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Submitted via portal

APPLICATION BY NATIONAL HIGHWAYS FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE A12 CHELMSFORD TO A120 WIDENING

Please find below the response from the Environment Agency to the **Examining Authority's written questions and requests for information (ExQ3)**, issued 22 May 2023.

3 Biodiversity, Ecology and Natural Environment

Q3.3.3 to the Applicant, EA

Please can the parties provide a further update on the issues that have been raised throughout the Examination to date (including those raised at ISH4 regarding disapplication of permits), in relation to the proposed use of culverts. From the Applicant, this should include a response to the EA's Deadline 5 submissions including implications for compliance with the Water Framework Directive.

Should the parties not achieve an agreed position by the end of the Examination, the ExA requests that by DL8 each party provides a final position statement outlining the key matters of contention.

There has been no additional progress on this issue further to that detailed in our Deadline 5 submission [REP5-031] dated 10 May 2023. As part of that response, we outlined the most recent discussions with the Applicant on this matter on 5 May 2023. Our position remains that the highlighted main river crossings will cause unnecessary and avoidable environmental damage, and the Applicant has failed to demonstrate conclusively otherwise. Subsequently, we are not prepared to consent to the disapplication of the Environmental Permitting (England and Wales) Regulations 2016 for flood risk activity permits.

Q3.3.5 to the Applicant, EA

In REP5-031, the EA state that they have 'repeatedly stated throughout our pre-application engagement with the Applicant that main river crossings should be as wide and light as possible, retaining a natural channel and natural bank margins.' Please can the EA provide evidence to support this statement. Please can the Applicant demonstrate how and where they have considered these comments.

We have highlighted this issue from the earliest stages. As part of our response to the **Route options consultation** (Our reference AE/2017/121411/02-L01, dated 28 November 2019), we stated that:

All new crossings should be clear span bridges with wide natural floodplains and riparian habitat in both banks. The bed and banks of all the watercourses should remain unaffected by the works.

We highlighted in our response to the **EIA Scoping consultation** (Our reference AE/2020/125624/01-L01, dated 26 November 2020) the negative impact of the existing A12 on the watercourses it crosses, and that and that the proposals have the potential to cause further damage which should be avoided, while opportunities should be taken to resolve existing problems. An extract of that response is included below:

Chapter 9: Biodiversity

As highlighted towards the beginning of this chapter, the National Networks National Policy Statement (NNNPS) states that applicants should describe how a project plans to conserve and enhance biodiversity conservation interests. This is particularly relevant in respect of this proposal, as we have on-going concerns about the existing A12 infrastructure and its often negative impacts on the watercourses it crosses. Our comments on this chapter concern ecological interests associated with those watercourses, and so consequently there is some overlap with Chapter 14: Road drainage and the water environment.

Over many years it has been observed that Essex rivers which are crossed by the A12 trunk road have been badly affected by past engineering treatment which has left a lasting effect. Upstream of the A12 the rivers and watercourses are often in a much healthier state than the sections downstream indicating point source pollutions and other negative impacts. Previous engineering changes affect the ability of wildlife to pass up and downstream freely or the natural morphological function which affects flow or sediment transport. As an example of this, the current A12 crossing of the River Brain downstream of Witham has a concrete cill which holds up water and forms an unnatural and harmful barrier to flows and the ecological corridor. These site specific issues should be identified and resolved wherever possible.

There are also instances of apparent water quality declines at the crossings as a result of poor quality run-off. The invertebrate fauna downstream is less diverse than upstream and appears to be causing a progressive decline as the problems are not resolved. Many of the current crossings would not be permitted in the same form

today and we wish to see the environmental issues recognised and mitigated for in this widening scheme.

Much of the widening of the A12 will have the potential to cause further ecological problems in terms of mammal passage for otter, water vole and in-channel passage for fish and eels. Longer or additional crossings can exacerbate the existing issues making protected species less likely to utilise the longer underpasses beneath the carriageways. During high flows, otter in particular will avoid difficult and dark traverses upstream and can become road casualties as a result. The A12 Colchester bypass is currently a particular otter death black spot.

Bridges and culverts also have known negative impact on rivers as wildlife corridors for invertebrates towards the bottom of the food chain. Dragonflies, mayflies and others are known to navigate by using the horizontal polarization of water reflected light. Bridges, especially long ones or low culverts prevent adult insects moving through darker crossings up and downstream.

In the light of the negative impacts of the existing A12, a full assessment and improvement of the current drainage system will be required to prevent deterioration under the Water Framework Directive; this is likely to include for example the provision of pollution interceptors and balancing ponds etc. Without this, the A12 and associated roads (especially the proposed de-trunked A12 sections) will risk causing failings under the Water Framework Directive.

Clear Span Bridges and well-designed wide culverts.

Multiple road crossings of watercourses can present a particular problem on what should naturally be rich habitats along important wildlife corridors.

There should be a preference for clear span bridges rather than culverts. At each crossing opportunities should be taken to better the existing arrangements by ensuring there is more natural bank retained and channel habitat restoration before crossings are built.

Long culverts are particularly problematic for otter passage. This issue can be designed out with wider, generous passage and clear span bridges wherever possible.

Design will need to respect the ecology and hydromorphology of the river corridor. We recommend that a geomorphologist is involved in the design process. We suggest that the applicant uses the new biodiversity river metric to ascertain impacts on watercourses and what mitigation and enhancement measures are required. This will quantify the impacts of the proposal and ensure that there is sufficient provision for biodiversity and habitat.

Attenuation pond design

These should be constructed to be wildlife friendly – shallow edges, wavy margins, and designed so that they always contain a small area of standing water. An adequate footprint should be allowed for at an early stage to incorporate these design features. There are also opportunities for these features to be managed into

the future with wildlife in mind, for example by sowing native wild flower mix for pollinators around the margins.

Lighting

The proposed lighting of the new widened section will need careful assessment and design to prevent light pollution impacts on river and watercourse biodiversity.

SSSIs

SSSIs have been scoped out of the current assessment as there are none within 2km of the road. However, internationally designated sites further afield which are often designated for the same features have been scoped in. Where there is potential for impact on downstream rivers and associated habitat there will be a possible effect for further than 2km. Failing drainage systems or culverts can, as demonstrated by the existing road, cause a limiting effect on the habitat downstream by disconnecting the wildlife corridor and prevent the ecosystem working as a naturally functioning whole. We would therefore expect any SSSIs downstream with water connectivity to be scoped in for assessment.

In our response to the **Preliminary Environmental Information Report (PEIR) consultation** (Our reference AE/2021/126293/01-L01, dated 16 August 2021) we stated that the proposed crossings looked likely to cause ecological damage; extract below:

Chapter 9 Biodiversity

We have some significant concerns regarding the impact on the watercourses and rivers crossed by the proposed A12 widening. The proposed crossings are in some cases particularly poor for biodiversity and look likely to contribute to the scheme compounding existing ecological damage, including by contributing to more otter deaths on the road. Further mitigation for loss and damage to river habitat is required.

The Roman River, Domsey Brook and River Blackwater crossings look to be overly long and will cause problems for wildlife through habitat loss and river ecosystem fragmentation. Realignments should be avoided unless absolutely necessary and then full mitigation provided to compensate for damage to the environment. The Domsey Brook and River Blackwater appear to have long dark crossings which extend beyond the footprint of the road. We would like to see this revised to deliver the shortest possible length of road crossing. Dark crossings discourage almost all life from large mammals such as badgers, deer and otters to aquatic life including fish and invertebrates.

To minimise damage to the ecology of an area (and in this case potential harm to whole river ecosystems), crossings should be short, wide, light-filled with natural vegetation and habitat throughout and lots of space to prevent wildlife being intimidated and tempted to find alternative routes which take them out from familiar surroundings and into danger.

Unfortunately mammal fencing cannot always provide the solution. Increasingly we are seeing more large mammals trapped and becoming traffic fatalities due to the

inability to get off dangerous roads once they get on to them. Wide generous treatment of river crossings allow animals to travel safely in their natural environment without having to leave and explore more dangerous options over roads.

Roman River Crossing

This crossing has always caused problems for wildlife. The scheme presents an opportunity to improve on the current poor design, but that opportunity has not yet been taken.

River processes are held up here by the current angles of poorly designed drainage, and the new proposals look likely to make this worse and compound this effect without any meaningful mitigation. We wish to see this crossing re-designed to provide mitigation for natural river processes and wildlife. We acknowledge that this may be problematic but unless dealt with these problems will remain. It would appear to require a completely fresh look.

River Brain Crossing

The current existing crossing has a high cill which forms an unnatural riverbed and holds up the water level upstream in Witham. The proposals should be revisited to see what improvements can be made here. The current result is a silty, slow flowing ponded section which then runs over a concrete bed which is very shallow and inhospitable for wildlife in summer. We request that this be a subject for mitigation and if possible a more natural meandering low flow channel be cut through the bed here.

Mitigation

The proposed mitigation for river species is currently insufficient and in some cases likely to be ineffective. For example, removing some macrophytes from a stretch that is silty and overgrown will not lead to a lasting improvement - the problem will return unless the root cause is assessed and any river morphology problem resolved.

Similarly, in general clearing trees and scrub along watercourses is likely to do more harm than good. Planting more native trees and shrubs in a scattered mosaic to introduce partial shade and reduce the impact of climate change would be a useful proposal.

The proposed river crossings appear to be designed as canalised drains, and risk repeating and compounding the mistakes that were made in the mid- twentieth century. The crossings need to be rethought as part of a functioning river system and designed to deliver the fully functioning ecosystems that we need for an uncertain future. If the crossings concept is led by fluvial geomorphology and ecology they will also provide drainage solutions. Any engineering solutions that are needed should be assessed holistically and collaboratively.

There is the potential for biodiversity to be significantly adversely affected with the proposals as they are presently set out, and we could not currently agree that the new crossings would result in neutral impacts on fish and otter. We would like to see some new meandering sections designed to compensate for the lengths of river darkened by increased crossing length.

We suggest that a further meeting is held to assess and review the river crossings mentioned above. We have not reviewed mitigation proposals for other species and habitats but these river works appear to be unnecessarily damaging and should be ameliorated before moving on to the next stage. Once that is done we would encourage a reconsideration of relevant and effective mitigation.

We reiterated our concerns in our response to the **further section 42 consultation** (Our reference AE/2021/126293/02-L01, dated 17 December 2021), extract below:

Additional comments

We would also wish to take this opportunity to re-state the significant concerns that remain in respect of the main river crossings proposed as part of the overall scheme, and the resulting impact on the biodiversity of the river ecosystems.

As previously highlighted, the new river crossings appear to be similar to the existing structures, rather than making use of updated and improved design to better accommodate wildlife and reduce impacts on biodiversity as a whole. We are concerned that the overall proposals will compound the existing environmental damage without providing significant mitigation or enhancements to the river ecosystems that are crossed.

As an example of impacts, we recommend that the project team investigate Cardiff University Otter Project recent mapping of otter deaths across the UK (Laird and O'Rourke 2021). The map shows otter death locations as dots on a small scale plain background. Despite the low key map produced, one pattern shows up clearly. The alignment of the A12 stands out as a series of otter death blackspots more distinctly than any other road in the UK. The result is a significant and devastating representation of the results of previous poor road crossing design. The road crossings proposed as part of this scheme must not exacerbate this situation.

This proposed development offers an ideal opportunity to investigate and re-examine the adverse environmental effects caused by previous road schemes, and to deliver solutions that resolve the on-going problems caused. National Highways should consider all options and resources that may be available to enable this to occur.

The current proposed designs do not appear to reflect the significant ecological issues at the river crossing locations, and need to go further to be able to demonstrate no net loss of biodiversity and biodiversity net gain.

The issue has also been discussed during pre-application meetings. Most notably those taking place on 15/09/21 and 22/11/21, which were arranged to discuss the points made in our PEIR response. At the WFD and Hydrology update meeting of 10/07/20 we highlighted the adverse impacts of the existing A12 main river crossings and the opportunity that this project presented to resolve those issues.