A46 Newark Bypass

TR010065/APP/7.2

7.2 National Policy Statement for National Networks (2015) Accordance Tables

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A46 Newark Bypass

Development Consent Order 202[x]

NATIONAL POLICY STATEMENT FOR NATIONAL NETWORKS (2015) ACCORDANCE TABLES

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Contents

1 Introduction

1.1.1 This National Policy Statement for National Networks (NPSNN) Accordance Table (this "Accordance Table") relates to an application made by National Highways (the "Applicant") to the Secretary of State for Transport via the Planning Inspectorate (the "Inspectorate") under the Planning Act 2008 (the "2008 Act") for a Development Consent Order (DCO). If made, the DCO would grant consent for the A46 Newark Bypass (the "Scheme"). A detailed description of the Scheme can be found in Chapter 2 (The Scheme) of the Environmental Statement (ES) [APP-046].

1.1.2 The NPSNN sets out the Government's policies to deliver, development of Nationally Significant Infrastructure Project (NSIPs) on the national road and rail networks in England. It provides planning guidance for promotors of NSIPs and the basis for the examination by the Examining Authority (ExA) and decisions made by the Secretary of State. Further details about the NPSNN can be found in the Case for the Scheme [APP-190]. This Accordance Table comprises a suite of application documentation and is included in the application in compliance with Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the "APFP Regulations") which require *"any other documents considered necessary to support the application".* This Accordance Table provides an assessment of the Scheme's strategic alignment and conformity with the 2015 NPSNN. The Accordance Table is set out as follows:

- Table 2.2: Scheme's Conformity with NPSNN Chapter 3 – Wider Government Policy on National Networks;
- Table 2.3: Scheme's Conformity with NPSNN Chapter 4 – Assessment Principles; and
- Table 2.4: Scheme's Conformity with NPSNN Chapter 5 – Generic Impacts.

1.1.3 Each relevant paragraph in the NPSNN is set out with commentary as to the extent of compliance by the Scheme with its terms.

1.1.4 The Accordance Table references other relevant documentation as part of the Application and provides a summary where appropriate. The following documents have been used to inform the completion of this Accordance Table.

- Draft Development Consent Order [REP5-002].
- Consents and Agreements Position Statement [REP4-007].
- Consultation Report [APP-028] and Appendices [APP-029] to [APP-044].

- Environmental Statement (ES) (contained within Volume 6.1 of the DCO Application) (including Figures (contained within Volume 6.2 of the DCO Application) and Appendices (contained within Volume 6.3 of the DCO Application)).
- Environmental Statement Non-Technical Summary [REP5-023].
- First Iteration Environmental Management Plan (EMP) [REP5-025]**.**
- Habitats Regulations Assessment [REP5-075]**.**
- Statement Relating to Statutory Nuisances [APP-186].
- Case for the Scheme [APP-190]**.**
- Transport Assessment (TA) [REP5-023].
- Scheme Design Report [APP-194].

2 National Policy Statement for National Networks Accordance Tables

Table 2.1: Compliance with NPSNN Chapter 3

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
3.2	The Government recognises that for development of the national road and rail networks to be sustainable these should be designed to minimise social and environmental impacts and improve quality of life.	A comprehensive Environmental Impact Assessment (EIA) has been undertaken, together with proposals for mitigating any significant environmental effects arising from the Scheme. The EIA is reported in the ES (contained within Volume 6.1 of the DCO Application) which sets out the effects of the Scheme and the measures designed to mitigate likely significant environmental effects arising from the Scheme. Where specific design, mitigation and enhancement measures have been applied, these are reported under each individual technical chapter of the ES (contained within Volume 6.1 of the DCO Application) and are summarised in the ES Non-Technical Summary [REP5-023]. Environmental commitments and key performance indicators contained within the

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Department for Transport's (DfT) Second Road Investment Strategy: 2020-2025 (RIS2) and its associated National Highways' Strategic Business Plan and Delivery Plan have been considered throughout the Scheme design-development and EIA process to date. These have helped to minimise social and environmental impacts of the Scheme and promote improvements in quality of life. The design of the Scheme is described in Chapter 2 (The Scheme) of the ES [APP-046] along with the mitigation embedded within it. Mitigation measures to minimise any resulting social and environmental impacts are also presented in the Register of Environmental Actions and Commitments (REAC) which forms part of the First Iteration EMP [REP5-025]. The REAC sets out the essential mitigation measures that would be required during construction and operation, why they are required, who is responsible for delivering them and details any ongoing maintenance requirements.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		In accordance with Requirement 3 of the draft DCO [REP5-002], a Second Iteration EMP would be developed and implemented by the Principal Contractor prior to the start of the main construction works; it must substantially accord with the First Iteration of the EMP [REP5-025]**.** Details of the embedded mitigation for the Scheme are captured in Chapter 2 (The Scheme) of the ES [APP-046]. This includes embedded mitigation measures for landscape and visual receptors, measures for biodiversity, for archeology and cultural heritage, drainage and water environment, geology and soils, noise and vibration, population and human health and resource efficiency. The Applicant has also prepared a Scheme Design Report [APP-194] which summarises the design policy context and which discusses the overarching design principles to respond to the design objectives set out in the NPSNN, The Road to Good Design, Design Principles for National Infrastructure, Technical Design Standards for the Scheme. The Scheme Design Report [APP-194] demonstrates how 'good

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		design' was considered across the Scheme design and how this design minimises social and environmental impacts.
3.3	In delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance. Applicants should also provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes. The Government's detailed policy on environmental mitigations for developments is set out in Chapter 5 of this document.	The design has been developed to meet the key Scheme objectives whilst also minimising environmental effects wherever practicable. Consequently, the Scheme design adheres to the principles of the National Planning Policy Framework (NPPF)[1]. Each chapter of the ES (contained within Volume 6.1 of the DCO Application) outlines the relevant policy, including the NPPF and the Government's planning guidance. The Scheme Design Report [APP-194] and Chapter 6 of the Case for the Scheme [APP-190] also sets out compliance with the NPPF. The first principle of the NPPF is to avoid potential adverse effects where possible, before seeking to minimise or mitigate any unavoidable impacts. This has formed a well-developed embedded and essential mitigation strategy.

[1] Department for Levelling Up, Housing & Communities (December 2023). National Planning Policy Framework [online] available at: National Planning Policy Framework - GOV.UK (www.gov.uk) (last accessed December 2023)

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Further details on the embedded mitigation for the Scheme are captured in Chapter 2 (The Scheme) of the ES [APP-046]. Where it has not been practicable to avoid certain impacts, mitigation measures to limit the potential adverse effects of the Scheme would be provided; known as additional mitigation. Each chapter of the ES (contained within Volume 6.1 of the DCO Application) sets out how environmental impacts of the Scheme would be mitigated, in line with current relevant guidance and accepted principles. Opportunities for environmental and social benefits have also been considered as part of the EIA process and will be an ongoing aim of the detailed design process to deliver environmental and social benefits. The additional measures (which include good practice construction measures) are included within the REAC which forms part of the First Iteration EMP [REP5-025]. This details the environmental mitigation measures that would be implemented prior to, during and after construction. It indicates why the measures are required, who is responsible for delivering

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		them and details any ongoing monitoring and maintenance arrangements required. The REAC is a 'living' document, future iterations of which would include additional and more detailed measures. All works would be carried out in compliance with the relevant iteration of the EMP. The Applicant has considered opportunities to deliver environmental and social benefits as part of the Scheme. Chapter 5 of the Case for the Scheme [REP5-030] discusses the social benefits of the Scheme, while each chapter of the ES (contained within Volume 6.1 of the DCO Application) provides specific details of the opportunities for social and environmental benefits to be delivered by the Scheme considered as part of the EIA process.
3.4	The Appraisal of Sustainability accompanying this NPS recognizes that some developments will have some adverse local impacts on noise, emissions, landscape/visual amenity, biodiversity, cultural heritage and water resources. The significance of these effects and effectiveness of mitigation is uncertain at the strategic and non-locationally specific level of this NPS. Therefore,	See response to NPSNN paragraphs 3.2 and 3.3 above.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
	whilst applicants should deliver developments in accordance with Government policy and in an environmentally sensitive way, including considering opportunities to deliver environmental benefits, some adverse local effects of development may remain.	
3.5	Outside the nationally significant infrastructure project regime, Government policy is to bring forward targeted works to address existing environmental problems on the Strategic Road Network and improve the performance of the network. This includes reconnecting habitats and ecosystems, enhancing the settings of historic and cultural heritage features, respecting and enhancing landscape character, improving water quality and reducing flood risk, avoiding significant adverse impacts from noise and vibration and addressing areas of poor air quality.	Wider Government policy in relation to specific environmental topics is addressed in the introductions for each technical chapter within the ES (contained within Volume 6.1 of the DCO Application). The chapters that consider the environmental issues mentioned in paragraph 3.5 of the NPSNN are: • Chapter 5 (Air Quality) [REP5-073]; • Chapter 6 (Cultural Heritage) [APP-050]; • Chapter 7 (Landscape and Visual Effects) [APP-051]; • Chapter 8 (Biodiversity) [APP-052]; • Chapter 11 (Noise and Vibration) [APP-055]; and • Chapter 13 (Road Drainage and Water Environment) [APP-057].
3.6	Transport will play an important part in meeting the Government's legally binding carbon targets and other environmental targets. As part of this there is a need to	Greenhouse gas (GHG) emissions have been considered as part of the development of the Scheme. Chapter 14 (Climate) of the ES [APP-

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
	shift to greener technologies and fuels and promote lower carbon transport choices. Over the next decade, the biggest reduction in emissions from domestic transport is likely to come from efficiency improvements in conventional vehicles, specifically cars and vans, driven primarily by EU targets for new vehicle CO_2 performance. Electrification of the railway will also support reductions in carbon.	058] assesses the greenhouse gas (GHG) emissions associated with the Scheme, including from road user (transport) emissions. As per DMRB LA 114 decommissioning is excluded from the assessment due to the length of the asset operational phase. The construction and operation of the Scheme is anticipated to result in an overall increase of 683,200 tCO_2e in GHG emissions. However, the contributions of the Scheme to the UK's carbon budget[2] for the relevant carbon budget periods are less than 0.007%, and therefore it can be concluded that the Scheme would not have a material impact on the UK Government in meeting its legally binding carbon reduction targets, and so no significant effect is anticipated in line with DMRB LA 114. Mitigation measures have been identified which would be implemented to reduce the impacts and effects that construction of the Scheme is

[2] [2] To achieve net-zero by 2050, the UK Government have set legally binding targets, or budgets, of the amount of carbon that the UK can emit over 5-year periods. The budgets reduce over time to meet to support the trajectory of carbon reduction to meet net zero by 2050. DRMB LA 114 details that schemes are to determine the significance of effects on climate change by contextualising the emissions of the project in terms of the contribution to the UK Carbon Budget.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		likely to have on climate change and GHG emissions. Mitigation measures with regards to greenhouse gas emissions are secured in Appendix B.6 Outline Carbon Management Plan which forms part of the First Iteration EMP [REP5-025]. Embedded mitigation measures have been included to reduce the risk and consequence of impacts, in addition, through construction and operation further monitoring and determination of operational procedures will occur to further reduce the impacts.
3.10	The Government's overall vision and approach on road safety is set out in the Strategic Framework for Road Safety. It is a vision in which Britain remains a world leader in road safety; where highway authorities are empowered to take informed decisions within their area; where driver and rider training gives learners the skills, they need to be safe on our roads; and where tough measures are taken against the minority of offenders who deliberately choose to drive dangerously. As set out in paragraphs 4.60 to 4.66, scheme promoters are expected to take opportunities to improve road safety, including introducing the most modern and effective safety measures where proportionate.	Chapter 5 of the Case for the Scheme [APP-190] summarises the economic appraisal of the Scheme. It sets out an accident analysis of the Scheme and the expected level of casualties prevented. Overall, the Scheme will provide safety benefits equivalent to £29.3 million over the 60-year appraisal period; translated into 8.6 fewer fatalities, 81.6 fewer serious accidents and 594.3 fewer slight injuries. The overall impact is therefore positive with a reduction in accidents and a reduction in casualties across all severities.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		A key objective of the Scheme is improving safety through Scheme design to reduce collisions for all users of the Scheme. The Scheme is subject to all safety governance processes including a Stage 1 Road Safety Audit (RSA). A Stage 1 Road Safety Audits are required to be undertaken at the completion of preliminary design and normally before planning consent is granted. The findings of the audit have been fully reviewed by qualified Highway Designers, and audit recommendations have been accepted where appropriate. Further details on the Road Safety Audit can be found in Appendix B (Road Safety Audit and Designers Response) of the Transport Assessment [REP5-034]**.** The Scheme Design Report [APP-194] outlines how the design of the junctions and new structures have been considerate to create safe environments for both road users and those who will maintain these assets. Using the accident rates and traffic flows for

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		each scenario, the Cost and Benefit to Accidents – Light Touch (COBALT) assessment set out in the Transport Assessment [REP5-034] forecasts the number of accidents and casualties in the Do Minimum (without the Scheme) and Do Something (with the Scheme) scenarios over a 60-year appraisal period. The number (and severity) of accidents and casualties is monetised by the software using default costs per accident and casualty specified in the DfT's Transport Analysis Guidance (TAG). By comparing the Do Minimum and Do Something results, the impact of the Scheme is identified, in terms of impacts on the number and severity of accidents and casualties as well as the economic costs. Overall, the results of the COBALT assessment indicate a forecast saving over the 60-year appraisal period of nearly 500 Personal injury accident (PIAs), a reduction in casualties across all severities (including 8.6 fatal casualties) and provides a monetised benefit of over £29 million. The overall impact is positive with a forecast reduction in both accidents and a reduction in

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		casualties across all severities. The analysis overall concludes that the Scheme will have a positive impact on road safety. Further details on the analysis undertaken into the impacts of the Scheme on road safety in the local area and further afield including the COBALT (cost and benefit to accidents – light touch) assessment can be found in Chapter 8 (Road Safety) of the Transport Assessment [REP5-034]**.** As outlined within Chapter 3 (Assessment of Alternatives) of the Environmental Statement [APP-047], beside the function and form of the preferred option, the options considered during the early development of the Scheme were assessed against the safety of the user, the pedestrian/cyclist, the construction worker, and the general safety of the route. Throughout the design process, options were developed and screened to identify preferred solutions based on a comparison of the options performance against safety, environmental, engineering, transportation and economic criteria. This

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		process was supplemented by feedback from consultation with stakeholders and the public.
3.15	The Government is committed to providing people with options to choose sustainable modes and making door-to-door journeys by sustainable means an attractive and convenient option. This is essential to reducing carbon emissions from transport.	The Scheme incorporates new and improved walking, cycling and horse-riding (WCH) through the provision of new routes and improved crossings. Information relating to temporary diversions can be found in Appendix 12.2 (Population and Human Health Supplementary Information) of the Environmental Statement Appendices [REP3-018] while Section 7.2 of the Transport Assessment Report [REP5-034] sets out design improvements to the WCH design. For example, historically there was a Public Right of Way (PRoW) that ran north to south between Winthorpe and the Newark Showground. This has been severed by the existing A46 with footpath FP2 ending at the northern boundary of the A46 and footpath FP3 ending at the southern boundary. The Scheme will reconnect these two PRoWs via a new footway/cycleway that links with FP2 to the north and runs parallel to the new dual carriageway before crossing beneath it alongside the A1. On the south side of the new dual carriageway, it will cross the existing A46 via a new signalised

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		crossing and join the existing PRoW network providing a connection with FP3. Full details of this and other WCH facilities to be delivered by the Scheme is included in Chapter 2 of the ES [APP-046]. Further details are also set out in Chapter 3 of the Transport Assessment [REP5-034] and Chapter 12 (Population and Human Health) of the ES [REP5-014]**.** The General Arrangements Plans [AS-007] and the Streets, Rights of Way and Access Plans [REP4-002] illustrate the locations of: • The existing PRoW network within and surrounding the Order Limits. • PRoW that would be permanently closed (referred to as being 'stopped up'). • New and improved improved footpaths, cycle tracks and PRoW that would be delivered as part of the Scheme. The new routes and those impacted by the Scheme are listed below and detailed in full in Chapter 2 (The Scheme) of the Environmental Statement [APP-046]:

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		• Footpath FP14 • Footway/Cycle track at Cattle Market • Footway/Cycle track at Brownhills Junction • Footway east of the A1 • Footpaths FP2 and FP3 • Footpaths/Cycle track at Winthorpe Roundabout Chapter 12 (Population and Human Health) of the Environmental Statement [REP5-014] concludes that the construction of the Scheme is likely to have a temporary Moderate Adverse (significant) effect on WCH provision as a result of both permanent and temporary land take and reduced access during construction. Mitigation measures during construction are included or referenced within the First Iteration Environmental Management Plan [REP5-025]. Mitigation measures in relation to population and human health during construction include provision of appropriate signage for temporary

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		WCH diversions, including wayfinding and duration of works.
3.17	There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavors to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions and ensuring that it is easy and safe for cyclists to use junctions.	The impact of the Scheme on existing PRoWs has been assessed. Provision has been made within the Scheme to maintain existing PRoWs where practicable and deemed appropriate on safety grounds. Along the route, there would be one permanently stopped up PRoW, FP14, however the Scheme would provide new and improved facilities around the east side of Cattle Market Roundabout which would be available as an alternative route. Other routes would be impacted slightly due to the Scheme. Provision has been included in the design to replace and where feasible and appropriate to improve existing routes and facilities within the Order Limits that are used by pedestrians and cyclists. The objective of this is to ensure continued connectivity is provided for WCH users between communities and routes within the wider PRoW network.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		The General Arrangement Plans [AS-007] and the Streets, Rights of Way and Access Plans [REP4-002] illustrate the locations of: • The existing PRoW network within and surrounding the Order Limits • PRoW that would be permanently closed (referred to as being 'stopped up') • New and improved footpaths, cycle tracks and PRoW that would be delivered as part of the Scheme. The routes impacted/to be provided by the Scheme are listed below and detailed in full in Chapter 2 (The Scheme) of the ES [APP-046]: • Footpath FP14 • Footway/Cycle track at Cattle Market • Footway/Cycle track at Brownhills Junction • Footway east of the A1 • Footpaths FP2 and FP3 • Footpaths/Cycle track at Winthorpe Roundabout Chapter 12 (Population and Human Health) of

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		the Environmental Statement [REP5-014] concludes that the construction of the Scheme is likely to have a temporary Moderate Adverse (significant) effect on WCH provision as a result of both permanent and temporary land take and reduced access during construction. Mitigation measures during construction are included or referenced within the First Iteration Environmental Management Plan [REP5-025]. Mitigation measures of relevance to population and human health during construction include the following: • An Outline Traffic Management Plan (TMP) [REP5-038] has been prepared for the Scheme and submitted with the application. • A TMP, substantially in accordance with the Outline TMP, in line with Requirement 11 of the draft DCO [REP5-002], would be implemented during the construction phase of the Scheme, to ensure that access is maintained, and disruption is minimised as far as practicable. • A Construction Communications Plan will be prepared for the Scheme to ensure

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		stakeholders and local people are kept up to date and informed during construction. This has been secured as part of the First Iteration EMP [REP5-025]. • Provision of appropriate signage for temporary WCH diversions, including wayfinding and duration of works. • Details regarding construction phase traffic management and diversion routes for highways and WCH routes are set out in Appendix 12.2 Population and Human Health Supplementary Information of the ES Appendices [REP3-018]. In addition to the above, mitigation measures during construction would also include provision of appropriate signage for temporary WCH diversions, including wayfinding and duration of works. Overall, the Scheme aims to provide improvements to WCH facilities through safer, enhanced routes as described above. The Applicant considers these represent proportionate measures to mitigate impacts on

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		accessibility as far as is reasonably possible.
3.20	The Government's strategy for improving accessibility for disabled people is set out in Transport for Everyone: • an action plan to improve accessibility for all. In particular: ○ The Government will continue to work to ensure that the bus and train fleets comply with modern access standards by 2020, and to improve rail station access for passengers with reduced mobility. The private car will continue to play an important role, providing disabled people with independence where other forms of transport are not accessible or available. ○ The Government expects applicants to improve access, wherever possible, on and around the national networks by designing and delivering schemes that take account of the accessibility requirements of all those who use, or are affected by, national networks infrastructure, including disabled users. All reasonable opportunities to deliver improvements in accessibility on and to the existing national road network should also be taken wherever appropriate.	The Scheme has been designed so that all new and relocated walking and cycling routes are in accordance with LTN 1/20, which caters for disabled users.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
3.21	Applicants are reminded of their duty to promote equality and to consider the needs of disabled people as part of their normal practice. Applicants are expected to comply with any obligations under the Equalities Act 2010.	The design and delivery of the Scheme has been developed in line with the Equalities Act 2010 and the needs of disabled users, and all reasonable opportunities to deliver improvements in accessibility on and to the existing strategic road network (SRN) have been taken where practicable. The Transport Assessment [REP5-034] sets out the improvements to accessibility and the Equality Impact Assessment (EqIA) Screening Analysis and Monitoring [REP5-036] sets out how the requirements of the Equalities Act 2010 have been embedded in the Scheme's development, including design, communication and engagement strategy, and mitigation strategies.
3.22	Severance can be a problem in some locations. Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility.	Chapter 12 (Population and Human Health) of the ES [REP5-014] assesses the impact of the Scheme on community severance and social networks. The assessment considers the potential impact of the construction and operation of the Scheme on population, employment, residential

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		properties, businesses, community facilities, open spaces and recreational areas and human health outcomes. The operation of the Scheme is expected to have a beneficial impact on access to private property and housing; development land and businesses; community land and assets; green space, recreation and physical activity; and for WCHs due to the reduced congestion and improved journey times that the Scheme will deliver. The Scheme incorporates new and improved WCH provision, as described in Chapter 4 of the Case for the Scheme [REP5-030] and Chapter 2 (The Scheme) of the ES [APP-046]. Provisions have been included in the Scheme to replace and, where feasible and appropriate, improve existing routes and facilities within the Order Limits that are used by pedestrians and cyclists - the objective being to ensure continued connectivity is provided for WCH between communities and routes within the wider PRoW

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		network. For example, historically there was a PRoW that ran north to south between Winthorpe and the Newark Showground. This has been severed by the existing A46 with FP2 ending at the northern boundary of the A46 and FP3 ending at the southern boundary. The Scheme will reconnect these two PRoWs via a new footway/cycleway that links with FP2 to the north and runs parallel to the proposed dual carriageway before crossing beneath it alongside the A1. On the south side of the new dual carriageway, it will cross the existing A46 via a new signalised crossing and join the existing PRoW network that provides a connection with FP3.

Table 2.2: Compliance with NPSNN Chapter 4

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
4.3	In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account: • its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits. • its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.	The current objectives of the Scheme are set out below: • Improve safety through Scheme design to reduce collisions for all users of the Scheme. • Improve journey time and journey time reliability along the A46 and its junctions between Farndon and Winthorpe, including all approaches and A1 slip roads. • Accommodate economic growth in Newark-on-Trent and the wider area by improving its strategic and local connectivity. • Deliver better environmental outcomes by achieving a net gain in biodiversity and improve noise levels at Noise Important Areas along the A46 between Farndon and Winthorpe junctions. • Build an inclusive Scheme which improves facilities for WCH users where existing routes are affected. There is a strong needs case for the Scheme to address the significant existing congestion on the

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		A46 at Newark, which is detailed in the Case for the Scheme [APP-190] and the Transport Assessment [REP5-034]. As summarised in Chapter 5 of the Case for the Scheme [REP5-030] the results of the economic appraisal indicate that the Scheme is forecast to generate economic efficiency transport user benefits of £248.5 million. The greatest benefit relates to business users and providers, giving a benefit of £175.6 million. This is predominantly resulting from business users, representing the highest proportion of trips benefiting from the improvements. The ES (contained within Volume 6.1 of the DCO Application) also looks at the beneficial and adverse effects arising from the Scheme including potential cumulative effects and sets out the mitigation measures required to avoid or reduce any significant adverse effects and any enhancements that are proposed. Measures required to mitigate the effects of the scheme has been considered throughout the

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		design process. Mitigation includes both embedded and essential mitigation measures. Embedded mitigation measures are detailed within Section 2.5 of Chapter 2 (The Scheme) of the ES [APP-046]. Essential mitigation has also then been identified within the topic chapters (Chapters 5 to 15) of the ES (contained within Volume 6.1 of the DCO Application). These essential mitigation measures are included in the Register of Environmental Actions and Commitments (REAC) which forms part of the First Iteration Environmental Management Plan (EMP) [REP5-025], to be developed into a Second Iteration EMP prior to construction commencing. The mitigation measures within the Second Iteration EMP are secured and committed under Requirement 3 of the draft Development Consent Order (DCO) [REP5-002]. Figure 2.3 Environmental Masterplan of the ES Figures [AS-026] also depicts the environmental mitigation included as part of the design. Compliance with the principles of the Environmental Masterplan is secured by Requirement 12 of the draft DCO [REP5-002]**.**
4.4	In this context, environmental, safety, social and economic benefits and adverse impacts, should be	The ES (contained within Volume 6.1 of the DCO Application) reports on the EIA, which considers

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
	considered at national, regional and local levels. These may be identified in this NPS, or elsewhere.	the potential environmental effects of the Scheme at national, regional and local levels. The Transport Assessment [REP5-034] and Chapter 4 of the Case for the Scheme [REP5-030] consider the potential transport effects of the Scheme on the strategic and local network, road safety and sustainable transport such as WCH provision. Economic considerations are set out and summarised in Chapter 5 of the Case for the Scheme [REP5-030].
4.5	Applications for road and rail projects (with the exception of those for SRFIs, for which the position is covered in paragraph 4.8 below) will normally be supported by a business case prepared in accordance with Treasury Green Book principles. This business case provides the basis for investment decisions on road and rail projects. The business case will normally be developed based on the Department's Transport Business Case guidance and Web TAG guidance. The economic case prepared for a transport business case will assess the economic, environmental and social impacts of a development. The information provided will be proportionate to the	The business case has been prepared in accordance with the guidance set within the Department for Transport's guidance on the assessment of major transport investments and Transport Analysis Guidance (TAG) and is aligned with His Majesty's Treasury Green Book principles. Chapter 5 of the Case for the Scheme [REP5-030] presents the anticipated economic case. These impacts are monetised in order to estimate the Scheme's economic worth. Key figures are set out below:

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	development. This information will be important for the Examining Authority and the Secretary of State's consideration of the adverse impacts and benefits of a proposed development. It is expected that NSIP schemes brought forward through the development consent order process by virtue of Section 35 of the Planning Act 2008, should also meet this requirement.	• The results of the economic appraisal indicate that the Scheme is forecast to generate transport user benefits of £248.5 million. • The greatest benefit relates to business users and providers, giving a benefit of £175.6 million. This is predominantly resulting from business users representing the highest proportion of trips benefiting from the improvements. • The Scheme will also lead to an increase in tax revenues, giving a benefit of £7.1 million. This is primarily due to an increase in fuel consumption as more vehicles move at a faster speed. • The Scheme will also lead to an increase in tax revenues, giving a benefit of £7.1 million. This is primarily due to an increase in fuel consumption as more vehicles move at a faster speed. • The Scheme will provide safety benefits equivalent to £29.3m over the 60-year appraisal period; translated into 8.6 fewer fatalities, 81.6 fewer serious accidents and 594.3 fewer slight injuries The Scheme results

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		in journey time reliability benefits of £29.4 million over the 60-year appraisal period. • The Scheme is forecast to achieve wider economic benefits of £67.5 million. • The noise impacts are positive, with the Scheme providing benefits of £5.106 million. However, GHG and air quality impacts are negative, with the Scheme providing disbenefits of -£56.416 million and -£1.747 million respectively. • It should be noted this is solely in relation to the economic assessment, in EIA terms neither GHG or air quality impacts are anticipated to result in significant effects this is further set out in Chapter 5 (Air Quality) [REP5-073] and Chapter 14 (Climate and Carbon) of the ES [APP-058].
4.6	Applications for road and rail projects should usually be supported by a local transport model to provide sufficiently accurate detail of the impacts of a project. The modelling will usually include national level factors around the key drivers of transport demand such as economic growth, demographic change, travel costs and labour market participation, as well as local factors. The	Chapter 6 of the Transport Assessment [REP5-034] provides a summary of the transport models and their development. The modelling used throughout the Scheme is based on the Midlands Regional Transport model 2 (MRTM2). The MRTM2 is one of five Regional

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	Examining Authority and the Secretary of State do not need to be concerned with the national methodology and national assumptions around the key drivers of transport demand. We do encourage an assessment of the benefits and costs of schemes under high and low growth scenarios, in addition to the core case. The modelling should be proportionate to the scale of the scheme and include appropriate sensitivity analysis to consider the impact of uncertainty on project impacts.	Transport Models (RTM's) developed by the Applicant. The model is referred to as the A46 Traffic Model (A46TM) and was originally developed at the early stages of this study to assess the options being considered for the Scheme. Model composition and software is based on the MRTM2 and keeps the same structure of a highway supply model built using Simulation and Assignment of Traffic to Urban Road Networks (SATURN) software and a variable demand model system which uses a combination of the DfT's Dynamic Integrated Assignment and Demand Modelling (DIADEM) Variable Demand Modelling software and a bespoke graphical user interface (GUI) known as the National Highways Integrated Demand Interface (HEIDI). The traffic model has been developed to analyse the impact of the Scheme on traffic flows and journey times on the road network. The model has a focus on the area immediately affected by the Scheme, but it also covers the whole of Great

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		Britain. It includes a representation of the road network and looks at where the demand for trips start and end, split into five user classes. Understanding patterns of travel for different user classes allows for the way the Scheme provides benefits to businesses and individuals to be assessed. The model is used to inform traffic forecasts in the operational phase of the Scheme for three modelled years: 2028, 2043 and 2061. The forecast traffic model years have been defined based on information provided for the Scheme's construction and data availability for predicting future demand: • 2028 (the year the Scheme is open to traffic). • 2043 (an intermediate year, representing fifteen years after Scheme opening). • 2061 (a horizon year – the last year for which National Trip End Model data is available which forecasts the growth in traffic). The following forecasts have been produced for each forecast year:

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		• Do Minimum forecasts – these use forecast future year trip matrices and future transport networks that exclude the Scheme along the A46 corridor. • Do Something forecasts – these replicate the Do Minimum forecasts, but also include the Scheme. • High and low growth scenarios have been modelled as sensitivity tests to consider the impact of uncertainty on the Scheme.
4.7	The Department's WebTAG guidance is updated regularly. This is to allow the evidence used to inform decision-making to be up-to-date. Where updates are made during the course of preparing analytical work, the updated guidance is only expected to be used where it would be material to the investment decision and in proportion to the scale of the investment and its impacts.	The base model development process has been undertaken in line with the Department for Transport's guidance on the assessment of major transport investments and Transport Analysis Guidance (TAG).
4.9	The Examining Authority should only recommend, and the Secretary of State should only impose, requirements in relation to a development consent, that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects. Guidance on the use of planning conditions or any successor to it, should be taken into	Schedule 2 of the draft DCO [REP5-002] includes requirements that are considered necessary, relevant to both planning and the Scheme, enforceable, precise, and reasonable in all other respects. The Explanatory Memorandum [REP5-004]

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	account where requirements are proposed.	explains the purpose and effect of each provision in the draft DCO [REP5-003].
4.10	Planning obligations should only be sought where they are necessary to make the development acceptable in planning terms, directly related to the proposed development and fairly and reasonably related in scale and kind to the development.	The Applicant does not at this stage anticipate the need for any planning obligations.
4.12	In considering applications for linear infrastructure, decision-makers will need to bear in mind the specific conditions under which such developments must be designed. The generic impacts section of this NPS has been written to take these differences into account.	The Scheme has been assessed against the generic impacts as listed in Table 2.4 of this Accordance Table.
4.13	This NPS does not identify locations at which development of the road and rail networks should be brought forward. However, the road and rail networks provide access for people, business and goods between places and so the location of development will usually be determined by economic activity and population and the location of existing transport networks.	The Scheme involves the upgrade of the existing A46 and its junctions and as such, by definition is located within the corridor of the existing A46 transport network.
4.15	All proposals for projects that are subject to the European Union's Environmental Impact Assessment Directive and are likely to have significant effects on the environment, must be accompanied by an environmental statement (ES), describing the aspects of the environment likely to be significantly affected by the	The ES (contained within Volume 6.1 of the DCO Application) has been prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).

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	project. The Directive specifically requires an environmental impact assessment to identify, describe and assess effects on human beings, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 sets out the information that should be included in the environmental statement including a description of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects. Further guidance can be found in the online planning portal. When examining a proposal, the Examining Authority should ensure that likely significant effects at all stages of the project have been adequately assessed. Any requests for environmental information not included in the original environmental statement should be proportionate and focus only on significant effects. In this NPS, the terms 'effects', 'impacts' or 'benefits' should accordingly be understood to mean likely significant effects, impacts or benefits.	The ES (contained within Volume 6.1 of the DCO Application) presents a description of the Scheme, the likely significant effects (both beneficial and adverse) on the environment and where necessary provides mitigation to avoid, prevent, reduce or if possible, offset any significant adverse effects. As part of the EIA process, all effects, including indirect effects, were identified during the scoping stage of EIA. All likely significant effects, including indirect effects, have been carried forward to the detailed assessment stage, the results of which are presented within the Environmental Statement. However, following the judgement in Finch and question 4.0.11 raised in the Examining Authority's first round of written questions [PD-007], a review of all possible indirect effects from the Scheme was undertaken to ensure that all likely significant indirect effects are reported, and none were omitted during the EIA Scoping stage or from the Environmental Statement. This review is contained within 'Information to Support the Applicant's Response to the Examining Authority's Written Questions (ExQ1) on the Finch Judgement [REP4-036] which was submitted at Deadline 4. The

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		review concluded that there are no additional likely indirect effects which are considered to be significant that have not already been captured by the existing EIA for the Scheme. Regulation 14(3) of the EIA Regulations requires the ES (contained within Volume 6.1 of the DCO Application) to be based on the most recent Scoping Opinion adopted. The ES (contained within Volume 6.1 of the DCO Application) is based on the Scoping Opinion [APP-189] received from the Secretary of State in October 2022. A description of how each of the Scoping Opinion comments have been taken into account within the ES is contained within Appendix 4.1 (Scoping Opinion Schedule of Comments and Responses) of the ES Appendices [APP-125].
4.16	When considering significant cumulative effects, any environmental statement should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence).	Chapter 15 (Combined and Cumulative Effects) of the ES [APP-059] considers the cumulative effects of the Scheme. A Cumulative Effects Technical Note [REP2-021] further details the work that has been undertaken to identify and assess any new or approved developments that have come forward following the original assessment documented in

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		the ES. Two types of cumulative effects have been considered: • Cumulative effects – effects that occur either as a result of changes caused by other developments reasonably acting cumulatively with the effects of the Scheme; and • Combined effects – effects from the combined effect of several different impacts acting together on a single receptor, such that the combined effect would be more significant than the individual effects. The approach to the cumulative effects assessment aligns with the standards outlined in the DMRB LA 104 Environmental assessment and monitoring, and the Inspectorate Advice Note Seventeen: Cumulative Effects Assessment.
4.17	The Examining Authority should consider how significant cumulative effects and the interrelationship between effects might as a whole affect the environment, even though they may be acceptable when considered on an individual basis with mitigation measures in place.	Chapter 15 (Combined and Cumulative Effects) of the ES [APP-059] considers the cumulative and combined effects of the Scheme. A Cumulative Effects Technical Note [REP2-021] further details the work that has been undertaken to identify and assess any new or approved developments that have come forward following the original

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		assessment documented in the ES.
4.18	In some instances, it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.	The Scheme design which forms the application for development consent allows a reasonable degree of flexibility to make minor deviations to the design in accordance with the draft Development Consent Order [REP4-003]**.** The location and Order Limits of the Scheme are defined in the ES (contained within Volume 6.1 of the DCO Application). Detail of the Scheme design is shown on the Engineering Plans and Sections [AS-008 to AS-012] and is described in Chapter 2 (The Scheme) of the ES [APP-046]. The draft DCO [REP5-003] provides at Article 10: Limits of Deviation both laterally and vertically. These limits have been included in order to allow a necessary, but proportionate, degree of flexibility to facilitate the detailed design and construction phases of the Scheme. The limits of deviation have been considered when undertaking the environmental assessment in relation to the Scheme. This will minimise the need for the Applicant to seek a change to the made Development Consent Order. The Applicant recognises that, if such a change

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		was required, there may be a need for this to be accompanied by further environmental information and assessments. The ES (contained within Volume 6.1 of the DCO Application) provides an assessment of the Scheme design based on the realistic worst-case scenario afforded by the limits of deviation sought within the draft DCO [REP5-003]. Chapter 4: Environmental Assessment Methodology of the Environmental Statement [APP-048] sets out the assessment methodology and approach taken to prepare the environmental impact assessment. This includes detail of how the Scheme has been assessed where information was not available to inform the assessment. In addition, each of the environmental chapters gives a description of the assumptions made and the limitations of the assessment. The assessment has been based on the construction methodologies described in Section 2.6 of Chapter 2 (The Scheme) of the Environmental Statement [APP-046]. Where uncertainties in construction practices have been highlighted in Chapter 2 (The Scheme),

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		the worst-case scenario has been assessed within Chapters 5 to 15 of the Environmental Statement.
4.19	Where some details are still to be finalised, applicants are advised to set out in the environmental statement, to the best of their knowledge, what the maximum extent of the proposed development may be (for example in terms of site area) and assess the potential adverse effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.	See response to NPSNN paragraph 4.18 above.
4.20	Should the Secretary of State decide to grant development consent for an application where details are still to be finalised, this will need to be reflected in appropriate development consent requirements in the development consent order.	The requirements of the draft DCO [REP5-002] make provision, where appropriate, for consideration of elements of the detailed design of the Scheme in accordance with the Works Plans [REP3-002] and Engineering Plans and Sections [AS-008 to AS-012].
4.21	In cases where the EIA Directive does not apply to a project, and an environmental statement is not therefore required, the applicant should instead provide information proportionate to the project on the likely environmental, social and economic effects.	The Scheme falls within paragraph 10(f) of Schedule 2 of the EIA Regulations. By virtue of the fact that the potential for significant environmental effects has been identified, an ES (contained within Volume 6.1 of the DCO Application) was submitted with the DCO application to the Inspectorate.
4.22	The applicant should seek the advice of Natural England and, where appropriate, for cross-boundary impacts, Natural Resources Wales and Scottish Natural Heritage	A Habitats Regulations Assessment [REP5-075] is included within the DCO application. This considers whether the Scheme has the potential to

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	to ensure that impacts on European sites in Wales and Scotland are adequately considered.	result in significant effects on European sites which, in accordance with Regulation 3 of the Habitats Regulations, includes sites designated as part of Natura 2000, or European marine sites and European offshore marine sites for the purposes of any of the retained transposing regulations. For ease of expressions and in line with the Inspectorate's Advice Note 10[3], the terms 'European Site(s)' has also been used throughout the HRA when referring to Ramsar sites, Special Protection Areas (SPAs and Special Areas of Conservation SAC). The Applicant has engaged with Natural England and there will be ongoing engagement as the Scheme progresses. A summary of the engagement during optioneering stages with Natural England is set out in Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048] within Table 4-4.

[3] Infrastructure Planning Commission (2022) Advice Note 10: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects [online] available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/ (last accessed June 2023).

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		A summary of the meetings held following the preferred route announcement is provided in Table 1-1 within Appendix 4.3 (Record of Environmental Engagement) of the ES Appendices [APP-127]. Engagement with Natural England has continued through the format of an Environmental Technical Working Group (TWG). A list of the meetings held as part of the environmental TWGs is also provided in Table 1-2 within Appendix 4.3 (Record of Environmental Engagement) of the ES Appendices [APP-127]. Further relevant details of discussions are provided within Chapters 5 to 15 of this ES (contained within Volume 6.1 of the DCO Application). Further information on engagement that has taken place, and areas of agreement identified during pre-application consultation with Natural England and throughout the DCO Examination, have been recorded within a Statement of Common Ground between the Applicant and Natural England [REP5-051] Due to the location of the Scheme, it has not been

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		necessary to seek the advice of Natural Resources Wales or Scottish National Heritage.
4.23	Applicants are required to provide sufficient information with their applications for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required. This information should include details of any measures that are proposed to minimise or avoid any likely significant effects on a European site. The information provided may also assist the Secretary of State in concluding that an appropriate assessment is not required because significant effects on European sites are sufficiently unlikely that they can be excluded.	The Habitats Regulations Assessment [REP5-075] is included within the DCO application. This considers whether the Scheme has the potential to result in significant effects on European sites which, in accordance with Regulation 3 of the Habitats Regulations, includes sites designated as part of Natura 2000, or European marine sites and European offshore marine sites for the purposes of any of the retained transposing regulations. For ease of expression and in line with the Inspectorate's Advice Note 101, the terms 'European Site(s)' has also been used throughout the HRA when referring to Ramsar sites, Special protection Areas (SPAs and Special Areas of Conservation SAC). The Screening (Stage 1) assessment identified the potential for likely significant effects associated with the temporary semi-permeable barrier of lamprey migration routes (when a crane slews and the artificial lighting on the boom casts across the water before coming to rest on the beam lift) and

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		the entrapment/isolation of lamprey individuals within the Farndon East floodplain compensation area (FCA) and Farndon West FCA, during flood events occurring within the lamprey migration and breeding period. An Appropriate Assessment (Stage 2) was undertaken with regards to the pathways with the potential to give rise to likely significant effects. Appropriate mitigation including more detailed control of artificial lighting during night-time bridge works and the inclusion of fish escapes passages within Farndon East FCA and Farndon West FCA are considered to prevent, or sufficiently reduce, the impact upon lamprey, so as to achieve a negligible residual impact. No adverse impacts upon the integrity of the Humber Estuary SAC/Ramsar are therefore anticipated as a result of the Scheme. Embedded measures and essential mitigation measures detailed within the Stage 1 Screening and Stage 2 Appropriate Assessment respectively in the Habitats Regulations Assessment [REP5-075] are considered to achieve an overall

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		negligible residual effect upon lamprey. Likely significant effects associated within the Scheme, either alone or in-combination with any other projects or plans, can be ruled out. Therefore, there is not considered to be a requirement to proceed to Stage 3 (Derogation).
4.24	If a proposed national network development makes it impossible to rule out an adverse effect on the integrity of a European site, it is possible to apply for derogation from the Habitats Directive, subject to the proposal meeting three tests. These tests are that no feasible, less-damaging alternatives should exist, that there are imperative reasons of overriding public interest for the proposal going ahead, and that adequate and timely compensation measures will be put in place to ensure the overall coherence of the network of protected sites is maintained.	There are no designated sites of international importance (National Site Network or Ramsar sites) within 2 kilometres of the Scheme or within 200 metres of the ARN. There are no sites within the National Site Network where bats are a qualifying feature, within 30 kilometres of the Scheme. Section 8.8 of Chapter 8 (Biodiversity) of the Environmental Statement [APP-052] outlines that the Humber Estuary Ramsar and SAC are hydrologically connected to the Scheme, downstream of the River Trent approximately 53 kilometres directly from the Order Limits and 75 kilometres via the River Trent. Given the distance of the SPA from the Order Limits and the nature of the qualifying feature for this designation (various bird species and the non-breeding waterfowl assemblage), the Scheme will not impact this

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		designated site and so it has been scoped out of further assessment. The SAC is also of international importance for Annex I habitats present. These receptors will not be affected by the Scheme due to the distance from the source of potential impacts and so habitats within the SAC are scoped out of further assessment. River lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* (qualifying features of the Humber Estuary Ramsar and SAC) migrate up rivers to spawn and therefore the River Trent may serve as a migratory route or habitat for lamprey species. The Humber Estuary Ramsar and SAC are included in the baseline for this reason. No significant areas of gravel substrate suitable for lamprey spawning have been identified within the Order Limits or within 2 kilometres downstream within the River Trent. It is anticipated that the Scheme is likely to have a Slight Adverse effect on Humber Estuary SAC and Ramsar during construction. Essential mitigation is set out in Chapter 8 (Biodiversity) of the Environmental Statement [APP-052]. This includes the following: • The use of bubble curtains and floating oil booms.

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		• ECoW monitoring of silt curtains to mitigate sediment disturbance and smothering of gravels. • In addition to embedded mitigation (e.g., directional lighting), the use of task lighting with cowls will be used. • Use of low noise/vibration piling set-up and a slow start-up, where possible, for all night works and sheet piling adjacent to the River Trent. All essential mitigation is secured within the First Iteration Environmental Management Plan [REP5-025] and shown on Figure 2.3: Environmental Masterplan of the Environmental Statement Figures [AS-026] where relevant.
4.25	Where a development may negatively affect any priority habitat or species on a site for which they are a protected feature, any Imperative Reasons of Overriding Public Interest (IROPI) case would need to be established solely on one or more of the grounds relating to human health, public safety or beneficial consequences of primary importance to the environment.	The UK Biodiversity Action Plan (BAP), now superseded by documents that have expired, provided lists of BAP priority habitats and species. Those that occur in England are now identified as habitats and species of principal importance for the conservation of biodiversity under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006. Chapter 8 (Biodiversity) of the Environmental Statement [APP-052] considers the likely significant effects of the Scheme on

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		internationally, nationally and locally designated sites of ecological importance, on protected species, and on habitats and other species identified as being of principal importance for the conservation of biodiversity. Section 8.8 of Chapter 8 (Biodiversity) of the Environmental Statement [APP-052] outlines that the Humber Estuary Ramsar and SAC is hydrologically connected to the Scheme, downstream of the River Trent approximately 53 kilometres directly from the Order Limits and 75 kilometres via the River Trent. River lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* (qualifying features of the Humber Estuary Ramsar and SAC) migrate up rivers to spawn and therefore the River Trent may serve as a migratory route or habitat for lamprey species. The Humber Estuary Ramsar and SAC are included in the baseline for this reason. The Habitats Regulations Assessment (HRA) [REP3-024] is included within the DCO application in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations

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		2017 (as amended), so that the competent authority can make an 'Appropriate Assessment' of the implications of the Scheme. An Appropriate Assessment (Stage 2) was undertaken with regards to the pathways with the potential to give rise to likely significant effects. Appropriate mitigation including more detailed control of artificial lighting during nighttime bridge works and the inclusion of fish escape passages within Farndon East FCA and Farndon West FCA are considered to prevent, or sufficiently reduce, the impact upon lamprey to achieve a negligible residual impact. No adverse impacts upon the integrity of the Humber Estuary SAC/Ramsar are therefore anticipated as a result of the Scheme. Embedded measures and essential mitigation measures detailed within the Stage 1 Screening and Stage 2 Appropriate Assessment respectively in the HRA [REP3-024] are considered to achieve an overall negligible residual effect upon lamprey. Likely significant effects associated within the Scheme, either alone or in-combination with any other projects or plans, can be ruled out. Therefore, there is no requirement to proceed to

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		Stage 3 (Derogation). Essential mitigation is set out in Chapter 8 (Biodiversity) of the Environmental Statement [APP-052]. This includes the following: • The use of bubble curtains and floating oil booms. • ECoW monitoring of silt curtains to mitigate sediment disturbance and smothering of gravels. • In addition to embedded mitigation (e.g., directional lighting), the use of task lighting with cowls will be used. • Use of low noise/vibration piling set-up and a slow start-up, where possible, for all night works and sheet piling adjacent to the River Trent. All essential mitigation is secured within the First Iteration Environmental Management Plan [REP5-025] and shown on Figure 2.3: Environmental Masterplan of the Environmental Statement Figures [AS-026] where relevant.
4.26	Applicants should comply with all legal requirements and any policy requirements set out in this NPS on the	Chapter 3 (Assessment of Alternatives) of the ES [APP-047] examines the complete suite of design

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	assessment of alternatives. In particular: The EIA Directive requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects. There may also be other specific legal requirements for the consideration of alternatives, for example, under the Habitats and Water Framework Directives. There may also be policy requirements in this NPS, for example the flood risk sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB).	variations of the Scheme design, including *"a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the Applicant, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects",* in line with the EIA Regulations. The Scheme development process has been informed by the requirements of legislation and policy (as detailed in Section 3.1) of Chapter 3 (Assessment of Alternatives) of the ES [APP-047], consultation with stakeholders and the general public, and iterative environmental assessment. The development of the assessment criteria was informed by the NPSNN requirements. This is further set out in Chapter 3 (Assessment of Alternatives) of the ES [APP-047]. The FRA contained in Appendix 13.2 of the ES Appendices [APP-177] has been undertaken because the majority of the Scheme is within Flood

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		Zones 2 and 3. As the Scheme alignment passes through Flood Zone 3, therefore the Scheme does not automatically pass the Sequential Test. Owing to the existing route of the A46, there is no alternative to the location of parts of the Scheme within Flood Zone 3. The Scheme alignment has been developed following a comprehensive assessment of different alignment options, which considered all environmental impacts (inclusive of flood risk) during Options Selection of the Scheme. The Scheme is classed as Essential Infrastructure and passes through Flood Zone 3. Therefore, the Scheme must be, and has been, assessed against the Exception Test. Further details are set out in the FRA contained in Appendix 13.2 of the ES Appendices [APP-177]. The Scheme is not located within an Area of Outstanding Natural Beauty (AONB), a National Park, or the Broads.
4.27	All projects should be subject to an options appraisal. The appraisal should consider viable modal alternatives and may also consider other options (in light of the paragraphs 3.23 to 3.27 of this NPS). Where projects have been subject to full options appraisal in achieving	The Department for Transport's (DfT) Road Investment Strategy 2 2020-2025 (RIS2) recognises *"the role of the A46 in connecting the Midlands, running from Lincoln to Gloucestershire via Leicester and Coventry" and states that "much*

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	their status within Road or Rail Investment Strategies or other appropriate policies or investment plans, option testing need not be considered by the examining authority or the decision maker. For national road and rail schemes, proportionate option consideration of alternatives will have been undertaken as part of the investment decision making process. It is not necessary for the Examining Authority and the decision maker to reconsider this process, but they should be satisfied that this assessment has been undertaken.	*of this road is already high-quality dual carriageway, and by filling in key sections it would be possible to create a coast-to coast highway without the need for major new roadbuilding across open countryside. The single greatest gap in this route is the A46 at Newark".* The Scheme has been through an options appraisal process in line with Transport Appraisal Guidance and proportionate consideration of alternatives has been undertaken as part of the investment decision making process. Chapter 3 (Assessment of Alternatives) of the ES [APP-047] sets out the main alternatives considered by the Applicant and how the preferred option was determined through consideration of environmental effects at different stages in the design development process. An Alternative Modes Assessment was carried out in 2021 by the Applicant, which confirmed that the existing public transport network does not generally offer comparable alternatives to car for most movements. Small traffic flows were distributed over a large area and therefore are not suited to be catered for by public transport. Local

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		demand in aggregate accounts for a sizeable proportion of traffic using the A46 at Newark. Therefore, a review of the largest public transport flows (represented by local bus services) suggested that there was no obvious non-highways interventions that could cater to any substantial proportion of these flows.
4.28	Applicants should include design as an integral consideration from the outset of a proposal.	The Applicant has prepared a Scheme Design Report [APP-194] which summarises the design policy context and which discusses the overarching design principles to respond to the design objectives set out in the NNNPS, The Road to Good Design, Design Principles for National Infrastructure and Technical Design Standards for the Scheme. The Scheme Design Report [APP-194] demonstrates how 'good design' was considered across the Scheme design and how this design minimises social and environmental impacts. The Scheme Design report also sets out the climate change adaption measures designed into the Scheme including the design of the attenuation ponds.

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		The ES (contained within Volume 6.1 of the DCO Application) sets out the effects of the Scheme and the measures designed to mitigate likely significant environmental effects arising from the Scheme. Where specific design, mitigation and enhancement measures have been applied, these are reported under each individual technical chapter of the ES (contained within Volume 6.1 of the DCO Application) and are summarised in the ES Non-Technical Summary [REP5-023]. Environmental commitments and key performance indicators contained within RIS2, and its associated Strategic Business Plan and Delivery Plan have been considered throughout the Scheme design-development and EIA process to date. These have helped to minimise social and environmental impacts of the Scheme and promote improvements in quality of life. The design of the Scheme is described in Chapter 2 (The Scheme) of the Environmental Statement (ES) [APP-046] along with the mitigation embedded within it. Examples of embedded mitigation include:

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		• Visual appearance: Careful integration of earthworks into the landscape, shaping the new landform sympathetically to integrate the Scheme into the receiving landscape. • Functional: Access in and around the new junctions to accommodate WCH users as required. • Fitness for Purpose: Road restraint systems providing protection from features which may present a hazard, such as high embankments. Traffic signs at appropriate locations to provide route and destination information. • Sustainable: Habitat connectivity to the wider landscape has been maintained and enhanced wherever possible to maximise biodiversity opportunities within the Order Limits, particularly in respect to Local Wildlife Sites (LWSs) and priority habitats. • Cost: A Design for Resource Efficiency (D4RE) online workshop to identify opportunities to improve resource efficiency during the design stage. This would ensure cost savings are maximised by considering waste minimisation initiatives and identifying opportunities to reduce, reuse or recycle

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		waste materials and improve resource efficiency. For example, the following opportunities have been incorporated into the Scheme design: ○ Repair and reuse of drainage along the existing carriageway. ○ Retain as much soil as possible utilising soil restoration for carbon sequestration. ○ Recycle of road pavement that is removed. Mitigation measures to minimise any resulting social and environmental impacts are presented in the REAC which within the First Iteration EMP [REP5-025]. Chapter 8 (Biodiversity) of the ES [APP-052] details the mitigation hierarchy implemented to protect habitats of ecological value and the wildlife they support, irreplaceable nature assets (e.g., lowland meadow habitat of principal importance (HPI)). Figure 2.3 Environmental Masterplan of the ES Figures [AS-026] details the planting design for the continuous provision of wildlife corridors along the A46 carriageway, with enhancement to existing

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		hedgerows to provide connectivity surrounding landscape, planting of attenuation ponds for biodiversity (including stepped-ledges along the water's edge), creation of wetland areas in Farndon West and East borrow pits with integrated fish escape passages to prevent fish entrapment. Table 3-11 of Chapter 3 (Assessment of Alternatives) of the ES [APP-047] also summarises the design developments that have taken place following the statutory consultation and the targeted consultation to produce the design which forms the application for development consent. Further information on how the Applicant has responded to the feedback received at statutory consultation is detailed in the Consultation Report [APP-028] and Consultation Report Annexes [APP-029 to APP-044].Further information on engagement that has taken place, and areas of design refinement, are recorded within the Statements of Common Ground, which have been updated throughout the course of the Development Consent Order Examination.
4.29	Visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality,	See response to NPSNN paragraph 4.28 above.

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	fitness for purpose, sustainability and cost. Applying "good design" to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible.	
4.30	It is acknowledged however, that given the nature of much national network infrastructure development, particularly SRFIs, there may be a limit on the extent to which it can contribute to the enhancement of the quality of the area.	See response to NPSNN paragraph 4.28 above.
4.31	A good design should meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts wherever possible, for example, in relation to safety or the environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into account capital cost, economics and environmental impacts.	See response to NPSNN paragraph 4.28 above. The Scheme Design Report [APP-194] outlines how the Scheme design was an iterative process, undertaken by an integrated design team to adhere to the principles of the design and mitigation hierarchy outlined in DMRB LA104 Environmental Assessment and Monitoring. The first principle of the design and mitigation hierarchy outlined in DMRB LA 104 is to avoid potential adverse effects, if at all possible, before seeking to minimise or mitigate any unavoidable impacts through a well-developed mitigation strategy. Embedded

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		mitigation incorporated into the Scheme design development is outlined in Chapter 2 (The Scheme) of the ES [APP-046]**.** In addition, the Scheme Design Report [APP-194] outlines how the Scheme meets National Highways' ten principles of good road design, including good road design being long-lasting. For example, all structures have been designed with due regard to the long-term maintenance requirements and in accordance with DMRB CD350 'The design of highway structures'. All structures have been designed to a design life of 120 years. How the Scheme meets the key objectives of the Scheme is set out in Chapter 3, Table 3.1 of the Case for the Scheme [REP5-030], of which one of the key objectives is to deliver better environmental outcomes.
4.32	Scheme design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable and as aesthetically sensitive, durable, adaptable and resilient as they can reasonably be (having regard to regulatory and other constraints and	The Scheme has been subject to an iterative design process from the outset. The Case for the Scheme [REP5-030] sets out how the Scheme's design has evolved. The assessment of alternatives included in Chapter 3 (Assessment of Alternatives) of the ES [APP-047] describes the

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
	including accounting for natural hazards such as flooding).	other options considered. The Scheme design has been developed in line with the principles set out in DMRB GG 103 'Introduction and general requirements for sustainable development and design'. The Scheme design has also been developed in line with National Highways' ten principles of good road design, as detailed in the Scheme Design Report [APP-194]. The Scheme Design Report sets out the design development and how the Scheme would be adaptable and resilient, including consideration of climate change and adaption, which is set out in section 10.2 of the Report. This also refers to the attenuation basins for which further information is provided in Appendix 13.4 Drainage Strategy of the ES Appendices [APP-179]. The design has considered the potential for flooding. Details on the floodplain compensation areas are also set out in the Scheme Design Report [APP-194] including the design amendments incorporated to reduce carbon (within section 4.12 of the Report). The ES (contained within Volume 6.1 of the DCO

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Application) explains how the Scheme has been designed in accordance with the standards set out in the DMRB and National Highways' safety governance procedures. Detail on how the design has evolved is also set out in the Scheme Design Report [APP-194].

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4.33	The applicant should therefore take into account, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme's contribution to the quality of the area in which it would be located). Applicants will want to consider the role of technology in delivering new national networks projects. The use of professional, independent advice on the design aspects of a proposal should be considered, to ensure good design principles are embedded into infrastructure proposals.	The Scheme Design Report [APP-194] outlines in Annex A the Design Principles of the Scheme. The Report also outlines how the Scheme meets appropriate industry good design guidance and sets out how independent advice from Design: Midlands' Design Review service on the design aspects of the Scheme have been considered. The Applicant has considered, as far as possible functionality and aesthetics. The finish to new bridges and culverts would generally be similar to the existing adjacent structures and where possible wing walls would be formed with split block facing in a stretcher bond layout. At Cattle Market the split block facing would have a red coloured lower section to link in with the adjacent Smeaton red brick parapet walls with the introduction of local artwork to the walkway/cycleway route abutment wall being considered during the detailed design stage. Further details are set out Chapter 2 (The Scheme) of the ES [APP-046]. Chapter 2 (The Scheme) of the ES [APP-046] outlines the use of technology within the Scheme, this includes the following:

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		• CCTV coverage would be replaced where it is affected by the Scheme (Cattle Market, A1/A46 interface and the existing Message Sign to be relocated east of Winthorpe roundabout). • The design of the Scheme includes one gantry for a variable message sign (VMS) which would be installed on the westbound approach to Winthorpe Roundabout on the existing dualled A46. The location of the VMS can be seen on the General Arrangements Plans [AS-007]. • Installation of this technology would require improvements to be made to the existing communications network, for example, through the installation of new cabling and power connections that would be undertaken as part of the Scheme.
4.34	Whilst the applicant may only have limited choice in the physical appearance of some national networks infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting	The following ES (contained within Volume 6.1 of the DCO Application) chapters identify design, mitigation and enhancement measures in relation to landscape, historical character and function,

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	and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation.	landscape permeability, landform and vegetation: • Chapter 6: Cultural Heritage • Chapter 7: Landscape and Visual • Chapter 8: Biodiversity Enhancement measures which seek to improve and/or restore local landscape character and visual amenity where possible, have been considered during the integrated Scheme design development. Mitigation measures during construction and operation are included within the First Iteration EMP [REP5-025]. Detail on the First and Second Iteration EMPs, including how mitigation is secured within the draft DCO [REP5-002] under Requirement 3 is provided within section 4.4 of Chapter 4 of the ES [APP-048]. • Mitigation measures of relevance during operation, included within the First Iteration EMP [REP5-025] and shown on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026], include new and replacement native planting which

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		takes into account climate change resilience and reflects the local landscape character, including those species listed in the Newark and Sherwood Landscape Character Assessment Supplementary Planning Document (SPD) Over time, this vegetation would mature to offer effective screening where required as well as general landscape integration and softening of built features. • Retention and strengthening of hedgerows and linear belts of vegetation along the highway boundary where possible, to ensure that existing field boundaries and highways planting remains intact and wildlife corridors are not severed. Where retention is not possible, new planting will be sought to restore continuity of existing vegetation. This would include, but not be limited to, areas of species rich grassland, hedgerows, hedgerows with trees, linear belts of shrubs and trees and woodland, as well as wetland planting of drainage

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		features and habitat creation at Farndon East and West FCAs. • Appendix 7.4 Arboricultural Impact Assessment of the ES Appendices [APP-140] detail specific mitigation in relation to potential remediation measures following construction with respect to trees.
4.35	Applicants should be able to demonstrate in their application how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favored choice has been selected. The Examining Authority and Secretary of State should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.	Chapter 3 (Assessment of Alternatives) of the ES [APP-047] examines the complete suite of design variations of the preferred option, including "*a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the Applicant, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects"*, in line with the EIA Regulations. This demonstrates the rationale and decisions made for the final preliminary design to be submitted as part of the DCO application. Following the presentation of the Scheme at

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Statutory Consultation in October to December 2022, the Scheme design evolved as a result of the feedback received during Statutory Consultation and discussions held with consultees (including statutory and other environmental bodies) as part of the Technical Working Groups. Details on how the Applicant has responded to the feedback received during the Statutory Consultation is detailed in the Consultation Report [APP-028] and the Consultation Report Annexes [APP-029 to APP-044]. Table 3-11 of Chapter 3 (Assessment of Alternatives) of the ES [APP-047] also summarises the design developments that have taken place following the Statutory Consultation and the further targeted consultation to produce the design which forms the application for development consent. These design developments have been integrated into the current Scheme presented and therefore the design that has been assessed within the ES (contained within Volume 6.1 of the DCO Application.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Detail on the design process and how it has evolved is also set out in the Scheme Design Report [APP-194].
4.38	Adaptation is therefore necessary to deal with the potential impacts of these changes that are already happening. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the provision of green infrastructure.	Chapter 14 (Climate) of the ES [APP-058] considers the Scheme's vulnerability and resilience to climate change. The assessment of the vulnerability of the Scheme to climate change has included the UK Climate Projections (UKCP18) and where appropriate, mitigation measures through the design have considered these projections. Appendix 13.2 Flood Risk Assessment in of the ES Appendices [APP-177] uses guidance on climate change allowances (Environment Agency (2021) Flood risk assessments: climate change allowances). Alterations to the road network will provide adequate drainage to accommodate potential changes in surface runoff, including allowance for climate change in accordance with the DMRB CG 501 – Design of highway drainage systems standards and through consultation with the Environment Agency and the Lead Local Flood

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		Authority (Nottinghamshire County Council). Engagement with stakeholders occurred throughout the development of the drainage strategy, as outlined in Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048]. The drainage strategy is included within Appendix 13.4 of the ES Appendices [APP-179].
4.40	New national networks infrastructure will be typically long-term investments which will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change when planning location, design, build and operation. Any accompanying environment statement should set out how the proposal will take account of the projected impacts of climate change.	Chapter 14 (Climate) of the ES [APP-058] considers the Scheme's vulnerability and resilience to climate change. The assessment of the vulnerability of the Scheme to climate change has included the UK Climate Projections (UKCP18) and where appropriate, mitigation measures through the design have considered these projections. The Scheme design has been developed taking into account the potential implications of climate change such as resilience of the Scheme to flooding and high temperatures. For instance the drainage design has considered a 30% uplift to account for climate change. The EIA process has considered the effects of possible future changes in climate over a 60-year

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		appraisal period, considering the climate projections in UKCP18. The potential impacts of these climatic changes on the Scheme have been assessed in Chapter 14 (Climate) of the ES [APP-058]. The drainage design has been developed taking into account future potential increases in flooding, while the impacts have been considered in the FRA in Appendix 13.2 of the ES Appendices [APP-177]. The guidance on climate change allowances has been used (Environment Agency (2021) Flood risk assessments: climate change allowances). Mitigation measures with regards to climate change are secured in the REAC which forms part of the First Iteration EMP [REP5-025].
4.41	Where transport infrastructure has safety-critical elements and the design life of the asset is 60 years or greater, the applicant should apply the UK Climate Projections 2009 (UKCP09) high emissions scenario (high impact, low likelihood) against the 2080 projections at the 50% probability level.	The climate projections can be found within Chapter 14 (Climate) of the ES [APP-058]. The future climate baseline for the Scheme has been derived from the Met Office United Kingdom Climate Projections 2018 (UKCP18) tool which provides projections for future climate change across the UK against a range of future climate

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		scenarios. UKCP18 has superseded UKCP09 as such this has been used. The high emissions scenario, or Representative Concentration Pathway (RCP) 8.5 has been used for the assessment across three probability levels, or percentiles as described below. Given the 120-year maximum design life of some aspects of the Scheme, and using the approach described above, the following climate change scenarios for given time periods has been chosen for this assessment: • UKCP18 probabilistic projections, 1981-2000 baseline, RCP8.5, 10th, 50th and 90th percentile, 2040-2059 (2050s) and 2080-2099 (2090s). • UKCP18 probabilistic extreme projections, RCP8.5, 10th, 50th and 90th percentile, 1 in 20, 1 in 50 and 1 in 100-year return periods, 2055 and 2095.
4.42	The applicant should take into account the	See response to NPSNN paragraph 4.41 above.

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	potential impacts of climate change using the latest UK Climate Projections available at the time and ensure any environment statement. that is prepared identifies appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure.	The assessment on the vulnerability of the Scheme to climate change has included the UK Climate Projections (UKCP18) and where appropriate, mitigation measures through the design have considered these projections. Details on the projections and the mitigation are presented in Chapter 14 (Climate) of the ES [APP-058]. Given the 120-year design life of the Scheme, and using the approach described above, the following climate change scenarios for given time periods have been chosen for this assessment: • UKCP18 probabilistic projections, 1981-2000 baseline, RCP8.5, 10th, 50th and 90th percentile, 2040-2059 (2050s) and 2080-2099 (2090s). • UKCP18 probabilistic extreme projections, RCP8.5, 10th, 50th and 90th percentile, 1 in 20, 1 in 50 and 1 in 100-year return periods, 2055 and 2095. Enhancement measures for resilience of the Scheme to climate change will further be considered as part of the detailed design

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		development.
4.43	The applicant should demonstrate that there are no critical features of the design of new national networks infrastructure which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections. Any potential critical features should be assessed taking account of the latest credible scientific evidence on, for example, sea level rise (e.g., by referring to additional maximum credible scenarios such as from the Intergovernmental Panel on Climate Change or Environment Agency) and on the basis that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime through potential further mitigation or adaptation.	The assessment in relation to climate change can be found within Chapter 14 (Climate) of the ES [APP-058]. This also sets out how there are no critical features of the design or new national networks infrastructure which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections. The Chapter also sets out the mitigation measures that would be implemented during construction and operation of the Scheme.
4.44	Any adaptation measures should be based on the latest set of UK Climate Projections, the Government's national Climate Change Risk Assessment and consultation with statutory consultation bodies. Any adaptation measures must themselves also be assessed as part of any environmental impact assessment and included in the environment statement, which should set out how and where such measures are proposed to be secured.	Measures to improve the resilience of the Scheme to climate change, are embedded into the design through consideration of future climate change based on the future climate projections. The drainage design includes climate change allowances, 30% uplift, which have been consulted on with the Environment Agency. The measures are embedded in the design and as such have been assessed as part of the environmental assessment of the design. The mitigation

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
		measures and assessment were based on the UKCP18 scenarios and are detailed within Chapter 14 (Climate) of the ES [APP-058].
4.45	If any proposed adaptation measures themselves give rise to consequential impacts the Secretary of State should consider the impact in relation to the application as a whole and the impacts guidance set out in this part of this NPS (e.g. on flooding, water resources, biodiversity, landscape and coastal change).	Measures to improve the resilience of the Scheme to climate change are embedded into the design through consideration of future climate change in the critical aspects, for instance the drainage design has considered a 30% uplift to account for climate change. As these measures are embedded in the design they are inherently included in the environmental assessment and the measures specifically result in minor changes to design. Therefore, the measures implemented through the design to improve the resilience of the Scheme to climate change, as detailed in Chapter 14 (Climate) of the Environmental Statement [APP-058], are not considered to result in additional impact due to the nature of the measures being embedded in the design and the sensitivity of the surrounding area.
4.46	Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so.	See response to NPSNN Paragraph 4.44. Mitigation measures have been embedded into the design and as such will be implemented through construction.
4.47	Where adaptation measures are necessary to deal with	See response to NPSNN Paragraph 4.45.

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	the impact of climate change, and that measure would have an adverse effect on other aspects of the project and/or surrounding environment (e.g. coastal processes), the Secretary of State may consider requiring the applicant to ensure that the adaptation measure could be implemented should the need arise, rather than at the outset of the development (e.g. reserving land for future extension, increasing the height of an existing sea wall, or requiring a new sea wall).	
4.48	Issues relating to discharges or emissions from a proposed project which affect air quality, water quality, land quality and the marine environment, or which include noise and vibration, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes. Relevant permissions will need to be obtained for any activities within the development that are regulated under those regimes before the activities can be operated.	The Consents and Agreements Position Statement [REP4-007] details other consents and agreements that are expected to be sought for the Scheme, and how these will be obtained.
4.54	Applicants are encouraged to begin pre-application discussions with the Environment Agency as early as possible. It is however expected that an applicant will have first thought through the requirements as a starting point for discussion. Some consents require a significant amount of preparation; as an example, the Environment Agency suggests that applicants should start work	The Applicant has engaged with the Environment Agency throughout the Scheme design and Examination stages. Details of engagement with consultees as part of statutory consultation are set out in Table 3.2 of the Consultation Report [APP-028]. Further details on engagement that has taken place, and areas of agreement and disagreement

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	towards submitting the permit application at least 6 months prior to the submission of an application for a Development Consent Order, where they wish to parallel track the applications. This will help ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the Examining Authority.	with the Environment Agency, are recorded within a Statement of Common Ground between the Applicant and the Environment Agency [REP5-048]. The Consents and Agreements Position Statement [REP4-007] details other consents and agreements that are expected to be sought for the Scheme, and how these will be obtained including any permits required from the Environment Agency.
4.55	The Secretary of State should be satisfied that development consent can be granted taking full account of environmental impacts. This will require close cooperation with the Environment Agency and/or the pollution control authority, and other relevant bodies, such as the MMO, Natural England, Drainage Boards, and water and sewerage undertakers, to ensure that in the case of potentially polluting developments: the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework; and the effects of existing sources of pollution in and around the project are not such that the cumulative effects of pollution when the proposed development is added would make that development unacceptable, particularly in relation to	The Applicant has engaged with statutory environmental bodies (the Environment Agency, Natural England and Historic England). Details of engagement with consultees are set out in Table 3.2 of the Consultation Report [APP-028].. Further details on engagement that has taken place, and areas of agreement and disagreement with these consultees, are recorded within Statements of Common Ground submitted throughout the DCO Examination. A number of meetings with the Environment Agency have been held, as summarised in section 13.4 of Chapter 13 (Road Drainage and Water Environment) of the ES [APP-057] and the

NPSNN (2015) Paragraph No.	Requirement of the NPSNN (2015)	Compliance with the NPSNN (2015)
	statutory environmental quality limits.	Statement of Common Ground between the Applicant and the Environment Agency [REP5-048], including discussions on pollution control measures. The First Iteration EMP [REP5-025] has been prepared for the Scheme. The REAC contained within the First Iteration EMP [REP5-025] details mitigation measures required during construction and operation to manage potential effects of the Scheme on water resources and to demonstrate compliance with environmental legislation.
4.58	It is very important that during the examination of a nationally significant infrastructure project, possible sources of nuisance under section 79(1) of the 1990 Act, and how they may be mitigated or limited are considered by the Examining Authority so they can recommend appropriate requirements that the Secretary of State might include in any subsequent order granting development consent. More information on the consideration of possible sources of nuisance is at paragraphs 5.81-5.89	The Statement Relating to Statutory Nuisances [APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the of the Environmental Protection 1990 Act (EPA). With the essential mitigation measures set out in the First Iteration EMP [REP5-025] in place, none of the statutory nuisances identified in section 79(1) of the EPA are predicted to arise during the construction or operation of the Scheme.
4.60	New highways developments provide an opportunity to make significant safety improvements. Some developments may have	The Case for the Scheme [REP5-030] provides an overview of the assessment of the impact of the Scheme on road safety, in accordance with

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	safety as a key objective, but even where safety is not the main driver of a development the opportunity should be taken to improve safety, including introducing the most modern and effective safety measures where proportionate. Highway developments can potentially generate significant accident reduction benefits when they are well designed.	Transport Appraisal Guidance (TAG). This assessment forecasts that over the 60-year assessment period the Scheme will provide an accident reduction benefit of £13.6 million, with a reduction in all types of accidents, including 8.6 fatal, 81.6 serious and 594.3 slight accidents saved. A key objective of the Scheme is to improve safety through Scheme design to reduce collisions for all users of the Scheme. The Scheme is subject to all safety governance processes including a Stage 1 Road Safety Audit (RSA). A Stage 1 RSAs are undertaken at the completion of preliminary design and normally before planning consent is granted. The findings of the audit have been fully reviewed by qualified Highway Designers, and audit recommendations have been accepted where appropriate. Further details on the Road Safety Audit can be found in Appendix B (Road Safety Audit and Designers Response) of the Transport Assessment [REP5-034]. The Scheme Design Report [APP-194] outlines how the design of the junctions and new structures

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		has been considered to create safe environments for both road users and those who will maintain these assets. Using the accident rates and traffic flows for each scenario, the Cost and Benefit to Accidents – Light Touch (COBALT) assessment set out in the Transport Assessment [REP5-034] forecasts the number of accidents and casualties in the Do Minimum (without the Scheme) and Do Something (with the Scheme) scenarios over a 60-year appraisal period. The number (and severity) of accidents and casualties is monetised by the software using default costs per accident and casualty specified in the DfT's Transport Analysis Guidance (TAG). By comparing the Do Minimum and Do Something results, the impact of the Scheme is identified, in terms of impacts on the number and severity of accidents and casualties as well as the economic costs. Overall, the results of the COBALT assessment indicate a forecast saving over the 60 year appraisal period of nearly 500 Personal Injury Accidents (PIAs), a reduction in casualties of all

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		severities (including 8.6 fatal casualties) The overall impact is positive with a forecast reduction in both accidents and a reduction in casualties of all severities. The analysis overall concludes that the Scheme will have a positive impact on road safety. Further details on the analysis undertaken into the impacts of the Scheme on road safety in the local area and further afield including the COBALT assessment can be found in Chapter 8 (Road Safety) of the Transport Assessment [REP5-034]. As outlined within Chapter 3 (Assessment of Alternatives) of the ES [APP-047], beside the function and form of the preferred option, the options considered during the early development of the Scheme were assessed against the safety of the user, the pedestrian/cyclist, the construction worker, and the general safety of the route. Throughout the design process, options were developed and screened to identify preferred solutions based on a comparison of the options performance against safety, environmental, engineering, transportation and economic criteria.

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		This process was supplemented by feedback from consultation with stakeholders and the public. The Scheme provides an opportunity to improve conditions for walking, cycling and horse-riding (WCH) through the provision of new routes and improved crossings. Information relating to temporary diversions can be found in Appendix 12.2 (Population and Human Health Supplementary Information) of the Environmental Statement Appendices [REP3-018] while Section 7.2 of the Transport Assessment [REP5-034] sets out design improvements to the WCH design. It is considered no additional facilities are required for Heavy Goods Vehicles drivers. The A46 already has a lorry park with the facilities suggested at Cattle Market Junction, the Applicant does not consider that any further provisions are required.
4.61	The applicant should undertake an objective assessment of the impact of the proposed development on safety including the impact of any mitigation measures. This should use the methodology outlined in the guidance from DfT	See the response to NPSNN paragraph 4.60 above.

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	(TAG) and from the Highways Agency.	
4.62	They should also put in place arrangements for undertaking the road safety audit process. Road safety audits are a mandatory requirement for all trunk road highway improvement schemes in the UK (including motorways).	Chapter 4 of the Transport Assessment [REP5-034] considers the problems and recommendations in the stage one road safety audit report and has provided a response to all problems and recommendations raised by the road safety audit team.
4.63	Road safety audits are intended to ensure that operational road safety experience is applied during the design and construction process so that the number and severity of collisions is as low as is reasonably practicable.	An RSA 1 was undertaken during the preliminary design stage. An RSA 2-4 will be undertaken during detailed design, prior to opening and 1 year after opening respectively.
4.64	The applicant should be able to demonstrate that their scheme is consistent with the Highways Agency's Safety Framework for the Strategic Road Network and with the national Strategic Framework for Road Safety. Applicants will wish to show that they have taken all steps that are reasonably required to: • Minimise the risk of death and injury arising from their development. • Contribute to an overall reduction in road casualties. • Contribute to an overall reduction in the number of unplanned incidents; and	The Scheme was designed in accordance with the technical documents produced by the DfT and National Highways which include the DMRB. The Scheme Design Report [APP-194] outlines how the design of the junctions and new structures have been considerate to create safe environments for both road users and those who will maintain these assets. An assessment of accident impacts has been completed using COBALT, the assessment forecasted a reduction in accidents across the

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	• Contribute to improvements in road safety for walkers and cyclists.	extent of the Scheme. Overall, the results of the COBALT assessment indicate a forecast saving over the 60 year appraisal period of nearly 500 Personal PIAs, a reduction in casualties of all severities (including 8.6 fatal casualties) and provides a monetised benefit of over £29 million. The overall impact is positive with a forecast reduction in both accidents and a reduction in casualties of all severities. Further details on the analysis undertaken into the impacts of the Scheme on road safety in the local area and further afield including the COBALT assessment can be found in Chapter 8 (Road Safety) of the Transport Assessment [REP5-034]. The Scheme incorporates new and improved WCH provision, as described in Chapter 2 (The Scheme) of the ES [APP-046]. A Walking, Cycling and Horse-riding Assessment and Review (WCHAR) has been undertaken to consider the impacts of the Scheme on WCH facilities. The purpose of the WCHAR process is to facilitate the inclusion of all WCH modes in the Scheme design from the earliest stage, enabling opportunities for new/improved facilities and their integration within the local and national networks. A WCHAR was

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		completed in June 2023 on the basis of the preliminary design for the Scheme and is available at Appendix C of the Transport Assessment [REP5-034]. A further WCHAR will follow at the detailed design stage to ensure that the needs of WCH continue to be considered as the design progresses. The Scheme is subject to all safety governance processes including a Stage 1 RSA. The findings of the audit have been fully reviewed by qualified Highway Designers, and audit recommendations have been accepted where appropriate. Further Road Safety Audits will be carried out as the design progresses in compliance with Highways England and DfT requirements. Details on the Road Safety Audit can be found in Appendix B (Road Safety Audit and Designers Response) of the Transport Assessment [REP5-034].
4.65	They will also wish to demonstrate that: • They have considered the safety implications of their project from the outset; and • They are putting in place rigorous processes for monitoring and evaluating safety.	Safety considerations are set out in the Scheme Design Report [APP-194]. This also sets out the design progression and how safety was and continues to be considered. Also see responses to NPSNN paragraphs 4.60, 4.62 and 4.64 above.

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		A stage 1 road safety audit (RSA) was undertaken to assess the safety of the preliminary design. A Stage 2 RSA will be done during the detailed design and a Stage 3 RSA on site prior to opening. A Stage 4 will be done after the Scheme has been operating for 1 year to monitor and evaluate any safety issues once operational.
4.66	The Secretary of State should not grant development consent unless satisfied that all reasonable steps have been taken and will be taken to: • minimise the risk of road casualties arising from the scheme; and • contribute to an overall improvement in the safety of the Strategic Road Network.	An enforced 50mph speed limit has been introduced between Cattle Market Roundabout and Winthorpe Roundabout to minimise the risk of accidents along this section due to the geometry of the Scheme which is restricted due to the alignment of the existing A46. Removal of small roundabouts and the reduction in traffic at the Brownhills Roundabout and Friendly Farmer Roundabout will improve safety on the Strategic Road Network.
4.79	National road and rail networks and strategic rail freight interchanges have the potential to affect the health, well-being and quality of life of the population. They can have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests.	Chapter 12 (Population and Health) of the ES [REP5-014] sets out the assessment methodology used to examine the effects of the Scheme on human health. This includes direct impacts on health stemming from changes in access to community amenities, employment, and amenity effects (caused by environmental factors such as noise, vibration, dust, air quality and emissions,

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		and light pollution) and environmental factors.
4.80	New or enhanced national network infrastructure may have indirect health impacts; for example if they affect access to key public services, local transport, opportunities for cycling and walking or the use of open space for recreation and physical activity.	Chapter 12 (Population and Health) of the ES [REP5-014] considers the indirect impacts of the Scheme on health – taking into consideration any impacts (both beneficial and adverse) of the Scheme on the community's ability to access public services, local transport and opportunities to engage in recreation and physical exercise. The chapter concludes that no significant health impacts will occur as a result of the construction or operation of the Scheme. The Scheme incorporates new and improved walking, cycling and horse-riding (WCH) through the provision of new routes and improved crossings. Information relating to temporary diversions can be found in Appendix 12.2 (Population and Human Health Supplementary Information) of the Environmental Statement Appendices [REP3-018] while Section 7.2 of the Transport Assessment Report [REP5-034] sets out design improvements to the WCH design.
4.81	As described in the relevant sections of this NPS, where the proposed project has likely significant environmental impacts that would have an effect on human beings, any	Chapter 12 (Population and Health) of the ES [REP5-014] considers the likely significant effects of the Scheme on human beings. Significant

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	environmental statement should identify and set out the assessment of any likely significant adverse health impacts.	adverse health impacts have not been identified during the construction or operation of the Scheme.
4.82	The applicant should identify measures to avoid, reduce or compensate for adverse health impacts as appropriate. These impacts may affect people simultaneously, so the applicant, and the Secretary of State (in determining an application for development consent) should consider the cumulative impact on health.	Chapter 12 (Population and Health) of the ES [REP5-014] sets out the assessment methodology used to examine the effects of the Scheme on human health. The operation of the Scheme is expected to have a beneficial impact on access to private property and housing; development land and businesses; community land and assets; green space, recreation and physical activity due to the reduced congestion and improved journey times that the Scheme will deliver. The assessment also sets out the mitigation measures including the embedded mitigation that's been considered from the outset. This is summarised in Section 12.10 of Chapter 12 (Population and Health) of the ES [REP5-014] including measures to avoid, reduce or compensate for health impacts as appropriate.

Table 2.3: Compliance with NPSNN Chapter 5

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
5.3	Increases in emissions of pollutants during the construction or operation phases of projects on the national networks can result in the worsening of local air quality (though they can also have beneficial effects on air quality, for example through reduced congestion). Increased emissions can contribute to adverse impacts on human health, on protected species and habitats.	Chapter 5 (Air Quality) of the ES [REP5-073] considers the likely significant effects of the Scheme on air quality including dust effects for the Scheme. A qualitative assessment of potential dust effects for the Scheme has been undertaken, based on a review of likely dust raising activities and identification of sensitive receptors within 200 metres of the study area. Potential dust impacts would be suitably controlled using the best practice mitigation measures set out within the First Iteration EMP [REP5-025] which will be developed into the Second Iteration EMP prior to and for implementation during construction. A qualitative assessment of the impacts associated with the construction traffic management measures has also been undertaken and concluded that, due to the temporary nature of the measures, there are not expected to be significant air quality effects at nearby receptors during the construction phase.

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		An assessment has been undertaken to assess the air quality impact of changes in traffic associated with the Scheme during its operation at sensitive receptors, using an atmospheric dispersion model. The model has been verified against air quality monitoring data and has been used to estimate the predicted pollutant concentrations at receptors with and without the Scheme in place. Concentrations across human health receptors are expected to be well below the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives (40ug/m^3 for NO_2 and PM_{10}, and 20ug/m^3 for $PM_{2.5}$). As such, the Scheme complies with the Air Quality (England) Regulations 2000 (as amended) and Air Quality Strategy 2023, which set out the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives. Therefore, in accordance with paragraph 2.90 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] has concluded no likely significant effect for human health so no mitigation measures are proposed. In accordance with paragraph 2.80 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		073] also concludes that the Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible. Ecological receptors that have the potential to be adversely affected by changes in nitrogen deposition have been assessed by the competent expert for Biodiversity in Chapter 8 (Biodiversity) of the ES [APP-052] which found that changes caused by the Scheme were not significant. The Scheme is consistent with national and local planning policy with respect to air quality, this is evidenced in Chapter 6 of the Case for the Scheme [REP5-030] and Chapter 5 (Air Quality) of the ES [REP5-073].
5.4	The paragraph outlines UK legislation such as ambient air quality objectives as well as European Union ambient concentration limit values for the main pollutants in the Ambient Air Quality Directive (2008/50/EU) ('the Air Quality Directive'), which are required to be met by various dates.	Relevant air quality standards and objectives are outlined in Section 5.3 of Chapter 5 (Air Quality) of the ES [REP5-073]. During operation of the Scheme there are not predicted to be any exceedances of the NO_2, PM_{10} or $PM_{2.5}$ air quality objectives (40ug/m^3 for NO_2 and PM_{10}, and 20ug/m^3 for $PM_{2.5}$) at any human

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		health receptors within the study area. As such, the Scheme complies with the Air Quality (England) Regulations 2000 (as amended) and Air Quality Strategy 2023, which set out the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives. The maximum modelled concentration for NO_2 in the opening year of the Scheme (2028) is predicted to be 31.9ug/m^3, whilst the maximum modelled concentration for PM_{10} in the base year of the Scheme (2022) is predicted to be 28.9ug/m^3. Section 5.5 of Chapter 5 (Air Quality) of the ES [REP5-073] provides detail on why $PM_{2.5}$ has not been considered further within the operational phase of the local air quality assessment. In accordance with paragraph 2.90 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] has concluded no likely significant effect for human health so no mitigation measures are proposed. Further to this, there are road links from the Pollution Climate Mapping (PCM) model within the study area for the Scheme but none that intersect the affected road network (ARN) (see Figure 5.2

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		Air Quality Constraints of the ES Figures [AS-029]. The predicted concentrations for the closest PCM model link to the ARN are 16.1µg/m^3 for 2022 (the assessment base year) and 12.0µg/m^3 for 2028 (the assessment opening year), which are both below the annual mean limit value of 40µg/m^3 for NO_2. This demonstrates that the Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible.
5.6	Where the impacts of the project (both on and off-scheme) are likely to have significant air quality effects in relation to meeting EIA requirements and / or affect the UK's ability to comply with the Air Quality Directive, the applicant should undertake an assessment of the impacts of the proposed project as part of the environmental statement.	Chapter 5 (Air Quality) of the ES [REP5-073] addresses the requirement for the Applicant to undertake an assessment of the impacts of the Scheme on air quality. A qualitative assessment of potential dust effects for the Scheme has been undertaken, based on a review of likely dust raising activities and identification of sensitive receptors within 200 metres. Potential dust impacts would be suitably controlled using the best practice mitigation measures set out within the First Iteration EMP [REP5-025] which will be developed into the Second Iteration EMP prior to and for implementation during construction. A qualitative

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		assessment of the impacts associated with the construction traffic management measures has also been undertaken and concluded that due to the temporary nature of the measures, there are not expected to be significant air quality effects at nearby receptors during the construction phase. An assessment has been undertaken to assess the air quality impact of changes in traffic associated with the Scheme during its operation, at sensitive receptors, using an atmospheric dispersion model. The model has been verified against air quality monitoring data and has been used to estimate the predicted pollutant concentrations at receptors with and without the Scheme in place. Concentrations across human health receptors are expected to be well below the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives (40ug/m^3 for NO_2 and PM_{10}, and 20ug/m^3 for $PM_{2.5}$). As such, the Scheme complies with the Air Quality (England) Regulations 2000 (as amended) and Air Quality Strategy 2023, which set out the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives. Therefore, in

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		accordance with paragraph 2.90 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] has concluded no likely significant effect for human health so no mitigation measures are proposed. In accordance with paragraph 2.80 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] also concludes that the Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible. Ecological receptors that have the potential to be adversely affected by changes in nitrogen deposition have been assessed by the competent expert for Biodiversity and set out in Chapter 8 (Biodiversity) of the ES [APP-052] which found that changes caused by the Scheme were not significant. The full assessment of the impacts of the Scheme has been presented in Sections 5.9 and 5.11 of Chapter 5 (Air Quality) of the ES [REP5-073]. The Statement Relating to Statutory Nuisances

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		[APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the EPA. With the best practice mitigation measures set out in the First Iteration EMP [REP5-025] in place, none of the statutory nuisances identified in section 79(1) of the EPA are predicted to arise during the construction and operation of the Scheme.
5.7	The Environmental Statement should describe: • existing air quality levels • forecasts of air quality at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme • any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project.	The baseline air quality conditions are described in Section 5.8 of Chapter 5 (Air Quality) of the ES [REP5-073] whilst the baseline conditions at human health receptors and designated habitats in the opening year of the development, without the Scheme in place (Do Minimum scenario) are presented in Table 5-12 and 5-13 of Chapter 5 (Air Quality) of the ES [REP5-073]. Any significant air quality effects, their mitigation and any residual effects during the construction and operational phases are presented and discussed in Sections 5.9, 5.10 and 5.11 of Chapter 5 (Air Quality) of the ES [REP5-073].
5.8	Defra publishes future national projections of air quality based on evidence of future emissions, traffic and vehicle fleet. Projections are updated as the evidence base	Predicted background pollutant concentrations published by Defra have been used in the assessment, which have been adjusted based on

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	changes. The applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts.	monitored background concentrations, to ensure they are representative of local background conditions. Road traffic emission factors used in the assessment have been derived from an update to the speed band emission factors published in DMRB LA 105. The speed band emission factors used in this assessment, v4.3, take account of Defra's Emission Factors Toolkit EFT. Long-term trend gap analysis factors in accordance with DMRB LA105 have also been applied to uplift opening year concentrations in order to address the uncertainty relating to predictions of future emissions. Further details are set out in Chapter 5 (Air Quality) of the ES [REP5-073].
5.9	In addition to information on the likely significant effects of a project in relation to EIA, the Secretary of State must be provided with a judgement on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive.	Chapter 5 (Air Quality) of the ES [REP5-073] includes an assessment of the risk of the Scheme affecting the UK's reported ability to comply with the Air Quality Directive (2008). The assessment concludes that the Scheme would not affect the UK's reported ability to comply with the Air Quality

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		Directive (2008) in the shortest timescales possible.
5.10	The Secretary of State should consider air quality impacts over the wider area likely to be affected, as well as in the near vicinity of the scheme. In all cases the Secretary of State must take account of relevant statutory air quality thresholds set out in domestic and European legislation. Where a project is likely to lead to a breach of the air quality thresholds, the applicant should work with the relevant authorities to secure appropriate mitigation measures with a view to ensuring so far as possible that those thresholds are not breached.	The results of the air quality assessment completed for this Scheme for the operational phase are presented in Chapter 5 (Air Quality) of the ES [REP5-073] and demonstrate that there are no exceedances of the air quality objectives ($40ug/m^3$ for NO_2 and PM_{10}, and $20ug/m^3$ for $PM_{2.5}$). The Scheme would also not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible. No likely significant effects for human health are predicted so no mitigation measures are proposed. Chapter 5 (Air Quality) of the ES [REP5-073] also confirms that impacts from construction dust will be mitigated using best practicable means, such as wetting down and minimising the height of stockpiles, and effects are not predicted to be significant. The best practice mitigation measures are set out within the First Iteration EMP [REP5-025] which will be developed into the Second Iteration EMP prior to and for implementation during construction.
5.11	Air quality considerations are likely to be particularly	There are no Air Quality Management Areas within

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	relevant where schemes are proposed: · within or adjacent to Air Quality Management Areas (AQMA); roads identified as being above Limit Values or nature conservation sites (including Natura 2000 sites and SSSIs, including those outside England); and · where changes are sufficient to bring about the need for a new AQMA or change the size of an existing AQMA; or bring about changes to exceedences of the Limit Values, or where they may have the potential to impact on nature conservation sites.	or in close proximity to the Scheme. There are road links from the Pollution Climate Mapping (PCM) model (used by Defra to report limit value compliance) within the study area for the Scheme but none that intersect the affected road network (ARN) (see Figure 5.2 Air Quality Constraints of the ES Figures [AS-029]). The predicted concentrations for the closest PCM model link to the ARN are 16.1µg/m^3 for 2022 (the assessment base year) and 12.0µg/m^3 for 2028 (the assessment opening year), which are both below the annual mean limit value of 40µg/m^3 for NO_2. This demonstrates that the Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible. Concentrations across human health receptors are also expected to be well below the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives (40ug/m^3 for NO_2 and PM_{10}, and 20ug/m^3 for $PM_{2.5}$) with and without the Scheme in place in the Scheme's opening year. Ecological receptors that have the potential to be

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		adversely affected by changes in nitrogen deposition have been assessed by the competent expert for Biodiversity and set out in Chapter 8 (Biodiversity) of the ES [APP-052] which found that changes caused by the Scheme were not significant.
5.12	The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and/or where they lead to a deterioration in air quality in a zone/agglomeration.	Chapter 5 (Air Quality) of the ES [REP5-073] addresses the requirement for the Applicant to undertake an assessment of the impacts of the Scheme on air quality. A qualitative assessment of potential dust effects for the Scheme has been undertaken, based on a review of likely dust raising activities and identification of sensitive receptors within 200 metres. Potential dust impacts would be suitably controlled using the best practice mitigation measures set out within the First Iteration EMP [REP5-025] which will be developed into the Second Iteration EMP prior to and for implementation during construction. A qualitative assessment of the impacts associated with the construction traffic management measures has also been undertaken and concluded that due to the temporary nature of the measures, there are

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		not expected to be significant air quality effects at nearby receptors during the construction phase. An assessment has been undertaken to assess the air quality impact during the operation of the Scheme at sensitive receptors, using an atmospheric dispersion model. The model has been verified against air quality monitoring data and has been used to estimate predicted pollutant concentrations at receptors with and without the Scheme in place. Concentrations across human health receptors are expected to be well below the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives (40ug/m^3 for NO_2 and PM_{10}, and 20ug/m^3 for $PM_{2.5}$). As such, the Scheme complies with the Air Quality (England) Regulations 2000 (as amended) and Air Quality Strategy 2023, which set out the NO_2, PM_{10} and $PM_{2.5}$ air quality objectives. Therefore, in accordance with paragraph 2.90 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] has concluded no likely significant effect for human health so no mitigation measures are proposed.

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		In accordance with paragraph 2.80 of DMRB LA 105, Chapter 5 (Air Quality) of the Environmental Statement [REP5-073] also concludes that the Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008) in the shortest timescales possible, meaning it would not result in a deterioration of air quality within a zone/agglomeration.Further relevant detail is provided in Chapter 5 (Air Quality) of the ES [REP5-073].
5.13	The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will: · result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or · affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision.	The Scheme would not affect the UK's reported ability to comply with the Air Quality Directive (2008). It would not cause a zone/agglomeration which is currently compliant to become non-compliant and would not affect the ability of a non-compliant area to achieve compliance in the shortest timescales possible.
5.14	The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. A management plan may help codify mitigation at this stage. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a	Section 5.10 of Chapter 5 (Air Quality) of the ES [REP5-073] sets out mitigation measures. These are summarised below: **Mitigation measures – construction**

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	zone will meet compliance timescales.	Construction works would be carried out in accordance with the best practicable means, as described in Section 79 (9) of the EPA, to reduce fumes or emissions which may impact upon air quality. As a minimum, the following measures are required to prevent significant effects during the construction phase. These measures are included within the First Iteration EMP [REP5-025] and would be implemented through the Second Iteration EMP secured through Requirement 3 of the draft DCO [REP5-002]. • Avoid double handling of materials. • Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locate stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Provide a means of removing mud and other debris from wheels and chassis of vehicles leaving the site. This may involve a simple coarse gravel running surface or jet wash, or

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		in the case of a heavily used exit point, wheel washers. • Maintain a low speed limit on site to prevent the generation of dust by fast moving vehicles. • Damp down surfaces in dry conditions. • Water to be sprayed during cutting/grinding operations. • All vehicle engines and plant motors to be switched off when not in use. • High dust generating activities within site compounds should be located as far away from nearby receptors as possible. **Mitigation measures – operation** The results of the air quality assessment completed for the Scheme, presented in Chapter 5 (Air Quality) of the ES [REP5-073] demonstrate that the Scheme would not have a significant effect on air quality impact. This is because there will be no exceedances of the air quality objectives, no impacts at designated habitats or human health receptors and the Scheme would not affect reported compliance with the Air Quality Directive (2008). On the basis of these

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		conclusions no design, mitigation or enhancement measures such as nature-based solutions and changes to the Scheme design and layout are required for impacts on air quality during operation. The air quality assessment does not consider the effects of tree cover on air quality in any modelled scenario, as this is not a requirement of DMRB LA 105 and quantification of the interaction between air quality and vegetation is still subject to ongoing research. However, tree belts that would be planted along the A46 carriageway for other purposes, such as providing habitats for wildlife and acting as visual screening, can have a beneficial impact on air quality
5.15	Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and speed control. The implementation of mitigation measures may	See response to NPSNN paragraph 5.14. above.

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	require working with partners to support their delivery.	
5.17	Carbon impacts will be considered as part of the appraisal of scheme options (in the business case), prior to the submission of an application for DCO. Where the development is subject to EIA, any Environmental Statement will need to describe an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive. It is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets. However, for road projects applicants should provide evidence of the carbon impact of the project and an assessment against the Government's carbon budgets.	The assessment of significance, in the ES [APP-058], follows DMRB LA 114 Climate as this is currently the relevant methodology for highways schemes on the SRN. DMRB LA 114 states that *'projects shall only report significant effects where increases in GHG emissions will have a material impact on the ability of Government to meet its carbon reduction targets'.* It also notes in this NPSNN paragraph that '*it is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets'* and that in this context '*it is considered unlikely that projects will, in isolation, conclude significant effects on climate'*. The assessment includes a comparison of estimated GHG emissions arising from the Scheme with UK carbon budgets and the associated reduction targets in line with DMRB LA 114. The results of this comparison are presented in Table 14.21 Chapter 14 Climate of the ES [APP-058], following the format of Table 3.18 in DMRB LA 114.

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		Further information is set out in Chapter 14 (Climate) of the ES [APP-058].
5.19	Evidence of appropriate mitigation measures (incorporating engineering plans on configuration and layout, and use of materials) in both design and construction should be presented. The Secretary of State will consider the effectiveness of such mitigation measures in order to ensure that, in relation to design and construction, the carbon footprint is not unnecessarily high. The Secretary of State's view of the adequacy of the mitigation measures relating to design and construction will be a material factor in the decision-making process.	Chapter 14 (Climate) of the ES [APP-058] outlines mitigation measures for both design and construction of the Scheme. Mitigation measures during construction are included within the First Iteration Environmental Management Plan (EMP) [REP5-025]**.** This will be developed into a Second Iteration EMP which will be implemented during construction of the Scheme, as secured by Requirement 3 of the draft DCO [REP5-002]**.** Further details are provided within section 4.4 of Chapter 4 (Environmental Assessment Methodology) of the ES. Chapter 14 (Climate) of the Environmental Statement [APP-058] reports a 44% reduction in emissions compared to the initial baseline assessment presented in the *Preliminary Environmental Information Report, Annex J10 of the Consultation Report* [APP-039]. No significant effects on climate are anticipated. This reduction is the result of significant efforts to minimise the greenhouse gas emissions associated with the Scheme design and identify opportunities to

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		improve resource efficiency and reduce carbon, such as reuse of existing carriageway infrastructure, use of precast materials where possible and provision of renewable energy for the site compound. The carbon management and mitigation approach for the Scheme aligns with PAS 2080 best practice, via an iterative system which repeatedly evaluates the Scheme, for example, the use of low carbon solutions or techniques that reduce resource consumption. The output is a Scheme which is optimised as far as reasonably practicable. An Outline Carbon Management Plan has been produced which is contained in Appendix B.6 of the First Iteration Environmental Management Plan [REP5-025]. The Outline Carbon Management Plan (OCMP) is a live document that will be updated to a full Carbon Management Plan as part of the Second Iteration Environmental Management Plan as the Scheme progresses through detailed design. This will ensure the consideration of carbon reduction through all phases of the lifecycle of the Scheme.

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		The Principal Contractor is to engage the subcontractors and suppliers to support the subsequent development of the Carbon Management Plan, based on the OCMP, on the provision of the following: • Assessment methodology • Procurement • Materials and resource management on site • Change process for low/zero carbon solutions • Construction techniques and competency • Training matrix The Scheme has been designed to ensure the lifetime operation is as efficient as possible, ensuring whole-life low carbon, supporting the Applicant's ambitions. Opportunities identified during the design and construction of the Scheme for during operation will be captured within the Opportunities Log which will be updated by the Principal Contractor and handed over to the maintenance provider to pursue as part of the Third Iteration EMP. The Third Iteration EMP will be developed from the

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		Second Iteration EMP following completion of construction and will detail those commitments and measures to mitigate the impacts of the Scheme during operation, which are included in the First Iteration EMP [REP5-025]**.** The development and implementation of the Third Iteration EMP is secured by requirement 4 of the draft DCO [REP5-002]**.**
5.20	Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part. Government policy for the natural environment is set out in the Natural Environment White Paper (NEWP). The NEWP sets out a vision of moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures. Geological conservation relates to the sites that are designated for their geology and/or their geomorphological importance.	Chapter 8 (Biodiversity) of the Environmental Statement [Statement [APP-052] details the mitigation hierarchy implemented to protect habitats of ecological value and the wildlife they support, irreplaceable nature assets (e.g., lowland meadow habitat of principal importance (HPI)). Figure 2.3 Environmental Masterplan of the Environmental Statement Figures [AS-026] details the planting design for the continuous provision of wildlife corridors along the A46 carriageway, with enhancement to existing hedgerows to provide connectivity surrounding landscape, planting of attenuation ponds for biodiversity (including stepped-ledges along the water's edge), creation of wetland areas in Farndon West and East burrow pits with integrated fish escape passages to prevent fish entrapment.

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		Figure 2.3 Environmental Masterplan of the Environmental Statement Figures [AS-026] details a climate resilient planting design, which has considered the following: diverse mix of native species of local provenance (avoiding homogenous planting, prone to spread of disease), soil composition for habitat creation (e.g. identified suitable areas for lowland meadow creation), an overall gain in habitats that provide carbon sequestration (reedbeds and woodland), maintaining and enhancing habitat connectivity facilitating the movement of wildlife, designed to be maintained for perpetuity prescribed in the First Iteration Environmental Management Plan [REP5-025] and Second Iteration Environmental Management Plan. Climate resilience was considered within the BNG assessment (Appendix 8.14 Biodiversity Net Gain Technical Report of the Environmental Statement Appendices [APP-159] to support the initial and long-term feasibility of the planting design. Strategic Significance also informed the planting design; prioritising the creation of habitats in

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		locations which are ecologically important (with reference to local policy or strategy, or for creating or enhancing connective corridors). The Scheme will achieve a net gain in habitat units within the Order Limits of the Scheme, further details are set out in Appendix 8.14 (Biodiversity Net Gain (BNG) Technical Report) of the Environmental Statement Appendices [APP-159]. Chapter 9 (Geology and Soils) of the ES [REP5-010] considers the likely significant effects of the Scheme on designated areas of geological importance.
5.21	The wide range of legislative provisions at the international and national level that can impact on planning decisions affecting biodiversity and geological conservation issues are set out in a Government Circular.	Chapter 8 (Biodiversity) of the Environmental Statement [Statement [APP-052] details the legislation (including at international and national level) and policy considered in this assessment. The Habitats Regulations Assessment [REP5-075] is included within the DCO application. This considers whether the Scheme has the potential to result in significant effects on European sites which, in accordance with Regulation 3 of the Habitats Regulations, includes sites designated as part of Natura 2000, or European marine sites and European offshore marine sites for the purposes

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		of any of the retained transposing regulations. For ease of expressions and in line with the Inspectorate's Advice Note 101, the terms 'European Site(s)' has also been used throughout the HRA when referring to Ramsar sites, Special protection Areas (SPAs and Special Areas of Conservation SAC). Chapter 9 Geology and Soils) of the ES [REP5-010] details the legislation (including at international and national level) and policy considered in the assessment of geological receptors.
5.22	Where the project is subject to EIA the applicant should ensure that the environmental statement clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England) on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity and that the statement considers the full range of potential impacts on ecosystems.	Chapter 8 (Biodiversity) of the ES[APP-052] considers the likely significant effects of the Scheme on internationally, nationally and locally designated sites of ecological importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The conclusions of the biodiversity assessment reports the residual effects to receptors which are determined after mitigation measures have been taken into account.

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		The assessment concludes the following: • It is anticipated that the Scheme is likely to have a Slight Adverse effect on the Humber Estuary SAC and Ramsar during construction. • A Moderate Adverse effect is anticipated on Great North Road Grasslands LWS during construction. • A Slight Adverse effect is anticipated on Dairy Farm Railway Strip, Newark LWS, Newark (Beet Factory) Dismantled LWS, Old Trent Dyke LWS and Newark Trent Grassland LWS during construction. • A Slight Adverse effect is anticipated on HPI and non HPI during construction. • A Slight Adverse effect is anticipated on three veteran trees during construction. • The Scheme is anticipated to have a Slight Adverse effect during construction on badger, bats, breeding and wintering birds, fish, reverting to Neutral once operational. • The Scheme is anticipated to have a Slight Adverse effect on barn owls during construction and operation.

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		• The Scheme is anticipated to have a Slight Adverse effect during construction on invertebrates (aquatic and terrestrial) and water vole. • The Scheme is anticipated to have a Slight Beneficial effect on reptiles during construction. • The Scheme is anticipated to have a Neutral effect on otter during construction and operation. Mitigation, compensation and enhancement measures are identified in section 8.10 of Chapter 8 (Biodiversity) of the ES [APP-052]. Whilst the Scheme will achieve an overall net gain in habitat units within the Order Limits there is an exception to this regarding the areas of impact and compensation for lowland meadow. In principle, Natural England considers the bespoke compensation proposed by the Applicant to be appropriate, subject to appropriate ongoing management, as agreed in the Statement of Common Ground with Natural England [REP5-051].t

NPSNN (2015) Paragraph No.	Requirement of the NPSNN	Compliance with the NPSNN
		Further information is contained within Appendix 8.14 (Biodiversity Net Gain Technical Report) of the Environmental Statement Appendices [APP-159]. A Habitats Regulations Assessment [REP5-075] is included within the Examination documents. This considers whether the Scheme has the potential to result in significant effects on European sites of biodiversity interest. The Screening (Stage 1) assessment identified the potential for likely significant effects associated with the temporary semi-permeable barrier of lamprey migration routes (when a crane slews and the artificial lighting on the boom casts across the water before coming to rest on the beam lift) and the entrapment/isolation of lamprey individuals within the Farndon East FCA and Farndon West FCA, during flood events occurring within the lamprey migration and breeding period. An Appropriate Assessment (Stage 2) was undertaken with regards to the pathways with the

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		potential to give rise to likely significant effects. Appropriate mitigation including more detailed control of artificial lighting during night-time bridge works and the inclusion of fish escapes passages within Farndon East FCA and Farndon West FCA are considered to prevent, or sufficiently reduce, the impact upon lamprey, so as to achieve a negligible residual impact. No adverse impacts upon the integrity of the Humber Estuary SAC/Ramsar are therefore anticipated as a result of the Scheme. Embedded measures and essential mitigation measures detailed within the Stage 1 Screening and Stage 2 Appropriate Assessment respectively in the Habitat Regulations Assessment [REP5-075] are considered to achieve an overall negligible residual effect upon lamprey. Likely significant effects associated within the Scheme, either alone or in-combination with any other projects or plans, can be ruled out. Therefore, there is not considered to be a requirement to proceed to Stage 3 (Derogation). With mitigation, no significant effects upon

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		biodiversity are likely during construction and operation. Chapter 9 (Geology and Soils) of the ES [REP5-010] considers the likely significant effects of the Scheme on designated areas of geological importance.
5.23	The applicant should describe how the project plans to conserve and enhance biodiversity conservation interests.	The Scheme has taken into account the locations of valuable and priority habitats, including important connective habitats (i.e., hedgerows, watercourses and treelines) and the location of any protected species. The mitigation hierarchy has been followed to modify the design to avoid impacts to these features where practicable. In addition, opportunities to enhance biodiversity are proposed. Mitigation and enhancement measures are described within Section 5 of Chapter 8 (Biodiversity) of the ES [APP-052]. For example, Farndon West FCA design considers the appropriate location of hibernacula (log and brash piles provision from retained felled trees) in species rich grassland with areas of scrub with regard to flooding events (frequency and severity). Figure 2.3 Environmental Masterplan of the Environmental Statement

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		Figures [AS-026] details a climate resilient planting design, which has considered the following: diverse mix of native species of local provenance (avoiding homogenous planting, prone to spread of disease), soil composition for habitat creation (e.g. identified suitable areas for lowland meadow creation), an overall gain in habitats that provide carbon sequestration (reedbeds and woodland), maintaining and enhancing habitat connectivity facilitating the movement of wildlife, designed to be maintained for perpetuity prescribed in the First Iteration Environmental Management Plan [REP5-025] and Second Iteration Environmental Management Plan. Climate resilience was considered within the BNG assessment (Appendix 8.14 Biodiversity Net Gain Technical Report of the Environmental Statement Appendices [APP-159] to support the initial and long-term feasibility of the planting design. Strategic Significance also informed the planting design; prioritising the creation of habitats in locations which are ecologically important (with reference to local policy or strategy, or for creating or enhancing connective corridors)
5.24	The Government's biodiversity strategy is set out in	See response to NPSNN paragraph 5.22 above.

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	Biodiversity 2020: A Strategy for England's wildlife and ecosystem services. Its aim is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. This aim needs to be viewed in the context of the challenge of climate change: failure to address this challenge will result in significant impact on biodiversity	Section 8.3 of Chapter 8 (Biodiversity) of the ES [APP-052] considers the Biodiversity 2020: A Strategy for England's wildlife and ecosystem services' objectives. Chapter 8 (Biodiversity) of the ES [APP-052] identifies opportunities for BNG and enhancement of biodiversity resources. The potential for the Scheme to deliver biodiversity net gains has been considered as part of the design-development and assessment processes. Loss of any habitat of conservation value will be replaced like-for-like (in condition) as a minimum requirement providing a greater area than was lost. When habitat planting has established, including offsite compensation once secured, there will be a net gain of habitats equivalent to habitats of principal importance (HPI) lost to construction. Native and locally sourced species will be used in landscape design. The habitat strategy is based on the principles of no net loss and has also achieved an overall net gain in habitats of biodiversity value which are of benefit to a wide range of protected species.

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		With regard to habitat networks one particularly notable feature of the design is the creation of new wetland habitat at the Farndon Flood Compensation Areas (see Figure 2.3 Environmental Masterplan of the ES Figures [AS-026]. The combination of wetland habitats including ponds, reedbeds, grazing marsh, wet grassland and a lake will complement one another by meeting the needs of wetland species at different stages of their lives. With a combined area of approximately 30ha this area will form a significant stepping stone for wetland wildlife allowing species to move between different wetland sites in the Trent Valley. With regard to Lowland Mixed Deciduous Woodland Habitat of Principal Importance (HPI), both the onsite creation and that offsite at Doddington Hall will ensure the habitat network is maintained at a landscape scale. Both the Scheme and the offsite habitat compensation at Doddington Hall are within the same National Character Area - Trent and Belvoir Vales (National Character Area 48). Within this landscape

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		woodland is found in scattered parcels which form a habitat network of stepping stones, allowing species to disperse across the area. Both the lowland mixed deciduous woodland to be provided at Doddington Hall and that to be created within the Scheme will maintain the integrity of this habitat network. This will ensure that populations of species which rely on lowland mixed deciduous woodland will be maintained within this landscape including within the proposed development area. Whilst the Scheme will achieve an overall net gain in habitat units within the Order Limits there is an exception to this regarding the areas of impact and compensation for lowland meadow. Impacts to lowland meadow will be agreed separately with Natural England through a bespoke compensation agreement. Further information is contained within Appendix 8.14 (Biodiversity Net Gain Technical Report) of the Environmental Statement Appendices [APP-159].
5.25	As a general principle, and subject to the specific policies below, development should avoid significant harm to	The development of the Scheme design has been an iterative process undertaken by an integrated

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	biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.	design team to adhere to the principles of the design and mitigation hierarchy outlined in DMRB LA 104; the first principle being to avoid potential adverse effects if at all possible before seeking to minimise or mitigate any unavoidable impacts through a well-developed mitigation strategy. Embedded mitigation incorporated into the Scheme design development is outlined in Chapter 2 (The Scheme) of the ES [APP-046]. No significant adverse effects on biodiversity are anticipated during the construction and operation of the Scheme. The conclusion of the biodiversity assessment reports the residual effects to receptors which are determined after mitigation measures have been taken into account. Mitigation, compensation and enhancement measures are identified in section 8.10 of Chapter 8 (Biodiversity) of the ES [APP-052]. In principle, Natural England considers the compensation proposed for the unavoidable loss of lowland meadow HPI to be appropriate, as recorded in the Statement of Common Ground with Natural England [REP5-051].

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		There are no designated or non-designated geological sites/features of interest within the study area. Therefore, no significant adverse effects on geological conservation are anticipated during the construction and operation of the Scheme. Chapter 9 (Geology and Soils) of the ES [REP5-010] considers the likely significant effects of the Scheme on designated areas of geological importance.
5.26	In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment.	Chapter 3 (Assessment of Alternatives) of the Environmental Statement [APP-047] sets out the main alternatives considered by the Applicant and how the preferred option was determined through consideration of environmental effects at different stages in the design development process. The mitigation hierarchy has been followed to modify the design to avoid impacts to features where practicable. Embedded mitigation incorporated into the Scheme design development is outlined in Chapter 2 (The Scheme) [APP-046]. Chapter 8 (Biodiversity) [APP-052] and Chapter 9 (Geology and Soils) [REP3-009] of the Environmental Statement summarises the

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		mitigation measures required during the construction and operation. These mitigation measures are included in the Register of Environmental Actions and Commitments which forms part of the First Iteration Environmental Management Plan [REP5-025]. In accordance with requirement 3 of the draft Development Consent Order [REP4-003] a Second Iteration Environmental Management Plan would be developed for implementation during construction. The Second Iteration Environmental Management Plan must substantially accord with the First Iteration Environmental Management Plan [REP5-025]. Figure 2.3 Environmental Masterplan of the Environmental Statement Figures [AS-026] also depicts the environmental mitigation included as part of the design. Compliance with the principles of the Environmental Masterplan [AS-026] is secured by Requirement 12 of the draft Development Consent Order [REP4-003]. There are no designated or non-designated geological sites/features of interest within the study area. Therefore, no significant adverse effects on geological conservation are anticipated

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		during the construction and operation of the Scheme. Chapter 9 Geology and Soils) of the ES [REP5-010] considers the likely significant effects of the Scheme on designated areas of geological importance.
5.27	The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for European sites (see also paragraphs 4.22 to 4.25). The National Planning Policy Framework states that the following wildlife sites should have the same protection as European sites: • potential Special Protection Areas and possible Special Areas of Conservation; • listed or proposed Ramsar sites; and • sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation and listed or proposed Ramsar sites.	There are no designated sites of international importance (National Site Network or Ramsar sites) within 2 kilometres of the Scheme or within 200 metres of the Affected Road Network (ARN). There are no sites within the National Site Network where bats are a qualifying feature, within 30 kilometres of the Scheme. Section 8.8 of Chapter 8 (Biodiversity) of the ES [APP-052] outlines that the Humber Estuary Ramsar, SAC and SPA are hydrologically connected to the Scheme, downstream of the River Trent. The Humber Estuary Ramsar and SAC are located approximately 53 kilometres directly from the Order Limits and 75 kilometres via the River Trent. The Humber Estuary SPA is located approximately 63 kilometres directly from the Order Limits and 75 kilometres via the River Trent. Given the distance of the SPA from the Order Limits and the nature of the qualifying

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		feature for this designation (various bird species and the non-breeding waterfowl assemblage), the Scheme will not impact this designated site and so it has been scoped out of further assessment. The SAC is also of international importance for Annex I habitats present. These receptors will not be affected by the Scheme due to the distance from source of potential impacts and so habitats within the SAC are scoped out of further assessment. River lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* (qualifying features of the Humber Estuary Ramsar and SAC) migrate up rivers to spawn and therefore the River Trent may serve as a migratory route or habitat for lamprey species. The Humber Estuary Ramsar and SAC are included in the baseline for this reason. No significant areas of gravel substrate suitable for lamprey spawning have been identified within the Order Limits or within 2 kilometres downstream within the River Trent. It is anticipated that the Scheme is likely to have a Slight Adverse effect on Humber Estuary SAC and Ramsar during construction. Essential mitigation is set out in Chapter 8 (Biodiversity) of the ES [APP-

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		052]. This includes the following: • The use of bubble curtains and floating oil booms. • ECoW monitoring of silt curtains to mitigate sediment disturbance and smothering of gravels. • In addition to embedded mitigation (e.g., directional lighting), the use of task lighting with cowls will be used. • Use low noise/vibration piling set-up and a slow start-up, where possible, for all night works and sheet piling adjacent to the River Trent. • All essential mitigation is secured within the First Iteration Environmental Management Plan [REP5-025] and shown on Figure 2.3: Environmental Masterplan of the Environmental Statement Figures [AS-026] where relevant. A Habitats Regulations Assessment [REP5-075] is also included within the DCO application. This considers whether the Scheme has the potential to result in significant effects on European sites of biodiversity interest, further details on the results

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		of the assessment are set out in paragraph 5.22 above.
5.28	Many Sites of Special Scientific Interest (SSSIs) are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection. All National Nature Reserves are notified as SSSIs.	There are no SSSIs located within 2 kilometres from the Scheme, none have hydrological links to the Scheme, and none are within 200 metres of the ARN.
5.31	Sites of regional and local biodiversity and geological interest (which include Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas) have a fundamental role to play in meeting overall national biodiversity targets, in contributing to the quality of life and the well-being of the community, and in supporting research and education. The Secretary of State should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.	Section 8.8 of Chapter 8 (Biodiversity) of the ES [APP-052] identifies 43 non-statutory designated sites of county importance located within 1 kilometre of the Scheme and/or within 200 metres of the ARN (which are considered to support habitats sensitive to nitrogen deposition). Section 8.13 of Chapter 8 (Biodiversity) of the ES [APP-052] outlines the impact of the Scheme on regional and local sites. The assessment concludes: • A Moderate Adverse effect is anticipated on Great North Road Grasslands LWS during construction. • A Slight Adverse effect is anticipated on Dairy Farm Railway Strip, Newark LWS, Newark (Beet Factory) Dismantled LWS, Old Trent

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		Dyke LWS and Newark Trent Grassland LWS during construction. • No effects are anticipated on the remaining LWS during construction and operation. These include Kelham Hall Shingle Bank LWS, Kelham Road Grassland LWS, Kelham Road Grassland II LWS, Newark Dismantled Railway LWS, Railway LWS, Newark Grassland LWS, Redoubt Grassland LWS, River Trent – Kelham LWS, River Trent, Staythorpe LWS, Trent Banks/Wharves, Newark LWS and Valley Farm Grassland LWS. Chapter 8 (Biodiversity) of the ES [APP-052] sets out the compensation and mitigation measures. Due to the proximity of LWS immediately adjacent to the existing road network, an air quality barrier would not be feasible as it would result in the direct loss of habitat along the edge of the LWS for installation, whilst maintaining sight lines of road users and the working area of Vehicle Restraint Systems (VRS). Where possible, habitats within LWS in poor condition will be enhanced to compensate for increased nitrogen

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		deposition during operation which cannot be mitigated. As planting along the A46 carriageway corridor establishes, over time it will act as more of a buffer to adjacent grassland shown in Figure 2.3 Environmental Masterplan of the ES Figures [AS-026]. Mitigation measures to minimise the impacts of the Scheme during construction are included within the First Iteration EMP [REP5-025]**.** Essential mitigation is set out in Chapter 8 (Biodiversity) of the ES[APP-052]. This includes the following: • Loss of any habitat of conservation value would be replaced like-for-like (in condition) as a minimum requirement providing a greater area than was lost or enhanced where possible (detailed in Figure 2.3 Environmental Masterplan of the ES Figures [AS-026] along with indicative compensatory planting to be finalised and agreed with Natural England).
5.32	Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as	The Scheme will not result in the loss of ancient woodland, as no ancient woodlands have been

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	woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.	identified within 1 kilometre of the Order Limits. Section 8.13 of Chapter 8 (Biodiversity) of the ES [APP-052] states that a Slight Adverse effect is anticipated on three veteran trees during construction. The Scheme will result in the direct partial impact of the root protection areas (RPA) of three veteran trees (T038, T136, T139). This will be caused by construction of a maintenance track and earthworks, including drainage pipe installation. The Applicant can confirm the design process has carefully considered the construction requirements in proximity to these trees. With regards to trees T136 and T139, the design has been developed to limit incursions as far as practicable, steepening proposed earthworks to limit the footprint of the Scheme with the provision of 70- degree slopes to the widened embankment to reduce the neighbouring access track corridor from 5.0 metres to 3.0 metres in order to avoid removal of the trees. Unfortunately, there is no

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		scope to reduce this further Mitigation measures to minimise the impacts of the Scheme on the veteran trees during construction are included within the First Iteration EMP [REP5-025]. Whilst the objective is to retain all veteran trees on site the Arboricultural Impact Assessment [APP-140] transparently notes the RPA infringements and Section 8.11.12 Chapter 8 (Biodiversity) of the Environmental Statement [APP-052] notes, “there will be an unavoidable permanent adverse impact to three veteran trees due to the direct partial impact to their RPAs. It is very unlikely that this would result in a slow decline in tree health or accelerate the death of the tree and therefore the integrity of this resource will not be affected." It is anticipated that, with arboricultural supervision to ensure works are undertaken in line with best practice, the level of disturbance stated above can be tolerated by these trees. It is difficult to predict this with certainty and therefore ongoing monitoring is proposed to inform any remedial action. The need for management of the retained veteran tree crown (for clearance of maintenance vehicles) would be

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		assessed during the annual monitoring surveys of the veteran tree health (as detailed in the First Iteration EMP [REP5-025]. Following the implementation of this mitigation, a minor adverse impact on an irreplaceable resource of national importance is anticipated, resulting in a Slight Adverse effect during construction that is not significant.
5.33	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 Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered.	Chapter 11 of The Scheme Design Report [APP-194] sets out the environmental considerations that have influenced the design of the Scheme including incorporating opportunities for beneficial biodiversity. The chapter sets out the embedded mitigation measures that have been incorporated into the design from the outset. For example, the landscape design objectives include retaining notable extents of existing planting and providing new planting to replicate existing features and establish visual screening. The environmental mitigation strategy also seeks to reinstate landscape features lost as a result of the Scheme and enhance the landscape context wherever possible. Examples include reinstatement of linear belts of trees and shrubs, woodland, grassland

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		and hedgerows, as shown on the First Iteration Environmental Masterplan [REP5-025] presented in Figure 2.3 of the Environmental Statement Figures [AS-026]. A range of beneficial features, in addition to those which contribute to compensation for habitat losses, were included in the design. Opportunities for integrating such biodiversity enhancements were fully explored during the design process and taken whenever possible, subject to being compatible with operational requirements of the Scheme. Examples of these are described below and further detail can be seen on Figure 2.3 Environmental Masterplan of the Environmental Statement Figures [AS-026]. Ponds within the Scheme site drainage have been designed to be of greater biodiversity value than would be provided by a purely engineering specification. They have gently sloping sides giving shallow water zones that benefit freshwater invertebrates and allows aquatic plants to establish. Ponds would be planted with aquatic

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		vegetation including submerged, floating and emergent species. They would be surrounded by areas planted as reedbed which forms a habitat of high biodiversity value used by a range of breeding bird species as well as mammals and wetland invertebrates. These habitats would then be complimented by planting of scattered individual trees within and around their surrounding wetlands. These would include species appropriate for wetland species such as alder and willows. A combination of different wetland habitats within a single area is highly beneficial for meeting the ecological requirements of many species which need different resourcing for breeding and completing their life cycles. Although forming part of the highway drainage these ponds and associated wetlands would benefit from water quality treatment of runoff through the swale network before it enters them. Figure 2.3 Environmental Masterplan of the Environmental Statement Figures [AS-026] shows approximately 30 drainage ponds and associated wetland areas. A range of waterbodies would also be created within the Flood Compensation Areas (FCA) at

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		Farndon. In the Farndon FCA west of the A46 a network of ponds would be created. These would not be connected to the highway drainage but instead their water supply would be from ground water and periodically from flooding. As with the drainage ponds these would be designed with a range of water depths and planted with a variety of aquatic plants. The inclusion of the ponds in the Scheme has taken advantage of the need for ground lowering which makes conditions suitable and they would form a significant biodiversity enhancement. In the Farndon FCA east of the A46 a larger waterbody would be created through working of a borrow pit. This would form a habitat of high biodiversity value and would be used by both over-wintering and breeding wildfowl as well as providing habitat for other aquatic species such as fish. The decision to retain the borrow pit as a waterbody rather than return it to its pre-development use provides a significant biodiversity benefit from the Scheme. Both of these areas would benefit from planting of scattered individual trees and of species suitable for wetlands, which would complement the aquatic habitats to be provided.

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		Habitat connectivity to the wider landscape has been maintained and enhanced wherever possible to maximise biodiversity opportunities within the Order Limits, particularly in respect to LWSs and priority habitats as well as through enhancement and creation of hedgerows The Scheme would involve both the enhancement of retained hedgerows as well as new hedgerow planting. Existing hedgerows would have any gaps filled through new planting and structure improved through coppicing or hedge laying to maintain dense growth and extend their lifespans. There would be an overall increase in the length of hedgerow within the Order limits, taking into account hedgerows removed, and the majority of the new hedgerows planted would also include trees within them.
5.34 - 5.35	Many individual wildlife species receive statutory protection under a range of legislative provisions. Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and therefore requiring conservation action. The Secretary of State should ensure that	Habitat surveys have been undertaken to understand the existing ecological conditions. A desk study and further ecological surveys have been undertaken to gather baseline information on protected and notable species in the vicinity of the Scheme. This includes surveys for barn owls, bats, badgers, wintering birds, breeding birds,

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	applicants have taken measures to ensure these species and habitats are protected from the adverse effects of development. Where appropriate, requirements or planning obligations may be used in order to deliver this protection. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm.	reptiles, great crested newt, fish and water voles. The outcomes of the surveys undertaken are summarised in Section 8.5 of Chapter 8 (Biodiversity) of the ES [APP-052]. The assessments conclude the following: • The Scheme is anticipated to have a Slight Adverse effect during construction on badger, bats, breeding and wintering birds, fish, reverting to Neutral once operational. • The Scheme is anticipated to have a Slight Adverse effect on barn owls during construction and operation. • The Scheme is anticipated to have a Slight Adverse effect during construction on invertebrates (aquatic and terrestrial) and water vole. • The Scheme is anticipated to have a Slight Beneficial effect on reptiles during construction. • The Scheme is anticipated to have a Neutral effect on otter during construction and operation. Chapter 8 (Biodiversity) of the ES [APP-052] sets out the compensation measures for such species

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		during construction and operation, and the overall mitigation, including embedded mitigation. The habitat strategy is based on the principles of no net loss and has also achieved an overall net gain in habitats of biodiversity value which are of benefit to a wide range of protected species. In the case of lowland meadow, a compensation strategy has been designed to address unavoidable losses to this very high distinctiveness habitat (as detailed in the Biodiversity Net Gain Technical Report Appendix 8.14 of the ES Appendices [APP-159] and the First Iteration EMP [REP5-025]. In principle, Natural England considers the compensation proposed to be appropriate, as recorded in the Statement of Common Ground with Natural England [REP5-051]. A five-year aftercare period would follow completion of the construction works. During this time, maintenance activities will be undertaken to ensure the successful establishment of planting and provision of new functioning habitats. Maintenance and monitoring tasks are prescribed in the First Iteration EMP [REP5-025] and Second Iteration EMP. This would include the replacement

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		of failed or defective plants. The Second Iteration EMP will include a Landscape and Ecological Management Plan (LEMP). The LEMP will outline management and monitoring requirements for landscape and ecology aspects for the Scheme to ensure the successful establishment of essential mitigation.
5.36	Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured. In particular, the applicant should demonstrate that: • During construction, they will seek to ensure that activities will be confined to the minimum areas required for the works. • During construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised (including as a consequence of transport access arrangements). • Habitats will, where practicable, be restored after construction works have finished. • Developments will be designed and landscaped to provide green corridors and minimise habitat fragmentation where reasonable.	The development of the Scheme design has been an iterative process undertaken by an integrated design team to adhere to the principles of the design and mitigation hierarchy outlined in DMRB LA 104; the first principle being to avoid potential adverse effects if at all possible before seeking to minimise or mitigate any unavoidable impacts through a well-developed mitigation strategy. Embedded mitigation incorporated into the Scheme design development is outlined in Chapter 2 (The Scheme) of the ES [APP-046]. Chapter 8 (Biodiversity) of the ES [APP-052] summarises the mitigation measures required during the construction and operation of the Scheme. Mitigation measures to be provided during

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	• Opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge.	construction are included within the First Iteration Environmental Management Plan (EMP) [REP5-025]. The First Iteration EMP will be developed into a Second Iteration EMP to be implemented during construction of the Scheme. Details on the First and Second Iteration EMPs, including how mitigation is secured by the draft DCO under Requirement 3 [REP5-003], is provided within section 4.4 of Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048] including mitigation measures for habitats and species. A five-year aftercare period will follow completion of the construction works. During this time, maintenance activities will be undertaken to ensure the successful establishment of planting and provision of new functioning habitats. Maintenance and monitoring tasks will be prescribed in the First Iteration EMP [REP5-025] and Second Iteration EMP. This would include the replacement of failed or defective plants. The Second Iteration EMP will include a Landscape and Ecological Management Plan (LEMP). The LEMP will outline management and monitoring

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		requirements for landscape and ecology aspects for the Scheme to ensure the successful establishment of essential mitigation. Any habitat creation contributing to BNG will be maintained, managed and monitored for 30 years post construction. For further details see Appendix 8.14 BNG Technical Report of the ES Appendices [APP-159]. Furthermore, Table 8.9 in Chapter 8 (Biodiversity) of the ES [APP-052] also sets out the essential mitigation. Chapter 8 (Biodiversity) of the ES [APP-052] identifies opportunities for BNG and enhancement of biodiversity resources. The potential for the Scheme to deliver biodiversity net gains has been considered as part of the design-development and assessment processes. Loss of any habitat of conservation value will be replaced like-for-like (in condition) as a minimum requirement providing a greater area than was lost. Habitat replanting will achieve a BNG for key habitat of principal importance in the long-term, once established.

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		Native and locally sourced species will be used in landscape design. The habitat strategy is based on the principles of no net loss and has also achieved an overall net gain in habitats of biodiversity value which are of benefit to a wide range of protected species. Whilst the Scheme will achieve an overall net gain in habitat units within the Order Limits there is an exception to this regarding the areas of impact and compensation for lowland meadow. Impacts to lowland meadow will need to be agreed separately with Natural England through a bespoke compensation agreement. Further information is contained within Appendix 8.14 (Biodiversity Net Gain Technical Report) of the Environmental Statement Appendices [APP-159]. Compensation measures are also set out in Chapter 8 (Biodiversity) of the ES [APP-052]. The conclusions of the biodiversity assessment reports the residual effects to receptors which are determined after mitigation measures have been taken into account. Mitigation, compensation, and enhancement measures are identified in section

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		8.10 of Chapter 8 (Biodiversity) of the ES [APP-052] being implemented.
5.37	The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into in order to ensure that mitigation measures are delivered.	Schedule 2 of the draft DCO [REP5-002] includes suggested requirements that are considered necessary, relevant to both planning and the Scheme, enforceable, precise, and reasonable in all other respects.
5.38	The Secretary of State will need to take account of what mitigation measures may have been agreed between the applicant and Natural England and/or the MMO, and whether Natural England and/or or the MMO has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.	The Statement of Common Ground with Natural England [REP5-051] details that all biodiversity issues raised by Natural England have now been 'Agreed' between Natural England and the Applicant. This included the following: • A mitigation licence to allow for derogation from legislation and therefore the lawful destruction of a bat roost (F004). A full draft mitigation licence for bats (A13) has been provided to Natural England and a Letter of No Impediment (LONI) has been issued (recorded in Appendix A within a Statement of Common Ground with Natural England [REP5-051]. • Assessment methodology including affected road network (ARN), impacts, embedded and essential mitigation, in-combination effects, detailed in the Habitat Regulations

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		Assessment [REP5-075]. Agreement included that proposed embedded mitigation is not necessary to avoid or reduce adverse significant effects of the proposed development on the Humber Estuary Ramsar and SAC; and • Mitigation and enhancement with regard to biodiversity net gain. Natural England agrees with the conclusion of no likely significant effects on international designated sites regarding reduction in habitat area, changes to key elements of the site, and fragmentation, disruption and disturbance of the Humber Estuary SAC or the Ramsar sites.
5.40	Sustainable waste management is implemented through the "waste hierarchy": • prevention; • preparing for reuse; • recycling; • other recovery, including energy recovery; and • disposal	In advance of the construction phase for the development of the Scheme, a SWMP will be implemented to co-ordinate the removal and treatment of the produced waste. Also, a waste hierarchy will be implemented to minimise the production of waste material during construction, and the operational phase will produce no additional waste. An Outline SWMP is provided at Appendix B of the First Iteration Environmental Management Plan [REP5-025]. Where appropriate, detriment associated with waste

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		would be mitigated through the delivery of material 'as required', the reuse of excavated material for landscaping purposes, and the use of pre-cast material to avoid waste from off-cuts. The waste hierarchy and circular economy principles will be implemented throughout the construction phase to minimise disposal and maximise reuse and recycling of waste arising. Opportunities for reuse and recycling of waste include (but are not limited to): • Reusing excavated soils that includes stored topsoil on site in the landscaping features of the A46 or in flood compensation areas. Excavated materials will also be considered to create flood bund when possible. Surplus soils will be offered to projects in close proximity to the Scheme for reuse on land, whenever possible. • Chipping green waste on site for use in the landscaping for the Scheme. • Composting of green waste. • Recycling inert materials by crushing, blending and subsequent reuse, as an aggregate.

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		• Reusing waste on other nearby schemes, which includes reuse of Construction & Demolition waste from bitumen road surfaces, existing footway, tar products, highway kerb stone, concrete, mortar, drainage pipes, rock, steel, asphalt. • Reusing waste for uses with clear benefits to the environment, for example in the remodelling of agricultural land or in the restoration of nearby quarries or other excavation sites. • Providing on site facilities to separate out waste enable the recovery of material through recycling. Where waste must be taken to a recycling or disposal site, the Principal Contractor will ensure that the site has the appropriate permits. In addition, the suitable facility will be located as close to the works as possible to minimise the impacts of transportation, in particular the release of carbon emissions. The Principal Contractor will identify the closest and relevant treatment and disposal sites. Further details are set out in the Chapter 10 (Material Assets and Waste) of the

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		Environmental Statement [REP5-012]. The opportunities will be set out in the OSWMP which has been produced and is contained within Appendix B of the First Iteration Environmental Management Plan [REP5-025] and will be developed into a full SWMP prior to construction.
5.41	Large infrastructure projects may generate hazardous and non-hazardous waste during the construction and operation. The Environment Agency's environmental permitting regime incorporates operational waste management requirements for certain activities. When an applicant applies to the Environment Agency for an environmental permit, the Agency will require the application to demonstrate that processes are in place to meet all relevant permit requirements.	Section 10.3 of Chapter 10 (Material Assets and Waste) of the Environmental Statement [REP5-012] outlines relevant national legislation, including the Environmental Permitting regime, and how this has been taken into account. Waste would be managed in appropriate and permitted facilities, and the Scheme's activities would adhere to these Regulations, if required, for waste storage, use or disposal. The Applicant has considered the Environmental Permitting regime, further details are set out in Chapter 10 (Material Assets and Waste) of the Environmental Statement [REP5-012].
5.42	The applicant should set out the arrangements that are proposed for managing any waste produced. The arrangements described should include information on the proposed waste recovery and disposal system for all waste generated by the development. The applicant should seek to minimise the volume of waste produced	Chapter 10 (Material Assets and Waste) of the ES [REP5-012] provides an assessment of the likely significant effects of the Scheme on the use of primary, secondary, recycled and manufactured materials, and the generation and management of waste.

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	and the volume of waste sent for disposal unless it can be demonstrated that the alternative is the best overall environmental outcome.	The design and mitigation measures outlined in Chapter 10 (Material Assets and Waste) of the ES [REP5-012] would ensure the efficient use of material assets on site, and that the reuse of material is made a priority and recycled, or secondary material is used wherever technically appropriate and economically feasible. In advance of the construction phase of the Scheme, a Site Waste Management Plan (SWMP) will be implemented to co-ordinate the removal and treatment of the produced waste. Also, a waste hierarchy will be implemented to minimise the production of waste material, and the operational phase will produce no additional waste. An Outline SWMP has been produced and is contained within Appendix B of the First EMP [REP5-025] and will be developed into a full SWMP as part of the development of the Second Iteration EMP prior to construction. The assessment in Chapter 10 (Materials Assets and Waste) of the ES [REP5-012] together with the Outline SWMP takes into account the waste hierarchy. Waste management options would be

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		as high up in the waste hierarchy as is technically and economically feasible. Where appropriate, detriment associated with waste will be mitigated through the delivery of material 'as required', the reuse of excavated material for landscaping purposes, and the use of pre-cast material to avoid waste from off-cuts.
5.43	The Secretary of State should consider the extent to which the applicant has proposed an effective process that will be followed to ensure effective management of hazardous and non-hazardous waste arising from the construction and operation of the proposed development. The Secretary of State should be satisfied that the process sets out: · any such waste will be properly managed, both on-site and off-site; · the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and · adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where an alternative is the most sustainable outcome overall.	See the response to NPSNN paragraph 5.40 above.

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5.45	Where the project will be subject to the Environment Agency's environmental permitting regime, waste management arrangements during operations will be covered by the permit and the considerations set out in paragraphs 4.48 to 4.56 will apply.	See the response to NPSNN paragraph 4.48 to 4.56 above.
5.81	As well as noise and vibration (paragraphs 5.186 to 5.200) the construction and operation of national networks infrastructure has the potential to create a range of emissions such as odour, dust, steam, smoke and artificial light. All have the potential to have a detrimental impact on amenity or cause a common law nuisance or statutory nuisance under Part III, Environmental Protection Act 1990. Note that pollution impacts from some of these emissions (e.g. dust, smoke) are covered in the section on air emissions and that these and others (e.g. odour) may also be covered by pollution control or other environmental consenting regimes so that paragraphs 4.48 to 4.56 and 5.3 to 5.15 will apply.	In respect of emissions of odour, smoke and steam, these have not been assessed in the Environmental Statement and have been scoped out. Regulation 14(3) of the EIA Regulations requires the Environmental Statement to be based on the most recent Scoping Opinion adopted. The Environmental Statement is based on the EIA Scoping Opinion [APP-189] received from the Secretary of State in October 2022. The following Environmental Statement chapters assess the likely significant effect from emissions of, dust and artificial light: • Chapter 5: Air Quality [REP5-074] • Chapter 7: Landscape and Visual [APP-051] • Chapter 5 (Air Quality) of the Environmental Statement [REP5-074] includes a qualitative assessment of potential dust effects for the Scheme, based on a review

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		of likely dust raising activities and identification of sensitive receptors within 200 metres of the study area. It concludes potential dust impacts would be suitably controlled using the best practice mitigation measures set out within the First Iteration Environmental Management Plan [REP5-077] which will be developed into the Second Iteration Environmental Management Plan prior to and for implementation during construction and secured through Requirement 3 of the draft Development Consent Order [REP5-002]. Chapter 7 (Landscape and Visual Effects) of the Environmental Statement [APP-051] considers the visual receptors that could experience potential adverse effects during construction and operation of the Scheme as a result of increase in light pollution from vehicles and artificial lighting at construction compounds at night or lighting associated with night time construction activities. Mitigation measures, of relevance to dust and artificial light, set out in the First Iteration

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		Environmental Management Plan [REP5-077] include: • Minimising height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locating stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensuring that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Limiting works to daylight hours in the most part, with any night works to be kept to a minimum where practicable. • During construction lighting would be kept to the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. The main site compound would be occupied at all times for the security of the plant, equipment, and materials within it. As such, the main site compound would be lit as required during hours of darkness. Lighting would be directional, and

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		positioned sympathetically, to minimise light spill and disturbance for highly sensitive receptors. The requirements for road lighting during operation has been determined based on increasing safety for all road users, the design of which has sought to minimise adverse impacts and effects on the following: • Nocturnal species (for example bats) • The existing landscape and visibility from nearby properties and dwellings after dark • The setting of features associated with the historic environment (for example listed buildings). Further details are set out in Chapter 2 (The Scheme) of the Environmental Statement [APP-046].
5.82	Because of the potential effects of these emissions and in view of the availability of the defence of statutory authority against nuisance claims described previously, it is important that the potential for these impacts is considered by the applicant in their application, by the Examining Authority in examining applications and by the Secretary	See response to NPSNN paragraph 5.81 above.

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	of State in taking decisions on development consents.	
5.83	For nationally significant infrastructure projects of the type covered by this NPS, some impact on amenity for local communities is likely to be unavoidable. Impacts should be kept to a minimum and should be at a level that is acceptable.	See response to NPSNN paragraph 5.81 above.
5.84	Where the development is subject to an Environmental Impact Assessment, the applicant should assess any likely significant effects on amenity from emissions of odour, dust, steam, smoke and artificial light and describe these in the Environmental Statement.	In respect of emissions of odour, smoke and steam, these have not been assessed in the ES and have been scoped out. The following ES (contained within Volume 6.1 of the DCO Application) chapters assess the likely significant effects on amenity from emissions of dust, and artificial light: • Chapter 5: Air Quality [AS-021] • Chapter 7: Landscape and Visual Effects [APP-051] • Chapter 12: Population and Human Health [REP3-011] The Statement Relating to Statutory Nuisances [APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the EPA. With the essential mitigation measures set out in the First Iteration

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		EMP [REP5-025] in place, none of the statutory nuisances identified in section 79(1) of the EPA are predicted to arise during the construction and operation of the Scheme.
5.85	In particular, the assessment provided by the applicant should describe: • The type and quantity of emissions. • Aspects of the development which may give rise to emissions during construction, operation and decommissioning. • Premises or locations that may be affected by the emissions. • Effects of the emission on identified premises or locations; and • Measures to be employed in preventing or mitigating the emissions.	See response to NPSNN paragraph 5.84 above. Chapter 5 (Air Quality) of the ES [REP5-073] includes a qualitative assessment of potential dust effects as a result of the Scheme, based on a review of likely dust raising activities and identification of sensitive receptors within 200 metres of the study area. It concludes potential dust impacts would be suitably controlled using the best practice mitigation measures set out within the First Iteration EMP [REP5-025]. This will be developed into the Second Iteration EMP prior to and for implementation during construction, as secured by requirement 3 of the draft DCO [REP5-002]. Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] considers the visual receptors that could experience potential adverse impacts during construction and operation of the Scheme as a

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		result of increase in light pollution from vehicles and artificial lighting at construction compounds at night or lighting associated with night time construction activities. Mitigation measures include: • Minimising height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locating stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensuring that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Limiting works to daylight hours in the most part, with any night works to be kept to a minimum where practicable. • Lighting would be kept to the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. The main site compound would be occupied at all times for the security of the plant, equipment, and

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		materials within it. As such, the main site compound would be lit as required during hours of darkness. Lighting would be directional, and positioned sympathetically, to minimise light spill and disturbance for highly sensitive receptors. The requirements for road lighting during operation has been determined based on increasing safety for all road users, the design of which has sought to minimise adverse impacts and effects on the following: • Nocturnal species (for example bats) • The existing landscape and visibility from nearby properties and dwellings after dark • The setting of features associated with the historic environment (for example listed buildings). Further details are set out in Chapter 2 (The Scheme) of the ES [APP-046].
5.86	The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency about the scope and methodology of the assessment.	The Applicant has engaged with the Environment Agency and the Local Planning Authorities throughout the EIA. Details of engagement with Consultees are set out in Table 3.2 of the

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		Consultation Report [APP-028]. Further details on engagement that has taken place, and areas of agreement and disagreement, have been recorded within Statements of Common Ground submitted throughout the Examination.
5.87	The Secretary of State should be satisfied that all reasonable steps have been taken, and will be taken, to minimise any detrimental impact on amenity from emissions of odour, dust, steam, smoke and artificial light. This includes the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.	The Statement Relating to Statutory Nuisances [APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the Environmental Protection 1990 Act (EPA). With the essential mitigation measures set out in the First Iteration EMP [REP5-025] in place, none of the relevant statutory nuisances identified under section 79(1) of the EPA (dust, artificial lighting and noise) are predicted to arise during the construction and operation of the Scheme.
5.89	The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put into place. In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning emissions of odour, dust, steam, smoke, artificial light from the development to reduce any loss to amenity which might	In respect of emissions of odour, smoke and steam, these have not been assessed in the ES and have been scoped out. The following ES (contained within Volume 6.1 of the DCO Application) chapters outline mitigation measures of relevance in relation to emissions of odour, dust, steam, smoke and artificial light: • Chapter 5: Air Quality [REP5-073]

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	arise during the construction and operation of the development. A construction management plan may help codify mitigation.	• Chapter 7: Landscape and Visual The Statement Relating to Statutory Nuisances [APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the Environmental Protection 1990 Act (EPA). With the essential mitigation measures set out in the First Iteration EMP [REP5-025] in place, none of the relevant statutory nuisances identified under section 79(1) of the EPA (dust, artificial lighting and noise) are predicted to arise during the construction and operation of the Scheme.
5.80	Climate change over the next few decades is likely to mean milder wetter winters and hotter drier summers in the UK, while sea levels will continue to rise. Within the lifetime of nationally significant infrastructure projects, these factors will lead to increased flood risks in areas susceptible to flooding, and to an increased risk of flooding in some areas which are not currently thought of as being at risk. The applicant, the Examining Authority and the Secretary of State (in taking decisions) should take account of the policy on climate change adaptation in paragraphs 4.36 to 4.47.	To minimise flood risk, the Scheme's design incorporates current design standard climate change allowances for drainage and fluvial modelling, described in Chapter 4 and Chapter 7 of the Flood Risk Assessment in Appendix 13.2 of the Environmental Statement Appendices [APP-177]. The new dual carriageway is designed to minimise the risk of flooding by incorporating current design standards and future climate change allowance to improve its resilience using sustainable drainage

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		techniques. Where surface water flow paths cross the Scheme, sufficient drainage would be maintained to ensure there is no increased flood risk to the Scheme.
5.91	The National Planning Policy Framework (paragraphs 100 to 104) makes clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. But where development is necessary, it should be made safe without increasing flood risk elsewhere. The guidance supporting the National Planning Policy Framework explains that essential transport infrastructure (including mass evacuation routes), which has to cross the area at risk, is permissible in areas of high flood risk, subject to the requirements of the Exception Test.	The Scheme alignment passes through Flood Zone 3, and therefore does not automatically pass the Sequential Test. Owing to the existing route of the A46, there is no alternative to the location of parts of the Scheme within Flood Zone 3. The Scheme alignment has been developed following a comprehensive assessment of different alignment options, which considered all environmental impacts (inclusive of flood risk) during the Options Selection stage of the Scheme. The Scheme is classed as Essential Infrastructure and passes through Flood Zone 3. Therefore, the Scheme must be assessed against the Exception Test. To satisfy the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood Zone 3. The modelling results demonstrate that the Scheme would be safe for its lifetime taking account of the vulnerability of its users, without

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		increasing flood risk elsewhere, and, where possible, would reduce flood risk overall. Further details are set out in the FRA in Appendix 13.2 of the ES Appendices [APP-176]. The FRA has been updated and re-submitted at Deadline 6 of the Examination to reflect further work that has been undertaken by the Applicant to satisfy and confirm the Exception Test is met. The Statement of Common Ground between the Applicant and the Environment Agency has been updated and re-submitted at Deadline 6 to reflect agreement from the Environment Agency that the Scheme meets the second part of the Exception Test.
5.92	Applications for projects in the following locations should be accompanied by a flood risk assessment (FRA): • Flood Zones 2 and 3, medium and high probability of river and sea flooding. • Flood Zone 1 (low probability of river and sea flooding) for projects of 1 hectare or greater, projects which may be subject to other sources of flooding (local watercourses, surface water, groundwater or reservoirs), or where the Environment Agency has	Chapter 13 (Road Drainage and Water Environment) of the ES [APP-057] confirms that the Scheme design is suitable and appropriate in terms of flood risk. The FRA in Appendix 13.2 of the ES Appendices [APP-176] has been produced as the Scheme will be, for the most part, located within Flood Zone 2 and Flood Zone 3. The FRA in Appendix 13.2 of the ES Appendices

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	notified the local planning authority that there are critical drainage problems.	[APP-176] concludes that, through appropriate drainage mitigation (as outlined within the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179], surface water flood risk to sensitive receptors is not increased as a result of the Scheme. Therefore, the magnitude of flood risk on the surface waterbodies is considered to be negligible.
5.93	This should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account.	The FRA in Appendix 13.2 of the ES Appendices [APP-176] has been produced as the Scheme will be, for the most part, located within Flood Zone 2 and Flood Zone 3, furthermore this is also reviewed in Chapter 13 (Road Drainage and Water Environment) of the ES [APP-057]. This assesses the Scheme against the risk of flooding, whether that be from groundwater, river (fluvial), surface water (pluvial) or sewer sources. It also assesses the risk of flooding elsewhere as a consequence of the Scheme. The assessment also takes into account climate change. This assessment determines how mitigation has been implemented into the design and how any residual risks would be managed.
5.94	In preparing an FRA the applicant should:	Design considerations, mitigation measures and residual risks are described in Chapter 13 (Road

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	• Consider the risk of all forms of flooding arising from the project (including in adjacent parts of the United Kingdom), in addition to the risk of flooding to the project, and demonstrate how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime. • Take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made. • Consider the vulnerability of those using the infrastructure including arrangements for safe access and exit. • Include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project. • Consider if there is a need to remain operational during a worst-case flood event over the development's lifetime. • Provide the evidence for the Secretary of State to apply the Sequential Test and Exception Test, as appropriate.	Drainage and Water Environment) of the ES [APP-057], the FRA in Appendix 13.2 and the Drainage Strategy Report at Appendix 13.4 of the ES Appendices [APP-179]. These demonstrate that the Scheme meets the requirement of the NPSNN. The main flood risk sources within the study area are fluvial, surface water and groundwater. The risk from sewer flooding is minimal given the Scheme will not interact with sewer networks, and a lack of historical sewer flooding has been recorded in the vicinity of the Scheme. The risk of artificial flooding is similarly low, as the reservoirs in the area are regularly inspected. Additionally, the FCAs are free draining so do not increase the risk of artificial flooding due to a burst pipe. A summary of flood risk is outlined in Section 10 of the FRA (Appendix 13.2 of the ES Appendices) [APP-176]. The FRA outlines that the risk of flooding to and from the Scheme from fluvial, surface water and groundwater is low. To minimise flood risk, the Scheme's design incorporates current design standards and climate change allowances for drainage and fluvial

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		modelling, described in Chapter 4 and Chapter 7 of the FRA in Appendix 13.2 of the ES Appendices [APP-176]. The new dual carriageway is designed to minimise the risk of flooding by incorporating current design standards and future climate change allowance to improve its resilience using sustainable drainage techniques. Where surface water flow paths cross the Scheme, sufficient drainage will be maintained to ensure there is no increased flood risk to the Scheme. Along the new sections of the A46, the existing drainage regime will be updated like for like. This will ensure that there is no net loss in drainage and therefore no increased surface water flood risk to the new highway. From ground investigation surveys it was discovered that the groundwater level is close to the surface and therefore infiltration techniques to manage surface water are unsuitable. Therefore, surface water would be discharged from the Scheme into local drainage channels and the

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		River Trent. For more information on the features used to sustainably manage and discharge surface water away from the Scheme, ensuring the highway remains safe throughout its lifetime, please refer to the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179]. With the designed mitigation, the risk to the Scheme from surface water flooding is considered to be low. The Scheme alignment passes through Flood Zone 3, and therefore does not automatically pass the Sequential Test. Owing to the existing route of the A46, there is no alternative to the location of parts of the Scheme within Flood Zone 3. In order to extend the A46, the River Trent and other watercourses must be crossed. The Scheme alignment has been developed following a comprehensive assessment of different alignment options, which considered all environmental impacts (inclusive of flood risk) during Options Selection of the Scheme. The Scheme is classed as Essential Infrastructure and passes through Flood Zone 3. Therefore, the Scheme must be assessed against the Exception Test.

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		To inform application of the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood Zone 3. Modelling results are set out in the FRA in Appendix 13.2 of the ES Appendices [APP-176] and in the Hydraulic Modelling Technical Note (Appendix H to the FRA) Overall, the modelling results demonstrate that there is, at most, a negligible impact on flood risk once the Scheme is operational and during the construction stage. The Environment Agency has confirmed [REP5-048] that it considers that the Applicant has demonstrated that the Scheme would be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, would reduce flood risk overall.
5.96	Applicants for projects which may be affected by, or may add to, flood risk are advised to seek sufficiently early pre-application discussions with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators. Such discussions can be used to	Section 4.7 of the FRA in Appendix 13.2 of the ES Appendices [APP-176] outlines the consultation undertaken with the following parties: • Environment Agency • Newark Area Internal Drainage Board • Nottinghamshire County Council – Lead Local Flood Authority (LLFA)

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	identify the likelihood and possible extent and nature of the flood risk, to help scope the FRA, and identify the information that will be required by the Secretary of State to reach a decision on the application once it has been submitted and examined. If the Environment Agency has concerns about the proposal on flood risk grounds, the applicant is encouraged to discuss these concerns with the Environment Agency and look to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns, preferable before the application for development consent is submitted.	• Newark and Sherwood District Council • Severn Trent Water • Canal and River Trust The Applicant has engaged with the Environment Agency throughout the Scheme design and Examination stages and there will be ongoing engagement as the Scheme progresses. Further information on the engagement undertaken during statutory consultation can be found in Chapter 3 of the Consultation Report [APP-028]. Details on engagement that has taken place, and areas of agreement and disagreement with this Consultee are recorded within a Statement of Common Ground between the Applicant and the Environment Agency [REP5-048]..
5.97	For local flood risk (surface water, groundwater and ordinary watercourse flooding), local flood risk management strategies and surface water management plans provide useful sources of information for consideration in Flood Risk Assessments. Surface water flood issues need to be understood and then account of these issues can be taken, for example flow routes should be clearly identified and managed.	Surface water flooding at present occurs during heavy rainfall events from the Old Trent Dyke that meanders along the western side of the A46 corridor. The design of the two Farndon flood compensation areas has allowed for additional storage to reduce the water level in the Old Tent Dyke and create capacity along its length for the Scheme to discharge from the attenuation ponds during a rainfall event >1:30 plus climate change

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		without increasing flood risk or frequency of flooding.
5.98	Where flood risk is a factor in determining an application for development consent, the Secretary of State should be satisfied that, where relevant: • the application is supported by an appropriate FRA; • the Sequential Test (see the National Planning Policy Framework) has been applied as part of site selection and, if required, the Exception Test (see the National Planning Policy Framework).	Please see response to NPSNN paragraphs 5.91 and 5.94.
5.99	When determining an application, the Secretary of State should be satisfied that flood risk will not be increased elsewhere and only consider development appropriate in areas at risk of flooding where (informed by a flood risk assessment, following the Sequential Test and, if required, the Exception Test), it can be demonstrated that: • within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and • development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning;	Table 10.1 of the FRA in Appendix 13.2 of the ES Appendices [APP-176] outlines a summary of flood risk from the Scheme, which is low from all sources of flooding. The Scheme alignment passes through Flood Zone 3, and therefore does not automatically pass the Sequential Test. The Scheme alignment has been developed following a comprehensive assessment of different alignment options, which considered all environmental impacts (inclusive of flood risk) during the Options Selection stage of the Scheme. The Scheme is classed as Essential Infrastructure and passes through Flood Zone 3. Therefore, the Scheme must be assessed against

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	and priority is given to the use of sustainable drainage systems.	the Exception Test. To satisfy the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood Zone 3. The modelling results demonstrate that the Scheme would be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, would reduce flood risk overall. The FRA has been updated and re-submitted at Deadline 6 of the Examination to reflect further work that has been undertaken by the Applicant to satisfy and confirm the Exception Test is met. The Statement of Common Ground between the Applicant and the Environment Agency has been updated and re-submitted at Deadline 6 to reflect agreement from the Environment Agency that the Scheme meets the second part of the Exception Test.
5.100	For construction work which has drainage implications, approval for the project's drainage system will form part of any development consent issued by the Secretary of State. The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with	The Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179] details the design standards applied, incorporation of SuDs and proposed maintenance of the drainage of the Scheme.

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	any National Standards published by Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010. In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any Sustainable Drainage Systems (SuDS), including any necessary access rights to property. The Secretary of State, should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner, the relevant local authority, or another body such as the Internal Drainage Board.	Nature-based solutions (NBS) and SuDS have been prioritised as overarching principles in the design of the drainage strategy in line with the SuDS hierarchy. This entails the integration of SuDS with other environmental and landscaping features to bring about additional complimentary benefits such as ease of inspection and maintenance. Chapter 5 of the Drainage Strategy Report, Appendix 13.4 of the ES Appendices [APP-179] details responsibility for maintaining assets. Maintenance will be shared between the Applicant, the Environment Agency, Newark Area Internal Drainage Board and Newark and Sherwood District Council.
5.105	Preference should be given to locating projects in Flood Zone 1. If there is no reasonably available site94 in Flood Zone 1, then projects can be located in Flood Zone 2. If there is no reasonably available site in Flood Zones 1 or 2, then national networks infrastructure projects can be	RIS2 outlines the long-term strategic vision for the SRN and reaffirmed the Government's commitment to improvements at the A46 in Newark. The Scheme is a "committed scheme" in RIS2 and on page 98 states: *"A46 Newark–Bypass – improve the capacity of the single carriageway and junctions of the A46 at Newark and provide better links to the A1."*

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	located in Flood Zone 3, subject to the Exception Test. If the development is not essential transport infrastructure that has to cross the area at risk, it is not appropriate in Flood Zone 3b, the functional floodplain where water has to flow and be stored in times of flood.	The need for the Scheme is set out in Chapter 3 and Chapter 4 of the Case for the Scheme [REP5-030] . The Scheme alignment passes through Flood Zone 3, and therefore does not automatically pass the Sequential Test. As the Scheme is utilising an existing highway route that passes through Flood Zone 3, it is not viable to relocate the works in a zone with a lower probability of flooding or to avoid crossing the A1, the River Trent and other Watercourses, the River Trent and other watercourses must be crossed. The Scheme alignment has been developed following a comprehensive assessment of different alignment options, which considered all environmental impacts (inclusive of flood risk) during the Options Selection stage of the Scheme. The Scheme is classed as Essential Infrastructure and passes through Flood Zone 3. Therefore, the Scheme must be assessed against the Exception Test. To satisfy the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood

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		Zone 3. The modelling results demonstrate that the Scheme would be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, would reduce flood risk overall. The FRA has been updated and re-submitted at Deadline 6 of the Examination to reflect further work that has been undertaken by the Applicant to satisfy and confirm the Exception Test is met. The Statement of Common Ground between the Applicant and the Environment Agency has been updated and re-submitted at Deadline 6 to reflect agreement from the Environment Agency that the Scheme meets the second part of the Exception Test.
5.106	If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the project to be located in zones of lower probability of flooding than Flood Zone 3a, the Exception Test can be applied. The test provides a method of managing flood risk while still allowing necessary development to occur.	To satisfy the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood Zone 3. Overall, the modelling results demonstrated that there is no significant impact on flooding anticipated during construction and once the Scheme is operational, however; instances where there are increases in maximum flood depths and levels associated with the Scheme are clearly detailed within the FRA in Appendix 13.2 of the ES

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		Appendices [APP-176]. Since the Scheme is defined as an NSIP, it is considered that the Exception Test is satisfied in terms of the benefits to the community. The information presented within the FRA in Appendix 13.2 of the ES Appendices [APP-176] demonstrates that mitigation measures have been incorporated into the design to ensure that the new road will be at a low risk of flooding and would be safe for the lifetime of the development. Overall, the FRA concludes: • that the Scheme presents no increase in fluvial flood risk. • The fluvial flood risk to the A46 itself will be minimal during operation. • Most of the surface water flood risk in the study area is categorised as 'Very Low'; with some localised areas categorised as 'Low', 'Medium' and 'High', representing surface water flow paths. • A detailed drainage design has been provided, in which the existing drainage regime is maintained and upgraded where relevant. This

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		is in order that surface water can freely drain from the widened A46 embankment during storm events. • While the groundwater in the area is high, the main A46 structure will be elevated from the river Trent floodplain and will not be impacted by any groundwater flooding. • New features of the Scheme such as concrete piling and retaining walls are not expected to increase groundwater flood risk. • Residual risk to the Scheme from flood defences failure are expected to be negligible. There is a small residual risk from the Scheme to third parties at construction stage. Sensitivity testing would be undertaken to assess risk to third parties and to manage these risks during construction. At operational stage, maintenance of structures and watercourses and sensitivity testing of structures would be considered to minimise these risks
5.107	The Exception Test is only appropriate for use where the Sequential Test alone cannot deliver an acceptable site, taking into account the need for national networks infrastructure to remain operational during	See response to NPSNN paragraph 5.105 above.

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	floods.	
5.108	Both elements of the test will have to be passed for development to be consented. For the Exception Test to be passed: • it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk; and • an FRA must demonstrate that the project will be safe for its lifetime, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.	The FRA in Appendix 13.2 of the ES Appendices [APP-176] considers the risk of all forms of flooding arising from the Scheme in addition to the risk of flooding to the Scheme, and demonstrates how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime. To inform the application of the Exception Test, hydraulic modelling has been developed to assess the flood risk to and from the Scheme where it resides in Flood Zone 3. The modelling results demonstrate that the Scheme would be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, would reduce flood risk overall. It is considered that there will be no significant increase in fluvial flood risk to the neighboring land uses, or an increase in surface water runoff as a result of the Scheme based on application of identified mitigation measures.

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		Since the Scheme is also defined as a Nationally Significant Infrastructure Project (NSIP), the Exception Test is satisfied in terms of the benefits to the community and safety. The information presented within the FRA; Appendix 13.2 of the ES Appendices [APP-176] demonstrates that mitigation measures have been incorporated into the design. This would result in a new road that is at a low risk of flooding and would be safe for the lifetime of the development without increasing flood risk to receptors elsewhere. The FRA has been updated and re-submitted at Deadline 6 of the Examination to reflect further work that has been undertaken by the Applicant to satisfy and confirm the Exception Test is met. The Statement of Common Ground between the Applicant and the Environment Agency has been updated and re-submitted at Deadline 6 to reflect agreement from the Environment Agency that the Scheme meets the second part of the Exception Test.
5.109	In addition, any project that is classified as 'essential infrastructure' and proposed to be located in Flood Zone 3a or b should be designed and constructed to remain	See response to draft NPSNN paragraph 5.106 above.

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	operational and safe for users in times of flood; and any project in Zone 3b should result in no net loss of floodplain storage and not impede water flows.	As the Scheme passes through Flood Zone 3 it is within a potentially vulnerable area. The Scheme is part of the national highway network, the need for upgrading of which is set out in the Case for the Scheme [REP5-030]. Accordingly, the Scheme is considered to be essential transport infrastructure that has to cross the area(s) at risk
5.110	To satisfactorily manage flood risk and the impact of the natural water cycle on people, property and ecosystems, good design and infrastructure may need to be secured using requirements or planning obligations. This may include the use of sustainable drainage systems but could also include vegetation to help to slow runoff, hold back peak flows and make landscapes more able to absorb the impact of severe weather events	As outlined in the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179], soft-engineering methods for drainage will be implemented where feasible, using SuDS as a primary principle to control and treat runoff. Check-dams and planting will encourage run-off retention and absorption.
5.111	In this document the term Sustainable Drainage Systems (SuDS) is frequently used and taken to cover the whole range of sustainable approaches to surface water drainage management including: · source control measures including rainwater recycling and drainage; · infiltration devices to allow water to soak into the ground, that can include individual soakaways and communal facilities; · filter strips and swales, which are vegetated features that hold and drain water downhill mimicking natural drainage patterns; · filter drains and porous	The Scheme has been designed with a positive drainage system in the form of concrete channels with catch pits and gulleys at carriageway level to reduce the risk of surface water flooding on the carriageway and to remove suspended solids. For the widened and new sections of carriageway these systems discharge into a series of swales and attenuation ponds that interact with the proposed planting along the scheme. The swales provide a green solution to convey water to the

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	pavements to allow rainwater and run-off to infiltrate into permeable material below ground and provide storage if needed; · basins and ponds to hold excess water after rain and allow controlled discharge that avoids flooding; and · flood routes to carry and direct excess water through developments to minimise the impact of severe rainfall flooding.	ponds and also undertake part of the water cleaning process. The ponds complete the water cleaning process and store rainfall runoff from the new carriageway, discharging to water courses at existing green field run-off rates or a minimum of 5 litres per second. Please refer to the Appendix 13.4 (Drainage Strategy Report) of the Environmental Statement Appendices [APP-179] for further details.
5.112	Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.	The FRA in Appendix 13.2 of the ES Appendices [APP-176] concluded that through appropriate drainage mitigation (as outlined within the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179], surface water flood risk to sensitive receptors is not increased as a result of the Scheme. Exceedance flows from basins will be managed and controlled via the use of engineering spillways and formalised flowpaths which will convey said exceedance to the receiving watercourses whilst minimising adverse impacts.
5.113	The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site	Attenuation basins have been designed to discharge to greenfield run-off rates. High groundwater levels and low soil permeability mean that infiltration of run-off is unfeasible across the

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	arrangements are made and result in the same net effect.	vast majority of the Scheme. Above-ground sustainable drainage devices with check-dams and planting have been used wherever possible to improve retention and percolation of run-off. See response to 2015 NPSNN paragraph 5.112 above.
5.114	It may be necessary to provide surface water storage and infiltration to limit and reduce both the peak rate of discharge from the site and the total volume discharged from the site. There may be circumstances where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary, through the use of a planning obligation.	See response to 2015 NPSNN paragraph 5.127 and 5.112 above.
5.115	The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities can be taken to lower flood risk	As outlined in the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179], soft-engineering methods for drainage will be implemented where feasible, using SuDS as a primary principle to drain, treat and attenuate runoff, with nature-based solutions incorporated where achievable. The sequential approach has been applied as reasonably practicable. Attenuation features have been designed to maximise wildlife habitat and biodiversity factors.
5.116	The effects of land instability may result in landslides, subsidence or ground heave. Failing to deal with this issue	The potential ground stability hazards for the Scheme are described in Section 3.23 and

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	could cause harm to human health, local property and associated infrastructure, and the wider environment. They occur in different circumstances for different reasons and vary in their predictability and in their effect on development.	assessed in Section 6 Preliminary Engineering Assessment of Appendix 9.1 A46 Newark Northern Bypass Preliminary Sources Study Report of the ES Appendices [APP-161 to APP-163]. Subsequent to intrusive GI, the Ground Investigation Report contained in Appendix 9.2 Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], includes a revised assessment for ground stability risks. Table 30 Geotechnical Risk Register in Appendix 9.2 Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], outlines the land instability risks and mitigation measures.
5.117	Where necessary, land stability should be considered in respect of new development, as set out in the National Planning Policy Framework and supporting planning guidance. Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land instability. If land stability could be an issue, applicants should seek appropriate technical and environmental expert advice to assess the likely consequences of proposed developments on sites where subsidence, landslides and ground compression is known	The potential ground stability hazards for the Scheme are described in Section 3.23 and assessed in Section 6 Preliminary Engineering Assessment of Appendix 9.1 A46 Newark Northern Bypass Preliminary Sources Study Report of the ES Appendices [APP-161 to APP-163]. Subsequent to intrusive GI, the Ground Investigation Report contained in Appendix 9.2

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	or suspected. Applicants should liaise with the Coal Authority if necessary.	Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], includes a revised assessment for ground stability risks. Table 30 Geotechnical Risk Register in Appendix 9.2 Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], outlines the land instability risks and mitigation measures. The Coal Authority, Environment Agency and Local Authorities have all been consulted at various stages of the Scheme development and consulted as part of the Statutory Consultation. Details of how the Applicant has had regard to the responses received during statutory consultation are provided in Annex N of the Consultation Report Annexes [APP-044]. Details on engagement that has taken place, and areas of agreement and disagreement with these Consultees are recorded within Statements of Common Ground submitted throughout the DCO Examination.
5.118	A preliminary assessment of ground instability should be carried out at the earliest possible stage before a detailed application for development consent is prepared. Applicants should ensure that any necessary	See response to NPSNN paragraph 5.117 above.

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	investigations are undertaken to ascertain that their sites are and will remain stable or can be made so as part of the development. The site needs to be assessed in context of surrounding areas where subsidence, landslides and land compression could threaten the development during its anticipated life or damage neighbouring land or property. This could be in the form of a land stability or slope stability risk assessment report.	
5.119	Applicants have a range of mechanisms available to mitigate and minimise risks of land instability. These include: • Establishing the principle and layout of new development, for example avoiding mine entries and other hazards. • Ensuring proper design of structures to cope with any movement expected, and other hazards such as mine and/or ground gases; or • Requiring ground improvement techniques, usually involving the removal of poor material and its replacement with suitable inert and stable material. For development on land previously affected by mining activity, this may mean prior extraction of any remaining mineral resource.	The potential ground stability hazards for the Scheme are described in Section 3.23 and assessed in Section 6 Preliminary Engineering Assessment of Appendix 9.1 A46 Newark Northern Bypass Preliminary Sources Study Report of the ES Appendices [APP-161 to APP-163]. Subsequent to intrusive GI, the Ground Investigation Report contained in Appendix 9.2 Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], includes a revised assessment for ground stability risks. Table 30 Geotechnical Risk Register in Appendix 9.2 Contaminated Land Risk Assessment of the ES Appendices [APP-164 – APP-169], outlines the land instability risks and mitigation measures.

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5.124	Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments, should be considered subject to the policies for designated heritage assets. The absence of designation for such heritage assets does not indicate lower significance.	There are no non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments that will be impacted by the Scheme.
5.125	The Secretary of State should also consider the impacts on other heritage assets (as identified either through the development plan process by local authorities, including 'local listing', or through the nationally significant infrastructure project examination and decision making process) on the basis of clear evidence that the assets have a significance that merit consideration in that process, even though those assets are of lesser value than designated heritage assets.	An assessment of the potential for direct physical impacts and changes to the setting of each individual non-designated asset was undertaken to inform Chapter 6 (Cultural Heritage) of the ES [APP-050]. The results of this assessment are contained within Appendix C of the Cultural heritage DBA, which itself forms Appendix 6.1 of the ES Appendices [AS-099]. Non-designated assets identified as having the potential to be impacted during the construction and operation of the Scheme are detailed further within Appendix 6.3 (Assessment of Cultural Heritage Effects During Construction) of the Environmental Statement Appendices [APP-134] and 6.4 (Assessment of Cultural Heritage Effects During Operation of the Scheme) of the environmental Statement Appendices [APP-135] and Table 6.6 in Chapter 6 (Cultural Heritage) of

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		the Environmental Statement [APP-050].
5.126	Where the development is subject to EIA the applicant should undertake an assessment of any likely significant heritage impacts of the proposed project as part of the Environmental Impact Assessment and describe these in the environmental statement.	Heritage assets identified as having the potential to be impacted during the construction and operation of the Scheme are assessed within Appendix 6.3 (Assessment of Cultural Heritage Effects During Construction) of the Environmental Statement Appendices [APP-134] and 6.4 (Assessment of Cultural Heritage Effects During Operation of the Scheme) of the environmental Statement Appendices [APP-135] and Table 6.6 in Chapter 6 (Cultural Heritage) of the Environmental Statement [APP-050]. Where significant effects are predicted to heritage assets, these are described within Chapter 6 (Cultural Heritage) of the Environmental Statement [APP-050].

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5.127	The applicant should describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant Historic Environment Record should have been consulted and the heritage assets assessed using appropriate expertise. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation.	An assessment of the value/sensitivity (significance) of heritage assets has been carried out in accordance with the standards outlined in the DMRB LA 104 Environmental assessment and monitoring, and the Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment, with the criteria set out in Table 6.1 of Chapter 6 (Cultural Heritage) of the ES [APP-050]. The assessment of value/sensitivity (significance) of heritage assets with the potential to be impacted by the Scheme is contained within Appendix 6.2 (Assessment of Heritage Value) of the Environmental Statement [APP-133]. For the purpose of the assessment, designated cultural heritage asset data is taken from the National Heritage List for England (NHLE) as maintained by Historic England. Non-designated cultural heritage asset data is taken from Nottinghamshire Historic Environment Record (HER). A continuous process of stakeholder consultation has been undertaken which has highlighted

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		additional archaeological assets and survey work. The following steps have been undertaken to develop an understanding of the heritage assets within the Order Limits of the Scheme and the surrounding study area, and the impacts upon them during both construction and operation: • Production of a detailed cultural heritage DBA in line with DMRB LA 106, Paragraphs 3.8 to 3.91, to determine the nature, extent, and significance of the historic environment within an appropriate study area. The study areas for the Scheme are defined in Section 6.7 of Chapter 6 (Cultural Heritage) of the ES [APP-050] and the DBA is presented within Appendix 6.1 (Cultural Heritage DBA) of the ES Appendices [AS-099]. • Undertaking of a site walkover survey to ground truth above ground features identified through the DBA, and to understand the setting of the key heritage assets along the route. The results of this walkover are presented Appendix 6.1 (Cultural Heritage DBA) of the Environmental Statement Appendices [AS-099].

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		• Undertaking of preliminary archaeological surveys and evaluation to further determine the potential for and extent of any unknown archaeological features and palaeoenvironmental deposits. These include metal detector, fieldwalking and geophysical surveys, a programme of geoarchaeological assessment in the form of coring and test pitting, archaeological monitoring undertaken during Ground Investigations at the Kelham and Averham Flood Compensation Area and trial trenching across the Order Limits of the Scheme. The technical reports produced for these surveys are presented within Appendices D to K of Appendix 6.1 (Cultural Heritage DBA) of the ES Appendices [AS-099] and Appendix H of the Archaeological Management Plan [REP5-026]. • Further in-depth analysis of the design of the Scheme has been undertaken in order to understand the potential impacts on archaeological remains, historic buildings and historic landscapes throughout the development of the preliminary design. This has included quarterly Environmental

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		Technical Working Group sessions with stakeholders, weekly internal project team environmental design calls, and focused, internal topic specific workshops, consulting the landscape, road drainage and water environment, biodiversity and noise teams to ensure that the proposed construction of the Scheme does not cause adverse impact or effect on heritage assets. Outcomes included the relocation of the Farndon compound to avoid impacts to significant non-designated Late Upper Palaeolithic archaeological remains (MM503) located south of Farndon Roundabout, reduction and relocation of Flood Compensation Areas and the Scheme Order Limits to avoid archaeologically sensitive areas at Kelham, Averham and Winthorpe, improved planting to the west of Lowwood (MM053) and Winthorpe Conservation Area (MM432), an understanding of the approach of the field drain so as not to impact on the curtilage wall to the Church of St Wilfrid, Kelham (MM024) and discussions and understanding on noise assessments and need for noise mitigation at

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		Lowwood (MM053) and Winthorpe Conservation Area (MM32) in particular. Further details are contained within Section 2.5 of Chapter 2 (The Scheme) of the Environmental Statement [APP-046]. As a result of the steps taken above an Archaeological Mitigation Strategy has been produced in consultation with heritage stakeholders which details the scope of archaeological investigations, protection measures and community engagement required ahead of and during the pre-commencement and construction stages of the Scheme. This strategy is contained within Chapter 6 of the Archaeological Management Plan [REP5-026]. This strategy has been agreed by all heritage stakeholders as detailed within the Statements of Common Ground for Historic England [REP5-049], Nottinghamshire County Council [REP5-050] and Newark and Sherwood County Council [REP5-053].

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5.128	In determining applications, the Secretary of State should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development (including by development affecting the setting of a heritage asset), taking account of the available evidence and any necessary expertise from: • relevant	An assessment of the value/sensitivity (significance) of heritage assets has been carried out in accordance with criteria set out in Table 6.1 of Chapter 6 (Cultural Heritage) of the ES [APP-050] ; this also includes an assessment on impacts on any designated heritage assets

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	information provided with the application and, where applicable, relevant information submitted during examination of the application; • any designation records; • the relevant Historic Environment Record(s), and similar sources of information; • representations made by interested parties during the examination; and • expert advice, where appropriate, and when the need to understand the significance of the heritage asset demands it.	including the mitigation measures proposed. The assessment of value/sensitivity (significance) of heritage assets with the potential to be impacted by the Scheme is contained within Appendix 6.3 (Assessment of Heritage Value) of the Environmental Statement [APP-133]. A total of eight designated built heritage assets are identified as likely to experience significant adverse effects as a result of the construction of the Scheme due to changes to their setting, including visual or noise intrusions, or from the potential for direct impact as a result of vibration or ground settlement during construction. Where possible the iterative development of the Scheme design has taken into account heritage assets identified through the assessment to date, including design adjustments to preserve and/or minimise impacts to these assets and their setting where possible. Specific design measures used to minimise impacts upon heritage assets are set out within Section 6.10 of Chapter 6 (Cultural Heritage of the ES.

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		Those assets which have the potential to be impacted structurally during the construction phase have been noted. Monitoring of vibration on these assets will determine if there are any structural impacts arising, requiring mitigation through remedial repairs, and these monitoring requirements are secured through the First Iteration EMP [REP5-025] and detailed within Chapter 6 of the Archaeological Management Plan [REP5-026]. Other temporary impacts are mitigated against through embedded design to minimise those impacts arising from the construction phase, details on this are set out in Chapter 2 (The Scheme) of the ES [APP-046]. Policy and guidance recognises that not all impacts are able to be resolved in largescale schemes and any residual impacts will be weighed against the longer term and wider benefits of the Scheme in environmental, safety, social and economic terms presented in the Case for the Scheme [REP5-030]**.** Chapter 6 (Cultural Heritage) of the ES [APP-050] section 6.10 sets out in detail the mitigation

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		measures including embedded mitigation, considered through the design process. Embedded mitigation is further set out Chapter 2 (The Scheme) of the ES [APP-046]. Mitigation measures during construction are included within the First Iteration EMP [REP5-025]. The First Iteration Environmental Management Plan [REP5-025] will be developed into the Second Iteration Management Plan for implementation during construction and secured through Requirement 3 of the draft Development Consent Order [REP5-002].The likely significant effects and mitigation requirements during construction of the Scheme are summarised in Table 6-7 of Chapter 6 (Cultural Heritage) of the Environmental Statement [APP-050]. The Scheme has been carefully designed, which has minimised the heritage impact of the Scheme. For this reason, it is considered that the benefits of the Scheme outweigh these effects.
5.129	In considering the impact of a proposed development on any heritage assets, the Secretary of State should take into account the particular nature of the significance of the	See response to NPSNN paragraphs 5.127 and 5.128 above

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	heritage asset and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between their conservation and any aspect of the proposal.	
5.130	The Secretary of State should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution that their conservation can make to sustainable communities – including their economic vitality. The Secretary of State should also take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials, use and landscaping (for example, screen planting).	Appendix 6.1 Cultural Heritage Desk-Based Assessment (DBA) of the Environmental Statement Appendices [AS-099] has identified 37 designated and 95 non-designated heritage assets which have the potential to be affected by the Scheme. These assets are summarised within Section 6.8 of Chapter 6 (Cultural Heritage) of the Environmental Statement [APP-050] and the assessment of impacts upon these assets are detailed within Appendix 6.3 (Assessment of Cultural Heritage Effects During Construction) of the Environmental Statement Appendices [APP-134] and Appendix 6.4 (Assessment of Cultural Heritage Effects During Operation) of the Environmental Statement Appendices [APP-135]. The impacts, alongside the design, mitigation and enhancement measures put in place to sustain the heritage value (significance) of these assets are

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		summarised within Section 6.10 of Chapter 6 (Cultural Heritage) of the Environmental Statement [APP-050]. Where specific mitigation or protection measures are required, these are outlined within Table 3-2 (Register of Environmental Actions and Commitments) within the First Iteration Environmental Management Plan [REP5-025] and Chapters 6 and 7 of the Archaeological Management Plan [REP5-026].
5.131	When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Given that heritage assets are irreplaceable, harm or loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a Grade II Listed Building or a Grade II Registered Park or Garden should be exceptional. Substantial harm to or loss	See response to NPSNN paragraph 5.128 above.

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	of designated assets of the highest significance, including World Heritage Sites, Scheduled Monuments, Grade I and II* Listed Buildings, Registered Battlefields, and Grade I and II* Registered Parks and Gardens should be wholly exceptional.	
5.132	Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss	Policy and guidance recognises that not all impacts are able to be resolved in largescale schemes and the heritage impacts described in response to NPSNN paragraph 5.128 above will be weighed against the longer term and wider benefits of the Scheme in environmental, safety, social and economic terms presented in the Case for the Scheme [REP5-030]. It is considered the public benefit of Scheme outweighs the harm
5.133	Where the proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, the Secretary of State should refuse consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm, or alternatively that all of the following apply: • The nature of the heritage asset prevents all reasonable uses of the site; and	There will be no total loss of a designated asset or substantial harm. For further information please refer to Chapter 6 (Cultural Heritage) of the ES [APP-050].

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	• No viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and • Conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and • The harm or loss is outweighed by the benefit of bringing the site back into use.	
5.134	Where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.	See response to NPSNN paragraph 5.128 above.
5.144	Where the development is subject to EIA the applicant should undertake an assessment of any likely significant landscape and visual impacts in the environmental impact assessment and describe these in the environmental assessment. A number of guides have been produced to assist in addressing landscape issues. The landscape and visual assessment should include reference to any landscape character assessment and associated studies, as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these	Chapter 7 (Landscape and Visual) of the ES [APP-051] considers the likely significant effects of the Scheme on landscape character and visual amenity during both construction and operation. This landscape and visual assessment (LVIA) has been undertaken in accordance with Design Manual for Roads and Bridges (DMRB) assessment LA107 Landscape and Visual Effects which is based on the Guidelines for Landscape and Visual Impact Assessment 3 as published by the Landscape Institute (LI) and Institute for

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	assessments in local development documents in England.	Environmental Management and Assessment (IEMA). Section 7.3 of Chapter 7 (Landscape and Visual) of the ES [APP-051] sets out the principal legislation and planning context for the assessment of the environmental effects of the Scheme on landscape and visual. The relevant legislation and policies listed below have been taken into account in the assessment: • European Landscape Convention • Environment Act • Countryside and Rights of Way Act 2000 • Natural Environment and Rural Communities Act 2006 • The Hedgerow Regulations 1997 • National Policy (including the NPSNN, the NPPF and the 25 Year Environment Plan) • Local Policy including Newark & Sherwood Plan Review – Amended Core Strategy Development Plan Document and Newark & Sherwood Local Development Framework – Allocations & Development Management DPD, Newark and Sherwood Landscape Character Assessment Supplementary Planning

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		Document and A Green Infrastructure Strategy for Newark & Sherwood • National Highways' policy and guidance including National Highways' 'People, places and processes: A guide to good design at National Highways' (2022) which has been considered in the development of the Environmental Masterplan (see Figure 2.3 of the ES Figures [AS-026]. Policy and guidance recognise that not all impacts are able to be resolved in largescale schemes and the above residual impacts will be weighed against the longer term and wider benefits of the Scheme in environmental, safety, social and economic terms presented in the Case for the Scheme [REP5-030]. The potential impacts upon visual amenity were captured through the assessment of 63 receptors identified within the visual envelope of the Scheme. Of those 63 receptors, 15 receptors would experience significant adverse effects during

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		construction of the Scheme, reducing to six receptors in year 1 of operation. When considering the establishment of mitigation planting by year 15 of operation, two visual receptors (No.24 being residential properties at Sandhills Park and No.40 users of the Trent Valley Way and NCN route 64 on Winthorpe Road), were considered to have a residual significant effect as a result of the Scheme. The potential impact upon seven Landscape Character Areas (LCAs) was assessed as part of the LVIA. Of the seven identified, two LCAs (LCA 1 Trent Washlands and LCA 2 Winthorpe Village and Farmlands) would experience temporary significant adverse effects during the construction of the Scheme. Two LCAs (LCA 1 Trent Washlands and LCA 2 Winthorpe Village and Farmlands) are likely to experience significant adverse effects in year 1 of operation. When considering the establishment of mitigation planting by year 15, only one LCA (LCA 2 Winthorpe Village and Farmlands LCA) is considered to have a residual significant adverse effect as a result of the Scheme.

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		The policies at a district level have a common thread of aiming to conserve, enhance and protect the landscape, and basing the design of development upon an understanding of the existing landscape context supported by the use of landscape character assessments. Similarly, these policies require that adverse impacts must be mitigated by sensitive landscape measures which respond to their context. This has been addressed in the study of the baseline landscape character and visual amenity of the area, assessment of impacts and development of mitigation as presented in Figure 2.3 Environmental Masterplan of the ES Figures [AS-026].
5.145	The applicant's assessment should include any significant effects during construction of the project and/or the significant effects of the completed development and its operation on landscape components and landscape character (including historic landscape characterisation).	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] considers the likely significant effects of the Scheme on landscape character and visual receptors, including during construction and operation.
5.146	The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include	Chapter 7 (Landscape and Visual Effects) of the ES [APP-051] considers the likely significant effects of the Scheme on landscape character and visual receptors during construction and operation,

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	any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.	including on views and visual amenity.
5.148	For significant road widening or the building of new roads in National Parks and the Broads applicants also need to fulfil the requirements set out in Defra's English national parks and the broads: UK government vision and circular 2010 or successor documents. These requirements should also be complied with for significant road widening or the building of new roads in Areas of Outstanding Natural Beauty.	The Scheme is not located within an Area of Outstanding Natural Beauty, a National Park, or the Broads.
5.149	Landscape effects depend on the nature of the existing landscape likely to be affected and nature of the effect likely to occur. Both of these factors need to be considered in judging the impact of a project on landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints, the aim should be to avoid or minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.	The evolution of the Scheme design is described in the Scheme Design Report [APP-194]. The landscape design sought to integrate the Scheme with surrounding landscape character. Consideration has been given to the landscape and visual impacts of the design and aided the evolution of the engineering of the Scheme. This has included siting of infrastructure as well as the design or structures and associated finishes. Landscape bunds have been included where appropriate to aid screening of the Scheme. The landscape design has sought to integrate the Scheme with surrounding landscape character. The design objectives included retaining notable extents of existing planting and proposing new

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		planting to replicate existing features and establish visual screening. The environmental mitigation strategy also seeks to reinstate landscape features lost as a result of the Scheme, as well as a general enhancement of the landscape context, wherever possible. The design seeks to integrate the Scheme with the existing landscape by: • making it environmentally sustainable and retaining the sense of openness where this is consistent with a balanced preference for visual screening. • integrating Scheme infrastructure (notably overbridges) through appropriate use of planting to contribute to visual screening. • selecting plant and grass species appropriate to the locality to maintain consistency with the appearance of the area. Mitigation measures during operation, are included within the First Iteration EMP [REP5-025] and shown on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026].
5.158	The Secretary of State will have to judge whether the	The potential impacts upon visual amenity were

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	visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development. Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast, especially those defined as Heritage Coast.	captured through the assessment of 63 receptors identified within the visual envelope of the Scheme. Of those 63 receptors, 15 receptors would experience Significant Adverse effects during construction of the Scheme, reducing to 6 receptors in year 1 of operation. When considering the establishment of mitigation planting by year 15 of operation, two visual receptors (No.24 being residential properties at Sandhills Park and No.40 users of the Trent Valley Way and NCN route 64 on Winthorpe Road), were considered to have a residual significant effect as a result of the Scheme. Policy and guidance recognises that not all impacts are able to be resolved in largescale Schemes and the above residual impacts will be weighed against the longer term and wider benefits of the Scheme in environmental, safety, social and economic terms presented in the Case for the Scheme [REP5-030]. The Scheme is not located within an area defined as Heritage Coast.
5.160	Adverse landscape and visual effects may be minimised	The evolution of the Scheme design is described

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	through appropriate siting of infrastructure, design (including choice of materials), and landscaping Schemes, depending on the size and type of proposed project. Materials and designs for infrastructure should always be given careful consideration.	in the Scheme Design Report [APP-194]. The landscape design sought to integrate the Scheme with surrounding landscape character. Consideration has been given to the landscape and visual impacts of the design and aided the evolution of the engineering of the Scheme. This has included siting of infrastructure as well as the design or structures and associated finishes. Landscape bunds have been included where appropriate to aid screening of the Scheme. The landscape design has sought to integrate the Scheme with surrounding landscape character. The design objectives included retaining notable extents of existing planting and proposing new planting to replicate existing features and establish visual screening. The environmental mitigation strategy also seeks to reinstate landscape features lost as a result of the Scheme, as well as a general enhancement of the landscape context, wherever possible. The design seeks to integrate the Scheme with the existing landscape by: • making it environmentally sustainable and retaining the sense of openness where this is

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		consistent with a balanced preference for visual screening. • integrating Scheme infrastructure (notably overbridges) through appropriate use of planting to contribute to visual screening. • selecting plant and grass species appropriate to the locality to maintain consistency with the appearance of the area. Mitigation measures during operation, are included within the First Iteration EMP [REP5-025] and shown on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026].
5.161	Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site, although if such landscaping was proposed to be consented by the development consent order, it would have to be included within the order limits for that application. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista.	See response to NPSNN paragraph 5.160 above.
5.165	The applicant should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site	Chapter 3 of the Case for the Scheme [REP5-030] identifies the main existing land uses within the Order Limits. Much of the land to the west of the existing A46 is low lying floodplain, with road

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	from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate.	infrastructure forming the dominant land use to the east and agricultural land to the north, interspersed with small-scale settlements. Chapter 6 of the Case for the Scheme [REP5-030] identifies the Development Plan allocations within Order Limits. No impacts on the delivery or integrity of any Development Plan allocations have been identified. Chapter 12 (Population and Health) of the ES [REP5-014] assesses the potential impact of the construction and operation of the Scheme on population, employment, residential properties, businesses, community facilities, open spaces and recreational areas and human health outcomes. The construction of the Scheme is likely to have an overall residual adverse impact on development land and businesses, agricultural land, and WCH provision as a result of both permanent and temporary land take and reduced access during construction. Where applicable, compensation will be provided to land and

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		business owners if considered due under the Compensation Code. The operation of the Scheme is expected to have a significant beneficial impact on access to private property and housing; development land and businesses; community land and assets; green space, recreation and physical activity; due to the reduced congestion and improved journey times that the Scheme will deliver.
5.166	Existing open space, sports and recreational buildings and land should not be developed unless the land is surplus to requirements or the loss would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location. Applicants considering proposals which would involve developing such land should have regard to any local authority's assessment of need for such types of land and buildings.	Chapter 12 (Population and Human Health) of the ES [REP5-014] reviews any impact of the Scheme on open space, sports and recreational buildings, and includes an outline of mitigation measures associated with maintaining access to all affected residential properties, businesses and areas of open space and recreation. Table 12.15 of Chapter 12 (Population and Human Health) of the ES [REP5-014] sets out changes in access to green space, recreation and physical activities during construction and associated mitigation measures. Other than some permanent rights, which are

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		compatible with the current open space use, the Scheme will not result in the loss of land that comprises existing open space, sports or recreational buildings. Further details on land requirements (both temporary and permanent) and powers being sought under the draft DCO [REP5-002] can be found in the Statement of Reasons [REP5-006].
5.167	During any pre-application discussions with the applicant, the local planning authority should identify any concerns it has about the impacts of the application on land-use, having regard to the development plan and relevant applications, and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements. These are also matters that local authorities may wish to include in their Local Impact Report which can be submitted after an application for development consent has been accepted.	Chapter 3 of the Case for the Scheme [REP5-030] identifies the main existing land uses within the Order Limits. Much of the land to the west of the existing A46 is low lying floodplain, with road infrastructure forming the dominant land use to the east and agricultural land to the north, interspersed with small-scale settlements. Chapter 6 of the Case for the Scheme [REP5-030] identifies the Development Plan allocations within Order Limits. No impacts on the delivery or integrity of any Development Plan allocations have been identified. Details on engagement with the Local Planning Authorities including Nottinghamshire County

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		Council and Newark and Sherwood District Council is set out in Table 3.2 of the Consultation Report [APP-028]. Details on engagement with the Local Planning Authorities is also set out in Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048]. Furthermore, a Statement of Common Ground has been developed between the Applicant and Nottinghamshire County Council [REP5-050], and the Applicant and Newark and Sherwood District Council [REP5-053] during the course of the DCO Examination.
5.168	Applicants should take into account the economic and other benefits of the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification). Where significant development of agricultural land is demonstrated to be necessary, applicants should seek to use areas of poorer quality land in preference to that of a higher quality. Applicants should also identify any effects, and seek to minimise impacts, on soil quality, taking into account any mitigation measures proposed. Where possible, developments should be on previously developed (brownfield) sites provided that it is not of high environmental value. For developments on previously	Chapter 9 (Geology and Soils) of the ES [REP5-010] assesses the effects of temporary and permanent loss of agricultural land. For agricultural land and soils, it is considered that even with the inclusion of appropriate mitigation as detailed in the Outline Soils Management Plan (SMP) (Appendix C) of the First Iteration EMP [REP5-025]**,** there would still be significant adverse effects during the construction phase (associated with temporary and permanent land take). Significant effects are associated with temporary loss of agricultural land classification (ALC) grade 2 (considered to be Moderate

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	developed land, applicants should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.	Adverse), and permanent loss of ALC grade 3a (considered to be Moderate Adverse) and ALC grade 3b (considered to be Large Adverse). The Outline SMP (Appendix C of the First Iteration EMP [REP5-025] details the mitigation measures required to maintain agricultural soil quality and grade, ensuring where planned, land can be returned to agriculture. The Outline SMP is designed to ensure that soil structure and overall quality does not unduly deteriorate during any instances of soil handling. There will be no effects of loss of agricultural land during the operational phase of the Scheme as land lost permanently from agriculture will already be removed in the construction phase. The minimisation of the area of permanent and temporary land take of agricultural land within the Order Limits has been a fundamental consideration throughout the design of the Scheme. Given the fixed location of the existing highway

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		infrastructure that represents the start and end points of the Scheme, there are no opportunities to deliver the Scheme in a way that avoids the development of any agricultural land. The use of some agricultural land is therefore necessary, as per NPSNN paragraph 5.168. Policy and guidance recognises that not all impacts are able to be resolved in largescale Schemes and the above residual impacts would be weighed against the longer term and wider benefits of the Scheme in environmental, safety, social and economic terms presented in the Case for the Scheme [REP5-030]. In accordance with the Environment Agency's Land contamination risk management (LCRM) guidance, a preliminary contamination risk assessment has been undertaken for the Scheme within the Preliminary Sources Study Report in Appendix 9.1 of the ES Appendices [APP-160 – 163]. Subsequently, a series of Ground Investigations (GI) have been undertaken. Following GI, the contamination risks have been assessed in the Phase 2 Contaminated Land

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		Generic Quantitative Risk Assessment. This is provided in Appendix 9.2 (Contaminated Land Risk Assessment) of ES Appendices [APP 164 – 169]. Additional risk assessment has been undertaken for one isolated area of the Scheme where soil contamination was identified (WS46 and S3BH05) and has been reported in the Detailed Quantitative Risk Assessment (DQRA) - Rev 2 [REP5-057].
5.173	Where the project conflicts with a proposal in a development plan, the Secretary of State should take account of the stage which the development plan document has reached in deciding what weight to give to the plan for the purposes of determining the planning significance of what is replaced, prevented or precluded. The closer the development plan document is to being adopted by the local plan, the greater the weight which can be attached to the impact of the proposal on the plan.	Chapter 3 of the Case for the Scheme [APP-190] identifies the main existing land uses within the Order Limits. Much of the land to the west of the existing A46 is low lying floodplain, with road infrastructure forming the dominant land use to the east and agricultural land to the north, interspersed with small-scale settlements. Chapter 6 of the Case for the Scheme [APP-190] identifies the Development Plan allocations within Order Limits. No impacts on the delivery or integrity of any Development Plan allocations have been identified. Chapter 12 (Population and Health) of the Environmental Statement [APP-056] assesses the

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		potential impact of the construction and operation of the Scheme on population, employment, residential properties, businesses, community facilities, open spaces and recreational areas and human health outcomes. The construction of the Scheme is likely to have an overall residual adverse impact on development land and businesses, agricultural land, and WCH provision as a result of both permanent and temporary land take and reduced access during construction. Where applicable, compensation would be provided to land and business owners if considered due under the Compensation Code. The operation of the Scheme is expected to have a substantial beneficial impact on access to private property and housing; development land and businesses; community land and assets; green space, recreation and physical activity; due to the reduced congestion and improved journey times that the Scheme will deliver.
5.174	The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the	Chapter 12 (Population and Human Health) of the ES [REP5-014] outlines that access would be maintained and there would be no quality implications to the use of recreational open spaces.

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	open space or the buildings and land to be surplus to requirements, or the Secretary of State determines that the benefits of the project (including need) outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities.	
5.176	The decision-maker should take into account the economic and other benefits of the best and most versatile agricultural land. The decision-maker should give little weight to the loss of agricultural land in grades 3b, 4 and 5, except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy.	Chapter 9 (Geology and Soils) of the ES [REP5-010] assesses the effects of temporary and permanent loss of agricultural land. The majority of the land subject to permanent loss is not best and most versatile (BMV) and comprises 59.7 ha agricultural land classification (ALC) grade 3b. Significant effects are also associated with temporary loss of BMV ALC grade 2 (considered to be Moderate Adverse), which will be returned to agricultural use after construction, and permanent loss of 15.6 ha BMV ALC grade 3a (considered to be Moderate Adverse).
5.178	When located in the Green Belt national networks infrastructure projects may comprise inappropriate development. Inappropriate development is by definition harmful to the Green Belt and there is a presumption against it except in very special circumstances. The Secretary of State will need to assess whether there are very special circumstances to justify inappropriate	The Scheme is not located in Green Belt.

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	development. Very special circumstances will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations. In view of the presumption against inappropriate development, the Secretary of State will attach substantial weight to the harm to the Green Belt, when considering any application for such development.	
5.179	Applicants can minimise the direct effects of a project on the existing use of the proposed site, or proposed uses near the site by the application of good design principles, including the layout of the project and the protection of soils during construction.	The Outline SMP (Appendix C of the First Iteration EMP [REP5-025]) details the mitigation measures required to maintain agricultural soil quality and grade, ensuring where planned, land can be returned to agriculture. The Outline SMP is designed to ensure that soil structure and overall quality does not unduly deteriorate during any instances of soil handling. The design has sought to minimise the area of agricultural land required.
5.180	Where green infrastructure is affected, applicants should aim to ensure the functionality and connectivity of the green infrastructure network is maintained, and any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space, including appropriate access to	Chapter 12 (Population and Human Health) of the ES [REP5-014] reviews any impact of the Scheme on open space, sports and recreational buildings, and includes an outline of mitigation measures associated with maintaining access to all affected residential properties, businesses and areas of open space and recreation, including public rights of ways (PRoWs). Provisions have been included

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	new coastal access routes, National Trails and other public rights of way.	in the Scheme to replace and, where feasible and appropriate, improve existing routes and facilities within the Order Limits that are used by pedestrians and cyclists, the objective being to ensure continued connectivity is provided for WCH between communities and routes within the wider PRoW network. The key design rational for the environmental design is to create a green blue corridor along the length of the scheme, bring co-benefits to landscape, biodiversity and water quality. That Scheme has sought to limit impacts upon existing green infrastructure, limiting vegetation clearance wherever possible, and also proposing planting so that the scheme ties in with surrounding green infrastructure and habitats. The Scheme does not affect access to new coastal access routes or National Trails.
5.182	Where a proposed development has an impact on a Mineral Safeguarding Area (MSA), the Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.	Data and information in the baseline study (Section 10.8) of Chapter 10 (Materials and Waste) of the ES [REP5-012] has indicated that there is one Minerals Safeguarding Area (MSA) for sand and gravel within the study area; and there are no peat resources.

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		The Scheme is not likely to represent a risk to the MSA and prior extraction from the MSA may not be appropriate. Taking into consideration the below points, • The Scheme is not a new development in an open countryside area, as the works at the Scheme are related to the improvement and widening of a section of the existing A46 road. • The A46 forms part of the strategic Trans-Midlands Trade Corridor between the M5 in the south-west and the Humber Ports in the north-east. • The improvements to the A46 corridor are detailed within the Road Investment Strategy (RIS) 2 as a mechanism for underpinning the wider economic transformation of the country. • The size of the MSA is significantly greater than the size of the Scheme (refer Figure 10.2 Material Assets and Waste Management Second Study Area in the ES Figures [AS-054]. The total area for the sand and gravel MSA within Nottinghamshire is over 377 square kilometres, while the total area of the

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		Scheme within the MSA is approximately 1.8 square kilometres, which represents approximately 0.48 percent of the MSA area. • It has been stated in in paragraph 10.10.14 of Chapter 10 (Material Assets and Waste) of the Environmental Statement [REP5-012], that the Applicant will consider the potential use of site won materials that includes minerals derived from excavation activities within the Scheme. So, there is a potential that some of the minerals present within the MSA that lie within the Scheme Order Limits will be extracted and utilised within the Scheme and would not be subject to sterilisation. Due to the reasons outlined, and as the Scheme only covers approximately 0.48% of the total MSA area, the Scheme is unlikely to represent a risk to the MSA. Therefore, it is considered that the Scheme is unlikely to sterilise MSA and/or peat resources.
5.184	Public rights of way, National Trails, and other rights of access to land (e.g., open access land) are important recreational facilities for walkers, cyclists and equestrians.	The impact of the Scheme on existing PRoWs has been assessed. Provision has been made within the Scheme to maintain existing PRoWs where

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	Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements in respect of these measures might be attached to any grant of development consent.	practicable and deemed appropriate on safety grounds. This assessment is set out in Chapter 12 (Population and Human Health) of the ES [REP5-014]. Provision has been made within the Scheme to maintain existing PRoWs where practicable and deemed appropriate. Along the route, there would be one permanently stopped up PRoW, FP14, however the Scheme would provide new and improved facilities around the east side of Cattle Market Roundabout which would be available as an alternative route. Other routes would be impacted slightly due to the Scheme. Provision has been included in the design to replace and, where feasible and appropriate, improve existing routes and facilities within the Order Limits that are used by pedestrians and cyclists. The objective of this is to ensure continued connectivity is provided for WCH users between communities and routes within the wider PRoW network. The General Arrangements [AS-007]and the Streets, Rights of Way and Access Plans [REP4-

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		002] illustrate the locations of: • The existing PRoW network within and surrounding the Order Limits • PRoW that would be permanently closed (referred to as being 'stopped up') • New and improved walking and cycling routes that would be delivered as part of the Scheme. The routes impacted by the Scheme are listed below and detailed in full in Chapter 2 (The Scheme) of the ES [APP-046]: • Footpath FP14 • Footway/Cycle track at Cattle Market • Footway/Cycle track at Brownhills Junction • Footway east of the A1 • Footpaths FP2 and FP3 • Footpaths/Cycle track at Winthorpe Roundabout Chapter 12 (Population and Human Health) of the ES [REP5-014] concludes that the construction of the Scheme is likely to have a temporary Moderate Adverse (significant) effect on WCH

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		provision as a result of both permanent and temporary land take and reduced access during construction. Mitigation measures during construction are included or referenced within the First Iteration EMP [REP5-025]. Mitigation measures in relation to population and human health during construction include provision of appropriate signage for temporary WCH diversions, including wayfinding and duration of works.
5.185	Public rights of way can be extinguished under Section 136 of the Act if the Secretary of State is satisfied that an alternative has been or will be provided or is not required.	Along the route, there would be one permanently stopped up PRoW, FP14, however the Scheme would provide new and improved facilities around the east side of Cattle Market Roundabout which would be available as an alternative route.
5.187	Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed in accordance with the Biodiversity and Geological Conservation section of this NPS.	Any potential noise and vibration impact on protected species and wildlife are assessed within Section 8.9 Potential Impacts and Section 8.11 Assessment of Likely Significant Effects within Chapter 8 (Biodiversity) of the ES [APP-052].
5.188	Factors that will determine the likely noise impact include: · construction noise and the inherent operational noise from the proposed development and its characteristics; ·	See response to NPSNN paragraphs 5.189 to 5.194 below.

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	the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces); · the proximity of the proposed development to quiet places and other areas that are particularly valued for their tranquility, acoustic environment or landscape quality such as National Parks, the Broads or Areas of Outstanding Natural Beauty; and · the proximity of the proposed development to designated sites where noise may have an adverse impact on the special features of interest, protected species or other wildlife.	
5.189	Where a development is subject to EIA and significant noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment, which should form part of the environment statement: • A description of the noise sources including likely usage in terms of number of movements, fleet mix and diurnal pattern. For any associated fixed structures, such as ventilation fans for tunnels, information about the noise sources including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise.	Chapter 11 (Noise and Vibration) of the ES [APP-055] considers the likely significant effects of the Scheme from noise and vibration and covers the areas of assessment outlined in this NPSNN paragraph. The Baseline Noise Survey in Appendix 11.2 of the ES Appendices [APP-173] documents the findings of the baseline noise monitoring undertaken for the Scheme used to inform Chapter 11 (Noise and Vibration) of the ES [APP-055]. Further details are also set out in the noise assessment methodology in Chapter 11 (Noise

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	• Identification of noise sensitive premises and noise sensitive areas that may be affected.
	• The characteristics of the existing noise environment.
	• A prediction on how the noise environment will change with the proposed development:
	  ○ In the shorter term such as during the construction period.
	  ○ In the longer term during the operating life of the infrastructure.
	• At particular times of the day, evening and night as appropriate.
	• An assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas.
	• Measures to be employed in mitigating the effects of noise. Applicants should consider using best available techniques to reduce noise impacts.
	• The nature and extent of the noise assessment should be proportionate to the likely noise impact.
		and Vibration) of the ES [APP-055] which shows compliance with this NPSNN paragraph.
		
		The assessment of construction noise shows:
		• Pre-commencement works/ Earthworks and floodplain compensation/ Ground improvement/ Bridge structures/ Drainage/ Roadworks/ and Construction compounds construction phases, each have the potential to result in significant adverse effects during the daytime.
		• Pre-commencement works/ Bridge structures/ and Roadworks construction phases each have the potential to result in significant adverse effects during the night-time.
		• Suitable mitigation measures to avoid significant adverse effects are described within Chapter 11 (Noise and Vibration) of the ES [APP-055] under the 'Construction noise' heading for relevant sections, and secured via the First Iteration EMP [REP5-025].
		• A Section 61 application process (whereby the Principal Contractor consults with the local authority and provides an application

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		prior to construction works commencing to obtain approval for the methods to be used and the steps proposed to minimise noise and vibration resulting from the works) may apply between the Principal Contractor and the Local Authority in advance of works being undertaken outside of the core hours that do not fall within the list of excluded activities, to ensure potential cumulative levels and relevant mitigation measures are adopted to avoid significant adverse effects. Embedded mitigation measures incorporated in the Scheme design such as landscape earthworks, noise barriers and bridge parapets are shown on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026]. The assessment of operational noise shows: • No residual significant adverse effects have been identified as a result of the Scheme with mitigation in place (as described within Chapter 11 (Noise and Vibration) of the ES [APP-055] under the 'Design measures'

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		heading, and secured via the First Iteration EMP [REP5-025]). The Statement Relating to Statutory Nuisances [APP-186] has considered the potential for the Scheme to cause a statutory nuisance under Section 79(1) of the of the Environmental Protection 1990 Act (EPA). With the essential mitigation measures set out in the First Iteration EMP [REP5-025] in place, none of the statutory nuisances identified in section 79(1) of the EPA are predicted to arise during the construction of the Scheme.
5.190	The potential noise impact elsewhere that is directly associated with the development, such as changes in road and rail traffic movements elsewhere on the national networks, should be considered as appropriate.	Paragraph 11.1.89 of Chapter 11 (Noise and Vibration) of the ES [APP-055] describes how the study area has been defined for the noise assessment. This includes the following: beyond 600 metres, the area within 50 metres of other road links with potential to experience a short-term Basic Noise Level change of more than 1.0 dB(A), as a result of the Scheme. Therefore, traffic flow changes in areas further away from the Scheme have been included in the assessment and are considered when assessing

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		potentially significant effects.
5.191	Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. The prediction of road traffic noise should be based on the method described in Calculation of Road Traffic Noise. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.	Section 11.3 of Chapter 11 (Noise and Vibration) of the ES [APP-055] outlines relevant legislation and policies taken account of in the assessment, including British Standards 5228 parts 1 and 2. The assessment has been undertaken in accordance with the DMRB LA 111 Noise and Vibration (National Highways, 2020) which stipulates the use of Calculation of Road Traffic Noise (CRTN). Section 11.8 of Chapter 11 (Noise and Vibration) of the ES [APP-055] also sets out the assessment methodology which shows compliance with this NPSNN paragraph.
5.192	The applicant should consult Natural England with regard to assessment of noise on designated nature conservation sites, protected landscapes, protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be taken into account.	Section 8.4 of Chapter 8 (Biodiversity) of the ES [APP-052] outlines the consultation undertaken to inform assessment methodology. The Applicant has engaged with Natural England Details of engagement with Natural England during the design development for the DCO application can be found in Table 1-2 within Appendix 4.3 (Record of Environmental Engagement) of the ES Appendices [APP-127]. Further relevant details of discussions are also

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		provided within Chapters 5 to 15 of this ES. Details of engagement with consultees are also set out in Table 3.2 of the Consultation Report [APP-028]. Furthermore, a Statement of Common Ground has been developed between the Applicant and Natural England during the course of the DCO Examination, with all issues being marked as 'agreed' in relation to designated nature conservation sites, protected landscapes, protected species or other wildlife [REP5-051].
5.193	Developments must be undertaken in accordance with statutory requirements for noise. Due regard must have been given to the relevant sections of the Noise Policy Statement for England, National Planning Policy Framework and the government's associated planning guidance on noise.	The Noise Policy Statement for England (NPSE) purpose is to promote "good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development." The three main aims are to: • Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development. • Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable

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		development. • Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development. NPPF Paragraph 191 (a) reiterates the first two of the above NPSE aims. On this basis, Chapter 11 (Noise and Vibration) of the ES [APP-055] considers the following concepts in the assessment of noise impact: • Lowest Observed Adverse Effect Level (LOAEL): this is the level above which adverse effects on health and quality of life can be detected. • Significant Observed Adverse Effect Level (SOAEL): this is the level above which significant adverse effects on health and quality of life occur. Section 11.3 of Chapter 11 (Noise and Vibration)

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		of the ES [APP-055] outlines relevant legislation and policies taken into account in the assessment, including the Noise Policy Statement for England, the NPPF and relevant Planning Practice Guidance. These requirements have also been addressed in Chapter 11 (Noise and Vibration) of the ES [APP-055] in Section 11.8 where the assessment methodology is described, Section 11.14, where mitigation measures are described, and Section 11.15 where the assessment results are presented.
5.194	The project should demonstrate good design through optimisation of Scheme layout to minimise noise emissions and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission. The project should also consider the need for the mitigation of impacts elsewhere on the road and rail networks that have been identified as arising from the development, according to Government policy.	The Scheme Design Report [APP-194] outlines the Applicant's commitment to good design and provides details on how the design has evolved. Chapter 2 (The Scheme) of the ES [APP-046] provides details of the embedded mitigation measures incorporated into the Scheme design, including the following measures for noise and vibration: • Retention of the existing dual carriageway between Friendly Farmer and Winthorpe and building a new link to the south which will

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		move the A46 away from Winthorpe (when compared with the Scheme design for the preferred route announcement). • The use of thin surface courses on new carriageways to provide a reduction in road surface noise compared to hot rolled asphalt or concrete. • The provision of noise bunds and barriers integrated as part of the landscape design to reduce adverse effects to noise receptors where required. The locations are shown on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026]. There are not expected to be any changes elsewhere on the national networks as a result of the construction and operation of the Scheme.
5.195	The Secretary of State should not grant development consent unless satisfied that the proposals will meet, the following aims, within the context of Government policy on sustainable development: • avoid significant adverse impacts on health and quality of life from noise as a result of the new development; • mitigate and minimise other adverse impacts on health and quality of life from noise from the new development; and • contribute to	See response to NPSNN paragraphs 5.189 to 5.194 above.

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	improvements to health and quality of life through the effective management and control of noise, where possible.	
5.196	In determining an application, the Secretary of State should consider whether requirements are needed which specify that the mitigation measures put forward by the applicant are put in place to ensure that the noise levels from the project do not exceed those described in the assessment or any other estimates on which the decision was based.	See response to NPSNN paragraphs 5.189 to 5.194 above.
5.197	The Examining Authority and the Secretary of State should consider whether mitigation measures are needed both for operational and construction noise over and above any which may form part of the project application. The Secretary of State may wish to impose requirements to ensure delivery of all mitigation measures.	See response to NPSNN paragraphs 5.189 to 5.194 above.
5.198	Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following: • engineering: containment of noise generated; • materials: use of materials that reduce noise, (for example low noise road surfacing); • lay-out: adequate distance between source and noise-sensitive receptors; incorporating good design	Chapter 2 (The Scheme) of the ES [APP-046] provides details of the embedded mitigation measures incorporated into the Scheme design, including the following measures for noise: • Retention of the existing dual carriageway between Friendly Farmer and Winthorpe and building a new link to the south which would move the A46 away from Winthorpe (when

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	to minimise noise transmission through screening by natural or purpose built barriers; • administration: specifying acceptable noise limits or times of use (e.g., in the case of railway station PA systems).	compared with the Scheme design for the preferred route announcement). • The use of thin surface courses on new carriageways to provide a reduction in road surface noise compared to hot rolled asphalt or concrete. • The provision of noise bunds integrated as part of the landscape design to reduce adverse effects to noise. These features are shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026]. Mitigation measures during construction are included within the First Iteration EMP [REP5-025] which will be developed into a Second Iteration EMP for implementation during construction of the Scheme. Details on the First and Second Iteration EMPs, including how mitigation is secured by the draft DCO [REP5-003]**,** is provided within Section 4.4 of Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048]**.**
5.199	For most national network projects, the relevant Noise	Appropriate mitigation measures have been set

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	Insulation Regulations will apply. These place a duty on and provide powers to the relevant authority to offer noise mitigation through improved sound insulation to dwellings, with associated ventilation to deal with both construction and operational noise. An indication of the likely eligibility for such compensation should be included in the assessment. In extreme cases, the applicant may consider it appropriate to provide noise mitigation through the compulsory acquisition of affected properties in order to gain consent for what might otherwise be unacceptable development. Where mitigation is proposed to be dealt with through compulsory acquisition, such properties would have to be included within the development consent order land in relation to which compulsory acquisition powers are being sought.	out in Chapter 11 (Noise and Vibration) of the ES [APP-055]. and are secured within the REAC located in the First Iteration EMP. [REP5-025]. Mitigation through improved sound insulation is not required, under the Noise Insulation Regulations 1975 (amended 1988). In general, mitigation has been designed to reduce noise at source and because there are no residual significant effects, sound insulation has not been employed as part of the operational noise mitigation strategy.
5.200	Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process.	This requirement has been addressed in Chapter 11 (Noise and Vibration) of the ES [APP-055]**.** Several highways Noise Important Areas (NIAs) are located in the vicinity of the Scheme, as presented in Figure 11.3 (Noise Important Areas) of the ES Figures [AS-057] eleven of which are within the study area.

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		Chapter 11 (Noise and Vibration) of the ES [APP-055] includes a summary of the short-term noise impact at relevant NIAs, which are either negligible or minor beneficial impacts
5.203	Applicants should have regard to the policies set out in local plans, for example, policies on demand management being undertaken at the local level.	Chapter 6 of the Case for the Scheme [REP5-030] assesses the Scheme's conformity with the Local Plan and Local Transport Plans.
5.204	Applicants should consult the relevant highway authority, and local planning authority, as appropriate, on the assessment of transport impacts.	Nottinghamshire County Council (the relevant local Highway Authority) has been consulted on the Transport Assessment [REP5-034], including an introductory meeting to discuss the scope of the TA [REP5-034], meetings with relevant officers to discuss certain disciplines such as public transport and public rights of way, and a meeting to discuss details on the construction impacts of the Scheme and the modelling outputs. A meeting with NSDC (the local planning authority) was also undertaken. Details on engagement with the Local Planning Authorities including Nottinghamshire County Council and Newark and Sherwood District Council is set out in Table 3.2 of the Consultation Report [APP-028]. Details on engagement with the Local Planning Authorities is also set out in Chapter 4 (Environmental

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		Assessment Methodology) of the ES [APP-048]. Furthermore, a Statement of Common Ground has been developed between the Applicant and Nottinghamshire County Council [REP5-050], and the Applicant and Newark and Sherwood District Council [REP5-053] during the course of the DCO Examination.
5.205	Applicants should consider reasonable opportunities to support other transport modes in developing infrastructure. As part of this, consistent with paragraph 3.19-3.22 above, the applicant should provide evidence that as part of the project they have used reasonable endeavors to address any existing severance issues that act as a barrier to non-motorised users.	As outlined within Chapter 4 of the Case for the Scheme [REP5-030], the Scheme incorporates new and improved WCH provision. Some of the improvements that would be provided by the Scheme are detailed below: **Footway/Cycle track at Cattle Market** - The existing footway/cycle track around Cattle Market provides a link between the walking and cycling facilities present on the A617, A616 and Great North Road. A signalised crossing would be provided for users to cross the northern A616 arm of Cattle Market and two signalised crossings provided for them to cross the eastern A46 arms. This route forms part of the 'Trent Valley Way' long distance walking route. Signalised crossings would be provided as part of the Scheme around

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		the enlarged Cattle Market gyratory to maintain/improve these links. **Footway east of the A1** - There is an existing footway that runs alongside the south side of the existing A46 between Winthorpe roundabout and Friendly Farmer roundabout. The route crosses the A46 in four locations via uncontrolled crossings across the existing dual carriageway which connect to provide a link between Newark-on-Trent and the Newark Showground. These crossings are considered unsafe, and they would not be retained as part of the Scheme. Instead, a new signalised crossing would l be provided across the existing A46 between Friendly Farmer roundabout and the A1 crossing to link with the existing route that crosses the A1 slip roads and the A17. A new footway/cycle track link would be provided from the A17 crossing point through land to the south of the showground and alongside the south side of the new Friendly Farmer Link to Winthorpe roundabout and the first showground entrance on Drove Lane. **Footpaths FP2 and FP3** - Historically there was a

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		PRoW that ran north to south between Winthorpe village and the Newark Showground. This has been severed by the existing A46 with FP2 ending at the northern boundary of the A46 and FP3 ending at the southern boundary. The Scheme would reconnect these two PRoWs via a new footway/cycle track that links with FP2 to the north and runs parallel to the new dual carriageway before crossing beneath it alongside the A1. On the south side of the new dual carriageway, it will cross the existing A46 via a new signalised crossing and join the existing PRoW network that provides a connection with FP3. The ends of FP2 and FP3 will be permanently stopped up where they would result in a 'dead end'. **Footpaths/Cycle track at Winthorpe roundabout** - Currently there is no walking or cycling provision around Winthorpe roundabout. The Scheme would address this by providing a new walking/cycling link between Hargon Lane and Drove Lane that passes around the north and east sides via new crossings over Winthorpe roundabout. This would provide a link between Winthorpe and the Newark Showground.

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		Together, the General Arrangements Plans [AS-007] and the Streets, Rights of Way and Access Plans [REP4-002] illustrate the locations of walking and cycling routes that would be delivered as part of the Scheme. Further details are also set out in Chapter 2 (The Scheme) of the ES [APP-046]. A Walking, Cycling and Horse-Riding Assessment and Review (WCHAR) was completed in June 2023 on the basis of the preliminary design and is available at Appendix C of Transport Assessment [REP5-034]. A further WCHAR would follow at the detailed design stage to ensure that the needs of WCH users continue to be considered as the design progresses.
5.206	For road and rail developments, if a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts and mitigating commitments. In all other cases the applicant's assessment should include a proportionate assessment of the transport impacts on other networks as part of the application.	The ES (contained within Volume 6.1 of the DCO Application) contains within each technical chapter an assessment of the likely environmental effects of the Scheme, and then outlines the mitigation that has been implemented. The Transport Assessment [REP5-034] describes the likely impacts of the Scheme on the SRN; local

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		road network (LRN); road safety; WCH and public transport users.
5.207	If a project is likely to have significant transport impacts it should include a Transport Assessment, using the WebTAG methodology stipulated in Department for Transport guidance, or any successor to such methodology. If a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts.	The Transport Assessment [REP5-034] describes the likely impacts of the Scheme on the SRN; local road network (LRN); road safety; WCH and public transport users. The ES (contained within Volume 6.1 of the DCO Application) contains within each technical chapter an assessment of the likely environmental effects of the Scheme, and then outlines the mitigation that has been implemented.
5.209	For schemes impacting on the Strategic Road Network, applicants should have regard to DfT Circular 02/2013 The Strategic Road Network and the delivery of sustainable development (or prevailing policy) which sets out the way in which the highway authority for the Strategic Road Network, will engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the Strategic Road Network.	The Applicant is the operator of the SRN. Nottinghamshire County Council, as the Local Highway Authority, has been consulted on the Scheme development. Details on engagement with the Local Planning Authorities including Nottinghamshire County Council is set out in Table 3.2 of the Consultation Report [APP-028]. Details on engagement with the Local Planning Authorities is also set out in Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048]. Furthermore, a Statement of Common Ground has been developed between the Applicant and Nottinghamshire County Council

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		[REP5-050] during the course of the DCO Examination. Chapter 6 of the Case for the Scheme [REP5-030] sets out consideration of national policy, including the DfT Circular 01/2022, the updated edition of Strategic Road network and the delivery of sustainable development (circular 02/2013).
5.212	Schemes should be developed, and options considered in the light of relevant local policies and local plans, taking into account local models where appropriate, however the scheme must be decided in accordance with the NPS except to the extent that one or more of sub-sections 104(4) to 104(8) of the Planning Act 2008 applies.	The Scheme has been developed in light of relevant policies and plans. Chapter 6 of the Case for the Scheme [REP5-030] assesses the Scheme's conformity with the Local Plan and Local Transport Plans, this includes the Nottinghamshire Local Transport Plan.
5.219	Infrastructure development can have adverse effects on the water environment, including groundwater, inland surface water, transitional waters111 and coastal waters. During the construction and operation, it can lead to increased demand for water, involve discharges to water and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could lead to adverse impacts on health or on protected species and habitats (see Section paragraphs 5.20 to 5.38 on	Chapter 13 (Road Drainage and Water Environment) of the ES [APP-057] has assessed the potential for adverse effects on the water environment including groundwater and inland surface water, there are no coastal or transitional waters within the study area due to the scheme's inland location. The assessment concluded that with the inclusion of mitigation measures within the scheme design and the First Iteration EMP [REP5-025], no likely significant residual effects are predicted.

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	biodiversity and geological conservation), and could, in particular, result in surface waters, groundwaters or protected areas112 failing to meet environmental objectives established under the Water Framework Directive.	Appendix 13.1 (Water Framework Directive Compliance Assessment) of the ES Appendices [APP-176] assessed whether the scheme would cause any Water Framework Directive (WFD) water body to fail its objectives set out in the Humber River Bason Management Plan, or prevent these objectives being met in the future. The assessment concluded that the scheme is compliant with the requirements of the WFD.
5.220	The Government's planning policies make clear that the planning system should contribute to and enhance the natural and local environment by, amongst other things, preventing both new and existing development from contributing to, or being put at unacceptable risk from, or being adversely affected by, water pollution. The Government has issued guidance on water supply, wastewater and water quality considerations in the planning system.113 Where applicable, an application for a development consent order has to contain a plan with accompanying information identifying water bodies in a River Basin Management Plan.	Figure 13.1 (Surface Water Constraints) [AS-073] and Figure 13.2 (River Waterbody Catchments) [AS-074] show the surface water baseline features identified within the 1 kilometre study area, including water bodies in the Humber River Basin Management Plan.
5.221	Applicants should make early contact with the relevant regulators, including the Environment Agency, for abstraction licensing and with water supply companies likely to supply the water. Where a development is subject	An introductory meeting was held with the Environment Agency on 30 March 2022 to introduce the Scheme and in particular water quality and flood management issues.

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	to EIA and the development is likely to have significant adverse effects on the water environment, the applicant should ascertain the existing status of, and carry out an assessment of the impacts of the proposed project on water quality, water resources and physical characteristics as part of the environmental statement.	Further meetings were held with the Environment Agency on 13 June 2022 to agree proposals for water quality monitoring for the Scheme, both pre-construction (to inform the Environmental Impact Assessment (EIA)) and during construction. During this meeting, the proposals outlined within Appendix 13.5 (Surface Water Quality Monitoring Report) of the ES Appendices [APP-180] (locations, parameters and frequency) were agreed with the stakeholders (see Section 13.5 of Chapter 13 (Road Drainage and Water Environment) of the ES[APP-057]. It was also discussed that the frequency of monitoring during construction may change, however, this would be agreed following consultation with the Environment Agency. An Environment Agency technical meeting was held on the 22 July 2022 to provide an update on the river channel surveys and wider topographical surveys, review the hydraulic modelling approach, discuss floodplain compensation and agree future engagement.

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		On 8 September 2022, a meeting was held with the Canals and Rivers Trust to discuss the proposed hydroelectric plants along the River Trent. This provided an understanding of whether the baseline fluvial hydraulic model would need to be updated. A Steering Group meeting was held on the 30 November 2022 during which the proposal to scope out the Farndon Ponds and Devon Park Pastures Local Nature Reserves (LNRs) was discussed. However, as this has not been agreed with the Environment Agency to date, these two LNRs remain scoped into this chapter. Numerous Flood and Drainage Steering Group meetings have been held throughout 2022 and 2023. These are outlined in the overarching consultation for the ES in Chapter 4 (Environmental Assessment Methodology) of the ES [APP-048]. On 13 April 2023, a meeting with the Environment Agency was held to discuss the methodology and outcomes of Appendix 13.1 (Water Framework Directive Compliance Assessment) of the ES Appendices [APP-176]. Following potential

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		changes to the design, a meeting was held with the Environment Agency and Trent Valley Internal Drainage Board on the 20 June 2023 to discuss the potential changes to the design and the implications for the WFD assessment. These potential design changes were not carried forward and therefore no changes were made to the WFD assessment. On the 25 May 2023 groundwater levels were presented to the Environment Agency within the Steering Group Meeting. The Flood Risk Management Authorities have been consulted throughout the development of the Scheme to ensure the assessment of the flood risk is appropriate for the nature and scale of the Scheme. This is outlined in Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-176]. Details on engagement with the relevant bodies is set out in Table 3.2 of the Consultation Report [APP-028]. Details on engagement are also set out in Chapter 4 (Environmental Assessment

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		Methodology) of the ES [APP-048]. Furthermore, a Statement of Common Ground has been developed between the Applicant and the Environment Agency [REP5-048], the Applicant and Nottinghamshire County Council [REP5-050], and the Applicant and Newark and Sherwood District Council [REP5-053], and the Applicant and the Thames Valley Internal Drainage Board [REP5-055] during the course of the DCO Examination.
5.222	For those projects that are improvements to the existing infrastructure, such as road widening, opportunities should be taken, where feasible, to improve upon the quality of existing discharges where these are identified and shown to contribute towards Water Framework Directive commitments	The assessment of water quality impacts has been based upon the methodology provided in DMRB LA 113 and assessed using Highways England Water Risk Assessment Tool (HEWRAT). The design for Farndon East FCA has explored opportunities to incorporate wetland features, including the use of the pits as ponds, and wetland vegetation to be planted throughout. These opportunities have the potential to promote nature-based water treatment and improve the water quality of surface water run-off. Water quality is addressed within Chapter 13 (Road Drainage and the Water Environment), of the ES [APP-057].
5.223	Any environmental statement should describe:	Water quality and impacts of the Scheme upon them are described within Chapter 13 (Road

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	• the existing quality of waters affected by the proposed project; existing water resources affected by the proposed project and the impacts of the proposed project on water resources; • existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project, and any impact of physical modifications to these characteristics; • any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive and source protection zones (SPZs) around potable groundwater abstractions; and • any cumulative effects.	Drainage and the Water Environment) of the ES [APP-057] and the Surface Water Quality Monitoring Report in Appendix 13.5 of the ES Appendices [APP-180]. Issues relating to the Water Framework Directive are addressed within Water Framework Directive Compliance Assessment in Appendix 13.1 of the ES Appendices [APP-176]. Groundwater issues are further discussed within Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057].
5.224	Activities that discharge to the water environment are subject to pollution control. The considerations set out in paragraphs 4.48-4.56 on the interface between planning and pollution control therefore apply. These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the water environment, and to the control regimes relating to works to, and structures in, on, or under a controlled water.	The assessment of water quality impacts has been based upon the methodology provided in DMRB LA 113 and assessed using Highways England Water Risk Assessment Tool (HEWRAT). This assessment has demonstrated that the scheme would not cause a deterioration in water quality.
5.225	The Secretary of State will generally need to give impacts on the water environment more weight where a project	Appendix 13.1 (Water Framework Directive Compliance Assessment) of the ES Appendices

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	would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive.	[APP-176] assessed whether the scheme would cause any Water Framework Directive (WFD) water body to fail its objectives set out in the River Bason Management Plan, or prevent these objectives being met in the future. The assessment concluded that the scheme is compliant with the requirements of the WFD.
5.226	The Secretary of State should be satisfied that a proposal has had regard to the River Basin Management Plans and the requirements of the Water Framework Directive (including Article 4.7) and its daughter directives, including those on priority substances and groundwater. The specific objectives for particular river basins are set out in River Basin Management Plans. In terms of Water Framework Directive compliance, the overall aim of projects should be no deterioration of ecological status in watercourses, ensuring that Article 4.7 of the Water Framework Directive Regulations does not need to be applied.	The Scheme has been assessed against the Water Environment (Water Framework Directive) Regulations as set out in the WFD Compliance Assessment in Appendix 13.1 of the ES Appendices [APP-176]. As part of the WFD Compliance Assessment, the objectives and mitigation measures of the Humber River Basin Management Plans were reviewed, and relevant measures highlighted within the assessment. It was concluded that the Scheme would not cause deterioration of the current WFD status of the waterbodies within the study area, with a potential to result in a minor beneficial effect for the Slough Dyke (tributary of Trent).

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		The Scheme is not anticipated to prevent any waterbodies within the study area from reaching their target 'Good' status in the future, as potential impacts resulting from various elements of the Scheme are expected to have only small-scale, localised impacts.
5.227	The Examining Authority and the Secretary of State should consider proposals put forward by the applicant to mitigate adverse effects on the water environment and whether appropriate requirements should be attached to any development consent and/or planning obligations. If the Environment Agency continues to have concerns and objects to the grant of development consent on the grounds of impacts on water quality/resources, the Secretary of State can grant consent, but will need to be satisfied before deciding whether or not to do so that all reasonable steps have been taken by the applicant and the Environment Agency to try to resolve the concerns, and that the Environment Agency is satisfied with the outcome.	Water quality and impacts of the Scheme upon them are described within Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057] and the Surface Water Quality Monitoring Report in Appendix 13.5 of the ES Appendices [APP-180]. Issues relating to the Water Framework Directive are addressed within Water Framework Directive Compliance Assessment in Appendix 13.1 of the ES Appendices [APP-176]. Groundwater issues are further discussed within Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]. The Environment Agency have been consulted with throughout the development of the preliminary design, further details of which are contained in Section 13.4 of Chapter 13 (Road Drainage and the Water Environment) of the ES [APP-057]. The Statement of Common Ground between the Applicant and the Environment

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		Agency reflects issues raised by the Environment Agency and there are no items relating to water quality that are not agreed [REP5-048].
5.228	The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling.	As outlined in the Drainage Strategy Report in Appendix 13.4 of the Environmental Statement Appendices [APP-179], soft-engineering methods for drainage would be implemented where feasible, using SuDS as a primary principle to drain, treat and attenuate runoff, with nature-based solutions incorporated where achievable. Rainwater recycling is not feasible due to highway run-off being silty prior to treatment. The principle of system management trains has been included whereby highway run-off if first treated through a catchpit to remove solids, it then passes through swales with check dams which treat and clean the water and finally enter the detention ponds which undertake the final cleaning of the water prior to controlled discharge to water courses. Infiltration is not considered feasible due to high groundwater across a large part of the Scheme. To the north away from the floodplain soil geology is unsuitable for infiltration.

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		Soft SuDS (vegetated features such as swales and ponds), have been prioritised across the Scheme to manage run-off volume water quality and biodiversity. These incorporate vegetated swales with check dams to mimic natural drainage patterns. Filter drains are not possible due to high water table and porous paving has short and long term maintenance issues and the surface of the porous paving is noisy when trafficked and will create more noise nuisance to residents adjacent to the Scheme. The impact of severe rainfall flooding up to a 1:100 plus climate change event is managed through storing water within the flood compensation areas and the detention ponds.
5.229 and 5.230	The Secretary of State should consider whether the mitigation measures put forward by the applicant which are needed for operation and construction (and which are over and above any which may form part of the project application) are acceptable. A construction management plan may help codify mitigation.	The REAC within the First Iteration EMP [REP5-025] provides details of all the environmental actions and commitments required to manage and minimise the environmental effects of the Scheme identified in the ES (contained within Volume 6.1 of the DCO Application). The actions and commitments would be secured by the First

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	The project should adhere to any National Standards for sustainable drainage systems (SuDs). The National SuDs Standards will introduce a hierarchical approach to drainage design that promotes the most sustainable approach but recognises feasibility, and use of conventional drainage systems as part of a sustainable solution for any given site given its constraints	Iteration EMP [REP5-025] which will be developed into the Second Iteration EMP prior to and for implementation during construction under Requirement 3 of the draft DCO [REP5-003]. The Second Iteration EMP (which the draft DCO [REP5-003] provides must be substantially in accordance with the First Iteration EMP) would include control measures for environmental impacts arising during construction, in addition to more detailed management plans and methodologies on the design and construction of the Scheme. Requirement 3 of Schedule 2 of the draft DCO [REP5-002] provides that the construction of the Scheme must be carried out in accordance with the approved Second Iteration EMP. On completion of construction, a final version of the EMP (Third Iteration EMP) relating to the operational and maintenance phase of the Scheme would be prepared and submitted to the Secretary of State for approval. Requirement 4 of the draft DCO [REP5-002] provides that the Scheme must be operated and maintained in

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		accordance with the Third Iteration EMP. Overall, the iterative EMP process would enable the Secretary of State to identify all the mitigation measures within the Scheme and ascertain how these would be secured, implemented and maintained. As outlined in the Drainage Strategy Report in Appendix 13.4 of the ES Appendices [APP-179], soft-engineering methods for drainage will be implemented where feasible, using SuDS as a primary principle to drain, treat and attenuate runoff, with nature-based solutions incorporated where achievable.
5.231	The risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice. For example, designated areas for storage and unloading, with appropriate drainage facilities, should be marked clearly.	Through good design and mitigation measures outlined within the First Iteration Environmental Management Plan [REP4-010APP-184], the Scheme has avoided or minimised any impacts on watercourses and the Scheme would not contribute to unacceptable levels of water pollution. During temporary construction works the Applicant has identified the need for treatment of surface waters and groundwaters only and details will be

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		included in any applications for discharge permits. No other water sources requiring treatment during construction have been identified. Where treatment of water for new permanent assets and improved existing assets is required, this will be incorporated into the design in consultation with the Environmental Agency, Internal Drainage Board or Lead Local Flood Authority where required, and permits will be sought where necessary. Please see the Consents and Agreements Position Statement [REP4-007] for further details of the permits likely to be required for the Scheme.