TUNNEL WIENERBERGER

Rumst

Construction of a tunnel under Nieuwstraat + rerouting towpath + construction of loading dock and wheel wash installation

Status
2014 - 2016

Services:
Civil Engineering

Sectors:
Civil works: tunnels

Client:
NV Wienerberger

BM ENGINEERING GROUP

General

The Wienerberger building materials manufacturer's site in Rumst is located on a bend in the Rupel river. Ideal for optimizing the transport of large tonnages of incoming and outgoing materials via water in the future. However, due to the location and the nature of the transport, quite a few extra challenges had to be addressed.

Wienerberger wants to focus on three goods flows via water. An important flow, linked to production activities, is the supply of raw materials and the removal of finished products / quick-build bricks. Behind the factory are also the quarries from which clay is excavated as the main raw material for the production of quick-build bricks. These quarries will be refilled in the coming decades with uncontaminated soil to create a nature and recreation area. These soils will optimally be supplied via water. Large 'dumpers' are used for unloading the boats.

To minimize the nuisance for the neighborhood, the existing infrastructure has been adapted and quite a lot of new infrastructure has been built. Along the river runs a towpath that was rerouted via a newly built bicycle and pedestrian tunnel. This way, cyclists and pedestrians experience no hindrance from the activities from the quay to the transshipment area.

In a second phase, it is planned to also tunnel under the Nieuwstraat. Various bottlenecks will still need to be resolved there. For instance, many utility lines are located under the street at that location. Therefore, the lowest point of the tunnel will be placed no less than 8 meters below the above-ground road surface. Secondly, the dumpers used are much wider and taller than an average truck. The 200-meter-long tunnel will therefore be 12 meters wide on the inside. But consideration will also have to be given to the fact that the wheel load is twice as high as in a normal road tunnel. Finally, when determining the gradient, mixed traffic will be assumed. Ordinary forklifts also use the tunnel, and on too steep a slope, the pallets with bricks can slide off the forks. For the bicycle and pedestrian tunnel as well, care was taken that the slope is easily manageable not only for cyclists but also for wheelchair users.

BM Engineering was responsible for the design, study, and execution of the bicycle and pedestrian tunnel, the reconstruction of the towpath, the quay paving along the Rupel, and the road for heavy traffic between the Rupel and the hinterland. On that road, a wheel wash and spray installation is provided to prevent clay from the hinterland from being carried to the street side and to avoid dust nuisance in the neighborhood. BM Engineering also carried out all the study work for the yet-to-be-built tunneling under the Nieuwstraat.

Many other environmental factors have also been taken into account. Because more surface area than before has been paved, infiltration ditches and tanks have been provided along the entire route of the road to drain rainwater. These zones are designed in such a way that animals can use them as important nature corridors to move between the two large nature areas. They are also ideal zones where biodiversity can develop. Furthermore, it has been established that noise nuisance in the new situation may not be greater than before. After the construction of the tunnel, measurements will therefore be taken to determine whether and where acoustic dampening materials need to be installed. This has been taken into account in advance in the dimensioning of the tunnel.

New transport infrastructure honors local ecosystem

To minimize the impact of its extraction activities on the Rumst landscape, Wienerberger refills its depleted clay quarries with clean soil. This can largely be supplied by ship thanks to the brand-new transport infrastructure along the Rupel. "The project demonstrates great ecological awareness, as the local fauna and flora are fully integrated into the design," says Steven Vanpoucke of BM Engineering.

Construction partners:

Wienerberger nv (Kortrijk) – building owner
BM Engineering Group (Roeselare) – civil engineering

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