

The Bridge On The River Wye

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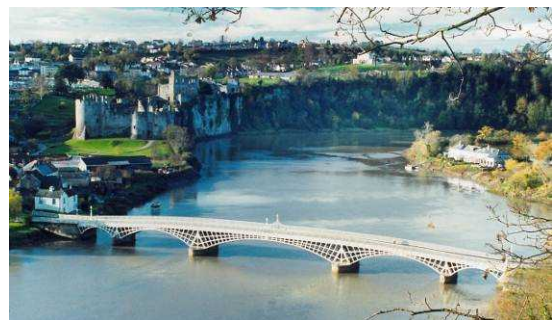
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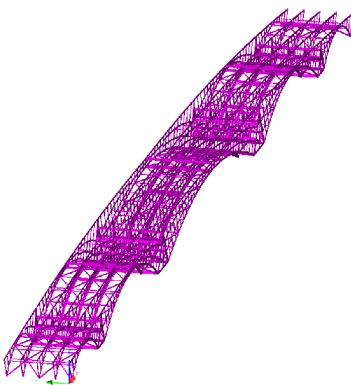
1. Introduction

Following an inspection of the Wye Bridge Chepstow in August 2013, multiple defects to the superstructure were identified, raising concerns as to the integrity of this Cast-Iron Bridge. It became evident that the Grade I-listed structure was in dire need of repairs. Built in 1816, the Wye Bridge Chepstow is a lattice cast iron bridge which provides a landmark link between Wales and England and is regarded as an extremely attractive structure of great historic importance.



2. Content

Parsons Brinckerhoff Limited (PB) was commissioned by Monmouthshire County Council to prepare a refurbishment scheme for the structure (Essential Repair Project). As very limited information was available, a detailed dimensional survey was undertaken through special rope inspection to investigate the conditions of the elements and dimensions of all defects. The PB team then undertook a thorough analysis of the structure to investigate the cause of the defects and any risks associated with repair works, such as the impact of release and redistribution of stresses during the repair works. Repair solutions suitable for cast iron and having minimal aesthetic impact on the structure were then selected.



Throughout the works, the nature and location of the structure presented many challenges. As this structure is Grade I-listed in both Wales and England and situated in an Area of Natural Beauty, PB took great care to consider the requirement of all parties involved on this high profile structure. Defining a safe method of work was essential as the tidal range of 15m implied a periodic water level well above pier levels. Additionally, as the shank of the failed bolt have effectively fused to the surrounded cast iron, released stress during repair operations was a real concern. As part of the Essential Repair Project, PB also carried out the role, duties and responsibilities of the CDM Coordinator as well as preparing the Tender documents on behalf of the client.

3. Conclusions

The Wye Bridge Chepstow Essential Repairs project offers real insights into the refurbishment of structures of historic importance. Involving a complex structural analysis and specialist work on cast iron, this project was both a real challenge and opportunity for growth for all involved. Foremost among the challenges encountered were the selection of repair solutions with minimal aesthetic impact and the health and safety issues associated with this site. The repair works, set to start in September, are likely to pose many more challenges and yield new lessons to be learned.