

**MISSISSIPPI RIVER - GULF OUTLET
NEW LOCK AND CONNECTING CHANNELS**

SECTION 5 - COST ESTIMATES

B.5.1. The cost estimates for the IHNC Lock were prepared utilizing the M-CACES computer system. However, all data for equipment, labor (crew sizes, labor burden production rates) and materials were manually inputted in lieu of referencing the M-CACES unit price book and data base. Thus the cost estimate reflects current and applicable pricing and addresses specific construction procedures for the various line items in the estimate.

B.5.2. The estimated costs were based upon an analysis of each line item evaluating the quantity, production rate, and time, together with the appropriate equipment, labor and material costs. In addition, these costs were based on actual in-house knowledge and experience by NOD cost engineers who either personally designed or estimated large navigation structures such as Red River Lock and Dam Nos. 1, 2, 4 and 5, and the Old River Auxiliary Control Structure.

B.5.3. Two procedures were used in estimating each line item. For the majority of the line items where details and quantities were available, the estimated costs were prepared analyzing the method of construction for that item in computing its direct costs. In items where specific details were limited, the estimated costs were based upon construction work on the most recent Red River Lock and indexed to current price levels per the Civil Works Construction Cost Index System.

B.5.4. The IHNC construction is located in the existing Inner Harbor Navigation Canal just north of the existing lock. The specific construction procedure for the lock consists of fabrication at an offsite facility with segments of the entire lock transported and floated into place. While this procedure may represent a challenge to both construction and estimating, it is not unique and has been done on a similar scale in the construction of the Vidalia, Louisiana, Hydropower Plant.

B.5.5. Other than this unusual feature of work - the float-in procedure - the IHNC Lock project remains similar to conventional lock construction - dredging, by-pass channels, site demolition and tie-in levees and floodwalls.

B.5.6. Since the project is located in the Metropolitan New Orleans Area and is in a navigation channel, accessibility presents no problem. Logistically, the project can be accessed by land from I-10 in the east-west direction, I-55 from the north and by water via either the Mississippi River, GIWW or Lake Pontchartrain.

B.5.7. In obtaining contingencies, the cost estimate was subjected to a risk analysis to determine the degree of uncertainty associated with each line item in the estimate. The Range Estimating computer program, which incorporates risk analysis by varying both quantities and costs, was performed on the cost estimate. Both design engineers and cost engineers contributed to the input of the program with the senior cost engineer consulting with project managers for the recommended contingency costs and percentages.

B.5.8. The contingency percentages for the IHNC Lock represent the following: 20% for the structure, earthwork and channel dredging; 15% for the levees and floodwalls; and 25% for the relocations (with 30% for the Claiborne Avenue Bridge).

B.5.9. Contingencies for Engineering and Design are based on uncertainties involved in the preparation of DM's, P&S and in engineering during construction. These include cost of field data collection, unanticipated design problems, changes in design based on the review of the report, changes in design criteria and changes in overhead rates. Considering the scope and complexity of this project, a contingency of 20% was used for all E&D estimates.

B.5.10. The 20% contingencies for Construction Management are based on using a historical average of time growth for similar type contracts in this area. The 20% time growth includes additional duration for unusually severe weather, high water and unknown changes to the contracts.

B.5.11. The final construction costs were reviewed and approved by the Chief of Cost Engineering Branch, Charles E. Settoon.