



CUSTOMER

Edwards Diving Services

PROJECT

Scottish Water
Whiteadder Reservoir project

SOLUTION

Trimble X7 3D Laser Scanner, R12i GNSS and S5 Total Station



Easy to use, quick to learn

A recent project for Scottish Water showcases the success of Edwards Diving Services' in-house survey team. Their choice of three core Trimble instruments, supplied by KOREC, highlights the importance of user-friendly survey technology for specialist businesses managing a range of measurement requirements.

Based in South Wales, Edwards Diving Services (EDS) is a thriving marine and civil engineering contractor with extensive industry expertise. The company's growth is underpinned by significant investment in specialised tools, in-house capabilities, and a team of skilled professionals, including dive engineers and supervisors, coded welders, machinists and marine biologists. In 2021, this commitment to in-house expertise expanded with the creation of a dedicated survey department to meet their growing demand for geospatial work.

Building a future-ready surveying department

Surveying Manager James Breeze led the establishment of this department five years ago, placing a strong focus on efficiency and reliability. The initial investment in survey equipment was built around three precisely chosen Trimble instruments, all supplied and supported by KOREC: the S5 Robotic Total Station, the X7 3D Laser Scanner, and the R12i GNSS. These tools were selected for their proven performance, ease of use, and ability to meet the unique demands of the new EDS department:

"I was aware from the start that 95% of those using the equipment would be unfamiliar with Trimble technology. Ease of use and a short learning curve were therefore imperative for any instruments we invested in. I'm familiar with Trimble and knew they could deliver on all our other requirements for a new department—reliability, ability to work in demanding weather conditions and that they were future-proof built to withstand the test of time."

Given the challenging working environments for EDS—often with extremely wet and windy weather and restricted access requiring multiple trips on foot with survey equipment—James determined that the best combination of tools for the department would include a Trimble S5 Total Station (with MT1000 Multi-Track Target), the R12i GNSS, and the X7 3D Laser Scanner.

A Trimble Applanix POS MV was also purchased (delivering precise position, heading, attitude, heave and velocity data for marine projects) for surveys undertaken from the water. The department's compact team consists of Hydro Surveyor Robert Humphris, James himself, and a trainee. During periods of high demand, other members of EDS are called upon to assist with survey work, requiring them to quickly and proficiently use the equipment. This has been a straightforward process thanks to the intuitive Trimble on-board software.

Whiteadder Reservoir Project

In November 2024, Scottish Water completed construction on a pioneering new type of hydro energy generation scheme at a reservoir in East Lothian, believed to be the first of its kind in Europe.

The S5 on site (left), setting out project levels

Stand out benefits of Trimble on this project:

- Ease of use and short learning curve for all the instruments
- Ability of the MT1000 Multi-Track Target to work in wind and rain
- TSC5 TeamViewer option for remote, real-time assistance
- High quality of rec surveys delivered by the X7 for identifying key features and constraints on the site



Survey data was used to help the dive team to position infrastructure



The reconnaissance survey using the Trimble X7 Laser Scanner is a small but vital part of a successfully delivered project ensuring equipment can be correctly positioned

The £3million scheme, at Whiteadder Reservoir, is expected to offset almost a third of the energy used by one of East Lothian’s largest pumping stations, named Hungry Snout, which takes around 32 million litres of water per day to Castle Moffat Water Treatment Works before it goes on to supply most of the East Lothian region with drinking water.

The scheme allows green energy to be generated whilst also accurately controlling the level of the reservoir during seasonal fluctuations in weather.

Arriving on site in 2023, Edwards Diving Services was responsible for the ‘wet’ part of the project including 20m of pipe and protection installation. The survey team was also tasked with helping the dive team to position infrastructure which James states is an important aspect of every job they undertake:

“With detailed as-built surveys and 3D records you can plan future works from the office, no rescue team required. Gathering comprehensive information prior to working in challenging environments can make a big difference. On this project we used the Trimble R12i GNSS for the pre work reconnaissance and our trusty S5 Total Station with a custom long staff for setting out. The X7 Laser Scanner was used to document the whole site. This information, especially the scan data, helps us to plan for the barges, vehicle fit, over hanging vegetation, manhole covers – anything that we need to take into account before work commences.”

How the three instruments delivered

On this project, all three instruments in the Trimble survey portfolio were used:

R12i GNSS – as part of the control network for redundancy checking; its centimetre-level accuracy makes it suitable for establishing precise control points.

S5 Total Station – its sturdy build and reliability in Scotland’s demanding weather conditions made it the



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James Breeze,
Surveying Manager, EDS



Syphon installation

“ Futureproof, weather resistant, reliable and easy to use – our Trimble instruments are workhorses that always deliver. ”

James Breeze,
Surveying Manager, EDS



Positioning of flexible concrete mat prior to pipe installation

ideal tool for straightforward control work, baseline surveys, and basic setting out of pipe locations. The S5 was used in conjunction with the Trimble MT1000 Multi-Track Target which provides high-accuracy tracking even in challenging conditions, such as vibrations or movement caused by wind, or heavy rain and dense vegetation.

The TSC5 data collector's TeamViewer option was used on this project for troubleshooting. Team Viewer enables James to provide real-time assistance and diagnose any issues remotely, guiding his team, especially those with less survey experience, through processes, and consequently avoid return trips to the site of several hundred miles.

X7 3D Laser Scanner – as a highly accurate alternative to site photos, the X7 was used to create a point cloud of the entire site. A comprehensive 24 scans were undertaken which would allow James to revisit any part of the reservoir and its environs for additional information/measurement etc and also provide back up for all decisions made.

Successful delivery

James reports that despite some challenging Scottish winter weather the job was completed ahead of schedule and the client extremely happy with the results:

“Our survey work may be a small part of the larger project, but any mistakes can lead to significant time and cost to correct. It's crucial that everything aligns with our survey data. Therefore, one of the most rewarding moments of this project was seeing that everything was within tolerance and exactly as planned after the first round of check shots.”

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“Despite the Scottish winter weather, the job was completed ahead of schedule and the client was extremely happy.”

James Breeze,
Surveying Manager, EDS

CONTACT US

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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