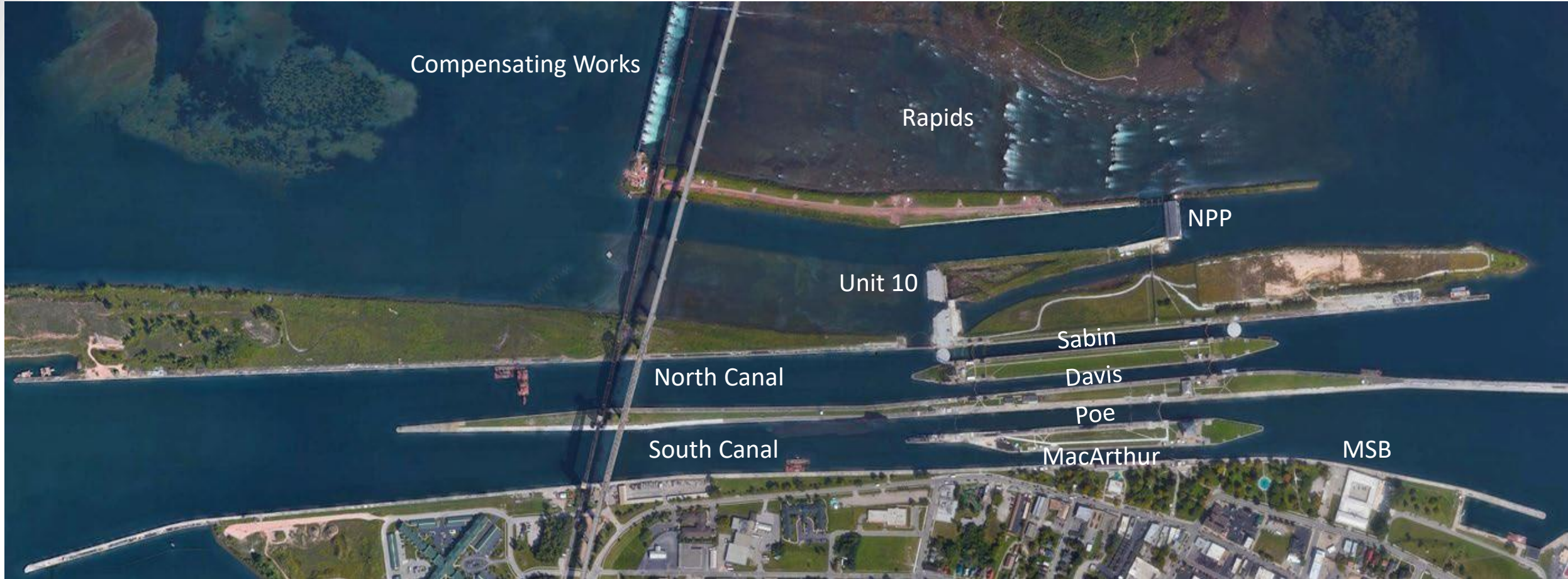
As part of the Water Resources Development Act, Congress authorized the construction of a new lock to be built on the site of the Sabin and Davis Locks. This new lock will be the same size as the Poe Lock.





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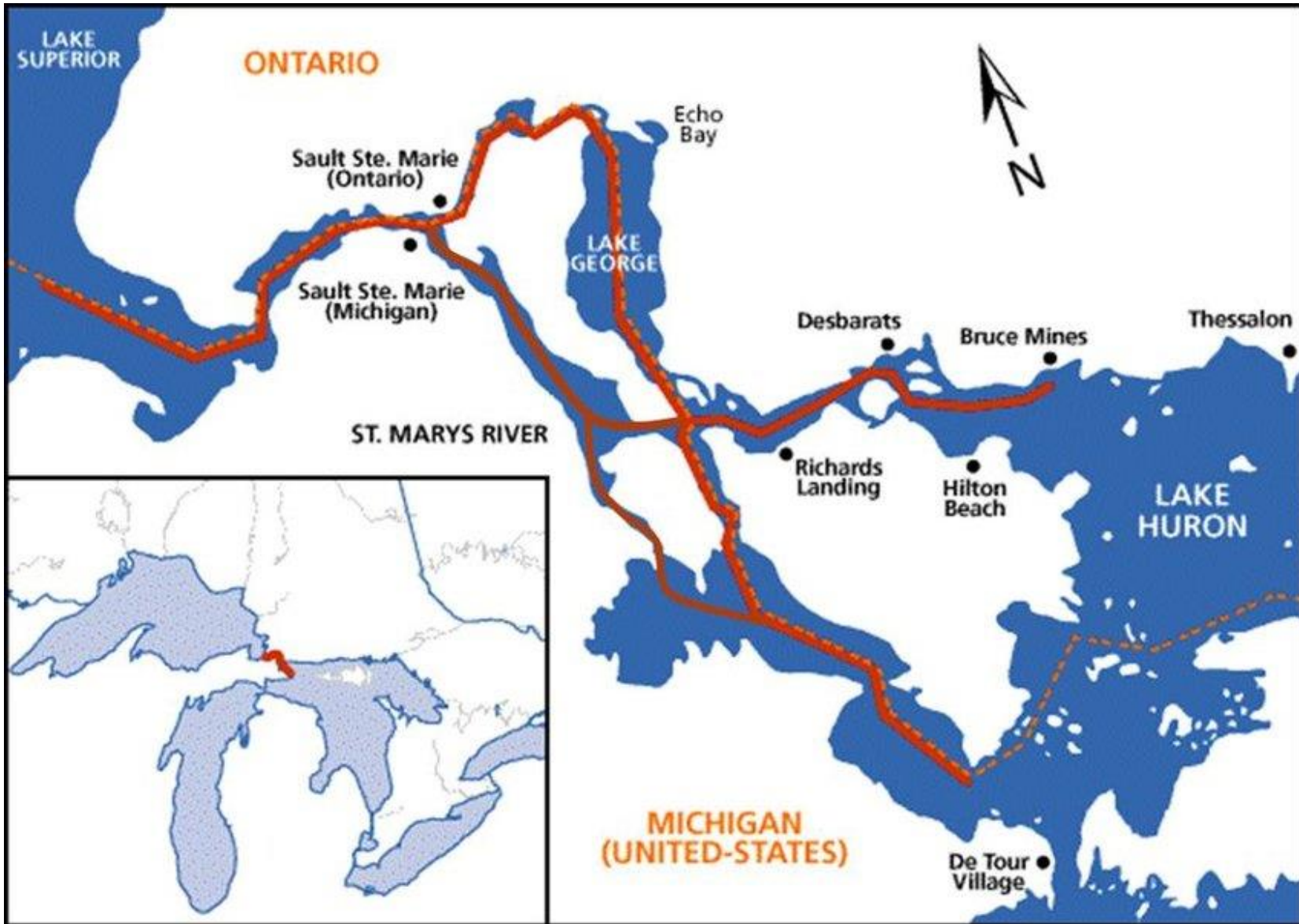
SOO LOCKS FACILITY





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ST. MARYS RIVER





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SOO PROJECT OFFICE OVERVIEW



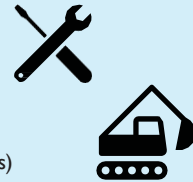
LOCK OPERATIONS

- Ensuring reliable navigation for 10,000 vessels per year
- 24/7 Lock Operations
 - Mar 25th to Jan 15th
- Poe Lock 1968 (Active)
- MacArthur Lock 1943 (Active)
- Davis & Sabin, 1914/1919 (Inactive)
- Lake Superior to lower Great Lakes
 - 21-foot elevation differential
- Over 80M Tons Annually
- Line handling for all vessels, including US, Canadian, and foreign flag



MAINTENANCE REPAIR STATION

- Highly Skilled Trades & Technicians
- Operations Industrial Controls
- Carpenter Shop
- Machine Shop
- Paint Shop
- Compensating Works Operators
- Support for Others
- Emergency Management Support
 - e.g. Containerized Medical Solutions (CMUs)



SECURITY

- National Security Critical Infrastructure
- Armed Guards & Physical Security
- Critical Infrastructure Cybersecurity
- Emergency Response Support
- Incident Response Command



ST. MARYS RIVER

- Deep Draft Commercial Channel
- #1 Great Lakes Connecting Channel by tonnage
- 95% of US Taconite traverses through the Soo Locks
- 75 Miles Binational Channel
- Rapid Response/Strike Removal
- Hydrographic Survey & Inspection
- EPA Area Of Concerns
 - 1987 Great Lakes Water Quality Agreement
- Top Fishing Destination in Michigan



NATIONAL HISTORIC LANDMARK

- National Register
- Historic Preservation
- Cultural Preservation
- Archeology
- Tribal Relations
- Sault Ste. Marie Oldest City in Michigan

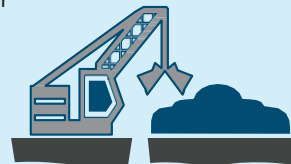


BUILDING STRONG

- Operations and Maintenance Program: 55 total projects ~ 100.8M (projects under execution and funded from FY21 - FY23)
- Operations staff provide critical construction contract support to minimize construction and operational risks.
- New Lock at the Soo Megaproject
 - Just over \$ 1.6 B allocated to date

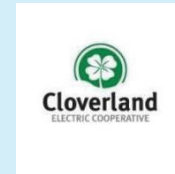
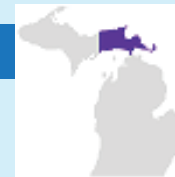
13 GREAT LAKES HARBORS & CHANNELS

- Menominee
- Cedar River
- Little Bay De Noc
- Manistieue
- Grays Reef
- Straits of Mackinac
- Mackinac Island
- Les Cheneaux Islands
- Little Lake
- St. Marys River
- Whitefish Point
- Grand Marais
- Detour



HYDROPOWER

- Unit 10 Oldest in USACE Inventory
- 5 Hydropower Units
- 21.5 MW Total Capacity
- Approx. 4% used at the Lock Facility
- Supplies 20% to Eastern Upper Peninsula
- Power Sales Contract
- High Annual Generation Time - 98%+



RECREATION PROGRAM

- Class A Soo Locks Visitor Center
 - 500,000 Visitors Annually
- Canal, Brady & Rotary Parks
- Observation Platform
- Engineers Day 5,000 - 10,000 Visitors
- Anchor Tourist Attraction in Eastern Upper Peninsula



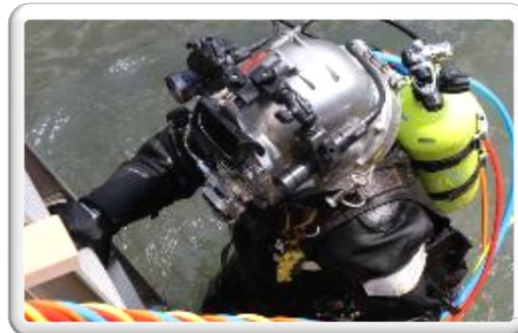


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WORK FORCE – 130+ YEAR-ROUND EMPLOYEES



- ❖ **Line Handlers**
- ❖ **Lock Masters**
- ❖ **Lock Operators**
- ❖ **Hydropower Operators**
- ❖ **Civil Engineers**
- ❖ **Mechanical Engineers**
- ❖ **Electrical Engineers**
- ❖ **Geographers**
- ❖ **Engineering Technicians**
- ❖ **Archivist**
- ❖ **Program Analyst**
- ❖ **Management Analyst**
- ❖ **Purchasing Agent**
- ❖ **Administrative Officer**
- ❖ **Security Specialist**
- ❖ **Safety & Occupational Health Specialist**
- ❖ **Electronic Technician**
- ❖ **IT Specialist (INFOSEC)**
- ❖ **Student Trainees**
- ❖ **Divers**



- ❖ **Park Ranger**
- ❖ **Custodial Worker**
- ❖ **Facility Operations Specialist**
- ❖ **Facility & Equipment Management Specialist**
- ❖ **Facility Services Assistant**
- ❖ **Dive Program Coordinator**
- ❖ **Hydrographic Surveyor**
- ❖ **Small Craft Operator**
- ❖ **Tug Master**
- ❖ **Crane-Barge Master**
- ❖ **Derrick-Barge Master**
- ❖ **Deckhands**
- ❖ **Maintenance Workers**
- ❖ **L&D Equipment Mechanics**
- ❖ **Electricians**
- ❖ **Machinist**
- ❖ **Structural Iron Workers**
- ❖ **Welders**



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NEW LOCK AT THE SOO



Current Facility



Future Facility

New lock will have **same dimensions** as existing Poe Lock (1200 ft length by 110 ft width and a depth of 32 ft)



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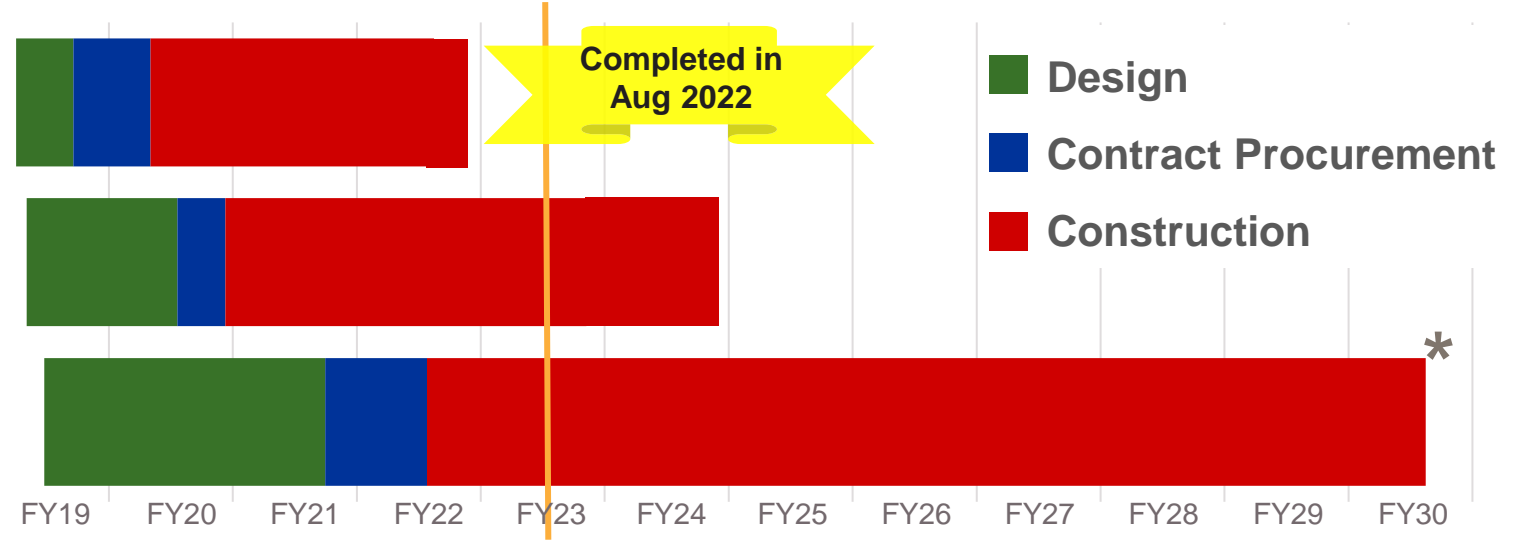
NEW LOCK AT THE SOO CONSTRUCTION STATUS



Phase 1: Upstream Channel Deepening (UCD)

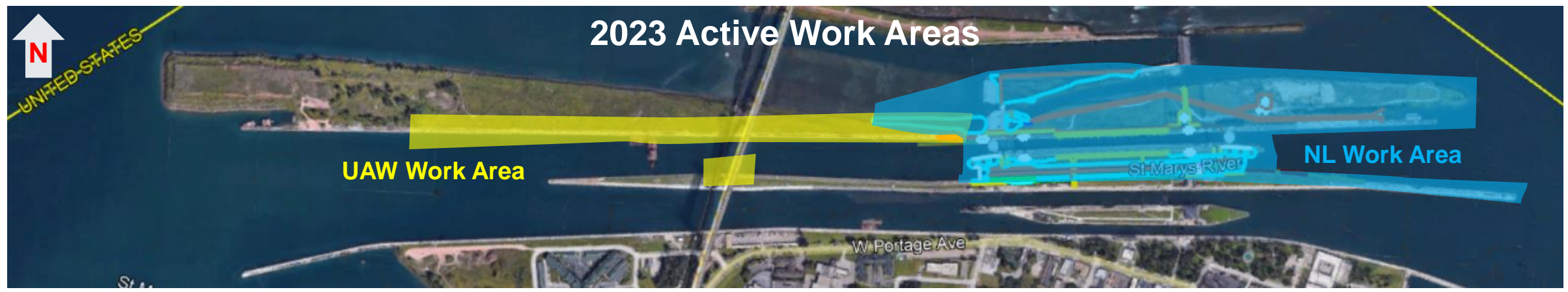
Phase 2: Upstream Approach Walls (UAW)

Phase 3: New Lock (NL)



WE ARE HERE

* Assumes efficient funding

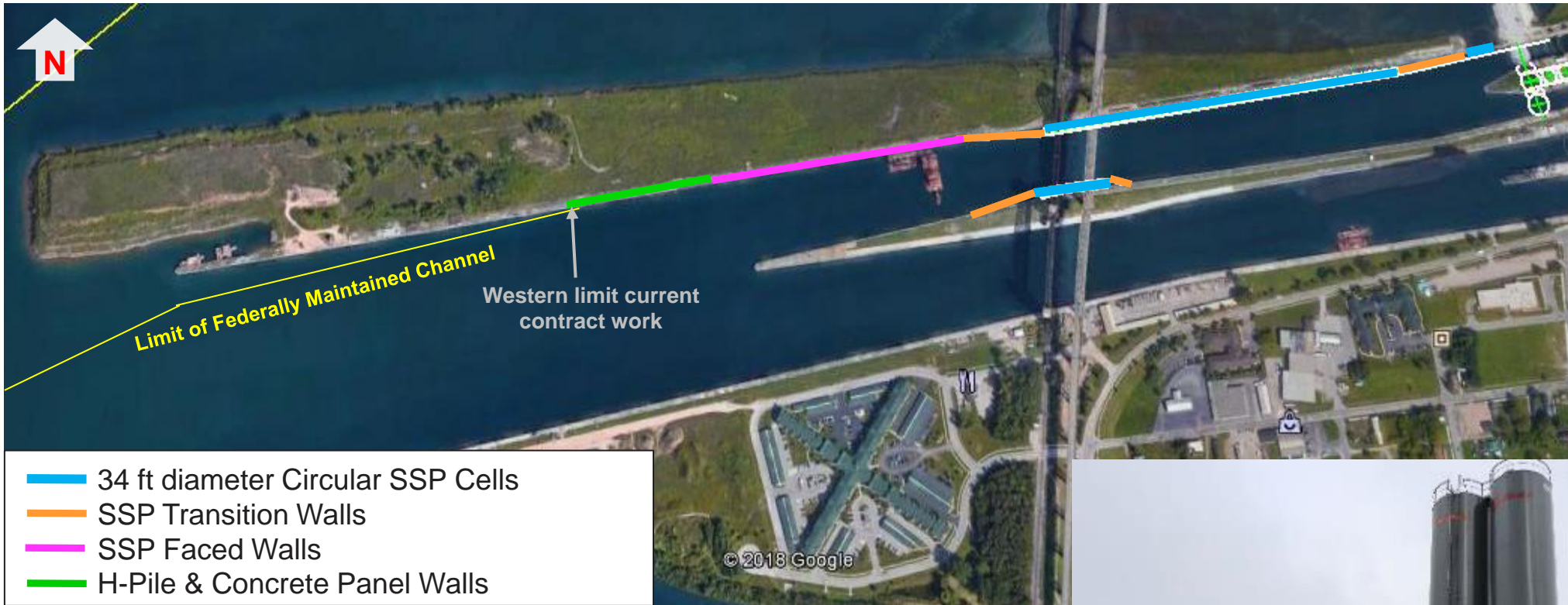




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PHASE 2: UPSTREAM APPROACH WALLS UPDATE

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Scope: Rehabilitate approach walls upstream of new lock including reconstruction/refacing existing 100-year-old walls, installation of new lighting, bollards, and concrete cap repairs.

Construction Status:

- \$117M Contract awarded in September 2020 to Kokosing-Alberici
- Contractor is generally working from East to West and has completed 83% of the required contract work.

Estimated Completion: Summer 2024





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PHASE 2: UPSTREAM APPROACH WALLS



Template used to construct circular steel sheet pile cells



Sheet piles are 30' strips of steel placed within coffer cell template

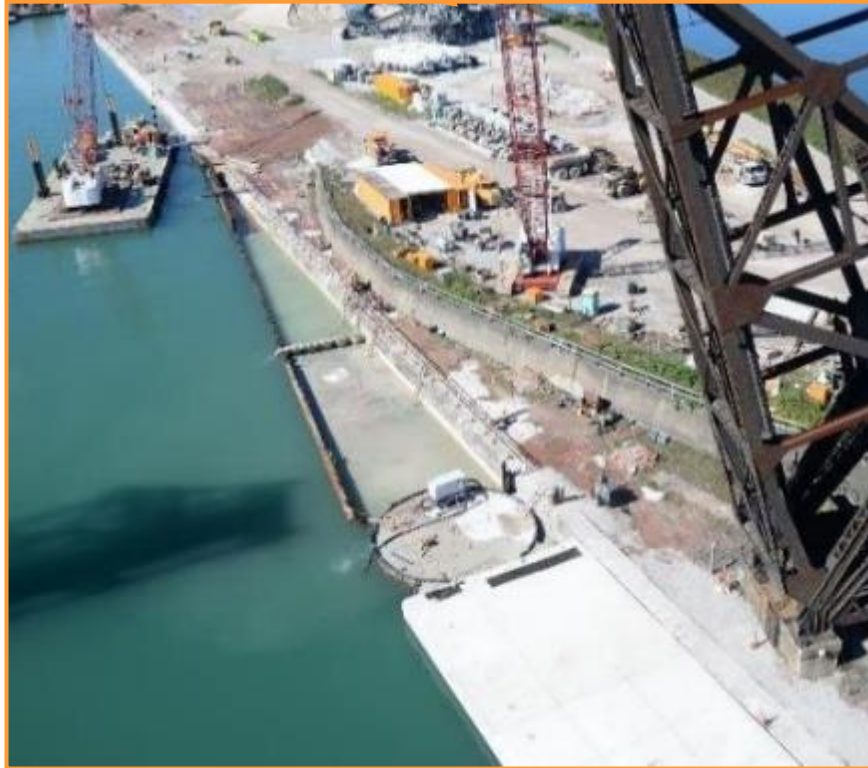
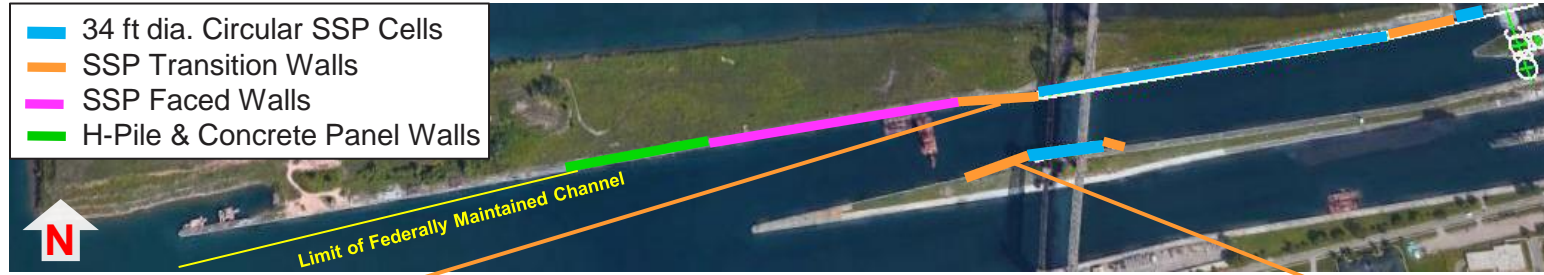


Concrete placement in cell



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PHASE 2: UPSTREAM APPROACH WALLS UPDATE



Northwest SSP transition wall and adjacent circular SSP cell prior to concrete cap placement



Southwest SSP transition wall with concrete cap



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PHASE 2: UPSTREAM APPROACH WALLS



- 34 ft dia. Circular SSP Cells
- SSP Transition Walls
- SSP Faced Walls
- H-Pile & Concrete Panel Walls



Limit of Federally Maintained Channel



Concrete panels for H-pile and concrete panel wall



Drilled shaft installation of concrete panel deadmen



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PHASE 3: NEW LOCK UPDATE



Scope: Construct new 1,200' long by 110' wide by 32' deep chamber, New Pump Well, and New Power Plant Bridge, and rehabilitate downstream approach walls.

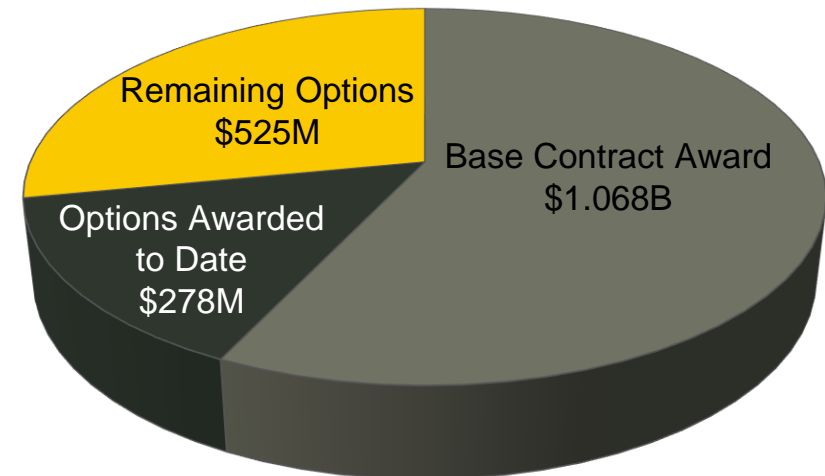
Construction Status:

- Contract awarded in July 2022 to Kokosing Alberici Traylor, LLC
- Current contract award valued at \$1.347B (72% of total contract cost)
- In 2023, the contractor plans to focus on demolition of aging structures, extensive electrical work, bridge construction, and coffer dam construction to allow for dewatering.

Estimated Completion: Summer 2030



NL Construction Contract Cost
Total contract valued at \$1.872B



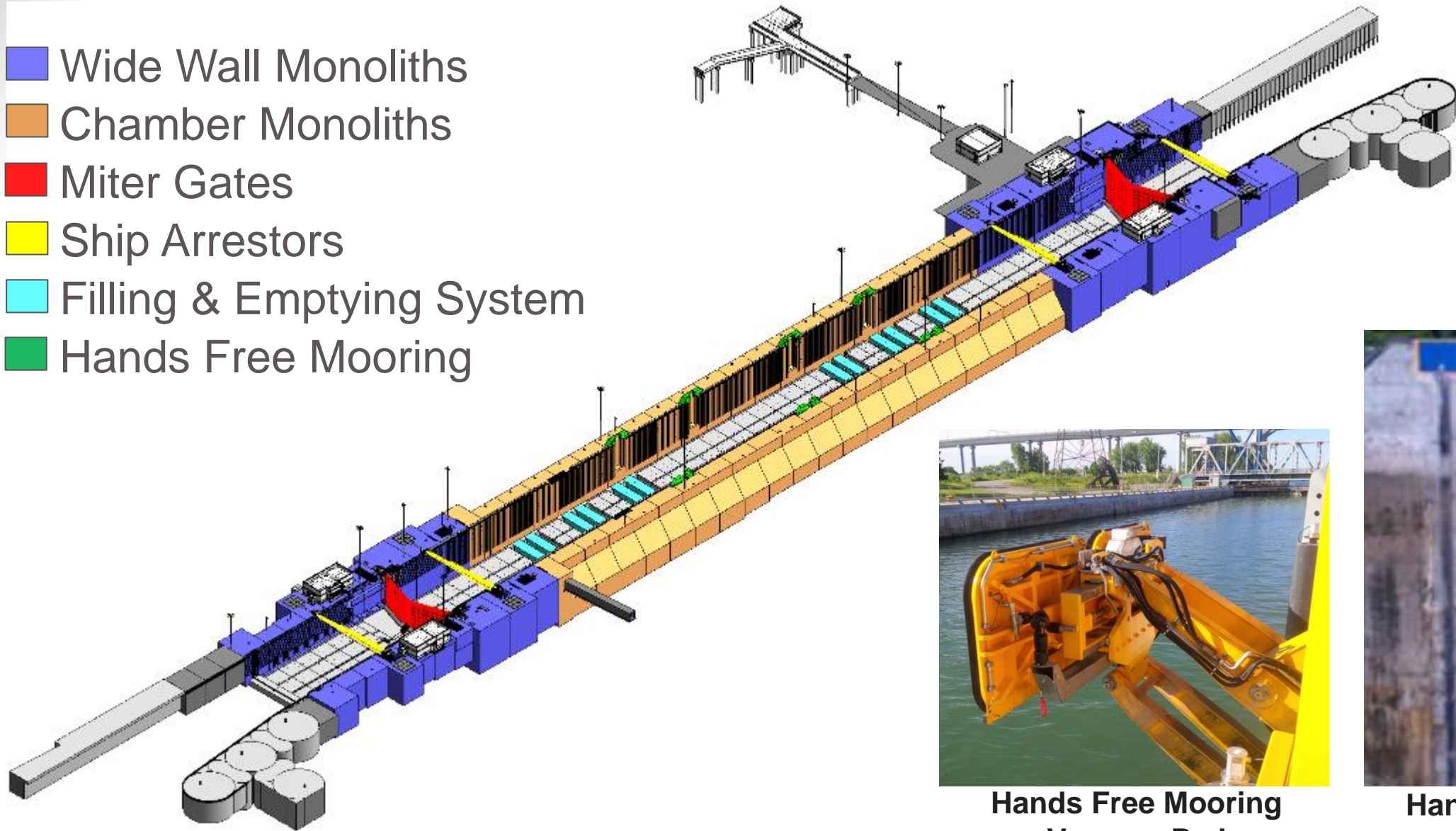


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PHASE 3: NEW LOCK KEY FEATURES



- Wide Wall Monoliths
- Chamber Monoliths
- Miter Gates
- Ship Arrestors
- Filling & Emptying System
- Hands Free Mooring



Hands Free Mooring
Vacuum Pad

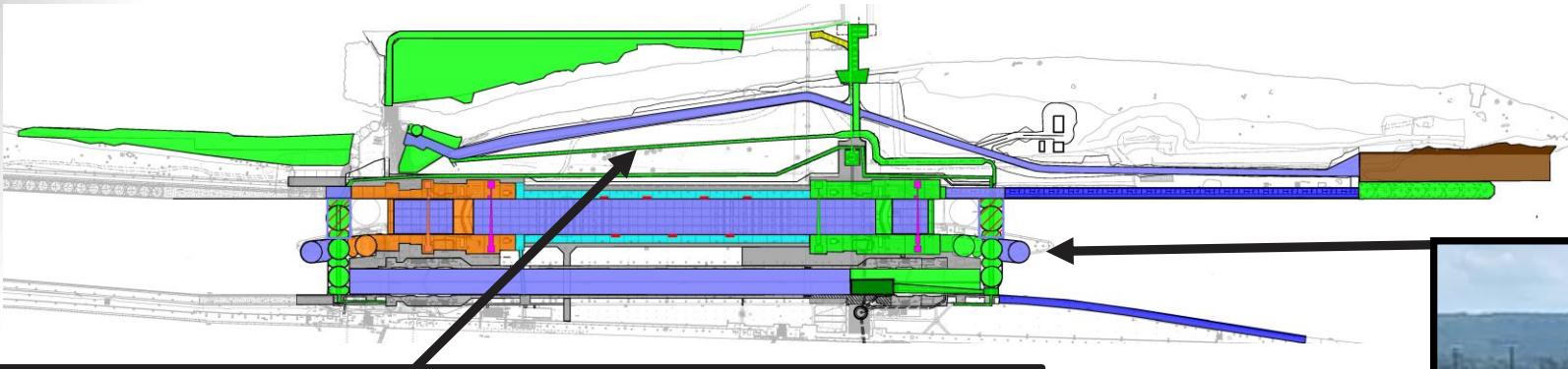


Hands Free Mooring
Dynamic Unit



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PHASE 3: NEW LOCK PROGRESS



Placement of the Soil Cement – Cement Bentonite (SCCB) wall north of the Sabin Lock to prevent seepage through soil into the dewatered excavation area

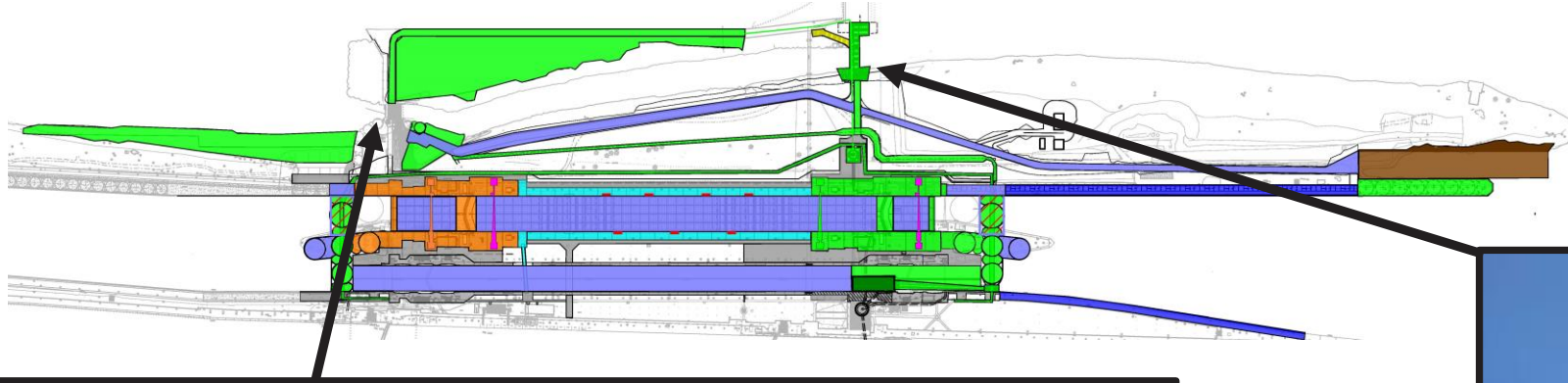


Demo of Downstream Nose Pier in preparation for downstream cofferdam construction



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PHASE 3: NEW LOCK PROGRESS



Prefabricated steel bridge installed west of Unit 10, providing haul route access to the Center Dike fill area

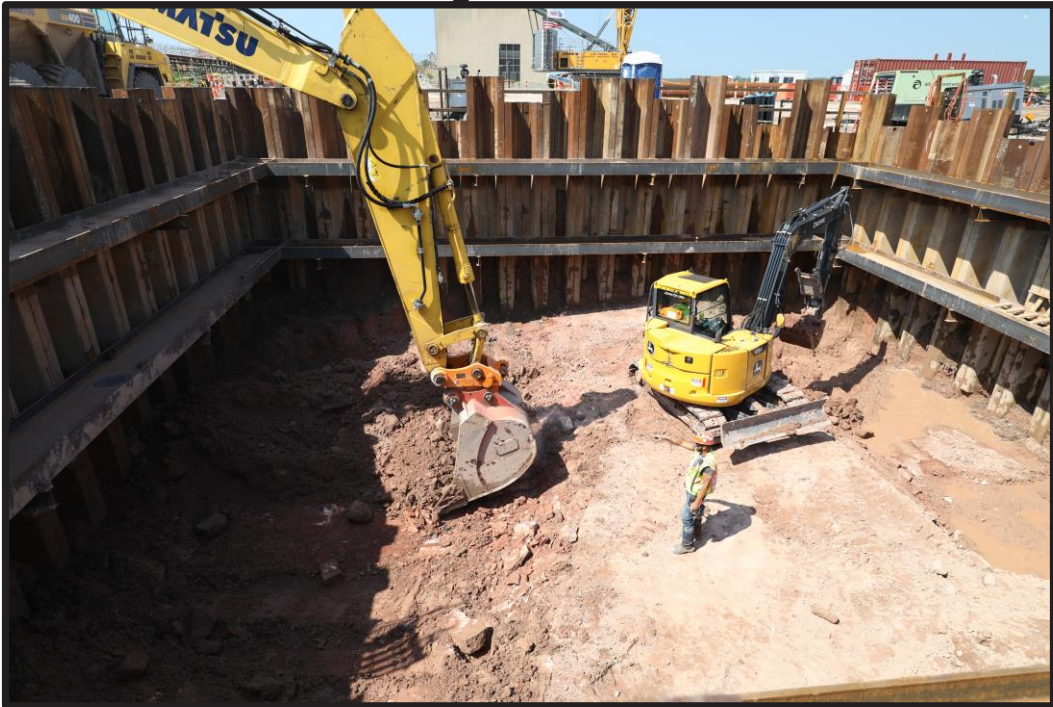
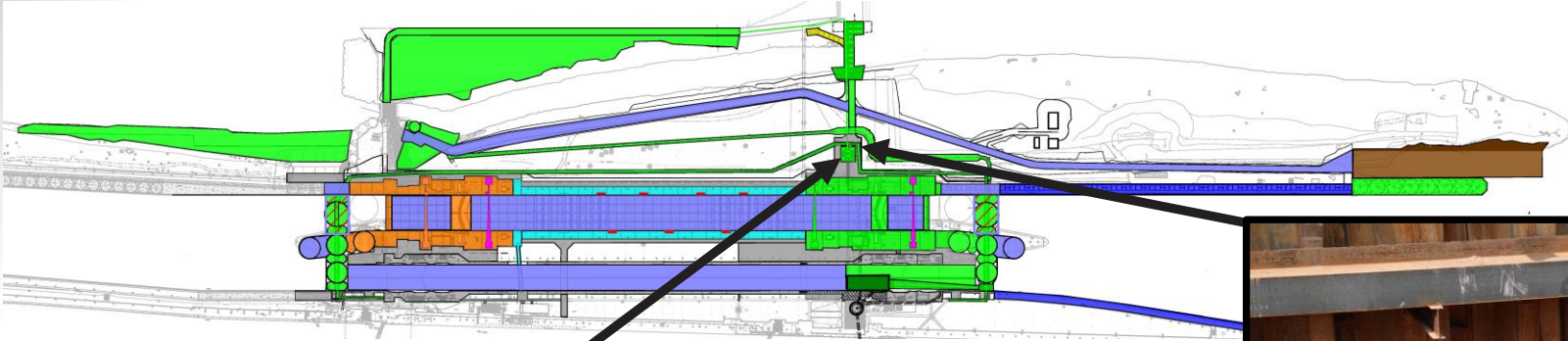


Drilled shafts for NPP Bridge south pier abutments

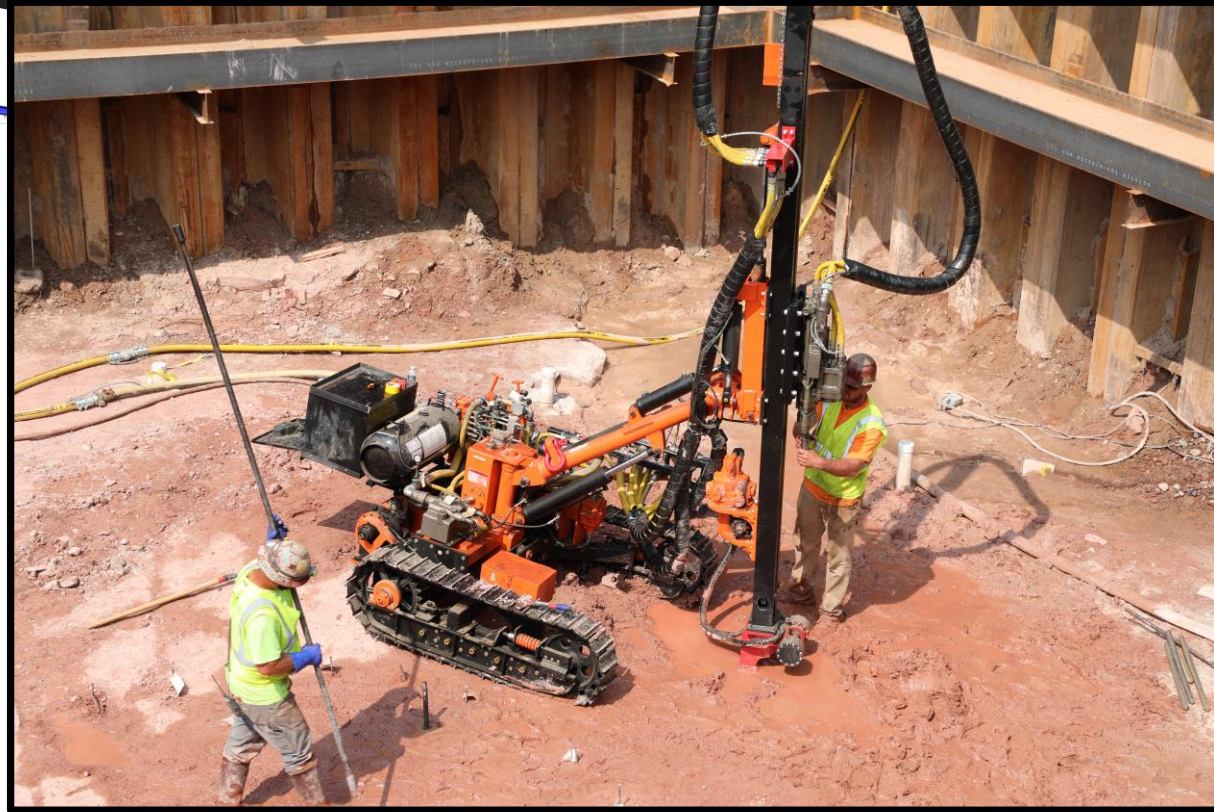


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PHASE 3: NEW LOCK PROGRESS



Shaft 6 Excavation



Shaft 6 Pre-blast drilling



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QUESTIONS