NEW LOCK AT THE SOO QUARTERLY UPDATE

Mollie Mahoney, Project Manager
Cindy Jarema, Chief of Operations
U.S. Army Corps of Engineers,
Detroit District
Date: 27 August 2020

"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

Lt. Col. Scott Katalenich
District Engineer

Mr. Kevin McDaniels
Deputy District Engineer
SOO LOCKS LOCATION & IMPORTANCE

IRON ORE
Major Routes and Receiving Ports

Soo Locks

90% U.S. taconite through the Soo Locks

86% of tonnage passes through Poe Lock

74M tons of commodity in 2019 through Soo Locks
MAINTAINING EXISTING SOO LOCKS FACILITY
(O&M FUNDED)

FY21 Winter Work Maintenance

- Poe Gate 1 Structural Repairs
- Poe Gate 1 North Gate Connector
- Poe Gate 2 Sill Repair
- Poe Gate 3 Bottom Girder Seal Repair & Seal Replacement
- Poe F/E Valve Repairs & Maintenance
- Pier Fendering
- Barges and Tug dry dock

Upcoming Asset Renewal Priorities

- Raceway for Lock Power Feeders
- Poe & MacArthur Locks Anchorage Components
- Poe Lock Gate 1 – blasting & coating, diagonal replacement
- Tug Replacement
- Poe Filling & Emptying Valves Rehabilitation
- Poe Gate 1 Replacement

![Graph showing funding for Asset Renewal and Routine O&M from FY08 to FY20]
Davis and Poe Pumpwells ($37.3M FY21 Capability)

- The pumpwell system currently services the Poe and Mac lock and will service the New Lock once constructed.
- Design revealed unacceptable safety and construction risk in rehabilitating 100 - 120 year old wells under operational buildings.
- Due to comparable costs a new well is being constructed instead of rehabilitating existing wells.
- New Pump Well will be contracted with the New Lock to reduce risk associated with 2 contractors working in close proximity at the same time.
**NEW LOCK STATUS**

* Early completion could be realized with approval of continuing contracts clause, efficient funding, and favorable weather conditions.

**Phase 1**
- Upstream Channel Deepening (UCD)

**Phase 2**
- Upstream Approach Walls (UAW)

**Phase 3**
- New Lock Chamber (NLC)

**Design**

**Contract Procurement**

**Construction**

<table>
<thead>
<tr>
<th>Year</th>
<th>Design</th>
<th>Contract Procurement</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* WE ARE HERE

**UCD 2020 Work Area**

**UCD 2021 Work Area**

**UCD 2022 & 2023 Work Area**

**NLC 2023 Forward Work Area**

**UAW 2021 Work Area**

**UAW 2022 & 2023 Work Area**
FY21 Work to be Completed

<table>
<thead>
<tr>
<th>Capability</th>
<th>FY21 Capability</th>
<th>FY21 Pbud Request</th>
<th>FY21 Remaining Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Lock Chamber Construction</td>
<td>$152.3M+$51.2M</td>
<td>$203.5M</td>
<td>$101.2M</td>
</tr>
<tr>
<td>New Lock Chamber Design</td>
<td>$8.6M</td>
<td>$8.6M</td>
<td></td>
</tr>
<tr>
<td>Upstream Channel Deepening Construction Management</td>
<td>$2.2M</td>
<td>$2.2M</td>
<td></td>
</tr>
<tr>
<td>Upstream Approach Wall Construction &amp; Construction Management</td>
<td>$10.1M</td>
<td>$10.1M</td>
<td>TBD*</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$224.4M</td>
<td>$123.2M</td>
<td>$101.2M</td>
</tr>
</tbody>
</table>

* Additional UAW capability to be identified upon contract award in Sept 2020.
PHASE 1: UPSTREAM CHANNEL DEEPENING

**Scope:** Deepen upstream approach channel to depth of 30 feet

**Construction Status:**
- Construction awarded 30 January to Trade West Construction Co. of Mesquite, Nevada.
- Contractor currently removing overburden on west end of project and bedrock on east end.

**Estimated Performance Period:** 20 Months
Contractor installing temporary vibration monitoring

New Access Haul Road
UPSTREAM CHANNEL DEEPENING STATUS UPDATE

Xcentric Ripper

PC1250 with 6.5 CY Bucket
Bedrock from Upstream Approach Channel

Overburden from Upstream Approach Channel
PHASE 2: UPSTREAM APPROACH WALLS

Scope: Rehabilitate approach walls upstream of New Soo Lock

Project Status:
• Contract award expected in next 30 days
• FY21 remaining capability may change upon contract award in September.

Estimated Performance Period: 24 - 36 Months
PHASE 3: NEW LOCK CHAMBER

Scope: Construct new 1,200' long by 110’ wide by 32’ deep chamber and rehabilitate downstream approach walls

Project Status:
• 70% Design review completed in July 2020
• 100% Design to be complete in July 2021
• Construction Funding Capability Identified in FY21 ($101.2M remaining FY21 capability)

Estimated Performance Period: 5-8 Years
NEW LOCK CHAMBER
STAGGERED SOLICITATION APPROACH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Development of 100% Draft Design
- Review of 100% Draft Design Thru 100% Final Design
- Stagger 1 Solicitation
- Stagger 2 Solicitation

- Stagger 1 solicitation issued with less than final plans, stagger 2 solicitation issued with final plans
- Staggered RFP approach results in contract award 3 months ahead of traditional RFP approach
  - Target contract award moved from May 2022 to Feb 2022
- Staggered solicitation allows contractors more time with the package
NEW LOCK CHAMBER KEY FEATURES

- Miter Gates
- Filling and Emptying System
- Upstream Ship Arrestors
- Downstream Ship Arrestors
- Hands Free Mooring
- New Pump Well
NEW LOCK CHAMBER CONSTRUCTION SEQUENCING

1. Mobilizing to site including constructing batch plant
2. Demolish Existing Davis and Sabin Lock buildings
3. Relocate Power from Unit 10 to NPP
4. Construct grout curtain
5. Construct New Bridge to NPP and Shaft 6
6. Demolish nose piers
7. Construct upstream and downstream coffer cells
8. Prepare Davis Lock for Dewatering
9. Dewater Sabin and Davis Locks
10. Demolish Sabin walls and floor and additional rock excavation
11. Fill Davis Chamber with Excavated Material
12. Construct wide wall monoliths, miter gate and bulkhead sills
13. Construct control houses
14. Construct chamber monoliths
15. Install miter gates, culvert valves, and ship arrestors
16. Install electrical and mechanical equipment
17. Remove cofferdam cells
18. Install downstream approach walls
19. Install HFM units
20. Install downstream ship arrestors
21. Complete site work
NEW LOCK CHAMBER- TOOLS USED FOR DESIGN

REVIT model of existing lock structure

REVIT model of new lock structure

Virtual reality used for 70% design review by Soo Locks Operations and Maintenance Personnel

Changes Made Based on Virtual Reality Review
• Operating shelter sightlines
• Additional lock floor catch basins
• Addition of miter gate tie back recesses
New Lock Chamber 3D Model video
PROJECT’S ECONOMIC IMPACT

$1.03B Total Project Cost
Estimated 7-10 years of construction
1,240 jobs created on an annual basis
  • 600 direct jobs
  • 210 indirect jobs
  • 430 induced jobs
735,000 tons of domestically-quarried limestone or granite
35,000 tons of American-made cement
20,000 tons of American-made steel
NEW LOCK UPCOMING DATES

• Upstream Approach Walls Contract Award: September 2020
• New Lock Chamber Construction Industry Webinar: 01 Oct 2020
• New Lock Chamber Construction Industry Site Visit: 06 Oct 2020
• New Lock Chamber Construction Industry Individual Meetings: 06-08 Oct 2020
• New Lock Chamber Construction Contract Advertisement: Spring 2021
• Upstream Channel Deepening Construction Completion: Fall 2021
• New Lock Chamber Construction Award: Spring 2022

Contact Info:
Mollie Mahoney, New Lock at the Soo Project Manager
(313) 226-2033
Email: LRE-New_SOO_Lock@usace.army.mil
Website: https://www.lre.usace.army.mil/
Contact Info:
Mollie Mahoney, New Lock at the Soo Project Manager
(313) 226-2033
Email: LRE-New_SOO_Lock@usace.army.mil
Website: https://www.lre.usace.army.mil/