Customer:
Skanska

Project:
M1 junction 19 improvements

Solution:
Trimble R10 and Trimble TSC3 logger

Case Study

The Trimble R10 delivers on M1 J19 improvements

Skanska is a company that has a strong ethos of using new technology on new projects. However, it doesn't take its buying decisions lightly which makes the approval of the Trimble R10 by Skanska's M1 junction improvement scheme survey manager Mark Lawton, an accolade worth having.

In December 2013, The Highways Agency signed a contract with Skanska UK for improvements to the M1 Junction 19, near Rugby. The project is worth £129m to Skanska and work began in January of this year with completion scheduled for winter 2016/17. The scheme, near Catthorpe in Leicestershire, will reduce congestion and improve journey time reliability and safety by replacing the existing junction with a three-level junction and by improving roads between the villages of Catthorpe and Swinford so local traffic can avoid the junction.

Mark Lawton is the chief engineering surveyor for Skanska and the survey manager on this scheme. His team of surveyors is equipped with a range of KOREC supplied Trimble instruments including the new Trimble R10 GNSS with TSC3 data logger, Trimble R8 GNSS a Trimble VX spatial station and Trimble S6 robotic total stations. They also use Trimble's VRS Now service which provides instant access to real-time kinematic (RTK) corrections across the site.

Skanska has a strong ethos of adopting new technology and Mark Lawton's strategy is to purchase a single unit, in this case the Trimble R10 GNSS, and then use it alongside Skanska's existing instrumentation fleet as part of a larger procurement plan which involves thorough site testing and dialogue with Trimble, via KOREC.

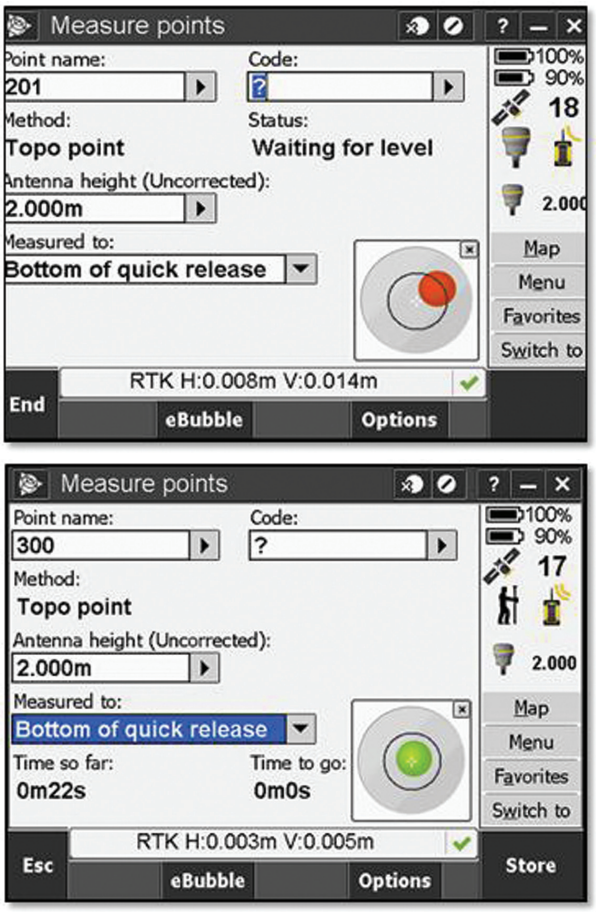
Under the guidance of Mark, the M1 Junction 19 survey team has several procedures in place to ensure that he knows exactly how both the instrumentation and Trimble VRS Now service is performing. "We operate a strict 'check-in, check-out' policy for all survey equipment," explains Mark. "Our surveyors and engineers measure the same point in the morning and evening to make certain that everything is within tolerance and this is a vital part of the day. Consistency is imperative for the smooth running of our surveying tasks and this simple step shows results of GPS coordinates from both the VRS Now network and the Trimble 851 base station, confirming everyone is confident of the survey network before they go into the field. This procedure allows us to instantly spot if there is a problem with the equipment or network. This system saves us time, ensures consistency of data captured and also provides reassurance for new team members."

> "..the R10... ensures accuracy, it generates confidence and it eliminates unnecessary questions normally sent to our survey team."
>
> **Mark Lawton**

Mark reports that thanks to this approach, he has daily confirmation of the consistency of the Trimble VRS Now service and knows that there has not been a single problem with it beyond occasional downtime for essential maintenance.

The Skanska surveying team predominantly uses its instrumentation for setting out, topographic surveys and utilities surveys and it is these day to day tasks that have provided an ideal scenario in which to test the new R10 GNSS and TSC3 logger.

The R10 is Trimble's most advanced GNSS and offers several new patented technologies. One of these is Trimble xFill, which allows for continuous surveying, without interruption, if the connection to the base station or Trimble VRS network is temporarily lost. Trimble xFill works seamlessly to 'fill in' for gaps in the RTK or VRS correction



▲ Skanska on the M1 site with the R10 – no need to look at the pole to check its level thanks to the eBubble facility on the TSC3 logger

stream by leveraging a worldwide network of Trimble GNSS reference stations and satellite data links.

At the M1/J19 project's debut, before the verges were cleared, many of the surveys required the Skanska team to repeatedly pop in and out of shrubbery. The xFill technology instantly removed the headache from this process by maintaining a fixed solution under the light canopy cover. Mark states that this is the single biggest benefit the R10 offers his team, cutting out the frustration of having to reinitialise every 5 minutes.

Mark also cites that, thanks to the R10's extended battery life and meter gauging battery usage, his surveyors are out on site longer and the days of re-charging at lunch time or carrying spares in a pocket are long gone.

Skanska's R10 is being used with a TSC3 data logger which comes with a built in SIM and handles everything from csv files to Autocad files and documents as well as providing a platform for Trimble Access field software. Mark stresses that the TSC3 works for Skanska because it's not just for capturing data, but for other uses as well. The TSC3 also comes with a built in 5MP camera which has been useful on this project and in particular for manhole surveys. In each case a number is sprayed onto the manhole cover, it is then surveyed and a geo-tagged image taken. The camera is also used to identify unrecognised features, for example a manhole cover that could be a telecoms access box, or for the identification of exposed cables. The geo-tagged images can be sent from site to a technical expert for immediate verification. The logger includes the facility to access the internet and this allows Skanska surveyors who are elsewhere to access Skanska's Outlook webmail turning the R10 into a tool that can be used nationally and not just on established sites.

Mark concludes, "This project has been the ideal testing ground for the R10 technology. It maintains lock far better than any other GNSS we've tried and this is crucial for us, far outweighing any other benefit. It saves time, it ensures accuracy, it generates confidence and it eliminates unnecessary questions normally sent to our survey team. We have a policy of purchasing the best and the latest technology. This project has assured us that our next GNSS purchases will, without question, be R10's and we will not be considering any other options. Put simply, it delivers exactly the technology and performance that we require on this type of civil engineering project."

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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