

# Szeged Electrified Light Rail, Hungary

## BarChip Fibre Reinforced Concrete Track Slab



In August 2008, the Hungarian Government approved the 100 million Euro upgrade to the Szeged electric tram public transport network. Upgrades included the rehabilitation of 18.3 km of tram track and the construction of 4.8 km of new tram track.

The tram lines were originally designed with a traditional rail pad tram system, however, concerns over durability, costs, stray current and construction time resulted in the contractor (SzKT) ordering the designs changed to a BarChip synthetic fibre reinforced track slab system, making it the first project of it's kind in Europe.

Fibre testing at the University of Budapest showed that BarChip fibre was the highest performing synthetic fibre available, and that the performance of 5 kg/m<sup>3</sup> of BarChip 48 was equivalent to 55 kg/m<sup>3</sup> of steel fibre.

SzKT worked closely with BarChip to maximise both the performance and durability of the track slab. BarChip provided FEA analysis to optimise the design and ensure the project met and exceeded all of the design life requirements.

### 12 Year Inspection

In 2020, an inspection of the rail works was conducted. Dr Nemeth Zoltan Adam, chief of public transport and railway safety of Szeged Transport Company explains.

*"The fibre reinforced trackslab has performed very well, with no issues found on review".*

Many lessons were learned through the construction of this Tramway, which led to the development of a design guide by project partners JKP Static for improvement of future projects.

BarChip fibre reinforced track slab solutions have been increasingly used since the Szeged light rail project. Recent projects include the Sydney Metro in Australia and the New York Metro in USA. The ease of construction, improved durability and reduced stray current risk are factors contributing to this growth.



After Construction 2008



2020 Inspection



2020 Inspection

### **BarChip Inc.**

info@barchip.com

Australia: +61 1300 131 158

N. America: +1 704 843 8401

EMEA: +353 (0) 1 469 3197

Asia: +65 6835 7716

S. America: +56 2 2703 1563

Brazil: +55 19 3722 2199



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