CEE HydroSystems™

CASE HISTORY

CEE ECHO™ Selected to Improve Data Confidence for Construction Surveys

Central Florida surveyors AOI Solutions, Inc selected a no-nonsense high quality hydrographic survey capability for their construction site surveys. While land surveyors often opt for basic depth sounders with sometimes challenging output datasets, or laborious but credible manual soundings, AOI instead took advantage of an opportunity to make a real investment for data confidence by upgrading their methods and equipment for key client projects.

Central Florida, USA-based land surveyors Area of Interest (AOI) Solutions, Inc contacted CEE while searching for improved equipment for small-scale bathymetry projects. Having already used basic rented pole mounted Bluetooth sonars, AOI was unhappy with the sometimes unpredictable or inconsistent output, and lack of resilience in more challenging conditions such as high turbidity. Ready to invest in a professional level setup to provide the superior quality data to customers AOI selected the CEE ECHO™ to be paired with their existing Topcon Hyper VR RTK GNSS receiver.

The first project concerned a retention pond at the LPGA International golf course in Daytona Beach, FL. Earthwork damage from hurricane Helene (October 2024) had caused a river to flow into the pond, potentially carrying large quantities of sediment. The pond was now part of an ongoing new housing construction project, and was also being affected by grading and backfilling activities. Site engineers needed to know how the pond volume had been impacted by the hurricane inflow.

Active dirt backfilling of construction pond.

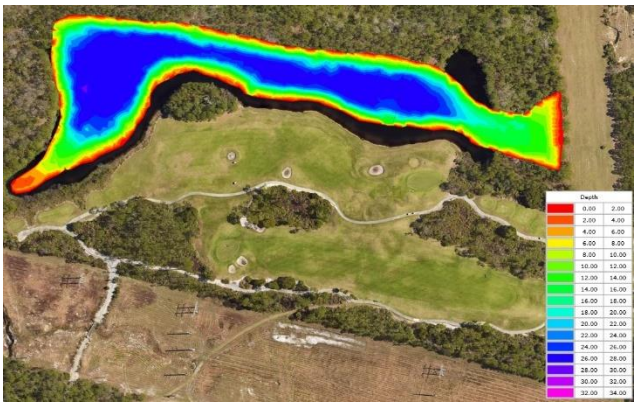
Using Hydromagic software running on a rugged PC and a 14ft jon boat, the survey crew completed the survey in 3hrs.

With real time view of all data and boat navigation, AOI was able to ensure even coverage with 25ft line spacing. Adam Holtkamp, CEO of AOI Solutions, Inc was not hitherto familiar with this new hydro-graphic process for a bathy survey.

"Completing this survey with a sounding line would have taken days; we did not trust a basic rented echo sounder with dozers actively backfilling into the pond during the survey and very high residual turbidity."

Producing a bottom elevation surface was surprisingly easy in Hydromagic.

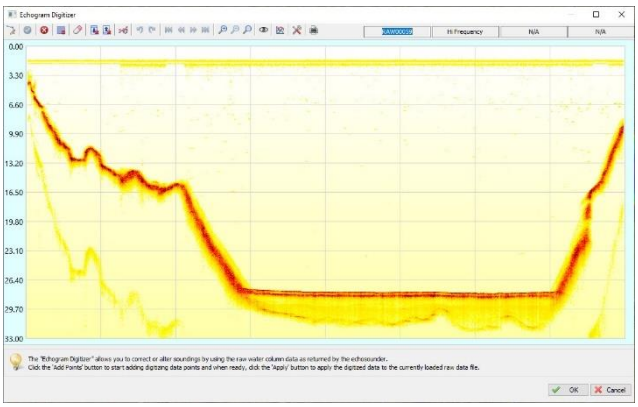
"Moving away from a basic GNSS data acquisition to Hydromagic was much easier than I expected. We had an edited RTK-grade bottom surface to the client three hours after the survey was complete. Everyone was a bit shocked it was easier than we were expecting and the data came out very clean."



TIN Model surface of surveyed depths.

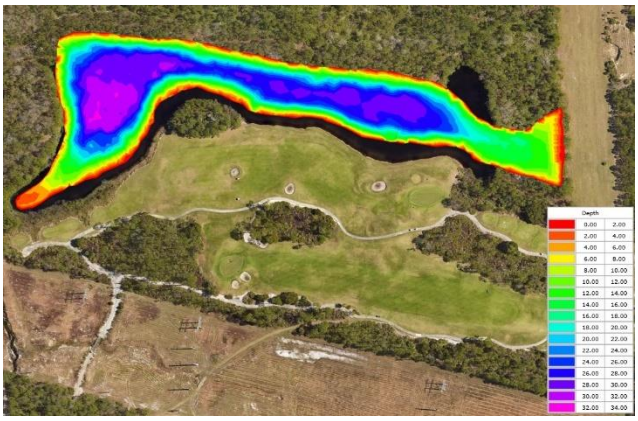
The main perceived benefit of the CEE ECHO™ was the ability to have improved confidence in sonar data. This was supported in this project by the ability of the echo sounder to determine and definitively show not only the sediment elevation but also indicate the original pond excavated bottom level.

"It was reassuring to see the echogram view on the cross-section lines show the uniform flat surface of the sediment infill over the uneven original pond bottom below. This extra QA/QC confers so much more confidence in the data."



Echogram with sediment level and original bottom.

Post processing echogram data allowed reconstruction of the pond bottom in a second TIN model surface and calculation of sediment infill volume.



TIN model surface of extracted original pond bottom.

The Hydromagic Google Earth KML export link option allowed site engineers to "fly" to the preliminary survey results almost immediately after the survey.

"With our new system we don't have to contend with mysterious data points in midwater, unexplained jumps in the bottom surface or taking days to complete a job manually just so we can trust the results!"