



Estimation of Corpus Christi Inner Harbor Ship Channel Dredged Material Bulking Factor for SWG

ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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Response Summary:

Maintenance dredging and channel deepening and widening are planned for the Corpus Christi Inner Harbor Ship Channel using a cutterhead suction dredge. The dredged material will be pumped into confined disposal facilities adjacent to the channel. Due to heterogeneity of the sediments and the greater density of the new work sediment, an analysis of the sediment properties was needed to estimate the bulking of the sediment considering the masses of coarse-grained and fine-grained sediment and their geotechnical properties from analyzed cores collected in the proposed dredge prism. The potential for disposal of clay balls from the new work sediment was also considered. An analysis of the compression settling was performed as a function of sediment properties using a database of settling properties from past column settling tests. The analysis computed the dry bulk density of the each component sediment in the project their total mass to estimate the dredged material volume as a function of time and the project wide bulking factor as a function of time for a range in production rates.

Period of Performance:

Start date: 8/9/2021 Completion date: 8/26/2021

Benefits of the Response to the USACE Dredging/Navigation Program:

The response was able to keep the project on schedule and provide a means of estimating the required dredged material storage capacity without gathering additional cores of sediment and extensive settling tests, saving the project four months.

Deliverable:

The product was a spreadsheet documenting the analysis and the resulting bulking factors.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers
Operations and Maintenance navigation and dredging missions

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