

# Roma Metropolitana Line C, Section T3



## Project specifications

Project type: Metro  
Application: Steel fibre-reinforced precast concrete segments

## Partners

Owner: Roma Metropolitana  
Engineer: Rocksoil S.p.A. - Metro C S.c.p.A.  
General contractor: Metro C S.c.p.A.



Running from the eastern suburbs into the heart of Rome, Line C will add 26km to the region's metro system when all phases are completed. TBM excavation for Section T3 constructed twin tunnels approximately 2.8km long, 25-30m deep, passing below the historic city centre and in close proximity to many world-renowned monuments and archaeological finds.

## The challenge

Building complex infrastructure in such a culturally and historically significant area required a dedicated focus to protecting structures above as well as below ground.

The Metro C consortium introduced the idea of using segments reinforced solely with steel fibres to simplify cross passage excavation between the twin tunnels.

Metro C, Rocksoil, and the Università Roma Tor Vergata, worked with Bekaert to test the use of steel fibre-reinforced precast concrete.

For TBM segments, the baseline design used ordinary Portland cement reinforced with rebar, while the alternative used low carbon concrete and replaced the rebar with Dramix® 4D 80/60BGP fibers.

## The solution

The testing confirmed the structural and durability advantages of steel fibres. This enabled the consortium to secure a Technical Assessment Certificate - in accordance with Chapter 11, point 11.1, letter C of DM 17.01.2018 for the use of steel-fibre reinforced concrete for lining tunnels in Italy, as well as the creation of other prefabricated products for underground construction.

In addition to the cross passage areas, the team successfully trialled steel fibre reinforced concrete segments on Section T3 of Rome's Linea C—a first in Italy—using Dramix® 4D 80/60 BG fibres.