



Monitoring and preservation of evidence for the excavated lakes in Kohlshorn, Ramlingen, Engensen and Wackerwinkel

Client: Löffler Sand- und Kieswerke GmbH

Location: Kohlshorn, Ramlingen, Engensen und Wackerwinkel/ Uetze, Niedersachsen, Germany

Scope of Work: Operation of surface and groundwater levels, sampling of deep lake water and groundwater, echo-sounding of lake topography, determination of residual excavation quantities

Method: Monitoring, evaluation in AutoCAD Civil 3D

INTRODUCTION

For the excavated lakes Kohlshorn, Ramlingen, Engensen and Wackerwinkel the plan approval order defines the preservation of evidence.



Fig. 1: Excavated lake near Uetze/ Niedersachsen

METHOD

For this purpose, monthly readings of water levels for lake and groundwater, semi-annual water quality sampling (Fig. 2) and echo-sounding for the determination of the ground topography (Fig. 3) and residual excavation quantities (Fig. 4) are necessary.



Fig. 2: Sampling of deep lake water and groundwater

In the course of the echo-sounding, the lake banks area was surveyed for later recultivation planning.

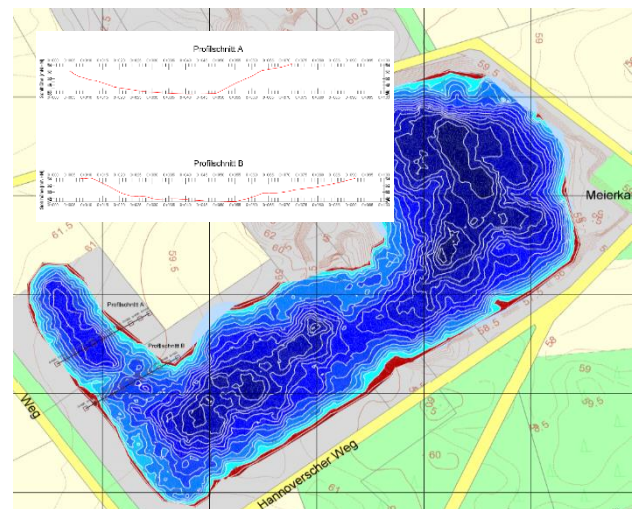


Fig. 3: Echo-sounding of the excavated lake in Engensen and panel with two profile section

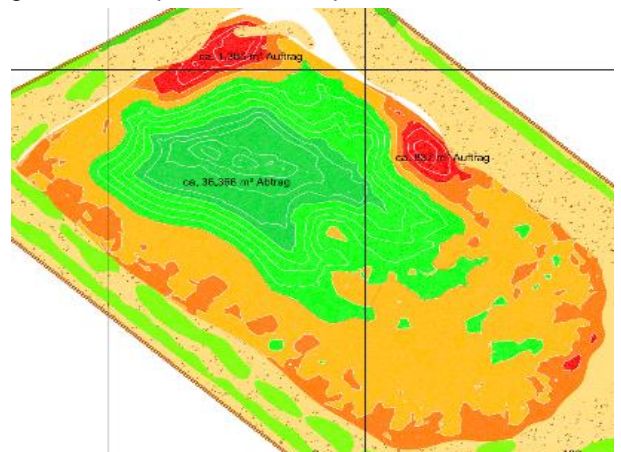


Fig.4: Determination of residual excavation quantities

RESULTS

Preservation of evidence and water resource management consultation from a single source offers vital advantages for the excavation company itself and the licensing authorities. Short communication pathways and integration of optimization processes increase the effectiveness of the excavation process.