SATLAB® GEOSOLUTIONS

Case Study

Tackling the Challenges of *Road Construction*

Highlight

Through quantifying the productivity improvements, using the Satlab Geosolutions SLC multi-purpose GNSS receiver, has **saved** Khunnon Construction **31-42%** of time.

As new technologies emerge with the promise to increase productivity and efficiency, costing is one of the most important criteria in a project life cycle. Construction companies are seeking more effective and cost-efficient methods to complete their work as accurately as possible.

Project Overview

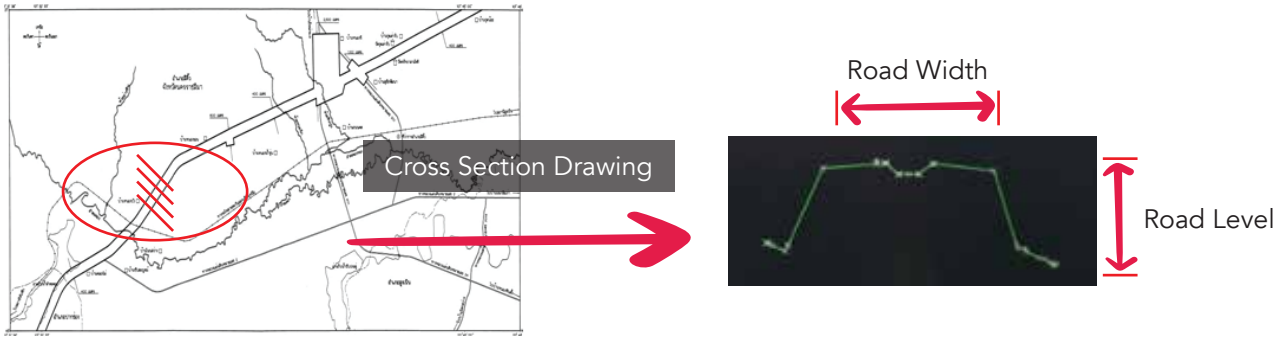
Based in Korat, Thailand, Khunnon Construction, a subsidiary of S.P.T Construction, focuses in super highways, road and bridge constructions. These projects require precise accuracy, with that in mind, Khunnon Construction purchased the Satlab Geosolutions SLC Multi-purpose GNSS receiver after being appointed as the main contractor for the Bang Pa-in-Nakhon Rachasima Motorway in Sector 38, a 10km motor way, that will be completed by 2019. The 196km Bang Pa-in-Nakhon Ratchasima motorway project aims to alleviate the traffic congestion on Mittraphap Road, between Saraburi and Nakhon Ratchasima.

The SLC multi-purpose GNSS receiver is a surveying grade equipment with up to centimeter accuracy that is required in construction works. Time and cost have made it necessary for the team to invest in a more productive equipment in order to be more efficient on the site. Khunnon Construction chose the SLC as it is easy to use without requiring more manpower to be involved, only one user is needed to collect the data on site.

Traditionally, they would have to use a total station to survey the road area, and cross-reference the road level with an auto level to plot the cut and fill zones. This would require surveyors to be on site full time. It consumes a lot of time as the surveying team has to be on standby to confirm the road area during road construction.

One of the key stages of this project is to do a quick road direction survey of the slope of the road to plot out the areas for filing and cutting. Khunnon Construction is required to correct the road direction, road level and the road width, which can all be achieved using the SLC.

The setup of the SLC was completed quickly and accurately by Khunnon Construction. First, they set up the Satlab SLX-1NG multi-application GNSS base station to find a fix positioning with the SLC to calibrate to the site. Once it is calibrated, the SLC antenna is installed on the roof of the vehicle, it seamlessly connects with the tablet to provide real-time data values of N, E, Z and TIN model (triangulated irregular network). For further cross-checking, the SL600 GNSS receiver checks the positioning edge of the road to ensure its consistency. The road drawings are then uploaded into the software for easy comparison with the actual level to plot out areas for cutting and filling.



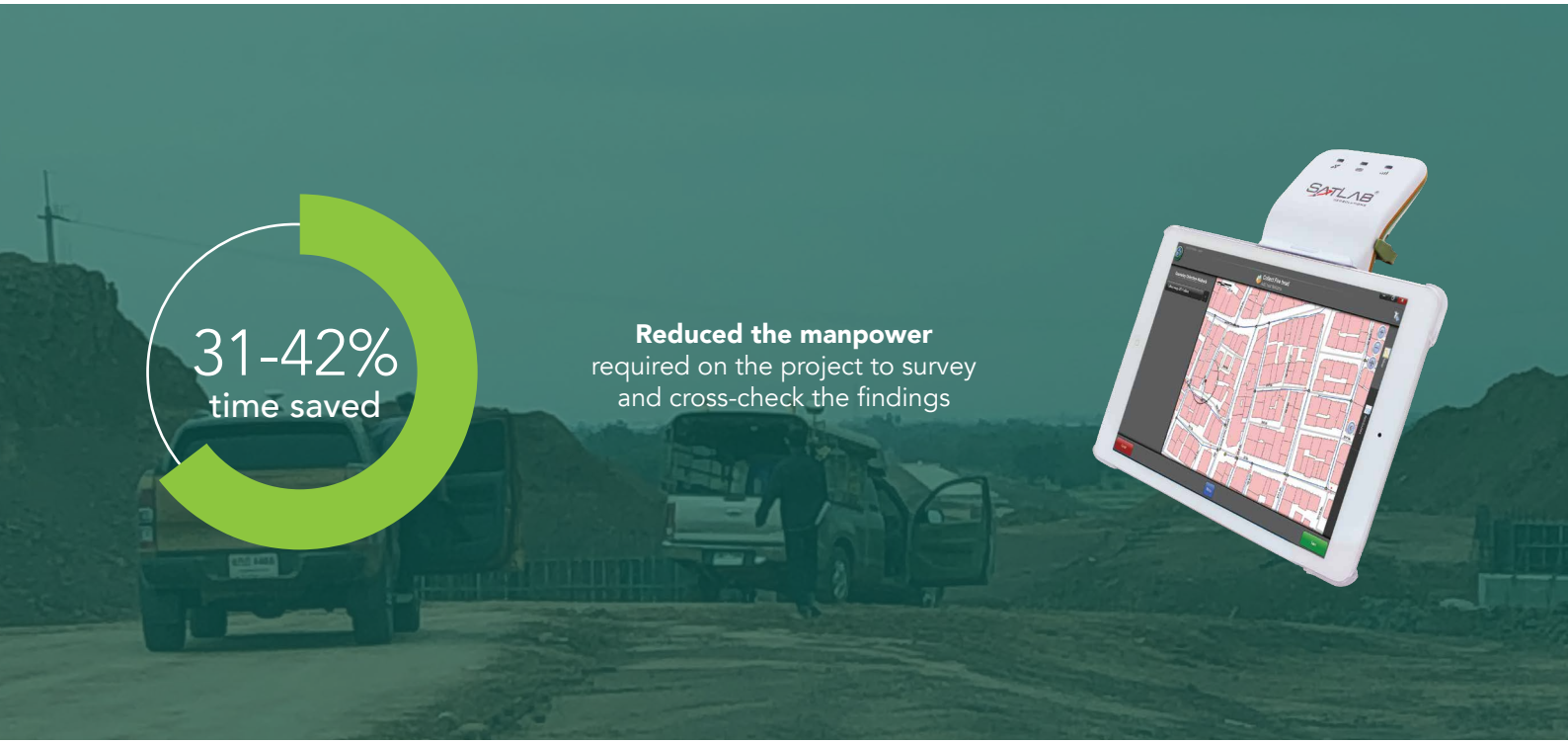
Products used:

SLC Multi-purpose GNSS Receiver
- Installed in the project manager's truck for daily monitoring and cross-checking of the road's construction progress

Satlab SL600 GNSS RTK Receiver
- Correct project area (boundary)
- Bridge positioning in project area
- Plotting the edge and boundaries from start to finish

SLC Multi-purpose GNSS Receiver is connected with the ASUS windows operating tablet as shown in the picture.

"This project required a solution that was user-friendly and easy to learn, the best part is that the SLC could connect with any device preferred by the team," said **Mr Surawut Wirohtjanapirom**, President of Khunnon Construction.



Through quantifying the productivity improvements, using the Satlab Geosolutions SLC multi-purpose GNSS receiver, has saved Khunnon Construction 31-42% of time that ultimately reduced the manpower required on the project to survey and cross-check the findings. The SLC's portability and intuitive user interface allows the operator to connect with a preferred device such as any smart phone to start collecting data. After a quick tutorial on using the SLC, Khunnon Construction can immediately start the project with precision and accuracy.