



# Wilkeson Pointe Slip 3 Mixing Zone Analysis using SETTLE and CDFATE Models

## ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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### Response Summary:

Computed wind circulation velocities for three wind conditions (low, medium and high speeds) within the Buffalo Harbor as protected with a breakwater. Computed dredge production rates, retention times and effluent TSS concentrations using SETTLE model for several settling characteristics. Computed discharge conditions for three wind conditions and two discharge configurations and the corresponding mixing zone requirements using the CDFATE model.

### Period of Performance:

Start date: 17 January 2023      Completion Date: 13 February 2023

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

The modeling and analysis provided the technical documentation to demonstrate water column compliance with CWA requirements to support the request for a 401 water quality certification.

### Deliverable:

The technical response to the Buffalo District included SETTLE and CDFATE model input and output files, documentation of the model inputs and a summary of the required mixing zone lengths for the range of possible conditions.



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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