

Basis of Engineer's Estimate of Probable Construction Cost

Mobilization/Demobilization

The cost estimate for mobilization/demobilization includes all costs associated with movement of the dredge, support vessels, and dredge pipeline. These costs have been developed through analysis of historic and recent restoration costs. This estimate was produced by utilizing the CWPPRA PPL28 Cost Estimate Spreadsheet – Mobilization/Demobilization Tab. Mobilization/Demobilization will be paid on a lump sum basis.

This cost assumes the use of a 24" hydraulic cutterhead dredge, 20,355 linear feet of dredge pipeline (8,245 LF subline, 9,110 LF shore pipe, and 3,000 LF of pontoon pipe), a bucket dredge contractor, and 6 marsh excavators.

Marsh Creation/Hydraulic Dredging

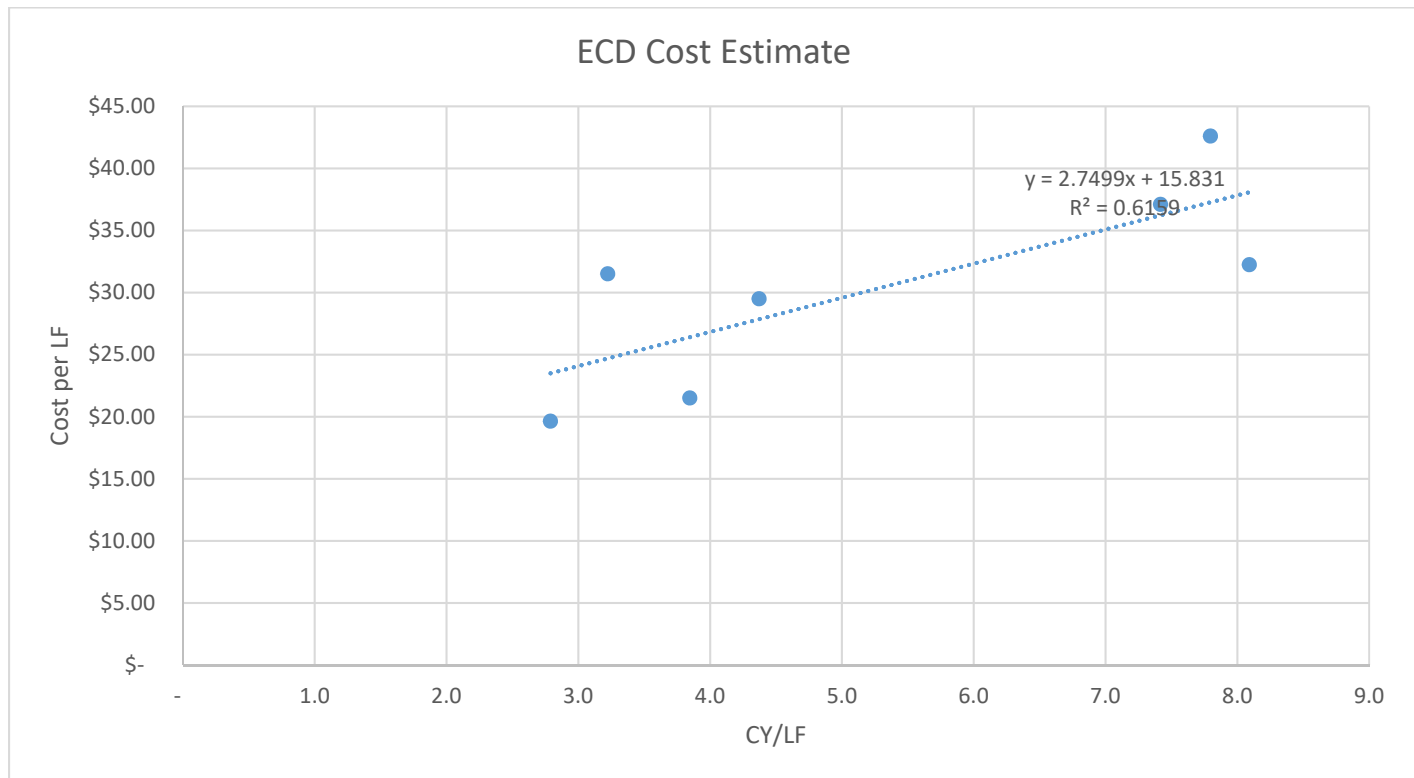
The cost for marsh creation/hydraulic dredging includes all costs associated with the hydraulic dredging of the marsh creation fill material from the borrow site and transport to the marsh creation fill area. This cost is largely dependent on borrow area material characteristics, dredge pipeline length, and quantity of material to be dredged. This estimate was produced by utilizing CPRA's database of past hydraulic dredging projects to produce a correlation of dredge unit cost vs. pipeline distance. The marsh creation/hydraulic dredging will be paid on a per cubic yard basis. The TV-63 unit price of \$3.50 provides the most up to date expected cost for a project most similar to TE-0138. The pipeline distance of 2.5 miles for TE-0138 justifies the unit cost of \$4.00 per cubic yard while maintaining a conservative estimate for changes in the dredging industry.

Project Number	Project	Borrow Source	Restoration Type	Pump Distance	Bid Price	Year	Bid Price 2017
TV-21	East Marsh Island Marsh Creation	Offshore Mix Sediment	Marsh	4.2	\$5.92	2010	\$6.63
TE-50	Whiskey Back Bay Marsh Creation	Offshore Mix Sediment	Marsh	4.6	\$6.78	2009	\$7.56
BA-42	Lake Hermitage Marsh Creation	MR Sand	Marsh	7.2	\$6.75	2012	\$7.06
BA-68	Grand Liard Marsh and Ridge Restoration	Offshore Mix Sediment	Marsh	9.9	\$7.90	2014	\$8.14
BA-36	Barataria Basin Landbridge	Inshore Mix Sediment	Marsh	3.7	\$4.82	2008	\$5.37
TE-44	North Lake Mechant	Inshore Mix Sediment	Marsh	3.2	\$6.18	2008	\$7.15
PO-33	Goose Point	Inshore Mix Sediment	Marsh	2.8	\$4.98	2008	\$5.76
CS-59	Oyster Bayou	Offshore Mix Sediment	Marsh	5.6	\$5.20	2016	\$5.27
TE-72	Lost Lake	Inshore Mix Sediment	Marsh	4.5	\$4.74	2016	\$4.80
PO-104	Bayou Bonfuca	Inshore Mix Sediment	Marsh	4.0	\$6.20	2016	\$6.28
CS-54	Cameron Creole Marsh Creation	Inshore Mix Sediment	Marsh	4.4	\$4.30	2017	\$4.30
TV-63	Cole's Bayou	Inshore Mix Sediment	Marsh	6.1	\$3.50	2018	NA

Earthen Containment Dikes

The cost for earthen containment dikes includes all costs associated with the initial construction of the containment dike to the lines and grades shown in the construction plans and maintenance of the dikes throughout the duration of construction. The cost estimate is based on the quantity of material to be dredged, however, payment is made on a per linear foot basis.

This estimate was produced by utilizing CPRA's database of recent containment dike construction costs. This database compares the quantity of in place (fill) material per linear foot of dike for past projects. The containment dikes for the TE-0138 project require approximately 6.8 CY of material per linear foot of containment dike. The relationship of quantity of material per linear foot of dike produces a cost of \$5.00 per cubic yard of material.



Earthen Ridge

The cost for earthen ridge includes all costs associated with the initial construction of the earthen ridge to the lines and grades shown in the construction plans. The cost estimate is based on the quantity of material to be dredged, however, payment is made on a per linear foot basis. The costs associated with the construction of the ridge are calculated similarly to the earthen containment dikes, however, typically have a higher unit cost due to the extensive grading and maintenance required to construct the earthen ridge. The TE-0138 earthen ridge is 6.7 cubic yard/LF, which is similar to the earthen containment dike quantity. However, excavation of the material will require larger equipment or will require double handling in order to reach the lines and grades as shown in the plans. Due to this, a unit cost of \$7.00 per cubic yard is being utilized for the TE-0138 project.

Settlement Plates

The cost for the settlement plates includes all costs associated with the fabrication and installation of the settlement plates. The unit cost is established based on the database of past settlement plate costs. Settlement plates are paid on a per unit (each) basis.

Average Bid	Bonfouca	Lost Lake	Oyster Bayou	Grand Liard	Cole's Bayou	Combined Average
Settlement Plates	\$2,625	\$2,231	\$3,525	\$3,025	\$1,483	\$2,577

Grade Stakes

The cost for the grade stakes includes all costs associated with the fabrication and installation of the grade stakes. The unit cost is established based on the database of past grade stake costs. Grade stakes are paid on a per unit (each) basis.

Average Bid	Bonfouca	Lost Lake	Oyster Bayou	Grand Liard	Cole's Bayou	Combined Average
Grade Stakes	\$206	\$306	NA	NA	\$213	\$241

Construction Surveys

The cost for the construction surveys includes all costs associated with the completion of pre-construction topographic, bathymetric and hazard survey, construction progress surveys of marsh creation area and fill area, and post-construction As-Built surveys of all project features. The construction surveys are calculated as a 2.5% of total construction cost, excluding mobilization costs.

Construction Contingency

A construction cost contingency of 20% is being applied to the Estimate of Probably Construction Cost. The intent of the cost contingency is to account for uncertainty associated with the design of the project. At this time, the project team is still quite uncertain about the maintenance of the land owner maintained earthen berm on the Lake De Cade shoreline. Future damage to this berm could cause significant impacts to the construction costs. The inclusion of this cost contingency will help to mitigate for the potential impacts