

# Best practice at BDU & SSP

## Design Option Environmental Scorecard



### Introduction

The Structures Strengthening team have produced “Environmental Scorecards” during the GRIP 3 option selection stage of the design process to increase awareness of the environmental impact of each option.

#### The challenge

The early design stage is where we can make most impact on the sustainability of a construction project. However, when faced with several design options, cost, time and a workable solution are prioritised and sustainability is often overlooked.

#### What we did

At Skanska we recognise that the most sustainable option is often also the most efficient. We wanted to develop a simple tool that would give a quick comparison of the sustainability of each design option. The hope was that this would raise environmental awareness and positively influence the decision of which option is carried forward and developed into the final design.

We therefore developed the “environmental scorecard”. This is a simple comparison table that gives the approximate energy, carbon and water consumptions for each option based on

material quantity. We also included the same values for a recommended more sustainable material, e.g. recycled steel. It is colour coded red, orange and green to allow a quick comparison of the options.

To date, the scorecard has been included in 25 High Level Options Reports and presented to the Network Rail team as part of the option selection process.

#### Benefits

The scorecard increases awareness of the environmental impact of each option, influencing their decision. This will help to:

- Reduce energy use
- Reduce our carbon footprint
- Reduce water consumption

This scorecard is not a contractual obligation, but by promoting its benefits the hope is that other projects will adopt this best practise.

SSP Design Option Environmental Scorecard

Option		Option				Recommendation			
		Material	Energy (GJ/T)	Carbon (T CO <sub>2</sub> )	Water (m <sup>3</sup> )	Material	Energy (GJ/T)	Carbon (T CO <sub>2</sub> )	Water (m <sup>3</sup> )
Deck Plate Strengthening Options	1A Reduce Ballast Depth	Concrete	486.7	26.04	379.6				
	1B Strengthen T-Stiffeners	Steel	60.0	2.92	37.2	Recycled Steel	20.0	0.94	5.2
	1C Additional Cross Girders	Steel	183.0	8.91	113.5	Recycled Steel	61.0	2.87	15.9
	1D Additional Railbearers or Longitudinal Girders	Steel	123.0	5.99	76.3	Recycled Steel	41.0	1.93	10.7
Central Girder B Curtailment 3 Strengthening Options	2A Reduce Ballast Depth	Concrete	486.7	26.04	379.6				
	2B Additional Strengthening Plate	Steel	12.0	0.58	7.4	Recycled Steel	4.0	0.19	1.0
	2C Top Hat Girder	Steel	12.0	0.58	7.4	Recycled Steel	4.0	0.19	1.0
Central Girder B Bearing Stiffener Strengthening Options	3A Reduce Ballast Depth	Concrete	486.7	26.04	379.6				
	3B Reduce Tracklift	None	0	0	0				
	3C Reassessment	None	0	0	0				
	3D Strengthen Bearing Stiffeners	Steel	3.0	0.15	1.9	Recycled Steel	1.0	0.05	0.3
	3E Encase Bearing Stiffeners in Concrete	Reinforced Concrete	12.0	0.03	10.5				