

## Windsor Road Bridge Replacement Cardiff

Kier Infrastructure

BIG Biodiversity Challenge Award category: Small Scale Permanent Award

### Project overview

Windsor Road Bridge is located in a city centre location in Cardiff. Kier Infrastructure carried out the Windsor Road Bridge Replacement on behalf of Network Rail. Structural assessments identified the bridge did not comply with current railway and highway standards. In addition, the South Wales Main Line is currently undergoing works for electrification and Windsor Road Bridge needed to be raised.

The project duration was October 2014 - July 2016 and the value £9,000,000. Approximately 60 staff worked on the project including sub-contractors. The project was located in built up city centre area within an industrial park that was run-down in parts with a surrounding housing estate.

### What were the biodiversity conditions on site, prior to the enhancement?

The area offered little in terms of biodiversity due to its industrial landscape. Within closest proximity to the project boundary was a builders merchant yard and high rise flats although there were a few trees lining the access road to site all of which remained.

### Were there any specific conditions that led to you carrying out this work?

During January 2016, the newly appointed Environmental Coordinator (Zachary Cieslik) identified an opportunity to enhance biodiversity in Cardiff and to also bring some colour to a residential area helping to enhance the outlook for local residents and to improve well-being. This enhancement does not relate to any specific conditions.



Project Location

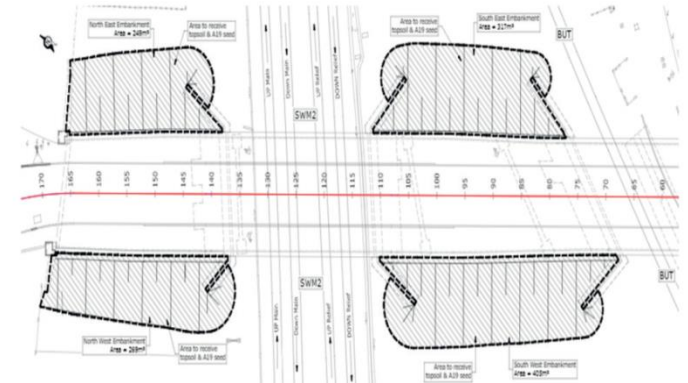
### What were the biodiversity measures taken?

The new bridge replacement design incorporated newly formed embankments which covered an area of approximately 1500m<sup>2</sup> (0.15ha) with the layout shown in the plan. The cover for this embankment was originally an A19 tough multipurpose mixture suitable for commercial landscaping projects.

In order to change the design, the project team engaged with Network Rail from January 2016 to change the seed mix to that of a wildflower mix. Research was carried out by the team and a case study submitted to Network Rail to promote this enhancement opportunity.

The design change was approved and a meadow mixture was selected. The mix is composed of 20% native wild flowers and 80% slow growing grasses (by weight). The wildflowers will supply pollen bearing flowers to benefit bees, butterflies and other pollinating insects from spring through to early autumn.

The wildflower seed was sown during June 2016 and should be fully established by 2018. Not only will this help promote biodiversity in a city centre location but it has also helped Network Rail with keeping maintenance to a minimum promoting sustainable working methods. A winner all round!



Top – Layout showing embankments where wildflower seeds sown. Below – Photo showing embankments during construction phase.

How would you best describe the project?

The wildflower meadow was incorporated into design to enhance the local environment.

Further information

Network Rail, the client, are extremely keen on promoting biodiversity enhancements and the concept of no net less and biodiversity offsetting with their policy aiming for 'A measurable net positive contribution to biodiversity in the UK.' Although this project **wasn't** part of the Network Rail pilot scheme, it is a step in the right direction.



Example showing the meadow mix that was sown on the embankments at Windsor Road.

**“A measurable net positive contribution to biodiversity in the UK”**



Measurable net positive  
=  
Using Defra's Matrix

Contribution to biodiversity in the UK =  
Net positive is not enough

- ✓ Landscaping supports local BAPs
- ✓ Retain 'green corridors' that adhere to lineside management
- ✓ Wildflower planting
- ✓ Offsets that feed into local conservation priorities (whilst achieving No Net Loss)

What was your personal motivation for carrying out the enhancement?

The project team sought opportunity to enhance the local environment and were able to change designs without incurring considerable cost.