

Remedial Design in a Federal Navigation Channel: Section 408 Compliance

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Background/Objectives. The U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO) is working with Honeywell (the non-federal sponsor), under the authority of the Great Lakes Legacy Act (GLLA), to remediate contaminated sediments within the Lower Rouge River – Old Channel (LRROC), Detroit, Michigan. This remedial action is designed to contribute to the removal of beneficial use impairments, such as fish consumption advisories and impacts on benthic communities, for the Rouge River Area of Concern (AOC). Remedial design implementation faced challenges because of the narrow width of the LRROC, stability of steep shorelines, and stability of aging adjacent structures. These factors pose a risk for not only implementation of the remedial design, but also future maintenance of the navigation channel, which occupies the width of the LRROC for the channel and side-slopes. Any work within a federal navigation channel by a third party requires compliance with Section 408 (33 USC 408) established in Section 14 of the Rivers and Harbors Act. Section 408 requires the evaluation of requests to modify, alter, or occupy any existing U.S. Army Corps of Engineers (USACE)-constructed public works project, including navigation channels.

Approach/Activities. To achieve remedial action objectives, the remedial design required both temporary and permanent shoreline stabilization to address stability of slopes and adjacent structures given site-specific geologic conditions within the LRROC. Geotechnical investigations throughout the area indicated that an underlying clay deposit of limited strength was causing marginal stability of slopes. Steepened shorelines have resulted from original dredging and industrialization, periodic maintenance dredging, erosion from active shipping within the narrow channel, and other factors. Geotechnical evaluations for the remedy showed that removal of materials from the channel or toe of slopes would pose a risk of instability from sloughing or deeper-seated potential slip surfaces; therefore, a balanced approach of managing risk with design of dredging configurations that required stabilizing backfill, while minimizing impacts to the navigation channel, was necessary.

Results/Lessons Learned. Key lessons learned were to engage the USACE operations team early in the design process for their input on how the project may affect maintenance activities and to quantify the benefits of the project that contribute to reduced future maintenance dredging costs or provide other benefits to maintenance efforts. As with any regulatory process, it is also critical to initiate consultation early to ensure that there is adequate time to obtain approvals to meet the construction schedule.