

Case Study #17

HS2 INDEPENDENT
DESIGN PANEL

The Edgcote viaduct is located to the southwest of Chipping Warden, approximately 1km to the east of the Grade 1 Listed Edgcote House within the Cherwell Valley. The viaduct first crosses and then passes alongside the River Cherwell before also passing to the northeast of the site of the Battle of Edgcote (1649), a nationally important site. The Cherwell Valley is a broad landscape defined by its vegetation and ridge lines. The design of the viaduct must therefore take into consideration not only the beautiful landscape setting but also the heritage value of the immediate area and how this will be perceived in the future, once the viaduct is complete and operational.

Process: The HS2 Independent Design Panel first discussed proposals for Edgcote Viaduct in November 2017, following a site visit. The design of the viaduct is led by Moxon Architects who are part of the design team for Area Central contractor Eiffage, Kier, Ferrovial Construction and BAM Nuttall (EKFB).

There have been three further Design Panel discussions on Edgcote Viaduct – most recently to comment on the updated Schedule 17 ‘Plans and Specifications’ stage designs (October 2023). It is expected that there will be further Design Panel involvement during detailed design stage and ahead of Schedule 17 Bringing into Use and Site Restoration submissions.



Edgcote Viaduct

This is the Seventeenth in a series of case studies about the work of the HS2 Independent Design Panel.

Project headlines

- Edgcote Viaduct will be approximately 515m long, carrying the railway across the floodplain of the River Cherwell, southwest of Chipping Warden.
- The design adopts a similar approach to the Thames Valley Viaduct, that improves quality and reduces the construction period.
- Updated designs for Edgcote Viaduct reduce the amount of concrete required by 24% (resulting in a 13% reduction in carbon), is more durable and achieves a £8 million saving (compared with the previous proposals).
- Construction is expected to begin in 2024.

Panel comments

The panel's comments on the Schedule 17 stage design for the Edgcote viaduct included the following points.

1. Viaduct design

The panel strongly supports the Schedule 17 designs for Edgcote Viaduct. The structure is well-proportioned, with clear differentiation of its layers, and it achieves a subtle balance between horizontal and vertical lines. The careful thought given to the individual elements of the structure bring delight.

The revised approach successfully improves the emphasis on simplicity, details and response to context, which are all key aspects of the consented scheme (March 2023), while also delivering benefits in terms of quality, construction, sustainability, cost and a more refined and elegant structure.

2. Landscape-led

Landscape will play an important role in the perceived success of HS2, including how structures and buildings respond to their setting as part of the project's legacy, delivering 'More than a Railway'. Since its inception, the panel has advocated for HS2 to

adopt a landscape-led approach to the design of structures, buildings and landscapes along the line of route.

The panel supports the landscape approach for Edgcote Viaduct and the careful consideration of the battlefield site and Edgcote House. It is important this thinking is continued, exploring opportunities to strengthen the emphasis of the historic landscape and the identity of the River Cherwell.

3. Detailed design

Schedule 17 is only a moment in time, and there are several aspects not fixed at this stage, including the landscape proposals. These will require local planning consent through Bringing into Use and Site Restoration applications.



Pier construction, HS2 Ltd

It is important that the quality is maintained through to detailed design and construction.

This should include the careful integration of elements which are part of separate contracting and approval systems, for example Railway Systems. Well-resolved designs, based on clear cost parameters, will be important to minimising risk and ensuring timely consents.

4. Exemplar approach

Following the government's announcement on 4 October, it is likely that, over the coming months, cost optimisation and changes in scope are expected to require reworking of Phase One designs.

Design will be central to responding to the clear brief from government and to achieving better and faster outcomes. Examples such as the revised approach for Edgcote Viaduct, as in the case of the Thame Valley Viaduct, is an exemplar that demonstrates how a well managed process adds value, delivering an improved structure at a lower cost, with reduced carbon impact.

EKFB and HS2 Ltd should explore opportunities to share the lessons from Edgcote Viaduct across HS2, including its application in other viaducts (where appropriate) and future infrastructure projects.