

## VALUE ENGINEERING PROPOSAL

PROPOSAL NO: S-4

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DESCRIPTION Reduce Guidewall Length

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### ORIGINAL DESIGN:

The existing design drawings call for four (4) guide/approach walls. The two on the east side are 1200-ft each and the two at the west side are 800-ft long each.

The general guidelines are discussed in EM-1110-2-2602 Planning and Design of Navigation Locks and are intended to be followed in the absence of model tests. These guidelines call for the length of approach walls to be equal to the useable length of the lock chamber, in this case 1200-ft.

### PROPOSED DESIGN:

It is recommended that the approach walls be shortened.

### ADVANTAGES:

1. Reduces construction placement.
2. Reduces first cost, shortens construction schedule.

### DISADVANTAGES:

None known.

### JUSTIFICATION:

The approach wall lengths recommended in EM-1110-2-2602 are intended to be used in the absence of model tests or any other data that could be used in determining the required length of wall. Since there is no dam involved and the new lock will not significantly affect the flow characteristics of the lock approach, past experience can be used to determine an appropriate length of guidewall. Also since the lock will be constructed to a width of 110-ft which is greater than the tow width currently using navigation system, the tows will not have to line-up as precisely as they would if the tow width was 105-ft (the standard for the Mississippi River). Finally, the chamber length will be 1200-ft and as such, the tows will not have to be staged or moored to be passed using two lockages. For estimating purposes it is assumed that the end adequate length of walls are 800-ft on the east side of the lock and 400-ft on the west side. This results in a 40 percent reduction in lockwall length.

