

# WINNING ON DURABILITY

## Endurica User SPOTLIGHT



Delkor Rail is a worldwide supplier of high-quality, resilient bonded rail baseplates, platform gap filler, and rolling stock products, with over 30 years of experience providing technical advice and quality components to the world's rail construction industry.

Based in Sydney Australia, Delkor Rail has worked on projects in Australia and all over the world, including the London Underground, and projects in Canada, USA, Madrid, Barcelona, Singapore, Hong Kong, Malaysia, Taiwan, Germany, Switzerland, and New Zealand.

### *Elastomeric Products Include:*

#### Track Products:

- Multiple rail fastening systems including those focused on high vibration and noise attenuation
- Track superstructure components
- Rail fixation components



#### Rolling Stock:

- Suspension components
- Bogie components
- Air spring refurbishment program

#### Platform Gap Filler:

- A sturdy, hard-wearing rubber strip mounted along the edge of a train platform to reduce the gap between the platform and the entrance of a passenger train

The software has been working well for us.

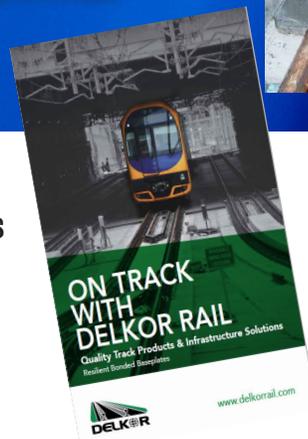
The combination of Ansys, the material data we have obtained and the ability to perform fatigue simulations has allowed us to design products that would not have been possible previously (without extensive physical testing).

— Robert Barnbrook  
Product Engineer  
Delkor Rail Pty Ltd.



### *Endurica Value Add for Delkor Rail:*

- Save costs of multiple physical tests for design iterations
- Make the best design decisions for durability
- Shorten product development cycles



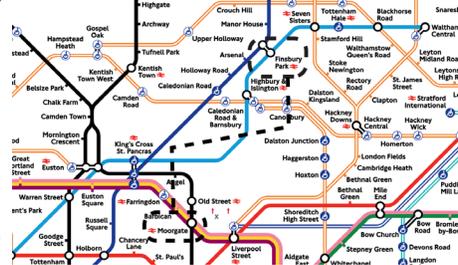
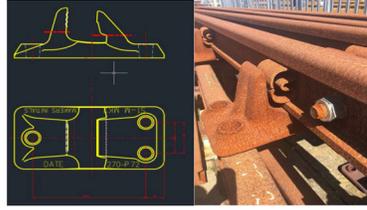
# Ansys

**Endurica**  
Get Durability Right®

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## CLIENT DURABILITY REQUIREMENT

The Northern City Line of the Great Northern Network Rail system in the United Kingdom started operation in 1904. Since 2015 the line has run a minimum of six trains per hour and extended operating hours until midnight. Noise complaints from residents near the Moorgate Branch rose to the attention of London's Mayor and political pressures resulted in a budget being formed to deal with noise complaints – and Network Rail dedicating a team for a quick solution. Delkor Rail's challenges included maximizing N&V reduction, maintaining TOR, using the existing hole centers, retaining BH rail and key protocols, and completing all work through EN13481 Cat C testing. All while assuring sufficient durability.

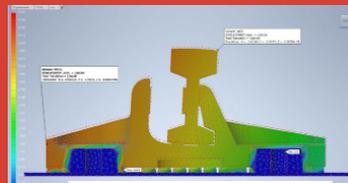
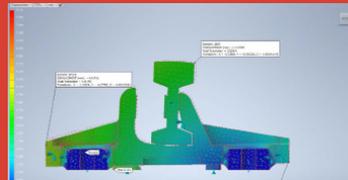


Before Endurica, we went through 40+ design iterations trying to reduce the strain amplitude as much as possible. We also went through 4 or 5 rounds of physical testing before a successful test. Since we adopted Endurica CL, we have been able to compare the fatigue life for new designs against previous designs that we have been successful with. This has meant that we can produce a suitable design with only a handful of design iterations and a single physical test.

— Liam Turbet  
Technical Manager  
Delkor Rail Pty Ltd

## SOLUTION APPROACH

The Delkor Egg baseplate helps to reduce structure-borne vibration and noise. It is comprised of a top plate and base frame that are vulcanized (bonded) together by means of a natural rubber element which helps achieve a very low static stiffness while still ensuring a high degree of rail stability. Endurica's tools help Delkor to fulfill regulatory requirements on part durability and allows rubber stiffness to be optimized for the type of stock and speed. Delkor's client, UK-based Network Rail Acceptance Panel (NRAP), gave full acceptance of the solution.



Delkor uses Endurica CL™ with ANSYS to model Egg baseplate durability.



Redesigned casting image.



## Endurica

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Endurica LLC  
219 West Main Cross St., Suite 201  
Findlay, Ohio 45840 USA  
+1.419.957.0543 | endurica.com