



LONDON BRIDGE STATION  
REDEVELOPMENT PROJECT

# LONDON BRIDGE BEST PRACTICE

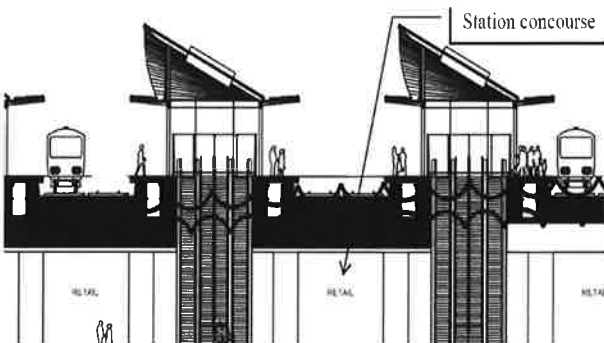
## Ballast Mats

### Overview

The aim of London Bridge Redevelopment Project is to increase passenger capacity, create additional 'through' platforms and create a station that meets customer needs. The design of the station is a large open plan concourse at street level with escalators leading to the platforms overhead.

Concerns were raised regarding the radiated noise levels from passage of trains over the in-station bridge structures and overhead platforms when using standard track ballast.

Acoustic assessments were carried out on various models of the bridge and were compared using NORBERT software. From these assessments, mitigative measures were introduced.



### The Solution: Ballast Mats

Getzner Ballast Mats were introduced into the rail design of London Bridge after acoustic assessments were carried out on two track options: standard ballast track and track ballast with sleeper soffit pads. They predicted the noise levels that would be generated from the platforms and in-station bridge structures situated above the concourse. The assessments were carried out with the key consideration of passenger comfort within the station and any interruptions to the audibility of the PA/VA systems.

The assessment of sound pressure levels were estimated using an acoustic model, NORBERT software, of the bridge structure. A similar model assessment was carried out for Blackfriars, another Thameslink Project. This model calculates the sound radiated from the train, track and bridge.

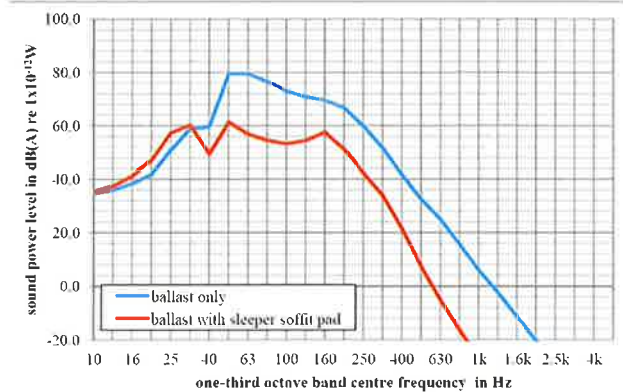
The model tests the 8 double track bridges built above the station concourse, assessing the radiated noise of a ballast track with sleeper spacing against a ballast track with additional sleeper soffit pads, both using class 319 trains.

### Results

The results identified that using sleeper soffit pads reduced the amount of acoustic energy transferred in comparison to standard ballast track. It reduced the overall power level to 16 dB.

London Bridge introduced the ballast matting as a result of the clear indication that these soffit pads have the potential to reduce noise levels within the station area.

Additionally, sub-ballast mats have been installed over the area of the steel bridges above the Bermondsey Street Tunnel to reduce noise levels. As well as meeting passenger comfort and minimising environmental nuisance to the community, installing these mats meets our obligation to our Section 106 of mitigation measures to improve radiated noise levels.



### Benefits:

- Reduction of overall structure borne noise levels and therefore noise complaints
- Reduction in maintenance costs
- Extended service life of the ballast
- Public health and safety by reducing the dB(A) in the station

### Objectives and Targets:

- S 106 requirements, Clause 7.1.2 - Mitigation of radiated noise levels
- Objective 19 Sustainable Delivery Statement - Apply BPM to minimise impact from noise & vibration and air pollutants and monitor performance