

## A8 Belfast to Larne Dualling

### Ballynure, County Antrim

JV – Lagan Ferroviaal Costain (LFC)

*BIG Challenge 2015 submission category: Large scale permanent*

#### Project overview

The scheme requires the upgrading over 14km of the existing A8 between the B94 near Ballyclare and the A36, south of the Port of Larne, to dual carriageway standard. The work involves the construction of the following:

- 9km of online widening of the existing A8 single carriageway.
- 5km of offline bypasses at Bruslee and Ballynure.
- 12km of side road improvements and accommodation laneways.
- Seven overbridges and one underbridge to provide compact grade separated junctions.
- Approx 60 culverts formed with concrete pipes and precast boxes.
- Significant interfaces with statutory undertakers to divert electric, water and fibre optic services.
- Environmental and ecological constraints including river works, migratory fish, badgers, otters, bats and archaeology.
- Managing 17,000 vpd through the site while keeping all public roads within the site open to traffic at all times.



*Photo: Transect surveying*

The project commenced on site on 31 July 2012, and is scheduled to be complete by December 2015.

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

The route corridor for the new road traverses two neighbouring river catchments, the Sixmile Water and the Larne River.

The existing agricultural land was traversed by many water courses which were prone to causing flooding at peak times. The existing culverts were of insufficient size to cope with catchment flows.

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

From our experience gained on previous road schemes, we understand the impacts that major road projects have on local rivers.

This has been a topical issue in recent years, particularly with regard to the problem of sediment run-off from the major engineering and earthworks required as part of the Works.

A common deficiency in the understanding of any impacts from such a Project has been the lack of robust baseline data on the aquatic environment prior to the

commencement of significant engineering works on the ground. There was no requirement within the Contract to provide such information for this project.

### What were the biodiversity measures taken?

Early in the construction phase, Lagan Ferrovial Costain (LFC) decided to carry out a biological monitoring programme for the aquatic environment with regard to the watercourses draining the route corridor of the new road.

Our goal was to not only to enhance the habitats affected by the works, but through measurement and engagement with stakeholders, challenge the perception that construction is environmentally negative.

This we achieved, succeeding not only with habitats but also with hearts. Sampling of salmonid habitat characteristics along the A8 corridor was based on DCAL/AFBI methodology to obtain more extensive quantitative information on fish habitats and river substrate characteristics.

This survey was supplemented with further investigations on biological water quality and fish stocks.



*Photo: Badger sett*

These investigations were designed to assimilate a greater degree of quantitative information on the aquatic environment, which could be measured pre and post scheme to detect and measure the scale of any resultant impacts.

The surveys were carried out during the summer months in 2013. Through early contractor involvement (ECI), LFC influenced the client to replace the specified sodium lights with LED lights, thereby reducing running costs and maintenance for the Client on completion of the works.

The LED lights also have the benefit of being better for bat populations adjacent to the junctions where bat activity is high.

The JV employed the use of a drone to take the scheme aerial photographs. This negated the need to use a proper plane, thus reducing the scheme carbon footprint.

We held a series of forums to communicate with key stakeholders, which including landowners, businesses, public transport, freight and delivery companies, Port of Larne, and emergency services.

We communicated with key stakeholders during the project via letter drops, newsletters and project website to advise of latest traffic management news and scheme progress.

### How would you best describe the project?

An enhancement.

### Further information

Physical and biological conditions at the selected sites across the catchments were found to be good. Site specific problems were found to be due to local characteristics or issues unrelated to the road scheme.

The results demonstrate that the watercourses examined were in good condition at the time of sampling and had not been impacted by the activities associated with the project.

The results have been issued to Government bodies (Rivers Agency / DCAL / NIEA Water Management Unit), as well as the local anglers. We believe that such a survey should be a Contract Requirement prior to the start of all future road schemes. This has been discussed at the Stakeholder Meetings.

During the ECI phase, we changed the original Client design proposals at two locations. This allowed us to maximise the use of excavated materials on site to minimise the import of materials.



*Photo: Reed beds for site office waste disposal*

Some marginally unsuitable material which was excavated on site was re-used in landscape areas and earth bunds, while some was improved insitu with lime, allowing it to be incorporated into the works.

This reduced the quantity of material that was needed to be diverted to landfill. Monthly aerial photographs were to be provided to the Client.

LFC operated a remote-controlled drone fitted with a video camera. The trial is thought to be the first use of a drone in the road-building sector. Planings from existing carriageways was used in the construction of accommodation lanes, under exemption. This reduced the amount of imported material.

### What was your personal motivation for carrying out the enhancement?

We wanted to complete this survey based on our experience from previous road schemes.

The results of the surveys may be used as a baseline in any post-construction assessment of the impact of the road scheme on the aquatic environment.

This aligns with our commitment to enhance existing fish habitat.