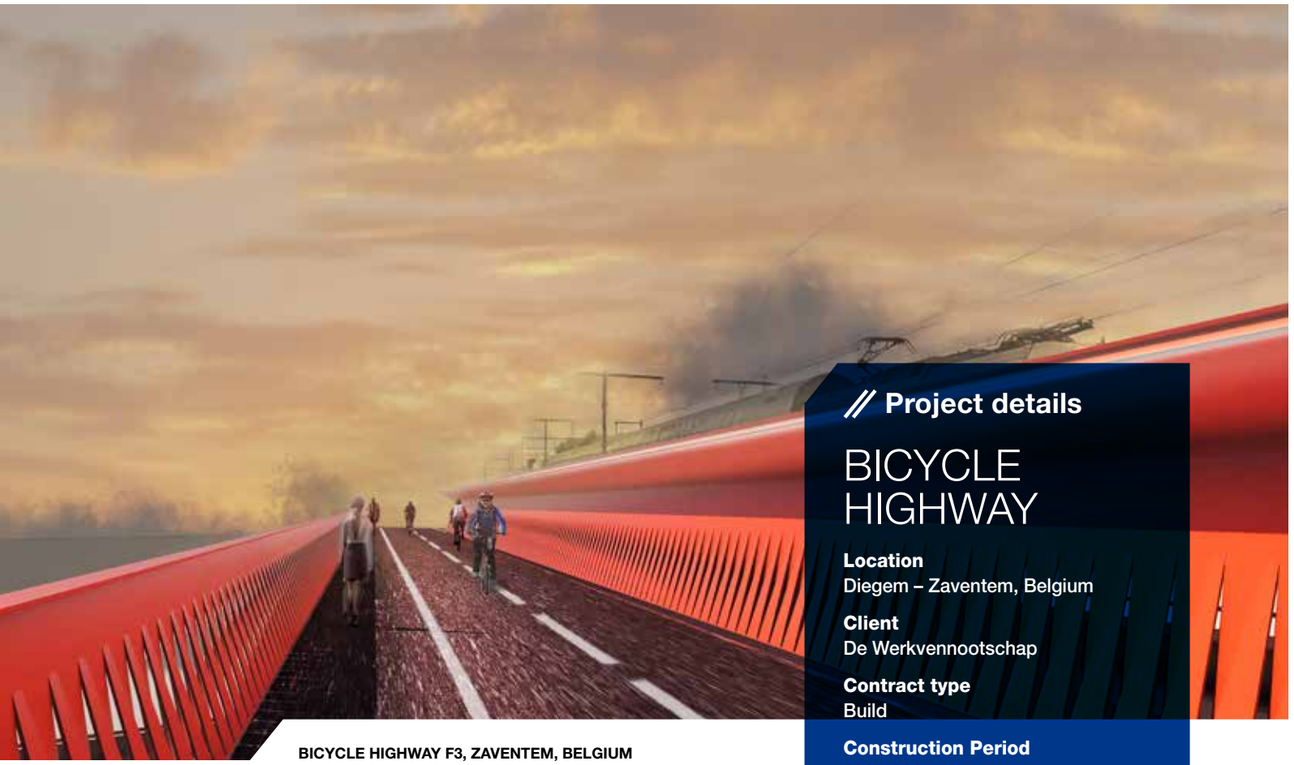
Infrastructure

BESIX PROVIDES CAPSTONE OF BICYCLE HIGHWAY



BICYCLE HIGHWAY F3, ZAVENTEM, BELGIUM

Project details

BICYCLE HIGHWAY

Location
Diegem – Zaventem, Belgium

Client
De Werkvennootschap

Contract type
Build

Construction Period
2020-2021

MOTORISTS DRIVING ALONG THE BRUSSELS RING ROAD (R0) IN 2020 COULD NOT MISS BESIX WORKING ON THE FINAL PIECE OF THE BICYCLE HIGHWAY BETWEEN LEUVEN AND BRUSSELS, ALSO CALLED THE 'MISSING LINK'. WHERE CYCLISTS WERE FORCED TO MAKE A 4 KM DETOUR TO CROSS THE RING ROAD, *DE WERKVENNOOTSCHAP*[1] IS PROVIDING A BETTER ALTERNATIVE. THEIR CHOICE OF CONTRACTOR TO BUILD THE BICYCLE HIGHWAY ALONG THE RAILWAY LINE FELL ON BESIX GROUP. THE PROJECT INCLUDES THE CONSTRUCTION OF A BRAND NEW BICYCLE AND PEDESTRIAN BRIDGE OVER THE R0.

1. Flemish Government body that coordinates efforts around mobility

The works are part of an overarching programme of several projects around the Brussels Ring Road. Its goal is to improve mobility and quality of life by focusing on alternative mobility: cycling infrastructure and public transport. The project has three focus points: the construction of the 'missing link' between the *Keibergstraat* in Zaventem and the *Lodewijk Vankeerberghenstraat* in Machelen, the new bicycle and pedestrian bridge across the R0 and finally a connection with a nearby industrial area and the train station in Diegem.

ONE-STOP SHOP APPROACH

Such diverse works in an operational railway environment require flawless cooperation. BESIX Group therefore approached this project according to the one-stop shop principle: subsidiary BESIX Infra took care of the earth-, road- and environmental works, while subsidiary Franki Foundations carried out part of the foundation works. The engineering works were carried out internally by the BESIX Engineering department. "Now that we are taking on more and more projects together, our cooperation is running smoothly. We have become attuned to each other," says Christoph Klingeleers, Project Manager at BESIX.

"Our site starts near Diegem station, along the Brussels-Leuven line. Just beyond the junction of the bicycle highway with the *Lodewijk Vankeerberghenstraat*, we are constructing a partial tunnel with a covered stairwell in concrete with a glass roof and walls as entrance to the station. Cyclists on their way to Brussels or Leuven can, via two new steel ramps, pass through the train station, which will be adapted to allow the bicycle highway to pass through it. A third ramp will allow cyclists to continue in a straight line and pass underneath the A201. This third passageway is situated next to the tracks, where the existing underpass will be widened and renovated", explains Eva Beyts, Technical Office Engineer at BESIX. Once the cyclist has crossed the Brussels Ring Road, two new steel bicycle bridges over the *Lambroekstraat* and *Fabriekstraat* junctions in Zaventem lead them safely to the end of the route. "Along that whole section, various retaining walls also have to be built, including concrete L-walls, a timbered trench and sheet pile walls."

IN ORDER TO AVOID A TEMPORARY SUSPENSION OF RAILWAY TRAFFIC WE PROPOSED TO THE CLIENT TO WORK WITH A TIMBERED TRENCH. THE RETAINING WALL IS EXCAVATED BY HAND WITH A MINIMUM OF MACHINERY ALLOWING THE RAILWAY LINE TO REMAIN OPERATIONAL.

CHRISTOPH KLINGELEERS, PROJECT MANAGER AT BESIX

VALUE ENGINEERING

In the initial tender, the retaining wall in the zone between the station and the A201 underpass was planned to be constructed using a secant piling wall. "But such a wall can only be installed during a temporary suspension of railway traffic. Moreover, the necessary machinery takes up a lot of space. To avoid this, we suggested to the client to work with a timbered trench. This involves excavating the retaining wall by hand with a minimum of machinery while the railway can remain operational," Christoph adds. This prompted the team to pay even more attention to safety. "We use Minimel, a specific system that announces the passing of a train with light and sound, so that any work in the immediate vicinity of the tracks can be briefly halted."

Working on and around the Brussels Ring Road is not an easy task either. In order to create more work space for safety and logistics, the team occupied one lane left and one right of the central reservation. The concrete works on the R0 were finished in early 2021, and in the summer 2021 the team will return to the Ring to install the new 180-metre bicycle and pedestrian bridge over the course of three weekend nights. "The bridge crosses the R0 in six spans," Christoph explains. "Each night counts as a phase. During one phase, two bridge sections are placed and then welded together during the workweek. In order to place the bridge sections, we will close a maximum of two carriageways out of the four in each direction to make room for a crane that will be placed on the carriageway. A logistical and technical challenge, but I am confident that we will bring the work to a successful conclusion!"