A66 Northern Trans-Pennine Project

TR010062

7.30 Issue Specific Hearing 3 (ISH3) Post Hearing Submissions (including written submissions of oral case)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

14 March 2023

Infrastructure Planning

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The Infrastructure Planning (Examination Procedure) Rules 2010

A66 Northern Trans-Pennine Project Development Consent Order 202x

7.30 ISSUE SPECIFIC HEARING 3 (ISH3) POST HEARING SUBMISSIONS (INCLUDING WRITTEN SUBMISSIONS OF ORAL CASE)

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CONTENTS

1 INTRODUCTION

1.1 This document sets out the post hearing submissions and summarises the oral submissions made by National Highways (the "**Applicant**") at Issue Specific Hearing 3 ("**ISH3**") dealing with design and landscape, biodiversity, climate effects, flooding and drainage, traffic and access, heritage, Principal Areas of Disagreement Summary Statements (PADSS) and the draft Development Consent Order (DCO), held on 2 March 2023 in relation to the Applicant's application for development consent for the A66 Northern Trans-Pennine Project (the "**Project**").

1.2 ISH3 was attended by the Examining Authority (the "**ExA**") and the Applicant, together with a number of Interested Parties.

1.3 Where the ExA requested additional information from the Applicant on particular matters, or the Applicant undertook to provide additional information during the hearing, the Applicant's response is set out in or appended to this document.

1.4 This document does not purport to summarise the oral submissions of parties other than the Applicant, and summaries of submissions made by other parties are only included where necessary in order to give context to the Applicant's submissions in response.

1.5 The structure of this document generally follows the order of items as they were dealt with at ISH3 set out against the detailed agenda items published by the ExA on 22 February 2023 (the "**Agenda**"). Following the Accompanied Site Visit on 28 February 2023, the ExA added items 2.4 and 2.5 to the Agenda, below. Numbered items referred to are references to the numbered items in the Agenda. Where post hearing notes have been added such notes are prefixed with "Post-hearing note" for clarity.

2 WRITTEN SUMMARY OF THE APPLICANT'S ORAL SUBMISSIONS

1.0 Welcome, introductions	
Agenda Item	**The Applicant's Response**
This Supplementary Agenda follows the agenda published on 31 January 2023. It provides further details of the matters the ExA wishes to examine.	
2.0 Environmental Matters	
Agenda Item	**The Applicant's Response**
2.1 The ExA wishes to discuss the Viaduct Visualisations provided at Deadline 4 [REP4-016, RE4-017, REP4-018, REP4-019 and REP4-020], in respect to the Trout Beck bridge and Cringle Beck and Moor Beck viaducts, including justification for providing visualisations rather than traditional photomontages. The ExA may also wish to discuss the design approach to a number of other bridges along the route.	The **ExA** sought clarity on the use of the terminology 'bridge' and 'viaduct', namely which is most appropriate to be used. **Paul Carey, for the Applicant** confirmed that 'viaduct' ought to be used in relation to the DCO submission. **Robbie Owen, for the Applicant** confirmed that the visualisations submitted at Deadline 4 are in accordance with the Applicant's Issue Specific Hearing 2 (ISH2) post-hearing note [REP1-009]. **Andrew Tempany, for the Applicant** explained that verified photomontages are primarily a tool to support the impact assessment (as set out in REP1-009) and to demonstrate the effectiveness of mitigation measures to support assessment judgements, rather than the communication of design intent. Given the context in which the ExA raised this point at ISH2, the Applicant understood that the desired objective was to show the potential designed appearance of the proposed structures in the landscape, and the design intent. This was summarised at pages 31 and 32 of the Applicant's representation within REP1-009. Noting the invaluable role of the existing photomontages as an aid to the Landscape and Visual Impact Assessment, the existing photomontages have necessarily been produced at a distance proportionate to be able to show the Project, often at a 'landscape' scale in the context of given receptors, and to be able to appropriately show a large linear scheme in a technically accurate manner, to aid the assessment. **Mr Tempany** expressed the importance of providing an appropriate degree of detail based on the preliminary design stage, in light of the Project Design Principles (PDP) and noted that in the absence of detailed design information such as junctions, fixings and joints, this could not be shown on a digital photomontage, limiting the ability to create a fully realistic digital representation in close-up viewpoints. Given the above and as some of the locations requested by the ExA at ISH2 are very close (within 70m of the relevant structure and in the case of the Moor Beck Viaduct, at a much closer distance, in the order of 25-30 metres), a photomontage would be of limited use. Moreover it would have presented a number of difficult technical issues with representing their appearance accurately

	at close range, as discussed below. The Applicant therefore is of the view that photomontages are not an appropriate means to represent the design in such locations. Close proximity photomontages would necessitate resolution of various fine grain aspects of design in order to represent these appropriately through digital modelling and renders. These include joints, junctions and fixings – design information which is neither within the scope of the preliminary DCO design nor an appropriate level of detail for the stage the Project is currently at. Such information would only come as a result of detailed design. The representation of large linear schemes must also be considered with respect to the photographic projection necessary for such panoramic photomontages and panoramic images. Cylindrical projection is used for large format panoramic images and linear schemes, and typically magnifies optical distortion of large and long linear structures in photomontages when produced at close range. This can often create a disconcerting 'fisheye' effect or exaggerated perception of arcing and curvilinear form in the image, which may be more so than is likely to be perceived when viewing the physical structure itself in reality. For these reasons the Applicant decided to produce visualisations within accurate parameters and methods of production, to most closely represent the design intent and to enable the articulation of the designs in their landscape, in the close proximity of the viewpoints requested by the ExA at ISH2. **Mr Tempany** confirmed that this applied to the Trout Beck, Cringle Beck and Moor Beck viaducts to maintain consistency in the Applicant's approach and the design information required. The **ExA** queried the difference between what a photomontage would have shown, versus the visualisations and how they were prepared. **Mr Tempany** explained that the process governing the production of the visualisation images is effectively how pre-digital photomontages were once produced and that the images go beyond mere 'visualisations' because of the technical rigour involved in their production. The visualisations produced were developed by being overlaid upon measured and surveyed photography produced in line with the baseline requirements of Landscape Institute Type 4 Visualisations (the highest standard of surveying and data accuracy, which is used in verified photomontages (Reference LI TGN 06/19: Visual Representation of Development Proposals)), allied to accurately positioned 3D modelling of the reference model/massing model which was used in preliminary design development, to show a preliminary wireline render as a basis from which the illustrator worked. These parts of the workflow therefore amount to Type 4 photo wires or wirelines, and this information has been produced as part of the workflow for each of the visualisations. The visualisations have been undertaken by Richard Carman, an experienced architectural illustrator, with over 35 years of experience. Richard Carman originally qualified as an architect and has wide experience of developing and refining a workflow for producing accurately grounded visual images which translate the aesthetic intent of a design. An initial site visit was undertaken by Mr Carman, to fact find and understand landscape and its context. Concurrently, a parallel process was being carried out by the Applicant's photography team, who developed surveyed and measured Type 4 photos from the viewpoints for Mr Carman to work from. The same team produced verified and camera matched wire frames which were overlaid on the photographic images and provided to Mr Carman. A meeting took place between Mr Carman and the Applicant's team, after which Mr Carman used the wireline rendered images on which to overlay the development of the visualisations, using scalable references in both the model in the wirelines and in the supporting design information provided (as described in REP4-015 Document 7.28 Viaduct Visualisations Technical Note) to generate an accurate size and position of the viaduct and its principal features, and to build up the visualisation. This process was supported by use of other supporting design information

	which was provided, including the environmental mitigation plans. Each visualisation was developed as a preliminary large format draft to confirm the spatial arrangement, placement and positioning of individual design elements such as piers, support beams, parapets and guard rails. When the arrangement was confirmed with the Project's Scheme Design Leads and Bridge Engineers, the visualisation was subsequently advanced as a refined pencil drawing for review and before being transferred to watercolour paper for rendering in watercolour. Where appropriate, the visualisations included locally appropriate scale references (i.e. tractors, vehicles on the viaducts), both to reflect their context and to enable the scale of the structures to be understood. This is a widely used device for such visualisations. The visualisations were made such that they show winter views to reflect the photographs that were taken, and with the scaling of the planting in the landscape proposals reflecting Year 15 growth estimates and therefore long-term appearance. Some Interested Parties expressed concern that insufficient detail had been provided by the Applicant in respect of the viaducts. **Mr Owen** explained that the approach to assessment which has been undertaken is standard practice for highways schemes in England and has been adopted on countless DCO schemes where consent is requested before the detailed design stage. The Secretary of State can rely on the assessment as to the visual impacts, as set out in Chapter 10 of the Environmental Statement [APP-053]. The requisite underlying landscape and visual impact assessment has been undertaken, taking into account the photomontages, and the overall conclusion of the landscape and visual impact assessment is supported by the visualisations. Based on the parameters set and described above, the visualisations provide an accurate and fair representation of the structures based on the available information within the DCO preliminary design. The Environmental Statement is a core document in this respect, and the visualisations entirely support the work done in overall terms. The Applicant provided visualisations in accordance with its commitment following ISH2 [REP1-009]. Whilst the Project has not reached detailed design stage, a clear and comprehensive set of Project Design Principles (PDP - REP3-041) are available, which have been reached following complex and collaborative processes, and are in adherence with the Design Manual for Roads and Bridges. **Mr Tempany** explained that the PDP have been developed following a comprehensive and iterative process, which involved collaboration between the scheme and engineering design leads and environmental disciplines, alongside an aesthetic code review. The PDP set out the complex parameters within which the Project must be achieved and will form the design brief for the detailed design stage. ***Post-hearing note**:* Whilst digital and verified photomontage rightly remains one of the primary visual aids to assisting assessment of significant landscape and visual effects for DCO projects and other large-scale linear infrastructure projects (including comparable, hybrid Bill projects such as high speed rail), and to verify levels of effect in 'borderline' cases, as well as to verify efficacy of design mitigation, hand drawn visualisations are also still used on such projects to communicate design intent, as in the case of the examples produced by the applicant for this purpose for Deadline 4. We would also reiterate the information contained in the relevant parts of the Viaduct Visualisations Technical Note (REP4-015, Document 7.28), that the visualisations were developed by overlaying and tracing on Type 4 photographs and photowires (i.e. measured and verified information using surveyed and verified photography and accurately positioned, camera matched massing model of the structures) to convey the essence of what is

	proposed, and working with the other available design information, i.e. they are accurately grounded representations of the structures in their landscape context. In the context of hand drawn visualisations for NSIPs, notable examples of hand drawn visualisations used to communicate design intent in context on other major infrastructure projects of comparable scale, complexity and impact include: • Hand drawn visualisations to show design intent for public consultation for the Environment Agency's Oxford Flood Alleviation Scheme[1]. • Hand drawn artist impressions of preliminary and reference designs for large rail termini and stations for HS2 Phase One, notably the bird's eye visuals and perspectives produced of the preliminary designs for Curzon Street Station and its approaches and viaducts in Birmingham, as shown throughout the masterplan document for the same[2]. The relevant hand drawn sketches can be viewed between pages 22 – 59 in the Masterplan document, a link to which is provided in the footnote below.
2.2 The ExA wishes to better understand the approvals process for the designs of the Trout Beck, Cringle Beck, Moor Beck viaducts and other bridges over the new road are secured within the draft DCO.	**Robbie Owen, for the Applicant** explained that article 54 of the draft DCO includes a requirement that detailed design complies with the design principles (as defined in article 2 of the draft DCO), the works plans and the engineering section drawings. There is no requirement for any external approval of detailed design so long as they are compatible with those documents and plans. This approach is not novel and is consistent with a number of road DCOs made by the Secretary of State. If the Applicant wishes to progress with a detailed design that differs in any way from those documents and plans, article 54 allows the Applicant to apply for approval of the detailed design by Secretary of State. This process includes a requirement for consultation with the relevant planning authority and provision of evidence to demonstrate that the aspect that differs from those approved documents will not give rise to any materially new or materially worse adverse environmental effects compared to those reported in the Environmental Statement. This applies to the detailed design as a whole, to include all structures – no other approvals are required, which is consistent with the approach approved by the Secretary of State on a number of previous DCOs, including the A417 Missing Link Development Consent Order 2022. Given the impact and importance of the three viaducts in question, the **ExA** queried whether the Secretary of State ought to approve their final design. **Mr Owen** explained that this is not warranted or necessary, due to the architecture in place including the PDP and the Environmental Management Plan (EMP). **Kerry Whalley, for the Applicant** submitted that the PDP are set up in sections; some are general, and some apply to schemes, structures or locations. This is necessary due to the sensitivity of the environment. There are PDPs which relate to the appearance of structures. When the EMP builds on this, is where other aspects of viaducts are important from a design perspective. In addition to those controls described in article 54, the EMP sets out at reference D-BD-04, a number of key commitments in relation to the detailed design of watercourse crossings in relation to watercourses functionally linked to the River Eden SAC (namely the Trout Beck crossing and those watercourse crossings north of Warcop).

[1] https://environmentagency.blog.gov.uk/2018/09/13/a-major-new-flood-scheme-for-oxford/ (Link accessed and correct at time of submission 14/03/23).
[2] Available to download at : https://www.birmingham.gov.uk/downloads/file/730/birmingham_curzon_hs2_masterplan (Link accessed and correct at time of submission 14/03/23).

	Post-hearing note: The Applicant maintains that it is not necessary for the Secretary of State to approve the detailed design of any aspect of the authorised development. Without prejudice to that position, should the ExA be minded to recommend to the Secretary of State that the DCO ought to make such a provision, the Applicant would suggest that it can be achieved by way of adding the following additional paragraph to article 54: (4) The undertaker must not commence construction of each of the viaducts comprised in Work Nos. 0405-1A(xii), 0405-2A(x), 06-1C(vi) and 06-01(x) until details of the external appearance of the viaduct have been submitted to, and following consultation with the relevant planning authority, approved in writing by the Secretary of State. ***Post-hearing note:*** The Applicant has set out the specific provisions within the PDP and EMP that apply to structures across the Project as a complete appendix, appended to this post-hearing note at Appendix A.
2.3 The ExA wishes to understand the extent of physical proposals and further details concerning the suggested offline landscape integration, with the purpose of protecting views in the general areas of Plots 06-01-14 and 06-03-16 [APP-041].	**Kerry Whalley, for the Applicant** explained that the Environmental Mitigation Maps [APP-041] contain indicative areas of mitigation within the Order limits. They show one way in which the mitigation areas could be laid out, in line with the commitments contained within the first iteration EMP and PDP. This is subject to detailed design. In respect of plot 06-01-14 there would be no change to the landscape character or existing views as a result of the landscaping proposals in this area. This area is labelled as EFD in the Environmental Mitigation Maps [APP-041], which is the environmental function code for Nature Conservation and Biodiversity. This represents mitigation for the loss of acid grassland and heathland habitat with a dual purpose as a reptile receptor site. All landscape mitigation has been developed through discussions between the Applicant's landscape and biodiversity teams. Low-lying species rich grassland on these sandy slopes would provide appropriate habitat requirements and would not cause any harm to the existing landscape character, retaining views to the north and the Pennines. This is secured by the principles outlined in D-LV-02 in the Environmental Management Plan [APP- 019]. In respect of plot 06.03.16 (the small triangle of land by Moorhouse Lane), there would be no change to the landscape character or existing views as a result of the landscaping proposals in this area. This area is labelled as EFB in the Environmental Mitigation Maps [APP-041] which is the environmental function code for Landscape Integration. This represents an area that would be restored after potential utilities disruption as there is a services corridor supplying Moorhouse Farm. The services corridor is not required for biodiversity mitigation; it has a landscape function rather than a biodiversity function as it will be returned to grassland.
2.4 The ExA wishes to understand the effect of the Project from vantage points in Kirkby Thore (Additional Agenda Item)	Following the Accompanied Site Visit on 28 February 2023, the **ExA** added this agenda item to ISH3. ***Post-hearing note:*** The Applicant has provided six additional cross-section drawings, as agreed with the ExA and Interested Parties, as a complete appendix, appended to this post-hearing note at Appendix B, which has been uploaded as a separate document due to the file size. Those sections are: 1. From Dunfell View looking in a north-easterly direction along Green Lane; 2. Priest Lane junction with Dunfell View looking westerly along Priest Lane; 3. From the existing A66 to Sleastonhow Lane in a north-westerly direction (along the private track running from existing A66);

	4. From Sandersons Croft looking in a north-easterly direction through the compact grade separated junction; 5. From Priest Lane junction with Dunfell View looking in a north-westerly direction; and 6. From the rear of Kirkby Thore School looking in a north-westerly direction (additional, determined post hearing following further consideration of the request from Mr Pattimore – see agenda item 10). In respect to the sections listed above, section numbers 1 to 3 were requested during ISH3 by the ExA. Number 4 was requested by, and confirmed with, Kirkby Thore Parish Council during ISH3. Section number 5 was requested by Mr Pattimore (of Kirkby Thore Parish Council) during Agenda Item 10 (Any other Business) of ISH3 and confirmed with Parish Council members in the hearing room as being representative of the request that Mr Pattimore was seeking. Post hearing, the Applicant noted that section number 5, looking from an elevated position, did not adequately represent the position from the rear of the school as it is at a lower level. As a result the Applicant has included section number 6 in addition to section number 5 to assist in the understanding of views to the north west. ***Post-hearing note***: The Applicant has provided additional information on the planting mitigation around Kirkby Thore and the cutting below. The proposed planting around Kirkby Thore at the cutting has been designed, together with the earthworks, to have a number of functions. The integrated design is the product of multi-disciplinary working between technical experts in the fields of Ecology, Landscape and Noise. The receiving landscape is softly undulating farmland with pockets of scrub, woodland and coniferous planting. Mitigation measures are secured in Document 5.11 Project Design Principles (REP3-041) in table 4-6: Temple Sowerby to Appleby Scheme Specific Design Principles. Within that document specific Design Principles have been developed in response to the existing landscape and field boundary patterns (Design Principle 0405.01), reference to the historic landscape pattern through the planting design (Design Principle 0405.02), the design of the landscape earthworks (Ha-Ha or false cutting) in relation to skylines and long views (Design Principle 0405.05) and the sparing use of planting to integrate structures and elements of the Scheme whilst responding to open landscape character and avoiding adverse impacts on views to the Pennines (Design Principle 0405.07). The mitigation planting design seeks to work with the gently undulating embankment to the road cutting to provide similar pockets of woodland edge and scrub to those that exist within the landscape, which respond to the geometry of the existing small scale co-axial or bi-axial field pattern and avoid linear planting along the embankment, which would appear as an unnatural landscape feature. The earthworks would provide the required noise mitigation and have been designed to grade easily into the existing levels on the village side to create a Ha-Ha (a type of sucken fence) that screens the road without introducing an unnatural ridgeline into the landscape, and to enable long views to the Pennines skyline to be maintained. Along this part of the scheme small pockets of woodland planting supported by blocks of woodland edge and scrub planting are proposed. These would integrate the works into the landscape and provide additional screening, whilst tying into the existing small scale landscape pattern where practicable. The proposed species mix for woodland edge planting, as set out in the Outline Landscape and Ecological Management Plan (Annex B1 to the Environmental Management Plan, REP3-003), consists of:

	• Crataegus monogyna Common Hawthorn • Sorbus aucuparia Rowan • Ilex aquifolium Common Holly • Viburnum opulus Guelder-rose • Salix cinerea Grey willow • Prunus spinosa Blackthorn • Rosa canina Dog Rose • Acer campestre Field Maple • Corylus avellana Common Hazel The design seeks to replicate the current situation where woodland can be seen emerging from the undulations of the landscape.
2.5 The ExA wishes to understand the alternative proposed land for planting at Skirsgill Hall Park (Additional Agenda Item)	Following the Accompanied Site Visit on 28 February 2023, the **ExA** added this agenda item to ISH3. ***Post-hearing note:*** The Applicant has provided a response to the alternative planting site proposed by Michael Walton and Dr Leeming in place of 0102-01-34 under the heading of '0102-01-34'within the Applicant's Deadline 5 submission titled: *Issue Specific Hearing 3 (ISH3) Post Hearing Submission – Response to Examining Authority's Request Under Agenda Item 3.2: Environmental Mitigation Area Sizes and Locations* (Document Reference 7.31).
2.6 The ExA notes that a number of Interested Parties (notably Environment Agency, Natural England and Cumbria CC/Eden DC and NYCC/RDC) have raised comments in respect to the sufficiency of information contained within the Project Design Principles [REP3-040]. The ExA wishes to discuss this matter further.	A number of Interested Parties including the Environment Agency, Cumbria County Council, Eden District Council, North Yorkshire County Council and Richmondshire District Council provided an update in respect of the level of detail within the PDP and the progress being made with the Applicant. **Robbie Owen, for the Applicant** drew the ExA's attention to a response provided to the ExA's written questions at Deadline 4 (Written Question LV1.1), in which the Applicant noted that the request for a materials palette was being considered, and that an update would be provided at ISH3. ***Post-hearing note***: Below is the Applicant's commentary explaining why a separate materials palette is not required, particularly having regard to the PDP and where this is already covered (see the Applicant's response to Written Question LV 1.1 at REP4-011). Within REP3-041 Project Design Principles (Document 5.11) is a set of Landscape Integration focused Design Principles (LI04-LI08) which set the parameters for the aesthetic design and appearance of the viaducts and other structures (proportions, symmetry, line, arrangement of piers, support beams, parapets etc) and the disposition of built form to open space and visual permeability/open aspect requirements for structures. For some situations Design Principles are also developed with regard to the materiality of elements of the structures where they integrate with their landscape (for example, where locally specific materials could be used where appropriate and practicable – Design Principle LI02). Design Principle LC01 requires a restrained and simple design aesthetic and materials palette, which responds to place and context.

	Whilst there are few other specific occurrences of Design Principles in relation to the materiality of the Viaducts as part of the proportionate approach underpinning the PDP, with the Design Parameters set for the viaducts in terms of context and operational, safety and standards performance in the PDP and the preliminary DCO design, there is a limited palette of materials from which the Viaducts could be constructed. The potential range of materials that could be used in their construction is discussed in REP4-015 Viaduct Visualisations Technical Note, Document 7.28, section 2.2.30. This was developed in collaboration with the Scheme Design Leads and Bridge Engineers to illustrate the PDP's design intent and the design intent in the preliminary DCO design, as shown in the Viaduct Visualisations (REP4-016-20). In light of the above, in section 2.2.30 of REP4-015 it was agreed to show the following materials in the Viaduct Visualisations: concrete piers, a weathering steel/cor-ten steel support beam (which could, subject to detailed design, also be painted steel, finished in a landscape appropriate hue) and concrete deck/parapet.
3.0 Biodiversity	
Agenda Item	**The Applicant's Response**
3.1 The ExA requests Cumbria County Council and Eden District Council expand on their Local Impact Report paragraphs 10.15 and 10.16 [REP1-019] and their comments [REP3-057] to the Applicant's response [REP2-018] on what additional information or surveys are, in their view, required to overcome concerns on insufficiency.	The Applicant noted the comments of Cumbria County Council and Eden District Council and confirmed to the Examining Authority that significant resources are being and will continue to be put to meeting agreement with all local affected Councils.
3.2 The ExA requests the Applicant to work through 2 of the following examples to explain how the individual environmental mitigation area sizes and locations have been decided upon:	The Applicant began their response by explaining that before coming to the specific location worked examples to be addressed in this response, it would be of assistance to set out the underpinning principles of the environmental mitigation and the overall approach taken to determine the requirement, location and size of mitigation areas required. The Applicant also noted that the principles underpinning the proposed mitigation and habitat planting across the Project can be found in the response to Written Question CA.1.2 (REP4-011). The primary driver informing the environmental mitigation design was to secure mitigation to address significant adverse effects on protected species and designated sites, and that replacement habitats are provided for those lost, as stipulated in the

0102-01-34; 03-02-01; 03-04-04; 0405-03-90; 06-04-48; 06-05-36; 07-01-44; 08-01-04; 08-01-16; 08-02-09; and 08-03-01. The 2 to be worked through will be requested by the ExA at the Hearing, and the remainder of the examples are requested to be individually explained in a similar manner in a post Hearing note.	Environmental Statement Biodiversity Chapter 6 (APP-049). This also includes full consideration of all habitats and species of Principle Importance. The Applicant has also had regard to paragraph 5.33 of the National Networks National Policy Statement which advises that "*Development proposals potentially provide many opportunities for building in beneficial biodiversity or geological features as part of good design. When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities in and around developments*." The Applicant has accordingly sought opportunities, where possible, to maximise opportunities to enhance biodiversity as part of its mitigation. For example, by providing habitat linkages to increase connectivity between areas of mitigation and existing areas of semi-natural habitats within the wider area, thereby enhancing and tying into existing green infrastructure networks. The approach taken, was to locate the required environmental mitigation as close as possible to the identified impact or where the affected habitat was expected to be lost. Where this was not possible, an alternative location was selected within the scheme area where the loss was anticipated, where additional mitigation planting would contribute to biodiversity enhancement through increasing extent, connectivity or benefiting a protected or Principal species. In a small number of circumstances, it was not possible to locate the required environmental mitigation within the scheme area itself due to other environmental constraints associated with landscape and visual impacts and cultural heritage assets or settings. Consequently, as a last resort, alternative locations were sought within other schemes within the Project where the primary function of the required mitigation could still be achieved. For example, additional areas of woodland have been included in Scheme 8: Cross Lanes to Rokeby to account for the woodland deficit in Scheme 7: Bowes Bypass, due to cultural heritage constraints and the requirement to retain open vistas at this location. The process to decide upon environmental mitigation area sizes and locations was undertaken as follows: A combination of desktop assessment and field survey was undertaken by ecologists to determine the baseline ecological value of the survey area in terms of designated sites, habitats, protected and priority species. Observations on opportunities for enhancement were also recorded and mapped at this stage. Prior to statutory consultation, the proposed scheme design was overlaid on baseline ecology mapping to determine losses of Phase 1 habitat types and potential species impacts. At this stage, Ecology specialists used professional judgement, informed by experience of similar schemes and with reference to latest guidance, to determine the likely requirements of mitigation for protected species in terms of replacement habitat or receptor sites. Habitat losses by hectare were reviewed to estimate likely mitigation requirements for replacement habitat. A preliminary ecological mitigation design was then developed using this information, as a starting point for holistic environmental mitigation design development. Mitigation areas were designed to maximise opportunities to enhance as stated in the introductory text above. The proposed ecology mitigation areas were then subject to high level review by other topic leads. Constraints from cultural heritage and landscape visual impact were highlighted and fed into mitigation design. The proposed mitigation areas were then subject to statutory consultation. Ecologists reviewed responses from landowners and other interested parties, as well as attending meetings, in some cases, to hear concerns and discuss amendments. Changes to mitigation location caused by other topic constraints or landowner feedback were discussed with project engineers and ecology habitat and species specialists to find suitable alternatives, where possible.

	The scheme designers were consulted on design changes to avoid or reduce significant impacts highlighted by the Preliminary Environmental Information Report. Ecology mitigation design continued to evolve in line with scheme design changes through workshops with engineers and topic leads. The latest guidance at the time for calculating biodiversity gains and losses was 'The Biodiversity Metric 2.0 User Guide' (Natural England, July 2019). This guidance applies to calculating habitat replacement for mitigation best practice, as well as other purposes, such as demonstrating biodiversity net gain. The Applicant adopted this Guidance and the associated tool in designing the environmental mitigation for the Project, in accordance with best practice and consultee feedback. At the time the guidance was first used to inform the A66 Project, the guidance was fairly new. The tool associated with the guidance was the first time a formalised method had been established to take into account the importance of habitat features for nature: their size, ecological condition, location and proximity to nearby 'connecting' features rather than purely their habitat type. The tool also factors in UK Habitat types and condition assessment. For example, prior to the introduction of the guidance, Phase 1 habitat category broad-leaved semi-natural woodland would be quantified and treated as a whole, with a ratio of replacement agreed by professional judgement and consultation agreement, at around 1:1 or 1:2 habitat replacement. However, UK Habitat divides this woodland type into nine categories, also accounting for three condition assessment categories and also takes into account the time in years required to reach condition of created habitat. So, for example, where prior to the guidance and tool, a replacement ratio of 1:1 or 1:2 would be agreed, now under the guidance and tool, high and medium value woodlands with good connectivity and good condition would require a greater ratio of replacement habitat to mitigate losses, up to 1:9. The new guidance therefore enables mitigation requirements to be calculated more accurately. It is considered best practice and was undertaken for this scheme in agreement with statutory consultees. Phase 1 habitat data was converted to a suitable format for the tool. The habitat losses for each scheme were calculated and the tool was used to estimate the area of equivalent habitat required to adequately mitigate below the level of significant adverse effects. Where possible, habitat replacements were sited within the engineering boundary of the project and combined with landscape integration planting. For habitats of higher value, where a significant impact was predicted (such as lowland broadleaved deciduous / mixed woodland, wet woodland, wood pasture and parkland, fen, open mosaic habitat, acid grassland) where either: • the size of replacement planting required exceeded suitable areas within the engineering boundary; or • the type, condition or management of the replacement planting meant it was unsuitable for highways land, such as health and safety restrictions for planting large tree species or encouraging deadwood or hydrological requirements for wetland habitats; • land outside of the engineering boundary was confirmed as required and confirmed as ecology mitigation. This exercise resulted in both reductions of ecology mitigation areas where these had been over-estimated and changes in types of habitat creation. The guidance applies to habitats only rather than species therefore sizes of ecology mitigation relating to protected species mitigation only were determined by professional judgement of species specialists informed by experience of similar schemes and with reference to latest guidance where applicable. Protected species mitigation was combined with habitat replacement where possible. This was not possible where the habitat type did not support the protected species, for example woodland is not suitable for lapwing and golden plover.

	The Applicant then worked through the justification for the need, location and size of the two example plots picked by the Examining Authority, being plots 03-04-04 and 08-01-16. ***Post-hearing note:*** *the Applicant has set out a detailed justification for the need, location and size of all eleven plots mentioned in the ISH3 Hearing Agenda item 3.2 as well as 4 additional plots including by reference to plans prepared to help illustrate this exercise. This justification is provided as a complete document, which is submitted at Deadline 5 as: Issue Specific Hearing 3 (ISH3) Post Hearing Submission – Response to Examining Authority's Request Under Agenda Item 3.2: Environmental Mitigation Area Sizes and Locations (Document Reference 7.31).* In response to a comment from Dr Leeming regarding the planting mix of broad-leaved tree species and perceived exclusion of coniferous tree species proposed by the Applicant under the Landscape Environment Management Plan [[REP3-003]: Deadline 3 Submission - 2.7 Environmental Management Plan Annex B1 Outline Landscape and Ecological Management Plan (Clean) - Rev 2], the Applicant confirmed that the planting mixes provided were for the creation of broad-leaved woodland and wet woodland required for landscape integration. ***Post-hearing note:*** Paragraph B1.10.7 states that other woodland types to be created for ecology mitigation would need specific species mixes developed during detailed design depending on site conditions. The paragraph lists lowland mixed deciduous woodland, Scot's pine woodland and other mixed woodland which would all contain conifer species and states these should all include conifer species for red squirrel. The indicative locations of these types of woodland are shown in Figure 1 Post-construction habitats within Appendix D of the LEMP. Paragraph B1.21.29 in the LEMP also states that where red squirrel mitigation is required, tree species beneficial to red squirrel should be planted to include but not limited to Scot's pine (*Pinus sylvestris*), Corsican pine (*Pinus nigra*), lodgepole pine (*Pinus contorta*), Douglas fir (*Pseudotsuga menziesii*), Norway spruce (*Picea abies*), hazel, cherry (*Prunus avium*), hornbeam (*Carpinus betulus*) and hawthorn with ideally 50-60% of the forest containing conifers. ***Post-hearing note:*** In response to a comment from Dr Martin regarding whether and how biodiversity assessments have been undertaken at Langrigg, the Applicant can confirm that a full suite of species-specific surveys have been undertaken to inform the impact assessment and associated mitigation in accordance with standard industry guidance and through consultation with Statutory Environmental Bodies, including Natural England. Relating specifically to the surveys and assessment covering a range of EIA aspects undertaken at Langrigg see Appendix C for further detail.
3.3 The ExA wishes to better understand, from the Applicant, the difference between the overall functions of the 'EFB Landscape integration' and 'EFD Nature conservation and biodiversity' classifications on the Environmental Mitigation	The Applicant explained that Document 2.8 Environmental Mitigation Maps (APP-041) contains Environmental Function Codes relating to the primary function of each area of mitigation. Due to the iterative working processes used to develop the design of the mitigation measures these codes are not mutually exclusive. EFB is the code for Landscape Integration which can be types of planting, landscape features or landform appropriate for the landscape character type within which they are used to integrate the development. EFD is the code for Nature Conservation and Biodiversity. This includes planting, habitat protection and creation. Where there is a requirement to provide habitat mitigation by providing additional or replacement habitats, these have been designed so that their size, location and type fulfils the biodiversity requirements without conflicting with the landscape character. Each area of distinctive landscape character contains landscape features that could be used to provide mitigation. These may include inter alia woodland blocks, hedges and dry-stone walls. While the primary function may be landscape integration each would also provide opportunities to create habitat and improve biodiversity.

Maps [APP-041]. Also, whether the classifications are mutually exclusive in terms of each area or whether there is an overlap in function not indicated on the maps, but which could be corrected.	With reference to the overlap between restoration and mitigation, consideration of the environmental functions, particularly landscape integration and habitat creation has been an integral part of the restoration of areas disturbed during the construction process. The overall design demonstrates a holistic approach to the protection, restoration and integration of landscape features. The required restoration therefore provides opportunities for additional habitat improvements within a considered framework that does not affect landscape character. This has been recognised throughout the project. The Applicant notes that in the context of this agenda item, Ms Nicholson raised queries about the transition from preliminary to detailed design. ***Post-hearing note:*** The Applicant has provided an explanation of this process within the Compulsory Acquisition Hearing 2 (CAH2) Post Hearing Submissions (including written submissions of oral case) (Document Reference 7.29), under Agenda Item 4.1 for CAH2, as submitted at deadline 5.
4.0 Climate Effects	
Agenda Item	**The Applicant's Response**
4.1 The ExA wishes to better understand, from the Applicant, the linkage between the traffic reductions or increases within the Affected Road Network, together with any trip reductions from re-assignment onto the A66, and these reductions or increases being 'included within the final GHG estimation for the Project' [APP-065, Figure 5.1, REP2-003, Figure 4.2 and REP4-011, page 13, Ref Number CE 1.5].	The Applicant began by explaining that it would be useful to briefly describe the source of data that is used in the greenhouse gas emissions assessment and the area covered by the modelling. **Source of emissions data and explanation of the traffic modelling** The greenhouse gas emission calculations are based on outputs from the traffic model. The traffic model is a strategic model that provides an assessment of the change in traffic behaviour due to the project across the whole of the north of England and in fact in lesser detail, the whole of the UK. There are two main impacts from the Project that the model is designed to capture. The first impact is that the project leads people to change the destination, mode or frequency of their trip. This is known as a **demand response**. For instance, someone in Darlington may choose to go to Penrith for shopping via the upgraded A66 when they may previously had driven an alternative route to, say, York. This demand response occurs because the Project would make the A66 quicker and more reliable for people to get to a destination served by this road. This is calculated by the Variable demand model. The key functions are described in Paragraph 4.11.4 of Combined Modelling and Appraisal Report [APP-237]. Secondly, the project leads to trip reassignment i.e. a **route choice change**. This is because the A66 may become quicker in future compared to the route that they are currently using. This is calculated within the SATURN model. The function of this is described in paragraph 4.4.2 of Combined Modelling and Appraisal Report (APP-237). Hence, as the Applicant explained, the traffic model captures all reassignment of traffic on or off the A66 as a result of the Project as well as 'new' demand generated by the Project, and it covers the widest possible area in order to capture all such reassignments or demand generation. **Explanation of the TRA (Traffic Reliability Area) and the ARN (Affected Road Network)** Paragraph 7.6.5 of Chapter 7 of the ES (APP-050) states that the assessment of road user GHG emissions is based on considering traffic volumes for the traffic reliability area (TRA).

	The Applicant notes that agenda item 4.1 refers to the ARN (Affected Road Network). The ARN is used to inform the assessments reported within the Environmental Statement, and can be defined per topic based on the nature of changes to traffic volume or speed on each road link. It is typically a sub-set of the wider Traffic Reliability Area (TRA). In order to explain these terms in detail, the Applicant noted that section 4.5 of the Combined Modelling and Appraisal Report (Application Reference 3.8 APP-237) states that the TRA is defined with reference to the scoping criteria for Noise and Air Quality: The TRA is shown in Figure 4.2 of the Transport Assessment (Application Reference 3.7 REP2-003). The TRA is the area of the traffic model considered to provide reliable estimates of traffic when the base traffic model is compared to observed traffic, and therefore can be relied upon to forecast the significant effects of the Project. This has been defined by considering the area across which the Project can be seen to have an impact. The TRA is the widest possible area affected by significant demand or route choice change therefore adopting the approach of using the TRA for the purposes of the GHG assessment is considered to be highly precautionary. The TRA has been defined according to Design Manual for Roads and Bridges) DMRB Noise (LA 111) and Air Quality criteria (LA 105), based on forecast AADT / AAWT (Average Annual Daytime / Weekday Traffic) of implementing the Project. In terms of Air quality, affected roads are those that meet any of the following criteria: • Daily traffic flows will change by 1,000 AADT or more; or • Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or • A change in speed band. For the noise assessment an affected route is where there is the possibility of a change of 1 dB LA10,18h or more in the short-term or 3 dB LA10,18h or more in the long-term. A change in noise level of 1 dB LA10,18h is equivalent to a 25% increase or a 20% decrease in traffic flow, assuming other factors remain unchanged and a change in noise level of 3 dB LA10,18h is equivalent to a 100% increase or a 50% decrease in traffic flow. This definition of the TRA occurs prior to the traffic model development and is based on results of the previous modelling stage. Paragraph 3.9 of DMRB LA 114 states that for operational road user GHG emissions, the study area shall be consistent with the affected road network defined in a project's traffic model. Therefore, the TRA is used within the climate assessment as this is the area of the traffic model considered to provide reliable estimates of traffic when the base traffic model is compared to observed traffic, and therefore can be relied upon to forecast the significant effects of the Project. In response to the remaining discussion on agenda items 4.1 and 4.2, the Applicant provided summary explanations covering various aspects including screening criteria, de minimis and the horizon year under the Emissions Factor Toolkit. In particular the applicant described that the GHG assessment captures all of the increases in traffic that occur on the A66 from either demand response or trip reassignment (as the whole of the A66 is within the TRA) but it will only account for reductions on other routes as a result of these changes where those other routes fall within the TRA. Accordingly, this represents a very precautionary assessment as it captures all increases, but not the decreases where those occur outside the TRA. The Applicant offered to provide a detailed explanation of these matters in a post-hearing note. This post-hearing note is set out in Appendix E below; sub-headings have been used for convenience. ***Post-hearing note:*** The Applicant noted the comments made

	by Dr Wilshaw during ISH3 regarding Cumbria's local carbon budget. The Applicant notes its response on this subject matter in the Applicant's Response to Deadline 3 Submissions [REP4-014], where it referred to the recent High Court judgment in the case of Bristol Airport Action Network Coordinating Committee v Secretary of State for Levelling Up, Housing and Communities [2023] EWHC 171 (Admin). This judgment (a copy of which was annexed to the Applicant's Response to Deadline 3 Submissions ([REP4-014]) confirmed that local carbon budgets have no basis in law; and the fact they have no status in policy is significant. However, the Applicant wants to convey that it considers the matter of climate change to be of the upmost importance. In terms of its assessment, the Applicant has carried out a robust and extremely precautionary assessment of the predicted GHG impacts of the Project. The precautionary nature of the assessment is discussed in more detail in the response provided at Appendix 1 to the Applicant's Response to Written Representations made by other Interested Parties at Deadline 1 [REP2-017]. The Applicant has also proposed an Outline Carbon Strategy [REP3-043]. The detailed Carbon Strategy to be produced in accordance with this Outline Carbon Strategy will be implemented throughout the A66 Project to ensure a robust carbon management process is adopted. The Carbon Strategy is committed to via measure MW-CL-01 of the Environmental Management Plan (EMP)(REP3-004). Additionally, at an organisational level, the Applicant is obliged to act in accordance with the Transport Decarbonisation Plan (DfT, 2021) and the Net Zero Strategy (Department for Energy Security and Net Zero and Department for Business Energy and Industrial Strategy, 2021) (an updated version of which is anticipated).
4.2 The ExA wishes to understand, from the Applicant, whether there are there likely to be other strategic traffic re-assignments from routes outside of the Affected Road Network, such as the A69 or A59/ A65, onto the improved A66 which are not included in the GHG assessment.	The Applicant notes that during ISH3, agenda item 4.2 was addressed alongside and as part of the agenda item 4.1 discussion, therefore the post-hearing note relevant to this agenda item is summarised in the text immediately above and in Appendix E.
5.0 Flooding and Drainage	
Agenda Item	**The Applicant's Response**
5.1 The ExA wishes to better understand, from the Applicant's flood compensation work undertaken so far for	**Paul Carey, for the Applicant** began by explaining that a hierarchy of flood compensation measures have been used where the proposed scheme unavoidably impacts the flood plain. **Kevin Crookes for the Applicant** went on to explain that there are three measures: the first is 'level for level', the second is 'relative level for level' and the third is 'volume for volume' which can be explained as follows. • Level for level – this is where areas of floodplain that are taken by the road are replaced by adjacent areas of the same level.

Scheme 06, how and where the 'relative level approach' could be used [REP4-011, page 21, Ref Number FDW 1.8]. The ExA believes that such an explanation, however delivered [REP4-011, Appendix B], will enable it to better understand any differences that may remain between the Applicant and the Environment Agency (EA) at the end of the Examination. In view of the timing of the Applicant's recent flood compensation work, the ExA may not have the opportunity within the remainder of the Examination timetable to address this matter in a Hearing. Should the final SoCG contain unresolved issues, a Hearing explanation may be important in terms of the ExA's recommendation report.	• Relative level for level – this is where we lose an area of floodplain in one location and that area cannot be replaced locally because there is not the space or because of other constraints, so the replacement area is provided further upstream or downstream, based on the topographical levels for that area. The replacement area is relative in terms of depths, but at a different topographical level. • Volume for volume – this is based more on return periods. In this scenario, different return periods are run within flood models. Where replacement cannot be replicated within the space available it is replicated at the nearest place available. The **ExA** asked whether in practical terms therefore there is any difference between relative level for level replacement and volume replacement, to which **Kevin Crookes** responded that there is no practical difference, it is just a different way of calculating the replacement. The flood compensation measure predominantly used for Scheme 6 is volume for volume due to the complex interaction between scheme and flood plain and the topography and AONB constraining the space available for compensation. **John Wilcock for the Applicant** referred to the blue hatched areas on sheet 2 of Appendix B (FDW 1.9 Flood Compensation Areas) in the response to the Examining Authority's Written Questions [REP4-011] (see page 40). When asked by the **ExA** to explain how volume for volume compensation areas work, **Mr Wilcock** explained that these areas are landscaping areas with ground levels reduced below existing ground levels. The flood modelling shows that these areas will fill at the start of a flood event and mitigate impacts from the reduction in flood plain caused by the footprint of the scheme on the floodplain. The Applicant confirmed that if one took a cross section across the compensation areas at Cringle Beck and Eastfield Sike, it would show lowered ground levels that would begin to fill with floodwaters once the watercourses overtopped the bank during a flood event. This would provide sufficient additional volume of floodplain to compensate for the losses due to the scheme up to the 1 in 100 annual event probability with a 94% allowance for climate change. Floodplain compensation in these areas would operate as natural floodplain. The larger compensation areas at Moor Beck south of the proposed Warcop Junction are more complex as there will be an impounding structure involved (subject to detailed design development). The proposal is to build a 1m high embankment on the downstream eastern side of the compensation area with a restricted outflow area. The proposed embankment structure would constrict flow passing downstream to Warcop impounding flood flows behind the embankment. Impounded water would freely drain back into the watercourse following the passing of peak flows. Extensive hydraulic modelling has shown this proposed solution to be effective at reducing flood flows and levels in Warcop when compared to the baseline scenario.
5.2 The ExA wishes to understand, from the Applicant and the EA, how far apart the parties are relation to confirmation from the EA that any fluvial flood risks	Having heard from the Environment Agency on differences between the parties in relation to the modelling work undertaken, the **ExA** queried whether we are at the stage that the ExA has to consider the reality that lack of agreement between the Applicant and the Environment Agency on this matter may be an outcome of the Examination. **Robbie Owen, for the Applicant** said that he hoped this would not be the case and that the Applicant is working collaboratively with the Environment Agency. The Applicant is developing the programme to ensure that the model will be reviewed and signed off by Deadline 8 of the Examination at the latest. The review of the baseline model is being done by a third party on behalf of the Environment Agency and not by the

can be satisfactorily managed in relation to Schemes 0102, 0405 and 06 [REP4-011, page 5, Ref Number FDW 1.2 and 1.3].	Applicant. He confirmed that the Applicant has been resolving queries and engaging with the third party, and that every effort is being made so that this does not become a problem. Having discussed the matter further with the Environment Agency, the **ExA** queried whether any thought had been given to safety nets on this matter. Might Statements of Common Ground be another way to look at how the parties can explain their positions in this respect if the Environment Agency is not able to say that fluvial flood risks can be satisfactorily managed? The ExA explained that this was a general query and that no response was required at this point. **Caroline Horn, for the Heron Family** stated that a structure and embankment has been mentioned on the storage areas to the west of Warcop Junction. On the plans it looks like this will become open grassland for agricultural use. She queried whether there will be a dip or how will it be returned? She also raised concerns about the flood zone opposite Stonebridge Farm. **Paul Carey, for the Applicant** suggested that the detail of this be included as a post hearing note. **Post-hearing note:** **Warcop – Scheme 06** The flood compensation area for Moor Beck, to the west of Warcop junction, consists of areas of land to be lowered below the existing flood plain ground level and an earth bund extending above the existing flood plain ground level. These features increase the volume of water storage in the area for a range of design storm return periods (up to and including the 1 in 100 year + 94% climate change allowance), while allowing for the natural migration of Moor Beck in this area. The earthwork features are shown with 1 in 3 slopes, however the intention at detailed design stage is for further refinement to blend them into the local landscape characteristics where reasonably practicable. Agricultural seeded grassland is proposed for this area with the potential for it to be returned to the landowner by agreement. This agreement will include, but not limited to, a need to maintain the levels, surface area of the flood compensation features and not to inhibit the natural migration of Moor Beck. **Stonebridge – Scheme 07** The existing flood plain of the un-named watercourse (UNN701 in the hydraulic modelling report in Annex E of ES Appendix 14.2 [APP-221]) opposite Stone Bridge Farm is reduced due to the widening of the A66. To compensate for this loss of flood storage volume and ensure there is no increase in flood risk downstream, the area that floods is extended northwards and increased in flood depth for a range of design storm return periods up to and including the 1 in 100 year + 61% climate change allowance. Existing ground levels in this area are proposed to be maintained in principle (subject to further survey work and detailed design development), but the likelihood of land in this area being required for flood water storage is increased. Agricultural seeded grassland is proposed for this area with potential for it to be returned to the landowner by agreement. This agreement will include, but not limited to, maintaining the ground levels required for flood storage.
6.0 Traffic and Access	
Agenda Item	**The Applicant's Response**
6.1 The ExA requires an update to the positions of the Applicant and the	Diversion route arrangements The **ExA** confirmed that the agenda item here refers in particular to Question TA 1.7 of the Examining Authority's Written Questions and requests for information [PD-011], and explained that Cumbria County Council, Eden District Council and

Local Authorities following response to ExQ1 [PD-011] in respect to: **Diversion route arrangements.** **De-trunking arrangements.** **Private means of access and public rights of way arrangements.** **Traffic modelling in Penrith**	Richmondshire District Council [although note that the question actually refers to North Yorkshire rather than Richmondshire District Council] want to know the diversion plans for the operational phase of the scheme. **Paul Carey, for the Applicant** confirmed that the Applicant is engaging with local authorities to understand this further. The ExA further queried how any operation diversion plans would be secured, and **Robbie Owen, for the Applicant**, confirmed that this would be via the third iteration of the EMP which deal with the operational phase. ***Post-hearing note:*** [The Applicant is aware that points of detail in respect to diversion routes will be raised by Cumbria County Council at Deadline 5. The Applicant will engage with Cumbria County Council thereafter providing an update in the SoCG with Cumbria County Council and to the Examination as appropriate. <u>De-trunking arrangements</u> The **ExA** explained that the agenda item here refers in particular to Question TA 1.1 of the Examining Authority's Written Questions and requests for information [PD-011] and the status of separate side agreements for asset transfers. **Robbie Owen for the Applicant** confirmed that there have been detailed discussions with all Highway authorities regarding principles around de-trunking, with a view to reaching agreement by the end of the Examination. Agreement in principle has not yet been reached on all issues. As highlighted by the local authorities, the Applicant thinks that they will be agreed by the end of the Examination – they have been underway for months, and the Applicant does want to move discussions to formal heads of terms and legal agreement as of this week. He went to say that he understands the concern raised by the **ExA** – there is a lot to resolve, but the Applicant is confident that it will be able to conclude the issues, and this is being given top priority. The **ExA** pointed out that the PADSS are not getting smaller. In relation to **Caroline Horn's** comments on the de-trunking arrangements, in particular, the potential for a temporary roundabout at Mainsgill, **Robbie Owen** confirmed that this is not provided for in the DCO and is not intended to be. It is a matter that the contractors are taking forward through the Town and Country Planning Act 1990 planning application process, and an application has not yet been made for it. Therefore, this is not a matter that is relevant to the examination of the DCO. <u>Private means of access and public rights of way arrangements</u> The **ExA** confirmed that the agenda item here refers in particular to the third part of Question TA 1.3 of the Examining Authority's Written Questions and requests for information [PD-011] and where private means of access will share access with public rights of way. Seeking clarity as to whether this is to be adopted highway with private vehicle access, or will it be private vehicle access with public footpath rights? **Robbie Owen** confirmed that this is highway with private rights of access where appropriate. The **ExA** queries whether this would be hard surface at 4m wide and pointed out that if this access looks like a road it will be regarded as one. **Robbie Owen** confirmed that this is an issue that will be taken forward through detailed design and this may include various mitigation measures. Detailed design will be subject to a Stage 2 Road Safety Audit to highlight safety considerations. He also pointed out that public access sharing private rights of way is not novel. ***Post-hearing note:*** Whilst the project has included Private Means of Access that are shared with Public Rights of Way the Applicant is of the view that there are measures that can be implemented to enable the routes to be used safely by all users. These measures will be considered on a case-by-case basis as part of the detailed design process but could include options to differentiate the surfacing

	either through its finish or via demarcation at key points along the route. Access to these routes can be controlled by physical measures such as gates or bollards which will act as a deterrent to unauthorised vehicles, but landowners would be provided means to remove them to facilitate their access when required. All affected Public Rights of Way will have a signing strategy review as part of detailed design to determine how any re-routing needs to be signed both in advance of the change and more local to it. In response to **Mr Salvin's** request for clarification on design criteria for Footway 08-03-01, and the diversion of the existing roadside footpath to the front of Rokeby Grove, which is a Grade II listed building, **Robbie Owen** confirmed that clarification would be given. ***Post-hearing note:*** A route for the proposed cyclepath was considered north of Tack Room Cottage and Rokeby Grove. The development of the proposed A66 westbound carriageway occurs in this location, widening out into the existing verge and cutting. This leaves very limited room for the proposed cyclepath without impacting on the Tack Room Cottage plot of land. The proposed cycle track would have to elevate up to meet the level of Greta Bridge bank. This would require reinforced earthworks or a structural solution at the pinch point between Tack Room Cottage and the propose A66 to avoid excessive earthworks impacting Tack Room Cottage. Allowing for the additional landtake, it would still require the removal of a considerable length of existing tree belt (approx 160m) on this existing cutting which results in landscape and ecological impacts. By locating the proposed cyclepath to the south of Tack Room Cottage and the Grove, the path follows the existing topography which minimises earthworks and reduces the number of trees and foliage impacted by the provision. <u>Traffic modelling in Penrith</u> **Paul Carey, for the Applicant**, explained that modelling has been discussed with Cumbria County Council. In response to requests for revised modelling to be shared with the Council, **Mr Carey** agreed that more dialogue is needed and will be moved forward. ***Post-hearing note:*** A meeting was held on the 9 March between the Applicant and Cumbria County Council at which the Applicant presented further material to Cumbria County Council. The Applicant will present the traffic model to Cumbria County Council at a meeting scheduled for the 17 March such that the Applicant considers an agreement on the issues can be made and closed out by mid April 2023. <u>Bivvy MOD site (Brough Hill Fair)</u> In relation to this matter which was not included in the Agenda, the **ExA** set out that Mr Welch, Mr Heron and Miss Horn have all raised concerns about the safety of the Bivvy site for the purpose of accommodating the annual Brough Hill Fair. **Mr Owen** confirmed that as is standard practice for new junctions, safety assessments will have been done. The Applicant's view is that there is a distinct improvement to the current position, but confirmation will be provided as to what assessments have been done to support this position. In response to specific concerns raised by Billy Welch, Caroline Horn, for the Heron Family, and David Keatley, **Mr Owen** pointed out that the Local Highways Authority has not raised concerns, and that the Applicant recognises the importance of Brough Hill Fair which is why the Applicant has decided not to prejudice the future of the fair and the replacement

	site for the fair is proposed as part of the Project. The Applicant has done detailed work and a supplementary consultation on alternative sites. ***Post-hearing note:*** The Applicant has provided a technical note relating to the selection of the proposed Brough Hill Fair replacement site for users. This response is provided at Deadline 5, titled as follows: *Issue Specific Hearing 3 (ISH3) Post Hearing Submission – Response to Examining Authority's Request Under Agenda Item 10: Replacement Sites Considered for Brough Hill Fair* (Document Reference 7.32). A Road Safety Audit was undertaken on the Project based on the design that was presented at Consultation in Autumn 2021. Those accessing the Brough Hill Fair site will do so from Station Road which forms part of the local road network, and is not within the Order limits and therefore not included within the Road Safety Audit. An Operational Risk Assessment of the proposed site is currently being planned following Deadline 5 in response to the request by Ms Horn. This will assess the potential risks for the intended use of the Bivvy site for the period of Brough Hill Fair. It will also consider if any mitigation measures will need to be considered during the detailed design stage of the Project. It is our intention to engage with the Gypsy community (via Mr Welch) and Mr Heron (via Ms Horn) as part of this process.
7.0 Heritage	
Agenda Item	**The Applicant's Response**
7.1 The ExA wishes to follow-up Historic England's Deadline 4 submission [REP4-031] in respect to: • **The Applicant's Heritage Mitigation Strategy; and** • **The need for a Heritage Impact Assessment in relation to the Lake District World Heritage Site.**	In response to Historic England's Deadline 4 submission relating to the Applicant's Heritage Mitigation Strategy, **Robbie Owen, for the Applicant** noted that the definition of 'commence' in article 53(12) follows a well-established formulation, as approved by the Secretary of State on numerous other DCOs. It effectively allows certain preliminary/minor works to be undertaken prior to the discharge of certain obligations and commitments in the EMP. One such category of works that are carved out are 'archaeological investigations and mitigation works'. This is common on DCOs and there are numerous precedents for this, including where detailed archaeological mitigation strategies are required to be approved post-consent (as is proposed in this case). It is important to note that the ability for the Applicant to carry out such activities does not circumvent the obligation to have a detailed heritage mitigation strategy approved as part of a second iteration EMP prior to the start of 'main' works and for these 'main' works to be carried out in accordance with that strategy. Ultimately, the purpose of the strategy is to ensure the impact of the 'main' works on the cultural heritage environment are adequately managed as it is those that are most likely to have an impact – such works cannot be carried out until such a strategy has been approved. The Applicant discussed this point with Historic England prior to the hearing (on Monday 27 February 2023) and understands that Historic England is considering this point further in light of the points raised above. The Applicant will continue to engage with Historic England on this point, with a view to reaching agreement and this will be reflected in the Statement of Common Ground between the parties. In relation to Historic England's Deadline 4 submission on the need for a Heritage Impact Assessment in relation to the Lake District World Heritage Site, **Mr Owen** submitted that the Applicant's comments addressing this can be found in REP2-016 (pages 36 to 47). **Kerry Whalley, for the Applicant** confirmed that this concern had been discussed in the meeting that took place with Historic England on 27 February 2023 and will be covered in the Statement of Common Ground.

	Post-hearing note: The Applicant has provided a response to Abbie North's concern (on behalf of Billy Welch and the Gypsy and Traveller Community) as to how the intangible cultural heritage of the Fair has been considered under the Environmental Statement's cultural heritage assessment and the Equalities Impact Assessment. This response is appended to this post-hearing note at Appendix F.
8.0 PADSS	
Agenda Item	**The Applicant's Response**
8.1 The ExA would like an update from the parties on outstanding matters contained within their respective PADSS.	Following an update from the Environment Agency on its protective provisions, the **ExA** stated that it was encouraged regarding the remaining PADSSs (other than the Environment Agency) and that lots of measures are in discussion and moving close to agreement, but disappointed that the PADSSs are the same as they were in August. The **ExA** requested that where things are moving forward and closer to resolution that this be reflected in the PADSSs due at the next deadline. Where an impasse is reached and there is no further way to go, they would be expected to remain but where progress is being made this should be expressed. **Mr Owen** confirmed that the Applicant is aware of its responsibilities towards the ExA and the examination and will endeavour to work with other parties to narrow the issues down further.
9.0 Draft Development Consent Order (Draft DCO)	
Agenda Item	**The Applicant's Response**
9.1 The ExA wishes to discuss the draft DCO including: • **Cycle track/ cycleway definition in Article 2** • **Maintenance period for new highways, Article 9 (1) and (2)** • **Further questions in respect to the wording of Article 53 (Environmental Management Plan) and Article 54 (Design) following the Applicant's response to Written Questions [REP4-011] and other responses.**	**Cycle track/cycleway definition in article 2** **Robbie Owen, for the Applicant** confirmed that the Applicant amended the definition of "cycleway" in the Deadline 2 revision to make it clear that a "cycleway" is always comprised in another highway by deleting the words "constituting or", which is a standard approach in DCOs. ***Post-hearing note:*** The Applicant has reflected on the definitions of "cycle track" and "cycleway", and has amended the definition of "cycle track" in revision 3 of the draft DCO submitted at Deadline 5 such that a cycle track as defined by the Order can only be a highway in its own right. **Maintenance period for new highways – article 9(1) and (2)** **Mr Owen** submitted that article 9 reflects standard established drafting for setting out who is to be responsible for maintaining highways constructed and altered under the powers conferred by the draft DCO. The local highway authorities have all responded to question DCO 1.2 in broadly similar terms, that is to say, that they wish there to be a legal side agreement fleshing out in practical terms the arrangements for the handover of highways from the Applicant to the relevant local highway authorities and which deals with a maintenance period (during which the Applicant will maintain such assets pending their formal adoption by the local highway authority). In response to question TA 1.1 the Applicant provided an update on progress with the local highway authorities on a side agreement. The response also sets out that the relevant provisions of the draft DCO (article 9(1), (2) & (5) and article 40(6)) set

	out a default position which can be modified by written agreement between the parties. It follows that the relevant provisions of the Order do not stand in the way of the parties reaching a settled position via a side agreement. **Further questions on article 53 (Environmental Management Plan) and article 54 (Design) following the Applicant's response to Written Questions [REP4-011] and other responses.** The **ExA** queried whether statutory environmental bodies and relevant authorities ought to be included within the article 53 process in relation to the second iteration EMP. **Mr Owen** submitted that such public bodies would be notified of the event, but this can be made clearer in the EMP, in that consultees must be notified when a referral has been made. In relation to the 14-day "call in" process being adequate for the Secretary of State, **Mr Owen** noted that the Secretary of State is the decision-maker on the DCO, and therefore has discretion (during the determination period) to suggest an amendment to the timeframe if it is considered necessary. If the call-in process remained at 14 days, and the Secretary of State required more time to make a decision, the Applicant is of the view that the request would be called in. The Secretary of State would not be bound by any time limit at this stage, in deciding whether to accept the request. Following a query from the ExA, **Mr Owen** submitted that the consultation provisions remain within the first iteration of the EMP, which will be approved if the Project is approved and certified. These will govern how the second iteration is dealt with, so the Applicant is of the view that the consultation provisions do not need repeating within the second iteration as they have served their purpose. **Mr Owen** emphasised the importance of the EMP remaining a self-contained document that does not cut across what is in the DCO, as the Applicant seeks to update accepted practice which currently inserts some obligations in various control documents and others in the body of the DCO. The Applicant took the feedback from various consultees on board, so the EMP has been amended to provide consultees with the ability to submit a request to extend the relevant consultation period. The Applicant is in the process of discussing and explaining this to local authorities. The Applicant remains of the view that an extended consultation period to apply across the board is not necessary or proportionate, particularly in light of Project Speed. The amendment to the EMP therefore provides the Applicant with the requisite degree of flexibility for individual consultees where this is necessary. Article 54(2) of the draft DCO is required to provide the Applicant with flexibility if, as part of the detailed design process for example, a departure from article 54(1) is required. This enables the Secretary of State to consult with local authorities and subsequently consider whether to approve the Applicant's proposed departure. It is implicit within article 54(2) that the Applicant consults the Secretary of State before any decision is made. The baseline position also remains that any departure must not give rise to any materially new or materially worse adverse environmental effects in comparison with those reported in the Environmental Statement. This therefore confines the extent to which a departure can be sought. The Applicant commits to publish the approved EMP on a publicly accessible website (as stated in paragraph 1.4.54 of the EMP [REP3-004]).

	Post-hearing note: The Applicant has considered whether to amend the 14 day "call-in" period within article 53 or to insert a mechanism for it to be extended. For the reasons previously stated the Applicant considers the 14 day period to be appropriate, but has amended article 53 in the Revision 3 of the draft DCO, submitted at Deadline 5, to enable the Secretary of State to extend the duration of the "call-in" period. ***Post-hearing note:*** The Applicant has considered whether to amend "reflect" in article 53(10) to "substantially in accordance". The Applicant has amended article 53(10) in the Revision 3 of the draft DCO, submitted at Deadline 5, to require the third iteration EMP to 'substantially accord with' the measures relevant to the operation and maintenance of the authorised development contained in the relevant second iteration EMP. ***Post-hearing note:*** Following the Hearing, the Applicant has considered the current provisions contained in the first iteration EMP relating to the provision of documentation to consultees. Paragraph 1.4.34 requires the Applicant to provide consultees with a copy of any submission made to the Secretary of State. The Applicant will reflect on this wording further with a view to establishing whether any amendments are required to make it clear that this extends to submissions to the Secretary of State relating to proposed amendments to the second iteration EMP (including any 'referrals'). Any required revisions to the first iteration EMP will be reflected in the next draft submitted into the examination.
10 Any Other Business	
Agenda Item	**The Applicant's Response**
Any Other Business	***Post-hearing note***: Following various Interested Parties' submissions, the Applicant has agreed to the following actions. 1. The Applicant has contacted Ms Evans in relation to queries around noise pollution / a more granular assessment. The outcome of this contact is below. 2. The Applicant's consideration of Mr Salvin's request for a visualisation of the underpass at St Mary's Church and the C1365 junction roundabout is below. 3. The Applicant has provided an additional cross-section, pursuant to Mr Pattimore's request. The cross-section is part of a complete appendix, appended to this post-hearing note at Appendix B, alongside the cross-sections submitted under Agenda Item 2.4. This has been uploaded as a separate document due to the file size (*Issue Specific Hearing 3 (ISH3) Post Hearing Submissions (including written submissions of oral case): Appendix B: Engineering Cross Sections* (Document Reference 7.30)). The Applicant has provided a cross-section drawing of Work No. 0102-01B (roundabout) pursuant to Mr Van der Lande's request. The cross-section drawing of Work No. 0102-01B has been provided as Appendix G to this document (uploaded separately due to the file size: *Issue Specific Hearing 3 (ISH3) Post Hearing Submissions (including written submissions of oral case): Appendix G: M6 Junction 40 Typical Sections (CH 450 & CH 9666*) (Document Reference 7.30)). In response to the request from Mr Van De Lande for a long section on Work No. 0102-3 (the M6 southbound off-slip) the Applicant can advise that this long section was submitted in Doc App-326 Engineering Section Drawings (Plan and Profiles) Sheet 3 of 6 (A592 Northbound to M6 Southbound Diverge) as part of the DCO submission. The Applicant has been seeking to contact Mr Van De Lande to confirm that this meets his requirements but have been unable to make contact since ISH3 at the time of writing (13.03.2023). The Applicant will continue

	to engage with Mr Van De Lande on this matter. Therefore, the Applicant has prepared a further cross section through the slip road to assist in the understanding of the relation between the DCO Order Limits and the land owned by Penrith Properties. This is included at Appendix G to this document (uploaded separately due to the file size: *Issue Specific Hearing 3 (ISH3) Post Hearing Submissions (including written submissions of oral case): Appendix G: M6 Junction 40 Typical Sections (CH 450 & CH 9666*) (Document Reference 7.30)). The Applicant will continue to engage with Mr Van De Lande to confirm or otherwise that the additional information fulfils his request. 1. The Applicant has submitted the following detail relating to Brough Hill Fair as a standalone Deadline 5 submission entitled: *Issue Specific Hearing 3 (ISH3) Post Hearing Submission – Response to Examining Authority's Request Under Agenda Item 10: Replacement Sites Considered for Brough Hill Fair* (Document Reference 7.32): **a.** the alternative sites considered; and **b.** how the alternative sites were consulted upon. 2. The Applicant has provided an update on the future management and ownership of the preferred replacement site for the Brough Hill Fair (the 'Bivvy' site), below. Note that the matters raised by Abbie North (on behalf of Billy Welch and the Gypsy and Traveller Community) at Agenda Item 7.1, in relation to the consideration of the intangible cultural heritage of the Brough Hill Fair under the Environmental Statement's cultural heritage assessment and the Equalities Impact Assessment, have been responded to in Appendix F of this document. **Contact with Ms Evans in relation to noise pollution / the Applicant's granular assessment (in relation to point 1 above)** A reply from the A66 mailbox to Ms Evans was sent on 3 February 2023, in response to an email from Ms Evans on 31 January 2023. The email on 31 January 2023 from Ms Evans asked for a document that showed that submissions made after the November 2022 hearing have been answered by the Applicant. The email from the mailbox to Ms Evans on 3 February 2023 provided a link to the document containing the Written Representations submitted by Deadline 1 (18 December 2022) and the Applicant's response to each representation made. Ms Evans also asked for details of the additional noise assessment on 'The Sills' in Barnard Castle that was requested at ISH1. At ISH3 it was noted that this has been published in the Examination Library, but Ms Evans advised that she could not find it. The document was published by the Examining Authority on 26 January 2023. The full document title is 'Deadline 3 Submission – 7.15 Issue Specific Hearing 1 (ISH1) Post Hearing Submissions – Response to Examining Authority's Request Under Agenda Item 2.1: The Sills Complementary Environmental Consideration – Rev 1' and can be found under the reference REP3-004. **Mr Salvin's request for a visualisation of the underpass at St Mary's Church and the C1365 junction roundabout (in relation to point 2 above)** The Applicant does not consider it appropriate to provide visualisations of the underpass at St Mary's Church and the C1365 junction roundabout. The production of visualisations or photomontages is required to be proportionate to the level of assessment. Photomontages are produced to assist in the assessment process, usually when significant effects are downgraded to not significant effects due to mitigation, or where effects are borderline as to their significance and a photomontage would assist the judgement. They also

	demonstrate the efficacy of the mitigation measures, supporting the assessment conclusion. The selection of viewpoints must represent genuine views from receptors such as walkers, road users or residences. The hand rendered visualisations of the kind produced for Deadline 4 are used to show design intent and resolution in relation to complex or large-scale scheme elements and were dependent on having available design information which could be modelled, interpreted and drawn. **In the case of the underpass at St Marys Church**, this is covered by VP8.4a from the front entrance of the church and VP8.8 from the public footpath south of the proposed underpass. VP8.8 has been developed into a photomontage which demonstrates the underpass cannot be seen from this viewpoint and the only significant effect is from the traffic on the proposed A66 being closer to the receptor. Because of this, the effect on this receptor has been assessed as significant at all stages. Viewpoint 8.4a was an additional viewpoint requested through consultation with the local authorities during the Technical Working Group meetings. Similarly, due to the change in view, the effect on this receptor has been assessed as significant at all stages. There would be no merit in providing additional visualisations or photomontages at this point as the current viewpoints and photomontages effectively represent receptors in this area for assessment purposes. Further photomontages would not add anything to this judgement or articulate anything the assessment does not already capture in terms of significant effects. **For the suggested visualisation of the junction**, this is covered by VP8.12. The assessment of the view from this point makes reference to the negative effects of the existing A66 in the baseline resulting in low sensitivity. During construction, the activity relating to the works would create a moderate and therefore significant adverse visual effect. The photosheet demonstrates how this view is foreshortened due to the change in road level, so this combined with maturing mitigation measures reduces the effects to not significant at year 1 and year 15. A visualisation would not assist in this assessment as it would not show the works due to rising road level. The foreshortening effect on this viewpoint, taken from an average person's eye level, means that there would be no merit in providing a visualisation as it would not show much of the change from this viewpoint. *Summary of significant effects document 3.2 Environmental Statement Chapter 10 Landscape and Visual (APP-053)* *Document 3.3 Environment Statement Figure 10.8 Viewpoint Photosheets (APP-109)* *Document 3.3 Environmental Statement Figure 10.9 Viewpoint Photomontages (APP-110)* We would propose producing a simple (line and level) cross section of the two areas in question to show how the design relates to existing context, if this would be helpful to Mr Salvin. **Future Management and ownership of the preferred replacement site for the Brough Hill Fair (the 'Bivvy' site), (in relation to point 6 above)** 1. Discussions with the Ministry of Defence regarding transfer of ownership of the site to the Applicant are ongoing. 2. The Applicant would expect that ongoing management and maintenance responsibilities in relation to the proposed new site, once provided as required by article 36 of the draft DCO, will need to be discussed with the Gypsy community as part of the discussions relating to the terms of their use of the replacement site between the landowner and the Gypsy community. 3. Details in relation to ongoing management and maintenance will also need to be provided to the Secretary of State as part of the process of securing approval of the Scheme required by article 36, so that the Secretary of State can be informed as to how

	the replacement site for the Fair will be managed and maintained in the future. Amendments to article 36 of the draft DCO, made at Deadline 5, make this clear. 4. This is in line with the Applicant's Response to Written Representations made by Affected Persons at Deadline 1 (page 55 of REP2-015).

Appendix A – Agenda Item 2.2 EMP and PDP Provisions

Within the Project Design Principles (PDP) [REP3-041] there are both project-wide and scheme-specific principles related to the design of structures, and principally the Trout Beck, Cringle Beck and Moor Beck viaducts.

The Project-wide Design Principles associated with structures are set out in section 3.2 'Theme A: Designs that are integrated in context and express character and a sense of place' and section 3.4 'Theme C: Designs to restore and enhance habitats and ecological connectivity' of the PDP. Section 3.2 focuses on landscape character, landscape integration, identity and placemaking, existing valued landscapes, features and designations, including the AONB and National Parks, and historic environment and cultural pattern. Section 3.4 focuses on Biodiversity, Habitat protection, enhancement and connectivity, Biodiversity enhancement, Green and blue infrastructure.

Scheme-specific principles associated to structures are included within the following schemes: Section 4.3 Temple Sowerby to Appleby (schemes 4 and 5), section 4.4 Appleby to Brough (scheme 6), section 4.5 Bowes Bypass (scheme 7) and section 4.7 Stephen Bank to Carkin Moor (scheme 9).

Project-wide principles:

Within the landscape character, landscape integration, and historic environment and cultural pattern principles of section 3.2, there are ten principles focusing on structures: LC01, LI02 to LI08, LI17 and HEC01 which have been summarised below:

- LC01 – Simple design aesthetic and material palette, minimising unnecessary visual clutter and distractions.
- LI02 – Use of locally specific materials for new structures to integrate them with their context.
- LI03 – Structures must have regard to the need to make efficient use of land required for the operation of the Project.
- LI04 – Structures to be open in appearance and have regard to watercourses.
- LI05 – Simple structures minimising visual bulk and protecting landscape views.
- LI06 – Structures, their deck spans and thicknesses are to have regard to the symmetry and line of principal elements of the structures, balanced with structural and operational requirements.
- LI07 – Bridge piers are to be proportionally elegant and designed with a clean, simple and uncluttered appearance.
- LI08 – Structures designed to be integral where reasonably practicable, design aesthetic must not be compromised when detailing access requirements.
- LI17 – Structures to be designed in accordance with CD 529, CIRIA C786 and comply with Institute of Fisheries Management Fish Pass Manual.
- HEC01 – Facing materials and details of new structures must be compatible with the visual character of existing adjacent heritage assets.

Within the Green and blue infrastructure principles of section 3.4 there is one principle that focuses on structures: GB03 which has been summarised below:

- GB03 - To avoid loss of riparian habitat, fragmentation of riparian corridors and impacts to riverbeds, new bridges across watercourses are to be designed as clear spanning structures with abutments set back sufficiently from the watercourses'.

Scheme-specific principles:

Section 4.3 Temple Sowerby to Appleby (schemes 4 and 5) - a summary of relevant principles is as follows:

- 0405.03 – Improve ecological habitat connectivity to the Trout Beck, it must be an open structure with a unified approach to materials.
- 0405.04 – The structure crossing the Trout Beck must allow for full functionality of normal supporting river processes, designed as an open multi-span structure and minimum clearance from river bank level of 2.5m.
- 0405.11 – Design of flood compensation at the Trout Beck will be blended into the landscape and designed to tie into existing topographic pattern. Viaduct piers to be designed to withstand river erosion and migration.

Section 4.4 Appleby to Brough (scheme 6) - a summary of relevant principles is as follows:

- 06.07 – Crossings of the sensitive watercourses (CH42900-44300) are to be open structures, ensuring no significant change to the fluvial geomorphological function of the watercourses.
- 06.16 – The structures crossing the Moor Beck and Cringle Beck must allow for full functionality of normal supporting river processes. Open span structures and piers designed to withstand river erosion and migration.

Section 4.5 Bowes Bypass (scheme 7) - a summary of relevant principles is as follows:

- 07.10 – Use a sensitive approach to landform grading to accommodate structures and to tie into the gently undulating wider landscape around Bowes.

Section 4.7 Stephen Bank to Carkin Moor (scheme 9) - a summary of relevant principles is as follows:

- 09.05 – Ensure that any structures and design interventions near and adjacent to Carkin Moor Roman Fort Scheduled Monument (CH74500) are minimal

Within the Environmental Management Plan (EMP)(REP3-004)) there is a commitment at Table 3-2 Register of Environmental Actions and Commitments, D-BD-04 'to minimise impacts on designated sites and protected species' which secures certain elements of the design of structures over SAC and other watercourses:

- New watercourse crossings of the SAC (Trout Beck) shall be **open span and the length of the crossing minimised** to reduced impacts on the aquatic environment and allow natural river processes to continue, unless otherwise agreed with Natural England and the Environment Agency.
- The crossing will utilise the **minimum number of piers** having regard to structural integrity of the crossing with no embankment across the floodplain.
- The crossing will be designed to ensure there are **no piers within the existing watercourse**.
- The piers will be designed and constructed with a view to **minimising the future requirement for any modifications or new revetments** should the river migrate and the pier(s) become(s) located within the river channel, unless otherwise agreed with Natural England and the Environment Agency.
- In addition to the Trout Beck viaduct, the majority (five out of six) of new watercourse crossings of functionally linked watercourses in the Appleby to Brough scheme shall also be **open span**, unless otherwise agreed with Natural England and the Environment Agency.
- Routewide, abutments must be **set well back from the river's edge and wherever reasonably practicable a 5 metre undisturbed buffer zone** between the river's edge and the abutment shall be maintained. In watercourses that are within the SAC or functionally linked (for fish qualifying fish species) to the SAC, this will be extended to a minimum of 8 metres.
- Where culverts are used, they shall be **bottomless (or sunk/inverted 30cm below natural bed level to allow natural substrate to be deposited)** and aim to maintain natural bank features.
- Culverts should also **comply with the Institute of Fisheries Management – Fish Passage Manual** taking account of other factors including, but not limited to gradient, pipe diameter, drop at intake and outfall etc having regard to the fish species demonstrated as being present and the length of the culvert.

Appendix B – Agenda Items 2.4 and 10 Engineering Cross Sections

Please note that Appendix B has been uploaded separately due to the size of the file.

Appendix C – Agenda Item 3.3 References to surveys and assessments undertaken in vicinity of the Langrigg area

It is important to note that some of the references provided in Appendix C relate to confidential ecological survey results so require redaction before being published.

EqIA

As set out in document 3.10 Equalities Impact Assessment (APP-243) the Equalities Impact Assessment (EqIA) considers the potential effects of the proposed project on 'protected characteristic groups' (PCGs) defined as having 'protected characteristics' under the Equality Act 2010. These protected characteristics relate to age, sex, race, religion or faith, disability, gender reassignment, marriage and civil partnerships, pregnancy and maternity, and sexual orientation.

National Highways guidance on EqIA has been used for the preparation of the assessment (National Highways (2017) Equality Impact Screening and Assessment (EqIA) Overview and Guidance: Helping You to Consider the Needs of People) which is submitted as part of the application for development consent for the Project. A range of evidence sources have been used to identify potential impacts for this EqIA including the Environmental Statement (ES) chapters for Air Quality, Cultural Heritage, Noise and Vibration and Population and Human Health (which takes mental health baseline information into account).

In addition to identifying potential equality effects, the assessment also provides information on embedded mitigation for the Project that will help to minimise or eliminate potential adverse equality effects where practicable. Further actions required to reduce adverse impacts and enhance equality of opportunity for equality groups are also set out. In doing so, this EqIA demonstrates National Highways' due regard to the Equality Act 2010 and the associated Public Sector Equality Duty.

The EqIA assesses potential disproportionate or differential effects on protected characteristic groups at the community/population level, therefore it is an assessment at the group rather than individual level, taking fully into account available baseline data for the area.

This is the established approach that has been undertaken throughout the planning of the A66 Project and there continues to be engagement to inform the project through the examination and delivery phases to seek to understand and mitigate potential impacts.

Noise

The assessment of noise and vibration associated with the construction and operation of the Project is presented in Chapter 12 Noise and Vibration of the Environmental Statement (APP-055). The assessment of likely significant effects around the area Langrigg is presented in section 12.10 under the Appleby to Brough heading, from paragraphs 12.10.88 to 12.10.108.

Paragraph 12.10.98 presents the results of operational significant effects for receptors around Warcop which includes receptors around the Langrigg area.

Table 12-44 and Table 12-45, under section 12.11 Summary, present a summary of the construction and operational effects. Under the 'Appleby to Brough' heading of table 12-44, the residential and non-residential receptors at Warcop include the receptors around the area of Langrigg. Similarly, under the 'Appleby to Brough' heading of Table 12-45, the residential dwellings at Warcop include the receptors around the area of Langrigg.

Appendix 12.3 Construction Assessment Results (APP-212) presents the results of the construction assessment at individual receptors. The receptors named 'Broomrigg House, Warcop CA16 6PT', 'Thunderstones, Warcop CA16 6PT' and 'Low Broomrigg, Warcop CA16 6PT' are all around the area of Langrigg.

Appendix 12.4 Operational Assessment Results (APP-214) presents the results of operational road traffic noise. The results are shown for individual receptors where a significant effect has been identified. The receptors named 'Broomrigg House, Warcop CA16 6PT', 'Thunderstones, Warcop CA16 6PT' and 'Low Broomrigg, Warcop CA16 6PT' are all around the area of Langrigg.

Appendix 12.5 Non-significant effects (APP-215) presents the receptors which have been assessed and for which noise impacts arising from construction and operation of the Project are assessed as not significant. Under the heading 'Appleby to Brough' of Table 1 Summary of non-significant effects (construction), the 'Receptors at Warcop' include the area of Langrigg. Similarly, under the heading 'Appleby to Brough' of Table 2 Summary of non-significant effects (operation), the 'Residential receptors in Flitholme and Langrigg Hill' includes the area of Langrigg.

Figures 12.1 to 12.7 (APP-112 to APP-118), which accompany Chapter 12 Noise and Vibration, present the operational study area and the results of noise prediction modelling. The area of Langrigg is shown in sheet 5 of 12 of all the figures.

Biodiversity Surveys

National Highways highlights that a full suite of species-specific surveys has been undertaken to inform the biodiversity impact assessment (APP-049) and associated mitigation in accordance with standard industry guidance and through consultation with Statutory Environmental Bodies, including Natural England. Relating specifically to the land within the survey area at Langrigg, please see further details below:

Baseline

Habitats: The habitats recorded within the survey area at Langrigg predominantly comprise a mosaic of improved grassland, semi-improved grassland, marshy grassland and arable fields intersected with a mix of species-rich and species-poor hedgerows with

scattered trees (Figure 6.3 Phase 1 Habitat and Terrestrial Invertebrate Survey, Scheme: 06, Appleby to Brough Sheet 9 to 15, Document 3.3, APP-070).

Species

The following protected or notable species have been identified within the survey area at Langrigg:

- Birds: Breeding bird territories for the following bird species have been identified within the surrounding areas to Langrigg: Lapwing, willow warbler, house sparrow, curlew and oystercatcher (Figure 6.13 Breeding Bird Territory Scheme: 06, Appleby to Brough Sheet 9 of 15). Type 2 suitable habitat for barn owl has also been identified within the semi-improved/marshy grassland at Langrigg (Figure 6.15 Barn Owl Territory Scheme: 06, Appleby to Brough Sheet 9 of 15, Document 3.3., APP-083 CONFIDENTIAL).
- Otter: Signs of otter in the form of spraints and prints on Lowgill Beck have been identified (Figure 6.16 Otter and Water Vole Survey, Scheme: 06, Appleby to Brough Sheet 9 of 15, Document 3.3, APP-084).
- Bats – Bats, predominantly common pipistrelle and soprano pipistrelle bat species, were identified foraging and commuting along Lowgill Beck and adjacent hedgerows (Figure 6.7 Bat Activity Surveys, Sheet 19 of 30, Document 3.3, APP-075 CONFIDENTIAL and Appendix 6.11, Section 6.11.5 Results – Appleby to Brough, Document 3.4, APP-164 CONFIDENTIAL).
- Badgers: A number of badger setts were identified approximately 500m to the west of Langrigg (Figure 6.6 Badger Setts, Field Signs and Badger Bait Marking, Appleby to Brough Sheet 9 of 15, Document 3.3, APP-074 CONFIDENTIAL).
- Red squirrel – Camera trap sightings indicate the presence of red squirrel within the woodland to the north of the existing A66 at Langrigg (Figure 6.12 Terrestrial Mammal Field Survey Scheme: 06, Appleby to Brough Sheet 9 of 15, Document 3.3, APP-080).
- White-clawed crayfish and macroinvertebrates: White-clawed crayfish and sites with macroinvertebrate assemblage indicative of high conservation value were recorded in Lowgill Beck (Figure 6.18 River Corridor Survey, Macrohphyte , Aquatic Invertebrate Survey and White-clawed Crayfish, Survey Scheme: 06, Appleby to Brough Sheet 9 of 15, Document 3.3, APP-086).

Assessment and mitigation measures

A full assessment of the likely significant effects and required mitigation as a result of the Project, which takes into account the above findings, is provided within Environmental Statement (ES) Chapter 6 Biodiversity (Section 6.9 and Section 6.10 – Appleby to Brough, Document Reference 3.2, APP049). This is illustrated within the Environmental Mitigation Maps (Figure 2.8.4 Environmental Mitigation Scheme: 06, Appleby to Brough Sheet 4 of 5, Document Reference 2.8, APP-041) and secured within the Environmental Management Plan (EMP) (Document Reference 2.7, APP-019) and Environmental Management Plan Annex B1 Outline Landscape and Ecological Management Plan - Rev 2 (Document 2.7, REP3-003).

Appendix D – Agenda Item 4.1 Correction made in response to Written Question CE1.5

CE 1.5 Response:

i) For the reasons explained in detail below, trip reductions are included within the final GHG estimation for the Project. Paragraph 6.2.14 and 6.2.15 of the Combined Modelling and Appraisal Report (Ref 3.8 [APP-237]) states that ”The environmental impacts of the Project which are quantified and monetised are listed below.

- noise – changes in noise levels on sensitive receptors (residential properties).
- air quality – changes in the exposure of people to air pollutants.
- greenhouse gases – the overall change in emissions of greenhouse gases including carbon dioxide, including an assessment of construction, road user (tailpipe), renewal/maintenance, and corporate/operational emissions.

Each aspect is assessed using assigned network flows from the A66TM, for the whole route, in each modelled time period by vehicle type, at base year 2019 and at forecast years 2029, 2044 and 2051. The modelled network hourly traffic flows are annualised to equivalent 18- hour AAWT (Average Annual Weekday Traffic), for noise, and to 24-hour AADT (Average Annual Daily Traffic), for air quality and greenhouse gases.”

Therefore, each road link within the Fully Modelled Area (as defined in paragraph 4.5.1 to 4.5.5 of Combined Modelling and Appraisal Report – (APP-237) is assessed in terms of emissions considering the average daily speed and flow (24-hour AADT) by vehicle type. This is undertaken for each forecast year (2029, 2044 and 2051) for the modelled Do Minimum and Do Something scenarios (as defined in paragraph 5.6.1 of the Combined Modelling and Appraisal Report (APP-237)).

The Traffic Reliability Area (TRA) has been used as the largest accurate area of the traffic model associated with the Project. The TRA is the area of the traffic model considered to provide reliable estimates of traffic when the base traffic model is compared to observed traffic, this has been defined by considering the area across which the Project can be seen to have an impact. ~~otherwise known as the ARN~~. Using the AADT outputs from this, vehicle kilometres were aggregated to calculate the greenhouse gas emissions for the total Project. Aligning with DMRB LA 114, emissions have been calculated for the Do-Minimum and Do-Something Scenarios for the baseline (2019), Opening Year (2029) and Design Year (2044). Therefore, the model is used to define the Traffic Reliability Area, which is the area over which a notable change in traffic can be seen - i.e. reduction or increase – aligning with DMRB LA ~~105~~114, paragraph ~~2.1~~3.3. By using this model output the assessment is inherently accounting for 'transfers' of traffic in this way by incorporating both the reductions on some roads and increases on some roads, therefore trip reductions are included within the final GHG estimation for the Project.

(ii) The "conservative approach" in footnote 79 of [APP-050] refers, as is relevant to that part of the ES Chapter, to the inclusion of maintenance emissions in the DS scenario, but exclusion of maintenance within the DM scenario as this will be marginal for the existing A66. By including maintenance within the DS scenario this slightly overestimates total GHG emissions associated with the Project, providing a precautionary assessment. This footnote does not relate to the end-user emissions assessment as this question is discussing.

In terms of contextualisation, please see the Applicant's detailed response that is provided in Appendix 1 to the Applicant's Response to Written Representations made by other Interested Parties at Deadline 1 - Rev 1 (REP2-017), pages 78 – 81. This provides a full and detailed explanation of how the GHG assessment for the A66 Project has been contextualised, which is against national carbon budgets.

The Climate Emergency Planning and Policy method is not very meaningful, for the reasons set out below. In brief, it cannot be demonstrated that a local budget actually represents what the Government would adopt as a regional trajectory were it to undertake the exercise. Appraisal against a trajectory which is not demonstrably consistent with Government policy is not a meaningful exercise, is not required by the EIA Regulations or the IEMA Guidance and should not be given any material weight in the decision-taking process.

The Applicant notes that there is no statutory basis or established framework (i.e. DMRB or IEMA) to contextualise or assess GHG emissions at a local level, and such a local contextualisation is not required by law, by the National Policy Statement for National Networks (NPS NN) nor by DMRB or IEMA Guidance. Local/regional carbon budgets have no basis in law or policy and cannot reflect how Government would distribute the national carbon budget.

The position with regard to local carbon budgets was recently examined by the High Court in Bristol Airport Action Network Co-Ordinating Committee v Secretary of State for Levelling Up, Housing and Communities [2023] EWHC 171 (Admin). Ground 4 of this case asserted that the Panel (in a Planning Inspectorate appeal) had erred in law in discounting the impact of expansion of Bristol Airport in relation to the local carbon budget of the local council, North Somerset Council.

Justice Lane rejected that there is any basis in law to assess a project against local carbon budgets. The judgment states:

"Applying these principles, I am in no doubt that the Panel did not act irrationally in giving the issue of local carbon budgets no weight, on the ground that such budgets have no basis either in law or in policy. They plainly have no basis in law. Contrary to [the Claimant's] submission, the fact the fact that they have no basis in policy is significant, given that, in the planning field, we are concerned with decision-making which is intensely concerned with matters of policy.

The fact that [the Claimant's expert] evidence on this issue was not contradicted by [Bristol Airport Limited's; BAL] climate expert did not, therefore mean the Panel had no alternative but to ascribe weight to what [the Claimant's expert] had said about local carbon budgets. BAL makes the point that its EIA had focussed on aircraft emissions in the national context. As the IEMA Guidance indicates,

this is one of the ways of assessing the impact of a project. Indeed, in the present context, looking at the effect of the Airport's expansion proposal in the national context was manifestly appropriate, for the reasons I have already given. I accordingly find that the Panel was entitled to ascribe no weight to the evidence about the local carbon budget".

Further, the IEMA Guidance advises that:

"Effects of GHG emissions are not geographically circumscribed so a geographic budget (below a national budget….) is not very meaningful…Its unclear whether emerging local authority or regional budgets will add up coherently to the UK budget."

(iii) As discussed above the 'conservative approach' refers to the maintenance issue within the footnote of the climate chapter.

Improvements, such as congestion changes associated with the Project and vehicle efficiencies, are included within the traffic model and associated GHG calculations. The carbon factors associated with road types and speed categories from the Emission Factor Toolkit (v11) align with congestion changes within the model to ensure this is accounted for within the assessment approach.

Appendix E – Agenda Items 4.1 and 4.2 Explanation of GHG Assessment and Traffic Modelling

Screening criteria under the Traffic Reliability Area (TRA)

A GHG assessment is required for projects that cause a change in traffic on any road that would meet scoping criteria for Climate which are stated in paragraph 3.3 of DMRB LA 114:

a) a change of more than 10% in AADT;

b) a change of more than 10% to the number of heavy duty vehicles; and

c) a change in daily average speed of more than 20 km/hr.

Paragraph 3.9 of DMRB LA 114 states that for operational road user GHG emissions, the study area shall be consistent with the affected road network defined in a project's traffic model. Therefore the TRA is used within the climate assessment as this is the area of the traffic model considered to provide reliable estimates of traffic when the base traffic model is compared to observed traffic, and therefore can be relied upon to forecast the significant effects of the Project.

All of the links that fall within the geographical boundary of the TRA i.e. all of the links within the purple area shown in Figure 4.1 of the Combined Modelling and Appraisal Report (Application Reference 3.8 [APP-237]) are used within the Climate assessment, i.e. this scoping criteria is not reapplied to those links within the TRA as part of the climate assessment calculations. Therefore, every link within the TRA, are part of the climate assessment.

The development of the traffic model is described in detail within the Transport Model Package Appendix B of the Combined Modelling and Appraisal report (Application Reference 3.8 [APP-239]). Table 6-1 contains details of how the network coding becomes more detailed within the 'Simulation fully modelled area' (this includes the TRA) which is the area over which significant impacts of interventions are expected and becomes increasingly less detailed within the intermediate and external areas. Likewise, the traffic counts (Figure 8-3, [APP-239[) and journey time routes (Figure 9-1, [APP-239]) used within model calibration and validation are concentrated on and centred within the 'Simulation fully modelled area' and become less dense in the intermediate and external areas.

The reasons why this structure of highway model is typically used within the industry are described in detail within section 2.2. of Transport Analysis Guidance M3-1 Highway Assignment Modelling. This is summarised as:

The geographic coverage of highway assignment models generally needs to:

- allow for the strategic re-routeing impacts of interventions
- ensure that areas outside the main area of interest, which are potential alternative destinations, are properly represented

- ensure that the full lengths of trips are represented for the purpose of deriving costs (in terms of travel time and monetary cost)

In traffic routeing terms, a primary objective for the intermediate area is to ensure that traffic enters the Simulation fully modelled area at the right locations and that opportunities to avoid travelling through the Simulation Fully Modelled Area are properly represented. The same principle applies to the relationship between the intermediate area and the external area.

On this note, the Applicant noted a correction and confirmed that in its response to the Examining Authority's Written Question CE.1.5 [REP4-011], the response refers on page. 13 to the ARN, when instead it ought to have referenced the TRA.

Post-hearing note: the Applicant has appended to this post-hearing submission an errata version of their response to the written question CE.1.5, [REP4-011] at Appendix D above.

Accordingly, the GHG assessment captures all of the increases in traffic that occur on the A66 from either demand response or trip reassignment (as the whole of the A66 is within the TRA) but it will only account for reductions on other routes as a result of these changes where those other routes fall within the TRA. Accordingly, this represents a very precautionary assessment as it captures all increases, but not the decreases where those occur outside the TRA.

De minimis

The methodology used to calculate GHG following DMRB LA 114 is likely to overstate the GHG emissions generated by the Project, and is therefore considered to be a precautionary approach. This is explained in detail below.

The improvements on the A66 brought about by the Project would lead to a travel time saving on the A66 between Penrith and Scotch Corner. This travel time saving leads to traffic flow increases on the A66 itself, and on some roads adjacent to the A66. Drivers take advantage of the travel time saving by either changing the destination, mode, or frequency of their trip (a demand response) or change their route (assignment response) to make use of the A66.

The traffic increases are concentrated on the A66, and adjacent roads as it is these roads where the travel time advantage can be gained. However, traffic decreases are spread more thinly as the assignment and demand response reduces the traffic on roads over a wider area.

As per the scoping criteria used to define the TRA that is explained above, this criteria screens out changes below a certain level. Therefore, the TRA covers the large increases in traffic flows on or adjacent to the A66 but does not cover all of the locations where smaller decreases occur. An important consideration within this context is found in Note 2 of paragraph 2.1 of DMRB LA 105 Air Quality states; 'The 1,000 vehicles and 200 HDVs represent the lowest threshold above which the traffic model can represent change in traffic conditions to a reasonable level of confidence'.

This is illustrated by considering the traffic flows on the A66 and the strategic diversion routes such as the A69, A59 and A65 (which, the Applicant notes, are those roads referenced within the question asked at ISH3 detailed agenda item 4.2).

Table 5-33 of the Combined Modelling and Appraisal Report (Application Reference 3.8 APP-237) shows that the flow increase on the A66 between Appleby and Brough is 7,185 vehicles in 2044 (12 hour flow, two-way). This corresponds to an AADT (Annual Average Daily Traffic – taken over 24 hours) increase of 8,136.

The strategic reassignment on the A69, A59 and A65 (Design Year flows, for 2044 two-way AADT) are stated below:

- A69 (west of Haltwhistle) – a reduction due to the Project of 384 vehicles, accounting for 2% of the modelled traffic at this location.
- A65 (east of Skipton) – a reduction due to the Project of 330 vehicles, accounting for 2.5% of the modelled traffic at this location.
- A59 (east of Skipton) – a reduction due to the Project of 26 vehicles, accounting for 0.1% of the modelled traffic at this location.

Other notable strategic diversions are:

- M62 (east of junction 22) – a reduction due to the project of 734 vehicles, accounting for -0.4% of the modelled traffic at this location;
- M6 (east of Junction3a) – a reduction due to the project of 840 vehicles, accounting for -0.2% of the modelled traffic at this location.

The strategic reassignment away from the A66 to the roads listed above are not shown in any of the application documents, as they are not large enough to trigger the scoping criterion.

This is further illustrated by Figure 1 which considers the absolute increase on all strategic east west routes crossing a screenline between the A68 in the north (at Rochester) and the M40 in the south. This illustrates the strategic reassignment to the A66 from east west routes across the North and Midlands within England. This shows an increase in traffic occurring on the A66 and A685 which are both within the TRA and included within the Climate assessment. Smaller decreases in traffic flow occur on all other links. The only link where the decrease is captured is on the A686, which was included within the TRA given it is geographically adjacent to the A66 and was therefore reasonable to include within the TRA. In this way the assessment undertaken can be seen to be precautionary.

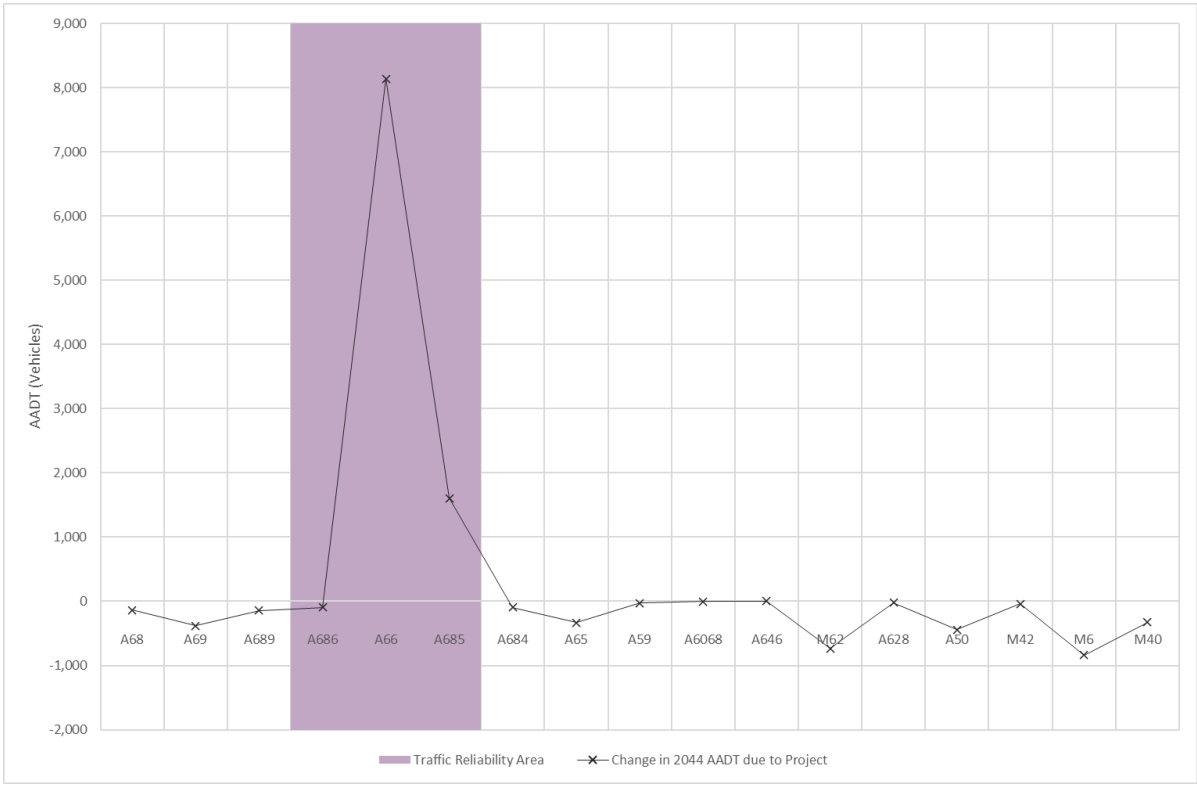

Figure 1: 2044 AADT Modelled flow change due to the Project (2 way flow) on east-west Routes

The routes considered within the graph above illustrate a modelled reassignment response, as trips would now use the A66 and A685 to make east west journeys that previously would have used an alternative route (e.g. A69, A59, A65, M62 and M6).

- The total increase in trips on the three routes within the TRA is 9,646 trips AADT.
- The total decrease in trips on the wider network is 3,522 AADT.
- The difference between these two numbers represents the additional trips (6,124 AADT) that are now using the A66 which were not previously travelling across the east west screenline.

These additional trips are generated by the demand response within the model. The demand response reflects people who have changed their destination, mode, or frequency of their trip as a result of the journey time improvements provided by the Project. To consider the assessment of these trips:

- As the TRA covers the A66, the addition in mileage due to the new trip will be included within the assessment.
- However, in terms of any savings that may arise:
  - If this is a completely new trip, then the assessment will correctly represent the increase in GHG emissions, as there was no old trip.
  - If the trip was previously undertaken on public transport, then the assessment will correctly represent the increase in GHG emissions as it is assumed that public transport provision will not change.
  - If the trip was previously undertaken by road, then the reduction in GHG emissions due to the removal of the old trip may not be fully captured as the old trip may have been occurring (at least in part) away from the TRA as can be seen within the example below.

Example: *Considering the example of the demand change of a person in Darlington deciding to travel to Penrith as opposed to York.* While the whole of the 'new' trip between Darlington and Penrith would be captured within the GHG assessment, only part of the 'old' Darlington to York trip would be captured (as York is outside of the TRA).

Therefore, while all of the GHG emissions associated with the new trip are likely to be captured, the saving due to the removal of the old trip may not always have been captured. A precautionary approach is undertaken ensuring the increases in traffic on the A66 are accurately modelled whilst discounting savings that may occur outside of the TRA.

Horizon year within EFT

As stated within the Climate chapter [APP-050], paragraph 7.5.15, the emissions associated with vehicles using the infrastructure have been calculated using the Department for Environment, Food & Rural Affairs' Emissions Factors Toolkit version 11 for Do Minimum and Do Something scenarios for a 60-year period from the year of opening, 2029 to 2089 as required for economic appraisal within TAG. Emissions are calculated using specific parameters appropriate for each year. These parameters are outlined in Table 1 below. The horizon year for the tool was discussed at ISH3, and the Applicant confirms by way of this post-hearing note that the horizon year is 2050.

The traffic model provides daily traffic flows and average daily traffic speeds for each link within the TRA for the opening year 2029, and the design year 2044. This allows vehicle kilometres to be calculated. An example of how the vehicle kilometres change within each of the modelled years is provided in Table 5-26 for 2029, and 5-28 for 2044 of the Combined Modelling and Appraisal Report (Application Reference 3.8 APP-237). It should be noted that the values provided within these tables are for the full simulation area of the model (i.e. the combined purple, blue and green areas of Figure 4-1 APP-237), which is wider than the TRA.

These traffic flows are then input into the emissions factors toolkit (EFT v11). The EFT is published by Defra and the devolved administrations to assist local authorities in carrying out review and assessment of local air quality as part of their duties under the Environmental Act 1995 as amended.

The EFT allows users to calculate road vehicle pollutant emission rates for NOx, PM10, PM2.5 and CO_2 for a specified year, road type, vehicle speed and vehicle fleet composition. The calculations are based on the following**;**

- Assumed fleet splits are included up to 2020 by road type.
- Engine efficiency adjustment factors have been provided by DfT/NH and are applied to exhaust CO_2 emission outputs up to 2050.

A summary of the parameters and assumptions used are shown in Table 1

Parameter	Assumption
Traffic Flows (Vehicle Kilometres)	Modelled for 2029 and 2044. Interpolated for all years between 2029 and 2044 2044 values assumed for all years post 2044, i.e. 2044 to 2089
Fleet Split	EFT v11 specified values for each year up to 2050 2050 values assumed for all years post 2044, i.e. 2050 to 2089
Engine Efficiency	EFT v11 specified values for each year up to 2050 2050 values assumed for all years post 2044, i.e. 2050 to 2089

Table 1: Parameters and Assumptions used within the Greenhouse Gas Assessment

Appendix F – Agenda Item 7.1 Intangible Cultural Heritage of the Fair

Cultural Heritage

The Convention for the Safeguarding of Intangible Cultural Heritage was adopted by the general convention of UNESCO in 2003. One hundred and eighty-one states have subsequently signed up to the convention. The United Kingdom has not and therefore the Convention has no standing in UK law.

Intangible Cultural Heritage (ICH) is not included in the guidance for assessment of cultural heritage contained in the Design Manual for Roads and Bridges (LA106) nor is it included in the National Policy Statement for National Networks. As a result, the scope for Cultural Heritage assessment of the A66 Northern Transpennine Project as laid out in PCF Stage 3 Environmental Scoping Report (APP-148) does not include ICH.

The Historic Environment Research Framework (APP-186) recognises that 'aspects of 'In-tangible Heritage' might warrant inclusion [in the Framework] as part of the Cultural/Historic Environment' (note to paragraph 8.9.1.2). The Appleby Horse Fair is cited as an example (paragraph 8.9.3.142 and notes 263 and 264). It is noted at paragraph 8.9.4.72 that the impact from the Project on the Romani/Traveller community is assessed in ES Volume 1 Chapter 13: Population and Human Health and the Equalities Impact Assessment (EQIA). The Framework concludes its engagement with ICH by noting (paragraph 8.9.5.6) that 'The inclusion of 'Intangible Heritage' has opened the way for consideration of the social context and community value of the heritage of the A66 Route Corridor and what that might mean to the 'lived experiences' of both the local population and visitors to the area? As already stated amongst the latter a key group will be those associated with the Appleby Horse Fair, but others might include what could be much more diffuse groups with a multiplicity of over-lapping interests, particularly tourists and outdoors enthusiasts.'

The Heritage Mitigation Strategy (APP-023) draws elements from the Research Framework and includes intangible heritage under the heading of identification of new sites/topics. Table 1 includes 'Appleby Horse Fair and other Romani heritage [i.e. Brough Hill Fair]' as a potential area of focus.

Equalities Impact Assessment (EqIA)

The EqIA identifies the gypsy and traveller communities as key stakeholders in the development of the project (section 2.5)

In the baseline (section 2.6), under the Protected Characteristic Group (PCG) of 'Race' it acknowledges the presence of the gypsy and traveller community in the study area, the historic nature of both the Appleby Horse Fair and Brough Hill Fair, and the cultural significance of these gatherings. It notes that Appleby Horse Fair is *'a historic gathering of Gypsies and Travellers'* and that '*For the Gypsy and Traveller community, Appleby Horse Fair is a major cultural event with attendees from all over the UK and abroad coming to show and trade horses, meet family and friends, and sustain traditions'*. It also highlights that '*Brough Hill Fair is an annual Gypsy and*

Traveller fair' and that '*A horse Fair has been held in the local area for over 700 years and the Gypsy Community have has a long-standing historic association with the fair'*.

Section 2.9 of the EqIA assesses the potential effects on the gypsy and traveller communities as a result of the construction of the project on both fair sites. It also assesses the potential impacts during construction on journeys to the Appleby Fair (being the larger and substantially more well-attended of the two fairs). The Appleby Fair site is no longer directly affected by the project. It is proposed that the Brough Hill Fair site is re-provided on a site adjacent to the existing site. It is therefore considered that the cultural activities of the fair would be retained on the new site. It is worth noting that the geographical location of the current site is not the original historic location of the horse Fair and has previously changed location.

Appendix G – Agenda Item 10 M6 Junction 40 Typical Sections (CH 450 & CH 9666)

Please note that Appendix G has been uploaded separately due to the size of the file.