



Lake Linganore Dredging Project

Dredging and Dewatering Fact Sheet – Spring 2019

Background

Lake Linganore is a man-made, 209-acre lake in Central Frederick County, Maryland. Since its construction in 1972, Lake Linganore has been losing storage capacity due to sedimentation. Frederick County, the City of Frederick and the Lake Linganore Association (LLA) are funding the Lake Linganore Dredging Project to remove sediment from the portion of the lake east of Boyers Mill Road to improve water storage capacity, flow, and access.

Through a competitive procurement process, Maryland Environmental Service, under contract to Frederick County, has retained Mobile Dredging & Video Pipe, Inc. to perform the dredging operations for Lake Linganore.

Dredging will begin in early summer 2019 and hydraulically remove approximately 100,000 cubic yards of sediment from the lake. The dredged

material will be pumped to an upland staging area where the material will be dewatered to remove excess water, loaded into dump trucks, and transported to Frederick County Reichs Ford Road Sanitary Landfill. At the landfill, the dredged material will be stockpiled and later repurposed as landfill cover material. The project is expected to be complete in late 2020, with a temporary shutdown over winter in 2019.



Dredging



Hydraulic Dredge and Cutterhead

The sediment that has accumulated in Lake Linganore since its construction consists of particles of sand, silt, and clay materials. Prior to dredging, physical and chemical analytical tests were performed to evaluate the material properties, with results indicating the sediment is clean and poses no concerns for human health by the Maryland Department of the Environment.

The sediment will be dredged from Lake Linganore using a hydraulic cutterhead dredge. A cutterhead uses rotating blades to break up and loosen sediment at the bottom of the lake. The sediment is then mixed with water from the lake, creating a slurry composed of sediment and water used to transport the material. This slurry is then pumped through a pipeline from the dredge and through additional booster pumps to move the material greater distances. The pipeline will run from the dredge location to the staging area on the southwestern shore of the lake.

Dewatering

Dewatering of the dredged material is performed using mechanical processes to separate out the different sizes of sediment particles from the transport water. The dewatering process first removes larger materials by passing through shaker screens, which capture large debris, rocks, and other materials. Next, the material passes through hydrocyclones which separate out sand sized particles through their difference in density.

The remaining slurry contains very fine particles of silt and clay suspended in water and requires additional steps to separate remaining particles. After passing through a series of thickening tanks to remove excess water, the material is then distributed to belt filter presses where the material is physically pressed to squeeze out liquid, leaving a generally dry solid called filter cake. Water from the process is sent to a clarifying tank where any remaining particles will settle out. Clear water from the clarifier is discharged by pipe back to Lake Linganore, where it will be closely monitored to ensure discharge levels do not exceed state water quality standards.

The dewatered dredged material is then blended together to form a generally consistent material that will be transported to the landfill for stockpiling, and later use as cover material.



Shaker Screens



Belt Filter Presses



Clarifying Tank



Clear Water Discharge

Example Staging and Loadout



For additional information, please refer to the website below or contact:

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