

# Value Engineering Study on the



# Claiborne Avenue Bridge Replacement

Presented by:

**URS** Group, Inc.

&



US Army Corps of Engineers  
New Orleans District

# Outline of Presentation

- **Project Background**
- **VE Study Background**
- **Original Design**
- **Function Analysis**
- **Recommended Design**
- **Lessons Learned**



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# Mississippi River & Gulf Intracoastal Navigation System



# INNER HARBOR NAVIGATION CANAL LOCK REPLACEMENT PROJECT



## • Project Status

- 2 contracts complete
- 1 contract continues
- Initiated lock design a/e contract
- Mitigation continues
- completed Real Estate purch. W/Port of N.O.

## • Project Cost - \$770M

Scheduled Comp - 2014

## • FY03 Funding

Required: \$23M

Received: \$15M

## • FY04 Funding

Requested: \$20M

Pres budget: \$7M

- 
- IHNC Lock (known locally as the Industrial Canal Lock) was opened in 1921
  - Target for replacement for over 40 years

*LOCKS at INDUSTRIAL CANAL, NEW-ORLEANS, LA.  
LINKING THE MISSISSIPPI RIVER WITH LAKE PONCHATRAIN*

*May 5<sup>th</sup> 1922*





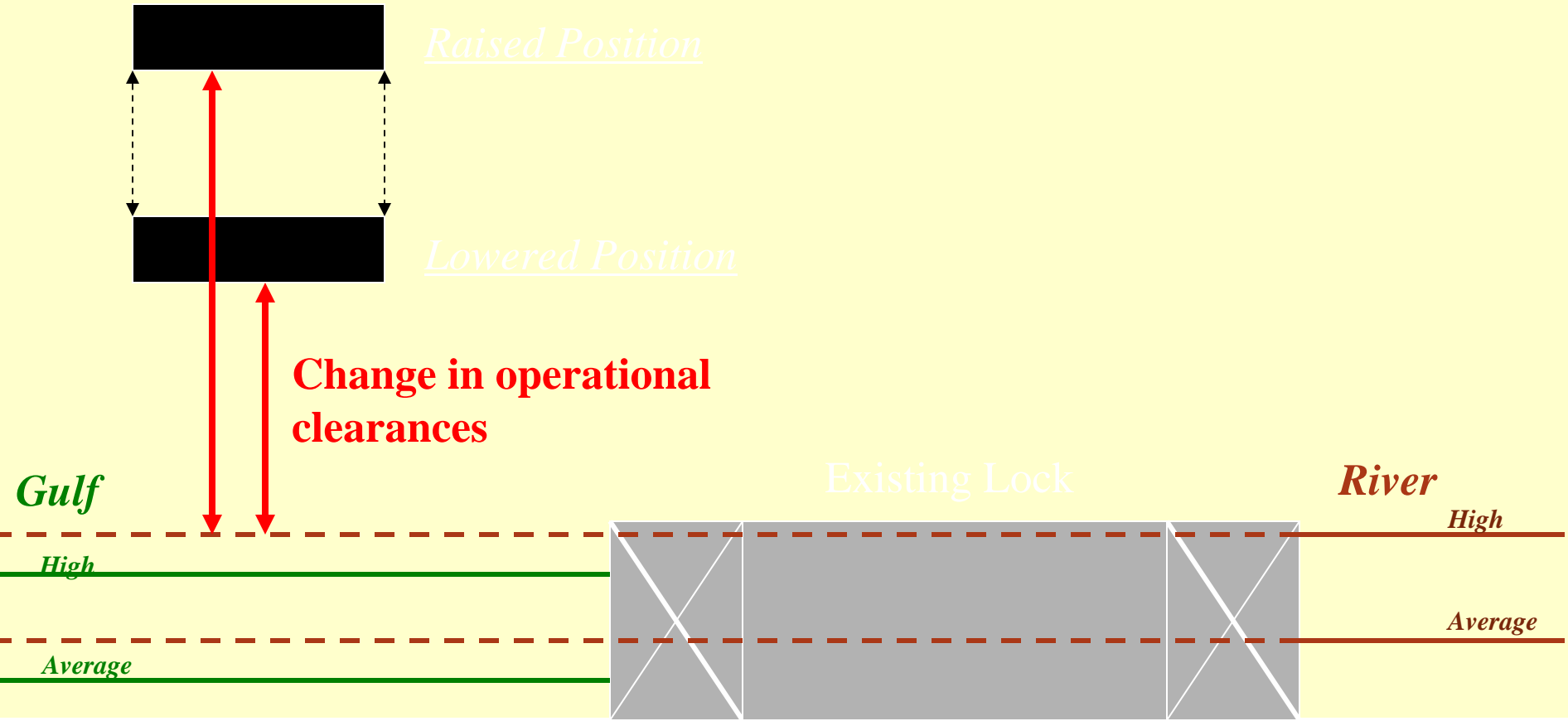
**Existing Conditions**





**Existing Lock is demolished.**

# Claiborne Ave. Bridge



Long. X-Section of IHNC Lock and Claiborne Bridge



# Project Status



- A number of teams (A/E's) are developing designs for various project components (i.e. demolitions, new lock, bridges, floodwalls, etc.)
- Design of Claiborne Ave. Bridge replacement was approaching 50% completion.



# Corps VE Program Regulation

- “... VE shall be performed early in both project planning and design development ...”
- “... a VE study shall be performed no later than 35% design completion...”



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# Project Team's Concern for VE

- “Why do you want to do a VE Study now?!?...”
- “We have one of the best bridge engineering firms in the world evaluating five different alternatives”
- “You should definitely wait until we have a design established”



# Value Engineering Overview

- **CVS Team Leader from URS**
- **VE Team Members from URS, COE-NO, and A/E**
- **Utilized standard VE methodology**



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# VE Team Members

- **VE Team Leader**
- **Bridge Design Engineer**
- **Mechanical Engineer**
- **Structural Engineer**
- **A/E Project Manager**
- **COE VE Officer**
- **COE Structures Engineer**



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# Information Gathering

- **VE team was briefed by A/E design team**
- **Five Alternatives Presented**
- **Included visit to project site**



# Project Constraints

- **Louisiana DOTD roadway classification**
- **In-kind Replacement**
- **Marine Traffic vs. Vehicular Traffic Delays**
- **Existing Business/Property Relocations**
- **Community Impression/Acceptance**

# Proposed Design Alternatives

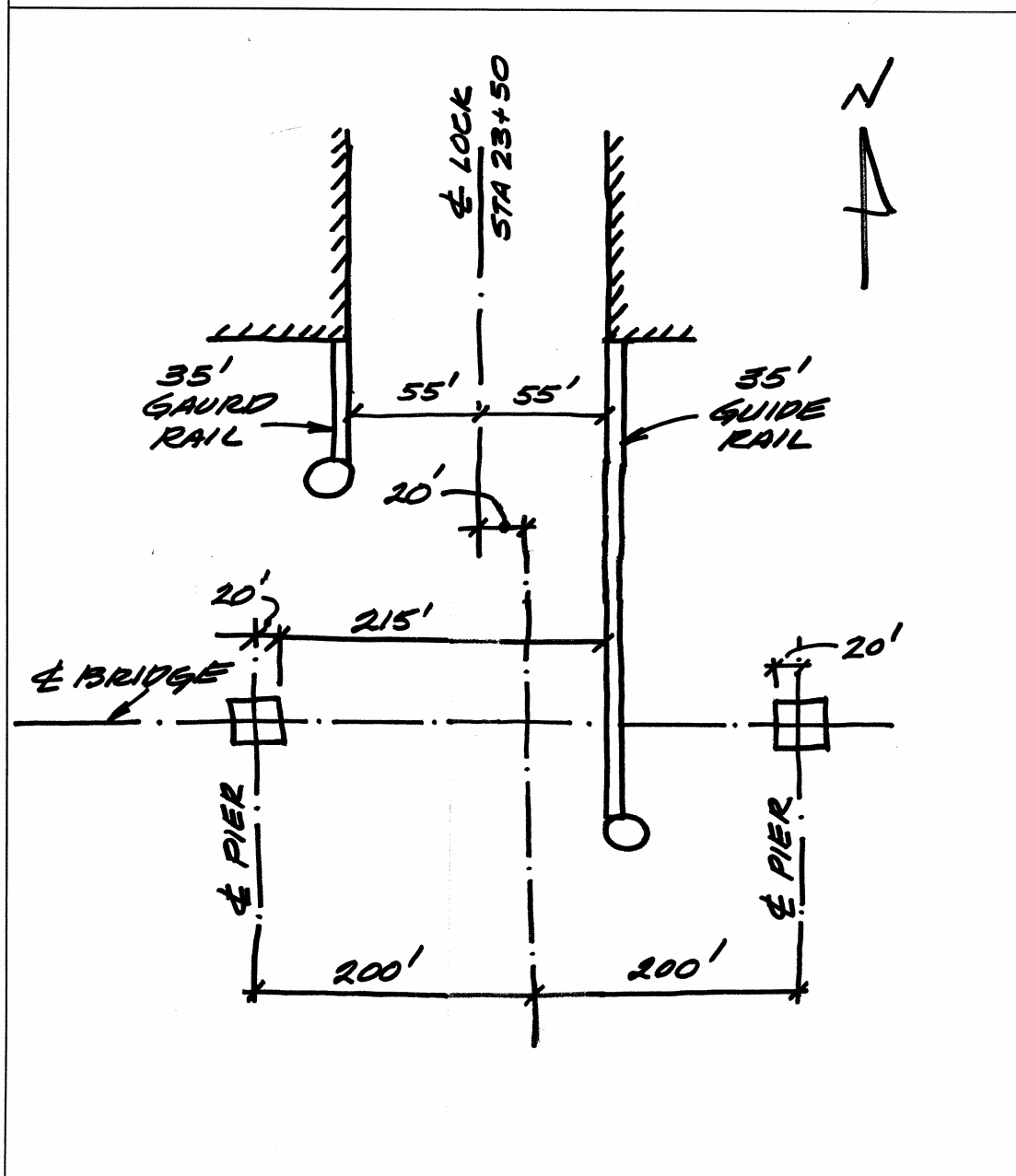
- All provide 360 foot span lift bridge
- Different Alignments
- Different Grades
- Different Low Chord Elevations



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# Function Analysis

- **Project broken down into component parts**
- **Function of components identified**
- **Functions organized into FAST Diagram**
- **Functions lead to brainstorming**
- **Project linchpin identified**



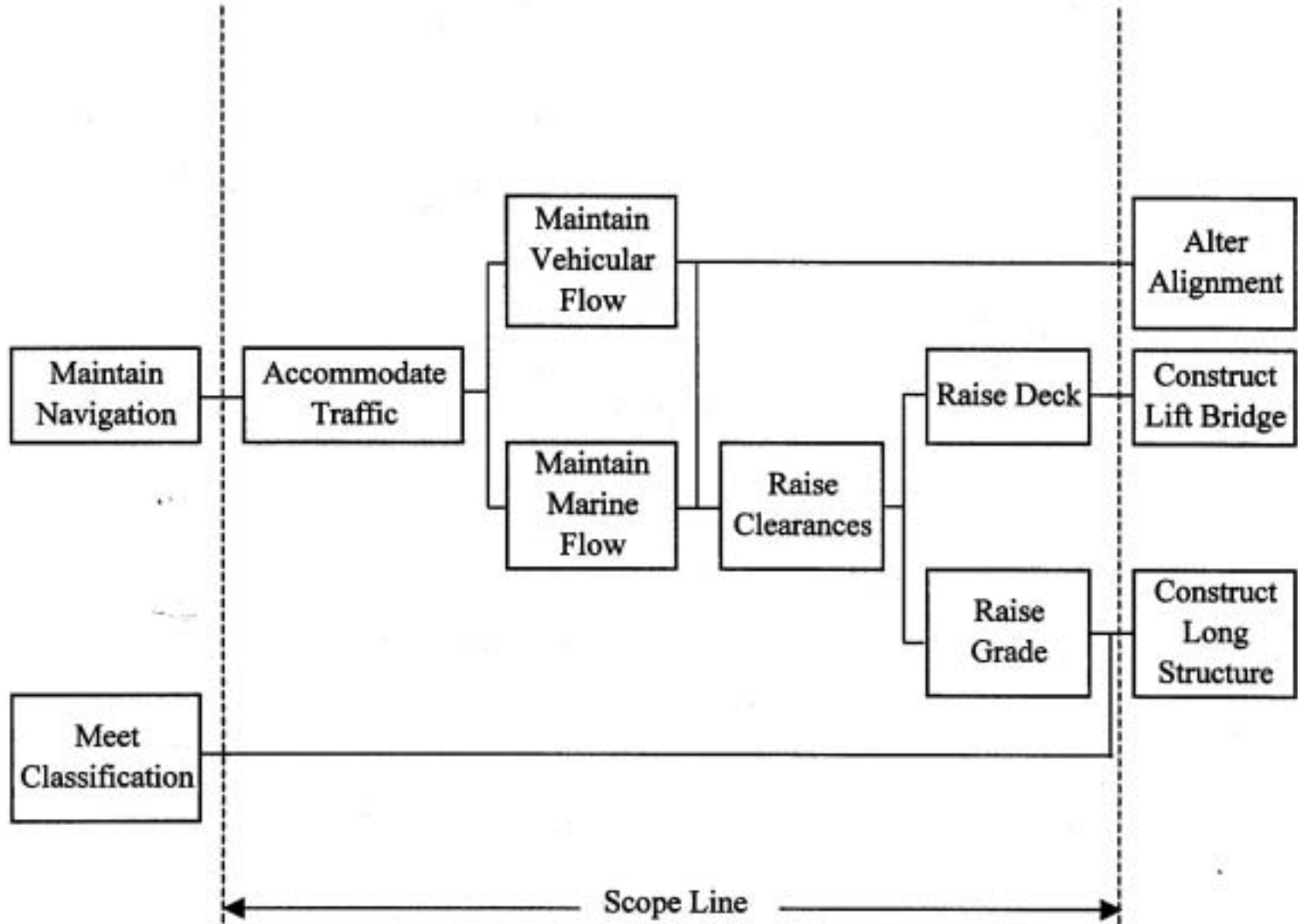
How



# FUNCTION DIAGRAM

## Alternative 1

Why



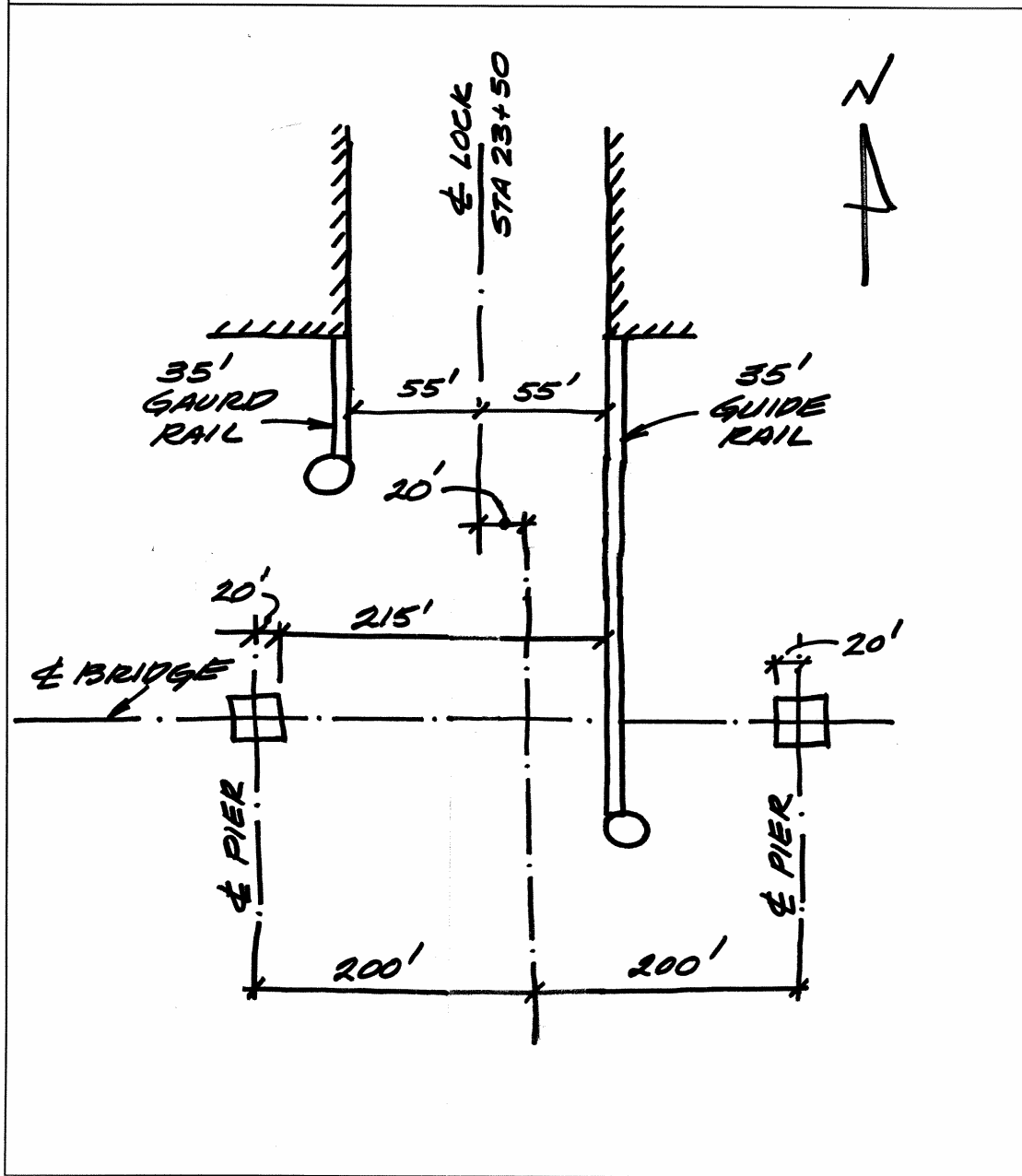
# Function Diagramming Results

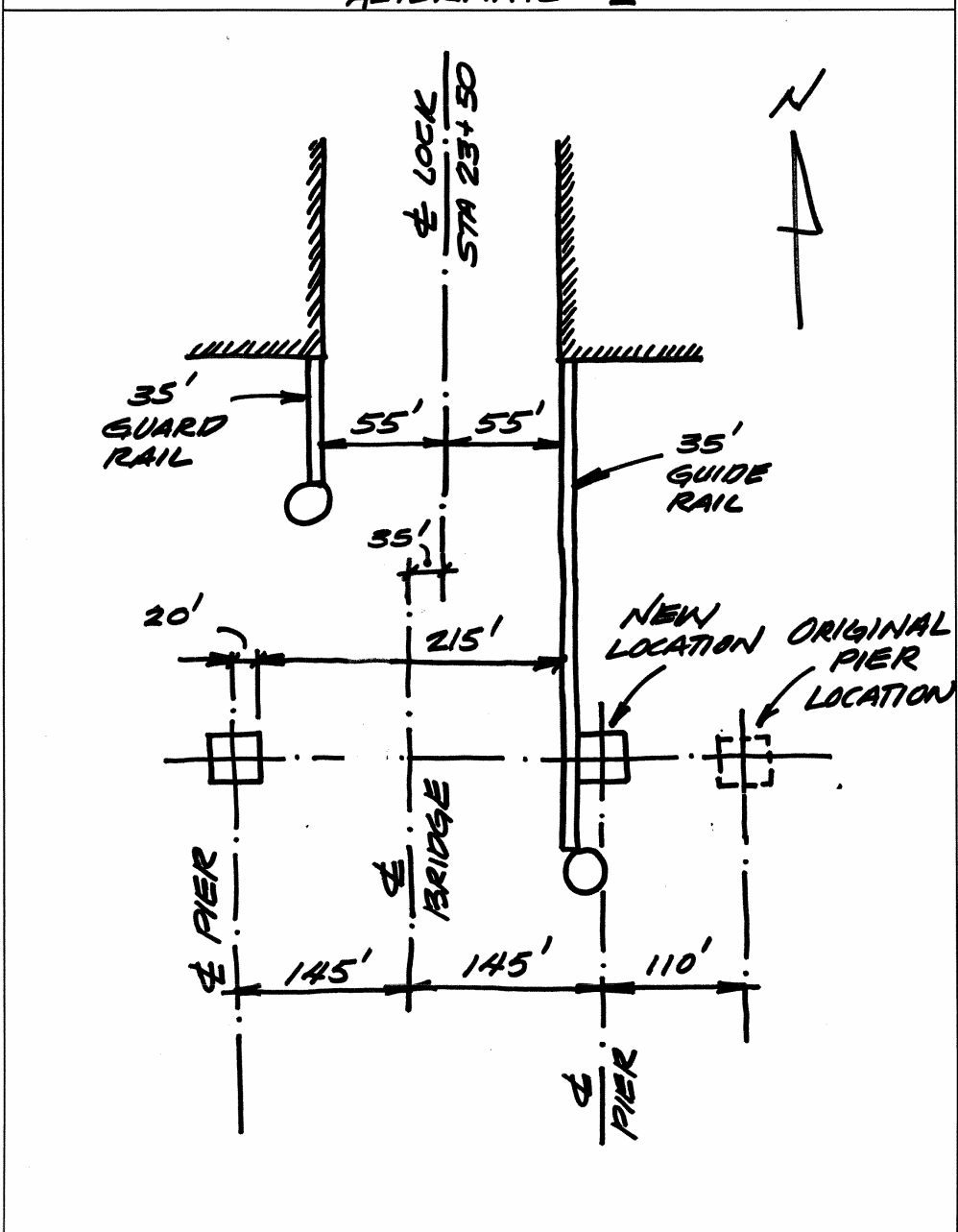
- **Existing alternatives meet functions by constructing similar structure**
- **Guidewalls from new lock will extend to new bridge structure**
- **Bridge clearance is required over smaller section of canal**

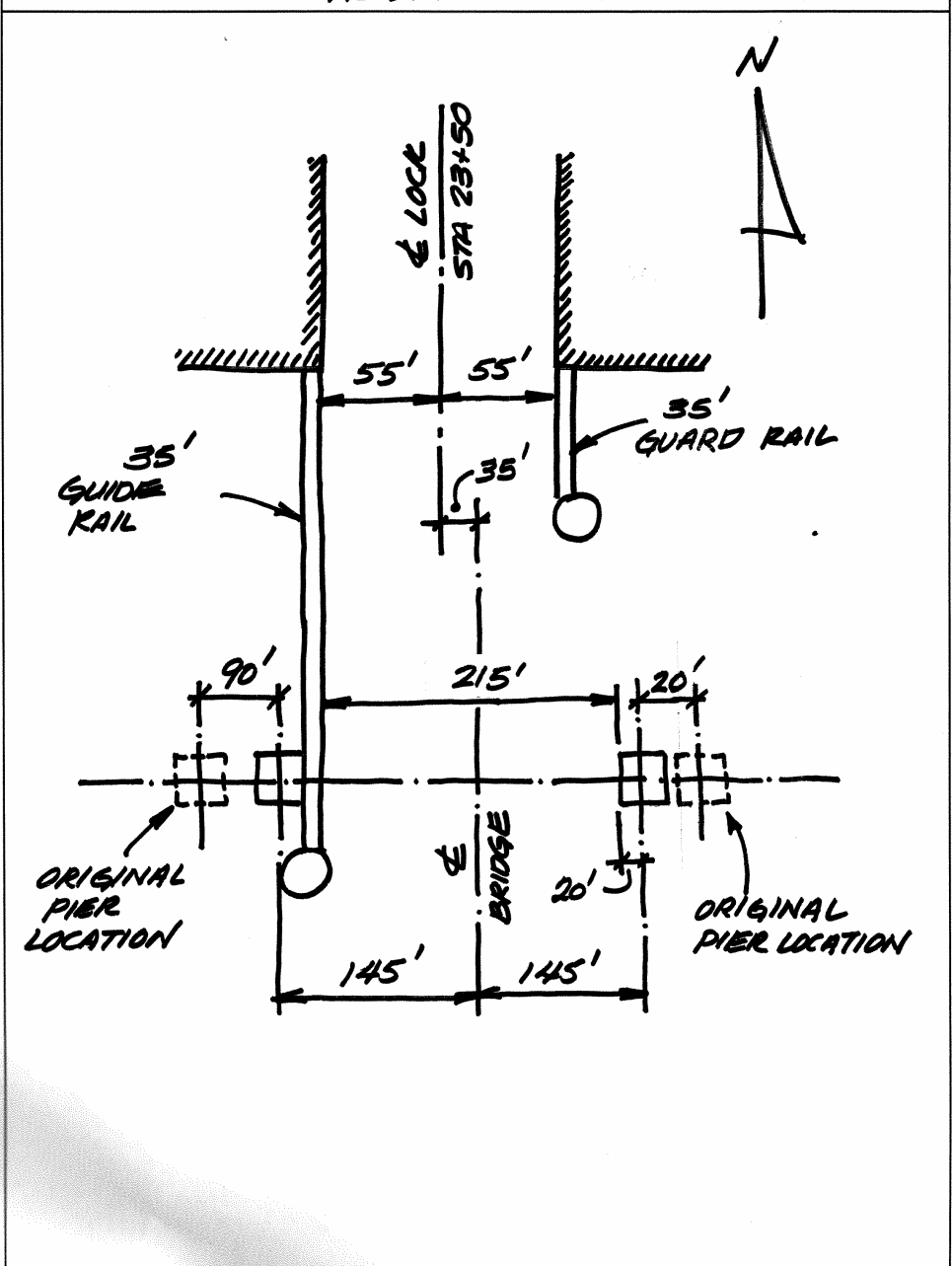




**Existing Lock is demolished.**







# Advantages

- **Provides unlimited vertical clearance by allowing alternative moveable bridge designs (i.e. bascule or swing)**
- **Reduces bridge maintenance cost**
- **Reduces delay to vehicular traffic due to reduced opening time (bascule bridge option)**



# Advantages (cont.)

- **Continuous channel size improves navigation**
- **Improves aesthetics due to elimination of tall towers (bascule bridge option)**
- **Consistent with proposed adjacent bridges at Florida Avenue (currently under construction) and St. Claude Avenue.**







# Cost Savings

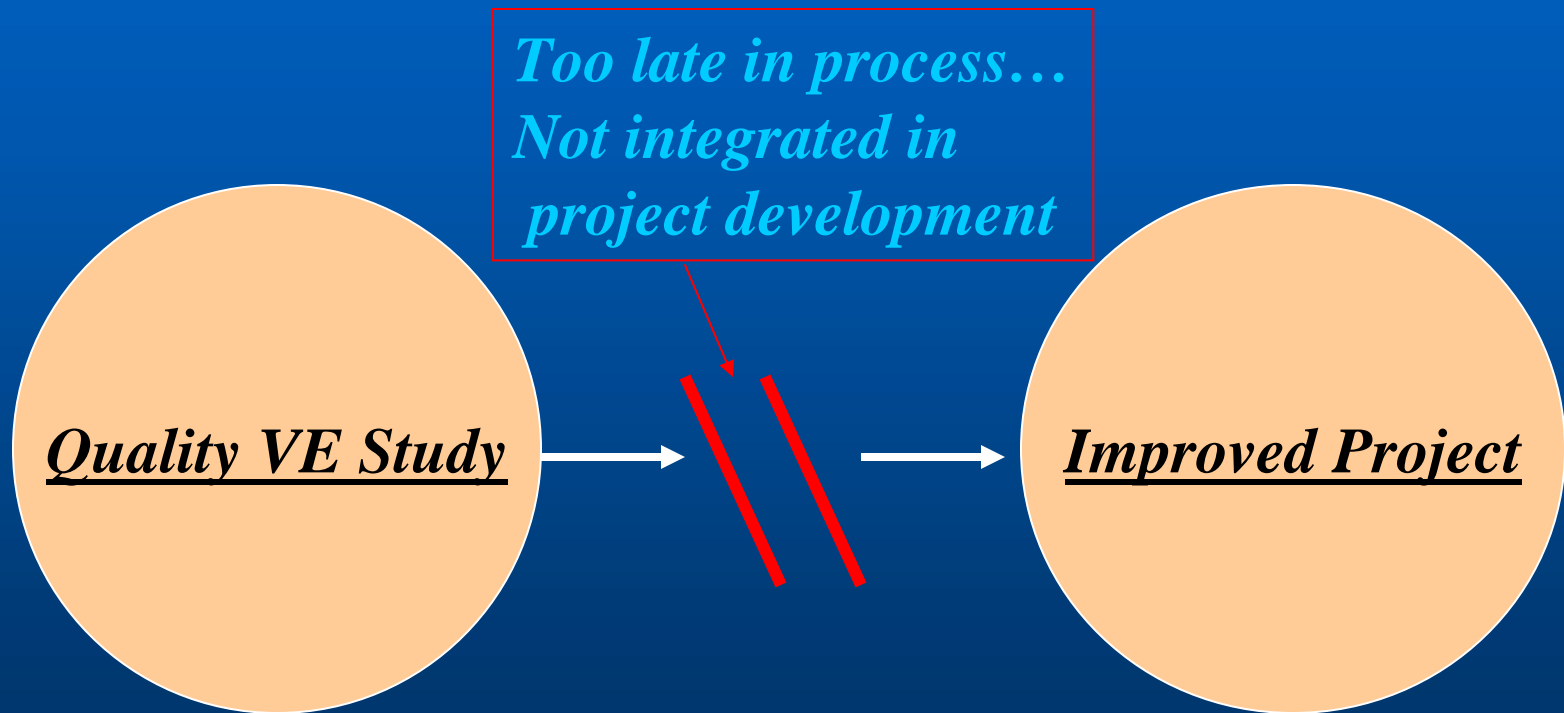
- **\$13 Million saved if Lift Bridge**
- **\$24 Million if Bascule Bridge**



# Summary

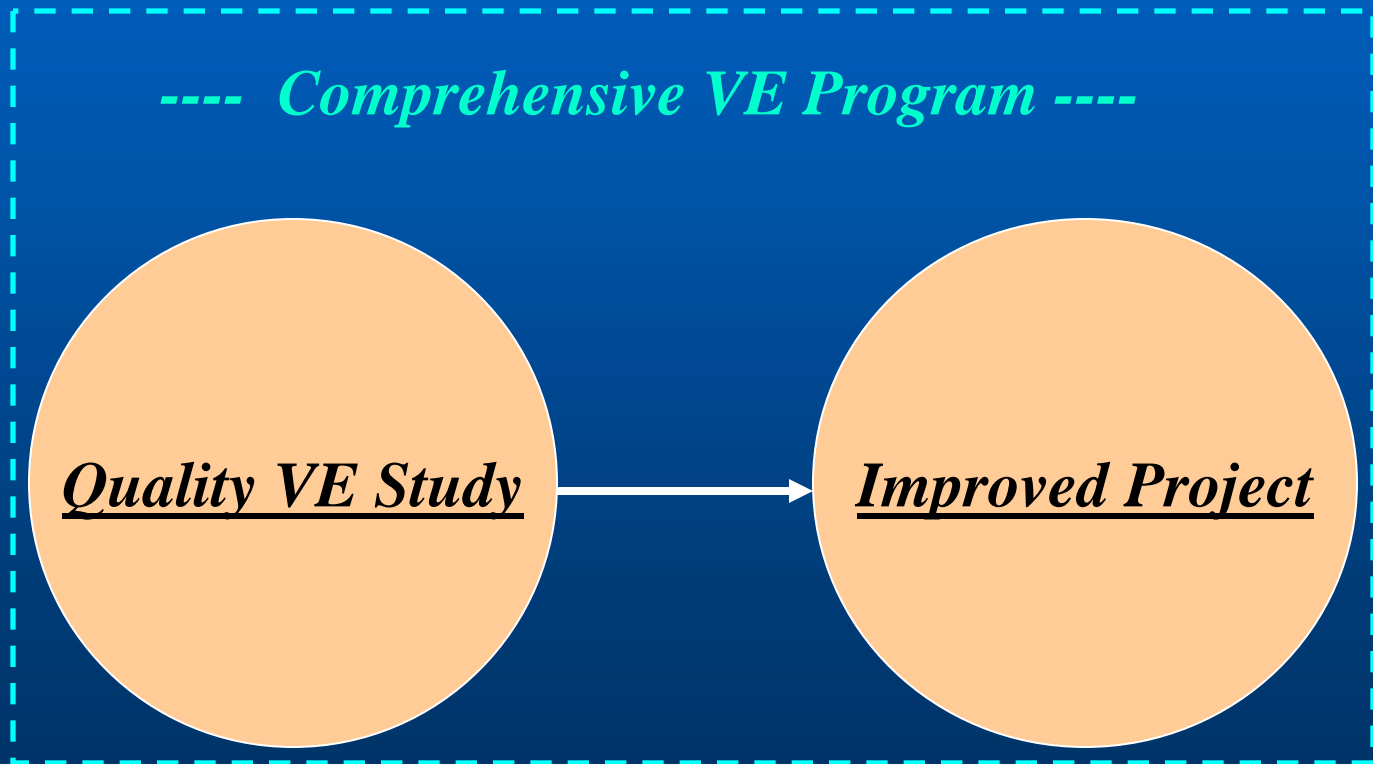
- Even the best design team may ‘miss the forest through the trees’ given limitations on their direction and/or specific scope of work.
- Quality Value Engineering, which utilizes function analysis, can often go beyond scope limitations and find ‘the forest’.
- The IHNC Claiborne Ave. Bridge project serves as a classic example of the difference and benefit of VE function analysis vs. normal design alternative review.

VE may not be effective without a being a part of a comprehensive program.





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# Questions

