

### Bathymetric survey of a quarry lake for adventure activity company, Adrenalin Quarry

*The Belisama Inception class Unmanned Survey Vessel has been developed to address a gap in the shallow water sector. This hydrographic survey vessel is composed of tough aluminium hulls, weed cutting propellers and provides bathymetric surveys in areas where access for a traditional survey vessel is not possible such as quarry lakes, lagoons, mining ponds and other shallow water zones.*

#### Summary

Adrenalin Quarry, a leading adventure activity company, operating in the heart of Cornwall, UK required a bathymetric survey to make a preliminary depth and hazard assessment for their next planned white-knuckle attraction. Providing an accurate bathymetric chart with contour lines depicting minimum depth requirement has helped the client to complete their due diligence, risk and safety assessments for the new feature. The Inception helped deliver a complete, efficient and cost effective survey solution.



#### The Task

The client wished investigate the feasibility of a new adrenaline fuelled attraction and needed to know overall depth and any potential submerged hazards in the vicinity of the proposed site. With the quarry lake having no slipway or launch facilities, access for traditional survey vessels was impossible. The area of the site was  $\sim 29\text{km}^2$  and the client required a sufficiently accurate bathymetric chart with contours depicting areas shallower than 7 metres for assessment and appraisal.

#### The Solution

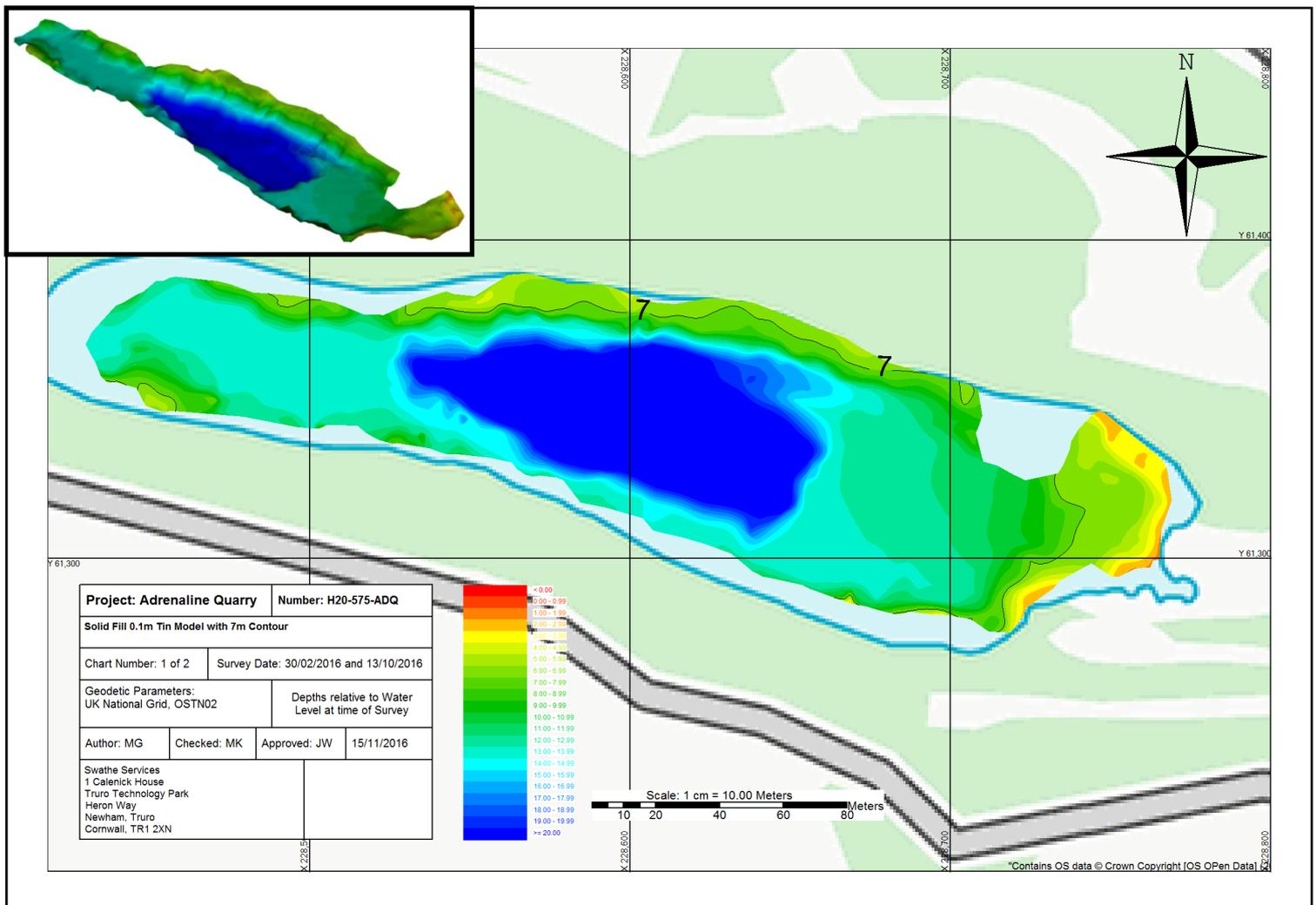
The Belisama Inception class USV can be easily transported by van and its quick mobilisation and deployment procedure means that online survey activities can commence within the first hour of arrival at site. Once deployed, it is remotely piloted from shore with the aid of an additional HYPACK navigation display. The solution for this application consisted of a CEE HydroSystems CEESCOPE-USV system, a combined SBES, GNSS, Telemetry system and HYPACK survey software package.





### Method

The Inception solution enables an effective single or two person survey operation. At a survey speed of ~2.5 knots, sufficient coverage of the designated site was quickly attained. Contours and TIN models were created near real time, allowing for initial charts and onsite Quality Control. The Inception proved to be a great solution for the client's requirements and resulted in a delighted customer.



**Figure 1. Sample bathymetric charts and 3D imagery produced from the data collected with the Inception USV survey solution.**