ENVIRONMENTAL CHALLENGES WITH THE ACT'S BARRY DRIVE BRIDGE

By Hilti Australia's Jackson Teo

During Australia's post-World War Two population boom, there were a number of large infrastructure projects across the country and one of these projects was the Barry Drive Bridge in Canberra, which runs over Sullivan's Creek.

Fast-forward 50 years and the bridge is still a main thoroughfare to and from the nation's capital, providing many of the city's businesses with delivery of goods they require to operate. However, the bridge required significant structural work in order to carry the heavy load of freight vehicles.

With road freight expected to double in Canberra over the coming decade, the ACT Government made the decision to go ahead with much-needed upgrades that would allow bridge access to larger vehicles. The project had to comply with the SM1600 standard for bridge load and required strengthening works along the abutment, pier and deck.

The challenges that arose with the ACT Government's strict regulations stating that there was to be no contamination of the river under the Barry Drive Bridge meant that no concrete, dust or waste was permitted to fall into the water beneath, a task that would make the entire drilling and installing process extremely difficult.

To resolve this issue Hilti Australia, which is at the forefront of the global construction industry, implemented its SAFEset technology. This technology uses a hollow drill bit attached to a vacuum that removes the dust from the source through the middle of the drill bit, leaving the site completely clean and, in turn, causing no environmental damage. To keep the project environmentally safe and ensure there was no lasting impact from the bridge reinforcement, Hilti became involved right from the tender stage of the project.

We worked with Hawkins Civil, the principal contractor, from tender to completion and believe that the introduction of the SAFEset technology was imperative to meeting the client's brief.

With such strict regulations around the environmental impact, Hawkins Civil agreed that the Hilti SAFEset system was the best solution. The technology not only met all the standards, but it also made significant impacts on the productivity on site.

This SAFEset Technology is a major advancement for the construction industry as it has increased drilling productivity while improving reliability in setting the chemical anchor. The new hollow drill bit means that bore hole drilling can occur 10%-20% faster compared to drilling with the traditional helix drill bit.

This accounts for an estimated time saving of up to 90 seconds per hole when including the time spent on the traditional cleaning regime required with the helix drill bit. The cleaning process of repeatedly blowing and brushing out the holes is not only labour intensive, but can also compromise the anchor capacity if not done correctly.

Jared Hawkins, Project Manager for Hawkins Civil, said the system worked beyond his company's expectations and impressed their client, as well as the local Environmental Protection Agency.

Once the project was initiated it included the installation of approximately 2,000 anchors and carbon fibre reinforcements to increase the strength of the bridge deck. For the project, all drilling was done with the Hilti-designed system that utilised an overhead drill press designed and manufactured locally by Baxter Engineering.

Throughout the project, environmental management was critical as the ACT Environmental Protection Agency inspected the site numerous times and commented on the efficiency of the system and quality of the environmental controls.

Furthermore, the system as a whole, including the drills, drill bits, vacuums, glues and incidentals, worked flawlessly and the project was completed with zero non-conformances, making it an all-round success.

Hilti is known for its high quality products and systems including drilling and demolition tools, diamond cutting and coring, direct fastening systems and anchors, fire protection, construction chemicals and laser measuring systems. It operates in 120 countries and employs 20,000 staff globally.

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