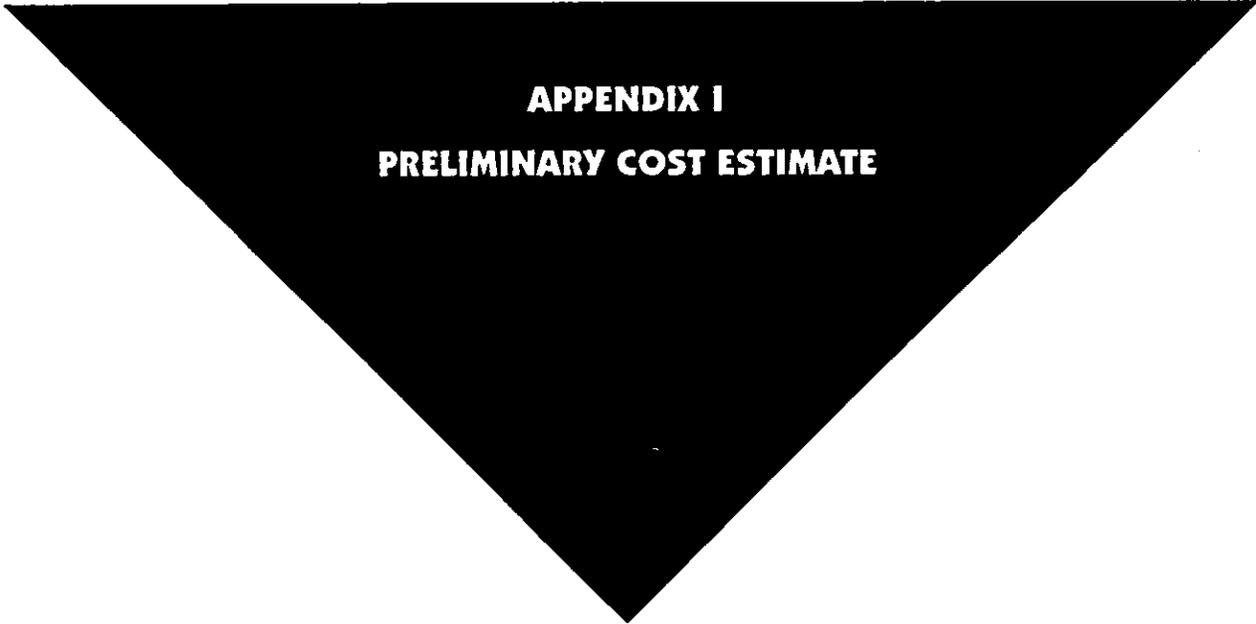


Toledo Confined Disposal Facility



APPENDIX I
PRELIMINARY COST ESTIMATE

DESCRIPTION

Existing Project

The existing Toledo Dike Disposal Facilities are located on the South side of the Maumee River Entrance at mile 1. The most Easterly Disposal Area was built by the Corps of Engineers in the early 70's to hold dredged material from the annual maintenance-dredging program. In 1995 the second disposal area was built just west and adjacent to the earlier site.

Plan of Improvement

The proposal considers a long range plan for raising the two-disposal areas. This will extend their life by increasing their capacity. Six different case scenarios were developed. These are based on three different dredged material disposal rates and two different CDF configurations. Only the two different CDF configurations have an effect on cost.

The plan is to raise the oldest most easterly disposal area to a height of 7.5 feet first and to fill it. Then raise the westerly disposal area to a height of 7.5 feet and fill that. When the westerly disposal area is filled the easterly disposal area will be raised for the second time an additional 7.5 feet. Finally the westerly disposal area will be raised for the second time 7.5 feet. Under the plan, two configurations for raising the easterly facility were considered; in the first 80% of the site is utilized. In the second 55% is utilized. The remainder is to be used as a park for the benefit of local residents.

Site Information

No site visit was made during completion of this effort, but staff is reasonably familiar with the project vicinity due to the periodic maintenance-dredging program.

Topographic surveys of the disposal areas were completed recently. Subsurface information is limited to an investigation performed by the TAO and their uses of the material within the disposal area maintenance and repairs. With an anecdotal knowledge of past material usage repair.

BASIS OF ESTIMATE

Quantities

For the purposes of this preliminary cost estimate the use of perimeter distance was scaled off the drawing and used for the different scenarios. It should be noted that the disposal sites are adjacent to each other and have a common interior dike. This serves to significantly reduce the perimeter of the westerly disposal area which needs to be raised.

Pricing

The estimates have been completed using the lineal foot method. The cost were calculated from the Cleveland Dike Disposal raising per foot and escalated by ENR indexes to the September 1999 price levels. It is assumed that similar size and type of equipment will be used. Two dozers will be used to push the material up into the shape of the dike, a Backhoe will shape the tops, place the filter fabric as required and load trucks. Trucks will be used to move suitable material to those areas needing it.

Contingency

With the exception of local market fluctuations, the costs for constructing these interior dike will be fairly steady and predictable. The most significant factors driving the cost of this project will be the nature, quantity and distance of the material to be moved. It should also be noted that other minor factors could change in the out year, such as fuel cost and inflation of the economy. Cost estimates are based on September 1999 price levels.

The presumptions of the construction material were based on the experience of the raising of the Cleveland Dike Disposal area #14. It is assumed that the material will be of similar nature as that in the Cleveland Dike #14 raising.

Considering the uncertainty associated with the nature and quantity of the material, a contingency of 25% is appropriate for the project at this point in time.

While generalizations can be made, and adequate contingencies applied for the purpose of determining economic viability, the relative quantities of dense and loose materials will be important to determining the actual cost of the work under contract. Completion of further investigations during design will serve to reduce project (and contractor) contingency, and the risk of disputes during construction.

**Toledo Harbor Raising CDF's
September 1999 Price Levels
Cost Estimate Per Linear Foot**

Proposed Dike Disposal Sites	Length of Dike in Ft.	Unit Cost Per L.F.	Cost of Construction	Contingencies of +/- 25%	Const. Cost Plus Contingencies	E & D Costs	Const. Mgmt. Costs Including S & I	Total Preliminary Cost of Projects
Case A1, Case A2 & Case A3								
First Raising								
Cell #1	13,250	\$16.00	\$212,000.0	\$50,000.0	\$262,000.0	\$20,000.0	\$20,000.0	\$302,000.00
Cell #2	6,900	\$16.00	\$110,400.0	\$27,600.0	\$138,000.0	\$10,000.0	\$10,000.0	\$158,000.0
Total			\$322,400.0	\$77,600.0	\$400,000.0			\$460,000.0
Second Raising								
Cell #1	13,260	\$16.00	\$212,160.0	\$52,840.0	\$265,000.0	\$20,000.0	\$20,000.0	\$305,000.0
Cell #2	6,760	\$16.00	\$108,160.0	\$26,840.0	\$135,000.0	\$10,000.0	\$10,000.0	\$155,000.0
Totals			\$320,320.0	\$79,680.0	\$400,000.0			\$460,000.0
Totals First & Second Raising			\$642,720.0	\$157,280.0	\$800,000.0			\$920,000.0
Case B1, Case B2 & Case B3								
First Raising								
Cell #1	9,660	\$16.00	\$154,560.0	\$32,440.0	\$187,000.0	\$14,000.0	\$14,000.0	\$215,000.0
Cell #2	8,050	\$16.00	\$128,800.0	\$32,200.0	\$161,000.0	\$12,000.0	\$12,000.0	\$185,000.0
Totals			\$283,360.0	\$64,640.0	\$348,000.0			\$400,000.0
Second Raising								
Cell #1	9,280	\$16.00	\$148,480.0	\$38,520.0	\$187,000.0	\$14,000.0	\$14,000.0	\$215,000.0
Cell #2	8,050	\$16.00	\$128,800.0	\$32,200.0	\$161,000.0	\$12,000.0	\$12,000.0	\$185,000.0
Totals			\$277,280.0	\$70,720.0	\$348,000.0			\$400,000.0
Total First & Second Raising			\$560,640.0	\$135,360.0	\$696,000.0			\$800,000.0

**Toledo Harbor New CDF's
Cost Estimate Per Linear Foot**

Proposed Dike Disposal Sites	Length of Dike in Ft.	Unit Cost Per L.F.	Cost of Construction	Cost of Construction plus Contingencies of +/- 25%	Total Cost Plus Contingencies	E & D Costs	S & A Costs Including S & I	Total Preliminary Cost of Projects
Alternative 2	1600	\$1,936.15	\$3,097,840.0	\$774,160.0	\$3,872,000.0	\$279,000.0	\$125,000.0	\$4,276,000.0
Alternative 3a	2300	\$1,936.15	\$4,453,145.0	\$1,112,855.0	\$5,566,000.0	\$401,000.0	\$179,000.0	\$6,146,000.0
Alternative 3b	1900	\$1,936.15	\$3,678,685.0	\$919,315.0	\$4,598,000.0	\$331,000.0	\$148,000.0	\$5,077,000.0
Alternative 4	2770	\$1,936.15	\$5,363,135.5	\$1,340,864.5	\$6,704,000.0	\$483,000.0	\$216,000.0	\$7,403,000.0
Alternative Size A	7800	\$1,936.15	\$15,101,970.0	\$3,775,030.0	\$18,877,000.0	\$1,359,000.0	\$607,000.0	\$20,843,000.0
Alternative Size B	5800	\$1,936.15	\$11,229,670.0	\$2,807,330.0	\$14,037,000.0	\$1,011,000.0	\$451,000.0	\$15,499,000.0
Alternative Size C	3800	\$1,936.15	\$7,357,370.0	\$1,839,630.0	\$9,197,000.0	\$662,000.0	\$296,000.0	\$10,155,000.0
IS 18 Alt Size A	12950	\$1,936.15	\$25,073,142.5	\$6,267,857.5	\$31,341,000.0	\$2,257,000.0	\$1,008,000.0	\$34,606,000.0
IS 18 Alt Size B	10800	\$1,936.15	\$20,910,420.0	\$5,227,580.0	\$26,138,000.0	\$1,882,000.0	\$841,000.0	\$28,861,000.0
IS 18 Alt Size C	7800	\$1,936.15	\$15,101,970.0	\$3,775,030.0	\$18,877,000.0	\$1,359,000.0	\$607,000.0	\$20,843,000.0