

## **HS2 PHASE 2B – DESIGN REFINEMENT CONSULTATION**

### **RESPONSE OF THE INLAND WATERWAYS ASSOCIATION**

#### **Introduction**

The Inland Waterways Association (IWA) was founded in 1946 and is a membership charity that works to protect and restore the country's canals and river navigations. IWA is a national organisation with a network of local branches and volunteers who work with navigation authorities, national and local government, and a wide range of voluntary, private and public sector organisations for the benefit of the waterways and their users. The Association also provides practical and technical support to waterway restoration projects, and acts as a national co-ordinating body for numerous local waterway societies and trusts that promote and protect waterways in their areas.

The HS2 Phase 2b Design Refinement proposals affect parts of the Coventry Canal, the Erewash Canal, the Nottingham Canal and the Aire & Calder Navigation.

This response considers both adverse and beneficial effects of the proposed changes and suggests mitigation needed to minimise the adverse impacts.

#### **General Principles**

IWA's general principles for the protection of waterways impacted by HS2 are:

- Protection of Routes – No canal should be lost or blocked, whether a restoration project or a navigation in use, and where the route crosses a waterway, the waterway should be restored to a minimum of navigation standard, whether the navigation is presently extant or not.
- Navigation – There should be minimal disruption to navigation during the construction phase, and any necessary impacts should be integrated with the navigation authority's planned stoppage programmes.
- Waterway gauge - there should be no detriment to the constructed gauge of any waterway due to HS2, particularly in respect of headroom, taking account of any proposed enhancements on freight waterways. Any waterway crossings or other alterations to the waterway should comply with the appropriate navigation authority's policy of headroom over water, over towpaths, and on minimum width.
- Mitigation – wherever possible mitigation should be completed in advance of construction.
- Betterment – opportunities should be sought to achieve betterment for waterways within the planning process as compensation for environmental and heritage damage caused by HS2's construction and operation.

#### **Engagement**

IWA has engaged with HS2 since 2010 on behalf of its individual and corporate members and the wider public interest in waterways. We have commented in detail on previous Phase 2 and Phase 2b consultations in 2014, 2017 and 2018 and gave evidence to HS2 Select Committees in 2016 and 2018.

#### **Design Refinement Comments:**

##### **Consultation Document**

The Design Refinement Consultation document describes the major changes at each of the route refinement locations, but does not refer to or adequately explain many of the other consequent or associated design changes, which is a major deficiency. These other changes are apparent only by comparing the Design Refinement plans with the previous Working Draft Environmental Statement plans, but the reason for some of these changes is not always apparent. In most cases, the DR consultation plans are also at a smaller scale than the previous plans, which does not aid their interpretation.

### 3. REALIGNMENT OF THE ROUTE AT JUNCTION 10 OF THE M42, NORTH WARWICKSHIRE

The change to a bored tunnel under the M42 affects the vertical alignment northeast to Polesworth. Although not mentioned in the consultation document, it is apparent from the plans that the section of HS2 through Pooley Country Park will now be in a shallower cutting and the realignment of Pooley Lane has been changed from an overbridge to a crossing under the end of Polesworth Viaduct close to the Coventry Canal. Whilst this reduces the overall visual impact of the road realignment on the Park it would increase the physical impact on the canal and moorings, and consideration should be given to how this can be mitigated.

In IWA's response to the Phase 2b Working Draft Environmental Statement of 21 December 2018 we described the impacts of HS2 and the mitigation required as follows:

The Coventry Canal at Polesworth is crossed by Polesworth Viaduct, spanning an entrance to the old colliery basin which provides attractive and tranquil moorings for about 12 canal boats including residential use, and also a base for holiday hire boats. The basin and wharf have historic and industrial archaeological value as one of the last on the narrow canal system to be used for loading coal from the adjacent colliery. The former colliery site alongside the canal has been reclaimed as the Pooley Country Park and Heritage Centre and is now a well-used recreational facility.

Both the public facility of the country park and the private moorings will be severely damaged by HS2, with the line cutting through the country park on embankment and in cutting, destroying heritage buildings used for light industry and the visitor centre. Although a diversion of Pooley Lane and a new access road will now be provided to the remainder of the park and the scout hut, the direct physical damage and the constantly intrusive noise will severely limit future use and enjoyment of the country park facilities and could make the canal boat moorings uninhabitable for residential use.

The boat moorings include permanent residential moorings and, as is common, the others are often used residentially overnight, at weekends or for longer periods. The Operational Noise Contour map shows 2m high noise fencing only on the east side of the viaduct across the Coventry Canal, with the boat moorings subject to noise levels in the red zone (more than 65 dB daytime and more than 55 dB night-time) which is not acceptable.

A noise fence barrier should therefore also be provided on the west side of the viaduct and the adjacent Pooley Lane Embankment to reduce operational noise at the canal to below the equivalent "significant effect" level for residential properties.

There will also be major impacts on the Coventry Canal and the boat moorings during the construction phase, and an access must be maintained at all times to the moorings otherwise compensation will need to be paid for their temporary relocation. Temporary closures of the Coventry Canal and its towpath for construction of the viaduct should be programmed for the quieter winter 'stoppage' period. The Polesworth Viaduct Satellite Compound is close to the canal and should be screened to limit the noise nuisance to canal users.

All of the above remains valid, plus now there will be some additional disturbance from the proximity of the Pooley Lane realignment to the canal and the boat moorings. Drawing 2DE02-ACI-CV-DPP-L001-000002 Rev.P06 is not sufficiently detailed to fully assess this impact, but the road should be designed to be set back from the canal edge under the viaduct, if necessary by moving back the viaduct abutment or providing an additional span. It should maintain access to the moorings and minimise impacts on the heritage of the canal and the country park. Also, the additional habitat creation now shown should not be at the expense of the remaining industrial heritage in this area.

#### **Conclusion**

On balance IWA has no objection to this change, subject to the Pooley Lane realignment being designed to limit its impact on the Coventry Canal and the boat moorings, improved noise fencing around the Polesworth Viaduct crossing of the canal, and minimising disruption to the boat moorings during the construction phase.

## **5. REALIGNMENT OF THE ROUTE AT TROWELL, NOTTINGHAMSHIRE**

The change of alignment to avoid diverting the M1 motorway will have both benefits and dis-benefits for the environment and users of the Erewash Canal. It will be beneficial to users to avoid the disruption of having to demolish and replace the M1 bridge over the canal. However, there are further changes not explained in the consultation document but apparent from the accompanying plans that have implications for the canal.

### **Stanton Gate Erewash Canal Underbridge**

At Stanton Gate the road is shown realigned with a new canal underbridge, although it is not clear why. It may be related to the height of the HS2 Stanton Gate viaduct at its crossing of the existing road where that is rising to bridge the existing railway. However, the canal, road and rail levels on the cross section drawing do not appear to correspond with each other or with the ground level shown, making interpretation difficult. Works are also indicated to the Network Rail (NR) tracks here although again there is no explanation of this.

The new road bridge over the canal and its towpath should provide a full width crossing and a 3m air draught clearance, and the design of the bridge structure should follow the CRT design principles accepted for HS2 Phase 1. It should also provide a ramped access to the canal towpath.

It is not clear how much of the existing road will be retained or whether this will include the current canal bridge. As this has sub-standard headroom over the canal and towpath its removal would be beneficial and help to reduce the cumulative impact of the new bridges and viaduct on the canal environment.

### **Stanton Gate Viaduct**

Between Stanton Gate and Sandiacre the Stanton Gate Viaduct along the Erewash Valley will be a very prominent and visually intrusive feature, crossing the Erewash Canal twice, at Stanton Gate with headroom of about 8m, and at Sandiacre with about 13m.

However, it is not clear why the viaduct is so high and rises even further in the middle, giving more than 15m clearance above ground level. A further change to smooth out the vertical alignment and reduce its maximum height above the valley floor should be considered to both lessen its visual impact and to reduce construction costs. Given that trains here will not be running at maximum line speed due to the proximity of Toton Station, the vertical curvature should not be so constrained as to need this anomalously 'humped' alignment. We are not convinced that current plans provide the optimum solution.

The canal crossing at Sandiacre is at a very skew angle and the Canal & River Trust (CRT) previously considered whether a short canal diversion to give a less skew crossing would enable the viaduct piers to be less intrusively positioned and dimensioned. However, the change now proposed moves the crossing point further south where it is even more tightly constrained between the NR tracks and existing terraced housing. As the canal could not now practically be realigned here, the viaduct design will have to accommodate the very skew canal crossing, and should as far as possible follow the CRT design principles accepted for HS2 Phase 1.

### **Stanton Gate Auto-transformer Station**

Near Stanton Gate there is an auto-transformer station that will be visible from the canal around Pasture Lock, and screen planting on its eastern side should be provided, if necessary by relocation of the balancing pond.

### **Noise mitigation**

IWA's response to the Phase 2b Working Draft Environmental Statement (WDES) of 21 December 2018 also addressed the issue of noise mitigation and our comments remain relevant, as follows:

Canal users travel only at walking pace and boaters will take 15 minutes or more to pass through each lock. They will also moor up for lunch or overnight in convenient or attractive locations, so are very vulnerable to any excessive noise impacts from HS2 trains. If their use of a long section of the canal is not to be discouraged and unduly restricted by a degraded sound environment, then it is imperative that the viaduct has acoustic fencing barriers to mitigate the noise, and that these are designed to achieve at least the same standard of noise reduction as would be afforded to residential buildings at that location.

## **Nottingham Canal**

The Design Refinement substantially changes the elevation of HS2 where it crosses the route of the Nottingham Canal, near to the A609 Nottingham Road, from being on embankment to being in a cutting about 9m below the canal water level. Although the Nottingham Canal is abandoned as a navigation and not currently proposed for restoration, much of its towpath remains used as a footpath and a long section of the canal between Eastwood, Trowell and Wollaton is capable of restoration as a local amenity. The section of canal that will be cut through by HS2 forms part of the Erewash Valley Trail long distance footpath and both the Nottingham Canal Local Nature Reserve and Nottingham Canal Local Wildlife Site, extending for 6 miles (9.6 km) from Eastwood to Bramcote.

The one-day survey reported in the WDES Vol.2 Community Area LA06 report at page 219 showed Trowell Footpath 23 that follows the canal towpath was used by 173 pedestrians and 70 cyclists on that day. This is a significant level of use and therefore at the very least a foot/cycle bridge should be provided over HS2 to maintain the continuity of the public footpath and the Erewash Valley Trail here.

However, IWA considers that severance of the canal itself and its extensive wetland nature reserve should be avoided by providing an aqueduct, although this may need to be just south of the original canal alignment to give sufficient vertical clearance, in order to maintain the continuity of the canal channel for water supply and future restoration.

## **Conclusion**

For the above reasons, on balance IWA supports this change subject to: reduction of the maximum height of Stanton Gate Viaduct and the inclusion of effective noise barriers; the detailed design of Stanton Gate Erewash Canal Underbridge; screening from the canal of the Stanton Gate Auto-transformer station; and maintaining the continuity of the Nottingham Canal towpath and channel.

## **6. LEEDS CORRIDOR, WOODLESFORD TO LEEDS STATION**

Compared with the Proposed Scheme plans, the Design Refinement plans for the Leeds Corridor are anything but refined, showing the edges of the Aire & Calder Navigation as a series of steps instead of a smooth curve and without blue colouring of the waterway, which does not aid their interpretation.

The change of alignment to avoid diverting the existing Hallam railway line will have both benefits and dis-benefits for the environment and users of the Aire & Calder Navigation. From the Woodlesford Tunnel to west of the M1 motorway crossing HS2 will be further away from the canal although more elevated on a viaduct. The overall balance of visual impact is difficult to assess without more information including cross sections.

West of the M1 crossing, the alignment converges on the canal and runs directly alongside it adjacent to the major bend in the navigation at Rodhill Corner, but is now on a high viaduct here crossing over the motorway and the Hallam Line. This will significantly increase the visual impact of the scheme on the waterway in this area. The very skew alignment of the Hallam Line crossing will require extended spans with more intrusive viaduct piers which will further increase its visual impact. No viaduct piers should intrude into the navigation and if any retaining walls are necessary near to Rodhill Corner, their construction should not narrow or restrict the navigation for larger commercial vessels.

As well as a commercial navigation, the Aire & Calder is increasingly being used for recreational boating which will be more sensitive to noise disturbance from both the construction and operation of HS2. The noise impact of a surface route would have been mitigated by woodland planting but will now depend on noise barriers along the viaduct, on which no information is offered.

Although the Leeds East Viaduct access to the Rolling Stock Depot is not within the indicated extent of the DR consultation, its alignment has been altered on the Design Refinement plans so confirmation is needed that it will not only conform to the Canal & River Trust's current minimum dimensions but will provide sufficient headroom for commercial navigation improvements to Euro Class 2 to access the proposed new inland port upstream at Stourton. Also, if any temporary bridges are required, these and the main viaduct construction should be planned to minimise interruptions to navigation and provide ample advance notice.

Consideration should be given to using the Aire & Calder Navigation for transport of construction and demolition materials for this and other sections of HS2 that are close to the navigation to help reduce road congestion and environmental impacts.

### **Conclusion**

For the above reasons, IWA cannot support this change unless every effort is made at the detailed design stage to minimise the physical, visual and noise impacts on the Aire & Calder Navigation, including sensitive design of viaduct piers alongside the canal and extensive use of noise barriers along the viaduct.