

# M25 junction 28 improvement scheme TR010029

## 7.1 Case for the Scheme and schedule of accordance with National Policy Statement

APFP Regulation 5(2)(q)  
Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



## Infrastructure Planning

### Planning Act 2008

### The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

### M25 junction 28 scheme Development Consent Order 202[x ]

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#### 7.1 CASE FOR THE SCHEME AND SCHEDULE OF ACCORDANCE WITH NATIONAL POLICY STATEMENT

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# Table of contents

<b>Chapter</b>	<b>Pages</b>
<b>Glossary</b>	<b>5</b>
<b>Abbreviations</b>	<b>10</b>
<b>Executive summary</b>	<b>13</b>
<b>1 Introduction</b>	<b>16</b>
1.1 Purpose and structure of this document	16
1.2 The Applicant	17
1.3 Requirement for development consent	18
1.4 Order limits and limits of deviation	19
1.5 Host local authorities	20
<b>2 Scheme development and options considered</b>	<b>21</b>
2.1 Development history and alternatives considered	21
2.2 Options identification	24
2.3 Options selection	26
2.4 Options consultation and preferred route announcement	26
<b>3 Need for the Scheme and scheme objectives</b>	<b>28</b>
3.1 Overview	28
3.2 Location	29
3.3 Site description	30
3.4 Description of the Scheme	33
3.5 Key objectives of the Scheme	34
<b>4 Economic case</b>	<b>37</b>
4.1 Introduction	37
4.2 Economic assessment methodology	39
4.3 Scheme costs	40
4.4 Monetised benefits	41
4.5 Non-monetised benefits	44
4.6 Value for money	47
<b>5 Conformity with planning policy and transport plans</b>	<b>49</b>
5.1 Introduction	49
5.2 National policy	49
5.3 Local policy	50
5.4 Need for the Scheme	51
5.5 Green Belt policy	58
5.6 Open space	62
5.7 Sustainable development	63
5.8 Traffic, transport and public rights of way	64
5.9 Air quality	65

5.10	Noise and vibration	67
5.11	Biodiversity	67
5.12	Road drainage and water environment	70
5.13	Landscape and visual impact	72
5.14	Geology and soils	73
5.15	Cultural heritage	75
5.16	Materials and waste	77
5.17	Population and human health	78
5.18	Climate	79
5.19	Cumulative impacts	80
5.20	Planning balance	81
<b>6</b>	<b>Conclusion</b>	<b>83</b>
	<b>Bibliography</b>	<b>85</b>
	<b>Appendix A. Scheme accordance with local development plan policies</b>	<b>89</b>
	<b>Appendix B. NPS National networks accordance table</b>	<b>193</b>
	<b>Appendix C. Technical Note regarding Veteran Trees</b>	<b>293</b>

## Tables

Table 2.1: Strategic options .....	21
Table 2.2: Highway improvement option concepts.....	22
Table 2.3: Option identification options .....	24
Table 2.4: Option selection.....	26
Table 3.1: Objectives of the Scheme.....	34
Table 4.1: Summary of present value monetised benefits .....	37
Table 4.2: Summary of non-monetised benefits.....	38
Table 4.3: Benefit assessment methodology.....	40
Table 4.4: BCR calculation .....	48
Table 5.1: Scheme conformity with NPS NN objectives.....	53
Table A.1: Scheme Conformity with Regional Planning Policy .....	90
Table A.2: Scheme conformity with local planning policy.....	123
Table B.3: National Networks National Policy Statement Chapter 3: Wider government policy on the national networks.....	194
Table B.4: National Networks National Policy Statement Chapter 4: Assessment Principles .....	202
Table B.5: National Networks National Policy Statement Chapter 5: Generic Impacts .....	225

## Figures

Figure 1.1: The Order Limits.....	19
Figure 3.1: Scheme location (Magic Maps 2019).....	29
Figure 4.1: Economic assessment components.....	39

## Glossary

Term	Definition
Access land	Open access land or access land is land which can be accessed in England without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. The right to access this land is called the 'right to roam', or 'freedom to roam'. Access land can be used for walking, running, watching wildlife and climbing.
Agricultural land classification	A framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on agricultural use. Agricultural land is classified into five categories according to versatility and suitability for growing crops. The top three grades, Grade 1, 2 and 3a, are referred to as 'Best and Most Versatile' land.
Appraisal summary table	Summarises the monetised, qualitative and quantitative impacts of the Scheme as assessed in the Economic Assessment.
Air Quality Management Area	An area identified where the National Air Quality Objectives are not likely to be achieved. The Local Authority is required to produce a Local Air Quality Action Plan to plan how air quality in the area is to be improved.
The Applicant	Highways England (formerly known as the Highways Agency).
Benefit cost ratio	Indicator used to show the relationship between the relative costs and benefits of the Scheme, expressed in monetary or qualitative terms.
Best and most versatile land	Defined as Grades 1, 2 and 3a of the Agricultural Land Classification as land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals.
Biodiversity action plan	An internationally recognized program addressing threatened species and habitats and is designed to protect and restore biological systems. The original impetus for these plans derives from the 1992 Convention on Biological Diversity.
Brentwood Borough Council	Local planning authority within the DCO boundary.
Calculation of road traffic noise	A UK Technical Memorandum for calculating road traffic noise using measurement or prediction methods for the noise index LA10,18hours.
Conservation area	An area of special environmental or historic interest or importance, of which the character or appearance is protected by

Term	Definition
	law against undesirable changes (Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990).
(Outline) Construction Environmental Management Plan	A plan by the contractor describing how the environmental impacts of construction activities of a project will be minimised and mitigated.
Costs and benefits to accidents – Light touch	Software calculating the impact on accidents as part of an economic appraisal of a road scheme in line with transport analysis guidance.
Department for Environment, Food & Rural Affairs	Defra is the government department responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities in the United Kingdom of Great Britain and Northern Ireland. Defra is a ministerial department, supported by 33 agencies and public bodies.
Decibel	A unit used to measure the intensity of a sound.
Department for Transport	Government department responsible for the transport network in England, and for aspects of the transport network in the devolved administrations.
Design Manual for Roads and Bridges	A series of 15 volumes that provide standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads, including motorways in the United Kingdom, and, with some amendments, the Republic of Ireland.
Development Consent Order	The means of applying for consent to undertake a Nationally Significant Infrastructure Project (NSIP). NSIPs include, for example, major energy and transport projects.
Do minimum	Scenario for TA which includes only committed transport and land-use changes unrelated to the Scheme, which were considered to be in place prior to the respective future year.
Do something	Scenario for TA which includes the M25 junction 28 improvement scheme.
Environment Agency	A non-departmental public body with responsibilities relating to the protection and enhancement of the environment in England.
Environmental Impact Assessment	A process for evaluating the likely environmental impacts of a proposed development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
Environmental Statement	Reports the findings of the EIA, including at least the information reasonably required to assess the likely significant environmental effects of the development.

Term	Definition
Essex County Council	Local authority responsible for transport and highway management and waste disposal.
Flood Risk Assessment	Prepared to demonstrate how the impacts of flood risk both to the Scheme and that can result from the Scheme, have been assessed and mitigation is proposed where necessary.
Gross Domestic Product	The total value of goods produced, and services provided in a country during one year.
Habitats Regulations Assessment	Required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 for all plans and projects which are likely to have a significant effect on a European site and are not directly connected with or necessary to the management of the European site.
Historic England	Publicly funded body that champions and protects England's historic places, including Stonehenge and Avebury; also known as the Historic Buildings and Monuments Commission for England.
Investing in Britain's Future	A publication by HM Treasury setting out the Government's intention to build a strong UK economy by delivering infrastructure.
Lead Local Flood Authority	Unitary authority or county council responsible for developing, maintaining and applying a strategy for local flood risk management in their area and for maintaining a register of flood risk assets.
Limits of deviation	The area of land within the Order Limits that may be used for the siting of infrastructure subject to detailed design, thus a maximum distance or measurement of variation within which the works must be constructed.
Local Impact Report	A Report in writing giving details of the likely impact of the proposed development on the authority's area (or any part of that area). The Local Impact Report is a requirement where a Nationally Significant Infrastructure Project (NSIP) has been submitted to the Planning Inspectorate for determination and has been accepted for consideration.
Local Nature Reserve	A statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities. A Local Nature Reserve must be of importance for wildlife, geology, education or public enjoyment.
London Borough of Havering	Local planning authority within the DCO boundary.

Term	Definition
National Infrastructure Delivery Plan	Document published by the UK Government, outlining what infrastructure will be built and where.
National Infrastructure Plan	Document published by the UK Government, setting out its strategy for meeting the infrastructure needs of the UK economy.
National Planning Policy Framework	Document by the Ministry of Housing, Communities and Local Government setting out the Government's planning policies for England and how these are expected to be applied.
National Planning Policy Guidance	A web-based resource which brings together planning guidance on various topics into one place.
National Policy Statement	Government-produced document comprising objectives for the development of nationally significant infrastructure in a particular sector and state.
National Policy Statement for National Networks	Sets out the need for, and Government's policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England.
Nationally Significant Infrastructure Project	A project of a type and scale defined under the Planning Act 2008 and by order of the Secretary of State relating to energy, transport, water, wastewater and waste generally. These projects require a single development consent. Planning permission, listed building consent and scheduled monument consent amongst others are not required for Nationally Significant Infrastructure Projects.
Natural England	Executive non-departmental public body responsible for the natural environment.
Nitrogen oxides	Gas emissions produced by road transport.
Nitrogen dioxide	Gas emissions produced by road transport.
Non-motorised user	Cyclists, pedestrians (including wheelchair users), and equestrians using the public highway.
Noise Important Area	Areas where the 1% of the population that are affected by the highest noise levels from major roads are located according to the results of Defra's strategic noise maps.
Order Limit	The anticipated maximum extent of land which will be required to undertake the Scheme.
Particulate matter	The concentration of particles that are less than or equal to 10 µm in diameter.
Preferred route announcement	The outcome of the Options Selection stage of Scheme development.
Present value	The current value of a future sum of money or stream of cash flows given a specified rate of return.

Term	Definition
Public right of way	A way over which the public have a right to pass and repass. The route may be used on foot, on (or leading) a horse, on a pedal cycle or with a motor vehicle, depending on its status. Although the land may be owned by a private individual, the public may still gain access across that land along a specific route. Public rights of way are all highways in law.
Register of Environmental Actions and Commitments	DCO application document detailing the environmental mitigation measures that would be implemented both during construction, why they are required, who is responsible for delivering them, and any ongoing maintenance arrangements.
Road Investment Strategy	The long-term strategy to improve England's motorways and major A roads. The first RIS was published in 2014 and covers the period 2015-2020. A second RIS (RIS2) was published in 2020 and covers the post-2020 period.
Scheduled monument	A 'nationally important' archaeological site or historic building, given protection against unauthorised change and included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport. The protection given to scheduled monuments is given under the Ancient Monuments and Archaeological Areas Act 1979.
Scheme	The M25 junction 28 improvement scheme.
Secretary of State for Transport	The Cabinet minister responsible for the determination of this DCO application.
Source protection zone	Areas of land around over 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. The zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. There are three main zones (inner, outer and total catchment) and a fourth zone of special interest, which is occasionally applied to a groundwater source. The zones are used in conjunction with the Groundwater Protection Policy to set up pollution prevention measures in areas which are at a higher risk, and to monitor the activities of potential polluters nearby.
Strategic road network	The network of approximately 4,300 miles of motorways and major 'trunk' A roads across England, managed by Highways England.
Strategic Business Plan	A Highways England publication setting out the outcomes, Key Performance Indicators (KPIs) and associated targets for RIS schemes.
Transport analysis guidance	Guidance produced by DfT on the process of appraisal of transport interventions.

Term	Definition
Tree Preservation Order	A Tree Preservation Order is made by a Local Planning Authority to protect specific trees or a particular area, group or woodland from deliberate damage and destruction. TPOs can prevent the felling, lopping, topping, uprooting or otherwise wilful damaging of trees without the permission of the Local Planning Authority.
Unexploded Ordnance	An explosive weapon (bombs, shells, grenades, land mines, naval mines, cluster munition, etc.) that did not explode when they were employed and still pose a risk of detonation, sometimes many decades after they were used or discarded.
Value for money	Assessment of the Scheme considering all monetised economic impacts and non-monetised environmental, social and distributional impacts.
Water Framework Directive	The Water Framework Directive (2000/60/EC) is an EU directive which aims to achieve good status of all water bodies (surface waters, groundwaters and the sites that depend on them, estuaries and near-shore coastal waters) and the prevention of any deterioration. It has introduced a comprehensive river basin management planning system to protect and improve the ecological quality of the water environment.

## Abbreviations

Abbreviation	Term
ALC	Agricultural land classification
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AST	Appraisal summary table
BBC	Brentwood Borough Council
BCR	Benefit cost ratio
BMV	Best and most versatile
COBA-LT	Costs and benefits to accidents – Light touch
Outline CEMP	(Outline) Construction Environmental Management Plan
dB	Decibel
DCO	Development Consent Order
Draft DCO	Draft Development Consent Order
Defra	Department for Environment, Food & Rural Affairs
DfT	Department for Transport

Abbreviation	Term
DM	Do minimum
DMRB	Design Manual for Roads and Bridges
DS	Do something
EA	Environment Agency
ECC	Essex County Council
EIA	Environmental Impact Assessment
ES	Environmental Statement
ExA	Examining Authority
FRA	Flood risk assessment
GDP	Gross domestic product
HRA	Habitats regulations assessment
IBF	Investing in Britain's Future
KPI	Key Performance Indicators
LBH	London Borough of Havering
LIR	Local Impact Report
LoD	Limits of deviation
NIA	Noise important area
NIDP	National Infrastructure Delivery Plan
NIP	National Infrastructure Plan
NMU	Non-motorised user
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
NPS	National Policy Statement
NPS NN	National Policy Statement for National Networks
NPV	Net present value
NSIP	Nationally Significant Infrastructure Project
OL	Order limit
PM <sub>2.5</sub> PM <sub>10</sub>	Particulate matter
PRoW	Public right of way

Abbreviation	Term
PVB	Present value of benefits
PVC	Present value of costs
REAC	Register of Environmental Actions and Commitments
RIS	Road Investment Strategy
SBP	Strategic business plan
SoS	Secretary of State (for Transport)
SMI	Site of Metropolitan Importance
SPZ	Source protection zone
SRN	Strategic road network
TA	Transport assessment report
TAG	Transport analysis guidance
TPO	Tree preservation order
WFD	Water Framework Directive

## Executive summary

### Scheme overview

- 1.1.1 Highways England (the “Applicant”) is applying to the Secretary of State (SoS) for Transport for a Development Consent Order (DCO) under the Planning Act 2008 (the Act), to authorise the construction of the M25 junction 28 highways improvement scheme (the “Scheme”).
- 1.1.2 The Scheme involves the creation of a new two-lane loop road with hard shoulder, for traffic travelling from the M25 northbound onto the A12 eastbound. This involves the associated realignment of slip roads and provision of new bridges associated with the loop road. The Scheme also involves the diversion of a high-pressure gas pipeline and diversion and undergrounding of an 11kV overhead electric line to facilitate the construction of the new loop road. The construction of new flood attenuation ponds and the realignment of the Weald Brook and Ingrebourne River also form part of the Scheme along with areas of ecological mitigation measures.

### Planning framework

- 1.1.3 The purpose of this Case for the Scheme is to act as the primary reference document for the assessment of the Scheme against the relevant planning policy and legislative framework. The document also presents the overall case for why the Scheme is the most appropriate response to delivering the needs identified within Chapter 2 of the NPS NN and the intervention identified in the Department of Transport and Highways England’s Road Investment Strategy. This Case for the Scheme demonstrates that the Scheme achieves a positive planning balance when weighing up impacts against the public benefits of the Scheme.
- 1.1.4 The Planning Act 2008 is the primary legislation that establishes the legal framework for applying for, examining and determining DCO applications for Nationally Significant Infrastructure Projects (NSIPs).
- 1.1.5 The National Policy Statement for National Networks (NPS NN) (December 2014) is the primary basis for decision making for the Scheme, although local policy is also a material consideration.
- 1.1.6 This Case for the Scheme demonstrates the Scheme’s compliance with the NPS NN and a commentary on how each of the relevant provisions of the NPS NN Chapters 3, 4 and 5 are met. Full details of compliance with the NPS NN are provided in Appendix B including references to where each provision of the NPS NN is addressed further within the DCO application. Policy and legislative matters relevant to each theme are covered in more detail in the Environmental Statement (application document TR010029/APP/6.1) as referenced within the accordance table.

### Scheme benefits

- 1.1.7 The Scheme would deliver the following benefits:
- Significant improvements to capacity at junction 28 through the creation of a new loop road thereby reducing the number of traffic movements through the junction itself

- The majority of movements through the junction would see an improvement to travel times
- Traffic flows would be increased at the junction at opening year. When compared to a do minimum (DM) scenario, a reduction in delays on the approaches to the roundabout by up to 3 minutes per vehicle is expected
- Improved lane designation and traffic flows on the roundabout would reduce the number of collisions by an anticipated 88 collisions over the course of the next 60 years, thereby improving road safety
- Reduction in queueing on ramps/off slips to roundabout would lead to local benefits through ease of congestion.

1.1.8 The Scheme has been designed to ensure that its objectives, outlined in Section 3 below, have been achieved and include delivering key environmental, social and economic benefits.

### The policy balance and conclusions

1.1.9 The analysis of planning and transport policy in this Case for the Scheme outlines the compliance of the Scheme with relevant planning policy, including the NPS NN. This Statement sets out the identified need for the Scheme and explains that, in the case of its location within the Green Belt, there are clear and demonstrable 'very special circumstances' for the Scheme.

1.1.10 The Statement also provides a summary of the position regarding open space within the meaning of the Planning Act 2008, sustainable development, traffic and transport, air quality, noise and vibration, biodiversity, road drainage and water environment, landscape and visual impacts, geology and land contamination, cultural heritage, materials and waste, population and human health, climate and cumulative effects.

1.1.11 Considerable environmental compensation and mitigation packages are proposed to mitigate the impacts and effects of the Scheme, however, those residual significant effects identified following the assessments and considerations noted above include:

- The permanent and temporary loss of terrestrial habitat from the Ingrebourne Valley SMI
- The loss of 2 veteran trees
- Loss of habitat for aquatic invertebrates
- Impact to regional landfill capacity
- Permanent land take from Grove Farm and Maylands Golf Course
- Amenity impacts to Grove Farm and Maylands Cottages
- Visual amenity impacts to Maylands Golf Course and dwellings at Harold Park.

1.1.12 This Statement provides an assessment of the planning balance for the Scheme, weighing up these identified effects against the compelling need for the Scheme and concludes that its delivery is in the public interest. The Scheme has received good support from the host authorities who have indicated full support of the principle of the Scheme. The assessment within the Case for the Scheme has

demonstrated general conformity with the objectives of the associated Local Plans.

1.1.13 Through public consultation and engagement, the Scheme design has been refined to mitigate the concerns of directly affected stakeholders so far as practicable and appropriate.

1.1.14 The adverse effects of the Scheme noted above do not outweigh the benefits and the overall planning balance is therefore in favour of the making of the DCO to enable the Scheme to be delivered.

# 1 Introduction

## 1.1 Purpose and structure of this document

- 1.1.1 This Case for the Scheme (this Statement) (including the National Networks National Policy Statement (NPS NN accordance table) relates to an application made by Highways England (the “Applicant”) to the Planning Inspectorate (the “Inspectorate”) under section 37 of the Planning Act 2008 for a Development Consent Order (DCO). If made, the DCO would grant consent for the Applicant to build, operate and maintain the M25 junction 28 improvement scheme (the “Scheme”).
- 1.1.2 This Statement has been prepared in accordance with Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP 2009). The APFP 2009 do not specifically require a Case for the Scheme to accompany a DCO application. However, the Applicant considers that it acts to draw together the key considerations relevant to the determination of the application and has therefore produced this Statement to assist with the Secretary of State’s (“SoS”) consideration of this application.
- 1.1.3 The Application will be determined in accordance with the Planning Act 2008. Section 104 of the Planning Act 2008 provides for the decision in cases where a National Policy Statement (NPS) has effect. Section 104(2) (a) states that in deciding the Application, the SoS must have regard to... ‘*a relevant national policy statement*’. Section 104(3) states that the SoS must decide an application in accordance with any relevant NPS. For the Scheme the relevant NPS is the NPS NN. This Statement sets out the requirements of the NPS NN and outlines how the Scheme responds to these requirements. A detailed schedule of accordance of the Scheme with the NPS NN is provided in Appendix B.
- 1.1.4 Section 104(2)(d) of the Planning Act 2008 states that in deciding an application for development consent where an NPS is in effect, the Secretary of State must also have regard to any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State’s decision. This Statement sets out other ‘*important and relevant*’ considerations to be weighed by the Examining Authority (“ExA”) and the SoS, including national and local planning and transport policy of relevance to the Scheme as well as setting out the requirements of the NPS NN. This Statement assesses the Scheme against policy and important and relevant considerations, drawing on the information presented in the Environmental Statement (application document TR010029/APP/6.1) and other assessments submitted in support of the Application.
- 1.1.5 This Statement has also been prepared to take account of Section 60 of the Planning Act 2008, which invites relevant local authorities (in this case Brentwood Borough Council (“BBC”) and London Borough of Havering (“LBH”)), to submit a Local Impact Report (“LIR”) providing ‘*details of the likely impact of the proposed development on the authority’s area (or any part of that area)*’. The Planning Inspectorate’s Advice Note 1: Local Impact Reports (republished April 2012) suggests a list of topics which may be of assistance to a local authority in writing a LIR. This includes the following topic areas:

a) *‘Relevant development plan policies, supplementary planning guidance or documents, development briefs or approved masterplans and an appraisal of their relationship and relevance to the proposals*

b) *Relevant development proposals under consideration or granted permission but not commenced or completed.’*

1.1.6 As not all of the above information is addressed in other documents submitted with the DCO application, this Statement is also intended to assist local authorities in compiling their LIRs by providing relevant information.

1.1.7 The remainder of this Statement is structured as follows:

- Chapter 2 explains how the Scheme has developed over time, detailing the options considered and how these were refined to arrive at the Scheme that is the subject of the DCO application.
- Chapter 3 establishes the need for the Scheme, principally relating to issues around the capacity and flow of traffic through the junction, and the junction’s strategic importance for journeys through Essex, Suffolk, East London and the wider South East. It sets out the Scheme’s objectives to reduce congestion, increase junction capacity and cater for future growth, reduce incident rate, improve safety, minimise impact on local air quality and noise and protect access for non-motorised users (“NMUs”).
- Chapter 4 presents the monetised and non-monetised Scheme benefits and presents an overview of the economic case.
- Chapter 5 provides justification of the Scheme’s conformity to policy at national to local scales, focusing primarily on the NPS NN.
- Chapter 6 reaches conclusions on the overall compliance of the Scheme with planning policy; principally that contained within NPS NN, along with other important and relevant considerations, providing a justification on the proposed weighting to be applied to each to assist the SoS in reaching a decision on the Application.
- The appendices associated with the Statement are provided at the end of the document. Appendix A provides a table of accordance with local and regional planning policy. Appendix B provides a schedule of accordance with the NPS NN and Appendix C provides a technical note on the Scheme’s position with veteran trees.

## 1.2 The Applicant

1.2.1 Highways England, the “Applicant”, is appointed and licensed by the Secretary of State for Transport as the strategic highways company for England. It is responsible for operating, maintaining and improving the Strategic Road Network (“SRN”) in England on behalf of the Secretary of State for Transport. The SRN is made up of England’s motorways and all-purpose trunk roads (the major “A” roads). The Scheme will be part of the trunk road network for which the Applicant is responsible. Following construction of the Scheme the Applicant will be responsible for operating, maintaining and improving (under its general statutory powers in respect of the latter) the Scheme.

## 1.3 Requirement for development consent

1.3.1 The Scheme constitutes a Nationally Significant Infrastructure Project (“NSIP”) as it meets the three criteria set out in sub-section 22(3) of the Planning Act 2008 as follows:

- the highway is in England
- a strategic highways company (namely Highways England) is the highway authority
- the area of development exceeds 15 hectares.

1.3.2 Further detail as regards to the Scheme’s qualification as an NSIP can be found in the Explanatory Memorandum (application document TR010029/APP/3.2).

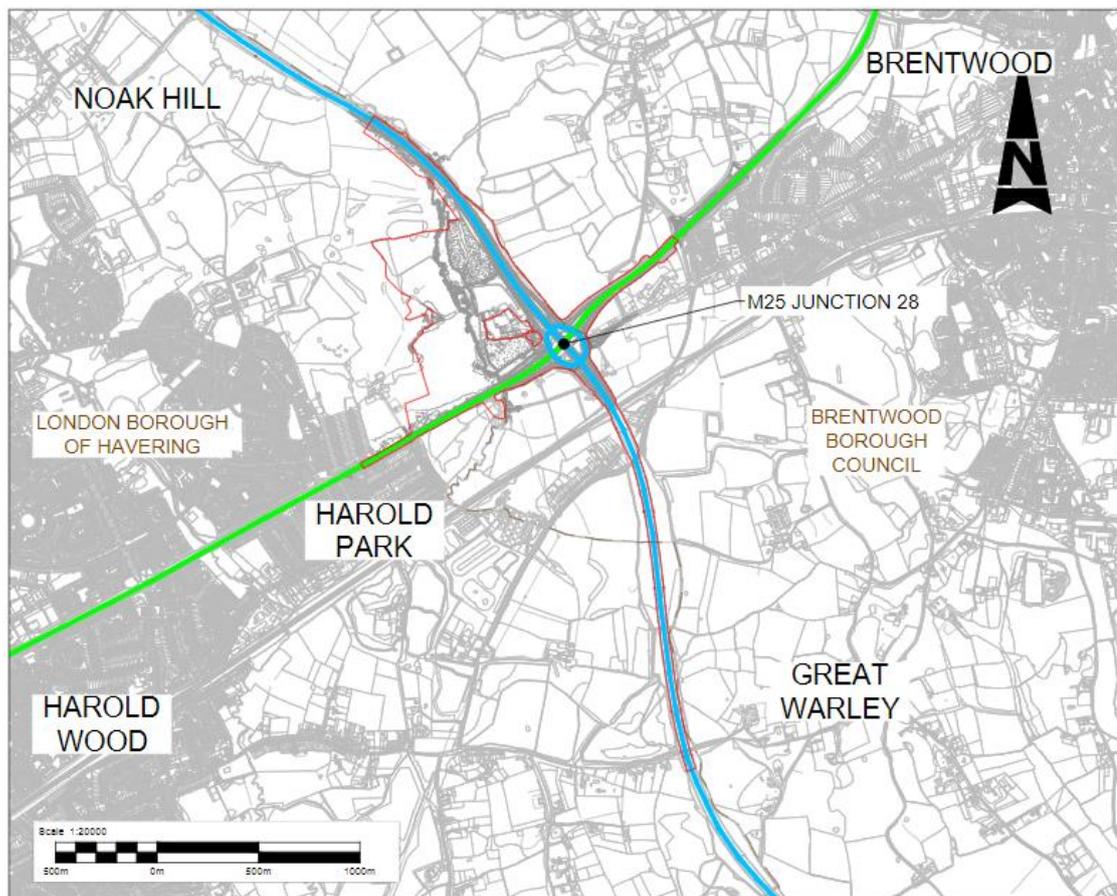
1.3.3 As the Scheme is an NSIP, an application for a DCO is required. Section 37 of the Planning Act 2008 governs the content of an application for a DCO, including the requirements for the necessary accompanying documents as set out within the Application checklist (application document TR010029/APP/1.2). This Case for the Scheme is informed by the following documents:

- Site location plan (application document TR010029/APP/2.1)
- Land plans (application document TR010029/APP/2.2)
- Works plans (application document TR010029/APP/2.3)
- Streets, rights of way and access plans (application document TR010029/APP/2.4)
- Crown land plans (application document TR010029/APP/2.5)
- Speed limits and traffic regulations plans (application document TR010029/APP/2.6)
- Scheme layout plans (application document TR010029/APP/2.7)
- Engineering drawings (application document TR010029/APP/2.8)
- Historic environment sites and features plans (application document TR010029/APP/2.9)
- Biodiversity sites and features plans (application document TR010029/APP/2.10)
- Special category land plans (application document TR010029/APP/2.11)
- Draft DCO (application document TR010029/APP/3.1)
- Explanatory memorandum (application document TR010029/APP/3.2)
- Consents and agreements position statement (application document TR010029/APP/3.3)
- Statement of reasons (application document TR010029/APP/4.1)
- Funding statement (application document TR010029/APP/4.2)
- Book of reference (application document TR010029/APP/4.3)
- Consultation report (application document TR010029/APP/5.1)
- Environmental Statement (application document TR010029/APP/6.1)

- Register of Environmental Actions and Commitments (application document TR010029/APP/7.3)
- Outline Construction and Environmental Management Plan (application document TR010029/APP/7.2)
- Transport Assessment report (application document TR010029/APP/7.4)

## 1.4 Order limits and limits of deviation

1.4.1 The Order limits (“OL”) as defined in the draft DCO prescribe the anticipated maximum extent of land which will be required to deliver the Scheme. The location of the Scheme is shown on the Location Plan (application document TR010029/APP/2.1). Figure 1.1 shows the Order Limits of the Scheme.



**Figure 1.1: The Order Limits**

- 1.4.2 The area within the OL is approximately 81.2ha, of which approximately 60.6ha is required to be acquired permanently and 8.3ha is proposed to be the subject of the acquisition of permanent rights. Temporary possession powers are also being sought over these areas and, in relation to a further 12.3ha, only temporary possession is proposed. Approximately 35.77ha of land to be acquired or used permanently is land contained within the existing highway boundary.
- 1.4.3 If made, the DCO will authorise the Scheme including all of the temporary construction works required. The limits of deviation (“LoD”), as defined in the draft DCO (application document TR010029/APP/3.1), and shown on the Works plans (application document TR010029/APP/2.3), represent the maximum areas

of land within which the individual works comprised within the authorised development are authorised to be constructed. The precise location and extent of these individual works within the LoD will be determined at detailed design stage.

## **1.5 Host local authorities**

- 1.5.1 The Scheme crosses the administrative boundaries of the London Borough of Havering (“LBH”) and Brentwood Borough Council (“BBC”). The land to the east of the junction is situated in BBC while the land to the west is in LBH.
- 1.5.2 The Scheme also falls within the regional jurisdiction of Essex County Council (“Essex CC”) and the Greater London Authority (“GLA”).
- 1.5.3 Chapter 6 of this Statement provides full details of the local planning policies relevant to the Scheme.

## 2 Scheme development and options considered

### 2.1 Development history and alternatives considered

- 2.1.1 In December 2014, the Department for Transport (“DfT”) published its Road Investment Strategy (“RIS”) for the investment period 2015 and 2020, announcing £15 billion to invest in England’s strategic road network. The RIS sets out a list of schemes that are to be delivered by Highways England over this investment period and identified M25 junction 28 as a key junction requiring improvement to address congestion and safety issues. In their second RIS (“RIS2”) for 2020 to 2025, published in March 2020, the DfT reiterate their support for improvements to M25 junction 28. The Scheme is described in RIS2 as an “*upgrade of the junction between the M25 and A12 in Essex, providing a free-flowing link from the northbound M25 to the eastbound A12*”.
- 2.1.2 An evidence review for RIS 2015 – 2020 was undertaken in 2015 which identified 4 key problems concerning junction 28:
- Problem one – congestion and delay on the junction 28 roundabout disrupts journeys on the SRN and local roads.
  - Problem two – actual and perceived safety concerns associated with driver movements on the junction 28 roundabout.
  - Problem three – resilience to incidents or accidents is poor, resulting in significant disruption and unreliable journey times.
  - Problem four – air quality is an issue at the junction.
- 2.1.3 In 2015, a range of strategic options which could potentially be considered to address these key problems at junction 28 were identified. The options considered are set out in Table 2.1.

**Table 2.1: Strategic options**

Strategic Option	Brief description
Option 1 – Do minimum	This focuses on short term measures to reduce safety concerns and issues on the gyratory. Primarily it is concerned with introducing traffic signals on the A1023 Brook Street approach (currently uncontrolled), lane markings and signage.
Option 2 - Local access and demand management	This would consider options to change or reduce demand at the junction, for instance with new access strategies to and from Brentwood such as closing A1023 Brook Street and creating a new access on the A12.
Option 3 - Enhanced public transport	Improved bus and rail provision between key destinations (Brentwood, Havering, London, Chelmsford etc., including future Cross Rail).
Option 4 - Highway junction improvements	Junction capacity improvements to cater high demands for M25 anticlockwise to A12 Essex movements.

Strategic Option	Brief description
Option 5 - Do Maximum – Full junction improvements	Junction capacity improvements to cater all the high volume dominant movements between M25 and A12 including heavy right turn movements.
Option 6 - Strategic road network classification	A wider strategic option that would consider reviewing the classification of the Strategic Road Network (“SNR”) alongside future considerations for a Lower Thames Crossing. For examples, this may look to make best use/enhance the A13/A130, A12 and A127 corridors.

2.1.4 Upon review, the strategic option focussing on localised highway improvements (Option 4) was confirmed as the preferred solution as this proposal was seen to be most strongly aligned to addressing the problems identified, meeting the Scheme objectives and was considered capable of being delivered within the RIS programme.

2.1.5 Chapter 3 of the ES (application document TR010029/APP/6.1) provides additional detail on the reasoning for the other strategic options being discounted.

2.1.6 Based on the preferred strategic option (Option 4), a range of highway improvement options were then identified as concepts. These are listed in Table 2.2 below.

**Table 2.2: Highway improvement option concepts**

Option	Brief description
Do minimum	Focuses on short term measures with signal optimisation at junction 28.
Option 1 - Hamburger through-about	Provides additional connectivity from the M25 anticlockwise to A12 eastbound and M25 clockwise to A12 westbound. This includes signal-controlled junctions where the proposed link roads bypass through the centre of an existing circulatory with a Hamburger configuration. This option requires the centre of the existing circulatory to be raised, a new structure, and reconfiguration of the existing M25 viaduct columns.
Option 2 - Northern loop	Provides additional connectivity from M25 anti-clockwise to A12 eastbound via a proposed link road. This proposed link road exits the M25 after Nag’s Head Lane and under the existing railway embankment. The proposed link then crosses the A12 and M25 on new structures before merging with the A12 eastbound before Wigley Bush Lane over-bridge.
Option 3 - Satellite roundabout	Provides a satellite roundabout to the south-west of the existing junction. In doing so, it reduces the number of conflict points at the existing junction thus improving capacity. This option requires a new structure, diversion of the A12 in both directions, reconfiguration of the A12

Option	Brief description
	westbound on slip to include a structure over the diverted A12, and a culvert over Weald Brook.
Option 4 - Compact northern loop	Provides additional connectivity from M25 anticlockwise to A12 eastbound via a proposed link road. The proposed link requires a structure parallel to and then over the M25 before merging with the A12 eastbound before Wigley Bush Lane over-bridge.
Option 5 - Single cloverleaf	Provides additional connectivity from M25 anti-clockwise to A12 eastbound via a proposed loop road in the form of a cloverleaf. The proposed loop requires a structure parallel to the M25 and exits the existing highway boundary to the north-west before looping round to join the A12 eastbound.
Option 6 - Southern link	Provides additional connectivity from the M25 anticlockwise to A12 eastbound via a proposed link road. The proposed link requires several structures and extensive land take.
Option 7A - Do-Maximum, double cloverleaf	Incorporates all infrastructure associated with Option 5. Furthermore, this option provides additional connectivity from the A12 westbound to M25 anti-clockwise. The option achieves this via an additional proposed loop road in the south-west corner of the existing junction. The proposed loop diverges from the A12 westbound before the alignment is raised over the existing circulatory, existing A12 and the loop proposed in Option 5 on a structure before merging to the M25 anticlockwise. Further realignment of the existing M25 anti-clockwise on slip will be required for this option to accommodate the merging of the A12 westbound to M25 anti-clockwise traffic in the most compact layout possible. The proposed link requires several structures and extensive land take.
Option 7B - Do-Maximum, cloverleaf plus northbound link	Incorporates all infrastructure associated with Option 5. Furthermore, this option provides additional connectivity from the A12 westbound to M25 anti-clockwise. The option achieves this via an additional proposed link road. The proposed link diverges from the A12 westbound immediately after the existing junction, before crossing over the existing A12 on a structure then heading towards, and ultimately merging with the M25 anti-clockwise at the existing ground level. The proposed link requires several structures, a culvert of the Weald Brook and extensive land take.

2.1.7 These highway improvement options were assessed based on the expected impacts of achieving the identified transport objectives, indicative cost ranges, and key issues and risks relating to scheme delivery.

2.1.8 Again, Chapter 3 of the ES (application document TR010029/APP/6.1) provides further detail of this assessment and the considerations made on all of these options.

## 2.2 Options identification

2.2.1 Following the assessment of the highway improvement options noted above, the following four options were recommended to be taken forward to the next stage (option identification stage). A further six 'options were developed for the cloverleaf option (Option 5) as this option offered the greatest potential to meet the objectives, as well as be refined and developed to best manage the impacts against the identified risks and constraints. The options included:

- Option 2 - Northern hook
- Option 4 - Compact northern loop
- Option 5 - Single cloverleaf loop (with six variants)
- Option 6 - Southern link

2.2.2 The four options considered (options 2, 4, 5 (with six variants) and 6) are described in Table 2.3 below. Further details are provided in the M25 junction 28 Technical Appraisal Report<sup>1</sup>.

**Table 2.3: Option identification options**

Option	Brief description
Option 2 - Northern hook	A two lane link with hard shoulder connects the M25 south with the A12 east via a two lane link (plus hard shoulder) that hooks around the north of junction 28 merging with the A12 to the east of Wigley Bush Lane. The option requires the realignment of Nags Head Lane overbridge, Wigley Bush Lane overbridge, footbridge over the A12 and Weald Park Way, together with new structures under the railway, over the A12 west and the M25 north.
Option 4 - Compact northern hook	This option is similar to Option 2 in that it is a two lane link with hard shoulder that hooks around the north of junction 28 to join the A12 east in the vicinity of Wigley Bush Lane. However, following the diverge from the M25 anti-clockwise the new alignment runs parallel to the M25 through widened structures until it reaches the A12, where a new structure takes it over the M25 north. This option also requires reconfiguration of Nags Head Lane overbridge, Wigley Bush Lane overbridge and Weald Park Way, together with a structure under the railway to the south.
Option 5 - Single cloverleaf loop (with six variants)	<p>Option 5A – Cloverleaf loop variant 1: A single lane with hard shoulder that connects the M25 anti-clockwise carriageway with the A12 east in the form of a cloverleaf type loop located in the north-west quadrant of junction 28. It requires a tunnel under the railway line for the realigned diverge from the M25, and the realignment of Nags Head Lane to the south.</p> <p>Option 5B – Cloverleaf loop variant 2: As in Option 5A this option connects the M25 anticlockwise with the A12 east via a single lane cloverleaf type loop (with hard</p>

<sup>1</sup> Highways England (November 2016) M25 junction 28 Technical Appraisal Report, [https://highwaysengland.citizenspace.com/he/m25-junction-28-statutory-consultation/supporting\\_documents/Technical%20Appraisal%20Report%20volume%201%20of%202.pdf](https://highwaysengland.citizenspace.com/he/m25-junction-28-statutory-consultation/supporting_documents/Technical%20Appraisal%20Report%20volume%201%20of%202.pdf)

Option	Brief description
	<p>shoulder) located in the north-west quadrant of junction 28. However, by moving the layout further north compared to Option 5A, this option avoids impacting on the railway mainline to the south. It does involve the widening of the existing M25 structure to support the proposed new M25 anticlockwise diverge and of-slip road for accessing the new link. It also requires the realignment of the A12 west off-ramp to accommodate the merge with the A12 eastbound carriageway.</p> <p>Option 5C – Cloverleaf loop variant 3: As Option 5B this option connects the M25 anticlockwise with the A12 east via a single lane cloverleaf type loop (with hard shoulder) located in the north-west quadrant of junction 28. Similarly this option avoids impacting on the mainline railway to the south. By moving further north compared to Option 5B, Option 5C avoids the need to widen the existing M25 structures. Locating the diverge from the M25 for the new link to the north of junction 28 requires realigning the existing M25 north on-slip road to pass under the new loop. It also requires the realignment of the A12 west off-ramp to accommodate the merge with the A12 eastbound.</p> <p>Option 5D – Northern loop: This option connects the M25 south with the A12 east via a two lane loop (with hard shoulder) located in the north-west quadrant of junction 28. However, unlike Options 5A, 5B, and 5C this loop option does not merge with the A12 under the existing junction 28 circulatory structure. Instead the loop road crosses the M25 to the north of junction 28 via a bridge structure and merges with the A12 to the east of junction 28 in the proximity of Wigley Bush Lane. A realignment of the dedicated M25 north to A12 east lane is also required.</p> <p>Option 5E – Northern loop variant: This option assumes the same configuration to Option 5D. The only variation is that the loop road passes under the M25 to the north of junction 28 before merging with the A12 in proximity of Wigley Bush Lane.</p> <p>Option 5F – Cloverleaf loop variant 4: This is a variation of Option 5C and was developed to understand the implications and feasibility of providing a two lane loop road merging with the A12 eastbound carriageway underneath the existing junction 28 roundabout structure. Option 5F is essentially a 2 lane (with hard shoulder) variant of Option 5C.</p>
Option 6 - Southern link	A two lane link with hard shoulder that connects the M25 anticlockwise with the A12 east passing directly through the south-east quadrant of the junction with various multispan viaducts to pass over the M25, Brook Street and the A12. This option also requires the realignment of Weald Park Way.

2.2.3 Further details on the option identification stage can be found in Chapter 3 of the ES Assessment of Alternatives (application document TR010029/APP/6.1).

## 2.3 Options selection

2.3.1 Following the assessment at options identification stage, three variants of Option 5 (5B, 5C, 5F), the single cloverleaf option, were shown to offer the greatest value in terms of their impact in achieving the Scheme objectives set out in paragraph 2.4.3 below.

2.3.2 While all three options diverted traffic away from the roundabout by creating a new dedicated loop road between the M25 and the A12, each option required a different approach to achieve this. These are set out in Table 2.4.

**Table 2.4: Option selection**

Option	Brief description
Option 5B	Single lane loop road, widening existing M25 bridge over junction 28 to cater the new additional exit from the motorway. This option would involve: Works on the M25 with the likely closure of the hard shoulder Narrow lanes on the M25 Speed restriction over a long period during construction
Option 5C	Single lane loop road, widening short section of M25 to cater the new additional exit from the motorway. This option was identified as having least impact in disrupting traffic across the network during construction.
Option 5F	Two lane loop road, widening short section of M25 to cater the new additional exit from the motorway. This option would require minimum disruption on the A12 eastbound and westbound carriageways during construction.

2.3.3 Engineering, traffic, economic and environmental assessments of these options were undertaken to inform the final option selection. The environmental assessment included consideration of all the environmental topics set out in this ES. This concluded:

- All options had similar potential impacts in relation to air quality, however, Option 5B was marginally worse. All options had similar potential impacts in relation to noise, however, Option 5F was marginally preferable.
- Option 5B had the least amount of land take which would reduce the likelihood and extent of disturbing buried archaeological remains. Option 5B would have the least visual impacts, people and communities and biodiversity. Option 5B is the smallest scale and so would have fewer components effecting the water environment.
- All options would have beneficial effects on geology and soils.

## 2.4 Options consultation and preferred route announcement

2.4.1 All three of the above-mentioned options were presented at non-statutory public consultation (November 2016 to January 2017). Option 5F received the most support from those responding to consultation.

2.4.2 Taking into account consultation feedback alongside transport performance,

environment, economics and social aspects, Option 5F was selected as the preferred option. This was primarily because on the two-lane configuration of this option, which would be the optimum solution in relation to network resilience, maintenance requirements and avoiding disruption to traffic.

2.4.3 This option was selected as achieving the Scheme objectives, and balancing the needs of road users, the community, the environment and businesses. Option 5F was recommended as the preferred option based on the following:

- performed strongest in achieving the primary objective of improving journey times, particularly in the longer term beyond the 2037 design year;
- Options 5B and 5C were one lane options and forecast traffic volumes were expected to approach and exceed capacity beyond the design year - it was noted that two lanes cannot be provided on the Option 5B alignment;
- Option 5F could be constructed without the significant disruption to traffic on the M25 motorway as expected under Option 5B (which would require widening of the M25 viaduct over the junction 28 roundabout);
- Option 5B involved a departure from standard relating to the sub-standard distance between the successive diverges on the M25 anti-clockwise carriageway. This presented a significant concern over operational safety of the road user;
- Option 5F provided greater network resilience through having a second lane on the new link;
- Option 5F offered a two-lane link that was expected to be more advantageous in terms of maintenance and avoiding disruption to traffic;
- Option 5F provided a strong BCR of over 2 despite the additional cost associated with providing a second lane on the new link to cater longer term forecast demand flows;
- all options had similar implications for the environment including impacts on biodiversity (Ingrebourne Valley SMI), landscape, water, cultural heritage and air quality due to similar footprints. Option 5F would have the least impact on the noise environment; and

2.4.4 Option 5F was selected as the preferred option based on the reasons listed above, and that it also had the highest overall weighted Value Management score and was shown to be the preferred option noted as part of the public consultation.

2.4.5 Full details of the option selection process are provided in the Highways England M25 junction 28 Scheme Assessment Report, 2017<sup>2</sup> and further details of the reasons why options 5B and 5C were rejected is included in Chapter 3 of the ES (application document TR010029/APP/6.1).

## 3 Need for the Scheme and scheme objectives

### 3.1 Overview

- 3.1.1 This section summarises the identified need for the Scheme, provides details of the location of the proposed Scheme, describes the existing land use and character, provides a description of the proposed works, outlines the key objectives for the Scheme and summarises how the proposal meets these objectives.
- 3.1.2 The NPS NN published in December 2014 highlights in paragraph 2.1 that “*well-connected and high-performing networks with sufficient capacity are vital to meet the country’s long-term needs and support a prosperous economy*”
- 3.1.3 Paragraph 2.2 goes on to state “*There is a critical need to improve the national networks to address road congestion and crowding on the railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth. Improvements may also be required to address the impact of the national networks on quality of life and environmental factors.*”
- 3.1.4 This Scheme is one of the major highways projects planned for the south east region and will provide better access towards Essex and London, as well as connecting Brentwood, Chelmsford, Colchester and Suffolk with London and other key destinations. Junction 28 plays a key role connecting the M25 motorway with the A12 trunk road, as well as providing local access to Brentwood via the A1023 (Brook Street).
- 3.1.5 Traffic analysis of the existing movements through the junction has been set out within the Transport Assessment (“TA”) (application document TR010029/APP/7.4). This analysis indicates that there are four dominant movements through junction 28, namely between the M25 northbound and southbound carriageways and the A12 east (facing Essex) in both directions.
- 3.1.6 Currently it is a heavily used junction which features a roundabout controlled by traffic lights, and it is used by up to 7,500 vehicles an hour during peak times. The junction is already operating at capacity, with motorists regularly experiencing congestion and delays. By 2037, traffic levels in the area is expected to increase by up to 22% by 2037, with more than 9,000 vehicles travelling through the roundabout every hour at peak times. Average delay due to congestion during peak travel times is predicted to increase by at least three times from over a minute per vehicle at present, to four minutes per vehicle in 2037 under DM conditions (that is without the Scheme).
- 3.1.7 Traffic modelling (further details provided in the TA (application document TR010029/APP/7.4)) has been undertaken to replicate current traffic demand and conditions at the junction, and to predict how these might change in the future. The traffic modelling shows that without intervention there will be further deterioration in traffic conditions at the junction:
- Delays will be at over three times greater than currently experienced
  - Average speeds will be reduced by 25%
- 3.1.8 As stated above, the junction 28 roundabout also caters for traffic accessing Brentwood via the A1023 (Brook Street). While the roundabout is signalised, the

Brook Street approach to the roundabout is the only approach not currently controlled by traffic lights. Brook Street is not part of the Applicant's SRN and it is owned and maintained by Essex Highways.

- 3.1.9 In recent years, there have also been several traffic incidents at the junction, which create delays and congestion along the M25, A12 and local roads. Without the Scheme, traffic conditions will deteriorate with queues from the M25 south off-slip blocking back to the mainline of the M25. This will bring significant safety and operational issues with queues on the mainline M25.
- 3.1.10 Current accident records show that 27 injury accidents were reported (on the roundabout and the adjoining slip roads over the five-year period to December 2017). This figure does not include damage only collisions which are often unreported. The 28 accidents have resulted in 36 casualties of which 33 were slight injuries (90%) and three serious. The level of killed and serious injury ("KSIs") incidents is low with less than one KSI each year. As well as harm and injury, a key concern of arising from the frequency of these incidents on the junction, together with the unreported damage only events, relates to the traffic disruption these cause across the wider highway.
- 3.1.11 It is clear from the national need outlined in the NPS NN and the existing situation summarised above that there is a critical and comprehensive need for this proposed Scheme.

## 3.2 Location

- 3.2.1 As illustrated in Figure 3.1, the Scheme is located between Brentwood and Romford.

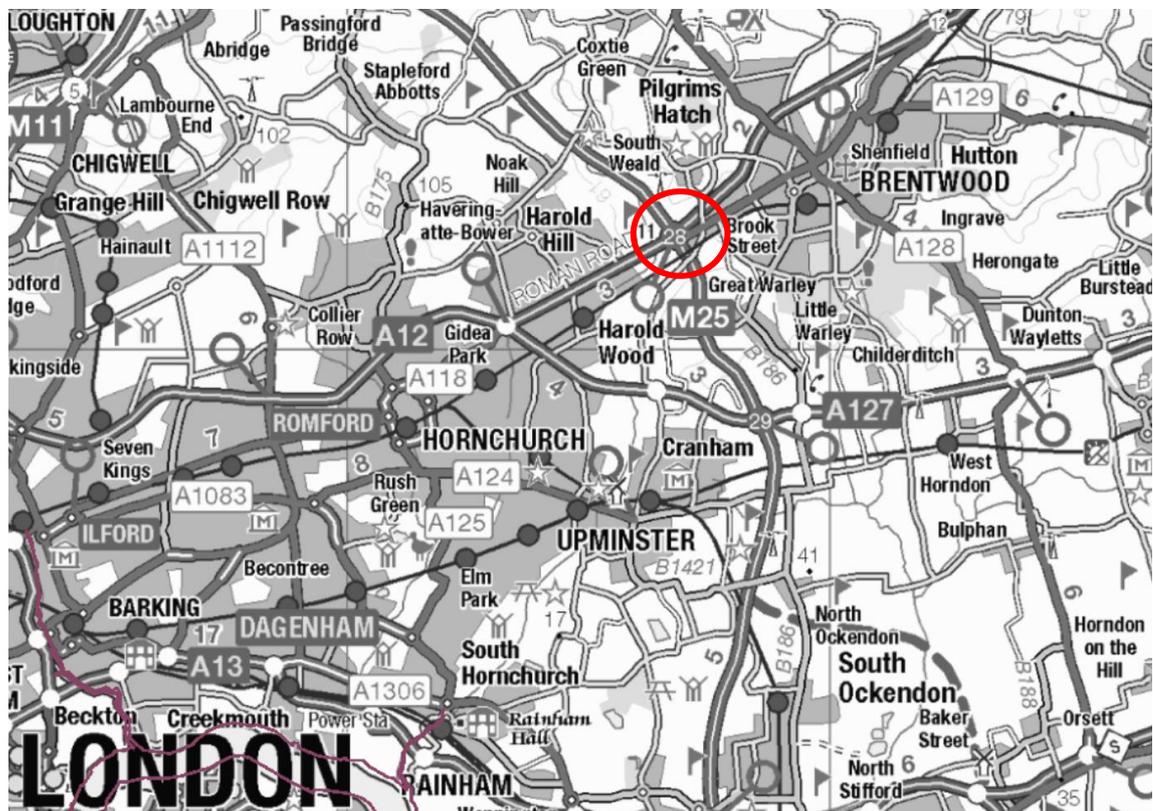


Figure 3.1: Scheme location (Magic Maps 2019)

- 3.2.2 The DCO boundary is provided on the Location plan (application document TR010029/APP/2.1) and indicated on all supporting plans.
- 3.2.3 The junction provides the intersection between the M25 motorway, the key trunk route of the A12 and the A1023, providing connectivity between London and Chelmsford, Ipswich and Brentwood and other key destinations across the south east of England. The junction caters for several highly trafficked movements particularly between the M25 motorway and the A12 towards Essex.

### 3.3 Site description

#### Existing land uses and local character

- 3.3.1 M25 junction 28 sits amongst predominantly agricultural farmland. There are also several areas of woodland close to the junction, as well as countryside and land used for recreational purposes, such as Maylands Golf Course to the west of the junction. The junction also sits entirely within designated Green Belt.
- 3.3.2 Of the buildings in proximity to the junction, the majority are low-rise residential houses with private gardens. These are concentrated in the areas of Harold Hill/Harold Park to the west, and Brentwood to the east. There are a number of private businesses, including a hotel and garden centre, lining the A1023 Brook Street close to the junction, as well as smaller shops along the A12 Colchester Road to the west. The buildings are noted on Figure 13.1 of the ES (application document TR010029/APP/6.1)
- 3.3.3 The Scheme would encircle, by way of the proposed loop road, Grove Farm. From site visits, it is noted that there are activities and structures on the land occupied by Grove Farm that do not appear to benefit from planning permission. Accordingly, for the purposes of the application the authorised use is taken to be agricultural land.
- 3.3.4 Part of Maylands Golf Course falls within the DCO boundary and this facility is located to the west of the proposed loop road.
- 3.3.5 A gypsy and traveller site has been allocated in the London Borough of Havering's Local Plan (including provision for one further pitch) at The Caravan Park, Putwell Bridge, Colchester Road, to the southwest of the junction. Adjacent to this, a new "Gardens of Peace" cemetery has been approved at 'Land at Oak Farm' and work is currently underway in implementing that permission. Throughout this Statement, reference is made to this area as Land at Oak Farm.
- 3.3.6 A proportion of the land required to construct the Scheme is arable farmland forming part of the Glebelands Estate, though the works would also require land occupied by woodland at Alder Wood and part of Maylands Golf Course to the northwest of the junction. The area surrounding the junction falls within Grade 3 and 4 of the Agricultural Land Classification ("ALC") and there is a former landfill site immediately to the northwest of the junction within Grove Farm.

#### Topography, water resources and drainage

- 3.3.7 Two water courses run through the land within the DCO boundary – the Ingrebourne River and Weald Brook. The Ingrebourne River runs northeast to southwest, crossing under the M25 just north of the junction and the A12 at Putwell Bridge. Weald Brook is a tributary of the Ingrebourne River and follows a

natural course north to south, joining the Ingrebourne north of Putwell Bridge. The Ingrebourne River has been artificially straightened and partially culverted to the east of this convergence.

- 3.3.8 Land alongside both rivers lies within Flood Zone 3, including along the A12 east-west where it runs underneath the junction 28 roundabout, and along the M25 clockwise exit slip road.
- 3.3.9 The topography of the area is gently undulating, with the eastern side of the junction slightly higher in general than the land to the west. The area forming the junction has been altered to form the intersection, with the M25 sitting within a wide cutting to the south, slowly rising to pass above the roundabout, and the A12 being lowered to allow it to run underneath the roundabout.

### Ecological designations

- 3.3.10 There are no statutory designated sites within the DCO boundary. The Manor Local Nature Reserve lies 0.3 km from the DCO boundary. Ingrebourne Valley Site of Metropolitan Importance for Nature Conservation (“SMI”) is located across a number of land parcels east of Harold Hill and north of Upminster, including land partially within the DCO boundary to the northwest of the junction. A further SMI at Dagnam Park and Hatters Wood is located approximately 0.3km to the northwest of the DCO boundary. There are a number of other non-statutory Local Wildlife Sites and Sites of Borough Importance for Nature Conservation in the vicinity of the Scheme.
- 3.3.11 There are no areas of ancient woodland within the DCO boundary, though Lower Vicarage Wood lies 40 m from the DCO boundary in the north-eastern quadrant of the junction, and Duck Wood lies approximately 0.4 km from the DCO boundary in the north-western quadrant.
- 3.3.12 There are also a number of veteran trees which have been identified within the DCO boundary. Arboricultural surveys in May 2019 identified 15 veteran trees within the DCO boundary.
- 3.3.13 For full details of the site, see Chapter 7 of the ES (application document TR010029/APP/6.1) and the Biodiversity Sites and Features Plan (application document TR010029/APP/2.9).

### Landscape and designated heritage assets

- 3.3.14 Much of the area to the northwest of the junction, and to the northeast of Harold Hill, has been designated as the Havering Ridge Area of Special Character.
- 3.3.15 The Grade II Registered Park and Garden at Weald Park is located at its closest point approximately 150m to the northeast of the Scheme, comprising a mix of woodland, lakes, meadows, open grassland and viewpoints. Weald Park is also designated as a Conservation Area (the closest to the Scheme) and as a Country Park. There is a further conservation area at South Weald and another Country Park at Warley Park, east of the junction adjoining the built-up area of Brentwood.
- 3.3.16 The A12 road to the west of the junction, and A1023 Brook Street to the east, follow the path of a historic Roman Road, which historically ran between London and Colchester. This road intersects the junction and as such there is potential for archaeological remains to be discovered associated with the asset.

- 3.3.17 There are no Listed Buildings within the DCO boundary; the nearest to the junction can be found along Brook Street towards Brentwood including the Grade II\* Golden Fleece Inn. There are also several listed buildings to the northeast of the site in the village of South Weald.
- 3.3.18 For full details of all relevant heritage assets, see Chapter 11 of the ES (application document TR010029/APP/6.1) and the Historic Environment Site and Features Plan (application document TR010029/APP/2.10).

### Open space, recreation, rights of way and access

- 3.3.19 The Scheme is entirely located within designated Green Belt land. Several recreational countryside uses can be found in the vicinity, including golfing, equestrian uses, and country/wildlife parks as discussed above. A new “gardens of peace” burial ground is also under construction to the south of the A12. It is considered that, once open, parts of this development may constitute open space within the meaning of the Planning Act 2008.
- 3.3.20 There are a number of bridleways, cycleways and footpaths in the vicinity of the Scheme but only one crosses the M25 and A12 within the DCO boundary: a footpath on the south side of the junction 28 roundabout. Access land can be found in multiple land parcels either side of the M25 to the south of the junction, some of which adjoins the DCO boundary.
- 3.3.21 Brentwood Borough Council has proposed a number of new cycle paths and strengthening of its existing cycling infrastructure within its Borough Cycling Action Plan 2018.
- 3.3.22 There are several areas designated within the LBH Local Plan as Parks, Open Spaces, Playing Fields and Allotments in the vicinity of the Scheme, including partially within the DCO boundary. These designations cover Duck Wood, Maylands Golf Course, Dagnam Park and Harold Court (to the south of the railway line, south of Harold Park).

### Noise and air quality

- 3.3.23 The entirety of the London Borough of Havering is designated as an Air Quality Management Area (“AQMA”). Brentwood Borough Council has also allocated part of the Scheme’s area - Brook Street at its junction with the M25 and A12 (Brook Street Roundabout) – as an AQMA.
- 3.3.24 There are several Noise Important Areas (“NIA”) within the boundaries of, or in proximity to the Scheme: the junction 28 roundabout at its Brook Street exit; the M25 immediately south of the railway line at Nags Head Lane overbridge; the A12 north of Leonard Way; the A12 north of Selwood Road; and the A1023 London Road east of Mascalls Lane. Several more NIAs can be found further afield within Brentwood town and at Gallows Corner.
- 3.3.25 Further details regarding noise and air quality can be found in Chapter 5 of the ES and Chapter 6 of the ES respectively (application document TR010029/APP/6.1).

## Utilities

- 3.3.26 Utilities infrastructure runs through the Scheme, including overhead electric lines, and an underground high-pressure gas pipeline, both running approximately north-south.

## 3.4 Description of the Scheme

- 3.4.1 The Scheme comprises the following key works elements. These should be read in conjunction with Works plans (application document TR010029/APP/2.3) and Schedule 1 of the Development Consent Order (application document TR010029/APP/3.1). Further details are provided in Chapter 2 of the ES (application documents TR010029/APP/6.1):

- Highways works:
  - The creation of a new two lane loop road with hard shoulder, for traffic travelling from the M25 northbound carriageway onto the A12 eastbound carriageway, including the provision of three new bridges (Alder Wood bridge, Duck Wood bridge and Grove bridge) and an underpass (Grove Farm underpass) to carry the new loop road over a proposed access track (Work No. 14).
  - Realignment of the existing A12 eastbound exit (off-slip) road (Work No. 2) to accommodate the new loop road including the provision of a new bridge (Maylands bridge) and the extension of the existing Grove culvert.
  - Improvements to the existing A12 eastbound and westbound carriageways and A12 eastbound entry (on-slip) road (Work Nos. 1, 3 and 4).
  - Realignment of the existing M25 northbound on-slip (Work No. 8).
  - Improvements to the existing junction 28 roundabout, the existing M25 northbound carriageway and the M25 northbound off-slip (Work Nos. 5, 7 and 12).
  - New gantries over the M25 carriageway (Work Nos. 9, 10 and 11).
  - Alterations of existing private access and egresses and the provision of new private means of access to accommodate the new loop road (Work Nos. 13, 14, 15 and 16).
- Earthworks and drainage works:
  - Earthworks including the deposit of surplus construction materials on two identified sites (Work Nos. 17 and 18).
  - Three new attenuation ponds and associated drainage and access roads (Works Nos. 19A, 19B, 20A, 20B, 21A and 21B) and a new drainage outfall pipe (Work No. 22).
- Realignment of watercourses:
  - Realignment of the Weald Brook and the Ingrebourne River (Work Nos. 23A, 23B, 23C and 23D).
- Environmental mitigation:

- Two new flood compensation areas (Work Nos. 24A and 24B) and the provision of new ecological compensation and mitigation areas (Work Nos. 25 and 26) and two new environmental ponds (Work Nos. 27 and 28).
- Utilities:
  - Diversion of an already underground high pressure gas pipeline and diversion underground of an existing overhead electric line (Work Nos. 29 and 30).
- Accommodation works:
  - Accommodation works to provide replacement facilities for Maylands Golf Course (Work No. 32).

### 3.5 Key objectives of the Scheme

3.5.1 The objectives for the Scheme were developed in agreement with DfT and the affected local authorities (ECC, BBC, LBH and TfL) in response to the key problems identified in paragraph 2.2 of this Statement. The Scheme objectives are set out in Table 3.1 below along with a short commentary of how the Scheme meets the objectives:

**Table 3.1: Objectives of the Scheme**

Objective	Commentary
Increase capacity and reduce congestion and delays by providing an improved link from M25 to A12	As set out within the TA (application document TR010029/APP/7.4), the Scheme offers improvement to capacity with the addition of a new link road, thereby reducing the number of movements travelling through the roundabout, thereby increasing capacity for other movements when compared to the DM situation. The majority of movements around the junction would see an improvement in travel times as a result of the Scheme.
Reduce the incident rate and resulting disruption by increasing the capacity of the roundabout	The improved capacity of the roundabout as a result of the reduction in traffic movements by introducing a loop road is expected to reduce the incident rate on the roundabout.
Improve safety on the roundabout by reducing traffic levels and redesigning the existing layout.	The TA looks at the anticipated accident levels as a result of the Scheme and shows an expected reduction in accidents through the reduction to congestion.

Objective	Commentary
Cater for future traffic demands to enable development and economic growth	<p>Both the 2022 scenario and 2037 scenarios have been modelled and the findings collated within the TA.</p> <p>In 2022, the introduction of the Scheme would increase traffic flows using the junction, decrease delay for most of the approaches to the roundabout and have a positive impact on nearly all the movements at the junction in all time periods in 2022. The most notable improvement as a result of the reduction in traffic using the roundabout, that the impact that results in the greatest change from the DM scenario, occurs for traffic completing the A12 West to M25 South route, with journey times reducing by up to three minutes.</p> <p>In 2037, the introduction of the Scheme would increase traffic flows using the junction, decreases the delay for most of the approaches to the roundabout and have a positive impact on nearly all the movements at the junction in all time periods in 2037. The most notable improvement occurs for the traffic completing the A12 West to M25 South, with journey times reducing by up to 16 minutes.</p>
Minimise the impact on local air quality and noise by smoothing traffic flow.	The ES has considered the impacts of the Scheme on noise and air quality receptors and anticipates no significant adverse effects as a result of proposed mitigation measures.
Protect access for NMUs (pedestrians and cyclists) and improve conditions wherever possible.	Existing walking and cycle patterns show below national average use patterns; The Scheme preserves the existing NMU routes and where it is necessary to remove and replace in the instance of the A12 off-slip, this will involve an element of improvement through the widening of the footway.

3.5.2 The Scheme's ability to meet these objectives is also assessed in detail in the TA report (application document TR010029/APP/7.4).

3.5.3 Alongside these specifically set objectives for the Scheme, the Applicant also aims to:

- minimise environmental impact as measured in accordance with Design Manual for Roads and Bridges ("DMRB").
- where possible improve air quality with regard to vehicle emission generally, and specifically at the existing declared AQMA.

3.5.4 Furthermore, the summary of Section 2 of the NPS NN lists four strategic objectives that national networks aim to deliver. These are as follows:

- Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs.
- Networks which support and improve journey quality, reliability and safety.
- Networks which support the delivery of environmental goals and the move to a low carbon economy.
- Networks which join up our communities and link effectively to each other.

- 3.5.5 The Applicant's Environmental Strategy<sup>3</sup>, published in 2017, places a strong emphasis on protection, conservation and enhancement of the environment, specifically the topics of noise, air quality, water quality and flooding, biodiversity, landscape and cultural heritage.
- 3.5.6 The Applicant's Sustainable Development Strategy published in 2017, aims to communicate Highways England's approach and priorities for sustainable development to its key stakeholders. The Applicant is keen to ensure its action in the future will further reduce the impact of its activities seeking a long term and sustainable benefit to the environment and the communities it serves.
- 3.5.7 The ES which has been prepared in support of this DCO provides an assessment of the Scheme against the identified environmental issues and demonstrates how the objectives of the abovementioned strategies can be met.
- 3.5.8 Appendix B of this Statement provides a schedule of accordance with the NPS NN and demonstrates how the Scheme meets those objectives noted above.
- 3.5.9 Notwithstanding this, Section 5 of this Statement provides a detailed summary how the Scheme conforms with the objectives noted above while Appendix A and B provide a detailed response to the individual local and regional planning policies and the specific paragraphs of the NPS NN.

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<sup>3</sup> <https://www.gov.uk/government/publications/highways-england-environment-strategy>

## 4 Economic case

### 4.1 Introduction

- 4.1.1 This chapter outlines the economic assessment of the Scheme. The anticipated benefits and dis-benefits of the Scheme together with the overall value for money are presented.
- 4.1.2 The economic case for the Scheme demonstrates its compliance with the NPS NN objective that strategic highway improvements benefit the economy. It assesses and monetises anticipated economic, environmental and social benefits of the Scheme based on a 60-year appraisal period, in accordance with DfT guidelines.
- 4.1.3 Table 4.1 summarises the monetised impacts of the Scheme. Benefits identified as Level 1 are those which have the highest degree of certainty from analytical techniques and contribute to the initial Benefit Cost Ratio (“BCR”) which is the amount of benefit being brought for every £1.00 of cost to the public purse. Level 2 benefits include the assessment of wider impacts and reliability benefits. These have more recently become known as ‘Established Monetised Impacts’ for Level 1 and ‘Evolving Monetised Impacts’ for Level 2.
- 4.1.4 In this case, to take a proportionate approach, Level 2 wider impacts have been assessed only where their calculation is directly related to elements of the Level 1 benefits. No assessment has been made of Level 3 benefits, which would capture impacts of the Scheme on land use change. This is a complex area of analysis to undertake and the impacts of a junction improvement, such as that at the junction which provides limited local connectivity improvements, will have relatively low impacts on land use change.

**Table 4.1: Summary of present value monetised benefits**

Benefits		Monetised value, £m PV		
		Level 1	Level 2	
Environmental benefits	Greenhouse gas emissions	£-1.73m	N/A	
	Noise	£-0.02m	N/A	
	Air quality	£0.04m	N/A	
Social / economic benefits	Accidents	£2.34m	N/A	
	Economic Efficiency of Transport System (TEE) Table	Commuting	£45.82m	N/A
		Other	£33.27m	N/A
		Business	£90.64m	N/A
	Wider public finances (Indirect Tax)	£-6.19m	N/A	
	Reliability benefits	N/A	£0.01m	
	Change to imperfect markets	N/A	£9.12m	
	Agglomeration	N/A	N/A	

Benefits		Monetised value, £m PV	
		Level 1	Level 2
<b>Total Level 1</b>	Present Value Benefits	£164.17m	
<b>Wider Impacts</b>		N/A	£9.13m
<b>Total Level 2</b>	Total of Level 1 Benefits and Wider Impacts	N/A	£173.30m

4.1.5 The non-monetised environmental and social benefits of the Scheme are summarised in Table 4.2.

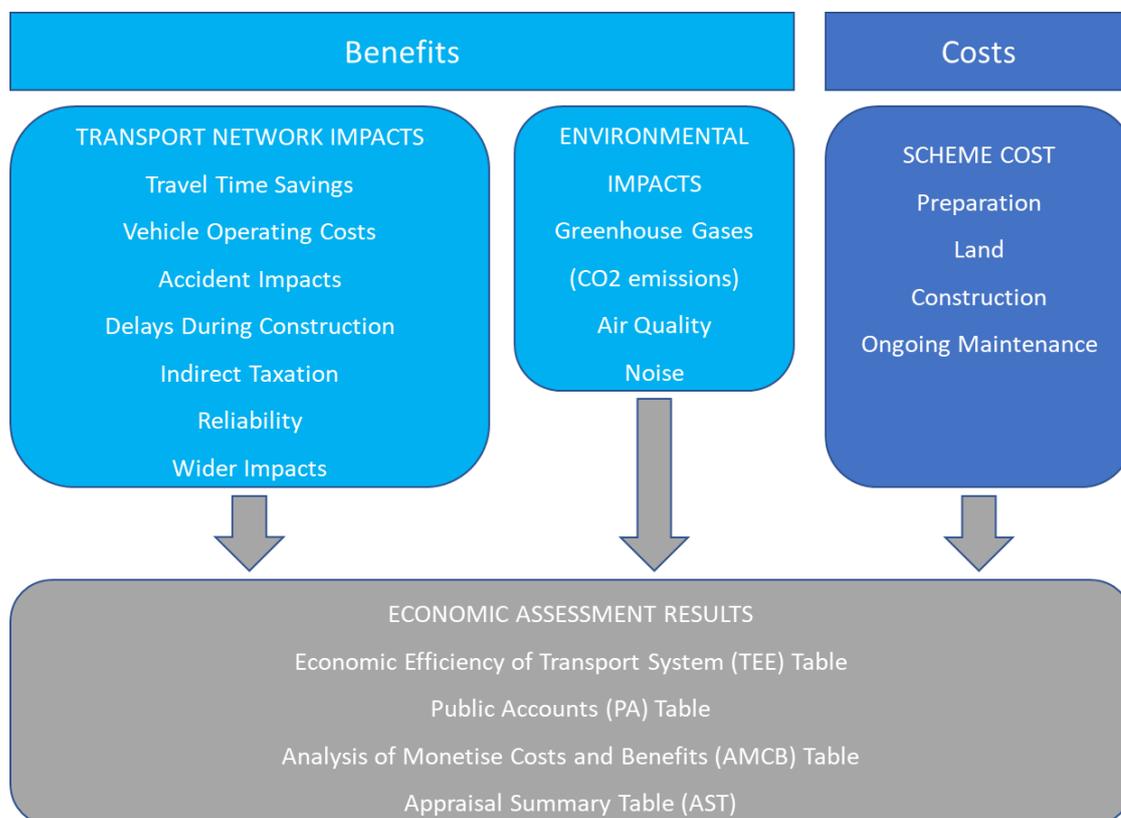
4.1.6 The assessment of social and distributional impacts has been carried out in accordance with the latest TAG databook, whereby WebTAG worksheets have been completed for all environmental indicators. Air Quality, greenhouse gases and noise impacts are already included in the monetised benefits.

**Table 4.2: Summary of non-monetised benefits**

Benefits		Qualitative	Distributional impact
<b>Environmental benefits</b>	Noise	N/A	Neutral
	Air quality	N/A	Slight Adverse
	Landscape	Slight Adverse	N/A
	Historic environment	Slight Adverse	N/A
	Biodiversity	Slight Adverse	N/A
	Water environment	Neutral	N/A
	Townscape	N/A	N/A
<b>Social benefits</b>	Physical activity	Neutral	N/A
	Journey quality	Moderate Beneficial	N/A
	Accidents	N/A	Neutral
	Security	Neutral	N/A
	Accessibility	Neutral	N/A
	Affordability	Moderate Beneficial	Moderate Beneficial
	Severance	Neutral	Neutral
	Options and non-use values	Neutral	N/A
Commuting & other users	N/A	Moderate Beneficial	

## 4.2 Economic assessment methodology

- 4.2.1 The economic assessment was carried out in line with the DfT's Transport Appraisal Guidance, WebTAG, which itself is based on the principles in the Treasury's Green Book.
- 4.2.2 The assessment considers the calculation of impacts, both positive and negative, that are typically expressed in monetary terms. This includes the capital and maintenance cost of the Scheme and compares them against benefits such as travel time and accident savings and tax revenues generated by the Scheme.
- 4.2.3 Details of the cost and benefit elements<sup>4</sup> captured and how they contribute to the key output tables required for the reporting of economic impacts are set out Figure 4.1.
- 4.2.4 The transport and environmental benefits set out above have been assessed using approaches set out in Table 4.3. Costs have been prepared and provided by the Applicant.



**Figure 4.1: Economic assessment components**

- 4.2.5 Costs and benefits occur throughout the duration of the assessment period; the construction costs occur before the Scheme opens whilst the benefits and maintenance costs occur in the 60 years following completion of the Scheme. Costs and benefits are discounted to present values, i.e. benefits accrued today are considered to be of greater value than those accrued further into the future. As such the stream of costs and benefits are discounted to 2010 using the DfT

<sup>4</sup> Note that both benefits and costs will include any negative as well as positive impacts, where "benefits" include all impacts on transport users and wider society, while "costs" capture impacts on the public sector budget.

standard discount rate.

- 4.2.6 Scheme costs and monetised impacts are summed to produce a BCR. Once impacts that can be expressed in monetary terms have been calculated, the assessment captures the remaining impacts that cannot be monetised within the Appraisal Summary Table (“AST”). The AST is a summary for decision makers containing key economic, environmental and other information drawn from existing documents. Together all this information can then be used to determine the value for money of the Scheme.

**Table 4.3: Benefit assessment methodology**

Element of benefit	Method of quantification
Travel time savings, vehicle operating costs and indirect tax	Assessed using DfT’s TUBA tool applied to with and without scheme modelling prepared in SATURN. This assessment has captured the network change involved in the introduction of the Lower Thames Crossing.
Delays during construction	Assessed using the same approach as above, with modelling reflecting lane closures necessary while construction is underway and the programme of closures.
Accident benefits	Captured using the COBA-LT tool, based on recorded incident data at an around the junction
Reliability benefits	Measured in relation to reduced incidents on the junction, using VISSIM modelling to assess impacts of lane closures on delays. This assessment has been based on average delay periods from the local data, typical impacts on lane closures and frequency of incidents.  Unlike delays during construction for which advance warning will be given and rerouting possible, the impact of accidents is treated as unpredictable with minimal scope to divert.
wider impacts	These include changes to imperfectly competitive markets – the impact on businesses of reducing costs of production and hence inducing additional investment. These benefits are calculated in line with TAG as a percentage uplift on business user benefits
Greenhouse gases	Based on DfT’s Greenhouse Gases workbook
Noise	Based on DfT’s Noise workbook
Air Quality	Based on DfT’s Air Quality Valuation workbook

## 4.3 Scheme costs

- 4.3.1 Scheme cost estimates were based on a January 2019 forecast. For economic appraisal purposes these have been rebased to 2010 prices and presented as factor prices. These were converted to Present value of costs (“PVC”) by

discounting to 2010 values. This re-basing is a conversion of units, from the current prices at which costs have been calculated, to base year prices. Alongside the conversion to a PVC, this enables schemes assessed at different times to be directly compared.

- 4.3.2 The estimated capital cost over the 60-year appraisal period is £70m (Present Value). This value includes quantified allowances for risks which includes consideration of historic overspends on the Applicant's schemes and no additional allowance is therefore made for optimism bias.
- 4.3.3 Incremental operational and maintenance costs for economic appraisal purposes have been estimated, based on the additional pavement construction and standard maintenance cost rates. These were converted to Present Value of Costs ("PVC") by discounting to 2010 values and converting to market prices. The estimated incremental operational and maintenance cost over the 60-year appraisal period is £1m (Present Value).
- 4.3.4 The total estimated cost over the 60-year appraisal period, presented as a PVC, is therefore £70.56m.
- 4.3.5 This value equates to the outturn cost of £116.1m. This presentation of the cost includes all inflation up to the point of those costs being incurred, is not discounted and is in factor costs rather than market prices. The outturn value excludes portfolio risk related to the scheme. It also excludes ongoing maintenance costs.

## 4.4 Monetised benefits

### Level 1 Transport user benefits

- 4.4.1 The Scheme will provide additional network capacity on the SRN necessary to accommodate future development and predicted traffic growth. This will benefit business users (both car and freight) due to reductions in congestion. Almost half of the journey time benefits occur for this group (£83.13m). Overall business benefit also includes vehicle operating cost savings (£8.11m) but is reduced because of the impact of construction disbenefits (£0.60m).
- 4.4.2 There is a disbenefit to the Government due to a reduction in congestion. Fuel consumption is reduced slightly, thereby decreasing indirect tax revenues.

### Environmental benefits

- 4.4.3 A quantitative assessment has led to the monetisation of the following environmental benefits:
- Noise
  - Local Air Quality
  - Greenhouse Gases ("GHG")
- 4.4.4 At Scheme opening most properties will be subject to negligible decrease in noise levels. No change is expected at 355 properties and a further 167 properties will be subject to a negligible increase in noise level. It is also predicted that the noise levels at NIAs would change by less than 1dB LA10,18h in the opening year of the Scheme.

- 4.4.5 Over the long-term for most of the receptors, the pattern of long-term changes to road traffic noise levels with and without the Scheme are similar, with most receptors being subject to negligible increase in noise levels. With the Scheme it is predicted that 911 properties will be subject to a negligible increase in noise level. At 48 properties the prediction shows no change in noise level and further 106 will be subject to negligible decrease. Also, no long-term noise increases greater than 1 dB LA10,18hr were predicted at any of the NIAs in the study area.
- 4.4.6 Net present value of change in noise is -£21,590. This value has been derived using the TAG “Noise Workbook” to monetise the values of change to noise during the daytime and night-time periods compared to the “without-scheme” scenario.
- 4.4.7 In the opening year there is an overall net deterioration in terms of PM2.5 concentrations, but a net improvement in NO2 concentrations due to the Scheme, as indicated by the increase and decrease in the net total assessment scores for PM2.5 and NO2 respectively.
- 4.4.8 The Scheme is located within the London Borough of Havering AQMA and Brentwood AQMA No.2 which incorporates Brook Street and the A12. The TAG assessment demonstrates a small negative impact on NO2 and PM2.5 concentrations within the AQMAs although this is not considered a significant effect. Initially the impact on local air quality is forecast to be positive, due reduced delays, but the extra capacity leads to faster growth in traffic, with negative longer term impacts on air quality arising.
- 4.4.9 The Net Present Values (“NPV”) of these air quality impacts over the appraisal period is a net benefit of £36k, as the NPV calculation places a higher weight on the early positive impacts than on the later negative impacts. Sensitivity analysis shows the net benefit could range between £123k and £7k. Although the Scheme leads to an increase in the number of vehicles using this section of the road network, congestion relief result in more efficient use of fuel and lower emissions.
- 4.4.10 There is an overall increase in CO2 emissions with the Scheme over the 60 year appraisal period, due to increases in total annual vehicle kilometres travelled. Calculated using the non-TUBA method, which captures variable journey speeds by link rather than using an averaged speed, the change in non-traded carbon dioxide emissions in 2022 is +357 tCO2e indicating an increase in CO2 emissions in opening year. Change in emissions in tCO2e for the 60 year appraisal period is +38k.

### Social benefits

- 4.4.11 The Scheme will benefit commuting and other users due to reductions in congestion. These users will receive just over half of the net benefit from travel time change (£81.66m). The overall benefit also includes a small vehicle operating cost disbenefit (£1.70m) and is also reduced because of construction disbenefits (£0.87m).
- 4.4.12 An assessment of the accident cost savings was undertaken in accordance with WebTAG through the use of the COBA-LT software.
- 4.4.13 Total accident benefits generated by the Scheme over the 60-year assessment period amount to £2.34million.

4.4.14 There is a net accident saving due to the redistribution of traffic on to network links with lower accident rates. It is estimated that 63 accidents will be saved over the 60 year period of assessment. The casualties saved by the Scheme over the period are 1 fatal, 4 serious and 83 slight injury.

4.4.15 It should be noted that this analysis considers the change in accidents on the road network due to the changes in traffic flows. It does not consider any further detail design measures that could be introduced to reduce the likelihood of, and severity of, accidents.

### Initial BCR

4.4.16 The initial BCR contains all costs and benefits that are routinely quantified within economic assessments of transport schemes. Details of which elements of the assessed benefit are included in the initial BCR are set out in Table 4.1 as Level 1 benefits.

4.4.17 The Level 1 Present Value of Benefits (“PVB”) for the Scheme is £164.17m. With a PVC of £70.56m, the NPV is £93.61m and the BCR is 2.33.

### Level 2 Transport user benefits

4.4.18 The Scheme is forecast to generate wider economic impacts, but they are anticipated to be modest in scale as a result of the characteristics of the Scheme and its impact on travel costs and the economic characteristics of the area.

4.4.19 A qualitative assessment indicated the agglomeration and labour market impacts will provide a slight positive uplift on the benefits. The complexity of analysis required to monetise the impacts was therefore not considered proportionate to undertake at this stage of assessment.

4.4.20 Although the junction has been identified as a potential source of future capacity constraints leading to delays to traffic, it places no immediate constraint on specific sites on which land use development could otherwise occur. The increased capacity is not therefore considered to generate any direct dependent development benefits. Such benefits would suggest it enables land use change which was not possible without the Scheme at this stage.

4.4.21 An estimate of the impact of increased output in imperfectly competitive markets (reflecting the additional margin that firms can make on each additional unit of output they can produce as a result of travel cost savings) has been derived directly from the estimated business user benefits.

4.4.22 The Scheme does not directly affect travel to, from, or within a regeneration area and therefore an assessment of regeneration impacts in accordance with WebTAG Unit A2-1 has not been carried out.

### Adjusted BCR

4.4.23 An adjusted (or Level 2) BCR for the Scheme has been calculated which includes all benefits and costs associated with the initial BCR but also incorporates the benefits generated through journey time reliability improvements, as well as those defined as wider economic benefits. This provides a broader view of the value of the Scheme, giving a BCR of 2.46.

4.4.24 Details of assessment of these benefits are set out in the TA (application document TR010029/APP/7.4).

## 4.5 Non-monetised benefits

### Environmental, social and distributional benefits

#### Landscape

- 4.5.1 As noted within the Landscape chapter (Chapter 9) of the ES (application document TR010029/APP/6.1), the landscape pattern around the junction, the M25 and A12 is not expected to alter significantly. Overall, noise levels would not change noticeably as a result of the Scheme so tranquillity would not change. Small areas of woodland would be lost to new or widened highways and associated infrastructure as detailed within the Landscape chapter of the ES. Changes to landcover would also be experienced as a result of habitat enhancement in the area surrounding the Scheme but this would introduce new areas of habitats mitigation in this area. The proposed Scheme would slightly increase the pre-existing conflict with the local landscape character as new elements would conflict with the key attributes of the local landscape including landform and presence of woodland areas. Over time with proposed mitigation, the Scheme would become integrated within the existing landscape. However, a permanent alteration to the landscape character will remain perceptible at the local scale.

#### Historic environment

- 4.5.2 The construction of the Scheme would remove known and as-yet unknown archaeological remains thought to be of low to medium value as identified in Chapter 11 of the ES (application document TR010029/APP/6.1). These impacts would be mitigated through a programme of archaeological works for preservation by record, resulting in a residual slight adverse effect as set out within the Register of Environmental Actions and Commitments (“REAC”) (application document TR010029/APP/7.2).

#### Biodiversity

- 4.5.3 The Scheme would result in the permanent loss of habitats beneath the permanent footprint and temporary loss of habitats during the construction phase. Two veteran trees (considered to be irreplaceable habitat) would be permanently lost, while a further eight veteran trees within construction working areas would be retained, resulting in moderate adverse effect. Efforts have been made within the design to avoid veteran trees including proposed departures from Highways Standards where necessary. However, there are no feasible design options available to retain these two trees as set out in further detail in Appendix C. Small scale permanent loss of habitat and additional temporary loss of habitat within Ingrebourne Valley Site of Metropolitan Importance for Nature Conservation (SMI) and along the Ingrebourne River and Weald Brook would be mitigated and compensated for through appropriate reinstatement and enhancement of habitats, and long-term management of habitats. Due to the permanent loss of habitats, slight adverse residual effect is expected for Ingrebourne Valley SMI, and a moderate adverse residual effect on Ingrebourne River (within the DCO boundary). Construction and operation of the Scheme will affect Priority Habitats and Priority Species.
- 4.5.4 However, with the incorporation of appropriate mitigation and/or compensation measures as set out within the REAC (application document

TR010029/APP/7.3), a residual neutral effect can be applied for all these resources.

#### Water environment

- 4.5.5 The Scheme would result in a combination of effects, some positive with the incorporation of naturalistic river realignments and some negative with a predicted short-term (6-24hrs) breach in water quality standards to the Ingrebourne River. This is not deemed significant. It is assumed flow attenuation such as the sediment catchpits and orifice flow controllers can lesson this impact on water quality by regulating the discharge, thereby improving the situation compared to not using this mitigation feature.
- 4.5.6 The WFD compliance assessment report (application document TR010029/APP/6.7) concluded the Scheme is compliant with the requirements of the WFD. None of the components that make up the Scheme are considered to cause deterioration at the water body scale and all should not prevent future attainment of good ecological status and good ecological potential. Mitigation works, outside of the DCO boundary, delivered by the EA as part of their programme of works within the Ingrebourne WFD water body are also committed to in order to address the net loss of riverine habitat that the Scheme would otherwise have given rise to.
- 4.5.7 The FRA (application document TR010029/APP/6.6) concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.

#### Physical activity

- 4.5.8 Usage of NMU routes and PRoW in the area are generally low The only affected route identified is to the existing shared use footpath to the northern side of the A12 off-slip. The existing footpath will be lost due to the need to realign the A12 off-slip of which it forms part. The replacement to be provided will be widened from between 1.6m and 2m to 2.6m in order to provide additional space for shared use which when operational, should result in beneficial effects. The construction works would ensure that the new footway to be constructed is made available for use prior to the closure of the existing footpath to minimise slight adverse effects during construction. All other routes would remain unaffected by the Scheme.

#### Journey quality

- 4.5.9 Amenity - the Scheme will improve the safety of the junction for all road users through reducing the levels of congestion experienced. The air quality levels at the junction are also expected to improve as a result of the reduction in congestion.
- 4.5.10 Views from the road - during the construction phase, the views from the road are expected to be temporarily worsened given the nature of the construction works. At opening year stage, the views are also expected to be worse than currently experienced given that the proposed mitigation planting will require time to grow and establish. In future years, the views from the road are anticipated to return to current levels of quality given the level of mitigation planting and due to the height of the loop road relative to the existing junction.

4.5.11 Driver stress - while it is expected that the levels of driver stress may be temporarily adversely affected during the construction phase, this would be mitigated through traffic management. At operational stage, the level of driver stress is expected to improve as a result of a reduction in the level of congestion and a reduction in delays experienced at the junction.

Security

4.5.12 The Scheme is unlikely to have an effect on security.

Accessibility

4.5.13 The Scheme is unlikely to have a substantial effect on access to services.

Affordability

4.5.14 The Scheme is not expected to lead to extra charges to users (parking charges, public transport fare changes, etc). The Scheme will increase capacity and reduce congestion, which will lead to net reductions in car fuel and non-fuel operating costs.

Severance

4.5.15 The Scheme would require a slight change to the access point to Grove Farm as a new A12 off-slip would be created. However, the current access would be maintained and / or temporary access provided during the construction stage until the new access is available for use. The Scheme is therefore considered to have a neutral impact on severance to Grove Farm. Access to Maylands Cottages, dwellings at Harold Park, along Brook Street and in the wider area would not be affected by the Scheme and the impact in terms of severance is therefore considered to be neutral. Given the minimal impacts the Scheme will have on NMU routes, the impacts on severance to users of these routes is also considered to be neutral.

Option and non-Use values

4.5.16 The Scheme would not affect transport mode options in the study area.

Distributional impact: severance

4.5.17 There are some links with changes in traffic flow, either an increase or decrease of more than 10%. These changes are mainly localised to the motorway junction, and therefore are unlikely to cause additional severance as flows are already high around the junction. There are no physical changes to the pedestrian environment as a result of the Scheme.

4.5.18 The Scheme does not sever any existing pedestrian or cyclist routes. Additionally, there are no residential areas adjacent to the Scheme and no vulnerable groups concentrated within the 1km buffer. This means that there will be no severance experienced in the area, and consequently no impact to severance.

4.5.19 Therefore, the overall assessment on severance is considered to be neutral.

Distributional impact: accidents

4.5.20 The assessment of accidents has been appraised as neutral for all vulnerable groups within the impact area. Although there is slightly higher prevalence of accidents than the national average for motorcyclists, under 16's and the 20% least deprived LSOAs, overall most links modelled within the accident impact

area are forecasted to experience negligible changes in accidents. This also demonstrates that there are more links experiencing a decrease in accidents than are forecast to increase.

- 4.5.21 Due to the small changes in accident rate by link, which are mainly localised around the junction improvement, the overall assessment of the distributional impacts of accidents has been appraised as neutral.

Distributional impact: air quality

- 4.5.22 The overall assessment is concluded to be slight adverse given: (1) the large adverse NO<sub>2</sub> levels for income quintile 1 (most deprived), (2) the overall neutral impacts for all other quintiles for both NO<sub>2</sub> and PM<sub>10</sub> levels, and (3) given the lack of presence of specifically children within the 200m buffer.

Distributional impact: noise

- 4.5.23 As indicated in the noise modelling, all the receptors are forecasted to experience negligible impacts across all these quintiles. Furthermore, there are no schools within the noise assessment area so the overall impact on children is anticipated to be neutral.

- 4.5.24 Therefore, the overall impact of the Scheme to noise levels has been appraised as neutral.

Distributional impact: user benefits

- 4.5.25 The overall net change for time and cost impacts as a result of the Scheme is moderate beneficial for all income quintiles.

- 4.5.26 For all income quintiles, the proportion of benefits are in line with the proportion of the population, therefore, the overall impact on user benefits is moderate beneficial.

Distributional impact: affordability

- 4.5.27 The overall affordability impacts as a result of the Scheme are beneficial for all income quintiles. For income quintile 1, the proportion of benefits are in line with the proportion of the population, therefore the overall impact is moderate beneficial. The proportion of benefits are disproportionately greater than the proportion of the population for income quintiles 4 and 5 (least income deprived), therefore these are anticipated to be largely beneficial. For income quintiles 2 and 3 (most income deprived), benefits are disproportionately less than the proportion of the population. Therefore, these groups have a slightly beneficial impact.

- 4.5.28 These results lead to the overall assessment of affordability to be moderate beneficial.

## 4.6 Value for money

- 4.6.1 The Level 1 PVB is estimated at £164.17m, and the PVC at £70.56m. This produces a NPV of £93.61m and a BCR of 2.33. This BCR represents medium value for money.

- 4.6.2 Journey time reliability benefits (£0.01m) and wider economic impacts (£9.12m) give a Level 2 PVB of £173.30m. The PVC is unchanged at £70.56m. This gives an adjusted NPV of £102.74m and an adjusted BCR of 2.46.

4.6.3 Table 4.4 summarises these indicators.

**Table 4.4: BCR calculation**

	Initial BCR	Adjusted BCR
PVC (£m)	£70.56m	£70.56m
PVB (£m)	£164.17m	£173.30m
NPV (£m)	£93.61m	£102.74m
BCR	2.33	2.46

Source: ComMA report, Table 14.4. All values are £m in 2010 market prices discounted to 2010

## 5 Conformity with planning policy and transport plans

### 5.1 Introduction

- 5.1.1 This Chapter presents an assessment of the compliance of the Scheme with national and local planning and transport policy. This section draws upon the conclusions of the ES chapters which have addressed the relative planning policy within the respective chapters and are cross referenced in this Statement. A detailed table of compliance with local and regional planning policy is presented in Appendix A with a schedule of accordance with the NPS NN presented in Appendix B of this Statement.
- 5.1.2 Planning and transport policy documents are often considered important and relevant matters in decision making on DCO applications. In this case the key national policy documents considered important and relevant, and therefore material considerations in decision making, are explored in Section 5.2 of this Statement.
- 5.1.3 Local planning and transport policy documents can also be important and relevant to decision making, particularly where they are relatively up to date. The Planning Inspectorate's Advice note one: Local Impact Reports (Ref 1.22) provides guidance for host authorities on the production of Local Impact Reports, which the SoS must have regard to when determining DCO applications. Advice note one (page 6) states that topics that may be of assistance in writing the report include:
- 'Relevant development plan policies, supplementary planning guidance or documents, development briefs or approved master-plans and an appraisal of their relationship and relevance to the proposals.'*
- It goes on to state that:
- 'It will also be very helpful to have the local authority's appraisal of the proposed development's compliance with local policy and guidance.'*
- 5.1.4 The above further emphasises the view of the Inspectorate that local planning policies are important and relevant in decision making on DCO applications. Therefore, local relevant planning policies were identified at an early stage, have informed route choice and Scheme development and compliance with these policies is assessed in this Section. Local policy documents considered relevant and important are described in Section 5.3.
- 5.1.5 The assessment of the Scheme against planning policy in Sections 5.2 - 5.19 is organised by topic.

### 5.2 National policy

- 5.2.1 This chapter explains how the Scheme is in accordance with the NPS NN and other relevant planning policy documents and demonstrates the Scheme's compliance with these policy and legislative requirements.
- 5.2.2 In the National Infrastructure Delivery Plan 2016 (2016-2021), the Government is clear about the importance of investment in transport infrastructure to stimulate

economic growth and the role of a functioning transport system as essential to the success of the UK economy.

5.2.3 The NPS NN and other policy documents highlighted below demonstrate the Government's commitment to support investment in the SRN.

5.2.4 The following are national level planning policy documents or transport policy and programmes which are of relevance to the Scheme:

- National Policy Statement for National Networks ("NN NPS") 2014
- National Planning Policy Framework ("NPPF") 2019
- Road Investment Strategy ("RIS"): 2015 - 2020
- Road Investment Strategy ("RIS2"): 2020 - 2025
- National Infrastructure Delivery Plan 2016 - 2021
- Action for Roads: A network for the 21st Century (July 2013) Department for Transport Single Departmental Plan 2015-2020
- Investing in Britain's Future (June 2013)
- Highways England Delivery Plans 2015-2020.

## 5.3 Local policy

5.3.1 Although the NPS NN is the primary planning policy document for decision making on the Scheme, both regional and local planning policy still have relevance to the Scheme. Transport policy in particular is governed at a regional level which is of particular relevance to this Scheme.

5.3.2 The regional planning policy documents with relevance to this Scheme include:

- London Plan (2016)
- Draft New London Plan (July 2019)
- The Mayor's Transport Strategy (2018)
- Essex Local Transport Plan (2011)
- Essex Development Management Policies (2011)
- Essex County Council & Southend-on-Sea Borough Council Waste Local Plan (2017)
- East London Joint Waste Development Plan (2012).

5.3.3 At the local level, both the LBH and BBC have Local Development Plans which have relevance to the Scheme as they provide local land use designations and allocate land in terms of where future development is planned to occur. They are important for helping to define the Scheme objectives, designing the Scheme and agreeing appropriate mitigation. Local Authorities take into account development plan policies when preparing their LIR, which the ExA will invite the relevant local authorities to submit as part of the examination process.

5.3.4 This section considers whether the Scheme is in accordance with the policy framework at this level, as compliance with local policy is an important and relevant consideration and is material in assessing the planning balance.

5.3.5 The LBH Local Plan documents which are relevant to this Scheme include:

- London Borough of Havering Core Strategy and Development Control Policies Development Plan Document (2008)
- London Borough of Havering Local Plan Proposed Submission (August 2017) – this document was submitted to the Secretary of State for examination in March 2018. Discussions regarding main modifications commenced in January 2020 and are ongoing. The policies in the document can therefore be afforded some weight and are therefore considered below
- Landscaping SPD (2011)
- Protecting and Enhancing the Borough’s Biodiversity SPD (2010)
- Protection of Trees During Development SPD (2009)
- Sustainable Design and Construction SPD (2009).

5.3.6 The BBC Local Plan documents which are relevant to this Scheme include:

- Brentwood Replacement Local Plan (2006)
- Brentwood Pre-submission Local Plan (2019)
- Sustainable Urban Drainage Design Guide (2014).

5.3.7 The following sections summarise the local, regional and national policy position on the need for the Scheme and on the various environmental impacts of the Scheme. A summary is then provided of how the Scheme responds to the policy position.

## 5.4 Need for the Scheme

5.4.1 The following section assesses the need for the Scheme as assessed against planning and transport policies.

### National Policy Statement for National Networks (NPS NN), Department for Transport, December 2014

5.4.2 Section 104 of the Planning Act 2008 states that when deciding the approval of a NSIP, the SoS must consider any NPS which relates to the development being considered.

5.4.3 The NPS NN sets out the Government’s vision and policy against which the SoS will make decisions on applications for development consent for NSIPs on the strategic road and rail networks.

5.4.4 Paragraph 1.2 of the NPS NN explains that the SoS will use the NPS NN as the primary basis for making decisions on applications for development consent on national networks NSIPs in England.

5.4.5 The NPS NN is the primary basis for decision making for the Scheme, except where doing involves any of the following (Section 104(3-8)):

- a. *‘the United Kingdom being in breach of any of its international obligations’*
- b. *‘the Secretary of State being in breach of any duty imposed on the Secretary of State by or under any enactment’*
- c. *the decision ‘would be unlawful by virtue of any enactment’*

- d. *'the adverse impact of the proposed development would outweigh its benefits'*
- e. *'any condition prescribed for deciding an application otherwise than in accordance with a national policy statement is met'.*

- 5.4.6 The Applicant has prepared this application with careful consideration of all legal obligations applying to it and is therefore not aware of any issues in which deciding the application, in accordance with the NPS NN, would be in breach of the SoS's duties (b), would be unlawful (c) or contrary to any other condition prescribed for deciding the application (e).
- 5.4.7 Deciding the application in accordance with the NPS NN would not lead to the United Kingdom being in breach of any of its international obligations (a), nor would the adverse impact of the Scheme outweigh its benefits (d). The Scheme's conformity to these conditions is demonstrated through the assessment of the Scheme's compliance with the NPS NN provided in Appendix B, which is concerned with impacts on legislation, strategy and a range of environmental issues from the international to local scales. The Scheme should therefore be decided in accordance with the decision-making framework set out in Paragraph 6.4.5 above.
- 5.4.8 NPS NN paragraph 2.2 recognises that there is a critical need to improve the national networks to address road congestion in order *'...to provide safe, expeditious and resilient networks that better suppose social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth.'*
- 5.4.9 Paragraph 4.3 states that:
- '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'.
- 5.4.10 Paragraph 2.22 of the NPS NN states that:
- 'Without improving the road network, including its performance, it will be difficult to support further economic development, employment and housing and this will impede economic growth and reduce people's quality of life. The Government has therefore concluded that at a strategic level there is a compelling need for development of the national road network'.*
- 5.4.11 In the Summary of Need on page 9 of the NPS NN the following vision and strategic objectives are set out:
- "The Government will deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:

- Networks with the capacity and connectivity to support national and local economic activity and facilitate growth and create jobs.
- Networks which support and improve journey quality, reliability and safety.
- Networks which support the delivery of environmental goals and the move to a low carbon economy.
- Networks which join up our communities and link effectively to each other”.

5.4.12 The conformity of the objectives of the Scheme with the “vision and strategic objectives” of the NPS NN are set out in Table 5.1 below.

**Table 5.1: Scheme conformity with NPS NN objectives**

<b>NPS NN Summary of need (NN-NPS Chapter 2)</b>	
<b>Governments vision and strategic objectives</b>	<b>Scheme conformity</b>
The Government will deliver national networks that meet the country’s long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system.	The TA report (application document TR010029/APP/7.4) includes future traffic flow forecasts and shows that the Scheme will improve traffic flows around the junction. These improvements will in turn lead to the region becoming more attractive for businesses to locate and will improve the quality of life for residents in the vicinity through decreased levels of congestion around the junction.
Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs.	As set out within the TA, the Scheme will help to reduce congestion at the junction and to increase the resilience of the junction to cope with peak flows. This will in turn lead to the local area becoming more attractive for businesses and help to facilitate wider growth in the area.
Networks which support and improve journey quality, reliability and safety.	As demonstrated in the TA, the Scheme would improve the journey quality by reducing journey times and increase both the perceived safety of the junction and reduce accident rates.
Networks which support the delivery of environmental goals and the move to a low carbon economy.	As demonstrated within the ES (application document TR010029/APP/6.1), the Scheme would contribute to a localised reduction in carbon emissions due to the reduction on congestion at the junction. The Scheme is also not expected to affect the ability of the UK to meet its climate change goals.

NPS NN Summary of need (NN-NPS Chapter 2)	
Governments vision and strategic objectives	Scheme conformity
Networks which join up our communities and link effectively to each other.	As set out in the TA, the Scheme will reduce journey times through the junction, providing a better connection between the surrounding communities.

- 5.4.13 The Scheme would be part of the national network, with junction 28 being a key junction and connection for the wider region. The contribution of the Scheme to the development of and integration of national networks should be afforded significant weight. The need for the Scheme is established by the NPS NN and the Scheme is in compliance with the NPS NN strategic objectives.

#### National Planning Policy Framework (NPPF) (February 2019)

- 5.4.14 The NPPF is explicit about the role of a NPS being the primary decision-making document for NSIPs under the Planning Act 2008. Paragraph 5 of the NPPF states:

*‘The Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy and may be a material consideration in preparing plans and making decisions on planning applications.’*

- 5.4.15 The Scheme objectives are consistent with the NPPF. Delivery of the Scheme would provide improved capacity, safety and amenity to the SRN which would contribute towards the more efficient and sustainable functioning of the infrastructure of the South East.

#### Road Investment Strategy 2015 – 2020 (November 2016)

- 5.4.16 In its RIS published in December 2014 and updated in March 2015 and November 2016, the Government sets out its investment plan for long term investment in the road network, and particularly the SRN. Its “Strategic Vision” within part 1 of this Strategy sets out that it wants the Applicant to:

*‘Make the network safer and improve user satisfaction, while smoothing traffic flow and encouraging economic growth. We want to see [Highways England] delivering better environmental outcomes and helping cyclists, walkers, and other vulnerable users of the network at the same as time as achieving real efficiency and keeping the network in good condition.’*

- 5.4.17 Pages 12 to 16 of the Strategic Vision recognises that the SRN has a vital role to play in delivering the Government’s goals for national networks as outlined in the four strategic goals of the NPS NN:

- ‘Providing capacity and connectivity to support national and local economic activity
- Supporting and improving journey quality, reliability and safety

- Joining our communities and linking effectively to each other
- Supporting delivery of environmental goals and the move to a low carbon economy.'

5.4.18 The Strategic Vision sets out that the SRN is vital to British businesses and local and national economies, but that capacity problems leading to increased congestion have become a major issue. It recognises that the SRN has a good safety record and provides the lifeline for the logistics of everyday life, but that congestion is having a major effect on reliability.

5.4.19 The Strategic Vision acknowledges that the SRN links people, places, and different transport modes but that busy roads can generate noise, and sever access in towns and villages, impeding cyclists and walkers. Finally, it explains that, moving forward, the SRN needs to be designed and constructed to the highest environmental standards with low noise road surfacing to be used where possible.

5.4.20 Page 36 of the RIS sets out the problems that increased congestion across the SRN would cause if action and investment were not undertaken by 2040:

- '16 hours stuck in traffic for every household each year
- 28 million working days lost per year
- £3.7 billion annual cost to the freight industry, which could see prices increase on the High Street and beyond
- impeded travel between regions that hampers business
- longer travel times that constrain possible job opportunities
- negative impacts on efforts to spur economic growth, with enterprise zones, potential housing sites and areas of high growth held back by bottlenecks
- increased stress on roads to ports and airports, making it harder for British businesses to access export markets
- safety and the environment suffering as congested traffic is more polluting and there is an increased risk of accidents.'

5.4.21 Part 2: Investment Plan of the RIS lists key investments on the SRN. A total of £15.2 billion is committed by the Government to the enhancement and long-term maintenance of the network between 2015/16 and 2020/21 including 127 major enhancements. The Scheme is recognised in the RIS as being a key investment on the SRN that the Government has committed the full anticipated funding for provided the necessary statutory approvals are granted and the Scheme continues to demonstrate value for public money.

### Roads Investment Strategy 2020 – 2025 (March 2020)

5.4.22 The government published RIS2 in March 2020 to cover the period from 2020 to 2025. Following on from the initial RIS, the government has committed to spending £27.4 billion during the period to build new road capacity and improve the quality and reduce the negative impacts of the existing SRN.

5.4.23 The Strategic Vision for RIS2 recognises the need to create a network which supports the economy, creates a greener network, creates a safe and more

reliable network, delivers a more integrated network and creates a smarter network.

- 5.4.24 The improvements to M25 junction 28 are one of 15 committed schemes from the RIS that continue to have strategic support in order to achieve the vision set out in RIS2.

#### National Infrastructure Delivery Plan (2016)

- 5.4.25 The National Infrastructure Delivery Plan 2016 (“NIP”), published by Her Majesty’s (“HM”) Treasury in May 2016, is clear about the link between a fit-for-purpose infrastructure network, social sustainability and a thriving economy and, therefore, the need for investment in infrastructure.
- 5.4.26 The NIP 2016 Executive Summary states that:

*‘Infrastructure is the foundation upon which our economy is built. The government remains determined to deliver better infrastructure in the UK to grow the economy and improve opportunities for people across the country.’*

#### Department for Transport Single Departmental Plan 2015 – 2020 (February 2015)

- 5.4.27 The DfT published their single departmental plan in February 2016 identifying the need to make journeys better, simpler, faster and more reliable and to support jobs, enable business growth, and bring the country closer together. The DfT has identified four objectives towards building better journeys:
- Boosting economic growth and opportunity
  - Building a One Nation Britain
  - Improving Journeys
  - Safe, secure and sustainable transport.

- 5.4.28 Transport investment and better transport provides economic opportunities, whilst achieving the highest standards of safety and reliability of the transport system. The Scheme conforms and aligns with all these objectives as it would improve connectivity, safety and reduce congestion. This is demonstrated in the TA report (application document TR010029/APP/7.4). The Scheme supports the aim outlined in the plan to enable better, faster, simpler and more reliable journeys.

#### Investing in Britain’s Future (June 2013)

- 5.4.29 Investing in Britain’s Future (“IBF”), published by HM Treasury in June 2013, sets out the Government’s intention to build a strong UK economy by delivering infrastructure that competes with the best in the world.
- 5.4.30 Section 2 of the document states that:

*‘Government intends to invest £28 billion on enhancements and maintenance of national and local roads to... build all available Highways Agency road projects, tackling the most congested parts of the network... [and] ...identify and fund solutions to tackle some of the most notorious and longstanding road hot spots in the country...[and] ...upgrade the national non-motorway network*

*managed by the Highways Agency with a large proportion moved to dual-lane and grade separated road standard to ensure free-flowing traffic nationwide.'*

- 5.4.31 Junction 28 has been highlighted as a hot spot for congestion through the RIS. The current network performance and future network performance model analysis which is provided within the TA (application document TR010029/APP/7.4) outlines how the Scheme is expected to lead to improvements to the levels of congestion around the junction. It is therefore considered that the deliverance of this Scheme would contribute towards the objectives of this document.

#### Action for Roads: A network for the 21st century (July 2013)

- 5.4.32 Following on from IBF, this report was published in July 2013 by HM Treasury and sets out Government's plans to upgrade the UK's SRN (motorways and key A roads). In paragraph 1.5 it explains that the road network is the "life-blood of the economy" because:

*'Roads provide critical connections. They link major economic centres and connect our major ports and airports. Many people use them to get to railway stations and to connect to other modes of transport.'*

*Roads support job creation and unlock new development. They provide access to labour markets and unlock new opportunities for factories and businesses. More than 1 million jobs are associated with road transport. Factories and other businesses regularly consider access to good roads and other transport connections in making decisions about where to locate.'*

- 5.4.33 Overall the Scheme will increase connectivity and support economic growth in the local area as has been identified within the economic case set out in section 4 of this Statement. It is therefore considered that the Scheme is compliant with the national guidance outlined above.

#### Highways England's Strategic Business Plan 2015 – 2020

- 5.4.34 The Highways England's Strategic Business Plan ("SBP") (2015-2020) sets out the outcomes, KPIs and associated targets for the RIS schemes. The Business Plan recognises that the SRN acts a key enabler of economic growth and prosperity and contributes significantly to people's quality of life. Page 10 of the Business Plan states that *'tackling congestion and delay, and providing better connections are at the forefront of our plans to provide a modern network that supports a modern economy'* which closely aligns with the problems being addressed by the Scheme.

- 5.4.35 Appendix II – Investment Mapping (pages 48 and 49) of the Business Plan lists schemes proposed for the South-East of England and project (5) is identified as improvements to M25 junction 28 i.e. the Scheme.

#### Highways England Delivery Plan 2015 – 2020

- 5.4.36 The Highways England Delivery Plan builds on the SBP and was published in response to the Government's RIS and sets out the how each of the strategic outcomes will be delivered. The strategic outcomes identified include:
- Supporting economic growth – through a modernised and reliable network that reduces delay, creates jobs and helps businesses compete, and opens

up new areas for development.

- Safe and serviceable network – where no one should be harmed when working or travelling on the network.
- More free flowing network – where routine delays are more infrequent, and where journeys are safer and more reliable.
- Improved environment – where the impact of our activities is further reduced ensuring a long-term and sustainable benefit to the environment.
- More accessible and integrated network – that gives people the freedom to choose their mode of transport and enable safe movement across and alongside the network.

5.4.37 The Scheme is expected to meet the objectives of this Delivery Plan through:

- supporting economic growth as outlined in Section 4 of this Statement
- create a safe and serviceable network by designing to the appropriate DMRB standards
- create a free-flowing network through reducing congestion as identified in the TA (application document TR010029/APP/7.4)
- Improve the environment through improvements to driver stress and preventing exceedances of air quality targets
- Improve the highways infrastructure for public transport use as well as private car users.

### Essex Development Management Policies (2011)

5.4.38 Essex Development Management policy DM15 seeks to reduce the levels of congestion cross the county and junction 28 is specifically identified as an area that suffers from a high level of congestion.

### Summary

5.4.39 The NPS NN identifies the ‘critical’ need for improvements to national networks, including projects like this Scheme that make a significant contribution to the objectives set out in the NPS NN. The need for the Scheme in general and this route in particular has been extensively studied through the processes needed to identify the Scheme as committed in the RIS, RIS 2 and other Highways England documents and strategies. The requirement for the Scheme is identified in numerous policy documents and plans at the national and local level, with widespread acknowledgement that the Scheme is needed and will deliver significant benefits for the area.

## 5.5 Green Belt policy

### Inappropriate development

5.5.1 As identified on both the LBH and BBC Local Plan policies maps, the entirety of the Scheme falls within designated Green Belt. Both local and national planning policy sets out that the general presumption of development in the Green Belt is to refuse inappropriate development unless overriding reasons justify development.

5.5.2 Paragraphs 5.170 and 5.171 of the NPS NN state:

*'The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if so, whether their proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land, and land designated as Local Green Space in a local or neighbourhood plan, are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances.'*

*'Linear infrastructure linking an area near a Green Belt with other locations will often have to pass through Green Belt land. The identification of a policy need for linear infrastructure will take account of the fact that there will be an impact on the Green Belt and as far as possible, of the need to contribute to the achievement of the objectives for the use of land in Green Belts.'*

5.5.3 Paragraph 5.178 of the NPS NN states:

*'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 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.'*

5.5.4 In addition to the NPS NN wording above, it is noted that paragraph 144 of the NPPF states:

*'When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.'*

5.5.5 Paragraph 146 of the NPPF sets out that certain developments are not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These include:

- a. engineering operations;
- b. local transport infrastructure which can demonstrate a requirement for a Green Belt location;

5.5.6 It is acknowledged that the Scheme is anticipated to provide significant benefits to the local transport network and would be considered an engineering operation and a case might therefore be made that the Scheme can be considered not to constitute inappropriate development as set out in the paragraphs below:

- The existing junction is located within the Green Belt. The remodelling and construction of new slips roads and loop road is therefore not inconsistent

with the existing use;

- The scheme has been designed to minimise visual impact on surrounding receptors and limit the impact on the openness of the Green Belt as set out within Chapter 9 of the ES (application document TR010029/APP/6.1). It is also noted that the existence of the current junction 28 gyratory somewhat limits the perceived openness of the area.
- The location of the Scheme in the Green Belt is unavoidable as it is related to an existing junction. The only way to avoid developing in the Green Belt would be to not progress the Scheme. The NPPF identifies that local transport developments that cannot avoid a Green Belt location are not inappropriate development.

5.5.7 The NPS NN recognises that infrastructure projects have to be located in the Green Belt if they are to go ahead. The exception to this might be if alternative alignments not within the Green Belt are available and suitable. As set out within the alternatives assessment within Chapter 3 of the ES (application document TR010029/APP/6.1), there are no alternative options that would avoid works taking place within the Green Belt.

5.5.8 Notwithstanding the assessment above, it is recognised that the Scheme gives rise to benefits that are wider than local in application and as such it might not be considered to constitute 'local' transport infrastructure. In any event, it is considered that there are very special circumstances for the Scheme to go ahead in the Green Belt location and these are set out in detail below.

### Very special circumstances

5.5.9 The following section outlines that any actual or perceived harm to the openness of the Green Belt is outweighed by other material considerations, which amount to '*very special circumstances*' sufficient for the Scheme to be consented.

5.5.10 In this regard, the relevant policy restrictions on development in the Green Belt are to be weighed against the other policy considerations, which inform the planning balance put forward in Section 5.20 below.

5.5.11 The need for the Scheme is an important and relevant consideration that should be attributed significant weight. The rationale behind the Scheme has been set out in Section 2 of this Statement with reference made to the Government's support in increasing capacity, reducing congestion and delays, improving safety and reducing incident rates, minimising impact on noise and air quality and protecting access for NMU's, which are reflected in the Scheme objectives.

5.5.12 The Scheme has been through a rigorous assessment process and has been included in the first RIS (published in 2014) and continues to be a committed scheme in RIS2 (published in March 2020).

5.5.13 It would not be possible for an intervention to take place at M25 junction 28 without it involving development in the Green Belt and the Scheme has been designed so as to minimise potential effects on the Green Belt, through minimising land take and proposing planting around the outside of the loop road, designed to follow the contours of the land, to lessen the visual impact and to mitigate adverse effects.

- 5.5.14 In determining the extent to which harm may be caused to the Green Belt by the Scheme, reference is made to the five purposes of the Green Belt, set out in paragraph 134 of the NPPF, as follows:
- To check the unrestricted sprawl of large built-up areas
  - To prevent neighbouring towns merging into one another
  - To assist in safeguarding the countryside from encroachment
  - To preserve the setting and special character of historic towns
  - To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

- 5.5.15 Taking each in-turn, the purposes of including land within the Green Belt and the associated responses are set out below.

#### To check the unrestricted sprawl of large built-up areas

- 5.5.16 The Scheme is wholly within the Green Belt. The closest large built up areas are Brentwood to the east and Harold Wood/Romford to the west and the Scheme would not encourage any extension of those urban areas, nor further incursion into the Green Belt.

- 5.5.17 Furthermore, the Scheme does not involve any other new build development such as housing or industrial uses.

#### To prevent neighbouring towns from merging into one another

- 5.5.18 The Scheme involves alterations to the existing junction, creation of new loop road and diversion of an existing high-pressure gas main. Work is proposed outside of the existing highway boundary within the Green Belt, but this would not be facilitating the merger of neighbouring towns. It would also not impact on or reduce the ability of the Green Belt to prevent neighbouring towns from merging.

#### To assist in safeguarding the countryside from encroachment

- 5.5.19 Encroachment into the Green Belt has been minimised as much as possible while the relevant design safety standards are met. Land take of the preferred option has been minimised and is only proposed where there is an identified need in order to construct, operate or maintain the Scheme.

- 5.5.20 The Scheme includes screening and planting around its edge to minimise visual intrusion and to discourage any further development from around the perimeter of the Scheme.

#### To preserve the setting and special character of historic towns

- 5.5.21 There is no anticipated change to the setting and character of historic towns within the Green Belt.

#### To assist in urban regeneration by encouraging the recycling of derelict and other urban land

- 5.5.22 The Scheme aims to improve journey times on the junction and the A12 in delivering capacity enhancements to support employment and

residential/commercial development and growth opportunities. This is seen as having a positive effect on bringing forward the development land noted within the respective Local Plans and outlined within the Cumulative Effects chapter of the ES (application document TR010029/APP/6.1).

## Openness of Green Belt

- 5.5.23 Notwithstanding the case for ‘*very special circumstances*’ noted above, the Scheme has been designed to minimise any perceived impact to the existing openness of the Greenbelt.
- 5.5.24 Moreover, given the location of the junction, it would not be possible to deliver a new loop road using land which is outside of the Green Belt. There are no alternative options to deliver the Scheme in a non-Green Belt location. The need for the Scheme and lack of alternatives present very special circumstances strongly in favour of the Scheme.
- 5.5.25 The Scheme is located in the setting of the existing junction the remodelling and construction of new slips roads and loop road would be viewed in the context of this strategic road infrastructure and is therefore not inconsistent with the existing use.
- 5.5.26 Moreover, the topography of the site and the position of the existing M25 and A12 means that the proposed loop road falls away from the M25 down towards the A12 ensuring that the new infrastructure would appear as a subordinate feature to the motorway which would remain the dominant feature of the landscape. Additionally, significant amounts of screening through the use of planting is proposed to minimise the visual intrusion of the Scheme on the Green Belt. Further details of this are provided within Chapter 9 of the ES relating to landscaping (application document TR010029/APP/6.1).
- 5.5.27 The works to re-direct the high-pressure gas pipeline would be temporary and therefore would not have a long-term impact on the perceived openness of the Green Belt. No permanent above ground works are proposed as part of the diversion.
- 5.5.28 The works to Maylands Golf Course would be commensurate with the existing use and therefore not impact upon the current level of openness.
- 5.5.29 The construction compound areas have been minimised to only the areas necessary and will also be a temporary feature for the duration of the construction. The impact on the openness of the Green Belt will therefore be limited and temporary.

## 5.6 Open space

- 5.6.1 The NPS NN states at paragraphs 5.165 to 5.167 that 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.
- 5.6.2 Policy G4 of the Draft New London Plan relates to open space and notes development proposals should not result in the loss of protected open space, and where possible should create areas of accessible open space, particularly in areas of deficiency.

- 5.6.3 Havering's Core Strategy Policy DC18 also notes that any loss of open space to a non-recreation/leisure use must be accompanied by an improvement to the quality of open space in the vicinity or to remedying qualitative and quantitative deficiencies in open space elsewhere in the Borough. Policy 18 of the emerging Local Plan supports this.
- 5.6.4 Chapter 13 of the ES (application reference TR010029/APP/6.1) provides an assessment of the land take required to facilitate the Scheme. Of the community assets identified, it is anticipated that there will be a significant adverse effect to Maylands Golf Course as a result of the permanent acquisition of a right over the land required in order to accommodate the diverted Cadent Gas pipe-line. There is also expected to be an adverse effect on the amenity of the golf course although this is mitigated through the use of landscape and noise buffers.
- 5.6.5 Although not considered to constitute open space within the meaning of the Planning Act 2008, in local policy terms Maylands Golf Course is designated as open space through Havering Core Strategy Policy DC18. Therefore, in order to mitigate the loss of open space at what is currently the hole 2 tee-off area, an area of land is proposed to be provided to facilitate the construction of a replacement golf hole. This proposed mitigation is to ensure that at least equivalent area is re-provided. Discussions with Maylands Golf Club owners have also taken place and will continue to take place, to enable most appropriate design option for re-provision of hole 2 to be decided. Further details regarding the position with Maylands Golf Course is provided within the Consultation Report (application reference TR010029/APP/5.1).
- 5.6.6 While the Land at Oak Farm, to the south of the A12 is not designated open space in policy terms, it could be considered that the land, which is being developed as a burial ground, would fall under the definition of open space under the Planning Act 2008 once open to the public. The land would be taken temporarily in order to install the Cadent Gas pipe diversion and would then be subject to an easement to allow Cadent to monitor, maintain and inspect its equipment. It is considered that the land, once subject to the easement would be no less advantageous and no replacement land is considered necessary.
- 5.6.7 Further details regarding this are set out in Section 7.2 of the Statement of Reasons (application reference TR010029/APP/4.1).
- 5.6.8 In light of the above, it is considered that the Scheme is in accordance with the relevant national and local planning policy with regard to open space.

## 5.7 Sustainable development

- 5.7.1 Paragraph 1.20 of the NPS NN states that both the NPS NN and NPPF seek to achieve sustainable development. Paragraph 5.163 of the NPS NN encourages the re-use of previously developed land but recognises that this may not be feasible for some forms of infrastructure such as roads. There are no opportunities to deliver the Scheme using previously developed land.
- 5.7.2 NPS NN paragraph 5.202 recognises that the impacts from transport infrastructure schemes can be economic, social and environmental and that consideration and mitigation of these impacts is an essential part of the Governments wider policy objectives for sustainable development. NPPF paragraph 8 states that there are three overarching objectives to achieving

sustainable development, all of which are interdependent, including the economic objective, the social objective and the environmental objective.

- 5.7.3 A comprehensive environmental impact assessment (“EIA”) has been carried out, together with proposals for mitigation of likely significant environmental effects arising from the Scheme. This is reported in the ES (application document TR010029/APP/6.1). Where specific mitigation is necessary, this is reported under each chapter of the ES.
- 5.7.4 Significant environmental and quality of life improvements include a reduction in the level of congestion and improved journey reliability. The Scheme would also benefit the water environment through the realignment of the Weald Brook and Ingrebourne River. Driver stress levels would see an improvement as a result of the improvement to the levels of congestion.
- 5.7.5 Social impacts of the Scheme have been considered within the ES, primarily through Chapter 13 relating to people and communities. While the Scheme has been designed to minimise impacts on identified residential and community uses, significant adverse effects are unavoidable. Where possible mitigation measures have been outlined to address the impacts that have been identified.
- 5.7.6 Chapter 16 of the ES provides a summary of the effects anticipated and also indicates that a significant beneficial impact is expected to the levels of driver stress as a result of the Scheme.
- 5.7.7 When considered as a whole, the Scheme meets the requirements of the economic, social and environmental objectives of sustainable development as set out in the NPS NN and the NPPF.

## **5.8 Traffic, transport and public rights of way**

- 5.8.1 The Scheme is identified as a committed scheme in the RIS 1 and continues to be a committed scheme in RIS 2.
- 5.8.2 Policy 6.12 of the current London Plan supports the increase to road capacity where provision is made for new road users, cyclist, pedestrians and other non-motorised vehicle users.
- 5.8.3 Policy T1 of the draft new London Plan relating to strategic approach to transport notes that development should facilitate the mayor’s target of 80 per cent of all trips in London to be made by foot, cycle or public transport by 2041. Development should make the most effective use of land, reflecting connectivity and accessibility of public transport, walking and cycling routes.
- 5.8.4 Policy T3 states that development proposals should support capacity, connectivity and other improvements to the bus network and ensure it can operate efficiently to, from and within developments, giving priority to buses and supporting infrastructure as needed. Policy T4 further states that TA’s should be provided so that the impacts upon the capacity of the multi-modal transport network are fully assessed. Where appropriate, mitigation, either through direct provisions or financial contributions, will be required to address adverse impacts.
- 5.8.5 Policy DC32 of the Havering Core Strategy relates to road schemes and states that new proposal will be considered acceptable where they are safe and convenient for pedestrians, where they accord with the policies of the London Plan, have net environmental benefits and are in accordance with the roads

hierarchy. Policy 23 of the emerging plan relating to transport connections seeks to enhance strategic transport links and tackle congestion hotspots.

- 5.8.6 Policies CP3 and T2 of the Brentwood Replacement Local Plan relates to the impact on the transport systems and states that all submissions should contain sufficient information to determine the impact of the Scheme on transport systems.
- 5.8.7 Policy BE11 of the Pre-submission Local Plan emphasises collaborative working with the highway authority and key stakeholders, improvements to highway safety, and public realm that allows for NMUs, particularly around schools. Policy BE16 seeks to mitigate the transport impacts of development by seeking to ensure that developments will not have an unacceptable transport impact and/or any significant impacts on the transport network (in terms of capacity and congestion) and safety can be effectively mitigated to an acceptable degree.
- 5.8.8 Section 2 of this Statement sets out the Scheme objectives which are:
- Increase capacity and reduce congestion and delays by providing an improved link from M25 to A12
  - Reduce the incident rate and resulting disruption by increasing the capacity of the roundabout
  - Improve safety on the roundabout by reducing traffic levels and redesigning the existing layout
  - Cater for future traffic demands to enable development and economic growth
  - Minimise the impact on local air quality and noise by smoothing traffic flow
  - Protect access for NMUs (pedestrians and cyclists) and improve conditions wherever possible.
- 5.8.9 The Scheme will lead to a reduction in the anticipated number of accidents and collisions thereby improving road safety. The Scheme ensures that existing NMU routes are maintained and in the case of the newly constructed A12 off-slip, are improved through widening. An assessment of the Scheme's impacts on NMU routes is provided within Chapter 13 of the ES (application document TR010029/APP/6.1).

## 5.9 Air quality

- 5.9.1 The NPS NN paragraph 5.6 states that where the impacts of the project are likely to have significant air quality effects, the applicant should undertake an assessment of the impacts of the proposed project as part of the ES. The NPS NN paragraphs 5.7 to 5.9 set out the methodological requirements for this assessment.
- 5.9.2 NPS NN paragraph 5.10 states that: *'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.'*
- 5.9.3 NPS NN paragraph 5.12 states that: *'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.'*

- 5.9.4 NPS NN paragraph 5.13 states that: *'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.'*
- 5.9.5 The NPPF paragraphs 170 and 181 state that planning decisions should prevent new development from contributing to unacceptable levels of air pollution and, where possible, new development should help to improve air quality.
- 5.9.6 Policy 7.14 of the London Plan seeks to minimise increased exposure to existing poor air quality and make provision to address local problems of air quality and be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality. Policy S11 of the Draft New London Plan repeats this objective. Essex Development Management Policy DM16 states  
*'The Highway Authority will assist the Local Planning Authority in the protection of areas that have been designated as unacceptable in terms of air quality by having a general presumption against the provision of development that would cause a negative impact to existing designated (AQMA) through increased traffic or congestion, unless appropriate mitigation measures are provided by the developer.'*
- 5.9.7 Havering's Core Strategy Policy DC52 states that new development ensure that it does not singularly or cumulatively breach air quality targets', nor *'cause a breach of the targets set in Havering's Air Quality Management Area Action Plan (HAQMAAP)'*. Policy 33 of the emerging plan further supports this objective to improve air quality.
- 5.9.8 Brentwood pre-submission local plan Policy NE05 Air Quality states:  
*'Development is required to meet or exceed the 'air quality neutral' standard, especially within AQMAs, and development proposals should minimise exposure to existing poor air quality and make provision to address local air quality exceedances through design solutions and measures.'*
- 5.9.9 As outlined within Chapter 5 of the ES (application document TR010029/APP/6.1), a review of baseline conditions shows that there are two Air Quality Management Areas ("AQMA") in the study area which could be affected by the Scheme. Air quality monitoring data shows that there are exceedances of the annual mean Air Quality Strategy ("AQS") objective for NO<sub>2</sub> within the study area at roadside and kerbside sites, and within the AQMA. PM<sub>10</sub> concentrations are below the objectives.
- 5.9.10 During construction, there is the potential for increased emissions of dust, however, with the application of appropriate mitigation measures, significant adverse effects at nearby receptors would be unlikely. Additional traffic during construction was considered unlikely to significantly adversely affect air quality, as it is not expected to meet the criteria for assessment.
- 5.9.11 During operation, the assessment showed that overall there was not considered to be a significant adverse effect on air quality. There are not expected to be any

exceedances of the NO<sub>2</sub> annual mean AQS objective at the selected human health receptors in the opening year, both with and without the Scheme.

## 5.10 Noise and vibration

- 5.10.1 NPS NN paragraph 5.195 states that: *‘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.
  - Contribute to improvements to health and quality of life through the effective management and control of noise, where possible.’
- 5.10.2 Policy 7.15 of the London Plan reiterates those objectives of the NPS NN and Policy 14 of the Draft New London Plan requires new development proposals to avoid and mitigate adverse noise impacts, minimise the significance of noise impacts, enhance the acoustic environment, separate new noise-sensitive development from major noise sources and use appropriate mitigation measures. These aims are further supported through the Mayor’s Transport Strategy.
- 5.10.3 Havering Core Strategy policy DC55 notes that planning permission will not be granted if it will result in exposure to noise or vibrations above acceptable levels affecting a noise sensitive development. Policy 34 of the emerging Havering Local Plan further notes that the Council will support proposals which do not unduly impact on the amenity of human health receptors through noise and vibration.
- 5.10.4 Brentwood Local Plan Policy DM1 outlines the requirement for proposals to have no ‘unacceptable effect on health, the environment or amenity’, which includes ‘light, noise pollution and vibration’.
- 5.10.5 Chapter 6 of the ES (application document TR010029/APP/6.1) details that a noise and vibration assessment of the Scheme has been undertaken, comprising identification of the baseline conditions, identification of sensitive receptors, prediction of the expected noise and vibration impacts and the mitigation measures that may be required to avoid significant effects.
- 5.10.6 The assessment indicates that the Scheme would have no residual significant adverse effects from construction noise and vibration at any sensitive receptors from daytime and night-time construction activities and construction traffic.
- 5.10.7 The assessment indicates that the Scheme would have no significant adverse effects at any sensitive receptors from operational traffic noise and vibration. No significant adverse effects or perceptible noise increases are predicted at sensitive receptors located in Noise Important Areas.

## 5.11 Biodiversity

- 5.11.1 Paragraphs 5.20 – 5.37 of the NPS NN outline to national policy position with regard to biodiversity and the natural environment. Paragraphs 5.22-5.23 state:

*'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. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.'*

5.11.2 Paragraph 5.25 further states:

*'as a general principle, and subject to the specific policies below, development should avoid significant harm to 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.'*

5.11.3 In regard to ancient woodland and veteran trees, paragraph 5.32 states:

*'Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as 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.<sup>79</sup> 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.'*

5.11.4 Paragraph 5.36 indicates that applicants should provide appropriate mitigation measures as an integral part of their proposed development.

5.11.5 Policy 7.19 of the London Plan expects development proposals to give sites of metropolitan, borough and local importance (Sites of Importance for Nature Conservation (SINCs)) the level of protection that is commensurate with their importance in the overall hierarchy (in line with the NPPF). Policy 7.21 of the London Plan notes that existing trees of value should be retained and any loss as the result of development should be replaced following the principle of '*right place, right tree*'.

5.11.6 Policy G6 of the Draft New London Plan notes that development proposals should aim to secure biodiversity net gain. Policy G6 states that "*where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:*

- avoid damaging the significant ecological features of the site
- minimise the overall spatial impact and mitigate it by improving the quality of management of the rest of the site

- delivery off-site compensation of better biodiversity value.”

- 5.11.7 Policy DC58 of the Havering Core Strategy notes the objective to enhance and protect biodiversity and geodiversity in line with the Borough’s Biodiversity SPD while Brentwood’s emerging Local Plan Policy NE01 states support for proposals which minimise the use of natural resources and proactively conserve and enhance the quality of the natural environment. Development should avoid adverse impact on existing natural heritage assets as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements.
- 5.11.8 Chapter 7 of the ES considers biodiversity and outlines that an assessment has been undertaken of the effect of the Scheme on biodiversity resources. This includes a description of the ecological baseline, evaluation of biodiversity features present and assessment of impacts and effects on important biodiversity resources (in line with relevant guidance).
- 5.11.9 Desk based and field survey work identified a number of important biodiversity resources within and adjacent to the Scheme.
- 5.11.10 The Scheme lies within the northern extent of Ingrebourne Valley Site of Metropolitan Importance for Nature Conservation (“SMI”). This large SMI covers the Ingrebourne River corridor and associated habitats through London Borough of Havering.
- 5.11.11 Construction of the Scheme would result in the permanent loss of habitat including 1.9 % of the total area of the Ingrebourne Valley SMI and the loss of two veteran trees. During construction, loss of habitat and disturbance of species has the potential to result in temporary adverse effects on Ingrebourne Valley SMI (approximately 9.3 % of the total area), Ingrebourne River, Weald Brook, great crested newts, bats, breeding birds, otter and terrestrial invertebrates.
- 5.11.12 To reduce these potential effects of the Scheme on biodiversity resources, mitigation and compensation measures have been incorporated into the design. These include, but are not limited to, protection of species during construction, appropriate reinstatement and creation of habitats within temporary construction areas, and remodelling and enhancement of the Ingrebourne River and Weald Brook. When established, replacement habitats created during construction would be suitable to support a diverse range of species. All newly created habitats would be managed and monitored as part of a long-term management plan.
- 5.11.13 The location and design constraints of the Scheme (such as highways safety, structural stability, clearance from floodplain) would result in the unavoidable loss of habitats. Every effort has been made within the design to minimise this loss and retain important features, such as reducing the permanent footprint of the Scheme on the existing floodplain (by replacing embankments with retaining walls) and providing wide-span bridges over watercourses. Despite the mitigation and compensation proposals, the Scheme has the potential to result in the following residual effects:
- Adverse effect of moderate significance in relation to the loss of two veteran trees.
  - Adverse effect of slight significance to Ingrebourne Valley SMI due to the permanent loss of 1.9 % of the SMI.

- Adverse effect of moderate significance on the Ingrebourne River within the DCO boundary due to the permanent loss of open water and riparian habitat caused by the 80 m culvert extension. Enhancement of riverine habitats outside the DCO boundary would result in a neutral effect on the Ingrebourne Water Framework Directive (WFD) waterbody (GB106037028130). However, the adverse effect on the Ingrebourne River within the DCO boundary remains.

5.11.14 No long-term residual effects are anticipated for great crested newts, bats, breeding birds, otter and terrestrial invertebrates.

5.11.15 A technical note to elaborate on the position of the Scheme with regard to veteran trees including greater detail of the mitigation measures proposed has been prepared and is presented in Appendix C.

5.11.16 The Scheme has been designed as far as possible to avoid and minimise the impacts and effects on biodiversity features. The Scheme incorporates carefully considered mitigation measures, set out in a REAC (application document TR010029/APP/7.2) which are effective seek to lessen the impact of the Scheme. As is elaborated upon in section 5.20 of this Statement, the benefits of the Scheme are considered to clearly outweigh the harm to biodiversity in line with the requirements of the NPS NN.

## 5.12 Road drainage and water environment

5.12.1 Section 5 of the NPS NN considers the generic impacts of national networks on flood risk and water quality and resources. A number of the paragraphs in the NPPF follow the same approach and objectives to the NPS NN.

5.12.2 NPS NN paragraphs 5.90 to 5.115 set out the requirement for an FRA to be submitted with the application and provides guidance on the methodology to be used. An FRA has been carried out in accordance with these requirements and is submitted in support of the ES (application document TR010029/APP/6.6). A summary of the methodology and findings of the FRA are also presented in Chapter 8 of the ES (application document TR010029/APP/6.1).

5.12.3 Paragraph 5.99 of the NPS NN and the NPPF paragraph 163 require that when determining an application, the SoS should be satisfied that flood risk will not increase elsewhere and will only consider development appropriate in areas at risk of flooding where it can be demonstrated that:

- 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 and any residual risk can be safely managed.

5.12.4 NPS NN paragraph 5.105 states that preference should be given to locating development in Flood Zone 1 but acknowledges that if there is no reasonably available site then projects can be located in Flood Zone 2, or if no suitable land is available in Flood Zone 2 the land in Flood Zone 3 can be used subject to the exception test.

5.12.5 The NPPF paragraph 155 states that inappropriate development in areas at risk of flooding should be avoided and that development should be directed away from areas at highest risk. Where development is necessary in areas of flood

risk, the development should be made safe for its lifetime without increasing flood risk elsewhere.

- 5.12.6 Policy 5.12 of the London Plan notes that development proposals should comply with NPPF guidance on flood risk with Policy S112 of the Draft New London Plan noting development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed.
- 5.12.7 Policy DC48 of the Havering Core Strategy, Policy 32 of the emerging Havering Local Plan and Policy NE06 of the emerging Brentwood Local Plan reiterate this position.
- 5.12.8 The FRA (application document TR010029/APP/6.6) notes that Environment Agency flood risk mapping and the London Borough of Havering Strategic Flood Risk Assessments (“SFRA”) were used as the main sources of flood risk information to inform the understanding of flood risk within the study area. This information has been supplemented with detailed hydraulic modelling undertaken specifically for the DCO application both to provide a more robust understanding of flood risk and inform the Scheme design.
- 5.12.9 The primary source of flooding at the location of the Scheme is fluvial. Fluvial flood risk arises when watercourses exceed capacity and areas at risk are shown by the Environment Agency Flood Zone mapping. This Flood Zone mapping identifies that several areas of the Scheme are at high risk of fluvial flooding within Flood Zones 2 and 3. There are three geographical areas at risk from fluvial flooding where the proposed works would impact on flood risk, either through the displacement of flood water or as a result of a constriction of flow conveyance. The works in these areas have been subject to extensive hydraulic modelling to inform suitable mitigation measures ensuring negligible overall increase in flood risk due to the Scheme.
- 5.12.10 The other key source of flood risk requiring consideration is surface water runoff. The existing drainage system manages the current surface water flood risk to the road network and this will be upgraded and supplemented with additional drainage systems (where necessary) to accommodate the Scheme. The drainage system has been developed in line with the current planning policy requirements and it is described in detail within the Drainage Strategy Report (application document TR010029/APP/6.8). It will attenuate storm water onsite up to 1 in 100 (1%) annual probability rainfall event including an allowance for climate change.
- 5.12.11 Flood risk from all other sources is considered low, although requirements will be included within the Construction Environmental Management Plan (“CEMP”) (based on the Outline CEMP, application document TR010029/APP/7.2) to be produced by the Principal Contractor to minimise the impacts on flood risk through appropriate mitigation measures. These mitigation measures include consideration of groundwater ingress into excavations and understanding the water transmission infrastructure network in the area.
- 5.12.12 This FRA demonstrates that the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration. It is therefore considered that the Scheme is in accordance with national and local planning policy with regard to flood risk.

- 5.12.13 In regard to water quality, Chapter 8 of the ES (application document TR010029/APP/6.1) notes that the water quality assessment identified potential impacts to the surface water and groundwater during the construction and operation of the Scheme. However, subject to the implementation of all mitigation measures, the overall effect on surface water quality is neutral which is not considered significant. The overall effect to groundwater quality during the construction and operation of the Scheme was also assessed as neutral (subject to the implementation of all mitigation measures) which is not considered significant.
- 5.12.14 A WFD compliance assessment report (application document TR010029/APP/6.7) considered the impact of the construction and operation of the Scheme. It concluded none of the construction components of the Scheme are considered to cause deterioration at water body scale or prevent future attainment of good ecological status or ecological potential assuming mitigation already embedded in the preliminary design is implemented, any additional specific mitigation is implemented and generic guidance on the principles of WFD-compliant design is adhered to.

## 5.13 Landscape and visual impact

- 5.13.1 An assessment of the potential landscape and visual impacts associated with the construction and operation of the Scheme has been carried out and is presented in Chapter 9 of the ES (application document TR010029/APP/6.1) in line with the requirements of NPS NN paragraphs 5.144 - 5.146.
- 5.13.2 Havering Core Strategy Policy DC69 states that the Council will seek to preserve the special character of Havering Ridge, located to the north west of the junction, including protecting views to and from the area.
- 5.13.3 The emerging Havering Local Plan Policy 27 states that the Council will support development proposals that incorporate a detailed and high quality landscape scheme which takes account of the character of the site and its setting; retains and enhances existing positive landscape features; demonstrates how existing landscape features will be protected during construction; maximises opportunities for greening, through planting and soft landscaping; provides strong boundary treatment that integrates with local landscape character and street scene; and supports natural habitats and enhancing biodiversity.
- 5.13.4 Brentwood replacement Local Plan Policy CP1 also notes that any development will need to demonstrate that the proposal 'would not have an unacceptable detrimental impact on visual amenity, or the character and appearance of the surrounding area'.
- 5.13.5 Chapter 9 of the ES (application document TR010029/APP/6.1) sets out that The Scheme lies within a landscape that is predominantly composed of open pasture and woodland blocks some composed of Ancient Woodland. The M25 as it passes through the study area follows a broad shallow valley, rising to the north and south following the ground level. There is one property (Grove Farm) encircled by the Scheme DCO boundary as well as isolated properties within the study area to the west located adjacent to the Maylands Golf Course. Further afield the settlements of Harold Hill and Harold Park lie adjacent to the Scheme. The Ingrebourne River and Weald Brook flow through the study area passing under the A12 at Putwell Bridge. Overhead electric lines run in a north to south

direction and are a dominant feature in the landscape. Weald Park, a Grade II Registered Park and Garden located approximately 800 m to the north of the junction, lies within the study area.

- 5.13.6 There are areas of tree planting that run along the A12 and M25 these serve to limit the visual impact of these highways on the surrounding area although the noise from the traffic is always present, disturbing the tranquillity of the area.
- 5.13.7 The Scheme has been developed to limit as far as possible the impact on the surrounding landscape with the introduction of the proposed loop road and associated slip roads. Despite this there are areas of unavoidable losses to ancient and mature woodland blocks (including veteran trees) and other vegetation associated with the improvements to the highway infrastructure which will have an impact on the landscape. It will also increase the visibility of the roads and traffic leading to increased visual impact for certain receptors particularly during the construction phase. Because of the extent of the ancient and mature woodland blocks, vegetation and landform in the area the adverse impacts are not as significant as they could have been, with the effects largely limited to the immediate area.
- 5.13.8 The Scheme also includes large areas of mitigation planting to reduce the impact of the Scheme and to offset the losses of vegetation and ancient and mature woodland blocks.

## 5.14 Geology and soils

- 5.14.1 Section 5 of the NPS NN considers the impact of national networks on land stability, geotechnics, geology and soils.
- 5.14.2 NPS NN paragraph 5.117 states that:
- '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 or suspected.'*
- 5.14.3 NPS NN paragraph 5.118 requires applicants to carry out preliminary assessment of ground instability at the earliest possible stage and undertake any necessary investigations to ascertain that the site will remain stable or can be made so as part of the development. It also requires applicants to complete a land stability or slope stability risk assessment report, taking into account the surrounding areas where subsidence, landslides and land compression could threaten the development / neighbouring land or property. This is also in line with NPPF paragraphs:
- 170: which states that planning decisions should contribute to and enhance the natural and local environment by preventing new development from contributing to unacceptable levels of soil pollution or land stability;
  - 178: which states that planning decisions should ensure that a site is suitable for its proposed use taking account of ground conditions and any risks arising from land stability including risks from mining; and
  - 179 which requires that where a site is affected by land stability the

responsibility for securing a safe development rests with the developer.

- 5.14.4 NPS NN paragraph 5.168 requires applicants to consider the economic and other benefits of the best and most versatile agricultural land and, where significant development of agricultural land is demonstrated to be necessary, to seek to use areas of poorer quality land in preference to that of a higher quality.
- 5.14.5 Policy 5.21 of the London Plan requires appropriate measures should be taken to ensure that development on previously contaminated land does not activate or spread contamination while Policy G9 of the Draft New London Plan notes that developments should make a positive contribution to the protection and enhancement of geodiversity.
- 5.14.6 Havering Core Strategy Policy DC53 states that development will only be granted where:
- the development is on or near a site where contamination is known, or expected to exist, a full technical assessment of the site's physical stability, contamination and/or production of landfill gas must be undertaken. Where the assessment identifies an unacceptable risk to human health, flora or fauna or the water environment, the applicant will be required to agree acceptable long-term remediation measures before any planning permission is granted to ensure there is no future harm with regard to the future use of the site. Where feasible, on-site remediation, especially bio-remediation, is encouraged
  - the development does not lead to future contamination of the land in and around the site.
- 5.14.7 Policy 34 of the emerging Havering Local Plan supports the above policy objectives. Policy BC1 of the Brentwood Local Plan also requires environmental surveys to be carried out to assess the nature and extent of contamination, further supported by Policy NE07 of the emerging Brentwood Local Plan.
- 5.14.8 As set out in Chapter 10 of the ES (application document TR010029/APP/6.1), an assessment with regards to geology and soils has been carried out for the Scheme and a 250 m buffer zone from the DCO boundary. The assessment comprises three components; land contamination, geomorphology and ground stability and agricultural land.
- 5.14.9 Identified potential sources of contamination within the DCO boundary include the inactive Brook Street Landfill, recently deposited material at Grove Farm, a railway, made ground / infill associated with existing infrastructure, vehicle emissions, spills and leaks on the roads, four recorded minor pollution incidents and a BPA sub-surface pipeline. Identified potential sources of contamination within 250m from the DCO boundary include a garden centre and a waste management company (both at Grove Farm), two former fuel stations, two active fuel stations, electricity substations, a sewage treatment works, a former aerodrome, vehicle service garages, vehicle cleaning services and agricultural activities. Identified receptors of potential contamination include residents, construction workers, maintenance workers, groundwater aquifers, surface water features and infrastructure.
- 5.14.10 A preliminary geo-environmental ground investigation has been carried out on land to the northwest of the junction within the DCO boundary, targeting the recently deposited material at Grove Farm. This area of the Scheme was

considered a cause for concern as there appeared to be no records relating to this activity but our investigations have revealed that there are no widespread, unacceptable concentrations of chemical parameters.

- 5.14.11 Without mitigation measures, the construction phase effects associated with potential contamination sources have been typically assessed as minor adverse or negligible, temporary and not significant. The exception to this outcome would be the potential effect relating to the pathway linking on-site construction workers to asbestos identified in the sub-surface during the preliminary geo-environmental ground investigation, which is considered a moderate adverse, temporary and significant effect.
- 5.14.12 Where adverse effects associated with land contamination have been identified, design and mitigation measures would be implemented. With these measures, the temporary effects to the identified receptors during construction are considered negligible, temporary and not significant, as the level of risk to receptors is expected to remain generally the same as before the Scheme. With design and mitigation measures, including the adoption of Best Available Techniques, the operational phase is considered to have a negligible to minor beneficial effect and has been assessed as permanent and not significant. The reason beneficial effects have been identified is that the reasonable worst-case scenario for the Scheme assumes that where potential sources of contamination have been identified but not intrusively investigated, contamination is present. This would lead to remediation which would therefore improve the conditions from before the Scheme.
- 5.14.13 With respect to geomorphology and ground stability, the assessment indicated that the construction phase is likely to have a minor adverse (temporary) to minor beneficial (permanent) effect and the operational phase is considered likely to have a negligible effect. These effects have been assessed overall as not significant.
- 5.14.14 With the design and mitigation measures proposed, as outlined within the REAC and secured through Requirement no. 4 of the draft DCO (application document TR010029/APP/3.1), there are no likely significant adverse residual effects concerning geology and soils.
- 5.14.15 No cumulative effects with regards to geology and soils are assessed as a likely as a consequence of the Scheme and surrounding development.
- 5.14.16 As such, the Scheme is considered to be in accordance with national and local planning policy with regard to geology and land contamination.

## **5.15 Cultural heritage**

- 5.15.1 NPS NN paragraphs 5.120 to 5.142 consider the impacts on the historic environment. Paragraphs 5.120 and 5.121 recognise that both the construction and operation of national networks has the potential to result in adverse impacts on the historic environment.
- 5.15.2 Section 11.5 of ES Chapter 11 (application document TR010029/APP/6.1) presents the assessment methodology and follows the approach set out in the NPS NN (e.g. paragraphs 5.126 and 5.127). The methodology includes a desk-based review of available records, a ground investigation with archaeological monitoring and a geophysical survey. Details of the desk-based assessment and

field evaluation are presented in Section 11.7 of the ES with consideration of the potential impacts is presented in Section 11.10.

- 5.15.3 NPS NN paragraph 5.133 states that where the proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, the SoS should refuse consent unless it can be demonstrated that the harm is necessary to deliver substantial public benefits that outweigh that harm.
- 5.15.4 London Plan policy HC1 notes that development proposals should conserve the significance of any affected heritage/archaeological assets and their settings through sympathetic design and layout. Proposals should avoid harm and identify enhancement opportunities.
- 5.15.5 Havering Core Strategy Policy 28 notes that the Council supports development which affects the significance of a heritage asset with archaeological interest where the proposals are ‘supported by an appropriate assessment of the asset’s significance’ and any harm is ‘*minimised, clearly justified and necessary to achieve public benefits that are substantial enough to outweigh loss or harm to the asset’s significance.*’ In addition, a particular asset or part of an asset to be lost should be ‘*recorded and made publicly accessible*’. The emerging Havering Local Plan Policy C16 states that proposals for development in the vicinity of a Listed Building will not be permitted where the proposals would be likely to detract from its character or setting.
- 5.15.6 Brentwood pre-submission Local Plan Policy HP19 confirms the Council’s commitment to preserve the borough’s heritage assets. Proposals affecting heritage assets must “*conserve, sustain and enhance designated and non-designated heritage assets including views*”.
- 5.15.7 Chapter 11 of the ES sets out that the cultural heritage assessment of the Scheme has considered impacts on heritage assets that may occur during the construction and operation of the Scheme. This includes direct physical impacts, as well as indirect impacts to heritage assets and their settings.
- 5.15.8 During the construction phase, slight adverse effects are predicted on five heritage assets. These are the result of the removal of materials from three areas of archaeological significance and changes in the setting of two heritage assets. These areas of significance are identified in Section 11.7 of Chapter 11 of the ES (application document TR010029/APP/6.1). None of the effects are significant.
- 5.15.9 The operation of the Scheme would not result in any adverse effects.
- 5.15.10 Impacts to the known and as-yet unknown archaeological remains will be mitigated through measures to be set out in the CEMP, which is secured by Requirement 4 of the DCO, including an archaeological programme of works, and design measures to reduce the visual and noise intrusions into the settings of heritage assets. The CEMP must be substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2). The implementation of the CEMP commitments would reduce the impacts to heritage assets and lessen the significance of the effect, so that no residual significant effects are anticipated.
- 5.15.11 In light of the above, the Scheme is considered to be in accordance with the requirements of national and local policy with regard to cultural heritage.

## 5.16 Materials and waste

- 5.16.1 Section 5 of the NPS NN considers the generic impacts associated with National Networks and includes waste management. Paragraphs 5.42 and 5.43 address waste management and state that the applicant should set out the arrangements that are proposed for managing any waste produced.
- 5.16.2 Paragraph 204 of the NPPF states that planning policies should, so far as is practicable, take account of the secondary and recycled materials and minerals waste supply before considering the extraction and use of primary materials.
- 5.16.3 Policy 5.16 of the London Plan, concerning waste net self-sufficiency, states targets of 'managing the equivalent of 100% of London's waste within London by 2026', creating 'positive environmental and economic impacts from waste processing' and working 'towards zero biodegradable or recyclable waste to landfill by 2026'. This will be achieved by 'minimising waste' overall through 'encouraging the reuse of and reduction in the use of materials'.
- 5.16.4 Emerging Havering Local Plan Policy SI7 supports resource conservation, waste reduction and re-use of materials. The East London Joint Waste Development Plan aims to drive waste management up the waste hierarchy by promoting waste minimisation, materials reuse, recycling and recovery of resources supported by the Essex County Council and Southend-on-Sea Borough Council Waste Local Plan.
- 5.16.5 Policy DC41 of the Havering Core Strategy encourages the re-use and recycling of aggregates, supported by the Sustainable Design and Construction SPD.
- 5.16.6 Policy SP01 of the emerging Brentwood Local Plan notes development is required to employ the highest standards of sustainable construction management, including: a. sustainable construction methods, such as use of sustainably sourced materials or recycled materials; b. the reuse of demolished material from development site, where practical in order to minimise the transportation of waste and reduce carbon emissions; and c. the sustainable disposal of materials.
- 5.16.7 Chapter 12 of the ES (application document TR010029/APP/6.1) reports the assessed impacts of materials and waste associated with the Scheme during its construction, demolition and excavation ("CD&E") phases. This chapter has been written in accordance with LA 110 Material assets and waste (formerly IAN 153/11, DMRB) which sets out the requirements for assessing and reporting the effects on material assets and waste from the delivery of motorway and all-purpose trunk road projects.
- 5.16.8 The operational phase of the Scheme was scoped out of the assessment at the scoping stage, because it is unlikely that the operational phase will result in significant effects with respect to material assets and waste.
- 5.16.9 The estimated quantities of materials consumed during the construction phase have been assessed against a regional or national material sales baseline. The estimated quantities of waste generated during the construction phase have been assessed against a local waste infrastructure capacity baseline. The assessment identifies the quantum of material which will be removed and re-used during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on

site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.

- 5.16.10 The CD&E waste generated by the Scheme will be primarily non-hazardous and inert. However, there is likely to be some hazardous waste mainly from excavation due to the proximity of the Scheme to historic landfills and other sources of contamination.
- 5.16.11 The assessment finds that the Scheme's significance of effect of material consumption is slight. The Scheme's significance of effect regarding CD&E waste arising from the Scheme is moderate, assuming a worst-case scenario of all excavated material being disposed of to landfill.
- 5.16.12 With regards to cumulative effects, the Scheme's significance of effect regarding material consumption has been assessed as neutral or slight.
- 5.16.13 Mitigation and enhancement measures associated with the materials and waste have been provided in line with Waste Framework Directive (2008/98/EC) waste hierarchy: prevention, reuse, recycle, recover, and disposal. These have been provided for the design phase, as well as the construction phase of the Scheme.
- 5.16.14 The assessment is based on the findings of the preliminary ground investigation that was undertaken for the Scheme.
- 5.16.15 Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction. This will be secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1) requiring a CEMP.
- 5.16.16 In light of the above, the Scheme is considered to be in accordance with the national and local planning policies with regards to material use and waste.

## **5.17 Population and human health**

- 5.17.1 Paragraph 3.17 of the NPS NN states that there is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours 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 serves 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.
- 5.17.2 Paragraph 91 of the NPPF refers to the importance of the planning system in helping to achieve healthy, inclusive and safe places, paragraph 98 seeks to ensure the protection and enhancement of public rights of way and access, and paragraph 102 (c) encourages opportunities to promote walking, cycling and public transport.
- 5.17.3 Policy 2 of the Mayor's Transport Strategy notes that the Mayor, through TfL and the boroughs, and working with stakeholders, will seek to make London a city where people choose to walk and cycle more often by improving street environments, making it easier for everyone to get around on foot and by cycle, and promoting the benefits of active travel.

- 5.17.4 Policy DC34 and DC35 of the emerging Havering Local Plan seeks to provide choice, reduce the need to travel and promote healthier lifestyles [through walking and cycling provision] and improve the quality of life for all sections of the community, including those who are less mobile and people with impairments.
- 5.17.5 Policy T14 and T15 of the Brentwood Local Plan look to encourage cycling and walking as an alternative to car use. Emerging Brentwood Local Plan Policy SP03 outlines the council's commitment to ensuring all new developments promote healthier and inclusive environments.
- 5.17.6 Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMUs. Minimal changes are proposed to the existing NMU routes. During the construction phase, all existing routes would remain open until new routes are complete to ensure there is no negative effect on NMu. The newly constructed footway of the A12 off-slip would also be widened and therefore be of better quality than existing. The NMu assessment concludes that there would be no significant effect on NMu's.
- 5.17.7 Chapter 13 also includes an assessment of the Scheme's impact on human health, drawing on the conclusions found within Chapters 5, 6 and 9 relating to air quality, noise and visual impact. The assessment considers that the Scheme would not lead to any significant effects to human health.
- 5.17.8 In light of the above, it is considered that the Scheme is in accordance with both national and local planning policy with regard to population and human health.

## 5.18 Climate

- 5.18.1 NPS NN paragraph 4.40 states that new national networks infrastructure will typically be long term investments which will need to remain operational over many decades in the face of a changing climate. This paragraph of the NPS NN requires that climate change is considered when planning the location, design, build and operation of a new project and any accompanying ES should set out how the proposal would take account of the projected impacts of climate change.
- 5.18.2 The NPPF paragraph 150 states that new development should be planned for in ways that avoid increased vulnerability to the range of impacts arising from climate change and also to help reduce greenhouse gas emissions through its design.
- 5.18.3 Policy SI2 of the Draft New London Plan notes that major developments should be net zero-carbon, following a "lean, clean, green" hierarchy. Policy CP14 of the Havering Core Strategy also notes the requirement to address the need for new development to *'reduce their environmental impact and to address the causes and adapt to and mitigate the effects of climate change in their location'*.
- 5.18.4 In regard to the effects of the Scheme on climate, Chapter 14 of the ES (application document TR010029/APP/6.1) sets out that the Scheme has the potential to affect the earth's climate by increasing the emission of greenhouse gases ("GHGs") into the atmosphere, which will occur during construction and throughout its operational life.
- 5.18.5 The Scheme is likely to contribute 37,312 tCO<sub>2</sub>e to the UK's third carbon budget (2018 – 2022), representing 0.0015% of the budget. Whilst emissions from the Scheme will lead to a long-term negative effect on the atmosphere, the

magnitude of emissions is considered to be minor. The Scheme is unlikely to cause significant effects on climate, or significantly affect the UK's ability to meet its emissions reduction targets. Despite this, further mitigation measures will be put in place in the construction phase to reduce emissions as far as possible.

5.18.6 Chapter 14 further considers the Scheme's climate change vulnerability. The assessment considers impacts of future climatic conditions on the Scheme during both its construction and operation and has been undertaken in compliance with Highway's England Guidance.

5.18.7 Climate projections from UKCP18 have been examined. They confirm that the study areas climate is expected to change in the future. The assessment finds that the Scheme could be vulnerable to operational impacts linked to these changes in the climate. Mitigation measures built into the design (i.e. embedded mitigation) that either avoids these impacts, minimises them or reduces their consequences are presented. After consideration of this mitigation none of the potential climate vulnerability impacts are found to be significant adverse.

5.18.8 Given the above, the Scheme is considered to accord with both national and local policy with regard to climate change.

## 5.19 Cumulative impacts

5.19.1 NPS NN paragraph 4.3 states that when considering any proposed development, the examining authority should consider the potential adverse impacts including any cumulative adverse impacts. Paragraph 4.16 of the NPS NN states that when considering significant cumulative effects, the ES 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).

5.19.2 Paragraph 4.17 states that 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. In addition, paragraph 180 and 181 of the NPPF state that planning decisions should ensure that new development is appropriate for its location taking into account the likely effects including cumulative effects of pollution on health, living conditions and the natural environment.

5.19.3 Chapter 15 of the ES (application document TR010029/APP/6.1) provides an assessment of the in-combination and cumulative effects of the Scheme.

5.19.4 The in-combination effects have been assessed to the extent of the respective study areas established within each of the preceding topic chapters. This assessment found that there would be adverse effects during construction principally in regard to visual impacts (including some severe localised visual impacts upon residential receptors), land take, localised noise and vibration, ecology and minor disturbance to some heritage assets. There would be adverse in-combination effects in operation relating to ecological assets (principally the loss of veteran trees), landscape and visual effects. The Scheme would bring beneficial in-combination effects upon receptors in regard to road drainage and water environment through improved flooding and drainage management, and for travellers through the reduction in congestion created within and around the M25/J28 junction.

- 5.19.5 For the cumulative effects assessment, a total of 19 'other developments' were identified which had the potential to impact upon environmental receptors in conjunction with the Scheme. These developments were identified by consideration of their scale, proximity to the Scheme and overlap in construction period.
- 5.19.6 Overall there are likely to be cumulative effects during construction in relation to construction noise where construction periods may overlap, biodiversity impacts due to displacement of SMI land and disturbance to species, and landscape and visual effects where there would be an increase in urbanisation and inter-visibility.
- 5.19.7 There are likely to be cumulative effects during operation in relation Landscape effects in combination with large scale urban extensions at Land East of Nags Head Lane and Dunton Hills Garden Village due to the loss of the existing rural character.

## 5.20 Planning balance

- 5.20.1 The analysis of planning policy above provides an assessment of the Scheme's compliance with relevant planning policy, including the NPS NN. It firstly sets out that there is a compelling and crucial need for the Scheme, supported by both national policy through the NPS NN and RIS and RIS2 and through local and regional planning policy.
- 5.20.2 Section 5.2 explains that, in the case of its location within the Green Belt, it is the Applicant's view that there are compelling 'very special circumstances' for the Scheme and a compelling case for the Scheme to come forward.
- 5.20.3 An assessment of the environmental effects of the Scheme has been carried out and documented within the ES and summarised within the Non-Technical Summary of the ES (application document TR010029/APP/6.4). The mitigation measures proposed to offset the impacts identified include, but are not limited to:
- Provision of significant areas of environmental mitigation land
  - Planting of native species of trees and undertaking works to existing tree
  - Creation of new aquatic habitat
  - Minimisation of waste arising from the Scheme
  - Replacement golf hole
  - Landscape and temporary noise buffers.
- 5.20.4 Notwithstanding this, it is noted through the ES that there are residual significant adverse effects expected as a result of the Scheme. These include:
- The permanent and temporary loss of terrestrial habitat from the Ingrebourne Valley SMI
  - The loss of 2 veteran trees
  - Loss of habitat for aquatic invertebrates
  - Impact to regional landfill capacity
  - Permanent land take from Grove Farm and Maylands Golf Course

- Amenity impacts to Grove Farm and Maylands Cottages
- Visual amenity impacts to Maylands Golf Course and dwellings at Harold Park.

- 5.20.5 The full set of mitigation measures are set out within the REAC (application document TR010029/APP/7.3) which supports this DCO application. Requirement 4 of the draft DCO secures the preparation of a CEMP which must be substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2) and reflect the mitigation measures set out in the REAC. These mitigation measures significantly reduce the adverse impact of the Scheme and have been developed utilising best practice measures, liaison with relevant LPA representatives and through engagement with affected land owners. With these mitigation measures in place, the environmental effects of the Scheme are expected to be minimal.
- 5.20.6 Land has been identified to enable the relocation and redesign of the second hole of Maylands Golf Course. The location and extent of the land proposed to facilitate the relocation and redesign of the second hole has been determined, having regard to an indicative design for the works and in accordance with the advice of a specialist golf course architect regarding the quality of the golfing environment. It also takes into account known environmental constraints in the vicinity. Discussions regarding the preferred design option for the replacement hole are ongoing with the owners of Maylands Golf Club.
- 5.20.7 The environmental mitigation measures have been subject to discussion with ecologists from LBH and ECC and the EA and constitute a significant package of mitigation measures.
- 5.20.8 The economic case for the Scheme in Section 4 has identified that the proposal would constitute medium value for money when compared to the DM scenario.
- 5.20.9 It is necessary to provide a balance of the compelling need for the Scheme against those effects outlined, taking into account the substantial set of mitigation measures proposed.
- 5.20.10 It is considered that very special circumstances exist to justify the delivery of the Scheme and through a combination of the ES and the TA, it has been demonstrated that the Scheme would achieve the objectives which have been identified and set out in Section 3 of this Statement.
- 5.20.11 In light of the above, it is considered that the adverse effects do not outweigh the significant benefits of the Scheme and the overall planning balance is therefore in favour of the making of the DCO for the Scheme.

## 6 Conclusion

- 6.1.1 This Statement and accompanying appendices set out the policy context against which the Scheme should be viewed. It has been prepared to demonstrate that there is a clear Statement grounded in national, regional and local planning policy.
- 6.1.2 The NPS NN, NIDP the RIS and RIS2 set out a strong position of support in delivering national networks that meet the country's long-term needs, whilst supporting a prosperous and competitive economy and improving the quality of life for all.
- 6.1.3 There is a pressing need identified for the Scheme in order to address four key issues being:
- Problem one – congestion and delay on the junction 28 roundabout disrupts journeys on the SRN and local roads.
  - Problem two – actual and perceived safety concerns associated with driver movements on the junction 28 roundabout.
  - Problem three – resilience to incidents or accidents is poor, resulting in significant disruption and unreliable journey times.
  - Problem four – air quality is an issue at the junction.
- 6.1.4 The Scheme will relieve traffic congestion at the junction, making life easier and safer for all road users. This Statement has demonstrated that the Scheme is classified as medium value for money in terms of its BCR.
- 6.1.5 The Scheme would improve safety, providing benefits to long-distance travellers through traffic reductions and to local drivers and their passengers. Overall, it is anticipated that the Scheme would reduce accident rates at the junction.
- 6.1.6 The Scheme has been shown to be in accordance with LBH policy DC32 and BCC policies CP3 and T2 regarding transport infrastructure and road schemes. An assessment has also been provided to demonstrate the accordance of the Scheme with the relevant environmental policy of the LBH's and BCC's adopted and emerging Local Plans.
- 6.1.7 An assessment has been provided of the Scheme's accordance with Green Belt policy and demonstrates that there is a case for 'very special circumstances' against which this Scheme is considered to be acceptable.
- 6.1.8 Furthermore, where the Scheme has been shown to impact on open space land within the meaning of the Planning Act 2008, this document summarises the considerations and cross references the Statement of Reasons (application document TR010029/APP/4.1) where the position is set out in detail. The Scheme is supported by the ES (application document TR010029/APP/6.1) to establish the impacts and mitigation measures needed to meet the Scheme objective to keep environmental impacts to a minimum.
- 6.1.9 The improvement in traffic flows at the junction and the reduction in accidents are consistent with national and local planning objectives for the economy, sustainability and the environment. Through more reliable journey times, the Scheme would assist in making the region more attractive for businesses and improve everyday life for local travellers.

- 6.1.10 An assessment of the merits of this Scheme against the policy within the NPS NN has been undertaken and a review of the planning balance has been completed which determines that the benefits that the Scheme will generate are considered to outweigh any harm identified. The Scheme is therefore considered to be acceptable against the requirements of the NPS NN.

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# Appendices

## **Appendix A. Scheme accordance with local development plan policies**

**Table A.1: Scheme Conformity with Regional Planning Policy**

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
<p><b>London Plan (2016)</b></p>	<p>Paragraph 1.48 outlines the Plan’s vision to address climate change, in terms of both adaptation and mitigation. Adaptation includes designing infrastructure with a changing climate in mind and protecting, enhancing and expanding the city’s stock of green space to help cool parts of the city. Mitigation includes reducing our emissions of greenhouse gases to minimise future warming and its impacts.</p>	<p>The effect of the Scheme on climate changes has been addressed within the ES Chapter 14 (application document TR010029/APP/6.1). The chapter concludes that the Scheme would alleviate congestion on the slip roads, reducing localised air quality impacts during operation. The Scheme is not expected to affect the ability of the UK to meet its climate change reduction targets and is therefore in accordance with this objective.</p>
	<p>Policy 3.2 reinforces the notion of promoting good health and strong communities as part of the Plan, through the consideration of the impacts of ‘major development proposals on the health and wellbeing of communities’, for example through the use of Health Impact Assessments (HIA).</p>	<p>An assessment of the effects of the Scheme on Human Health is included within Chapter 13 of the ES (application document TR010029/APP/6.1). The Chapter does not anticipate any significant effects on human health thereby according with Policy 3.2.</p>
	<p>The London Plan directs development proposals to, wherever possible, ‘make a positive contribution to the protection and enhancement of geodiversity’. This includes the protection of regionally important geological sites (RIGS) and the commensurate level of protection of locally important geological sites (LIGS) in line with their importance.</p>	<p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to geology and soils and outlines the ground investigation work which has been undertaken on the site.</p> <p>A Register of Environmental Actions and Commitments (REAC) has been prepared to support the DCO application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 5.12 (Flood Risk Management) outlines that development proposals must comply with NPPF and associated Technical Guidance and will need to address various criteria (including that it addresses flood resilient design and emergency planning by demonstrating that the development will remain safe and operational under flood conditions). In terms of drainage, Policy 5.13 states that development should ‘utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so’.</p>	<p>required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. The Geology and Soils section of the Table 1.1 within the REAC outlines particular mitigation measures associated with geology. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC. Requirement 6 also secures that any contaminated land found during construction not previously identified, is reported and appropriate remediation work carried out.</p> <p>The Scheme is therefore considered in accordance with this aim of the London Plan.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) includes a Flood Risk Assessment and assessment against the Water Framework Directive (WFD). The Chapter outlines how the Scheme has been designed to ensure there is no increase to the risk of flooding away from the site and also how the risk of flooding on the site is mitigated. It also outlines the SUDS’s which have been incorporated into the drainage strategy for the Scheme. It is considered that the Scheme is in conformity with Policy 5.12 and 5.13.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>The London Plan outlines a number of policies regarding the management of waste. Policy 5.16, concerning waste net self-sufficiency, states targets of ‘managing the equivalent of 100% of London’s waste within London by 2026’, creating ‘positive environmental and economic impacts from waste processing’ and working ‘towards zero biodegradable or recyclable waste to landfill by 2026’. This will be achieved by ‘minimising waste’ overall through ‘encouraging the reuse of and reduction in the use of materials’.</p>	<p>Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.</p> <p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction. This will be secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1) requiring a CEMP.</p> <p>The Scheme is therefore considered to accord with Policy 5.16.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 5.21 requires appropriate measures should be taken to ensure that development on previously contaminated land does not activate or spread contamination.</p>	<p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to geology and soils and outlines the ground investigation work which has been undertaken on the site.</p> <p>Section 10.14 of Chapter 10 summarises that with appropriate mitigation, there would be no significant risks to human health arising from the construction and operation of the Scheme. This mitigation could include excavation of contaminated soils and disposal to appropriate landfill or off-site Soil Treatment Centre, on-site bio-remediation, groundwater treatment, use of clean material corridors for pipework etc. The Chapter also outlines the mitigation measures which are proposed to be adopted to ensure that the Scheme can be constructed without the activation or spread of any contamination.</p> <p>A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1)</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>It is therefore considered that the Scheme accords with Policy 5.21.</p>
	<p>Policy 6.12 specifies that in assessing proposals for increasing road capacity, including new roads, consideration should be given to how conditions for pedestrians, cyclists, public transport users, freight and local residents can be improved. The policy requires proposals to show overall a net benefit across these criteria and all proposals must show how disbenefits will be mitigated.</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMUs. Minimal changes are proposed to the existing NMU routes. During the construction phase, all existing routes would remain open until new routes are complete to ensure there is no negative effect on NMU. The NMU assessment concludes that there would be no significant effect on NMU's and moreover, the newly created footpath on the off-slip would be wider than existing, improving the facilities. The Scheme is therefore considered to accord with Policy 6.12.</p>
	<p>In respect of local character Policy 7.4 requires development to have regard to the form, function, and structure of an area, place or street and the scale, mass and orientation of surrounding buildings. It should improve an area's visual or physical connection with natural features. In areas of poor or ill-defined character, development should build on the positive</p>	<p>Chapter 9 of the ES (application document TR010029/APP/6.1) provides an assessment of the effects of the Scheme on the landscape character of the area. It is recognised that the Scheme is located within the context of the existing A12 and M25. Notwithstanding this, mitigation in the form of planting and screening has been</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>elements that can contribute to establishing an enhanced character for the future function of the area</p>	<p>proposed to ensure that the visual impact on surrounding properties and the impact on the character of the area is minimised. While there is a significant impact expected during the construction phase and a slight adverse impact during the operational phase on the character of the area, it is considered that the benefits provided by the Scheme outweigh the perceived harm on the landscape character.</p>
	<p>Policy 7.14 outlines the ‘importance of tackling air pollution and improving air quality to London’s development and the health and wellbeing of its people’. Development proposals should:</p> <p>Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality</p> <p>Be at least ‘air quality neutral’ and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas);</p> <p>Ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site.</p> <p>Paragraph 7.18 outlines the negative effects that traffic and congestion can have on the quality of the public realm, specifically in terms of noise and amenity of a space. Subsequently, development should minimise the negative effects of noise associated with traffic and congestion in order to ensure people’s enjoyment of the public realm.</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) outlines that while there would be a slight adverse effect on air quality during the construction phase, this would be adequately mitigated through air quality and dust management. At the operational phase, the air quality levels are not expected to be in excess of the current predicted air quality levels and the effect is therefore considered to be negligible. Accordingly, the Scheme is considered to be in line with Policy 7.14.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 7.15 concerns the reduction and management of noise and enhancing the acoustic environment. The Policy states that proposals should seek to manage noise levels by:</p> <ul style="list-style-type: none"> <li>• Avoiding significant adverse noise impacts on health and quality of life as a result of new development.</li> <li>• Mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on development.</li> <li>• Improving and enhancing the acoustic environment and promoting appropriate soundscapes.</li> </ul> <p>Policy 7.19 (Biodiversity and access to nature) expects development proposals to give sites of metropolitan, borough and local importance the level of protection that is commensurate with their importance in the overall hierarchy (in line with the NPPF).</p>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) indicates that there is not anticipated to be any more than a negligible increase in the level of noise and vibration as a result of the Scheme during either the construction or operation phase. As such, no further mitigation measures are considered necessary.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost and reinstated.</p> <p>Loss of habitat from Ingrebourne Valley SMI is unavoidable, and the chapter notes a slight adverse residual effect due to the permanent loss of habitat. Loss of habitat will be minimised as</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>much as possible through appropriate construction design. In order to mitigate and compensate for the loss of habitat, habitat reinstatement and creation following completion of construction has been designed sensitively with the regards to the SMI habitats and species present. The design includes enhancement of Ingrebourne River and Weald Brook (including realignment of the channel, creation of backwaters and floodplain lowering for wet grassland), replanting of woodland habitat, grassland creation to provide a richer and more diverse resource of flowering plants, tussocky grassland and scrub areas, two new ponds for great crested newt and control and removal of non-native invasive plant species.</p> <p>Permanent loss of habitat from Ingrebourne Valley SMI is unavoidable. To compensate for this loss, long-term management of reinstated and existing habitats adjacent to the new loop road will be carried out in land permanently acquired for the Scheme.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees. Mitigation and enhancement measures are proposed as outlined within the chapter however residual significant adverse effects are expected as a result of the loss of the veteran trees, impact to the river habitat and with the permanent loss of land from the SMI.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 7.16 states ‘the strongest protection should be given to London’s Green Belt, in accordance with national guidance. Inappropriate development should be refused, except in very special circumstances’.</p> <p>Policy 7.21 notes that existing trees of value should be retained and any loss as the result of development should be replaced following the principle of ‘right place, right tree’. Wherever appropriate, the planting of additional trees should be included in new developments, particularly large-canopied species.</p>	<p>The full set of mitigation measures proposed is set out within the REAC (application document TR010029/APP/7.3).</p> <p>Further details on the position with veteran trees is provided in Appendix 3.</p> <p>Section 5.3 of this Case for the Scheme provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that the Scheme could be considered not inappropriate development and in addition, very special circumstances exist to justify the development of the Scheme.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail including the impact on trees and woodland.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost and reinstated.</p> <p>In order to mitigate this loss of woodland and trees, the design for the Scheme includes woodland planting, this includes the planting of a variety of species, include scrub species and large-canopied trees. Areas of woodland will be managed long-</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>term and will be protected from deer browsing during establishment.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees. Compensation measures for the loss of veteran trees are outlined within the chapter including replanting of native trees, retention of dead wood features suitable for invertebrates and 'veteranisation' of trees. The full set of compensation measures proposed is set out within chapter 7 and the REAC (application document TR010029/APP/7.3).</p> <p>Further details on the position with veteran trees is provided in Appendix 3.</p>
<p><b>Draft New London Plan (July 2019)</b></p>	<p>Policy GG6 Increasing Efficiency and Resilience states that planning and development must take an integrated approach to the delivery of strategic and local infrastructure by ensuring that public, private, community and voluntary sectors plan and work together.</p>	<p>The Consultation report (application document TR010029/APP/5.1) describes the engagement which has taken place with regard to the Scheme including the pre-application discussions which have been held with affected LPA's. Chapter 15 of the ES (application document TR010029/APP/6.1) also provides an assessment of the cumulative effects of the Scheme with other developments in the study area. The Scheme has sought to address local and regional planning policy issues as set out within this table as well as</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		addressing national policy. The Scheme is therefore considered to accord with Policy GG6.
	<p>Policy SD2 – Collaboration in the Wider South East (WSE). This policy underlines the commitment to work alongside all 130 authorities in WSE (including those affected by M25 j28) to guide development strategically as a multi-centric network.</p>	<p>Junction 28 sits on the boundary between Essex and Greater London (Brentwood and Havering), requiring collaboration across authorities. The Scheme has been developed through consultation and involvement across many authorities and statutory bodies, considering the Scheme’s role in wider regional development.</p> <p>The Scheme is therefore considered to be in accordance with Policy SD2.</p>
	<p>Policy D2 – Delivering good design. This policy discusses design quality as a general principle, including where appropriate: visual, environmental and movement modelling/assessments. The policy covers design scrutiny and quality maintenance for decision making authorities.</p>	<p>The design of the Scheme has been informed by multiple optioneering stages, environmental assessment (including visual and landscape) and transport modelling, amongst other assessments.</p> <p>The Scheme is therefore considered to be in accordance with Policy D2.</p>
	<p>Policy D14 – Noise. This policy requires new development proposals to avoid and mitigate adverse noise impacts, following the Agent of Change principle. Development should minimise the significance of noise impacts, enhance the acoustic environment, separate new noise-sensitive development from major noise sources and use appropriate mitigation measures.</p>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) indicates that there is not anticipated to be any more than a negligible increase in the level of noise and vibration as a result of the Scheme during either the construction or operation phase. As such, no further mitigation measures are considered necessary. While the Scheme cannot enhance the acoustic environment, the impacts of the Scheme are</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy E11 – Skills and opportunities for all. This policy states that development proposals should support employment, skills development, apprenticeships and training opportunities, both in construction and end use.</p>	<p>mitigated and the Scheme is therefore considered to be in accordance with Policy D14.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support the DCO application which outlines the details of the construction of the Scheme including details of the use of local labour during the construction of the Scheme. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures a CEMP which must be in general accordance with the Outline CEMP.</p> <p>The Scheme is therefore considered to be in accordance with Policy E11.</p>
	<p>Policy HC1 – Heritage conservation and growth. This policy states that development proposals should conserve the significance of any affected heritage/archaeological assets and their settings through sympathetic design and layout. Proposals should avoid harm and identify enhancement opportunities.</p>	<p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the assessment approach for this topic.</p> <p>Section 11.10 provides an assessment of the effects of the Scheme on the identified historic environment receptors. The Section outlines that during the construction phase, there is expected to be a slight adverse effect on 5 heritage assets within the DCO boundary although this is not considered to be significant. During the operational phase, a Grade II listed building at Stoney Hills</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Farm and a post-medieval park at Dagnam are expected to experience a slight adverse effect resulting from noise and vibration. This again is considered not to be significant.</p> <p>The Scheme is therefore considered to accord with Policy 28.</p>
	<p>Policy G2 – London’s Green Belt. This policy aims to protect the Green Belt (including the DCO site) from inappropriate development, and to provide multi-functional beneficial uses to Londoners.</p>	<p>Section 5.3 of this Statement provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that very special circumstances exist to justify the development of the Scheme and that the Scheme could also be considered not inappropriate development.</p>
	<p>Policy G4 – Open space. Development proposals should not result in the loss of protected open space, and where possible should create areas of accessible open space, particularly in areas of deficiency.</p>	<p>The Scheme would impact upon areas designated by LBH as “Parks, Open Spaces, Playing Fields and Allotments”. At Maylands Golf Course the Scheme would result in permanent land take in order to facilitate the realignment of the Cadent Gas pipeline.</p> <p>While mitigation measures in the form of noise and landscape buffers have been incorporated into the design to mitigate the impact of the road, discussions have also taken place with the golf course owners regarding the provision of a</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>replacement golf hole. Although not considered to be open space for the purposes of the Planning Act 2008, Maylands Golf Course is designated as open Space through the LB Havering Local Plan Policy DC18. Therefore, in order to comply with the relevant policy tests, the Applicant proposes to provide additional land to replace that which would be lost for the Scheme. The relocation and reconfiguration of hole 2 is to ensure that replacement land of at least equivalent area is re-provided. Discussions have also taken place with the golf course owners to develop the most appropriate option for re-provision and further details of this have been provided within the Consultation Report (application reference TR010029/APP/5.1).</p> <p>The area known as Cock Wood is also designated as open space under Policy DC18 of the LB Havering Local Plan. It is proposed that this part of the site be utilised as environmental mitigation. Site visits to the area in question show that the area is currently overgrown, inaccessible and includes signs noting shooting takes place. It is therefore considered that the proposed use of the land as an area of environmental mitigation is not inconsistent with the existing use and should therefore be considered acceptable.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy G6 – Biodiversity and access to nature. This policy states that Sites of Importance to Nature Conservation should be protected. Where harm is unavoidable, the following mitigation hierarchy should be applied to minimise development impacts: development should avoid damaging significant ecological features, minimise overall spatial impact and mitigate it by improving the quality of management of the</p>	<p>While the Land at Oak Farm, to the south of the A12 is not designated open space in policy terms, it could be considered that the land, which is being developed as a burial ground, would fall under the definition of open space under the Planning Act 2008 once open to the public. The land would be taken temporarily in order to install the Cadent Gas pipe diversion and would then be subject to an easement to allow Cadent to monitor, maintain and inspect its equipment. It is considered that the land, once subject to the easement would be no less advantageous and no replacement land is considered necessary.</p> <p>Section 7.2 of the Statement of Reasons (application document TR010029/APP/4.1) outlines the considerations given that the provisions of the Planning Act 2008 setting out that it can be demonstrated that the open space land would be no less advantageous when burdened with the order right than it was before.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>rest of the Site, and if necessary deliver off-site compensation of better biodiversity value based on the principle of biodiversity net gain. Development proposals should aim to secure biodiversity net gain.</p>	<p>to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 of Chapter 7 of the ES which provides the area of habitat lost and reinstated.</p> <p>Loss of habitat from Ingrebourne Valley SMI is unavoidable, and the chapter notes a slight adverse residual effect due to the permanent loss of habitat. Loss of habitat will be minimised as much as possible through appropriate construction design. In order to mitigate and compensate for the loss of habitat, habitat reinstatement and creation following completion of construction has been designed sensitively with the regards to the SMI habitats and species present. The design includes enhancement of Ingrebourne River and Weald Brook (including realignment of the channel, creation of backwaters and floodplain lowering for wet grassland), replanting of woodland habitat, grassland creation to provide a richer and more diverse resource of flowering plants, tussocky grassland and scrub areas, two new ponds for great crested newt and control and removal of non-native invasive plant species.</p> <p>Permanent loss of habitat from Ingrebourne Valley SMI is unavoidable. To compensate for this loss, long-term management of reinstated and existing habitats adjacent to the new loop road will be carried out in land permanently acquired for the Scheme.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>The inclusion of land for long-term management in the design of the Scheme is proposed in line with Policy G6 which states that where harm to non-statutory sites is unavoidable, projects can seek to <i>‘minimise the spatial impact and mitigate it by improving the quality or management of the rest of the site’</i>.</p> <p>An Outline LEMP is also included in the ES (Appendix 7.16, application document TR010029/APP/6.3) which sets out the areas identified for long term management as compensation for habitat loss.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees from the south of the site and there would also be a temporary adverse effect on the river habitat and SMI. Mitigation, compensation and enhancement measures are proposed as outlined within the chapter however residual significant adverse effects are expected as a result of the loss of the veteran trees, impact to the river habitat and with the permanent loss of land from the SMI. Appendix C provides further detail of the position with veteran trees.</p> <p>Notwithstanding this, section 5.20 of this Case for the Scheme sets out the planning balance and</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy G7 notes that development proposals should ensure that, wherever possible, existing trees of value are retained. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed.</p>	<p>considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail including the impact on trees and woodland.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost and reinstated.</p> <p>In order to mitigate this loss of woodland and trees, the design for the Scheme includes woodland planting, this includes the planting of a variety of species, include scrub species and large-canopied trees. Areas of woodland will be managed long-term and will be protected from deer browsing.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees. Compensation measures for the loss of veteran trees are outlined within the chapter including replanting of native trees, retention of dead wood features suitable for invertebrates and ‘veteranisation’ of trees. The full set of</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy G9 – Geodiversity. This policy states that proposals should make a positive contribution to the protection and enhancement of geodiversity, protect Regionally and Locally Important Geological Sites (to a level commensurate with their importance).</p>	<p>compensation measures proposed is set out within chapter 7 and the REAC (application document TR010029/APP/7.3)</p> <p>Further details on the position with veteran trees is provided in Appendix 3.</p> <p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to geology and soils and outlines the ground investigation work which has been undertaken on the site.</p> <p>A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. The Geology and Soils section of the Table 1.1 within the REAC outlines particular mitigation measures associated with geology. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC. Requirement 6 also secures that any contaminated land found during construction not previously</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>identified, is reported and appropriate remediation work carried out.</p> <p>It is therefore considered that the Scheme accords with Policy G9.</p> <p>Chapter 5 of the ES (application document TR010029/APP/6.1) outlines that while there would be a slight adverse effect on air quality during the construction phase, this would be adequately mitigated through air quality and dust management. Moreover, the Scheme is anticipated to have a negligible effect on air quality at the operational phase.</p> <p>The Scheme is therefore considered to accord with Policy SI1.</p> <p>Section 14.6 of Chapter 14 Climate Change of the ES (application document TR010029/APP/6.1) displays the estimated embodied and transport carbon for the Scheme. The Applicant’s Carbon Tool was developed to better manage carbon emissions resulting from the maintenance and improvement of the trunk road network. It contains</p>
	<p>Policy SI1 – Improving air quality. To tackle poor air quality, protect health and meet legal obligations, development proposals should not:</p> <p>a) lead to further deterioration of existing poor air quality b) create any new areas that exceed air quality limits or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits.</p> <p>c) create unacceptable risk of high levels of exposure to poor air quality.</p> <p>Development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance</p>	
	<p>Policy SI2 – Minimising greenhouse gas emissions. This policy states that major developments should be net zero-carbon, following a “lean, clean, green” hierarchy. Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.</p>	

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy SI7 – Reducing waste and supporting the circular economy. This policy supports resource conservation, waste reduction and re-use of materials. Referable applications should state how materials arising from demolition and remediation will be reused or recycled, how design will minimise material demands, opportunities for management of waste on site, storage and collection systems to support recycling and reuse, how much waste the proposal is expected to generate, and ongoing monitoring and reporting.</p>	<p>average embodied carbon figures for various construction materials taken from the Bath Inventory of Carbon and Energy (ICE), along with transport, energy and waste factors from Defra 2014 and the Waste Resources Action Programme (WRAP). While it is not possible to achieve net zero carbon, the estimates provided within the Chapter will help contractors to see where the Scheme should focus its carbon management efforts in order to reduce the carbon footprint as much as possible.</p> <p>Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.</p> <p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this,</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>the amount of material re-sue has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction. This will be secured through requirement 4 of the draft DCO application document TR010029/APP/3.1 requiring a CEMP.</p> <p>The Scheme is therefore considered to be in accordance with Policy SI7.</p>
	<p>Policy SI12 – Flood risk management. Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses. Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the assessments undertaken in the FRA and the WFD. The FRA concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>The Scheme is therefore considered to be in accordance with Policy SI12.</p>
	<p>Policy SI13 – Sustainable drainage. Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) notes that the design of the drainage system complies with all current standards and SuDS best practice techniques to</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>grey features. Development proposals for impermeable surfacing should be refused unless they can be shown to be unavoidable. Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improve water quality, and enhance biodiversity, urban greening, amenity and recreation</p>	<p>ensure that sustainability is a key drainage design criterion.</p> <p>The Scheme is therefore considered to be in accordance with Policy SI13.</p>
	<p>Policy SI17 states that development proposals that facilitate river restoration, including opportunities to open culverts, naturalise river channels, protect and improve the foreshore, floodplain, riparian and adjacent terrestrial habitats, water quality as well as heritage value, should be supported. Development proposals to impound and narrow waterways should be refused.</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) outlines the impact of the Scheme on biodiversity including the effect of the Scheme on both the Ingrebourne River and Weald Brook. The chapter sets out that the Scheme will have both temporary and permanent impacts on the watercourse at both the construction and operational stage. Further details of the works which affect the bodies is set out within the chapter.</p> <p>Mitigation and enhancement works are proposed to both watercourses in the form of flood plain compensation and watercourse realignment, again as set out within the chapter.</p> <p>Despite the mitigation and enhancement package associated with the Ingrebourne River (realignment, backwaters and floodplain measures), the residual effect of the permanent loss of open water and riparian habitat caused by</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy T1 – Strategic approach to transport. Development should facilitate the mayor’s target of 80 per cent of all trips in London to be made by foot, cycle or public transport by 2041. Development should make the most effective use of land, reflecting connectivity and accessibility of public transport, walking and cycling routes.</p>	<p>the 80m culvert extension results in a residual effect of moderate significance. The concomitant increase in habitat fragmentation caused by the culvert extension and new Grove Bridge Loop road crossing are assessed as having a long-term adverse effect on the watercourse habitat and habitat availability for aquatic species.</p> <p>While the Scheme cannot be said to be in direct conformity with Policy SI17, the overall planning balance of the Scheme is considered in Section 5.20 of this Statement and indicated that the overall benefits of the Scheme outweigh any identified harm.</p> <p>The Scheme is sited at the intersection of two Strategic Roads, the M25 and the A12, as well as the A1024 Brook Street connecting into the town of Brentwood. The majority of the traffic using the junction would therefore be through-traffic rather than local traffic, limiting the opportunities for extension of public transport, walking and cycling networks.</p> <p>Whilst this is the case, there are a number of Public Rights of Way, footpaths, cycle paths, train and bus corridors crossing the DCO boundary (particularly east-west between Brentwood and Romford), all of which would be maintained, and in the case of the footway to the new A12 off-slip,</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>improved by the Scheme. An assessment of the Scheme on NMU's is provided within the People and Communities chapter (Chapter 13) of the ES (application document TR010029/APP/6.1).</p> <p>The Scheme is therefore considered to be in accordance with Policy T1.</p>
	<p>Policy T3 states that development proposals should support capacity, connectivity and other improvements to the bus network and ensure it can operate efficiently to, from and within developments, giving priority to buses and supporting infrastructure as needed.</p>	<p>The improvements to the traffic flows through the junction, as demonstrated within the TA (application document TR010029/APP/7.4) will benefit all vehicles travelling through the junction. This includes the existing bus routes that operate in the area which are expected to benefit from the reduction in journey times and enable more reliable journey times, as identified in Section 8 of the TA. The Scheme is therefore considered to be in accordance with Policy T3.</p>
	<p>Policy T4 – Assessing and mitigating transport impacts. This policy requires the submission of transport statements/assessments for suitable development proposals to ensure that the impacts upon the capacity of the multi-modal transport network are fully assessed. Where appropriate, mitigation, either through direct provisions or financial contributions, will be required to address adverse impacts. The cumulative impacts of development on public transport and the road network capacity should be taken into account and mitigated.</p>	<p>The TA (application document TR010029/APP/7.4) sets out the anticipated reductions in journey times at the junction and the benefits to the road network the Scheme will bring. Alleviating the congestion within the junction has been identified as a key objective of the Scheme and thus would have a net positive transport impact in terms of the flow of traffic and road network capacity.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		The Scheme is therefore considered to be in accordance with Policy T4.
<b>The Mayor's Transport Strategy (2018)</b>	Policy 2 - The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to make London a city where people choose to walk and cycle more often by improving street environments, making it easier for everyone to get around on foot and by cycle, and promoting the benefits of active travel. The Mayor's aim is that, by 2041, all Londoners do at least the 20 minutes of active travel they need to stay healthy each day	The Scheme ensures that the existing NMU routes around the junction are maintained and in the case of the new footway to the A12 off-slip, improved, to enable those who wish to use the pedestrian and cycle routes to do thereby complying with Policy 2.
	Policy 5 - prioritise space-efficient modes of transport to tackle congestion and improve the efficiency of streets for the movement of people and goods, with the aim of reducing overall traffic levels by 10-15 per cent by 2041	Alleviating the congestion within the junction has been identified as a key objective of the Scheme and, as set out in the TA (application document TR010029/APP/7.4), would be achieved as a result of the Scheme, thereby complying with Policy 5.
	Policy 8 - The Mayor, through TfL and the boroughs, and working with stakeholders, will enhance London's natural and built environment by: a) Ensuring that transport schemes protect existing green infrastructure where possible, or – if there is a loss – providing new green infrastructure in order to deliver a net gain in biodiversity. b) Seeking additional opportunities to build new green infrastructure into the existing transport estate. c) Monitoring and protecting designated spaces on transport land, such as Sites of Importance for Nature Conservation.	Chapter 7 of the ES (application document TR010029/APP/6.1) outlines how the Scheme would ensure that there is no net loss in biodiversity and where habitat is lost, it is re-provided through an area of ecological mitigation. This is outlined within the REAC (application document TR010029/APP/7.3). Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Notwithstanding this, section 5.20 of this Statement provides an assessment of the planning balance of the Scheme weighing up any identified harm against the significant benefit the Scheme provides.</p>
	<p>Policy 9 - The Mayor, through TfL and the boroughs, and working with stakeholders, will seek to ensure that London's transport is resilient to the impacts of severe weather and climate change, so that services can respond effectively to extreme weather events while continuing to operate safely, reliably and with a good level of passenger comfort</p>	<p>The Drainage Strategy submitted with the DCO application (application document TR010029/APP/6.8) and FRA (application document TR010029/APP/6.6) outline how the Scheme has been designed to ensure that the risk of flooding on the site has been mitigated and would not lead to the increase in the risk of flooding elsewhere. The Scheme is therefore considered to be in accordance with Policy 9.</p>
	<p>Policy 18 - support improvements to public transport to enhance travel between London, the rest of the UK and international destinations, and will require regional, national and international transport schemes to be integrated into London's public transport system wherever possible.</p>	<p>The Scheme would affect routes used by local bus services. Through the alleviation of congestion within the junction, local services would benefit from a more reliable service. It is therefore considered that the Scheme is in accordance with Policy 18.</p>
	<p>Proposal 44 supports the creation of Sustainable Drainage Systems (SuDS). In all cases, drainage should be designed and implemented to include improvements to the water quality, biodiversity and amenity of the highway network.</p>	<p>The Drainage Strategy (application document TR010029/APP/6.8) and Scheme Layout Plans (application document TR010029/APP/2.7) indicates the incorporation of attenuation ponds to</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>improve the water quality before discharge into the existing water courses. The ponds will also provide a benefit to local biodiversity through the creation of habitat. It is therefore considered that the Scheme conforms with Proposal 44.</p>
	<p>Proposal 47 will seek to undertake and implement an evidence-based programme of measures to adapt existing, and to design and build new, transport infrastructure to make it resilient to severe weather conditions and the effects of climate change</p>	<p>By adhering to Policy 9 noted above, the Scheme is able to demonstrate that it has been designed to ensure that it is resilient to severe weather conditions and the effects of climate change and therefore in conformity with Proposal 47.</p>
	<p>Proposal 48 aims to reduce the number of Londoners exposed to excessive noise and vibration levels from road transport in London by:</p> <ul style="list-style-type: none"> <li>a) Reducing traffic volumes by encouraging mode shift.</li> <li>b) Encouraging the use of quieter vehicles, reducing speeds and discouraging poor driver behaviours.</li> <li>c) Ensuring high levels of carriageway maintenance, low-noise road surfacing, and minimising the impacts from road works.</li> <li>d) Monitoring noise levels close to major road corridors to measure the adverse impacts of road transport on affected communities.</li> <li>e) Reducing noise impacts of servicing and deliveries.</li> <li>f) Investigating ways of reducing noise from the loudest vehicles.</li> </ul>	<p>This Scheme would deliver the necessary infrastructure improvements to junction 28 to reduce congestion at the junction. Chapter 6 of the ES (application document TR010029/APP/6.1) outlines that while there would be some impact on noise and vibration during the construction of the Scheme, there would be a negligible effect on the noise levels experienced by surrounding receptors during the operation phase. Mitigation measures incorporated into the Scheme to address noise and vibration levels are set out in detail in Chapter 6. It is therefore considered that the Scheme would accord with Proposal 48.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
<b>Essex Local Transport Plan (2011)</b>	<p>Policy 2 states that transport and land-use planning will be used together to secure new development at the most appropriate and sustainable locations through working closely with district planning authorities, locating new developments in accessible areas; ensuring new developments provide for sustainable transport, requiring provision of appropriate transport infrastructure and making the most effective use of funding sources.</p>	<p>The need for this Scheme is set out in Section 2 of this document. Chapters 1 - 4 of the ES (application document TR010029/APP/6.1) outline the Scheme development and the stages the Scheme has gone through to ensure the most appropriate development has been brought forward that will meet the Scheme objectives and Section 4 of this Statement outlines how the Scheme is considered value for money.</p>
	<p>Policy 5 discusses connectivity, and states that Essex will:</p> <ul style="list-style-type: none"> <li>• improve travel links within and between our main towns</li> <li>• focus investment where improvements will give the greatest economic benefit</li> <li>• improving journey times and reliability by targeting congestion improvement measures</li> <li>• providing for more sustainable forms of travel</li> <li>• working with partner agencies to identify and deliver essential improvements to nationally important road and rail connections.</li> </ul>	<p>As set out within Section 4 of this Statement, the Scheme is expected to create a significant economic benefit for the surrounding area.</p> <p>The TA (application document TR010029/APP/7.4) sets out the anticipated reductions in journey times and the benefits to the road network the Scheme will bring. It is therefore considered that the Scheme is in accordance with Policy 5.</p>
	<p>Policy 9, concerning the Natural, Historic and Built Environment, states that the County Council will protect the natural, historic and built environment from the harmful effects of transport by minimising the visual and noise impacts of transport.</p>	<p>The visual impact of the Scheme would be minimised through the use of screening as proposed as part of the environmental mitigation plan. Chapter 6 of the ES (application document TR010029/APP/6.1) outlines that during the operational phase of the Scheme, increases in</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 10 refers to Road Safety, stating that ECC will work to reduce the incidence and severity of road traffic collisions on roads in Essex by working within the Essex Casualty &amp; Congestion Reduction Board, prioritising measures which reduce number killed or seriously injured, ensuring Safety Audits are undertaken.</p>	<p>noise levels are expected to be negligible and as such, no further mitigation is proposed. As such, it is considered that the Scheme is in accordance with Policy 9.</p> <p>As set out in the TA (application document TR010029/APP/7.4), the Scheme has been modelled and designed to alleviate congestion around the junction and subsequently reducing the accident rate both at the junction and on the surrounding road network. It is therefore considered that the Scheme is in accordance with Policy 10.</p>
<p><b>Essex Development Management Policies (2011)</b></p>	<p>DM7 - The Highway Authority will protect the highway network for the safe and efficient movement of people and goods by ensuring that all works within the highway comply with the current national and ECC design standards appropriate for the category of road</p> <p>DM15 – Congestion – ECC will require the developer to demonstrate that the development proposal has no detrimental impact upon the existing or proposed highway in congestion terms, as measured by assessing existing and proposed link/junction capacity; or require appropriate mitigation measures to ensure that there is no detrimental impact to the existing highway.</p>	<p>The design of the Scheme is compliant with the standards outlined within the DMRB and therefore conforms with Policy DM7</p> <p>As set out within the TA (application document TR010029/APP/7.4), the Scheme would lead to a reduction in the level of congestion at junction 28 thereby complying with Policy DM15.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>DM16 - The Highway Authority will assist the Local Planning Authority in the protection of areas that have been designated as unacceptable in terms of air quality by having a general presumption against the provision of development that would cause a negative impact to existing designated Air Quality Management Areas (AQMA) through increased traffic or congestion, unless appropriate mitigation measures are provided by the developer</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) sets out that while there would be some negative effect on air quality during the construction phase, this would be mitigated through the utilisation of a construction management plan to limit the impact on sensitive receptors. During the operation phase, it is demonstrated that there would be a negligible effect in terms of air quality.</p> <p>Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC and be in general accordance with the Outline CEMP (application document TR010029/APP/7.2).</p> <p>As such the Scheme is considered to accord with Policy DM16.</p>
<p><b>Essex County Council &amp; Southend-on-Sea Borough Council Waste Local Plan (2017)</b></p>	<p>The overarching purpose of the Waste Local Plan is to ensure both Essex and Southend-On-Sea have good provision to deal with waste arisings which prevents/ reduces damage to the environment and provide the best possible quality of life.</p>	<p>Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on site. These figures represent a worst-case scenario. A more</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>detailed breakdown of the figures is provided within Chapter 12.</p> <p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction.</p> <p>It is therefore considered that the Scheme is in accordance with the objectives of the Essex County Council &amp; Southend-on-Sea Borough Council Waste Local Plan 2017.</p>
<p><b>East London Joint Waste Development Plan (2012)</b></p>	<p>Policy W1 - The boroughs will aim to drive waste management up the waste hierarchy by promoting waste minimisation, materials reuse, recycling &amp; recovery of resources and help the delivery of national and regional targets for recycling and composting set out in the Waste Strategy for England 2007 and the London Plan by:</p>	<p>As noted above, Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme.</p>

Regional planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>• working in partnership with the general public and the business community in the ELWA area to provide information and advice and raise awareness</li> <li>• working in partnership with local community and voluntary groups and social enterprises to encourage waste minimisation, materials reuse, recycling and recovery of resources</li> <li>• ensuring that developers and contractors design new housing, commercial and other developments to maximise opportunities for future occupiers to minimise, reuse, recycle and recover resources from waste, by providing adequate space and facilities for storage and handling of segregated waste</li> <li>• require the reuse of construction, excavation and demolition waste during new developments, such as the Thames Gateway, with on-site recycling and use of recycled aggregate wherever possible and encourage use of sustainable transport modes where the movement of waste is necessary.</li> </ul>	<p>Given the outcomes of the assessments undertaken, as noted in the paragraph above, it is considered that the Scheme is in accordance with the East London Joint Waste Development Plan 2012.</p>

**Table A.2: Scheme conformity with local planning policy**

Local planning policy document	Key policies and objectives	Scheme conformity with policy
<p><b>London Borough of Havering Core Strategy and Development Control Policies Development Plan Document (2008)</b></p>	<p>Policy DC18 noted that the Council will seek the retention and enhancement of all public open space and recreation, sports and leisure facilities that are in private and public ownership.</p> <p>It is further noted that any loss of open space to a non-recreation/leisure use must be accompanied by an improvement to the quality of open space in the vicinity or to remedying qualitative and quantitative deficiencies in open space elsewhere in the Borough.</p>	<p>The Scheme would impact upon areas designated by LBH as “Parks, Open Spaces, Playing Fields and Allotments”, At Maylands Golf Course the Scheme would result in permanent land take in order to facilitate the realignment of the Cadent Gas pipeline.</p> <p>While mitigation measures in the form of noise and landscape buffers have been incorporated into the design to mitigate the impact of the road, discussions have also taken place with the golf course owners regarding the provision of a replacement golf hole. Land has been provided within the DCO boundary and provision included within the draft DCO to provide powers to construct a replacement golf hole.</p> <p>The area known as Cock Wood is also designated as open space under Policy DC18 of the LB Havering Local Plan. It is proposed that this part of the site be utilised as environmental mitigation. Site visits to the area in question show that the area is currently overgrown, inaccessible and includes signs noting shooting takes place. It is therefore considered that the proposed use of the land as an area of environmental mitigation is not inconsistent with the existing use and should therefore be considered acceptable.</p> <p>While the Land at Oak Farm, to the south of the A12 is not designated open space in policy terms, it could be considered that the land, which is being developed as a burial ground, would fall under the definition of open space under the Planning Act 2008 once open to the public. The</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC32 concerns the Road Network. Planning permission for new road schemes will only be allowed where they:</p> <ul style="list-style-type: none"> <li>• “are consistent with the Council’s road hierarchy</li> <li>• improve conditions for pedestrians and cyclists and disabled people by providing safe and convenient facilities</li> <li>• improve public transport accessibility</li> <li>• have net environmental benefits</li> <li>• improve safety for all users</li> <li>• contribute to regeneration objectives</li> </ul>	<p>land would be taken temporarily in order to install the Cadent Gas pipe diversion and would then be subject to an easement to allow Cadent to monitor, maintain and inspect its equipment. It is considered that the land, once subject to the easement would be no less advantageous and no replacement land is considered necessary. Section 7.2 of the Statement of Reasons (application document TR010029/APP/4.1) outlines the considerations given that the provisions of the Planning Act 2008 setting out that it can be demonstrated that the open space land would be no less advantageous when burdened with the order right than it was before.</p> <p>The TA (application document TR010029/APP/7.4) submitted in support of this DCO includes the traffic modelling which has been done in relation to this Scheme. The Assessment outlines that the Scheme would result in a reduction in congestion and delay at the junction which will result in a significant improvement for the SRN. This in turn is expected to benefit the wider local economy as detailed in Section 4 of this Statement.</p> <p>The Scheme is also in accordance with the Council’s road hierarchy and will also improve routes for pedestrians through providing a wider footpath on the A12 off-slip.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>• are consistent with the Council's Local Implementation Plan and the Mayor of London's Transport Strategy</li> <li>• allocate street space in accordance with the London Plan Contributions may be sought from developers towards new road schemes or road improvements."</li> </ul>	<p>The reduction in congestion and delays is also expected to improve transport accessibility and to lead to a reduction in the number of collisions thereby improving road safety.</p> <p>Pedestrian and cycle routes and routes for disabled people would continue to be safe and convenient.</p> <p>The Scheme would not lead to a net environmental benefit although the effects of the Scheme are mitigated to ensure there is no net loss. The benefits of the Scheme are also expected to outweigh any perceived harm of not providing a net benefit.</p>
	<p>Regarding transport, the Borough seeks to 'provide choice, reduce the need to travel and promote healthier lifestyles [through walking and cycling provision] and improve the quality of life for all sections of the community, including those who are less mobile and people with impairments' as well as maintain its 'excellent road links' - the A12, A13, A127 and M25. Developers are required to take account of the needs of pedestrians (DC34) and cyclists (DC35).</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMUs. Minimal changes are proposed to the existing NMU routes. During the construction phase, all existing routes would remain open until new routes are complete to ensure there is no negative effect on NMU. The newly constructed footway on the A12 off-slip would also be widened and therefore be of better quality than existing. The NMU assessment concludes that there would be no significant effect on NMU's.</p> <p>In light of the above, it is considered that the Scheme is in accordance with Policy DC35.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC41 outlines requirements relating to the re-use and recycling of aggregates. Where it is not possible to process and subsequently re-use the material within the site, the policy supports processing it on-site before re-use at another site or for local land restoration.</p>	<p>An Outline CEMP is provided with the DCO (application document TR010029/APP/7.2) which provides details of the quantities of materials to be removed and re-used on site.</p> <p>Moreover, Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used and processed on site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.</p> <p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction.</p> <p>It is therefore considered that the Scheme is in accordance with Policy DC41.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>In terms of the Green Belt, Policy DC45 states that the Council will promote uses in the Green Belt that have a positive role in fulfilling Green Belt objectives. Subsequently, permission will only be granted if it is for agriculture, outdoor recreation, nature conservation, mineral extraction and park and ride facilities.</p>	<p>Section 5.3 of this Statement provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that very special circumstances exist to justify the development of the Scheme and that the Scheme could also be considered not inappropriate development and in addition. .</p>
	<p>Policy DC47 notes that the Council will not grant planning permission where proposal would result in the loss of high-quality agricultural land (Grades 1, 2 and 3a) unless it can be shown that there is an overriding sustainability benefit or the development is unavoidable and no lesser quality land is available.</p>	<p>The extent of agricultural land required for the Scheme is set out in Chapter 13 of the ES (application document TR010029/APP/6.1). Chapter 10 of the ES (application document TR010029/APP/6.1) then states that an assessment of agricultural land in the study area has shown it all to fall into Agricultural Land Classification Grade 3b to 4 – good to moderate quality.</p> <p>Given there is not expected to be any resultant loss of high-quality agricultural land the Scheme is therefore considered to be in accordance with Policy DC47.</p>
	<p>Policy DC48 notes that development must be located, designed and laid out to ensure that the risk of death or injury to the public and damage from flooding is minimised whilst not increasing flood risk elsewhere and ensuring that residual risks are safely managed.</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) provides an assessment of the impact of the Scheme on the water environment and includes the FRA.</p> <p>The FRA concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation,</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>The Scheme is therefore considered to accord with policy DC48.</p>
	<p>Policy DC 49 relates to sustainable design and construction and states that planning permission for major new developments will only be granted where they are built to a high standard of sustainable construction.</p>	<p>The Scheme has been designed in accordance with the DMRB ensuring that the Scheme has been designed to the high standards required in accordance with Policy DC49.</p>
	<p>Policy DC51 includes objectives such as water efficiency (greywater and rainwater), adequate foul drainage, sewerage treatment and evidence that the development would not contribute to problems for existing users.</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the assessments undertaken in the FRA and the WFD.</p> <p>The assessment shows that, subject to the correct implementation of all mitigation measures, there will be no significant temporary adverse effects on surface water, WFD compliance, groundwater or fluvial and surface water flood risk during the construction and operation period.</p> <p>The surface water risk assessment concluded the following:</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<ul style="list-style-type: none"> <li>• Negligible impact with neutral significance of effect to Weald Brook from the discharge from the Scheme</li> <li>• Negligible impact with neutral significance of effect to the River Ingrebourne, and</li> <li>• Spillage risk for all surface water catchments is assessed as negligible with neutral significance.</li> </ul> <p>The FRA concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>A WFD Compliance Assessment considered the impact of the construction and operation of the Scheme. It concluded none of the construction components of the Scheme are considered to cause deterioration at water body scale or prevent future attainment of good ecological status or ecological potential assuming mitigation already embedded in the preliminary design is implemented, any additional specific mitigation is implemented and generic guidance on the principles of WFD-compliant design is adhered to.</p> <p>The Scheme is therefore considered to be in accordance with Policy DC51.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>The Adopted Havering Core Strategy outlines policies which address air quality management, specifically Policies CP15 and DC52, which state that new development should ‘ensure that it does not singularly or cumulatively breach air quality targets’, nor ‘cause a breach of the targets set in Havering’s Air Quality Management Area Action Plan (HAQMAAP)’. Where assessment confirms a breach, permission will only be granted once ‘suitable mitigation measures are put in place’.</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) indicates that the Scheme would not singularly or cumulatively breach air quality targets nor cause a breach of the targets set in the HAQMAAP. Therefore, no specific mitigation is necessary during the operation of the Scheme for air quality.</p> <p>A REAC has been prepared to support this Application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. This includes the production of an CEMP detailing the measures proposed to mitigate the air quality impact during the construction stage. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC and be in general accordance with the Outline CEMP (application document TR010029/APP/7.2).</p> <p>The Scheme is therefore considered to be in accordance with Policy CP15 and DC52.</p>
	<p>Policy DC53 relating to Contaminated Land states that planning permission for development will only be granted where both of the following criteria are met:</p> <ul style="list-style-type: none"> <li>• where the development is on or near a site where contamination is known, or expected to exist, a full</li> </ul>	<p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to geology and soils and outlines the ground investigation work which has been undertaken on the site.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>technical assessment of the site's physical stability, contamination and/or production of landfill gas must be undertaken. Where the assessment identifies an unacceptable risk to human health, flora or fauna or the water environment, the applicant will be required to agree acceptable long-term remediation measures before any planning permission is granted to ensure there is no future harm with regard to the future use of the site. Where feasible, on-site remediation, especially bio-remediation, is encouraged</p> <ul style="list-style-type: none"> <li>the development does not lead to future contamination of the land in and around the site.</li> </ul>	<p>A preliminary geo-environmental ground investigation has been carried out on land containing suspected contamination however no widespread, unacceptable concentrations of chemical parameters were identified. Chapter 10 outlines suggested mitigation measures in order to ensure that there would be no significant risks to human health arising from the construction and operation of the Scheme.</p> <p>A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>Notwithstanding this, Requirement 6 of the draft DCO secures the submission of a risk assessment in the event that any contamination is discovered during the construction of the Scheme along with any necessary mitigation and remediation strategy.</p> <p>It is therefore considered that the Scheme accords with Policy DC53.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC55 notes that planning permission will not be granted if it will result in exposure to noise or vibrations above acceptable levels affecting a noise sensitive development such as all forms of residential accommodation, schools and hospitals. Where the proposal would lead to a noise sensitive development being located near to a noise generating activity, a formal assessment will be required to ensure compliance with the noise exposure categories in Planning Policy Guidance Note 24, Planning and Noise.</p>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) considers the potential impacts of the Scheme on noise and vibration. The assessment has been in accordance with the British Standards 5228 parts 1 and 2 and DMRB, HD213/11 which covers the various aspects required by NPS NN paragraph 5.189. Specifically, the assessment covers daytime and night-time periods.</p> <p>Figure 6.1 of Chapter 6 indicates the noise sensitive receptors located within the study area. It is noted that these receptors currently experience high levels of noise with road traffic being the dominant source.</p> <p>It is recognised that there would be some impact from noise and vibration resulting from the construction of the Scheme. Section 6.9 of Chapter 6 outlines the mitigation that would be put in place at construction stage in order to mitigate these impacts resulting in no significant effects from day time or night time construction activities.</p> <p>No significant adverse effects or perceptible noise increase resulting from construction traffic are expected during the construction phase of the Scheme.</p> <p>The road traffic noise modelling results for the operation phase identified that no significant adverse effects would occur at dwellings or sensitive receptors due to the Scheme</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC56 states that planning permission for development including artificial lighting will only be granted where it does not have a negative impact on the amenity of residents or public safety.</p>	<p>once in operation. No significant adverse effects or perceptible noise increases were predicted at sensitive receptors located in NIAs.</p> <p>No significant adverse effects from airborne or ground-borne vibration are expected as a result of the Scheme.</p> <p>The assessments within Chapter 6 have taken into account the cumulative effect of other development coming forward in the area at the same time. No cumulative effects would occur during the operation phase of the Scheme; however, some slight adverse cumulative effects are possible during construction where construction activities from nearby developments occur simultaneously.</p> <p>Given the above, the Scheme is considered to be in accordance with Policy DM1.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared which will ensure the levels of artificial light generated during the construction phases results in no negative impact upon neighbouring amenity. This is secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1).</p> <p>At the operational stage, the levels of artificial lighting have been designed in accordance with DMRB standards.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC57 states that where sites are located in close proximity to a river, the Council will in appropriate circumstances seek river restoration and/or financial contributions towards the restoration of rivers.</p> <p>It is further noted that one particular area where the Council will seek improvement is to the River Ingrebourne, including full river restoration, the restoration of banks and in-channel habitat enhancement</p>	<p>The Scheme is therefore considered to be in accordance with Policy DC56.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) outlines the impact of the Scheme on biodiversity including the effect of the Scheme on both the Ingrebourne River and Weald Brook. The chapter sets out that the Scheme will have both temporary and permanent impacts on the waterbodies at both the construction and operational stage. Further details of the works which affect the bodies is set out within the chapter.</p> <p>Mitigation and enhancement works are proposed to both watercourse in the form of flood plain compensation and watercourse realignment again as set out within the chapter.</p> <p>Despite the mitigation and enhancement package associated with the Ingrebourne River (realignment, backwaters and floodplain measures), the residual effect of the permanent loss of open water and riparian habitat caused by the 80m culvert extension results in a residual effect of moderate significance within the DCO boundary. The concomitant increase in habitat fragmentation caused by the culvert extension and new Grove Bridge Loop road crossing are assessed as having a long-term adverse effect on the watercourse habitat and habitat availability for aquatic species within the DCO boundary.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC58 states that biodiversity and geodiversity will be protected and enhanced throughout the borough by:</p> <ul style="list-style-type: none"> <li>protecting and enhancing Sites of Special Scientific Interest, and all sites of Metropolitan, Borough or Local Importance for Nature Conservation as identified in Protecting the Borough's Biodiversity SPD and shown on the Proposals Map. Planning permission for development that adversely affects any of these sites will not be granted unless the economic or social benefits of the proposals clearly outweigh the nature conservation importance of the site and only then if adequate mitigation can be provided and no alternative site is available.</li> </ul>	<p>Measures to off-set this residual effect within the DCO boundary with enhancement of riverine habitats elsewhere within the Ingrebourne WFD waterbody (GB106037028130) will be delivered by the Environment Agency, funded by the Applicant.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance and considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers effects of the Scheme biodiversity resources in detail, including Ingrebourne Valley SMI and priority and legally protected species.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost both temporarily and permanently.</p> <p>Loss of habitat will be minimised as much as possible through appropriate construction design. In order to mitigate and compensate for the loss of habitat, habitat reinstatement and creation following completion of construction has been designed sensitively with the regards to the SMI habitats and species present. The design includes enhancement of</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>not granting planning permissions which would adversely affect priority species/habitats identified in either the London or Havering Biodiversity Action Plans unless the economic or social benefits of the proposals clearly outweigh the nature conservation importance of the site and only then if adequate mitigation measures to secure the protection of the species/habitat can be provided and no alternative site is available</li> <li>protecting and promoting the linking of habitats via the wildlife corridors shown in figure 4 (page 83)</li> <li>protecting the individual quality and character of, and promoting access to, each Countryside Conservation Area shown on the Proposals Map</li> <li>protecting and enhancing the biodiversity of the Blue Ribbon Network including rivers and their associated corridors.</li> </ul>	<p>Ingrebourne River and Weald Brook (including realignment of the channel, creation of backwaters and floodplain lowering for wet grassland), replanting of woodland habitat, grassland creation to provide a richer and more diverse resource of flowering plants, tussocky grassland and scrub areas, two new ponds for great crested newt and control and removal of non-native invasive plant species. To compensate for the unavoidable permanent loss of habitat, long-term management of reinstated and existing habitats adjacent to the new loop road will be carried out in land permanently acquired for the Scheme. An Outline LEMP has been produced to set out the management aims and objectives.</p> <p>The design includes specific measures for species found to be present at the site.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees and on the Ingrebourne River and Ingrebourne Valley SMI. Mitigation, compensation and enhancement measures are proposed as outlined within the chapter however residual significant adverse effects are expected as a result of the loss of the veteran trees, impact to Ingrebourne River habitat and with the permanent loss of land from the SMI.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance and considers that the benefits that the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Under Policy DC59 enhancements to biodiversity and geodiversity will be sought, in line with London and Havering Biodiversity Action Plan targets, as an integral part of new development.</p>	<p>Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost both temporarily and permanently.</p> <p>Loss of habitat will be minimised as much as possible through appropriate construction design. In order to mitigate and compensate for the loss of habitat, habitat reinstatement and creation following completion of construction has been designed sensitively with the regards to the SMI habitats and species present. The design includes enhancement of Ingrebourne River and Weald Brook (including realignment of the channel, creation of backwaters and floodplain lowering for wet grassland), replanting of woodland habitat, grassland creation to provide a richer and more diverse resource of flowering plants, tussocky grassland and scrub areas, two new ponds for great crested newt and control and removal of non-native invasive plant species. To compensate for the unavoidable permanent loss of habitat, long-term management of reinstated and existing habitats</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy DC60 states that the amenity and biodiversity value afforded by trees and woodland will be protected and improved by</p> <ul style="list-style-type: none"> <li>• where appropriate, retaining trees of nature conservation and amenity value and making tree preservation orders</li> <li>• ensuring that adequate measures are put in place when granting planning permission to protect trees during construction works supporting the implementation of the Thames Chase Plan and ensuring that, development within the area makes a positive contribution towards its implementation</li> </ul>	<p>adjacent to the new loop road will be carried out in land permanently acquired for the Scheme. An Outline LEMP has been produced to set out the management aims and objectives.</p> <p>The design includes specific measures for species found to be present at the site. This includes creating two new ponds for breeding great crested newt to support the important population of great crested newts referred to in LB Havering biodiversity strategy.</p> <p>The Scheme is considered to be in accordance with Policy DC59.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers the impact on trees and woodland in detail.</p> <p>The Scheme has been developed to minimise the impact on existing woodland following relevant surveys to identify the quality of the trees in the area. Chapter 7 notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees. The design of the Scheme has been altered in order to avoid direct impacts on any other of the 15 veteran trees identified in the DCO boundary. There will be no loss of ancient woodland as a result of the Scheme.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>not granting planning permission for development that would adversely affect ancient and secondary woodland.</li> </ul> <p>Policy DC61 notes that planning permission will only be granted for development which maintains, enhances or improves the character and appearance of the local area. Development must therefore:</p> <ul style="list-style-type: none"> <li>harness the topographical and ecological character of the site, including the retention of existing trees and landscape features while providing appropriate landscaping</li> <li>respond to distinctive local building forms and patterns of development and respect the scale, massing and height of the surrounding physical context</li> <li>complement or improve the amenity and character of the area through its appearance, materials</li> </ul>	<p>Mitigation and compensation measures have been proposed in order to both protect existing trees and to compensate for the loss of the veteran trees through the planting of new native trees and the 'veteranisation' of existing trees. Further details on the position with veteran trees is set out in a technical note provided in Appendix C.</p> <p>Notwithstanding this, section 5.20 of this Case for the Scheme sets out the planning balance and considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>The Consultation Report (application document TR010029/APP/5.1) sets out how the design has evolved following the consultation that has taken place with statutory consultees, non-statutory consultees, landowners, stakeholders and the general public.</p> <p>While it is recognised that the Scheme itself constitutes a significant piece of infrastructure, the engineering team have designed for aesthetic appearance as well as function and cost. Chapter 9 of the ES (application document TR010029/APP/6.1) outlines how landscape mitigation has been utilised to enhance the visual appearance of the Scheme to adjacent sensitive receptors. Screening has been used where possible to provide a more aesthetically pleasing Scheme for the benefit of neighbouring dwellings and community uses.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>used, layout and integration with surrounding land and buildings</p> <ul style="list-style-type: none"> <li>• provide structure by utilising and protecting existing views, vistas, panoramas and landmarks and creating new ones</li> <li>• reinforce, define and embrace the street and create natural surveillance by ensuring streets and open spaces are overlooked</li> <li>• create or enhance and clearly define the public and private realms and ensure these are free of clutter and easily accessible</li> <li>• meet the needs of all people of all ages</li> <li>• be designed and oriented around the needs of pedestrians, cyclists and connectivity to the public transport network</li> <li>• be durable, flexible and adaptable.</li> </ul> <p>Land to the north west of the junction lies within the Havering Ridge Area of Special Character. Policy DC69 states that the Council will seek to preserve the special character of Havering Ridge including protecting views to and from the area.</p>	<p>The Scheme will also result in an improvement to the pedestrian facilities through the widening of the footway along the new A12 off-slip ensuring that it meets the needs of all users.</p> <p>Chapter 9 of the ES (application document TR010029/APP/6.1) provides a landscape and visual impact assessment of the Scheme.</p> <p>The assessment outlines that the Scheme has been designed to avoid or reduce as far as practicable the adverse effects associated with improvements to this major highway interchange. While the Chapter indicates that there are some unavoidable impacts on the immediate landscape</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy CP15, concerning Environmental Management, addresses the need for new development to 'reduce their environmental impact and to address the causes and adapt to and mitigate the effects of climate change in their location'. The policy goes on to state that new development should:</p> <ul style="list-style-type: none"> <li>• minimise their use of natural resources, including the efficient use of land</li> <li>• reduce and manage fluvial, tidal and surface water and all other forms of flood risk through spatial planning, implementation of emergency and other strategic plans and development control policies</li> <li>• have a sustainable water supply and drainage infrastructure</li> <li>• avoid an adverse impact on water quality.</li> </ul>	<p>context, it is not expected that there would be any adverse impact to the views to and from the Havering Ridge.</p> <p>Accordingly, the Scheme is considered to be in accordance with Policy DC69.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the assessments undertaken in the FRA and the WFD.</p> <p>The assessment shows that, subject to the correct implementation of all mitigation measures, there will be no significant temporary adverse effects on surface water, WFD compliance, groundwater or fluvial and surface water flood risk during the construction and operation period.</p> <p>The surface water risk assessment concluded the following:</p> <ul style="list-style-type: none"> <li>• Negligible impact with neutral significance of effect to Weald Brook from the discharge from the Scheme</li> <li>• Negligible impact with neutral significance of effect to the Ingrebourne, River and</li> <li>• Spillage risk for all surface water catchments is assessed as negligible with neutral significance.</li> </ul>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>The FRA concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>A WFD Compliance Assessment considered the impact of the construction and operation of the Scheme. It concluded none of the construction components of the Scheme are considered to cause deterioration at water body scale or prevent future attainment of good ecological status or ecological potential assuming mitigation already embedded in the preliminary design is implemented, any additional specific mitigation is implemented and generic guidance on the principles of WFD-compliant design is adhered to.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) notes that the design of the drainage system complies with all current standards and SuDS best practice techniques to ensure that sustainability is a key drainage design criterion.</p> <p>Moreover, as a general design principle, the Scheme has been designed to use the minimum amount of land possible thereby minimising the use of natural resources.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy CP16 protects and enhances the borough's 'rich biodiversity and geodiversity, in particular, priority habitats, species and sites'. Policy DC58 reinforces the protection of 'Sites of Special Scientific Interest, and all sites of Metropolitan, Borough or Local Importance for Nature Conservation', with the remit of refusing consent for proposals that adversely affect those designations unless 'the economic or social benefits of the proposals clearly outweigh the nature conservation importance of the site'.</p>	<p>In light of the above, it is considered that the Scheme accords with Policy CP15.</p> <p>The assessment of biodiversity within Chapter 7 of the ES (application document TR010029/APP/6.1) outlines that the Scheme does impact upon Ingrebourne Valley SMI although there are no SSSI's located within the study area. Table 7.18 in Chapter 7 provides the details of the calculations of habitat loss. In order to mitigate the loss of this habitat, the design includes sensitive design of reinstated habitats (see information under Policy DC58 above).</p> <p>A REAC has been prepared to support this Application (application document TR010029/APP/7.3) This details the environmental mitigation and compensation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which be in substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2) and must reflect the mitigation measures set out in the REAC.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance weighing up the economic and social benefits of the Scheme against adverse impacts. It</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>The Scheme is therefore considered to be in accordance with Policy CP16 and DC58.</p>
<p><b>London borough of Havering Local Plan 2016-2031 Proposed Submission (August 2017)</b></p>	<p>Havering’s vision, which will direct the Borough’s development following adoption of the Proposed Submission Local Plan, focuses on four cross-cutting priorities: Communities, Places, Opportunities and Connections.</p> <p>Within the Spatial Strategy, “Increased capacity at junction 28 of the M25” is listed as a Key feature under Transport Infrastructure.</p> <p>Policy 18 notes that the Council will seek to ensure that all residents of Havering have access to high quality open space, sports and recreation facilities. To achieve this, the Council will:</p> <ul style="list-style-type: none"> <li>Continue to protect the borough's designated open spaces and existing sports and recreation facilities from development unless it can be demonstrated that:</li> </ul>	<p>The objectives of this Scheme, as set out in Section 2 of this Statement, is to improve the capacity of junction 28. The traffic modelling with has been undertaken and which has fed into the findings of the TA (application document TR010029/APP/7.4) identify that the Scheme would lead to reductions in congestion and delays at the roundabout thereby meeting the Scheme objectives and accord with the Havering Spatial Strategy.</p> <p>The Scheme would impact upon areas designated by LBH as “Parks, Open Spaces, Playing Fields and Allotments”. At Maylands Golf Course, the Scheme would result in permanent land take in order to facilitate the realignment of the Cadent Gas pipeline.</p> <p>While mitigation measures in the form of noise and landscape buffers have been incorporated into the design to mitigate the impact of the road, discussions have also taken place with the golf course owners regarding the provision of a replacement golf hole. Land has been provided within the DCO boundary and provision included within the draft DCO</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>• Replacement provision of equivalent or better quantity and quality will be made in a suitable location, or</li> <li>• The development is for alternative sports and recreational provision and the need for this clearly outweighs the loss.</li> </ul>	<p>to provide powers to construct a replacement golf hole to ensure that land of at least equivalent area is provided.</p> <p>The area known as Cock Wood is also designated as open space under Policy DC18 of the LB Havering Local Plan. It is proposed that this part of the site be utilised as environmental mitigation. Site visits to the area in question show that the area is currently overgrown, inaccessible and includes signs noting shooting takes place. It is therefore considered that the proposed use of the land as an area of environmental mitigation is not inconsistent with the existing use and should therefore be considered acceptable.</p> <p>While the Land at Oak Farm, to the south of the A12 is not designated open space in policy terms, it could be considered that the land, which is being developed as a burial ground, would fall under the definition of open space under the Planning Act 2008. The land would be taken temporarily in order to install the Cadent Gas pipe diversion and would then be subject to an easement to allow Cadent to monitor, maintain and inspect its equipment. It is considered that the land, once subject to the easement would be no less advantageous and no replacement land is considered necessary. Section 7.2 of the Statement of Reasons (application document TR010029/APP/4.1) outlines the considerations given that the provisions of the Planning Act 2008 setting out that it can be demonstrated</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 23 concerns Transport Connections. The Council supports development which ensures safe and efficient use of the highway and demonstrates that adverse impacts on the transport network are avoided or, where necessary, mitigated. The council will improve transport infrastructure and connectivity by:</p> <ul style="list-style-type: none"> <li>• Maximising the benefits from Crossrail for local businesses and residents</li> <li>• Enhancing strategic transport links across the borough</li> <li>• Improving road safety in the borough, especially in the vicinity of schools and KSI “hotspots</li> <li>• Providing residents with options to travel sustainably and enabling walking and cycling</li> <li>• Requiring new development to optimise sustainable access and other future transport connections, wherever applicable</li> <li>• Tackling key congestion “hotspots” through remodelling of Gallows Corner and Romford Ring Road to improve motor vehicle traffic flow and improve air quality</li> </ul>	<p>that the open space land would be no less advantageous when burdened with the order right than it was before.</p> <p>The TA (application document TR010029/APP/7.4) submitted in support of this Application includes the traffic modelling which has been done in relation to this Scheme. The Assessment outlines that the Scheme would result in a reduction in congestion and delay at the junction which will result in a significant improvement for the SRN.</p> <p>The reduction in congestion and delays is also expected to lead to a reduction in the number of collisions thereby improving road safety.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMU which looks at the impacts to walking and cycling. While the majority of existing routes remain unaffected, the newly created A12 off-slip would provide a widened footpath, improving the existing situation. The NMU assessment concludes that there would be no significant effect on NMU’s and the Scheme is therefore considered to accord with Policy 23.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>Working with neighbouring authorities to better co-ordinate highway works.</li> </ul>	
	<p>Policy 26 relating to urban design notes that the Council will promote high quality design that contributes to the creation of successful places in Havering.</p>	<p>The Scheme has been designed in accordance with DMRB standards ensuring that the final design is of the highest quality and in accordance with Policy 26.</p>
	<p>Policy 27 states that the Council will support development proposals that incorporate a detailed and high quality landscape scheme which takes account of the character of the site and its setting; retains and enhances existing positive landscape features; demonstrates how existing landscape features will be protected during construction; maximises opportunities for greening, through planting and soft landscaping; provides strong boundary treatment that integrates with local landscape character and street scene; and supports natural habitats and enhancing biodiversity.</p>	<p>Chapter 9 of the ES (application document TR010029/APP/6.1) provides a landscape and visual impact assessment of the Scheme.</p> <p>The assessment notes that the A12 and M25 are dominant elements in the landscape which detract from the attractiveness of the area. They create significant visual impact on the area, although this is ameliorated to some degree by the surrounding vegetation and the noise impacts also make the area less appealing for visitors and residents.</p> <p>The Scheme has been designed to avoid or reduce as far as practicable the adverse effects associated with improvements to this major highway interchange. Adverse effects are however unavoidable, and the Scheme would require the loss of areas of woodland and other vegetation to enable the Scheme to be built. This would include two veteran trees. These losses would lead to a significant adverse impact on the existing landcover which would only</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>be mitigated or compensated for in the medium to long term as the new planting establishes. There would be relatively little impact on the landform of the area with mostly small-scale earthworks and extensive use of retaining walls to limit the extent of land take and impact on the surrounding area.</p> <p>The losses of planting and the construction of the Scheme would affect the character of the area. The influence of the M25 and A12 does notably detract from the area both visually and audibly and these highways now form an intrinsic part of the character of the area. As such the effects of the highway works on landscape character would not be as significant as they would if there were no existing highways in the location.</p> <p>The Scheme also includes extensive areas of ecological mitigation land to replace land that would be lost. The proposals would include large areas of new planting as well as management of existing woodland and agricultural land. These measures would help to offset some of the losses described above and together with new planting on land within the DCO boundary would provide new or replacement planting.</p> <p>The adverse effects of the Scheme on the landscape during the operational phase at opening would be Significant to 9 visual receptors. With implantation and establishment of the mitigation and compensation measures that form an integral part of the Scheme these adverse effects would reduce for</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 28, relating to heritage assets, outlines the Council's recognition of the 'significance and value of Havering's heritage assets'. Subsequently, the Council will support proposals that 'seek to sustain or enhance the significance of heritage assets at risk in the borough'. Furthermore, the Council supports development which affects the significance of a heritage asset with archaeological interest where the proposals are 'supported by an appropriate assessment of the asset's significance' and any harm is 'minimised, clearly justified and necessary to achieve public benefits that are substantial enough to outweigh loss or harm to the asset's significance.' In addition, a particular asset or part of an asset to be lost should be 'recorded and made publicly accessible'.</p>	<p>the majority of visual receptors from 9 to 3 experiencing Significant impacts in the fifteenth year after opening.</p> <p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the assessment approach for heritage assets.</p> <p>Section 11.10 provides an appropriate assessment of the effects of the Scheme on the identified historic environment receptors. The Section outlines that during the construction phase, there is expected to be a slight adverse effect on 5 heritage assets within the DCO boundary although this is not considered to be significant. During the operational phase, a Grade II listed building at Stoney Hills Farm and a post-medieval park at Dagnam are expected to experience a slight adverse effect resulting from noise and vibration. This again is considered not to be significant.</p> <p>The Scheme is therefore considered to accord with Policy 28.</p>
	<p>Policy 29 relating to Green Infrastructure notes The Council will seek to maintain and expand the network of green spaces and natural features in Havering and optimise the benefits of green infrastructure to the environment, economy and community. The Council will support development which includes green</p>	<p>It is noted that in order to construct the Scheme, there is a need to utilise land which can currently be considered green infrastructure. Chapter 7 of the ES (application document TR010029/APP/6.1) outlines that the Scheme falls within the Ingrebourne Valley SMI. Due to the construction requirements of the Scheme, habitat from the SMI would be permanently lost the calculations for the habitat loss are set</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>infrastructure on-site which is multifunctional and integrates into the wider green infrastructure network.</p>	<p>out in Table 7.19 of Chapter 7. While the Scheme itself has been designed to minimise the amount of land take required and minimise the effect on the SMI, some impact is unavoidable.</p> <p>In order to mitigate the impact of this loss of habitat, a significant area of environmental and ecological mitigation area has been identified. An outline Landscape and Environmental Management Plan (LEMP) for these areas has been prepared which includes details of management works, monitoring and maintenance measures required post-construction.</p>
	<p>Policy 30 outlines the Council’s vision to ‘protect and enhance the rich biodiversity and geodiversity in Havering’. Development must demonstrate that the impact of proposals on protected sites and species has been fully assessed and appropriate mitigation and compensation measures implemented where necessary.</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail. The chapter sets out how the impact of proposals on protected sites and species has been fully assessed and the appropriate mitigation and compensation measures which are proposed to be implemented where necessary.</p> <p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat. This is set out in Table 7.18 which provides the area of habitat lost both temporarily and permanently.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Loss of habitat will be minimised as much as possible through appropriate construction design. In order to mitigate and compensate for the loss of habitat, habitat reinstatement and creation following completion of construction has been designed sensitively with the regards to the SMI habitats and species present. The design includes enhancement of Ingrebourne River and Weald Brook (including realignment of the channel, creation of backwaters and floodplain lowering for wet grassland), replanting of woodland habitat, grassland creation to provide a richer and more diverse resource of flowering plants, tussocky grassland and scrub areas, two new ponds for great crested newt and control and removal of non-native invasive plant species. To compensate for the unavoidable permanent loss of habitat, long-term management of reinstated and existing habitats adjacent to the new loop road will be carried out in land permanently acquired for the Scheme. An Outline LEMP has been produced to set out the management aims and objectives.</p> <p>The design includes specific measures for species found to be present at the site. Measures to protect species during construction will be set out in the CEMP.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees on Ingrebourne River and Ingrebourne Valley SMI. Mitigation, compensation and enhancement measures are proposed as</p>

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	<p>Policy 31 notes that Havering's rivers and river corridors fulfil important biodiversity, recreation, placemaking, amenity, freight transport and flood management functions which the Council will seek to optimise.</p> <p>The Council will seek to enhance the river environment by requiring developments in close proximity to a river to investigate and, where feasible, secure opportunities to restore and enhance rivers and their corridors in line with the Thames River Basin Management Plan (RBMP).</p>	<p>outlined within the chapter and further outlined within the REAC (application document TR010029/APP/7.3) however residual significant adverse effects are expected as a result of the loss of the veteran trees, impact to the river habitat of Ingrebourne River and with the permanent loss of land from the SMI.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance and considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) outlines the impact of the Scheme on biodiversity including the effect of the Scheme on both the Ingrebourne river and Weald Brook. The chapter sets out that the Scheme will have both temporary and permanent impacts on the waterbodies at both the construction and operational stage. Further details of the works which affect the bodies is set out within the chapter.</p> <p>Mitigation and enhancement works are proposed to both watercourse in the form of flood plain compensation and watercourse realignment again as set out within the chapter.</p> <p>Despite the mitigation and enhancement package associated with the Ingrebourne River (realignment, backwaters and floodplain measures), the residual effect of</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 32 outlines the Council’s support for development which ‘seeks to avoid flood risk to people and property. Furthermore, the Council will require site-specific flood risk assessments for development on sites where drainage problems have been identified by the Council, alongside the</p>	<p>the permanent loss of open water and riparian habitat caused by the 80m culvert extension results in a residual effect of moderate significance within the DCO boundary. The concomitant increase in habitat fragmentation caused by the culvert extension and new Grove Bridge Loop road crossing are assessed as having a long-term adverse effect on the watercourse habitat and habitat availability for aquatic species within the DCO boundary.</p> <p>Measures to off-set this residual effect within the DCO boundary with enhancement of riverine habitats elsewhere within the Ingrebourne WFD waterbody (GB106037028130) will be delivered by the Environment Agency, funded by the Applicant.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance considering the benefits of the Scheme against any identified negative impacts. It considers that the benefits that the Scheme would generate would outweigh the adverse effects expected.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the assessments undertaken in the FRA.</p> <p>The assessment shows that, subject to the correct implementation of all mitigation measures, there will be no significant temporary adverse effects on surface water, WFD</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>reduction of surface water runoff through the provision of sustainable drainage systems (SuDS).</p>	<p>compliance, groundwater or fluvial and surface water flood risk during the construction and operation period.</p> <p>The surface water risk assessment concluded the following:</p> <ul style="list-style-type: none"> <li>• Negligible impact with neutral significance of effect to Weald Brook from the discharge from the Scheme</li> <li>• Negligible impact with neutral significance of effect to the Ingrebourne, River, and</li> <li>• Spillage risk for all surface water catchments is assessed as negligible with neutral significance.</li> </ul> <p>The FRA (application document TR010029/APP/6.6) concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) notes that the design of the drainage system complies with all current standards and SuDS best practice techniques to ensure that sustainability is a key drainage design criterion.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 33 of the proposed Havering Local Plan 2017 focuses on the Council's commitment to improve air quality in Havering, in order to improve the health and wellbeing of Havering's residents. Policy 34 goes on to state that the Council will support development proposals which 'do not unduly impact upon amenity, human health and safety and the natural environment'.</p> <p>Policy 34 notes that The Council will support development proposals that:</p> <ul style="list-style-type: none"> <li>• Do not unduly impact upon amenity, human health and safety and the natural environment by noise, dust, odour and light pollution, vibration and land contamination</li> <li>• Do not pose an unacceptable risk to the quality of the water catchment, groundwater or surface water, and</li> </ul>	<p>In light of the above, it is considered that the Scheme accords with Policy 32.</p> <p>The impact of the Scheme on air quality is assessed in Chapter 5 of the ES (application document TR010029/APP/6.1). The outcome of the assessment indicates that there would be a reduction in the NOx levels at opening year and after 15 years of operation due to reduction in traffic congestion and vehicular improvements. Both PM<sub>10</sub> and CO<sub>2</sub> would see a small increase at both opening year and after 15 years of operation as a result in the anticipated increase in car usage as noted in section 5.14 of Chapter 5. These results are however not expected to give rise to any significant adverse effects on air quality.</p> <p>The Scheme is therefore considered to be in accordance with Policy 33.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) relates to People and Communities and provides an assessment of the impacts of the Scheme on the amenity of private dwellings and community receptors taking into account the impact of noise, dust, odour, light pollution and vibration.</p> <p>Significant affects arising from these factors are not expected following the implementation of the appropriate mitigation measures outlined.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<ul style="list-style-type: none"> <li>Optimise the design, layout and orientation of buildings and the use of green infrastructure to minimise exposure to the above pollutants.</li> </ul>	<p>While these impacts are unavoidable given the nature of the Scheme and the need to construct the loop road, a number of mitigation measures have been proposed to mitigate impacts on residential and community receptors as far as possible. A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must be substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2) and reflect the mitigation measures set out in the REAC.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) relates to the Water Environment and includes an assessment of the effect of the Scheme on the quality of the water catchment, ground and surface water.</p> <p>The assessment shows that, subject to the correct implementation of all mitigation measures, there will be no significant temporary adverse effects on surface water, WFD compliance, groundwater or fluvial and surface water flood risk during the construction period.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>The surface water risk assessment concluded the following:</p> <ul style="list-style-type: none"> <li>• Negligible impact with neutral significance of effect to Weald Brook from the discharge from the Scheme</li> <li>• Negligible impact with neutral significance of effect to the River Ingrebourne, and</li> <li>• Spillage risk for all surface water catchments is assessed as negligible with neutral significance.</li> </ul> <p>Chapter 10 of the ES (application document TR010029/APP/6.1) considers land contamination and again identifies that with the incorporation of appropriate mitigation measures, there would be no adverse impact to human health arising from the construction or operation of the Scheme.</p> <p>The design of the Scheme has also been developed to minimise impact on existing buildings through the incorporation of landscape buffers and through the minimisation of earthworks to construct the Scheme. The location of the drainage ponds has also been designed to minimise impact on existing buildings where at all possible.</p> <p>It is therefore considered that the Scheme accords with Policy 34.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy 39 outlines the Council’s policy concerning secondary aggregates associated with development. This policy requires ‘applicants to minimise the quantity of primary aggregate and resources necessary to facilitate a development and the amount of waste generated’, specifically through ‘appropriate design, good practices and the recycling of construction materials containing minerals’.</p>	<p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary.</p> <p>A CEMP is secured through Requirement. 4 of the draft DCO (application document TR010029/APP/3.1) which is required to be substantially in accordance with the Outline CEMP.</p> <p>Moreover, Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material, including primary aggregates, which will be removed and re-used during the construction of the Scheme. This quantum of primary aggregate has been kept to the minimum amount require to safely construct the Scheme in the first instance.</p> <p>It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.</p> <p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction.</p> <p>In light of the above, it is considered that the Scheme is in accordance with Policy 39.</p>
<p><b>Landscaping SPD (2011)</b></p>	<p>The Landscaping Supplementary Planning Document (SPD) aims to ensure that all matters to do with landscaping are fully integrated into the planning and design process from the outset by providing clear guidance to developers, applicants, landscape architects and other parties involved in bringing forward development proposals regarding the Council's expectations for landscape schemes and the issues to be considered therein for various scales of development.</p> <p>This SPD provides further detail on the implementation of:</p> <ul style="list-style-type: none"> <li>• Policy DC61 (Urban Design) - specifically the requirement for development to harness the topographical and ecological character of the site, including the retention of existing trees and</li> </ul>	<p>Policies DC61, DC59 and DC60 noted within the SPD are relevant to the Scheme and have been assessed earlier within this table. As it has been demonstrated that the Scheme conforms with the requirements of those policies, it is further considered that the Scheme can be considered in accordance with the objectives of this SPD.</p> <p>In addition, Requirement 5 of the draft DCO (application document TR010029/APP/3.1) relates to landscaping and requires the submission of a landscaping scheme to be determined in consultation with the LPA. The requirements of the Landscaping SPG will therefore be secured through this document.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>landscape features while providing appropriate landscaping</p> <ul style="list-style-type: none"> <li>• Policy DC21 (Major Developments and Open Space, Recreation and Leisure Facilities)</li> <li>• Policy DC59 (Biodiversity and New Developments), and</li> <li>• Policy DC60 (Tress and Woodland).</li> </ul>	
<p><b>Protecting and Enhancing the Borough's Biodiversity SPD (2009)</b></p>	<p>This SPD provides further detail on how the Council will seek to implement Development Control Policies DC58 and DC59.</p> <p>The Council will support proposals which enhance and manage natural green space, protect important species, and promote public access to nature. These will be secured where appropriate and measures to enhance biodiversity will be sought as part of development schemes.</p>	<p>Policies DC58 and DC59 noted within the SPD are relevant to the Scheme and have been assessed earlier within this table. Chapter 7 of the ES (application document TR010029/APP/6.1) relating to biodiversity sets out the measures to mitigate and enhance and demonstrates that the Scheme conforms with the requirements of those polices, it is further considered that the Scheme can be considered in accordance with the objectives of this SPD.</p>
<p><b>Protection of Trees During Development SPD (2009)</b></p>	<p>This SPD provides further detail on how the Council will seek to implement Development Control Policy 60 which seeks to protect and improve the amenity and biodiversity value afforded by trees and woodland, will be a key means of realising this vision.</p>	<p>Policy 60 noted within the SPD are relevant to the Scheme and have been assessed earlier within this table. As it has been demonstrated that the Scheme conforms with the requirements of those polices, it is further considered that the Scheme can be considered in accordance with the objectives of this SPD.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
<p><b>Sustainable Design and Construction SPD (2009)</b></p>	<p>This SPD provides further detail on requirements of the following Development Management Policies:</p> <ul style="list-style-type: none"> <li>• DC 40 Waste Recycling</li> <li>• DC 41 Re-use and recycling of waste</li> <li>• DC 48 Flood Risk</li> <li>• DC 49 Sustainable Design and Construction</li> <li>• DC 50 Renewable Energy</li> <li>• DC 51 Water Supply, Drainage and Quality</li> <li>• DC 52 Air Quality</li> <li>• DC 55 Noise</li> <li>• DC 58 Biodiversity and Geodiversity</li> <li>• DC 63 Delivering Safer Places.</li> </ul>	<p>Those policies which are elaborated upon in this SPD and which are relevant to the Scheme have been assessed in detail in the assessment of the LBH Core Strategy and Development Management Policies section of this table.</p> <p>Given that the assessment finds that the Scheme is in conformity with those policies, it is further considered that the Scheme is in conformity with the Sustainable Design and Construction SPD.</p>
<p><b>Brentwood Replacement Local Plan (2005)</b></p>	<p>Policy CP1 paragraph i) states that any development will need to demonstrate that the proposal '<i>would not have an unacceptable detrimental impact on visual amenity, or the character and appearance of the surrounding area</i>'. Paragraph iii) states that the proposal '<i>should be of a high standard of design and layout and should be compatible with its location and any surrounding development</i>'.</p>	<p>Chapter 9 of the ES (application document TR010029/APP/6.1) provides a landscape and visual impact assessment of the Scheme.</p> <p>The assessment identifies that at present, the A12 and M25 are dominant elements in the landscape which detract from the attractiveness of the area although there are significant areas of woodland around the junction.</p> <p>The Scheme is of a high standard of design and has been developed to limit this removal of existing woodland and</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>vegetation. There would also be relatively little impact to the landform of the area with earthworks being small scale. Moreover, the Scheme proposes extensive areas of ecological mitigation to compensate for the loss of woodland and vegetation required to construct the Scheme.</p> <p>While it is noted that there would be a detrimental impact to the visual amenity of the area during construction and while the newly planted ecological mitigation matures, the Scheme is not considered to result in an unacceptable level of detriment, given the benefits the Scheme provides.</p> <p>It is therefore considered that the Scheme accords with Policy CP1.</p>
	<p>Policy CP3 states that all development proposals must include sufficient information to identify their impact on the transport system in order for an assessment to be made of the need for measures to mitigate any detrimental transport impacts, such as improvements to access by public transport, walking and cycling, and to reduce the need for parking.</p>	<p>Traffic modelling data has been incorporated into the TA which supports the DCO application (application document TR010029/APP/7.4).</p>
	<p>Policy DM1, a general development criteria policy, outlines the requirement for proposals to have no 'unacceptable effect on health, the environment or</p>	<p>The ES (application document TR010029/APP/6.1) provides a full assessment of the environmental impacts of the Scheme.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>amenity’, which includes ‘light, noise pollution and vibration’.</p>	<p>Chapter 5 considers air quality and determines that the Scheme would not result in any significant effects at construction or operational stage, subject to the proposed mitigation.</p> <p>Chapter 6 considers the potential impacts of the Scheme on noise and vibration. The assessment considers that no significant adverse effects would be experience at either construction or operational stage, subject to the proposed mitigation.</p> <p>Chapter 7 considers biodiversity and summarises that while significant mitigation and enhancement measures have been proposed, there would remain some residual significant adverse effects in regard to the impact to Ingrebourne River, the loss of 2 veteran trees and the permanent loss of a small area of Ingrebourne Valley SMI.</p> <p>Chapter 8 considers the water environment and determines that the Scheme would not result in any significant temporary effects on the water environment, subject to the proposed mitigation. It further notes the Scheme is compliant with the WFA and the FRA concludes that the Scheme is acceptable in regard to flood risk.</p> <p>Chapter 9 considers the landscape and visual impact of the Scheme. The assessment considers that the Scheme would</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>result in a significant adverse impact through the removal woodland areas including 2 veteran trees. This would be mitigated through the provision of extensive areas of ecological mitigation. The significant adverse impact on visual amenity would be reduced over time as the mitigation areas establish themselves.</p> <p>Chapter 10 considers the effects of the Scheme on geology and soils. During the construction phase, provided the proposed mitigation measures are imposed, no significant effects are expected. No significant adverse effects are expected during the operational phase. The effects of the Scheme on geomorphology, ground stability and agricultural land are not expected to be significantly adverse.</p> <p>Chapter 11 addresses cultural heritage and determines that there are no significant adverse effects expected as a result of the Scheme.</p> <p>Chapter 12 addresses the Scheme's effects on materials and waste and determines that during construction, the amount of materials to be used is not considered to result in a significant adverse effect. The effect on waste capacity on the regional capacity baseline is expected to result in a significant adverse effect and mitigation is proposed to minimise waste produced. The operational phase of the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Scheme is not expected to result in any significant adverse effects.</p> <p>Chapter 13 considers people and communities. The assessment determines that as a result of the temporary and permanent land take required to construct the Scheme, a significant adverse effect is expected to Grove Farm, Maylands Cottages and Maylands Golf Course. Significant adverse effects in regard to amenity are also expected at Grove Farm and Maylands Cottages. Notwithstanding this, discussions have been held with affected landowners to identify how to minimise effect on their land and minimise the land take required. In regard to Grove Farm, the location of a drainage pond to the north of the site has been altered and reduced in size to the minimum required to limit land take. The proposed construction technique for the loop road minimises the earthworks required in order to limit impact on Grove Farm. For Maylands Golf Course, a new hole is to be provided to mitigate the impact on the existing golf course as well as providing landscape buffering. The landscape buffering would also help to limit visual impact to Maylands Cottages.</p> <p>Chapter 14 considers climate change and determines that the Scheme is unlikely to result in any significant adverse effects.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy PC1, relating to land contaminated by hazardous substances, outlines the requirement for an Environmental Survey to be carried out in order to assess the 'nature and extent of the contamination' of land where it is suspected of being contaminated by hazardous substances 'arising out of previous land uses such as industry, gas works, waste tips or landfill sites'.</p>	<p>A summary of the findings of these environmental assessments is provided within the Non-Technical Summary (application document TR010029/APP/6.4)</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance to weigh up the benefits of the Scheme against the identified areas of harm. It considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to Geology and Soils and has provided an assessment of the nature and extent of contamination at the site.</p> <p>Preliminary ground investigations have taken place at the north west corner of Grove Farm where known landfill and surface level deposits had been identified. The assessment concludes that there were no significant risks to human health arising from the ground investigations.</p> <p>In regard to the wider site, with appropriate mitigation measures, it is considered that all identified risks to human health could be mitigated to result in a negligible effect with regard to land contamination.</p> <p>A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be</p>

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	<p>Policy PC6, concerning transport pollution, states that 'all new transport proposals and improvements to existing transport infrastructure and services will be assessed against their impact on air quality, noise levels and visual amenity.</p>	<p>implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>It is therefore considered that the Scheme is in accordance with Policy PC1.</p> <p>The ES provides a full assessment of the Scheme against environmental issues. This includes Chapter 5 which addresses air quality and notes that the Scheme would not result in any significant effects at construction or operational stage, subject to the proposed mitigation.</p> <p>Chapter 6 addresses the noise levels of the Scheme both during the construction and operational phase and determines that the noise levels at construction stage can be adequately mitigated while at operation stage are not expected to be significantly greater than existing.</p> <p>Chapter 9 addresses the visual impact of the Scheme and indicates that while the Scheme is expected to result in an adverse visual impact, mitigation measures are proposed including tree planting to minimise these impacts. It is considered that the benefits arising by the Scheme would outweigh the harm of these adverse visual impacts.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy C3 concerns 'County Wildlife Sites, Local Nature Reserves and Other Habitats and Natural Features of Local Value'. Specifically, the policy states that development which would have an 'unacceptable detrimental impact' upon any site listed previously 'will not be permitted unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the substantive nature conservation value of the site or feature'.</p>	<p>It is therefore considered that the Scheme accords with Policy PC6.</p> <p>The assessment of biodiversity within Chapter 7 of the ES (application document TR010029/APP/6.1) relates to biodiversity. No effect on County Wildlife Site, Local Nature Reserves or habitats and species within Brentwood are anticipated.</p> <p>A residual effect on Ingrebourne Valley SMI (LB Havering) is expected due to the permanent loss of habitat with this site. Mitigation and compensation measures are proposed in the form of appropriate reinstatement and long-term management of habitats.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance and considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p> <p>The Scheme is therefore considered to be in accordance with Policy C3</p>
	<p>Policy C4 states the need for development to retain existing woodlands with management 'appropriate to age, use, location and scientific interest'. Policy C5 outlines the need for new development to allow for</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail, including the approach to the existing woodland.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>the retention of 'existing trees, hedges, woods, ponds, watercourses and other natural features'.</p>	<p>While the Scheme has been designed to minimise the loss of habitat where possible, it is not possible to construct the Scheme without the loss of some existing habitat, again including areas of existing woodland. This is set out in Table 7.18 which provides the area of habitat lost both temporarily and permanently. The Scheme does not result in any loss of habitat within Brentwood. All habitat loss is located within LB Havering.</p> <p>In order to mitigate and compensate for the loss of habitat, temporary working areas will be sensitively reinstated with appropriate habitats which will be managed long-term.</p> <p>The chapter notes that the Scheme would result in a residual adverse effect arising from the loss of 2 veteran trees, affects on Ingrebourne River and Ingrebourne Valley SMI. Mitigation, compensation and enhancement measures are proposed as outlined within the chapter and further outline within the REAC (application document TR010029/APP/7.3)..</p> <p>Appendix C provides further details on the position with veteran trees.</p> <p>Notwithstanding this, section 5.20 of this Statement sets out the planning balance and considers that the benefits that the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy C7 notes that development that would damage, destroy or threaten the future survival of trees protected by a tree preservation order, or trees within an area identified as ancient woodland or in a conservation area will not be permitted unless the removal of the tree would be in the interests of good arboricultural/ silvicultural practice or the development clearly outweighs the amenity and/or nature conservation value of the tree.</p> <p>Policy C9 notes that the Council will seek to conserve, enhance and manage ancient landscapes</p>	<p>Scheme would generate would outweigh the adverse impacts expected.</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers the impact of the Scheme on biodiversity and includes the findings of an Arboricultural assessment.</p> <p>The Scheme has been designed to avoid, where possible, impacts on existing woodland and veteran trees. However, the chapter and Arboricultural Impact Assessment sets out that the removal of 2 veteran trees and trees within tree preservation order woodland is unavoidable. Significant mitigation and compensation measures are proposed including the planting of woodland, individual trees and the ‘veteranisation’ of existing trees. A residual significant adverse effect in relation to the loss of veteran trees would remain.</p> <p>Section 5.20 of this Statement provides an assessment of the planning balance and outlines how the benefits of the Scheme outweigh these identified adverse impacts.</p> <p>In light of this, the Scheme is considered to accord with Policy C7.</p> <p>Section 7.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) provides information on the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>and designated parks and gardens of special historic interest. Development which would damage the character or appearance of an ancient landscape, or of a park or garden of special historic interest or its setting will not be permitted.</p>	<p>value/significance of each heritage asset, including archaeological remains, historic buildings and historic landscapes. The response on the setting is proportionate to the potential impact on the heritage asset. Data on each asset, including information on setting, is presented in Appendix 11.1 of the ES Appendices (application document TR010029/APP/6.3).</p> <p>Section 11.7 of Chapter 11 sets out the baseline conditions for the cultural heritage including the information sources and confirmation that the assessments have been undertaken by suitably qualified professionals. The assessment considers that the Scheme would not result in any significant adverse effects.</p> <p>The Scheme is therefore considered to accord with Policy C9.</p>
	<p>Policy C16 states that proposals for development in the vicinity of a Listed Building will not be permitted where the proposals would be likely to detract from its character or setting.</p>	<p>Section 7.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) provides information on the value/significance of each heritage asset, including listed buildings. The response on the setting is proportionate to the potential impact on the heritage asset. Data on each asset, including information on setting, is presented in Appendix 11.1 of the ES Appendices (application document TR010029/APP/6.3).</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy IR3 notes development of the best and most versatile agricultural land (Grade 1, 2 and 3a) will only be permitted where it can be shown that no alternative development site exists within existing settlement boundaries or on other previously developed land. Where development of agricultural land is required, such development should seek to use agricultural land of the least value unless sustainability or other considerations suggest otherwise.</p> <p>Policy PC4 states that noise-generating development will not be permitted if it would have a significant unacceptable detrimental impact on the noise levels experienced by the occupiers of existing</p>	<p>Section 11.7 of Chapter 11 sets out the baseline conditions for the cultural heritage including the information sources and confirmation that the assessments have been undertaken by suitably qualified professionals. The assessment considers that the Scheme would not result in any significant adverse effects to any identified listed buildings.</p> <p>The Scheme is therefore considered to accord with Policy C16.</p> <p>Chapter 10 of the ES (application document TR010029/APP/6.1) relates to Geology and Soils and includes an assessment of the impact of the Scheme on agricultural land. The assessment identifies that the agricultural land which is affected by the Scheme at Grove Farm and land belonging to Maylands Golf Course is considered to be of low quality (Grade 3b and 4).</p> <p>As such is considered that the Scheme would not lead to any significant effects to any best and most versatile agricultural land and is therefore in accordance with Policy IR3.</p> <p>Chapter 6 of the ES (application document TR010029/APP/6.1) considers the potential impacts of the Scheme on noise and vibration. The assessment has been in accordance with the British Standards 5228 parts 1 and 2 and DMRB, HD213/11 which covers the various aspects</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>or proposed residential or other noise-sensitive development.</p>	<p>required by NPS NN paragraph 5.189. Specifically, the assessment covers daytime and night-time periods.</p> <p>Figure 6.1 of Chapter 6 indicates the noise sensitive receptors located within the study area. It is noted that these receptors are currently experience high levels of noise with road traffic being the dominant source.</p> <p>It is recognised that there would be some impact from noise and vibration resulting from the construction of the Scheme. Section 6.9 of Chapter 6 outlines the mitigation that would be put in place at construction stage in order to mitigate these impacts resulting in no significant effects from day time or night time construction activities.</p> <p>No significant adverse effects or perceptible noise increase resulting from construction traffic are expected during the construction phase of the Scheme.</p> <p>The road traffic noise modelling results for the operation phase identified that no significant adverse effects would occur at dwellings or sensitive receptors due to the Scheme. No significant adverse effects or perceptible noise increases were predicted at sensitive receptors located in NIAs.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy GB1 refers to new development within the Green Belt. The policy states that planning permission will not be given, ‘unless in very special circumstances’, for construction for ‘purposes other than those appropriate to a Green Belt. Policy GB2 states that proposals within the green belt should not ‘conflict with the purposes of including land in the Green Belt and do not harm the openness of the Green Belt. Furthermore, account will also be taken of the effect on public rights of way and the need to ‘preserve or enhance existing landscape features’</p>	<p>No significant adverse effects from airborne or ground-borne vibration are expected as a result of the Scheme.</p> <p>The assessments within Chapter 6 have taken into account the cumulative effect of other development coming forward in the area at the same time. No cumulative effects would occur during the operation phase of the Scheme. Cumulative effects are possible during construction where construction activities from nearby developments occur simultaneously. However, these are expected to be slight adverse.</p> <p>In light of the above, it is considered that the Scheme is in accordance with Policy PC4.</p> <p>Section 5.3 of this Statement provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that very special circumstances exist to justify the development of the Scheme and that the Scheme could also be considered not inappropriate development The Scheme is considered to be in accordance with Policy GB1.</p> <p>Chapter 13 of the ES application document TR010029/APP/6.1) regarding people and communities includes an assessment of the Scheme’s impact on PRoW’s which is not considered to be significant. Chapter 9 of the ES addresses the Scheme’s landscape and visual impact. While an adverse impact is expected, this is mitigated by the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy T2 concerns New Development and Highway Considerations, and states that permission will not be granted for proposals where unacceptable detriment is indicated to the existing transport system, or where the works would not comply with the highway authority's adopted guidance</p>	<p>existing low quality of visual amenity in the area. Moreover, it is considered that the benefits of the Scheme outweigh any harm to the visual amenity of the area. The Scheme is therefore considered to accord with Policy BG2.</p> <p>Section 2 of this Statement sets out the Scheme objectives which are:</p> <ul style="list-style-type: none"> <li>• To increase capacity and reduce congestion and delays by providing an improved link from M25 to A12</li> <li>• To reduce the incident rate and resulting disruption by increasing the capacity of the roundabout</li> <li>• To improve safety on the roundabout by reducing traffic levels and redesigning the existing layout</li> <li>• To cater for future traffic demands to enable development and economic growth</li> <li>• To minimise the impact on local air quality and noise by smoothing traffic flow, and</li> <li>• To protect access for NMUs (pedestrians and cyclists) and improve conditions wherever possible.</li> </ul> <p>The TA (application document TR010029/APP/7.4) provides a summary of the traffic modelling data which outlines that the Scheme would reduce congestion and delay at the roundabout.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy T14 notes that cycling will be promoted as an alternative means of transport to the private car through the provision of improved cycle parking and other facilities and new cycle routes as part of highway infrastructure improvements. Particular attention will be given to a number of sites including the A1023 Brook Street to Chelmsford Road.</p> <p>Policy T15 further notes that the Council will promote walking as an alternative to using the car through the provision of safe and convenient pedestrian routes and improved conditions for pedestrians.</p> <p>In terms of heritage, the Replacement Local Plan (paragraph 9.49) outlines the requirement to conserve and protect the historic environment in order for future generations to benefit from the 'maintenance of these elements from our past'. Furthermore, paragraph 9.50 states that 'new development and transport proposals can have a significant impact on the historic environment and need to be controlled to avoid or minimise any detrimental impacts'</p>	<p>The Scheme is therefore considered to accord with Policy T2.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMUs including cyclists. During the construction phase, all existing routes would remain open until new routes are complete to ensure there is no negative effect on NMU. The NMU assessment concludes that there would be no significant effect on NMU's.</p> <p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the assessment approach for this topic.</p> <p>Section 11.10 provides an assessment of the effects of the Scheme on the identified historic environment receptors. The Section outlines that during the construction phase, there is expected to be a slight adverse effect on 5 heritage assets within the DCO boundary although this is not considered to be significant. During the operational phase, a Grade II listed building at Stoney Hills Farm and a post-</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Paragraph 10.9 outlines the requirement for new development to ‘make the best use of land and other resources’ in order to ‘minimise waste and allow for recycling’. In addition, paragraph 10.22 states that the Council will encourage and implement measures such as the ‘recycling of waste, the conservation of resources through good design and energy efficient means of transport’</p>	<p>medieval park at Dagnam are expected to experience a slight adverse effect resulting from noise and vibration. This again is considered not to be significant.</p> <p>The Scheme is therefore considered to be in accordance with paragraph 9.49 of the replacement Local Plan.</p> <p>A CEMP is secured within the Requirements in Schedule 2 of the draft DCO (application document TR010029/APP/3.1).</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support the DCO application which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary and is secured within the Requirements in Schedule 2 of the draft DCO (application document TR010029/APP/3.1).</p> <p>Moreover, Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and recycled for use during the construction of the Scheme. It outlines that 325,562m<sup>3</sup> of material would be excavated from site and 196,913m<sup>3</sup> of this could be re-used on site. These figures represent a worst-case scenario. A more detailed breakdown of the figures is provided within Chapter 12.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>The latent requirement to export excavated material from site would result in a moderate effect on the regional capacity for waste disposal. The quantity of material required to be transported to site to enable the construction is considered to have a slight adverse effect. Notwithstanding this, the amount of material re-use has been discussed with contractor input and has been maximised where possible in order to reduce the anticipated number of vehicle movements required for the construction.</p> <p>The Scheme is therefore considered to be in accordance with paragraph 10.9 of the replacement Local Plan.</p>
<p><b>Brentwood Local Plan 2016-2033 (Pre-submission 2019)</b></p>	<p>Policy NE01 states support for proposals which minimise the use of natural resources and proactively conserve and enhance the quality of the natural environment. Development should avoid adverse impact on existing natural heritage assets as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements</p>	<p>Chapter 12 of the ES (application document TR010029/APP/6.1) provides an assessment of the Scheme's use of materials and waste. It concludes that while there would be no significant adverse effect expect on the amount of material used, in the worst-case scenario, a significant adverse effect could be expected on the regional baseline capacity for waste. Mitigation measures are proposed to minimise the production of waste which is secured through Requirement 4 of the draft DCO and the production of a CEMP that must be substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2).</p> <p>Chapter 7 of the ES concerns biodiversity and outlines that the Scheme would result in significant adverse effects as a</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy NE03 (Trees, Woodlands, Hedgerows) states “Development will not be permitted where it would have a detrimental effect on, or result in the loss of, significant landscape heritage or a feature of ecological importance, including trees, woodlands or hedgerows.” Proposals will be supported only if they seek to conserve these features. Where adverse impact is unavoidable, it must be demonstrated that impact has been investigated. Loss of these features</p>	<p>result of the loss of 2 veteran trees, the loss of land from Ingrebourne Valley SMI and open riverine habitat along Ingrebourne River. These areas all lie within LB Havering. While extensive mitigation and compensation measures are proposed, residual adverse effects would remain.</p> <p>As noted in this table, the Scheme is considered to accord with Policy C3, C4, C5 and paragraph 9.50 of the Brentwood Replacement Local Plan 2005 in regard to impact on the natural environment and the historic environment. The Scheme is therefore also considered to accord with Policy NE01 of the emerging Local Plan.</p> <p>Further details of the assessments of the impact of the Scheme on the natural environment and the historic environment can be seen in Chapters 7 and 11 of the ES respectively (application document TR010029/APP/6.1).</p> <p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail.</p> <p>The assessment sets out that the Scheme has sought to minimise the impact on trees, woodlands and hedgerows and has sought to conserve these where possible. Despite this, it has been determined that in order to construct the Scheme, it will be necessary to remove 2 veteran trees, some areas of woodland and a short section of hedgerow.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>is only acceptable where appropriately mitigated and shown that there was no alternative option or supported by arboricultural reasons.</p>	<p>Mitigation and compensation measures are set out in Chapter 7. Retained habitats will be protected during construction through the CEMP. Short sections of hedgerow required for access will be reinstated and new woodland will be created. Measures to compensate for the loss of veteran trees are set out in Appendix C. A significant residual adverse effect in relation to veteran trees is expected.</p> <p>Section 5.20 of this Statement provides an assessment of the planning balance which considered the impacts of the Scheme such as this against the benefits provided. It is considered that the benefits of the Scheme outweigh the harm caused including the loss of the 2 veteran trees.</p> <p>Appendix C provides further details on the position of veteran trees.</p>
	<p>In terms of flood risk, Policy NE06 outlines the need for proposals to avoid flood risk by 'applying the Sequential Test and, if necessary, the Exception Test. Furthermore, new development should use opportunities to 'reduce the causes and impacts of flooding'</p>	<p>A FRA (application document TR010029/APP/6.6) has been carried out in accordance with the requirements of the National Planning Practice Guidance (NPPG 2019) and the EA's Flood risk assessments: climate change allowances (EA, 2016).</p> <p>The FRA outlines that parts of the development would be located within Flood Zones 2 and 3. It is therefore necessary to apply the exception test to the Scheme to demonstrate that:</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>1. The development is required for wider sustainability benefits to the community that outweigh flood risk, and</p> <p>2. That the development is safe from flooding for its lifetime without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.</p> <p>In regard to part 1 of the exception test, Section 5.20 of this Statement provides an overview of the planning balance for the Scheme and considers that the net benefits of the Scheme outweigh any identified harm. In regard to part 2 of the exception test, the mitigation measures which have been incorporated into the Scheme ensure the development would remain safe and not increase flood risk elsewhere, over the lifetime of the development taking into account climate change. Further details of how the Scheme meets part 2 of the test are provided within the FRA however in light of the above, it is considered that the Scheme passes parts 1 and 2 of the exception test.</p> <p>Fluvial flood risk mapping indicates that there are large portions of the Scheme intersecting Flood Zone 3 where it will have an adverse impact on flood risk. The FRA notes that this impact can be successfully mitigated through use of floodplain compensation areas to replace lost floodplain and prevent increases to fluvial flood levels.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Floodplain compensation will be required prior to construction of the Scheme. A suitable phasing plan will be required before commencement of works.</p> <p>The Scheme will remain safe and operational in times of flood up to and including the 1 in 100 (1%) annual probability flood event with a 35% allowance for climate change.</p> <p>Flooding of the A12 occurs in both baseline and with Scheme scenarios during 1 in 100 (1%) annual probability flood event with a 70% allowance for climate change therefore potential for increased resilience may be required in the future. No detriment above the existing situation will occur.</p> <p>Suitable blockage mitigation may be required upstream of the Ingrebourne M25 culvert and is secured through a surface water management plan contained within Outline CEMP application document TR010029/APP/7.3 and noted in the REAC application document TR010029/APP/7.2)</p> <p>The Scheme is therefore considered to be in accordance with Policy NE06.</p>
	<p>Policy NE05 Air Quality states: Development is required to meet or exceed the 'air quality neutral' standard, especially within AQMAs, and development</p>	<p>The impact of the Scheme on air quality is assessed in Chapter 5 of the ES (application document TR010029/APP/6.1). The outcome of the assessment indicates that there would be a reduction in the NOx levels</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>proposals should minimise exposure to existing poor air quality and make provision to address local air quality exceedances through design solutions and measures</p> <p>In accordance with Policy NE07 the Council will require applicants proposing development on or near known or potentially contaminated land to submit a detailed site characterisation and tiered risk assessment and to identify any remedial measures that need to be carried out (including remedial treatment and monitoring arrangements), provided in a detailed Remediation Scheme</p>	<p>at opening year and after 15 years of operation due to reduction in traffic congestion and vehicular improvements. Both PM<sub>10</sub> and CO<sub>2</sub> would see a small increase at both opening year and after 15 years of operation as a result in the anticipated increase in car usage. These results are however not expected to give rise to any significant adverse effects on air quality and not lead to any exceedances of local air quality targets.</p> <p>The proposed Scheme is located on the site of a former landfill areas and as such, ground investigation has taken place at the site to determine the existing condition and propose the appropriate mitigation. This is set out in Chapter 10 of the ES (application document TR010029/APP/6.1).</p> <p>The chapter noted that a preliminary land contamination assessment and risk assessment have taken place and outlines that with appropriate mitigation, there would be no significant risks to human health arising from the construction and operation of the Scheme.</p> <p>A REAC has been prepared to support the DCO application (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1)</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>secures the submission of a CEMP which must be substantially in accordance with the Outline CEMP ( application document TR010029/APP/7.2) and reflect the mitigation measures set out in the REAC and be in general accordance with the Outline CEMP. Requirement 6 also secures that any contaminated land found during construction not previously identified, is reported and appropriate remediation work carried out.</p>
	<p>Policy NE08 states that proposals which involve floodlighting or illumination will require applicants to submit a full lighting strategy, ‘proportionate to their application, specifying details of lights, their power and type, overall level and distribution of illumination and times of operation’</p>	<p>While a full lighting strategy is not proposed, the Outline CEMP (application document TR010029/APP/7.2) has been prepared which will ensure the levels of artificial light generated during the construction phases results in no negative impact upon neighbouring amenity. At the detailed design stage, a CEMP would be submitted, as secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1) which would provide the requisite details regarding lighting and must be substantially in accordance with the Outline CEMP.</p> <p>At the operational stage, the levels of artificial lighting have been designed in accordance with DMRB standards.</p> <p>The Scheme is therefore considered to be in accordance with Policy NE08.</p>
	<p>Policy NE09 relates to the Metropolitan Green Belt. The Belt will be preserved from inappropriate development so that it continues to maintain its openness and serve its key functions. All</p>	<p>Section 5.3 of this Statement provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that very special circumstances exist to justify the development of the</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>development proposals within the Green Belt will be considered in accordance with the provisions of the NPPF; development within the Green Belt will only be permitted if it maintains the Green Belt's openness and does not conflict with the purposes of the Green Belt or harm its visual amenities. Policy NE12, relating to previously developed Green Belt land, states that development will be permitted where development 'supplies or improves travel links to nearby existing communities, such as villages'</p>	<p>Scheme and that the Scheme could also be considered not inappropriate development The Scheme is therefore considered to be in accordance with Policy NE9. Moreover, given the existing road structures are already located within the Green Belt and the Scheme is anticipated to improve connections between the local communities, the Scheme is considered to be in accordance with Policy NE12.</p>
	<p>Policy SP02 concerns construction management. This includes provision that "Development is required to employ the highest standards of sustainable construction management, including: a. sustainable construction methods, such as use of sustainably sourced materials recycled materials; b. the reuse of demolished material from development site, where practical in order to minimise the transportation of waste and reduce carbon emissions; and c. the sustainable disposal of materials."</p>	<p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP to be substantially in accordance with the Outline CEMP and will provide details of best practice construction methods to be utilised at the site, measures being implemented to reduce the amount of waste created and where material can be re-used on site. Chapter 12 of the ES (application document TR010029/APP/6.1) relating to materials and waste also identifies the targeted levels of material to be re-used on site.</p> <p>The Scheme is therefore considered to accord with Policy SP02.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy SP03 outlines the council's commitment to ensuring all new developments promote healthier and inclusive environments. The majority of proposals will be required to assess their impacts on health and well-being, upon the capacity of existing health and social care services and facilities, the environmental impacts, and the promotion of health improvement activities</p> <p>Policy SP05 states that all major development should sign up to the Considerate Constructors Scheme, or equivalent. During construction, major development is required to:</p> <ul style="list-style-type: none"> <li>• minimise levels of noise, vibration, artificial light, odour, air quality, fumes, or dust pollution</li> <li>• consider the routing, timing and frequency of heavy goods vehicle movements to reduce their impact on vulnerable road users, local amenity and congestion</li> <li>• use, where available, construction and or freight consolidation centres</li> <li>• consider the impact of construction on water supply, flood risk and drainage and implement suitable mitigation measures where required.</li> </ul> <p>Major development must consider the cumulative impacts of other major development occurring in the</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the impact of the Scheme on Human Health. The assessment concludes that the Scheme would not give rise to any significant adverse effects to human health.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary.</p> <p>A CEMP is secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1) and must be substantially in accordance with the Outline CEMP. The approval of the documents will ensure that the highest practices of sustainable construction are secured for the Scheme.</p> <p>Moreover, Chapter 15 of the ES (application document TR010029/APP/6.1) provides a cumulative effects assessment to take into account other developments within the study area.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>vicinity on levels of noise, vibration, artificial light, odour, air quality, fumes or dust pollution, and plan timings of works, delivery timings, routes, and location of equipment accordingly to reduce the cumulative impacts.</p> <p>Development is required to employ the highest standards of sustainable construction management, including:</p> <ul style="list-style-type: none"> <li>• sustainable construction methods, such as use of sustainably sourced materials recycled materials</li> <li>• the reuse of demolished material from development site, where practical in order to minimise the transportation of waste and reduce carbon emissions</li> <li>• the sustainable disposal of materials.</li> </ul> <p>Policy BE02 concerns sustainable construction and energy. Proposals are required to ‘maximise the principles of energy conservation and efficiency in the design, massing, siting, orientation, layout and use of materials’</p>	<p>The Scheme is therefore considered to accord with Policy SP05.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary. This is secured through Requirement 4 within the draft DCO (application document TR010029/APP/3.1) which requires a CEMP to be prepared for the Scheme and this must be substantially in accordance with the Outline CEMP.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>Moreover, Chapter 12 of the ES (application document TR010029/APP/6.1) regarding materials and waste identifies the quantum of material which will be removed and re-used during the construction of the Scheme. The number of vehicle movements to and from the site for importing materials has therefore been reduced as far as possible.</p> <p>The Scheme is therefore considered to accord with Policy BE02.</p>
	<p>Policy BE08, concerning sustainable drainage, outlines the requirement for development to incorporate SuDS to avoid flood risk or adverse impacts on water quality. Standards should be met on quantity, in regard to decreasing runoff rates</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) notes that the design of the drainage system complies with all current standards and SuDS best practice techniques to ensure that sustainability is a key drainage design criterion.</p> <p>The Scheme is therefore considered to be in accordance with Policy BE08.</p>
	<p>Policy BE11 – Strategic Transport Infrastructure includes delivering improvements to the highway infrastructure capacity. This policy emphasises collaborative working with the highway authority and key stakeholders, improvements to highway safety, and public realm that allows for NMUs, particularly around schools</p>	<p>Section 2 of this Statement sets out the Scheme objectives which are:</p> <ul style="list-style-type: none"> <li>• To increase capacity and reduce congestion and delays by providing an improved link from M25 to A12</li> <li>• To reduce the incident rate and resulting disruption by increasing the capacity of the roundabout</li> <li>• To improve safety on the roundabout by reducing traffic levels and redesigning the existing layout</li> </ul>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy BE16 seeks to mitigate the transport impacts of development by seeking to ensure that developments will not have an unacceptable transport impact and/or any significant impacts on the transport network (in terms of capacity and congestion) and safety can be effectively mitigated to an acceptable degree</p>	<ul style="list-style-type: none"> <li>• To cater for future traffic demands to enable development and economic growth</li> <li>• To minimise the impact on local air quality and noise by smoothing traffic flow            To protect access for NMUs (pedestrians and cyclists) and improve conditions wherever possible.</li> </ul> <p>The Scheme will lead to a reduction in the anticipated number of accidents and collisions thereby improving road safety. The Scheme ensures that existing NMU routes are maintained or made no worse than existing. It is therefore considered that the Scheme accords with Policy BE11.</p> <p>The traffic modelling data which has fed into the TA (application document TR010029/APP/7.4) indicates that the Scheme is expected to reduce the level of delay and congestion around the junction. Chapter 13 of the ES (application document TR010029/APP/6.1) regarding People and Communities outlines that the level of driver stress is expected to improve as a result of the reduction in congestion and delay. This reduction in congestion and delay is expected to have a consequential effect of improving the safety at the junction.</p> <p>The Scheme is therefore considered to be in accordance with Policy BE16.</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>Policy BE19 concerns access to nature, stating that “Access to nature should be integrated as a fundamental part of site and buildings design”. Major development should provide direct access to nature and that these measures should be protected, planned, designed and managed as integrated features of green and blue infrastructure</p>	<p>An assessment of the severance created by the Scheme is included within Chapter 13 relating to people and communities. The assessment determines that there would be no significant effects on severance and the access currently enjoyed by the identified parties would not be significantly affected. Notwithstanding this, where the Scheme has an identified impact on the natural environment, Chapter 7 of the ES (application document TR010029/APP/6.1) provides an assessment of the impact of the Scheme on biodiversity resources and sets out the approach to mitigation and compensation to reduce the effect of the Scheme on these resources.</p>
	<p>Policy HP18 requires development to be high quality and well designed in its own right. New development should acknowledge and be sympathetic to its context, reinforcing local distinctiveness and sense of place. All development proposals must be fit for their purpose, appropriate for and responsive to their site and setting, be adaptable and responsive for long term use and create successful relationships with existing development</p>	<p>The Consultation Report (application document TR010029/APP/5.1) sets out how the design has evolved following the consultation that has taken place with statutory consultees, non-statutory consultees, landowners, stakeholders and the general public.</p> <p>While it is recognised that the Scheme itself constitutes a significant piece of infrastructure, the engineering team have designed for aesthetic appearance as well as function and cost. Chapter 9 of the ES (application document TR010029/APP/6.1) outlines how landscape mitigation has been utilised to enhance the visual appearance of the Scheme to adjacent sensitive receptors. Screening has been used where possible to provide a more aesthetically</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
		<p>pleasing Scheme for the benefit of neighbouring dwellings and community uses.</p> <p>The Scheme is therefore considered to accord with Policy HP18.</p>
	<p>Policy HP19 confirms the Council’s commitment to preserve the borough’s heritage assets. Proposals affecting heritage assets must “conserve, sustain and enhance designated and non-designated heritage assets including views” and submit a Heritage Statement providing sufficient information on the significance, the potential impacts, mitigation, and archaeological potential</p>	<p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the assessment approach for this topic.</p> <p>Section 11.10 provides an assessment of the effects of the Scheme on the identified historic environment receptors. The Section outlines that during the construction phase, there is expected to be a slight adverse effect on 5 heritage assets within the DCO boundary although this is not considered to be significant. During the operational phase, a Grade II listed building at Stoney Hills Farm and a post-medieval park at Dagnam are expected to experience a slight adverse effect resulting from noise and vibration. This again is considered not to be significant.</p> <p>The Scheme is therefore considered to accord with Policy HP19.</p>
	<p>Policy HP23 states that planning permission will not be given for development which would adversely affect a Scheduled Monument, or other locally or nationally important sites and monuments, or their</p>	<p>As noted above, the Scheme is not considered to have any significant effects on any identified heritage assets as set out in Chapter 11 of the ES (application document TR010029/APP/6).</p>

Local planning policy document	Key policies and objectives	Scheme conformity with policy
	<p>setting. For development affecting areas of known or suspected archaeological importance, provision should be made for the preservation of important archaeological remains</p>	<p>As such, the Scheme is considered to accord with Policy HP23.</p>
<p><b>Sustainable Drainage Systems Design Guide (2014)</b></p>	<p>This Design Guide forms the local standards for Essex and, together with the National Standards, strongly promotes the use of SuDS which help to reduce surface water runoff and mitigate flood risk.</p>	<p>This DCO is supported by a FRA (application document TR010029/APP/6.6) which notes in paragraph 8.9.3 that the design of the drainage system complies with all current standards and SuDS best practice techniques to ensure that sustainability is a key drainage design criterion.</p> <p>The Applicant will be responsible (as necessary) for maintenance of these features. The draft DCO (application document TR010029/APP/3.1) includes in the Requirements (Schedule 2) draft requirements as to drainage.</p> <p>The Scheme is therefore considered to accord with the objectives of the Sustainable Urban Drainage Design Guide.</p>

## Appendix B. NPS National networks accordance table

This Appendix provides an assessment of the Scheme's strategic alignment and conformity with the NPS NN. The Appendix is set out as follows:

- Table 1: Scheme conformity with NPS NN Chapter 3
- Table 2: Scheme conformity with NPS NN Chapter 4
- Table 3: Scheme conformity with NPS NN Chapter 5.

The tables signpost other relevant documentation submitted as part of the application for development consent and provides a summary of the findings where appropriate.

The following sources of information have been used to inform the completion of the accordance tables:

- Consents and Agreement Position Statement (application document TR010029/APP/3.3)
- Outline Environmental Management Plan (Outline CEMP) (application document TR010029/APP/7.2);
- Consultation Report (application document TR010029/APP/5.1)
- Draft Development Consent Order (application document TR010029/APP/3.1)
- Engineering Drawings and Sections (application document TR010029/APP/2.8)
- Environmental Statement (application document TR010029/APP/6.1);
- Explanatory Memorandum (application document TR010029/APP/3.2)
- Flood Risk Assessment (FRA) (application document TR010029/APP/6.6)
- Habitats Regulations Assessment (application document TR010029/APP/6.9)
- Proposed Scheme Layout Plans (application document TR010029/APP/2.7)
- Register of Environmental Actions and Commitments (REAC) (application document TR010029/APP/7.3)
- Scoping Opinion Responses (application document TR010029/APP/6.10)
- Statement of Reasons (application document TR010029/APP/4.1)
- Statement of Statutory Nuisances (application document TR010029/APP/6.5)
- TA (application document TR010029/APP/7.4)
- WFD Compliance Assessment (application document TR010029/APP/6.7)
- Works Plans (application document TR010029/APP/2.3).

**Table B.3: National Networks National Policy Statement Chapter 3: Wider government policy on the national networks**

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Chapter 3 Wider government policy on the national networks</b>		
<b>Environmental and social impacts</b>		
3.2	<p>The Government recognises that for development of the national road and rail networks to be sustainable these should be designed to minimize social and environmental impacts and improve quality of life.</p>	<p>A comprehensive environmental impact assessment (EIA) has been carried out, together with proposals for mitigation of likely significant environmental effects arising from the Scheme. This is reported in the ES (application document TR010029/APP/6.1). Where specific mitigation is necessary, this is reported under each chapter of the ES.</p> <p>Significant environmental and quality of life improvements include a reduction in the level of congestion and improved journey reliability. The Scheme would also benefit the water environment through the introduction of additional attenuation ponds. Driver stress levels would see an improvement as a result of the improvement to the levels of congestion.</p> <p>Social impacts of the Scheme have been considered within the ES, primarily through Chapter 13 relating to people and communities. While the Scheme has been designed to minimise impacts on identified residential and community uses, significant adverse effects are unavoidable. Where possible, mitigation measures have been outlined to address the impacts that have been identified.</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>Chapter 16 of the ES provides a summary of the effects anticipated and also indicates that a significant beneficial impact is expected to the levels of driver stress as a result of the Scheme.</p> <p>As part of overall mitigation proposals, a Register of Environmental Actions and Commitments (REAC) has been prepared to support the DCO application (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p>
3.3	<p>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.</p>	<p>Each chapter of the ES (application document TR010029/APP/6.1) assesses potential environmental effects and sets out how environmental impacts of the Scheme would be mitigated, in line with current relevant guidance including the NPPF and other government planning guidance. Reasonable opportunities for environmental and social benefits have also been considered as part of the EIA process, and would also be an ongoing aim of the detailed design process to deliver environmental and social benefits. This includes factors such as the enhancements to the Ingrebourne River and flood plain replacement as set out</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		within the ES and indicated on the Works plans (application document TR010029/APP/2.3).
3.4	The Appraisal of Sustainability accompanying this NPS recognises 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 the effectiveness of mitigation is uncertain at the strategic and non-locationally specific level of this NPS. Therefore, 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.	The ES (application document TR010029/APP/6.1) addresses all of the environmental impacts of the Scheme and identifies the significant effects expected. A summary of these are provided within the ES non-technical summary (application document TR010029/APP/6.4).
3.5	Outside the nationally significant infrastructure project regime, Government policy is to bring forward targeted works to address existing environmental problems on the SRN 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 chapter of the ES (application document TR010029/APP/6.1). The chapters that consider the environmental issues set out in paragraph 3.5 of the NPS NN are: <ul style="list-style-type: none"> <li>• Chapter 5 Air Quality</li> <li>• Chapter 6 Noise and Vibration</li> <li>• Chapter 7 Biodiversity</li> <li>• Chapter 9 Landscape</li> <li>• Chapter 8 Water Environment</li> </ul>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<ul style="list-style-type: none"> <li>Chapter 11 Cultural Heritage.</li> </ul>
<b>Emissions</b>		
3.6	<p>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 shift to greener technologies and fuels, and to 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 CO2 performance. Electrification of the railway will also support reductions in carbon.</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) assesses the impact of the Scheme on Air Quality and Greenhouse Gases.</p> <p>Chapter 14 of the ES (application document TR010029/APP/6.1) further considers the Scheme's impact on carbon emissions. The Scheme is likely to contribute 37,312 tCO2e to the UK's third carbon budget (2018 – 2022), representing 0.0015% of the budget. Whilst emissions from the Scheme will lead to a long-term negative effect on the atmosphere, the magnitude of emissions is considered to be minor. The Scheme is unlikely to cause significant effects on climate, or significantly affect the UK's ability to meet its emissions reduction targets.</p>
3.8	<p>The impact of road development on aggregate levels of emissions is likely to be very small. Impacts of road development need to be seen against significant projected reductions in carbon emissions and improvements in air quality as a result of current and future policies to meet the Government's legally binding carbon budgets and the European Union's air quality limit values. For example:</p> <ul style="list-style-type: none"> <li>Carbon - the annual CO2 impacts from delivering a programme of investment on the SRN of the scale</li> </ul>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) assesses the impact of the Scheme on Air Quality and Greenhouse Gases).</p> <p>The assessment identifies the baseline levels of PM<sub>10</sub> and NO<sub>x</sub> within the Scheme boundaries.</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>envisaged in Investing in Britain's Future amount to well below 0.1% of average annual carbon emissions allowed in the fourth carbon budget. This would be outweighed by additional support for ULEVs also identified as overall policy.</p> <ul style="list-style-type: none"> <li>Air quality - aggregate air quality impacts from delivering a programme of investment on the SRN of the scale envisaged in Investing in Britain's Future are small. Total PM<sub>10</sub> and NO<sub>x</sub> might be expected to increase slightly, but this needs to be seen in the context of projected reductions in emissions over time. PM<sub>10</sub> and NO<sub>x</sub> are expected to decrease over the next decade or so as a result of tighter vehicle emission standards, then flatten, with further falls over time due to greater levels of electric and other ultra-low emission vehicles.</li> </ul>	<p>The assessment showed that no receptors were expected to exceed the annual mean NO<sub>2</sub> AQS objective. No receptors were expected to exceed the 1-hour mean AQS objective with the Scheme.</p> <p>There are not expected to be any exceedances of the annual mean or daily mean PM<sub>10</sub> AQS objectives.</p> <p>There are not expected to be any Defra PCM links in the air quality study area that would exceed the annual mean NO<sub>2</sub> EU limit value in 2022 and changes in concentrations would not result in exceedances in 2022 or beyond. There is not expected to be a compliance risk due to the Scheme.</p> <p>During operation, the assessment has shown that overall there is not considered to be a significant adverse effect on air quality.</p>
<b>Safety</b>		
3.10	<p>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</p>	<p>Section 4 of this Statement, which provides an economic assessment of the Scheme, calculates the accident cost savings undertaken in accordance with WebTAG through the use of the COBA-LT (Cost Benefit Appraisal – Light Touch). Total accident benefits generated by the Scheme over the 60-year assessment period amount to £2.34million</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>against the minority of offenders who deliberately choose to drive dangerously. As set out in paragraphs 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.</p>	
<b>Sustainable transport</b>		
3.15	<p>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.</p>	<p>The TA (application document TR010029/APP/7.4) also considers the impact on NMU routes affected by the Scheme. Existing routes would remain unaffected during the construction phase. A new route along the A12 off-slip, crossing the roundabout as indicated on Figure 13.1 in the ES (application document TR010029/APP/6.1) would be constructed and made available during the operation phase which would include a new widened footway. The existing route would remain operation during construction ensuring now resultant severance to pedestrian routes.</p>
3.16	<p>As part of the Government's commitment to sustainable travel it is investing in developing a high quality cycling and walking environment to bring about a step change in cycling and walking across the country.</p>	<p>See NPS NN paragraph 3.15 above.</p>
3.17	<p>There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design</p>	<p>See NPS NN paragraph 3.15 above. Notwithstanding the above, the Applicant is currently looking at options as part of its designated funds that would ensure that any improvements to NMU's which were to be considered would</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	<p>be part of a wider strategy to deliver a comprehensive and co-ordinated approach.</p>
<b>Accessibility</b>		
3.19	<p>The Government is committed to creating a more accessible and inclusive transport network that provides a range of opportunities and choices for people to connect with jobs, services and friends and family.</p>	<p>The improvements to the levels of congestion arising as a result of the Scheme are also expected to have a beneficial impact on the local bus routes, improving their travel times through the junction. The TA (application document TR010029/APP/7.4) sets out how the Scheme is expected to meet the objectives identified in Section 3 of this report.</p>
3.20	<p>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:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• The Government expects applicants to improve access, wherever possible, on and around the national networks</li> </ul>	<p>See NPS NN paragraph 3.19 above.</p>

NPS NN Para No.	Relevant requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	
3.21	<p>Applicants are reminded of their duty to promote equality and to consider the needs of disabled people as part of their normal practice.</p> <p>Applicants are expected to comply with any obligations under the Equalities Act 2010.</p>	See NPS NN paragraph 3.19 above.
3.22	<p>Severance can be a problem in some locations. Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility.</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) provides an assessment of any severance caused by the Scheme to local communities and businesses. As set out in the Chapter, the Scheme would ensure that access to all surrounding properties is maintained throughout the project. Where the Scheme severs land, discussions with relevant landowners have taken place to ensure that mitigation is provided so that access can be maintained.</p> <p>The assessment indicates that no significant effects are expected in regard to severance. Further details are provided within the Chapter.</p>

**Table B.4: National Networks National Policy Statement Chapter 4: Assessment Principles**

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Chapter 4 Assessment Principles</b>		
<b>General principles of assessment</b>		
4.3	<p>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:</p> <ul style="list-style-type: none"> <li>• its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits</li> <li>• 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.</li> </ul>	<p>Section 2 of this Statement sets out the Scheme objectives which are:</p> <ul style="list-style-type: none"> <li>• To increase capacity and reduce congestion and delays by providing an improved link from M25 to A12</li> <li>• To reduce the incident rate and resulting disruption by increasing the capacity of the roundabout</li> <li>• To improve safety on the roundabout by reducing traffic levels and redesigning the existing layout</li> <li>• To cater for future traffic demands to enable development and economic growth</li> <li>• To minimise the impact on local air quality and noise by smoothing traffic flow</li> <li>• To protect access for NMUs (pedestrians and cyclists) and improve conditions wherever possible.</li> </ul> <p>Section 4 of this Statement outlines the economic, social and environmental benefits associated with the Scheme.</p> <p>The Scheme would lead to a decrease in lost productive time and subsequent increase in business user and transport</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>service provider benefits. Commuters and other users would benefit from the reduced congestion, improved journey times and associated reduced vehicle operating costs such as fuel, vehicle maintenance and mileage-related depreciation.</p> <p>The Scheme would have some temporary adverse amenity impacts during the construction phase although these would be minimised through the CEMP.</p>
4.4	<p>In this context, environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels. These may be identified in this NPS, or elsewhere.</p>	<p>The ES (application document TR010029/APP/6.1) assesses and reports on the EIA which has been carried out with consideration for potential effects at national, regional and local levels, including the requirements of the NPS NN.</p>
4.5	<p>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 WebTAG 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 development. This information will be important for the Examining Authority and the Secretary of State's</p>	<p>Section 4 of this Statement outlines the economic assessment of the Scheme and has been prepared in accordance with the Treasury Green Book principles; it presents the anticipated benefits and dis-benefits associated with the Scheme and overall value for money. The Economic Case for the Scheme in Section 4 has been developed based on DfT Business Case guidance and WebTAG guidance.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	
4.6	<p>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 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.</p>	<p>A local transport model has been produced in line with DfT guidelines. Details are provided in the TA (application document TR010029/APP/7.4).</p>
4.9	<p>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</p>	<p>The draft DCO (application document TR010029/APP/3.1) includes proposed draft requirements.</p> <p>The Explanatory Memorandum (application document TR010029/APP/3.2) explains the purpose and effect of each provision in the draft DCO.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	conditions or any successor to it, should be taken into account where requirements are proposed.	
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.	We do not at this stage anticipate the need for and have not proposed any planning obligations as these matters are covered by the requirements in the draft DCO (application document TR010029/APP/3.1).
<b>Linear infrastructure</b>		
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.	M25 junction 28 can be defined as an existing transport network and has been identified as in need of improvements through the RIS 1(2016) and RIS 2 (2020).
<b>Environmental Impact Assessment</b>		
4.15	All proposals for projects that are subject to the European Union's Environmental Impact Assessment (EIA) 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 project. The Directive specifically requires an EIA 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	The draft DCO (application document TR010029/APP/3.1) is accompanied by an ES (application document R010029/APP/6.1) of which details the anticipated significant effects on the environment and where necessary, mitigation measures to reduce any residual effects of the Scheme. This meets the requirements of the European Union's Environmental Impact Assessment Directive (2014/52/EU).  On 14 November 2017, the Secretary of State received a request for a Scoping Opinion from the Applicant under

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>(EIA) 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. In this NPS, the terms ‘effects’, ‘impacts’ or ‘benefits’ should accordingly be understood to mean likely significant effects, impacts or benefits.</p>	<p>Regulation 10 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the “2017 Regulations”). The EIA regulations were amended in May 2017 and since the Scoping Opinion was received after this date, the EIA Regulations 2017 apply to this Scheme.</p>
4.16	<p>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).</p>	<p>Chapter 15 of the ES (application document TR010029/APP/6.1) provides an assessment of the likely significant effects of the Scheme in combination with other past, present and reasonably foreseeable development, as well as impact interactions. Past and present development is considered as part of the baseline and in some cases reflects the sensitivity of the receptors assessed. The developments considered in the assessment include those recommended for inclusion by the local planning authorities.</p> <p>For the cumulative effects assessment (Chapter 15), a total of 19 ‘other developments’ were identified which had the potential to impact upon environmental receptors in conjunction with the Scheme. These developments were identified by consideration of their scale, proximity to the Scheme and overlap in construction period.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
4.17	<p>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.</p>	<p>As set out within Chapter 15 of the ES (application document TR010029/APP/6.1), there are likely to be cumulative effects during construction in relation to construction noise where construction periods may overlap, biodiversity impacts due to displacement of Site of Metropolitan Importance (SMI) land and disturbance to species and landscape and visual effects where there would be an increase in urbanisation and inter-visibility. It also addresses cumulative effects during operation.</p> <p>The cumulative landscape effects in combination with large scale urban extensions at Land East of Nags Head Lane and Dunton Hills Garden Village are expected due to the loss of the existing rural character. Section 5.20 of this Statement provides an assessment of the planning balance which considers that the harm caused by the Scheme is outweighed by the benefits generated.</p>
4.18	<p>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.</p>	<p>Detail of the Scheme design is shown on the Engineering Drawings and Sections (application document TR010029/APP/2.6) and provided within Chapter 2 of the ES (application document TR010029/APP/6.1).</p> <p>Section 4.16 of Chapter 4 of the ES (application document TR010029/APP/6.1.) notes that in regard to design uncertainties, the Rochdale Envelope principle has been</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>applied in accordance with the Planning Inspectorate Advice Note 9 Using the 'Rochdale Envelope'. Section 4.16 clearly explains all elements of the Scheme yet to be finalised, with justification. Where flexibility is sought in the Scheme design, the maximum potential adverse impacts of the Scheme has been assessed. The ES confirms the maximum and other dimensions of the Scheme, and that any changes to the development within such parameters will not result in any likely significant effects not previously identified and assessed.</p>
4.19	<p>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.</p>	<p>See NPS NN paragraph 4.18 above.</p>
4.20	<p>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. If development consent is granted for a proposal and at a later stage the applicant wishes for technical or commercial reasons to construct it in such a way that it is outside the terms of what has been consented, for example because its extent will be greater than has been provided for in terms of the consent, it will be necessary to apply for a change to be made to the</p>	<p>The draft DCO (application document TR010029/APP/3.1) includes a list of requirements to be adhered to which require the submission of further detail to the relevant decision maker.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	development consent. The application to change the consent may need to be accompanied by environmental information to supplement that which was included in the original environmental statement.	
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 EIA Directive does apply in this instance and therefore the Scheme is supported by an ES (application document TR010029/APP/6.1).
<b>Habitats Regulations Assessment</b>		
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 to ensure that impacts on European sites in Wales and Scotland are adequately considered.	The Consultation Report (application document TR010029/APP/5.1) also sets out the engagement which has taken place regarding the Scheme including engagement with Natural England.
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.	A Habitat Regulations Assessment has been prepared to support the DCO application (application document TR010029/APP/6.9). Mitigation measures proposed as part for the Scheme which support this HRA are set out within the REAC (application document TR010029/APP/7.2).

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
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.	See NPS NN paragraph 4.22 above.  The HRA notes that no adverse effects are expected to the integrity of a European Site and therefore this paragraph of the NPS NN is not applicable.
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.	See NPS NN paragraph 4.22 and 4.24 above.
Alternatives		
4.26	Applicants should comply with all legal requirements and any policy requirements set out in this NPS on the assessment of alternatives. In particular: <ul style="list-style-type: none"> <li>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.</li> </ul>	Chapters 1-4 of the ES (application document TR010029/APP/6.1), outline the development of the Scheme and include an assessment of the alternatives considered prior to arriving on the preferred Scheme. The Consultation Report (application document TR010029/APP/5.1) also includes details of the Scheme development, highlighting the considerations which the Applicant made during the

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>• There may also be other specific legal requirements for the consideration of alternatives, for example, under the Habitats and WFDs.</li> <li>• There may also be policy requirements in this NPS, for example the flood risks sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB).</li> </ul>	<p>preferred option selection. Environmental considerations formed a key part of this selection process.</p> <p>The FRA (application document TR010029/APP/6.6) and Chapter 8 of the ES addresses the consequential environmental impacts of provision of flow and flood compensation and includes an assessment of the accordance with the WFD.</p> <p>Chapter 7 of the ES relates to biodiversity and refers to the assessment which has been undertaken against the HRA. It is considered that the Scheme complies with the noted requirements.</p>
4.27	<p>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 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.</p>	<p>See NPS NN paragraph 4.26 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Criteria for 'good design' for national network infrastructure</b>		
4.28-4.30	<p>Applicants should include design as an integral consideration from the outset of a proposal. Visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, 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.</p> <p>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.</p>	<p>While it is recognised that the Scheme itself constitutes a significant piece of infrastructure, the engineering team have designed for aesthetic appearance as well as function and cost. Chapter 9 of the ES (application document TR010029/APP/6.1) outlines how landscape mitigation has been utilised to enhance the visual appearance of the Scheme to adjacent sensitive receptors. Screening has been used where possible to provide a more aesthetically pleasing Scheme for the benefit of neighbouring dwellings and community uses.</p> <p>The Consultation Report (application document TR010029/APP/5.1) sets out how the design has evolved following the consultation that has taken place with statutory consultees, non-statutory consultees, landowners, stakeholders and the general public.</p>
4.31	<p>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. It should also mitigate any existing 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.</p>	<p>The Scheme has been designed to accord with the principles set out within the DMRB.</p> <p>The ES provides the environmental assessment of the Scheme and identifies the anticipated significant adverse effects. Where there is an identified significant adverse effect, a REAC has been prepared to support the DCO application (application document TR010029/APP/7.3) which details the environmental mitigation measures that would be implemented during construction, why they are required, who</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>is responsible for delivering them and detailing any ongoing maintenance arrangements. This includes consulting with local authorities on final landscape details. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC. Requirement 5 of the draft DCO also secures a submission of details of landscaping measures.</p> <p>The expected improvements to operational efficiency are expected to continue to at least 2037 as modelled within the TA (application document TR010029/APP/7.4). The economic benefits this generates are set out in Section 4 of this Statement.</p>
4.32	<p>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 including accounting for natural hazards such as flooding).</p>	<p>The Scheme has been designed in accordance with the latest DMRB standards ensuring a high quality design is delivered and the Scheme is durable, adaptable and resilient.</p> <p>The mitigation measures set out within the REAC are intended to ensure aesthetic sensitivity is accounted for.</p>
4.33	<p>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</p>	<p>The Scheme has been designed to meet the Scheme's objectives which include functionality (relieve congestion and improve safety) and aesthetic requirements (assessed as part of the ES (application document TR010029/APP/6.1)). The Scheme has been designed ensuring good design principles are embedded into infrastructure proposals through accordance with the DMRB. Furthermore, consultation has</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	the design aspects of a proposal should be considered, to ensure good design principles are embedded into infrastructure proposals.	been carried out with statutory and non-statutory stakeholders as shown in Section 4 of the Consultation Report (application document TR010029/APP/5.1) and the consultation responses have informed the design 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 and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation.	<p>See NPS NN paragraphs 4.28 - 4.30 above.</p> <p>The following chapters of the ES (application document TR010029/APP/6.1) identify design and mitigation measures in relation to landscape and historical character and function, landscape permeability, landform and vegetation:</p> <ul style="list-style-type: none"> <li>• Chapter 7 Biodiversity</li> <li>• Chapter 9 Landscape</li> <li>• Chapter 10 Geology and Soils</li> <li>• Chapter 11 Cultural Heritage</li> <li>• Chapter 12 Materials and Waste</li> <li>• Chapter 13 People and Communities</li> <li>• Chapter 14 Climate.</li> </ul>
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 favoured choice has been selected....	See NPS NN paragraphs 4.28 - 4.30 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Climate change adaptation</b>		
4.36	Section 10(3)(a) of the Planning Act requires the Secretary of State to have regard to the desirability of mitigating, and adapting to, climate change in designating an NPS.	Chapter 14 in the ES regarding Climate Change (application document TR010029/APP/6.1) sets out how the Scheme takes account of predicted impacts of climate change. This is further supported by the Flood Risk Assessment (FRA) included in the ES Appendices (application document TR010029/APP/6.3).
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.	See NPS NN paragraph 4.36 above.
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.	See NPS NN paragraph 4.36 above.
4.41	Where transport infrastructure has safety-critical elements and the design life of the asset is 60 years or	Chapter 8 of the ES (application document TR010029/APP/6.1) sets out how the Scheme takes into

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	<p>account the predicted impacts of climate change from a flood risk perspective. Section 8.5 sets out the methodology used and Section 8.9 notes that proposed mitigation measures need to make allowances for climate change within the design and accordingly, the drainage strategy includes an allowance of 20%. This is in accordance with DMRB guidelines.</p> <p>In addition to the guidance and criteria provided in HD 45/09, a FRA has been carried out (application document TR010029/APP/6.6) in accordance with the requirements of the National Planning Practice Guidance (NPPF) (DCLG, 2019) and the EA's Flood risk assessments: climate change allowances (EA, 2016). The FRA is also in line with HD 45/09 (HA, 2009).</p> <p>Chapter 14 of the ES relating to climate changes notes that the UK Climate Projections 2018 have been used to inform the assessments. 2018 Projections have been used to ensure the latest data available is used.</p>
4.42	<p>The applicant should take into account the 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.</p>	<p>The FRA within the ES Appendices (application document TR010029/APP/6.6) and Chapter 14 in the ES (Application Document TR010029/APP/6.1) set out how the Scheme takes account of predicted impacts of climate change.</p> <p>The FRA notes that any proposed mitigation measures would need to make an allowance for climate change within the design. The Scheme is shown not to be at risk from fluvial flooding, even with the effects of climate change considered.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>The drainage strategy includes an allowance of 20% increase to rainfall, in accordance with DMRB guidelines.</p> <p>The latest UK climate projections from 2018 have been used to inform the assessments undertaken.</p>
4.43	<p>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 EA) 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.</p>	<p>See NPS NN paragraphs 4.41 and 4.42 of this above. Appendix 4.1 of Chapter 4 of the ES (application document TR010029/APP/6.3) assesses all major accidents and disasters. Risk is identified from a ground instability perspective and cyber-attack perspective. Mitigation is outlined in the REAC (application document TR010029/APP/7.3) to respond to these risks.</p>
4.44	<p>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.</p>	<p>See NPS NN paragraph 4.41 and 4.42 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
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).	Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the adaption measures which have been incorporated into the Scheme.
4.46	Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so.	Chapter 8 of the ES (application document TR010029/APP/6.1) discusses how adaptation measures would be implemented at the time of construction as appropriate/necessary to do so for the Scheme. These measures are further set out within the REAC (application document TR010029/APP/7.2).
4.47	Where adaptation measures are necessary to deal with 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).	<p>The FRA (application document TR010029/APP/6.6) and Chapter 8 in the ES (application document TR010029/APP/6.1) sets out how the proposal takes account of predicted impacts of climate change.</p> <p>The FRA notes that any proposed mitigation measures would need to make an allowance for climate change within the design. The drainage strategy includes an allowance of 20% increase to rainfall, in accordance with DMRB guidelines. It further notes that these measures would be required prior to the construction of the Scheme.</p> <p>Management of the increased impermeable area through the collection and attenuation of surface water, as set out within Chapter 8 of the ES, would result in an acceptable level of flood risk and would not increase flood risk elsewhere.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Pollution control and other environmental protection regimes</b>		
4.50	In deciding an application, the Examining Authority and the Secretary of State should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than control of processes, emissions or discharges themselves. They should assess the potential impacts of processes, emissions or discharges to inform decision making, but should work on the assumption that in terms of the control and enforcement, the relevant pollution control regime will be properly applied and enforced. Decisions under the Planning Act should complement but not duplicate those taken under the relevant pollution control regime.	Section 4 of this Statement sets out how the Scheme conforms to planning policy and is an acceptable use of the land. The impacts of that use are considered throughout the ES (application document TR010029/APP/6.1).  Regarding the specific control and enforcement, Appendix A of the Consents and Agreements Position Statement (application document TR010029/APP/3.3) lists those consents which are being sought separately from the DCO that may be necessary to construct, operate and maintain the Scheme.
4.52	There is a statutory duty on applicants to consult the Marine Management Organisation (MMO) on nationally significant projects which would affect, or would be likely to affect, any relevant marine areas as defined in the Planning Act (as amended by section 23 of the Marine and Coastal Access Act 2009).	The Scheme does not impact on any marine areas.
4.53	When an applicant applies for an Environmental Permit, the relevant regulator (the EA) requires that the application demonstrates that processes are in place to meet all relevant Environmental Permit requirements.	See NPS NN paragraph 4.50 above and Appendix 1.4 of the ES Appendices (application document TR010029/APP/6.3). A Consents and Agreements Position Statement (application document TR010029/APP/3.3) is provided in support of the Scheme setting out the Applicant's strategy for obtaining any consents, licences, permits or other agreements that may be necessary to construct, operate and maintain the Scheme, including Environmental Permits that have not been

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		disapplied under the draft DCO (application document TR010029/APP/3.3).
4.54	<p>Applicants are encouraged to begin preapplication discussions with the EA 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 EA suggests that applicants should start work 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.</p>	<p>Continued consultation with the Environment Agency has been underway since the Option Selection Stage. Further details are provided in the Consultation Report (application document TR010029/APP/5.1). This process has enabled decision-making and preparation relating to the relevant environmental consents highlighted within Appendix A of the Consents and Agreements Position Statement (application document TR010029/APP/3.3).</p> <p>There will be ongoing discussions with the Environment Agency as the Scheme continues to develop through the detailed design stage, and will include the appointed contractor, as agreed in the process described in paragraph 4.53 of this Appendix.</p>
4.55	<p>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 EA 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:</p> <ul style="list-style-type: none"> <li>the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework; and</li> </ul>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) and supporting documentation demonstrate to the Regulator (the EA) how water quality impacts are being minimised/mitigated.</p> <p>A WFD (application document TR010029/APP/6.7) supports this DCO which has been developed in discussion with the EA and Natural England. It outlines that the Scheme is not expected to exert any adverse cumulative effects on WFD quality elements in water bodies beyond those affected directly by the Scheme. Mitigation includes the provision of 3 attenuation ponds within the Scheme and mitigation works,</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>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 statutory environmental quality limits.</li> </ul>	<p>outside of the DCO boundary, delivered by the EA as part of their programme of works within the Ingrebourne WFD water body.</p>
<b>Common law nuisance and statutory nuisance</b>		
4.58	<p>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.</p>	<p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. application document Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>This includes measures to reduce and manage noise and dust. Also see the Statement on Statutory Nuisances (application document TR010029/APP/6.5) for further details.</p>
<b>Safety</b>		
4.61	<p>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 (WebTAG) and from the Highways Agency.</p>	<p>The TA (application document TR010029/APP/7.4) provides an analysis of accidents and concludes overall that the Scheme will have a beneficial impact in terms of reducing accidents. It is estimated that there will be a reduction of 88 collisions over the next 60 years as a result of this Scheme.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
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).	The requirements resulting from a road safety audit are incorporated into the Scheme design, as outlined in Section 2 of the ES (application document TR010029/APP/6.1)
4.64	<p>The applicant should be able to demonstrate that their Scheme is consistent with the Highways Agency's Safety Framework for the SRN 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:</p> <ul style="list-style-type: none"> <li>• minimise the risk of death and injury arising from their development</li> <li>• contribute to an overall reduction in road casualties</li> <li>• contribute to an overall reduction in the number of unplanned incidents</li> <li>• contribute to improvements in road safety for walkers and cyclists.</li> </ul>	See NPS NN paragraph 4.61 above. The Scheme is considered to be consistent with the Highways Agency's Safety Framework for the SRN and with the National Strategic Framework for Road Safety.
4.65	<p>They will also wish to demonstrate that:</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	See NPS NN paragraphs 4.61 and 4.62 above. Road safety in particular is addressed in Section 4 of the TA.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
4.66	<p>The Secretary of State should not grant development consent unless satisfied that all reasonable steps have been taken and will be taken to:</p> <ul style="list-style-type: none"> <li>• minimise the risk of road casualties arising from the Scheme</li> <li>• contribute to an overall improvement in the safety of the SRN.</li> </ul>	<p>See NPS NN paragraph 4.61 above. DMRB is the standard which sets desirable minimum criteria for the Scheme geometry, for example horizontal and vertical radii, forward visibility and junction layouts. The Scheme has been designed to comply with the DMRB. This forms the basis of a safe highway design which would minimise the risk of road casualties arising from the Scheme and contribute to an overall improvement in the safety of the SRN.</p>
<b>Security considerations</b>		
4.76-77	<p>Where national security implications have been identified, the applicant should consult with relevant security experts from CPNI [Centre for the Protection of National Infrastructure] and the Department for Transport, to ensure that physical, procedural and personnel security measures have been adequately considered in the design process and that adequate consideration has been given to the management of security risks. If CPNI and the Department for Transport (as appropriate) are satisfied that security issues have been adequately addressed in the project when the application is submitted, they will provide confirmation of this to the Secretary of State, and the Examining Authority should not need to give any further consideration to the details of the security measures during the examination. The applicant should only include such information in the application as is necessary to enable the Examining Authority to examine the development consent issues and make a properly informed recommendation on the application.</p>	<p>No national security issues have been identified in developing the Scheme.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Health</b>		
4.81-82	<p>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 environmental statement should identify and set out the assessment of any likely significant adverse health impacts.</p> <p>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.</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the human health impacts of the Scheme. The assessment concludes that through the incorporation of the proposed mitigation, contained within the REAC (application document TR010029/APP/7.3), there would be no significant adverse effects on human health as a result of the Scheme.</p>

**Table B.5: National Networks National Policy Statement Chapter 5: Generic Impacts**

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Chapter 5 Generic Impacts</b>		
<b>Air quality</b>		
5.6 – 5.9	<p>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 UKs 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. The environmental statement should describe:</p> <ul style="list-style-type: none"> <li>• existing air quality level;</li> <li>• 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</li> <li>• 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.</li> <li>• 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 changes. Applicant’s assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts. In addition to information on the likely significant effects of a project</li> </ul>	<p>The method of baseline air quality assessment is included in Chapter 5 of the ES (application document TR010029/APP/6.1). The future baseline has been assessed in accordance with the latest DEFRA guidance to ensure compliance. It is commonly referred to as the 'do minimum' scenario which takes into account what the future air quality would be assuming the Scheme does not go ahead. The future baseline also takes into account likely changes owing to Government initiatives to reduce pollutant emissions from motor vehicles and other sources.</p> <p>The chapter includes details of anticipated air quality impacts and outlines proposed mitigation summarising that no significant effects are expected. Future projections of air quality are also addressed within the Chapter.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	
5.10	<p>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.</p>	<p>The local and wider study area for the air quality assessment is defined in Chapter 6 of the ES (application document TR010029/APP/6.1). The assessment concludes that the Scheme would not lead to any significant adverse effects subject to the application of proposed mitigation during construction nor breach the relevant air quality thresholds.</p>
5.12	<p>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.</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) provides details of the air quality assessment which has been undertaken. No significant impacts or exceedances of the EU limit values are predicted.</p>
5.13	<p>The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the Scheme will:</p> <ul style="list-style-type: none"> <li>• result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or</li> <li>• affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported</li> </ul>	<p>See NPS NN paragraphs 5.6 – 5.10 and 5.12 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	to the European Commission at the time of the decision.	
5.14-15	<p>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 zone will meet compliance timescales. 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 require working with partners to support their delivery.</p>	<p>Section 5.9 of Chapter 5 of the ES (application document TR010029/APP/6.1) indicates that no specific mitigation is necessary during the operation of the Scheme for air quality as no residual significant effects are expected.</p> <p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3) This details the environmental mitigation measures that would be implemented during construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p>
<b>Carbon emissions</b>		
5.16	<p>The Government has a legally binding framework to cut greenhouse gas emissions by at least 80% by 2050. As stated above, the impact of road development on aggregate levels of emissions is likely to be very small. Emission reductions will be delivered through a system of five year carbon budgets that set a trajectory to 2050. Carbon budgets and plans will include policies to reduce transport emissions, taking into account the impact of the</p>	<p>Section 14.6 of Chapter 14 Climate Change of the ES (application document TR010029/APP/6.1) displays the estimated embodied and transport carbon for the Scheme. The Applicant's Carbon Tool was developed to better manage carbon emissions resulting from the maintenance and improvement of the trunk road network. It contains average embodied carbon figures for various construction materials taken from the Bath Inventory of Carbon and Energy (ICE), along with transport, energy and waste factors</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	Government's overall programme of new infrastructure as part of that.	from Defra 2014 and the Waste Resources Action Programme (WRAP). The estimates provided within the Chapter will help contractors to see where the Scheme should focus its carbon management efforts.
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.	See NPS NN paragraph 5.16 above and Chapter 5 of the ES (application document: TR010029/APP/6.1) relating to air quality.
5.18	The Government has an overarching national carbon reduction strategy (as set out in the Carbon Plan 2011) which is a credible plan for meeting carbon budgets. It includes a range of non-planning policies which will, subject to the occurrence of the very unlikely event described above, ensure that any carbon increases from road development do not compromise its overall carbon reduction commitments. The Government is legally required to meet this plan. Therefore, any increase in carbon emissions is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the proposed Scheme are so significant that it would	See NPS NN paragraph 5.16 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	have a material impact on the ability of Government to meet its carbon reduction targets.	
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.	<p>Chapter 14 of the ES (application document TR010029/APP/6.1) considers the Scheme's impact on carbon emissions. The Scheme is likely to contribute 37,312 tCO<sub>2</sub>e to the UK's third carbon budget (2018 – 2022), representing 0.0015% of the budget. Whilst emissions from the construction and operation of the Scheme will lead to a long-term negative effect on the atmosphere, the magnitude of emissions is considered to be minor. The Scheme is unlikely to cause significant effects on climate, or significantly affect the UK's ability to meet its emissions reduction targets.</p> <p>See also paragraphs 4.31, 5.14 and 5.15 above</p>
<b>Biodiversity and ecological conservation</b>		
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 7 of the ES (application document TR010029/APP/6.1) considers biodiversity in detail. The chapter outlines the impacts to biodiversity resources caused by the Scheme and proposes mitigation measures which are further summarised within the REAC (application document TR010029/APP/7.3). Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
5.22-23	<p>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. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) relates to biodiversity and sets out that there are not anticipated to be any impacts in relation to internationally, nationally or locally designated sites. However, the Scheme would result in a loss of habitat from a non-statutory designated site, Ingrebourne Valley Site of Metropolitan Importance (SMI).</p> <p>While it is not possible to avoid this loss given the construction requirements of the Scheme, measures have been proposed to mitigate and compensate for this including the provision of approximate 8ha of ecological mitigation land as indicated on the Works plans (application document TR010029/APP/2.3). Habitat reinstatement and long-term management are proposed. Measures to protect species during construction will be set out the CEMP for the Scheme. These mitigation and compensation measures are set out within the REAC (application document TR010029/APP/7.3).</p>
5.25	<p>As a general principle, and subject to the specific policies below, development should avoid significant harm to 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</p>	<p>See NPS NN paragraph 5.20 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	resort, appropriate compensation measures should be sought.	
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.	See NPS NN paragraph 5.20 and 5.22-23 above.
5.27	<p>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:</p> <ul style="list-style-type: none"> <li>• Potential Special Protection Areas and possible Special Areas of Conservation</li> <li>• listed or proposed Ramsar sites</li> <li>• 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.</li> </ul>	There are no Special Protection Areas, Special Areas of Conservation, RAMSAR sites within the DMRB study area for the Scheme and therefore no compensatory measures for adverse effects on European Sites are required. This is further set out within the HRA submitted with this DCO (application document TR010029/APP/6.9).

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
5.28	<p>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.</p>	<p>There are no SSSI within the DMRB study area as noted within Chapter 7 of the ES (application document TR010029/APP/6.1)</p>
5.29	<p>Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should be made only where the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs. The Secretary of State should ensure that the applicant's proposals to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest, are acceptable. Where necessary, requirements and/or planning obligations should be used to ensure these proposals are delivered.</p>	<p>There are no SSSI within the DMRB study area as noted within Chapter 7 of the ES (application document TR010029/APP/6.1).</p>
5.31	<p>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</p>	<p>See NPS NN paragraph 5.22 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>contributing to the quality of life and the wellbeing 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.</p>	
5.32	<p>Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as 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.</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) sets out measures to avoid impact on ancient woodlands, existing habitats and veteran trees where possible.</p> <p>No ancient woodland will be lost. Ancient woodland close to the Scheme will be protected during construction. However, given the construction requirements of the Scheme, it is necessary to remove 2 veteran trees. Compensation for this loss is set out in Chapter 7 of the ES, and in Table 1.1 of the REAC (application document TR010029/APP/7.3). This includes retention of dead wood features of invertebrates, replanting of native species and long-term management of these trees, and ‘veteranisation’ of trees. However, as veteran trees are considered an irreplaceable habitat, a significant residual adverse effect is expected. A technical note regarding the position on veteran trees has also been provided in Appendix C which further details the position.</p> <p>Section 5.20 of this Statement provides an assessment of the planning balance which considered the impacts of the Scheme such as this against the benefits provided. It is</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		considered that the benefits of the Scheme outweigh the harm cause including the loss of the 2 veteran trees.
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.	See NPS NN paragraph 5.20 and 5.22-5.23 above.
5.35	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 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.	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) considers all biodiversity resources relevant to the Scheme; identifies habitats and species that are of principal importance and assesses the residual effect appropriately. Effects on biodiversity resources have been assessed in accordance with relevant sections of the DMRB.</p> <p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented prior to, during and post construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC. An environmental mitigation area has been</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>incorporated into the Scheme design and is indicated on the Works plans (application document TR010029/APP/2.3).</p> <p>Section 5.20 of this Statement provides an assessment of the planning balance and outlines how the benefits of the Scheme outweigh these identified adverse impacts.</p>
5.36	<p>Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how that:</p> <ul style="list-style-type: none"> <li>• during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;</li> <li>• 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)</li> <li>• habitats will, where practicable, be restored after construction works have finished</li> <li>• developments will be designed and landscaped to provide green corridors and minimise habitat fragmentation where reasonable</li> <li>• 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</li> </ul>	See NPS NN paragraph 5.35 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	network crossing points, the use of green bridges and the habitat improvement of the network verge.	
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.	<p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented prior to, during and post construction, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>The draft DCO further sets out the requirements which secure further submissions of details should consent be granted.</p>
<b>Waste management</b>		
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 and the volume of waste sent for disposal unless it can be demonstrated that the alternative is the best overall environmental outcome.	<p>Measures for managing waste and materials are proposed and information on the implementation, measuring and monitoring of these measures is detailed within Chapter 12 Materials and Waste of the Environmental Statement (application document TR010029/APP/6.1).</p> <p>Section 12.9 of Chapter 12 Materials and Waste summarises the general mitigation tools and processes that would be adopted for the Scheme in relation to managing materials resource and waste.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary. Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must be substantially in accordance with the Outline CEMP.</p>
5.43	<p>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:</p> <ul style="list-style-type: none"> <li>• any such waste will be properly managed, both on-site and off-site</li> <li>• 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 arising's should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arising's in the area</li> <li>• adequate steps have been taken to minimise the volume of waste arising's, and of the volume of waste</li> </ul>	<p>A Site Waste Management Plan (SWMP) will be developed by the contractor as set out within the REAC (application document TR010029/APP/7.3). Requirement 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC.</p> <p>Minimising the production of waste has been considered throughout the design process of the Scheme as referred to is Chapter 12 of the ES (application document TR010029/APP/7.3) relating to materials and waste. Any contamination identified may require soils to be treated on-site or taken off-site for treatment and/or disposal. Any asphalt waste containing coal tar waste identified when removing old road and hard standing sections would be taken off-site for disposal at a suitably licensed facility. Information on the location of waste management facilities has been</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	arising's sent to disposal, except where an alternative is the most sustainable outcome overall.	identified in Chapter 12 Materials and Waste of the ES (application document TR010029/APP/6.1).
5.44	Where necessary, the Secretary of State should use requirements or planning obligations to ensure that appropriate measures for waste management are applied.	An Outline CEMP (application document TR010029/APP/7.2) has been prepared to support this DCO which sets out how the environmental impacts of the construction activities have been minimised and mitigated where necessary. Requirement no. 4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must be substantially in accordance with the Outline CEMP.
5.45	Where the project will be subject to the EA'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.	All necessary waste management permits will be obtained as set out in the Outline CEMP (application document TR010029/APP/7.2) and the Consents and Agreements Position Statement (application document TR010029/APP/3.3).
<b>Civil and military aviation and defence interests</b>		
5.49	The certified safeguarding maps depicting the OLS and other criteria (e.g. to minimise "birdstrike" hazards) are deposited with the relevant local planning authorities. Circular 1/200384 provides advice to planning authorities on the official safeguarding of aerodromes and includes a list of the aerodromes which are officially safeguarded. The Circular and CAA guidance also recommends that the operators of aerodromes which are not officially	There are no aerodromes in the vicinity or otherwise likely to be affected by the Scheme and it is not considered that the Scheme would have any impact on aviation or other defence interests.  It is noted that in consultation with Historic England, the buried remains of the historic Maylands Aerodome could be

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	safeguarded should take steps to protect their aerodrome from the effects of possible adverse development by establishing an agreed consultation procedure between themselves and the local planning authority or authorities.	present at the site however there are no plans for this site to be resurrected
5.55-58	Where the proposed development may have an effect on civil or military aviation and/or other defence assets, an assessment of potential effects should be carried out. The applicant should consult the MoD, CAA, National Air Traffic Services (NATS) and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests. Any assessment on aviation or other defence interests should include potential impacts during construction and operation of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures. If any relevant changes are made to proposals for an NSIP during the pre-application period or before the end of the examination of an application, it is the responsibility of the applicant to ensure that the relevant aviation and defence consultees are informed as soon as reasonably possible.	No known conflicts with military interests or aviation interests in relation to the application.
5.59	The Secretary of State should be satisfied that effects on civil and military aviation and other defence assets have been addressed by the applicant and that any necessary assessment of the proposal on aviation or defence interests has been carried out. In particular, it should be satisfied that the proposal has been designed to minimise adverse impacts on the operation and safety of	See NPS NN paragraph 5.55-5.58 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>aerodromes and that reasonable mitigation is carried out. It may also be appropriate to expect operators of the aerodrome to consider making reasonable changes to operational procedures. The Secretary of State will have regard to the necessity, acceptability and reasonableness of operational changes to aerodromes, and the risks or harm of such changes when taking decisions. When making such a judgement in the case of military aerodromes, the Secretary of State should have regard to interests of defence and national security.</p>	
5.60	<p>If there are conflicts between the Government's national networks policies and military interests in relation to the application, the Secretary of State expects the relevant parties to have made appropriate efforts to work together to identify realistic and pragmatic solutions to the conflicts. In so doing, the parties should seek to protect the aims and interests of the other parties as far as possible.</p>	See NPS NN paragraph 5.55-5.58 above.
5.61	<p>There are statutory requirements concerning lighting to tall structures. Where lighting is requested on structures that go beyond statutory requirements by any of the relevant aviation and defence consultees, the Secretary of State should be satisfied of the necessity of such lighting taking into account the case put forward by the consultees. The effect of such lighting on the landscape, local residents and ecology may be a relevant consideration, depending on the particular circumstances be a relevant consideration.</p>	See NPS NN paragraph 5.55-5.58 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
5.62	<p>Where, after reasonable mitigation, operational changes and planning obligations and requirements have been proposed, development consent should not be granted if the Secretary of State considers that:</p> <ul style="list-style-type: none"> <li>• a development would prevent a licensed aerodrome from maintaining its licence</li> <li>• the benefits of the proposed development are outweighed by the harm to aerodromes serving business, training or emergency service needs</li> <li>• the development would significantly impede or compromise the safe and effective use of defence assets or significantly limit military training.</li> </ul>	<p>Having regard to NPS NN paragraph 5.61 above it has not been considered necessary to make any specific assessment of impacts on aviation or defence interests as there is no potential for such impacts.</p>
<b>Dust, odour, artificial light, smoke, steam</b>		
5.82	<p>Because of the potential effects of these emissions and in view of the availability of the defence of statutory authority against nuisance claims s.104 of the Planning Act 2008 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 of State in taking decisions on development consents.</p>	<p>Chapter 5 of the ES (application document TR010029/APP/6.1) considers construction air quality impacts.</p> <p>The Outline CEMP (application document TR010029/APP/7.2) details the mitigation measures that would be implemented during the construction and operation of the Scheme. A CEMP is secured within the Requirements in Schedule 2 of the draft DCO (application document TR010029/APP/3.1) which must be substantially in accordance with the Outline CEMP.</p>
5.83	<p>For nationally significant infrastructure projects of the type covered by this NPS, some impact on amenity for local</p>	<p>Chapter 13 of the ES (application document TR010029/APP/6.1) relates to people and communities and</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>communities is likely to be unavoidable. Impacts should be kept to a minimum and should be at a level that is acceptable.</p>	<p>includes an assessment of the amenity impacts to private dwellings and community receptors.</p> <p>The chapter sets out how impacts to the identified receptors has been minimised wherever possible and sets out the proposed mitigation to alleviate these impacts further. These mitigation measures are then outlined in the REAC (application document TR010029/APP/7.3) and secured through requirement no. 4.</p>
5.84-86	<p>Where the development is subject to an EIA, 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 particular, the assessment provided by the applicant should describe:</p> <ul style="list-style-type: none"> <li>• the type and quantity of emissions</li> <li>• aspects of the development which may give rise to emissions during construction, operation and decommissioning</li> <li>• premises or locations that may be affected by the emissions</li> <li>• effects of the emission on identified premises or locations</li> <li>• measures to be employed in preventing or mitigating the emissions.</li> </ul>	<p>See NPS NN paragraph 5.82 and 5.83 above. The Applicant has also consulted with the relevant LPA's throughout the development of the ES. Details of this consultation is set out within the Consultation Report (application document TR010029/APP/4.1).</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	The applicant is advised to consult the relevant local planning authority and, where appropriate, the EA about the scope and methodology of the assessment.	
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.	See NPS NN paragraph 5.83 above.
5.88	If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) being covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, then the defence should be disapplied, in whole or in part, through a provision in the Development Consent Order.	A Statutory Nuisance Statement (application document TR010029/APP/6.5) supports this Application and contains the defence of statutory authority against nuisance claims.
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 arise during the construction and operation of the development. A construction management plan may help codify mitigation.	See NPS NN paragraph 5.82 and 5.83 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Flood risk</b>		
5.91	<p>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.</p>	<p>A FRA (application document TR010029/APP/6.6) has been carried out in accordance with the requirements of the National Planning Practice Guidance (NPPG (DCLG, 2019) and the EA’s Flood risk assessments: climate change allowances (EA, 2016).</p> <p>The FRA outlines that parts of the development would be located within Flood Zones 2 and 3. It is therefore necessary to apply the exception test to the Scheme to demonstrate that:</p> <ol style="list-style-type: none"> <li>1. The development is required for wider sustainability benefits to the community that outweigh flood risk, and</li> <li>2. That the development is safe from flooding for its lifetime without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.</li> </ol> <p>In regard to part 1 of the exception test, Section 5.20 of this Statement provides an overview of the planning balance for the Scheme and considers that the net benefits of the Scheme outweigh any identified harm. In regard to part 2 of the exception test, the mitigation measures which have been incorporated into the Scheme ensure the development would remain safe and not increase flood risk elsewhere, over the life time of the development taking into account climate</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>change. Further details of how the Scheme meets part 2 of the test are provided within the FRA however in light of the above, it is considered that the Scheme passes parts 1 and 2 of the exception test.</p> <p>Fluvial flood risk mapping indicates that there are large portions of the Scheme intersecting Flood Zone 3 where it will have an adverse impact on flood risk. This impact can be successfully mitigated through use of floodplain compensation areas to replace lost floodplain and prevent increases to fluvial flood levels.</p> <p>Floodplain compensation will be required prior to construction of the Scheme. A suitable phasing plan will be required before commencement of works.</p> <p>The Scheme will remain safe and operational in times of flood up to and including the 1 in 100 (1%) annual probability flood event with a 35% allowance for climate change.</p> <p>Flooding of the A12 occurs in both baseline and with Scheme scenarios during 1 in 100 (1%) annual probability flood event with a 70% allowance for climate change therefore potential for increased resilience may be required in the future. No detriment above the existing situation is will occur.</p> <p>Suitable blockage mitigation may be required upstream of the Ingrebourne M25 culvert and is secured through a surface water management plan contained within Outline CEMP</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		(application document TR010029/APP/7.3) and noted in the REAC (application document TR010029/APP/7.2)
5.92-93	<p>Applications for projects in the following locations should be accompanied by a flood risk assessment (FRA):</p> <ul style="list-style-type: none"> <li>• Flood Zones 2 and 3, medium and high probability of river and sea flooding</li> <li>• 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 EA has notified the local planning authority that there are critical drainage problems.</li> </ul> <p>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.</p>	<p>This DCO is supported by a FRA (application document TR010029/APP/6.6) which concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere.</p>
5.94	<p>In preparing an FRA the applicant should:</p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<p>See NPS NN paragraph 5.91 and 5.93 above. The assessment undertaken, as set out in the FRA (application document TR010029/APP/6.6) conforms to the requirements of paragraph 5.94.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>• take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made</li> <li>• consider the vulnerability of those using the infrastructure including arrangements for safe access and exit</li> <li>• 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</li> <li>• consider if there is a need to remain operational during a worst case flood event over the development's lifetime</li> <li>• provide the evidence for the Secretary of State to apply the Sequential Test and Exception Test, as appropriate.</li> </ul>	
5.96	<p>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 EA, 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 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</p>	<p>As set out within Chapter 8 of the ES (application document TR010029/APP/6.1) and within the FRA included within the ES appendices (application document TR010029/APP/6.6), based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. Flood compensation areas are incorporated into the Scheme design as indicated on the Works plans (application document TR010029/APP/2.3). This conclusion</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>examined. If the EA has concerns about the proposal on flood risk grounds, the applicant is encouraged to discuss these concerns with the EA and look to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the EA's concerns, preferably before the application for development consent is submitted.</p>	<p>remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>Notwithstanding this, the Consultation Report (application document TR010029/APP/5.1) outlines the engagement which has been carried out with the EA regarding the Scheme.</p>
5.97	<p>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.</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) includes an assessment of local flood risk from surface water flooding following a review of the local flood risk management strategies and surface water management plans.</p> <p>The FRA concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere.</p>
5.98	<p>Where flood risk is a factor in determining an application for development consent, the Secretary of State should be satisfied that, where relevant:</p> <ul style="list-style-type: none"> <li>• the application is supported by an appropriate FRA</li> <li>• the Sequential Test (see the National Planning Policy Framework) has been applied as part of site selection</li> </ul>	<p>See NPS NN paragraph 5.91 and 5.93 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	and, if required, the Exception Test (see the National Planning Policy Framework).	
5.99	<p>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:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• priority is given to the use of sustainable drainage systems.</li> </ul>	See NPS NN paragraph 5.91 and 5.96 above.
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 any National Standards published by Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010.93 In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance	<p>The Drainage Strategy (application document TR010029/APP/6.8) sets out that the Scheme complies with the most recent DMRB standards and complies with relevant national standards.</p> <p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the SuDS which have been incorporated into the Scheme. Any access required to</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	<p>property is set out within the Statement of Reasons (application document TR010029/APP/4.2).</p> <p>The Applicant would maintain responsibility for the maintenance of the SuDs.</p>
5.102	<p>The Secretary of State should expect that reasonable steps have been taken to avoid, limit and reduce the risk of flooding to the proposed infrastructure and others. However, the nature of linear infrastructure means that there will be cases where:</p> <ul style="list-style-type: none"> <li>• upgrades are made to existing infrastructure in an area at risk of flooding</li> <li>• infrastructure in a flood risk area is being replaced</li> <li>• infrastructure is being provided to serve a flood risk area</li> <li>• infrastructure is being provided connecting two points that are not in flood risk areas, but where the most viable route between the two passes through such an area.</li> </ul>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) and the FRA included within the ES appendices (application document TR010029/APP/6.6) set out that based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p>
5.103	<p>The design of linear infrastructure and the use of embankments in particular, may mean that linear infrastructure can reduce the risk of flooding for the surrounding area. In such cases the Secretary of State</p>	<p>The FRA (application document TR010029/APP/6.6) has considered the latest proposed Scheme and has determined that based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme would be at</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	should take account of any positive benefit to placing linear infrastructure in a flood risk area.	an acceptable level of flood risk and would not increase flood risk elsewhere.
5.104	Where linear infrastructure has been proposed in a flood risk area, the Secretary of State should expect reasonable mitigation measures to have been made, to ensure that the infrastructure remains functional in the event of predicted flooding.	Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the mitigation measures required which are summarised within the REAC (application document TR010029/APP/7.3).
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 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.	See NPS NN paragraph 5.103 and 5.104 above.
5.112-115	<p>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.</p> <p>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 arrangements are made and result in the same net effect.</p> <p>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</p>	This DCO is supported by a FRA (application document TR010029/APP/6.6) which sets out the proposed mitigation measures and the required surface water drainage systems and attenuation ponds.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>use of a planning obligation. 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 by improving flow routes, flood storage capacity and using SuDS.</p>	
<b>Land instability</b>		
<p>5.116 – 5.118</p>	<p>The effects of land instability may result in landslides, subsidence or ground heave. Failing to deal with this issue 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.</p> <p>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</p>	<p>Impacts on land instability has been assess within Chapter 10 of the ES (application document TR010029/APP/6.1). Table 10.17 provides a summary of the anticipated effects from both the construction and operational phase of the Scheme. The assessment indicated that the construction phase is likely to have a minor adverse (temporary) to minor beneficial (permanent) effect and the operational phase is considered likely to have a negligible effect and has been assessed overall as not significant.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>or suspected. Applicants should liaise with the Coal Authority if necessary.</p> <p>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 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.</p>	
5.119	<p>Applicants have a range of mechanisms available to mitigate and minimise risks of land instability. These include:</p> <ul style="list-style-type: none"> <li>• Establishing the principle and layout of new development, for example avoiding mine entries and other hazards.</li> <li>• Ensuring proper design of structures to cope with any movement expected, and other hazards such as mine and/or ground gases</li> <li>• 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</li> </ul>	<p>See NPS NN paragraphs 5.117 – 5.118 above.</p> <p>Ensuring the proper design of structures to cope with any movement expected and making use of ground improvement techniques, where necessary, is a routine part of geotechnical engineering design and is subject to design certification under Volume 4 of DMRB. This is a requirement of the Scheme and it is therefore considered that the Scheme accords with paragraph 5.119.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	activity, this may mean prior extraction of any remaining mineral resource.	
<b>The historic environment</b>		
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.	Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the methodology for the assessment of cultural heritage which is in line with DMRB guidance. The chapter includes assessment of non-designated assets, ensuring the effect of the Scheme on their significance is assessed.
5.125	The Secretary of State should also consider the impacts on other non-designated 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.	See NPS NN paragraph 5.124 above.
5.126-7	<p>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 EIA and describe these in the environmental statement.</p> <p>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</p>	Section 7.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) relates to cultural heritage and sets out the results of the historic environment assessment undertaken for the scheme. It provides information on the value/significance of each heritage asset, including archaeological remains, historic buildings and historic landscapes based on a review of the historic environment records. The response on the setting is proportionate to the potential impact on the heritage asset. Data on each asset,

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>to the asset’s importance and no more than is sufficient to understand the potential impact of the proposal on their significance.</p> <p>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.</p>	<p>including information on setting is, presented in Appendix 11.1 of the ES Appendices (application document TR010029/APP/6.3).</p> <p>The chapter concludes that there is not expected to be any significant adverse effects on designated or non-designated heritage assets as a result of the Scheme.</p>
5.128	<p>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:</p> <ul style="list-style-type: none"> <li>• relevant information provided with the application and, where applicable, relevant information submitted during examination of the application</li> <li>• any designation records</li> <li>• the relevant Historic Environment Record(s), and similar sources of information</li> <li>• representations made by interested parties during the examination</li> </ul>	<p>See NPS NN paragraphs 5.126 – 5.127 above.</p> <p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) describes the value/significance of each heritage asset considered in the Environmental Impact Assessment.</p> <p>Chapter 4 of the ES details the consultation, including data requests that have been undertaken with relevant stakeholders.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>expert advice, where appropriate, and when the need to understand the significance of the heritage asset demands it.</li> </ul>	
5.129	<p>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 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.</p>	<p>Chapter 11 of the ES (application document TR010029/APP/6.1) relates to cultural heritage and sets out the results of the historic environment assessment undertaken for the scheme outlines the significance attributed to the identified designated and non-designated heritage assets. This forms the baseline in the assessment of the impact of the Scheme on these assets.</p>
5.130	<p>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).</p>	<p>Chapter 11 of the ES (application document TR010029/APP/6.1) provides an assessment of the impacts of the Scheme during the construction and operation phase on cultural heritage assets (designated and non-designated). The Chapter concludes that no significant adverse effects are expected.</p>
5.131	<p>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</p>	<p>Section 11.5 in Chapter 11 of the ES (application document TR010029/APP/6.1) sets out the assessment approach for this topic.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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 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.</p>	<p>Section 11.10 provides an assessment of the effects of the Scheme on the identified historic environment receptors. The Section outlines that during the construction phase, there is expected to be a slight adverse effect on 5 heritage assets within the DCO boundary although this is not considered to be significant. During the operational phase, a Grade II listed building at Stoney Hills Farm and a post-medieval park at Dagnam are expected to experience a slight adverse effect resulting from noise and vibration. This again is considered not to be significant.</p>
5.132	<p>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.</p>	<p>Chapter 11 of the ES (application document TR010029/APP/6.1) does not anticipate any significant adverse effects with regard to cultural heritage. The Chapter does indicate some non-significant impacts on cultural heritage, set out in Section 11.10 however these are not anticipated to constitute harm. Notwithstanding this, these effects have fed into the considerations made within Section 5.20 of the Statement which weights up these impacts of the Scheme against the anticipated benefits concluding that there is expected to be a positive overall planning balance to the Scheme.</p>
5.133	<p>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</p>	<p>See NPS NN paragraph 5.131 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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:</p> <ul style="list-style-type: none"> <li>• the nature of the heritage asset prevents all reasonable uses of the site</li> <li>• no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation</li> <li>• conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible</li> <li>• the harm or loss is outweighed by the benefit of bringing the site back into use.</li> </ul>	
5.134	<p>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.</p>	<p>See NPS NN paragraph 5.132 above.</p>
5.135	<p>Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The Secretary of State should treat the loss of a building (or other element) that makes a positive contribution to the site's significance either as substantial harm or less than substantial harm, as appropriate, taking into account the relative significance of the elements affected and their</p>	<p>Chapter 11 of the ES (application document TR010029/APP/6.1) outlines that the Scheme would not impact on any World Heritage Sites.</p> <p>Two Conservation Areas (South Weald Conservation Area and Weald Park Conservation Area) fall within the DCO boundary, however, given the limited works taking place which affect the Conservation Areas, any effect on these is</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	contribution to the significance of the Conservation Area or World Heritage Site as a whole.	considered to be negligible and have no effect on the significance of the heritage asset. Further detail is provided in Chapter 11.
5.136	Where the loss of significance of any heritage asset has been justified by the applicant based on the merits of the new development and the significance of the asset in question, the Secretary of State should consider imposing a requirement that the applicant will prevent the loss occurring until the relevant development or part of development has commenced.	Section 11.10 in Chapter 11 of the ES (application document TR010029/APP/6.1) indicate that no archaeological sites, historic buildings or historic landscape types have been identified as being subject to physical impacts during the construction and operation phase. Where an impact on the setting has been identified for both the construction and operational phase, these are not considered to be significant.
5.137	Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.	Chapter 11 of the ES (application document TR010029/APP/6.1) concludes that while no significant adverse effects are expected, an Archaeological Management and Mitigation Strategy should be prepared. This is outlined within the Outline CEMP (application document TR010029/APP/7.2) which is secured through Requirement 4 of the draft DCO (application document TR010029/APP/3.1) requiring a CEMP to be delivered substantially in accordance with the Outline CEMP.
5.138	Where there is evidence of deliberate neglect of or damage to a heritage asset the Secretary of State should not take its deteriorated state into account in any decision.	Chapter 11 of the ES (application document TR010029/APP/6.1) includes an assessment of the baseline conditions. No evidence of deliberate neglect has been identified.
Landscape and visual impacts		
5.144-146	Where the development is subject to EIA the applicant should undertake an assessment of any likely significant landscape and visual impacts in the EIA and describe	Chapter 9 of the ES (application document TR010029/APP/6.1) provides a landscape and visual impact assessment to determine any significant effects of the

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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 assessments in local development documents in England.</p> <p>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).</p> <p>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 any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.</p>	<p>Scheme during both the construction and operational phase. The chapter includes a section on methodology which outlines that the assessment has been undertaken in accordance with paragraph 5.144-5.146 of the NPS NN.</p>
5.147-148	<p>Any statutory undertaker commissioning or undertaking works in relation to, or so as to affect land in a National Park or Areas of Outstanding Natural Beauty, would need to comply with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949 and section 85 of the Countryside and Rights of Way Act 2000.</p> <p>For significant road widening or the building of new roads in National Parks and the Broads applicants also need to</p>	<p>Chapter 9 of the ES (application document TR010029/APP/6.1) notes that there are no National Parks, Areas of Outstanding Natural Beauty or Registered Historic Parks and Gardens within or near the Scheme.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	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.	
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.	See NPS NN paragraphs 5.144 – 5.146 above.
5.156	Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. However, local landscape designations should not be used in themselves as reasons to refuse consent, as this may unduly restrict acceptable development.	<p>Chapter 9 of the ES (application document TR010029/APP/6.1) considers the effects of the Scheme on local landscape character units. The local landscape character units are listed and identified in Figure 9.1 and assessed in</p> <p>Appendix 9.1 of the ES Appendices (application document TR010029/APP/6.3).</p> <p>The Chapter summarises that the existing A12 and M25 are dominant elements of the landscape which detract from the attractiveness of the area albeit that the impact is ameliorated by surrounding vegetation.</p> <p>It is summarised that the Scheme would lead to unavoidable adverse effects on the existing landcover which would only</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>be mitigated in the medium to long term through new planting. The Scheme design also includes planting and habitat creation required to reduce impacts on biodiversity recourses, particularly loss of land within Ingrebourne Valley Site of Metropolitan Importance for Nature Conservation and impacts on priority and protected species. This includes area of grassland, woodland and scrub.</p> <p>The adverse effects of the Scheme on visual receptors during the operational phase at opening would likely be significant to nine visual receptors. With implantation and establishment of the mitigation and compensation measures that form an integral part of the Scheme these adverse effects would reduce for the majority of visual receptors down to three experiencing significant impacts in the fifteenth year after opening.</p>
5.157	<p>In taking decisions, the Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation.</p>	<p>The Scheme has been designed in accordance with the DMRB to ensure that the best practice in design is followed. Chapter 9 of the ES (application document TR010029/APP/6.1) provides the assessment of the effects of the Scheme on the landscape. The effects are set out in Section 9.10 of the Chapter and consist of a range from neutral effect to large adverse effects on local receptors given the nature of the Scheme being a large piece of infrastructure. The Chapter suggests appropriate mitigation to mitigate these impacts. This is further set out within the REAC (application document TR010029/APP/7.3).</p>
5.158	<p>The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local</p>	<p>Table 9.14 of the ES (application document TR010029/APP/6.1) assesses the visual impact of the</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	<p>Scheme on residential receptors. There would be a significant adverse effect on Grove Farm and Maylands Cottage at both construction and operational phase given the proximity of the properties to the new road. Notwithstanding this, the Scheme has been developed in order to minimise the impact on surrounding residential receptors where possible although it is recognised that the Scheme would result in some level of impact. Visual screening through tree planting has been used to mitigate visual effect where possible.</p> <p>Views from the road by visitors to the area are also assessed in Chapter 13 of the ES and the situation is not considered to be significantly adversely affected.</p> <p>Notwithstanding this, section 5.20 of this Case for the Scheme sets out the planning balance and considers that the benefits that the Scheme would generate would outweigh the adverse impacts expected.</p>
5.161	<p>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</p>	<p>The proposed planting mitigation illustrated on the Environmental Masterplan contained within the ES (application document TR010029/APP/6.1) is considered to be in line with accepted public methodology and has been consulted on as part of the Statutory and Supplemental consultation processes set out within the Consultation Report (application document TR010029/APP/5.1). It is therefore not considered that additional off-site planting is necessary for the Scheme.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
<b>Land use</b>		
5.165-167	<p>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 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.</p> <p>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. 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.</p>	<p>The land which is required on a temporary and permanent basis for the Scheme is identified on the Land Plans (application document TR010029/APP/2.2) and through the Book of Reference (application document TR010029/APP/4.3).</p> <p>The impact of this proposed land take on identified existing and proposed land uses is outline within Chapter 13 of the ES relating to people and communities. (application document TR010029/APP/6.1).</p> <p>Table 13.22 and table 13.23 identify the permanent and temporary land take required in order to construct the Scheme and during operation.</p> <p>In regard to residential receptors, the Scheme is expected to result in a significant adverse effect on Grove Farm as a result of the temporary and permanent land take required and through the amenity impacts of the Scheme. Maylands Cottages are also expected to be significantly adversely affected from the visual impact of the Scheme.</p> <p>Of the community assets identified, it is anticipated that there will be a significant adverse effect to Maylands Golf Course as a result of the permanent acquisition of rights to land required in order to accommodate the diverted Cadent Gas</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>pipe-line and provide an easement. There is also expected to be an adverse effect on the amenity of the golf course although this is mitigated through the use of landscape and noise buffers.</p> <p>Although not considered to be open space for the purposes of the Planning Act 2008, Maylands Golf Course is designated as open Space through the LB Havering Local Plan Policy DC18. Therefore, in order to comply with the relevant policy tests, the applicant proposes to provide additional land to replace that which would be lost for the Scheme. The relocation and reconfiguration of hole 2 is to ensure that replacement land of at least equivalent area is re-provided. Discussions have also taken place with the golf course owners to develop the most appropriate option for re-provision. Further details regarding the position on open space is provided within Section 6.5 of this Statement.</p> <p>The effects on rural enterprises have been considered and a slight adverse effects is identified to Glebelands Estate as a result of the temporary and permanent land take. This has been reduced as far as possible through the minimisation of the area required for construction compound and through discussions with the landowner. A section of land to the northern end of the Glebelands Estate known as Cock Wood is designated open space under the LB Havering Local plan. This area is to be utilised for environmental mitigation. Site visits have shown that the area is currently overgrown, inaccessible and includes signs stating shooting takes place</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>in the area. It is therefore considered that the proposed use of the land as an area of environmental mitigation is not inconsistent with the existing use and should be considered acceptable</p> <p>Development land has also been considered in Chapter 13. The land to the south of the A12 at Oak Farm is currently being developed into a burial ground. Upon completion, the land would be open to the public at certain times of the day and would be subject to restrictions such as a dress code. It is proposed that part of this land be used on a temporary basis in order to install the Cadent Gas pipe line diversion. A permanent easement would also continue to exist over the land once the pipe is installed. It is noted that an existing easement exists over the land as the existing pipeline runs through the eastern end of the burial ground site.</p> <p>As identified in Section 13.8 of Chapter 13, the Scheme would preclude the ability of the land identified as suitable as a large wind farm site from coming forward, however, the Havering Local Plan does identify alternatives sites for wind development and as such, it is not considered to constitute a significant effect.</p>
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	Chapter 10 of the ES (application document TR010029/APP/6.1) relates to Geology and Soils and includes an assessment of the impact of the Scheme on agricultural land. The assessment identifies that the agricultural land which is affected by the Scheme at Grove

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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 developed land, applicants should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.</p>	<p>Farm and land belonging to Maylands Golf Course is considered to be of low sensitivity (Grade 3b and 4).</p> <p>Chapter 10 of the ES relating to geology and soils provides an assessment of the soil quality and concludes that the impact of the Scheme is not expected to result in a significant adverse effect. Notwithstanding this, mitigation measures have been set out in the REAC (application document TR010029/APP/7.3) to minimise impacts.</p> <p>Chapter 4 of the ES provides detail of the alternatives assessment which was undertaken for the Scheme and demonstrates that there were no options available to achieve the Scheme objectives that could utilise brownfield land.</p> <p>As such is considered that the Scheme would not lead to any significant effects to any best and most versatile agricultural land.</p>
5.169	<p>Applicants should safeguard any mineral resources on the proposed site as far as possible.</p>	<p>Chapter 12 of the ES (application document TR010029/APP/6.1) notes that the Essex Minerals Local Plan (adopted 2014), and the London Borough of Havering Local Aggregate Assessment (2014), both show that there are no Mineral Safeguarding Areas that would be impacted by the Scheme.</p>
5.170-171	<p>The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against</p>	<p>Section 5.3 of this Statement provides an assessment of the Scheme against local and national Green Belt policy including the NPS NN. The section demonstrates that very</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if so, whether their proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land, and land designated as Local Green Space in a local or neighbourhood plan, are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances. Linear infrastructure linking an area near a Green Belt with other locations will often have to pass through Green Belt land. The identification of a policy need for linear infrastructure will take account of the fact that there will be an impact on the Green Belt and as far as possible, of the need to contribute to the achievement of the objectives for the use of land in Green Belts.</p>	<p>special circumstances exist to justify the development of the Scheme and that the Scheme could also be considered not inappropriate development.</p>
5.173	<p>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.</p>	<p>The emerging LBH Local Plan outlines that in order to comply with Written Ministerial Statement 42, a Wind Resource Technical Feasibility Study was completed in 2015. This Study identified that land to the north of the junction are potentially suitable for small, medium or large-scale wind development sites. The emerging Local Plan further notes that any development proposal would be subject to satisfying planning policy requirements. It further notes that the Council would not support any proposals for wind developments in Dagnam Park or Bedford Park.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>While the proposed Scheme would prevent the identified land from coming forward for a wind energy scheme, the proposed Scheme are not considered to be in conflict with the ability of the emerging Local Plan to meet its objectives. This is considered further within the development land assessment within Chapter 13 of the ES (application document TR010029/APP/6.1).</p>
5.174	<p>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 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.</p>	<p>The Scheme would impact upon areas designated by LBH as “Parks, Open Spaces, Playing Fields and Allotments”. At Maylands Golf Course, where the Scheme would result in permanent land take in order to facilitate the realignment of the Cadent Gas pipeline.</p> <p>While mitigation measures in the form of noise and landscape buffers have been incorporated into the design to mitigate the impact of the road, discussions have also taken place with the golf course owners regarding the provision of a replacement golf hole. Land has been provided within the DCO boundary and provision included within the draft DCO to provide powers to construct a replacement golf hole to ensure that land of at least equivalent area is provided.</p> <p>The area known as Cock Wood is also designated as open space under Policy DC18 of the LB Havering Core Strategy. It is proposed that this part of the site be utilised as environmental mitigation. Site visits to the area in question show that the area is currently overgrown, inaccessible and</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>shooting takes place. It is therefore considered that the proposed use of the land as an area of environmental mitigation is not inconsistent with the existing should be considered acceptable</p> <p>While the Land at Oak Farm, to the south of the A12 is not designated open space in policy terms, it could be considered that the land, which is being developed as a burial ground, would fall under the definition of open space under the Planning Act 2008. The land would be taken temporarily in order to install the Cadent Gas pipe diversion and would then be subject to an easement to allow Cadent to monitor, maintain and inspect its equipment. It is considered that the land, once subject to the easement would be no less advantageous and no replacement land is considered necessary. Section 7.2 of the Statement of Reasons (application document TR010029/APP/4.1) outlines the considerations given that the provisions of the Planning Act 2008 setting out that it can be demonstrated that the open space land would be no less advantageous when burdened with the order right than it was before.</p>
5.175	<p>Where networks of green infrastructure have been identified in development plans, they should normally be protected from development, and, where possible, strengthened by or integrated within it. The value of linear infrastructure and its footprint in supporting biodiversity and ecosystems should also be taken into account when assessing the impact on green infrastructure.</p>	<p>It is noted that in order to construct the Scheme, there is a need to utilise land which can currently be considered green infrastructure. Chapter 7 of the ES (application document TR010029/APP/6.1) outlines that the Scheme falls within the Ingrebourne Valley SMI. Due to the construction requirements of the Scheme, habitat from the SMI would be permanently lost. Table 7.18 in Chapter 7 sets out the detailed calculations of the habitat loss. While the Scheme</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>itself has been designed to minimise the amount of land take required and minimise the effect on the SMI, some impact is unavoidable.</p> <p>In order to mitigate the impact of this loss of habitat, habitat will be appropriately reinstated and enhanced during construction. A Landscape and Environmental Management Plan (LEMP) for these areas will be produced which will include details of management works, monitoring and maintenance measures required post-construction.</p>
5.176	<p>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.</p>	<p>Chapter 10 of the ES (application document TR010029/APP/6.1) states that an assessment of agricultural land in the study area has shown it to fall into Agricultural Land Classification Grade 3b and 4 – good to moderate quality.</p> <p>Windsor soils have clay topsoils, are slowly permeable within 40 cm (Wetness Class IV) and cannot be better than Subgrade 3b in the local climate. Likewise, Wickham and Lawford soils, with heavy clay loam topsoils are slowly permeable within 40 to 60 cm (Wetness Class III to IV) also cannot be better than Subgrade 3b. Strips of Alluvium are in subgrade 3b to Grade 4.</p> <p>It is possible that there are small pockets of lighter, better drained soils but these will be of small extent and would not</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>affect the overall assessment of the area as being of non-BMV quality.</p> <p>In regard to the Scheme design, the use of the existing agricultural land has been kept to a minimum which the design requires.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) considers the effect of the Scheme on rural enterprises including the agricultural holdings of the Glebelands Estate. Paragraphs 13.10.24 – 13.10.28 of this Chapter detail the expected effects which are not considered to be significant.</p>
5.178	<p>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 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.</p>	<p>See NPS NN paragraph 5.170-5.171 above.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
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 new coastal access routes, National Trails and other public rights of way.	See NPS NN paragraph 5.175 above.
5.181	The Secretary of State should also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of any planning obligations, for example, to provide exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility. Alternatively, where Sections 131 and 132 of the Planning Act 2008 apply, any Replacement land provided under those sections will need to conform to the requirements of those sections.	See NPS NN paragraph 5.175 above.
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.	Chapter 10 of the ES (application document TR010029/APP/6.1) considers the impact of the Scheme on minerals and mining. It identifies that the site is unlikely to have ever been mined for coal and there is no evidence of other mining activities on site. The site is also not located within a Mineral Safeguarding Area.
5.184	Public rights of way, National Trails, and other rights of access to land (e.g. open access land) are important	Chapter 13 of the ES (application document

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>recreational facilities for walkers, cyclists and equestrians. 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.</p>	<p>TR010029/APP/6.1) considers the effect of the Scheme on pedestrians, cyclists and equestrians such as changes to the accessibility and usability of NMU routes and changes to journey lengths, as well as changes to journey amenity. During the construction phase, all existing routes would remain open until new routes are complete to ensure there is no negative effect on NMU. The NMU assessment concludes that there would be no significant effect on NMU's. Notwithstanding this, the newly constructed A12 off-slip will provide a wider footway offering an improvement to the existing provision.</p> <p>Notwithstanding the above, the Applicant is currently looking at options as part of its designated funds that would ensure that any improvements to NMU's which were to be considered would be part of a wider strategy to deliver a comprehensive and co-ordinated approach.</p> <p>Chapter 9 of the ES (application document TR010029/APP/6.1) considers the effect of the Scheme on public rights of way as visual receptors.</p> <p>The Outline CEMP (application document TR010029/APP/7.2) codifies the mitigation measures that would be implemented during the construction of the Scheme. The CEMP is secured within the Requirements in Schedule 2 of the draft DCO (application document</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		TR010029/APP/3.1) and must be substantially in accordance with the Outline CEMP
<b>Noise and vibration</b>		
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.	Ecology is considered a sensitive receptor that could be affected by changes to noise and vibration. Effects of impacts on wildlife and biodiversity from noise have been assessed in Chapter 7 of the ES (application document TR010029/APP/6.1). The Chapter notes that the assessment has been undertaken in accordance with the Biodiversity and Geological Conservation section of the NPS.
5.189	<p>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:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• identification of noise sensitive premises and noise sensitive areas that may be affected.</li> <li>• the characteristics of the existing noise environment.</li> </ul>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) considers the potential impacts of the Scheme on noise and vibration. The assessment has been in accordance with the British Standards 5228 parts 1 and 2 and DMRB, HD213/11 which covers the various aspects required by NPS NN paragraph 5.189. Specifically, the assessment covers daytime and night-time periods.</p> <p>Figure 6.1 of Chapter 6 indicates the noise sensitive receptors located within the study area. It is noted that these receptors are currently experience high levels of noise with road traffic being the dominant source.</p> <p>It is recognised that there would be some impact from noise and vibration resulting from the construction of the Scheme. Section 6.9 of Chapter 6 outlines the mitigation that would be put in place at construction stage in order to mitigate these</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>• a prediction on how the noise environment will change with the proposed development:</li> <li>• In the shorter term such as during the construction period</li> <li>• in the longer term during the operating life of the infrastructure</li> <li>• at particular times of the day, evening and night as appropriate.</li> <li>• an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas.</li> <li>• measures to be employed in mitigating the effects of noise. Applicants should consider using best available techniques to reduce noise impacts.</li> <li>• the nature and extent of the noise assessment should be proportionate to the likely noise impact.</li> </ul>	<p>impacts resulting in no significant effects from day time or night time construction activities.</p> <p>No significant adverse effects or perceptible noise increase resulting from construction traffic are expected during the construction phase of the Scheme.</p> <p>The road traffic noise modelling results for the operation phase identified that no significant adverse effects would occur at dwellings or sensitive receptors due to the Scheme. No significant adverse effects or perceptible noise increases were predicted at sensitive receptors located in NIAs.</p> <p>No significant adverse effects from airborne or ground-borne vibration are expected as a result of the Scheme.</p> <p>The assessments within Chapter 6 have taken into account the cumulative effect of other development coming forward in the area at the same time. No cumulative effects would occur during the operational phase of the Scheme, however, some slight adverse cumulative effects are possible during construction where construction activities from nearby developments occur simultaneously.</p>
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.	Section 6.4 and 6.5 of Chapter 6 of the ES (application document TR010029/APP/6.1) outline the study area and assessment methodology respectively for the noise and vibration assessment.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>These have been determined in accordance with the guidance provided in the Design Manual for Roads and Bridges (DMRB; HD213/11 - Revision 1). HD 213/11 – Revision 1 advises on the use of BS 522868 (Code of practice for noise control on construction and open sites – Part 1 &amp; 2) to assess and control noise and vibration from construction activities.</p>
5.191	<p>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.</p>	<p>See NPS NN paragraph 5.189 and 5.190 above. As set out within the TA (application document TR010029/APP/7.4) the prediction of traffic noise is in line with the appropriate DMRB standards.</p> <p>The mitigation proposed for this Scheme is set out within the REAC (application document TR010029/APP/7.3).</p>
5.192	<p>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.</p>	<p>Chapter 7 of the ES (application document TR010029/APP/6.1) provides details assessment in relation to biodiversity resources. There are no statutory designated nature conservation sites within the noise study area. Potential effects on non-statutory sites and priority and legally protected species are set out and assessed in Chapter 7, including mitigation measures where required.</p> <p>See NPS NN paragraph 4.22 of this Appendix.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
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.	Section 6.3 of Chapter 6 of the ES (application document TR010029/APP/6.1) sets out the legislation, policy, regulations, guidance and standards that are relevant to this noise assessment, including the Noise Policy Statement for England.
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.	Section 6.9 of Chapter 6 of the ES (application document TR010029/APP/6.1) details the mitigation measures proposed for both the construction and operational phases of the Scheme. A Landscape and Ecological Mitigation Plan is also provided with Chapter 7 of the ES which sets out the location of bunding and noise barriers to provide the appropriate mitigation.
5.195	<p>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:</p> <ul style="list-style-type: none"> <li>• avoid significant adverse impacts on health and quality of life from noise as a result of the new development</li> <li>• mitigate and minimise other adverse impacts on health and quality of life from noise from the new development</li> <li>• contribute to improvements to health and quality of life through the effective management and control of noise, where possible.</li> </ul>	<p>See NPS NN paragraph 5.189 above.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) relating to People and Communities includes an assessment of the impacts of the Scheme on human health.</p> <p>No significant adverse effects on health and quality of life from noise, are expected as a result of the Scheme from either the construction or operational phase.</p> <p>Chapter 13 also considers the effect on amenity to identified residential and community receptors. This includes an</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		assessment of the noise levels. The REAC (application document TR010029/APP/7.3) outlines the mitigation measures proposed.
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.	Section 6.9 of Chapter 6 of the ES (application document TR010029/APP/6.1) details the noise mitigation measures proposed for both the construction and operational phases of the Scheme. These are summarised in the REAC (application document TR010029/APP/7.3) and secured in the draft DCO through Requirement no. 5 which requires the submission of a landscaping scheme which takes account of the mitigation measures outlined in the REAC.
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 NPS NN paragraph 5.196 above.
5.198	Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following: <ul style="list-style-type: none"> <li>• engineering: containment of noise generated</li> <li>• materials: use of materials that reduce noise, (for example low noise road surfacing)</li> <li>• lay-out: adequate distance between source and noise-sensitive receptors incorporating good design to</li> </ul>	See NPS NN paragraph 5.196 above.

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>minimise noise transmission through screening by natural or purpose built barriers</p> <ul style="list-style-type: none"> <li>• administration: specifying acceptable noise limits or times of use (e.g., in the case of railway station PA systems).</li> </ul>	
5.199	<p>For most national network projects, the relevant Noise 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.</p>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) covers noise impacts during construction and operation of the Scheme. An assessment has been carried out using the predicted noise levels obtained from the noise modelling exercise, and there are no receptors that would be eligible for noise insulation as a result of the Scheme as no properties meet the criteria set out in the Noise Insulation Regulations 1975 (as amended).</p>
5.200	<p>Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process.</p>	<p>Chapter 6 of the ES (application document TR010029/APP/6.1) states that no adverse impacts will result on the one NIA contained within the Study Area.</p> <p>Nevertheless, it is the responsibility of the Highway Authority, where feasible, to reduce noise levels for Important Areas, regardless of noise level change predicted from a proposed Scheme. The mitigation measures proposed with the</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>Application are set out in the REAC (application document TR010029/APP/7.2) and secured through Requirement 4 of the draft DCO.</p>
<b>Impacts on transport networks</b>		
5.202	<p>Development of national networks can have a variety of impacts on the surrounding transport infrastructure including connecting transport networks. Impacts may include economic, social and environmental effects. The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development.</p>	<p>The TA (application document 3.2TR010029/APP/7.4) indicates that the analysis presented:</p> <ul style="list-style-type: none"> <li>• meets the requirements of central government's transport objectives around economy, environment, social and public accounts</li> <li>• aligns with national and local planning policy</li> <li>• addresses future traffic demand and creates improved traffic congestion conditions and journey experience for motorists</li> <li>• maintains facilities for NMUs</li> <li>• creates a safer environment for all users. Accident rates are forecast to reduce as a result of the Scheme.</li> </ul> <p>See NPS NN paragraphs 3.2 and 4.3 of this Appendix.</p>
5.203-205	<p>Applicants should have regard to the policies set out in local plans, for example, policies on demand management being undertaken at the local level.</p> <p>Applicants should consult the relevant highway authority, and local planning authority, as appropriate, on the assessment of transport impacts.</p>	<p>The TA (application document TR010029/APP/7.4) indicates that the analysis presented:</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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 endeavours to address any existing severance issues that act as a barrier to NMUs.</p>	<ul style="list-style-type: none"> <li>• meets the requirements of central government’s transport objectives around economy, environment, social and public accounts</li> <li>• aligns with national and local planning policy</li> <li>• addresses future traffic demand and creates improved traffic congestion conditions and journey experience for motorists</li> <li>• maintains facilities for NMUs</li> <li>• creates a safer environment for all users. Accident rates are forecast to reduce as a result of the Scheme.</li> </ul> <p>Moreover, Section 4 of this Statement provides an overview of how the Scheme accords with local and regional planning policy.</p> <p>The Consultation Report (application document TR010029/APP/5.1) outlines all of the consultation which has taken place in regard to the Scheme including the discussions which have taken place with the relevant LPA’s and their Highway’s representatives.</p> <p>Chapter 13 of the ES (application document TR010029/APP/6.1) includes an assessment of the effect of the Scheme on NMUs. Minimal changes are proposed to the existing NMU routes. During the construction phase, all existing routes would remain open until new routes are</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>complete to ensure there is no negative effect on NMU. The NMU assessment concludes that there would be no significant effect on NMU's.</p> <p>Notwithstanding the above, the Applicant is currently looking at options as part of its designated funds that would ensure that any improvements to NMU's which were to be considered would be part of a wider strategy to deliver a comprehensive and co-ordinated approach.</p>
5.206	<p>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.</p>	<p>This Scheme is supported by a Statutory EIA including full details of environmental mitigation (application document TR010029/APP/6.1). The TA which supports this application (application document TR010029/APP/7.2) also includes a proportionate assessment of the transport impacts on other networks as part of this application</p>
5.208	<p>Where appropriate, the applicant should prepare a travel plan including management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport and sustainable modes where relevant, to reduce the need for any parking associated with the proposal and to mitigate transport impacts.</p>	<p>For the construction stage, travel plan measures are incorporated into the Outline CEMP (application document TR010029/APP/7.3). The draft DCO (application document TR010029/APP/3.1) further requires the submission of a CEMP to be substantially in accordance with the Outline CEMP through Requirement 4.</p> <p>A Travel Plan is not required for the operational stage.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
5.209	<p>For schemes impacting on the SRN, applicants should have regard to DfT Circular 02/2013 The SRN and the delivery of sustainable development (or prevailing policy) which sets out the way in which the highway authority for the SRN, 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 SRN.</p>	<p>The TA (application document TR010029/APP/7.4) sets out the transport related policy which has been taken into consideration during the development of this Scheme.</p> <p>Details of adherence to DfT Circular 02/2013 are set out in section 6.1 of the business case (HE551519-ATK-GEN-XX-RP-TB-000001). This provides information relating to the Communication Plan which sets out the approach taken to engaging with stakeholders, including the local community and development industry. Consultations with these groups have addressed a wide range of responses, including the impact of the scheme on economic growth in the area</p>
5.210	<p>If new transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England which explains the circumstances where this may be possible. The Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time, and cannot provide financial support to a scheme that solely mitigates the impacts of a specific development. Any decisions on co-funded transport infrastructure will need to be taken in the context of the Government's wider policy of transport improvements.</p>	<p>A Funding Statement (application document TR010029/APP/4.2) is provided in support of this application which sets out the funding arrangements that are secured.</p>
5.211	<p>The Examining Authority and the Secretary of State should give due consideration to impacts on local transport networks and policies set out in local plans, for example, policies on demand management being undertaken at the local level.</p>	<p>Section 4 of this Statement provides an assessment of the Scheme against local, regional and national planning policy including transport related policy. Given the outcome of the assessment, it is considered that the Scheme is in accordance with local, regional and national planning policy.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>The TA (application document TR010029/APP/7.4) also includes a section indicating how the Scheme complies with the identified local transport planning policy.</p>
5.212	<p>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.</p>	<p>The TA (application document TR010029/APP/7.4) provides the details of the modelling which has been undertaken in regard to this Scheme and incorporates the relevant traffic data from the affected highways authorities. The Consultation Report (application document TR010029/APP/5.1) further sets out the discussions which have taken place with these bodies regarding traffic modelling data. It is considered that the Scheme conforms with paragraph 5.212.</p>
5.215	<p>Mitigation measures for Schemes should be proportionate and reasonable, focussed on promoting sustainable development.</p>	<p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented both during construction and operation of the Scheme, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has also been prepared to support the application. Requirement4 of the draft DCO (application document TR010029/APP/3.1) secures the submission of a CEMP which must reflect the mitigation measures set out in the REAC and be in general accordance with the Outline CEMP.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		The mitigation measures set out in these documents have been developed by qualified professionals and is considered to be reasonable and proportionate.
5.216	Where development would worsen accessibility, such impacts should be mitigated so far as reasonably possible. There is a very strong expectation that impacts on accessibility for NMUs should be mitigated.	As set out within Chapter 13 of the ES application document TR010029/APP/6.1) and the assessment of NMU's, the Scheme is not expected to result in any significant effects to existing NMU routes. Moreover, the existing footpath on the A12 off-slip would be improved by providing a new wider footway as the new off-slip is constructed.
5.217	Mitigation measures may relate to the design, layout or operation of the Scheme.	A REAC has been prepared to support this DCO (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented both during construction and operation of the Scheme, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements.
<b>Water quality and resources</b>		
5.220	... 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 4.1 in the ES Figures (application document TR010029/APP/6.3) shows features of the water environment, which falls within the Thames River Basin Management Plan.
5.221	Applicants should make early contact with the relevant regulators, including the EA, for abstraction licensing and with water supply companies likely to supply the water. Where a development is subject to EIA and the	Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the discussions which have taken place with the EA in regard to reaching agreement on the proposed mitigation measures. It concludes that what has

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	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.	been proposed has been considered an acceptable approach by the EA.
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 WFD commitments.	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) considers the effects of the Scheme on water quality and opportunities to improve quality of existing discharges.</p> <p>A WFD Assessment (application document TR010029/APP/6.7) has also been undertaken which supports the conclusions of Chapter 8 of the ES. Sections 5.2 – 5.4 of the Assessment set out the mitigation measures that are proposed as part of the Scheme and which are considered to not only to ensure compliance of the Scheme with the requirements of the WFD, but also implement enhancements within affected water bodies that will make a positive contribution towards the future attainment of Good Ecological Status or Good Ecological Potential.</p>
5.223	<p>Any environmental statement should describe:</p> <ul style="list-style-type: none"> <li>• the existing quality of waters affected by the proposed project</li> <li>• existing water resources affected by the proposed project and the impacts of the proposed project on water resources</li> </ul>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) addresses this NPS NN paragraph by including the following information:</p> <ul style="list-style-type: none"> <li>• existing quality of surface and groundwater's affected by the proposed Scheme</li> <li>• the existing surface and groundwater resources</li> </ul>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<ul style="list-style-type: none"> <li>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</li> <li>any impacts of the proposed project on water bodies or protected areas under the WFD and source protection zones (SPZs) around potable groundwater abstractions</li> <li>any cumulative effects.</li> </ul>	<p>that could be affected by the proposed Scheme and the impacts of the proposed Scheme on surface water</p> <ul style="list-style-type: none"> <li>existing fluvial geomorphology of the surface water features and how this would be affected by the Scheme</li> <li>the impacts of the proposed Scheme on the Ingrebourne and Weald Brook Rivers</li> <li>cumulative effects.</li> </ul> <p>Chapter 8 concludes that the WFD Compliance Assessment considered the impact of the construction and operation of the Scheme. It concluded none of the construction components of the Scheme are considered to cause deterioration at water body scale or prevent future attainment of good ecological status or ecological potential assuming mitigation already embedded in the preliminary design is implemented, any additional specific mitigation is implemented and generic guidance on the principles of WFD-compliant design is adhered to.</p>
5.224	<p>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</p>	<p>Details of the permitting of construction activities where applicable are to be found within Appendix 1.4 of the ES Appendices (application document TR010029/APP/6.3). Ordinary watercourse consent would be required from the Local Authority for new outfalls in ordinary watercourses.</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	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.	
5.225	The Secretary of State will generally need to give impacts on the water environment more weight where a project would have adverse effects on the achievement of the environmental objectives established under the WFD.	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the assessments undertaken in the FRA and the WFD.</p> <p>The assessment shows that, subject to the correct implementation of all mitigation measures, there will be no significant temporary adverse effects on surface water, WFD compliance, groundwater or fluvial and surface water flood risk during the construction period.</p> <p>The surface water risk assessment concluded the following:</p> <ul style="list-style-type: none"> <li>• Negligible impact with neutral significance of effect to Weald Brook from the discharge from the Scheme</li> <li>• Negligible impact with neutral significance of effect to the River Ingrebourne</li> <li>• Spillage risk for all surface water catchments is assessed as negligible with neutral significance.</li> </ul> <p>The FRA (application document TR010029/APP/6.6) concludes that, based on current flood risk understanding and the incorporation of flood risk mitigation, the Scheme</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
		<p>would be at an acceptable level of flood risk and would not increase flood risk elsewhere. This conclusion remains true, both at opening year and over the lifetime of the Scheme taking climate change into consideration.</p> <p>The WFD Compliance Assessment (application document TR010029/APP/6.7) considered the impact of the construction and operation of the Scheme. It concluded none of the construction activities of the Scheme are considered to cause deterioration at water body scale or prevent future attainment of good ecological status or ecological potential assuming mitigation already embedded in the preliminary design is implemented, any additional specific mitigation is implemented and generic guidance on the principles of WFD-compliant design is adhered to.</p>
5.226	<p>The Secretary of State should be satisfied that a proposal has had regard to the River Basin Management Plans and the requirements of the WFD (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 WFD compliance, the overall aim of projects should be no deterioration of ecological status in watercourses, ensuring that Article 4.7 of the WRD Regulations does not need to be applied.</p>	<p>See NPS NN paragraph 5.220 and 5.222 – 5.225 above.</p>
5.227	<p>The Examining Authority and the Secretary of State should consider proposals put forward by the applicant to</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) outlines the discussions which have</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>mitigate adverse effects on the water environment and whether appropriate requirements should be attached to any development consent and/or planning obligations. If the EA 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 EA to try to resolve the concerns, and that the EA is satisfied with the outcome.</p>	<p>taken place with the EA in regard to reaching agreement on the proposed mitigation measures. It concludes that what has been proposed has been considered an acceptable approach by the EA.</p> <p>Requirement no. 8 of the draft DCO (TR010029/APP/3.1) secures the submission of foul and surface water drainage information before works can commence.</p>
5.229	<p>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.</p>	<p>A REAC has been prepared to support this DCO (application document TR010029/APP/7.3). This details the environmental mitigation measures that would be implemented both during construction and operation of the Scheme, why they are required, who is responsible for delivering them and detailing any ongoing maintenance arrangements.</p> <p>An Outline CEMP (application document TR010029/APP/7.2) has also been prepared to support the application.</p> <p>Specific mitigation relating to the flood risk mitigation is set out in the FRA as summarised in Chapter 8 of the ES (application document TR010029/APP/6.1).</p>
5.230	<p>The project should adhere to any National Standards for sustainable drainage systems (SuDs). The National SuDs</p>	<p>Chapter 8 of the ES (application document TR010029/APP/6.1) relating to Water Environment includes</p>

NPS NN Para No.	Relevant Requirement of the National Networks NPS	Scheme compliance with the National Networks NPS
	<p>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.</p>	<p>a FRA which notes in paragraph 8.9.3 that the design of the drainage system complies with all current standards and SuDS best practice techniques to ensure that sustainability is a key drainage design criterion.</p> <p>The Applicant will be responsible (as necessary) for maintenance of these features. The draft Development Consent Order (application document TR010029/APP/3.1) includes in the Requirements (Schedule 2) draft requirements as to drainage.</p>

# Appendix C. Technical Note regarding Veteran Trees

# Technical Note

Project:	M25 Junction 28 improvement scheme		
Subject:	M25 junction 28 Impact on Veteran Trees within the Scheme DCO Boundary		
Author:	Atkins		
Date:	May 2020	Project No.:	5158157
Distribution:	Highways England BDB legal team		

## 1.1. Introduction

The following information is provided to inform Highways England regarding the loss of veteran trees due to construction of the M25 Junction 28 Improvement Scheme (hereafter referred to as ‘the Scheme’).

## 1.2. Definition of veteran trees and national policy

In regards to trees, the National Policy Statement for National Networks (NPSNN), paragraph 5.32 states:

*“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.” This has a footnote stating, “This does not prevent the loss of such trees where the decision-maker is satisfied that their loss is unavoidable”.*

The NPSNN provides clear consideration of veteran trees, but does not present a definition. The definition of veteran trees for the purposes of the reporting for the Scheme follows the core standing advice and planning policy.

The standing<sup>1</sup> advice on ancient woodland, ancient trees and veteran trees provides guiding principles for the classification of ancient and veteran trees. These principles are also covered within the Forestry Commission and Natural England (NE) guidance.

The standing advice defines veteran trees as:

*“All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value”.*

<sup>1</sup> <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

The definition provides a degree of ambiguity, but provides clear guiding principles namely that veteran trees have:

- *Decay features, such as branch death and hollowing; and*
- *These features contribute to its biodiversity, cultural and heritage value.*

The definition of ancient trees supplements this by focusing the definition of veteran trees arguably (but not definitively) on:

- *Great age;*
- *Size;*
- *Condition;*
- *Biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and*
- *Cultural and heritage value.*

Very few trees of any species become ancient.

As such this assessment determines that the classification of veteran trees should take account of the specific features of trees (size and condition) alongside their biodiversity, cultural and heritage value.

Further guidance to assist in classifying trees as old for their species based on stem size criteria was obtained from Neville Fay’s ‘Defining and surveying veteran and ancient trees’ (Fay, 2007). The relevant section of the table has been reproduced in Table 1.1 below.

**Table 1.1: Girth sizes to classify ancient trees**

Age Class	Tree Stem Size		
	>2.5m stem girth >795mm stem diameter	>4.0m stem girth >1273mm stem diameter	>4.5m stem girth >1432mm stem diameter
Ancient	Field maple Rowan Yew Birch Holly and other smaller trees	Oaks Ash Scots Pine Alder	Sycamore Lime Horse chestnut Sweet chestnut Elm species Poplar species Beech Willows Other pines and exotics

Table Source: information taken from Table 1 of Neville Fay’s ‘Defining and surveying veteran and ancient trees’, March 2007.

### 1.3. Veteran tree surveys

Tree surveys were undertaken in May, July and November 2019 to identify trees within, on and adjacent to the Development Consent Order (DCO) boundary. The survey was undertaken by qualified arboriculturists in accordance with British Standard 5837:2012 “Trees in Relation to Design, Demolition and Construction – Recommendations”, to inform the impacts of the Scheme on the tree stock within the DCO boundary. The details are captured within the Arboricultural Impact Assessment (AIA) report (Appendix 7.7 of the Environmental Statement (ES)) (application document TR010029/APP/6.3) and will be submitted as part of the DCO application.

As part of the survey the arboriculturists identified trees that could be classified as veteran specimens in line with the core standing advice.

The veteran trees were also assessed by an entomologist given the value in such habitats is the saproxylic habitat they provide. The experienced entomologist provided detail on the suitability or quality of such habitats for saproxylic invertebrates. This information is captured within the AIA report.

The AIA report follows the BS5837:2012 guidance, and the trees were categorised using categories U (Red), A (Green), B (Blue), C (Grey) in line with the criteria detailed in the Cascade Chart in BS 5837 that reflects the quality of the tree.

The AIA survey schedule is also included in Appendix A of the AIA report and includes each tree category and sub-category, the crown spread and root protection areas (RPA) identified to inform design. The RPA, as defined in the BS5837:2012, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance “in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system”.

A total of 15 veteran trees were identified as part of the assessment; a summary of their values is included within Section 3 of the AIA report.

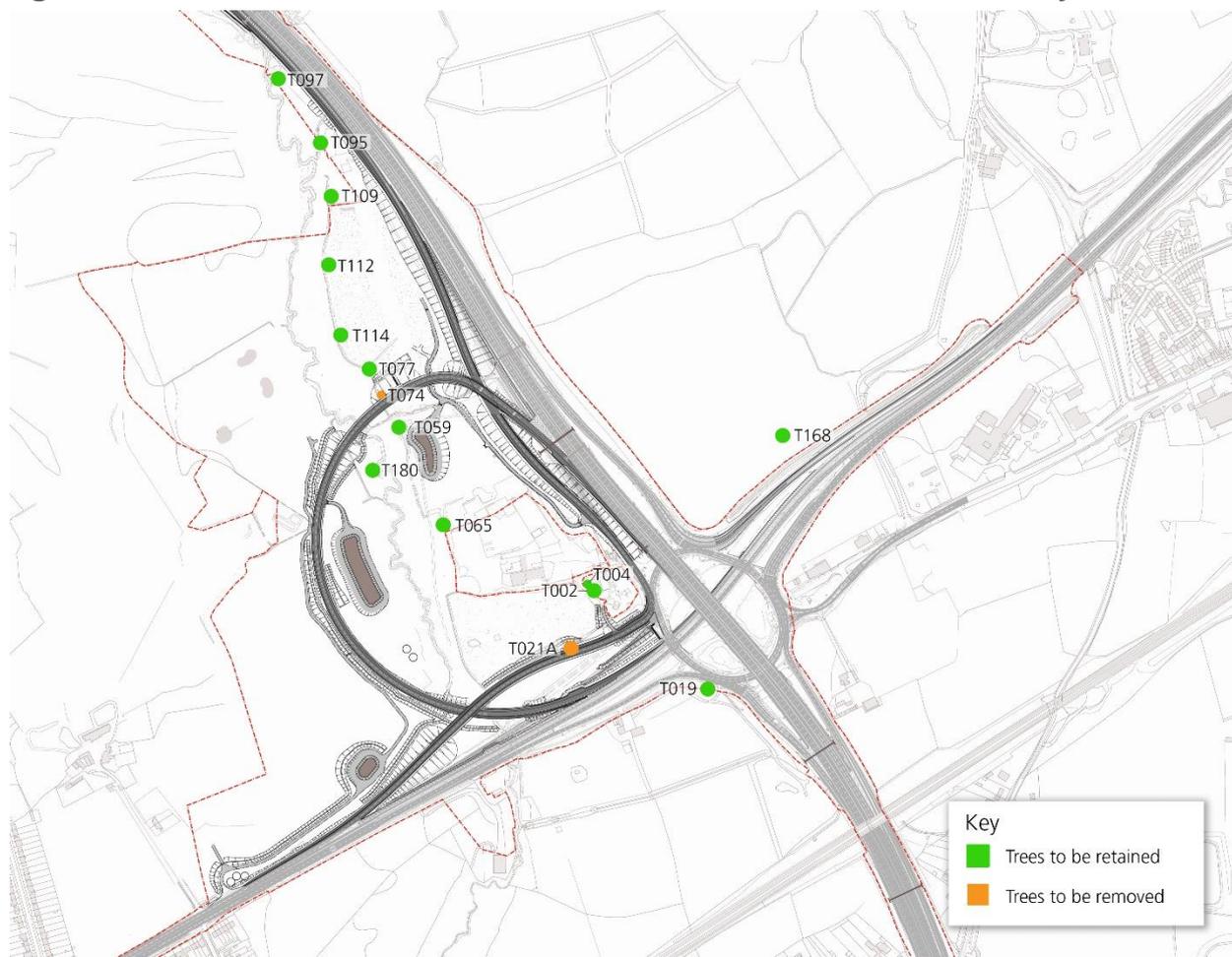
Some parts of the Scheme have not been surveyed due to land access issues and they are proposed to be surveyed during the next phase of the Scheme. The areas requiring further tree surveys are marked on the Tree Protection Plans (TPPs) found in the AIA report.

#### 1.3.1. Summary of the veteran trees within the DCO boundary

Fifteen veteran trees have been identified within the DCO boundary. These The trees are shown on a set of TPPs within the AIA (Appendix C of the AIA report). An overview of the main works area for the Scheme and the location of the veteran trees within the DCO boundary is also illustrated on Figure 1.1 below and on the Preliminary environmental design drawings available on Figure 2.2 in the Environmental Statement (ES) (application document TR010029/APP/6.2).

Table 1.2 below provides an explanation of the potential impact arising from the Scheme on veteran trees. This table is taken from the AIA report.

**Figure 1.1: Overview of veteran tree locations within the DCO boundary**



**Table 1.2: Veteran trees potentially impacted by the Scheme**

Tree ID	Tree Species	Potential impact	Suggested mitigation
<b>T002</b>	Common Oak	<b>No direct impact</b>	Not applicable
<b>T004</b>	Common Oak	<b>No direct impact</b>	Not applicable
<b>T019</b>	Common Oak	<b>No direct impact</b>	Not applicable
<b>T021A</b>	Common Oak	<b>Removal</b>	Compensation strategy to be agreed with NE.
<b>T059</b>	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an Arboricultural Method Statement (AMS).
<b>T065</b>	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area.

Tree ID	Tree Species	Potential impact	Suggested mitigation
			RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
<b>T074</b>	Common Ash	<b>Removal</b>	Compensation strategy to be agreed with NE.
<b>T077</b>	Common Ash	<b>Potential construction impact</b>	Within construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
<b>T095</b>	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
<b>T097</b>	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
<b>T109</b>	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
<b>T112</b>	Common Oak	<b>No direct impact</b>	Not applicable
<b>T114</b>	Common Oak	<b>No direct impact</b>	Not applicable
<b>T168</b>	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.

Tree ID	Tree Species	Potential impact	Suggested mitigation
T180	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.

At present trees T021A and T074 would need to be removed to facilitate the implementation of the Scheme. The remaining identified trees are not directly affected by the proposed permanent works, and where they fall within the construction working areas, they would require root protection measures and appropriate exclusion zones to ensure their protection. Mitigation measures are outlined in section 1.5 below.

There are currently 8 no. trees that fall within the construction working areas. All protection measures (as outlined in section 1.5 below) would need to be detailed within an AMS once detailed designs have been finalised and working measures agreed.

The trees which are proposed to be removed by the Scheme are T021A and T074 and are detailed below.

#### T021A - Common Oak

Biodiversity value details from entomologist:

- The white rot deadwood within the crown and lateral limbs is suitable for local and moderately specialist (mainly up to, but not limited to, National Scarce/Notable status) deadwood invertebrates, particularly beetles. The heartwood decay that is present in the main stem has a large volume and is in a stable state. This is a specialist feature that can attract significantly scarce invertebrates, including those of a Red Data Book status (RDB).

#### T074 - Common Ash

Biodiversity value details from entomologist:

- The tree's saproxylic value is mainly associated with the hollowing main stem. It's internal cavity is likely to be a damp, moist and a stable environment. As this type of feature does not often develop, or is allowed to develop, it is a scarce resource. As such, many of the beetles and flies that utilise this type of feature for breeding are also uncommon or scarce, a number of which are of national significance.



T021A - Common Oak



T074 - Common Ash

A review has been undertaken by the design team between June and August 2019 in liaison with the arboriculturalist in relation to the proposed Scheme layout and the location of these veteran trees (identified above).

The primary aim of the design review was to investigate whether the proposed design of the Scheme could be revised to avoid the loss of these two newly identified veteran trees (T021A and T074). The findings from the design review are provided below.

T059 was also considered in the design review process set out in section 1.4. T059 was also initially proposed to be removed by the Scheme however, as set out below, a departure from standards together with other design changes has enabled its retention.

## 1.4. Design review following the identification of veteran trees

### Design review of T021A and T074

One of the primary objectives of this Scheme is to provide congestion relief to the junction 28 roundabout. This will be achieved by constructing a loop road allowing northbound M25 traffic to connect to the A12 eastbound without having to negotiate the roundabout. This proposal will provide a free flow link from Dartford to Essex and has been developed through earlier design stages as the preferred option considering a range of factors, such as layout constraints, value for money and traffic demand.

#### Tree T021A

In order to construct the proposed loop road, the existing A12 diverge slip road will need to be demolished and realigned to reconnect with the junction 28 roundabout. Without the demolition and reconstruction of the existing A12 off-slip, it will not be possible to reconnect the loop road to the A12 carriageway. This off slip is an essential connector road forming part of the strategic road network.

One veteran tree, Tree T021A (see Figure 1.2 below), is located in the nearside berm of the proposed new A12 off-slip and the construction works will have a direct impact upon the tree. Both roots and branches will extend across and beneath the proposed carriageway.

A significant combination of constraints has resulted in a complex judgement for the optimal road layout. These constraints are explained below and together led to the conclusion that it will not be possible to protect Tree T021A.

The A12 slip road will rise up to cross over the loop road which itself bridges over the confluence of two realigned watercourses and their associated floodplains. The Environment Agency's requirement to achieve a minimum clearance above the floodplain has determined a minimum height of each carriageway.

In the same location, the presence of High Voltage, 275 kV National Grid overhead electric line imposes a mandatory headroom that the A12 slip-road, must meet.

In order to accommodate these constraints, the slip road alignment had to be fixed to satisfy the headroom required at the crossing point beneath the overhead electric line and the headroom clearance at the crossing over the floodplain. The vertical alignment was in effect locked at the top by the overhead electric line and at the bottom by the flood plain of the Ingrebourne River. Aligning the slip road away from the A12 serves to achieve these vertical clearance requirements.

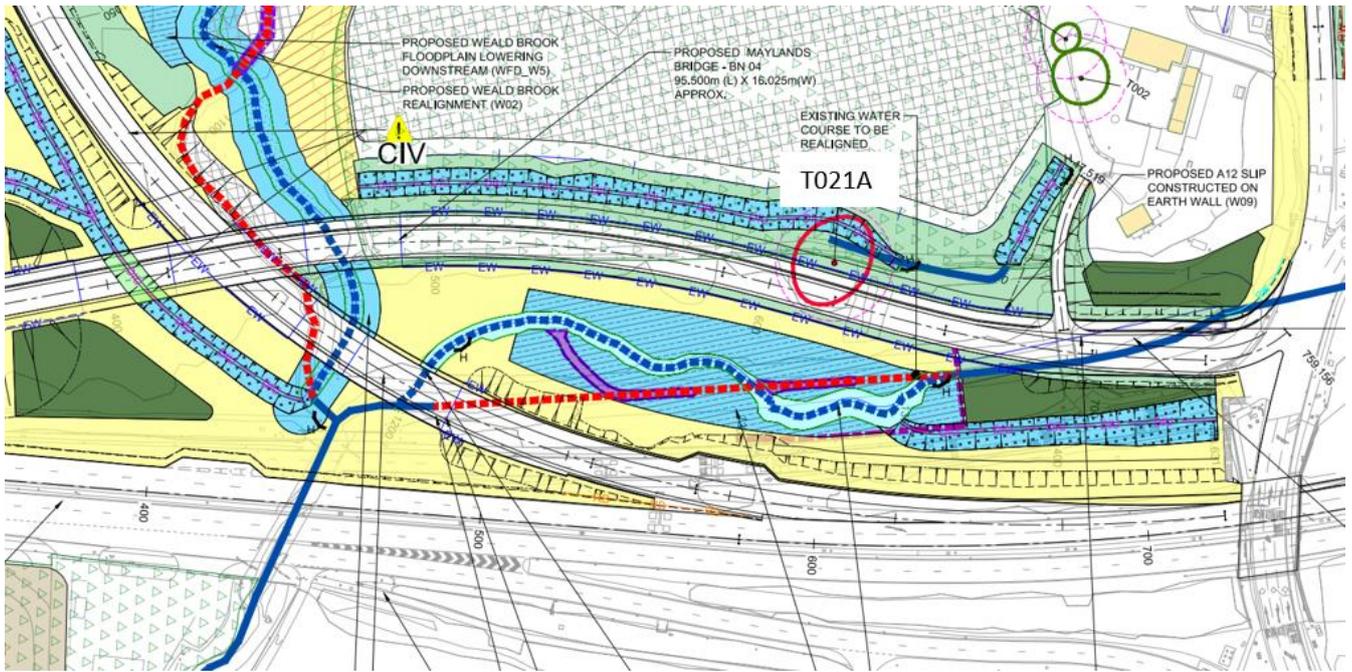
Once the alignment had been established, it was possible to mitigate impacts on the environment as much as reasonably possible.

To minimise the impact on the adjacent woodland to the north of the slip road, the new A12 eastbound off-slip will be constructed on a retained embankment wherever necessary.

It is proposed to avoid extensive embankments by using two parallel reinforced earth walls. This will reduce the footprint of the new road, reduce working space and minimise environmental impacts including removal of the adjacent woodland.

In addition, this design solution has been developed to accommodate the diversion and realignment of the River Ingrebourne and its flood plain, allowing space to implement an ecological compensation area.

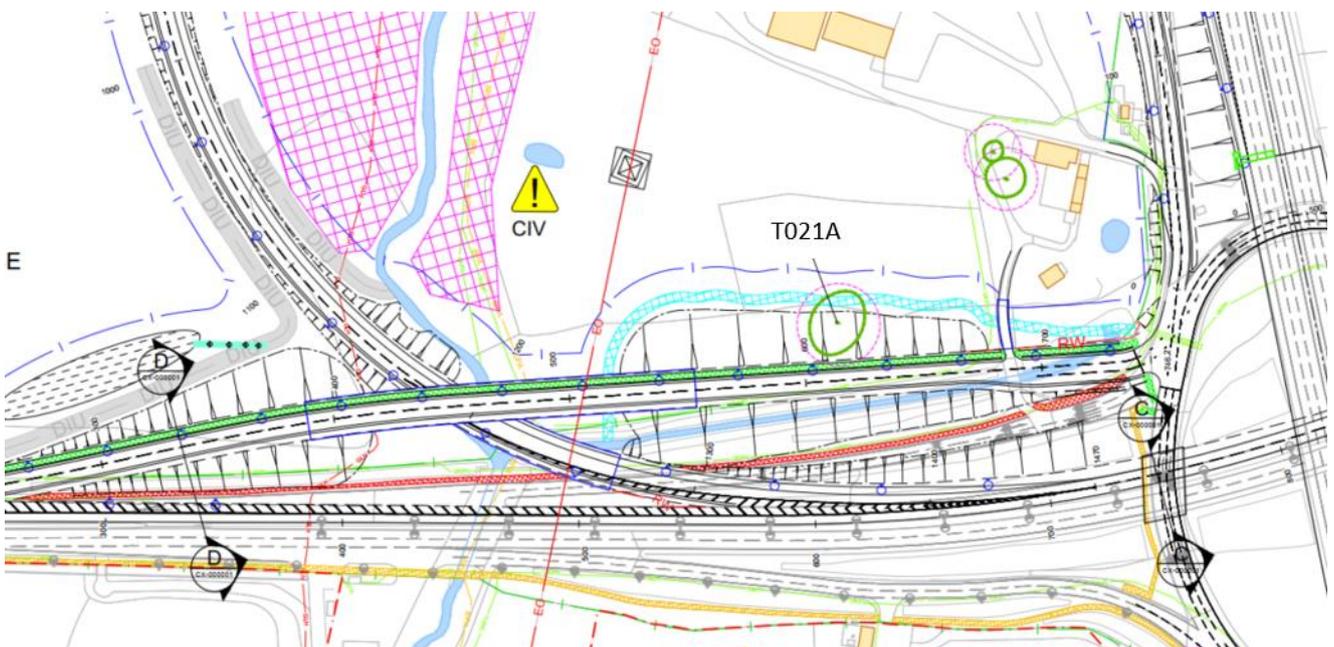
The slip road alignment in the Scheme design, as set out within the DCO application and its impact on Tree T021A is shown in Figure 1.2.



**Figure 1.2: Location of Tree T021A – proposed Scheme design**

During the development of the design, an earlier alignment for the A12 off-slip was prepared for Design Fix 2 (DF2) based upon the topographical and flood plain information available at that time. The alignment of the slip road ran closer to the A12 and potentially impacted less on Tree T021A. This original alignment is shown in Figure 1.3 below.

It should be noted that this alignment is now considered unfeasible, in consideration of the updated information which has been obtained from the Environment Agency with respect to flood levels, structure headroom clearances above maximum flood levels, outputs from flood modelling and latest topographical survey information.



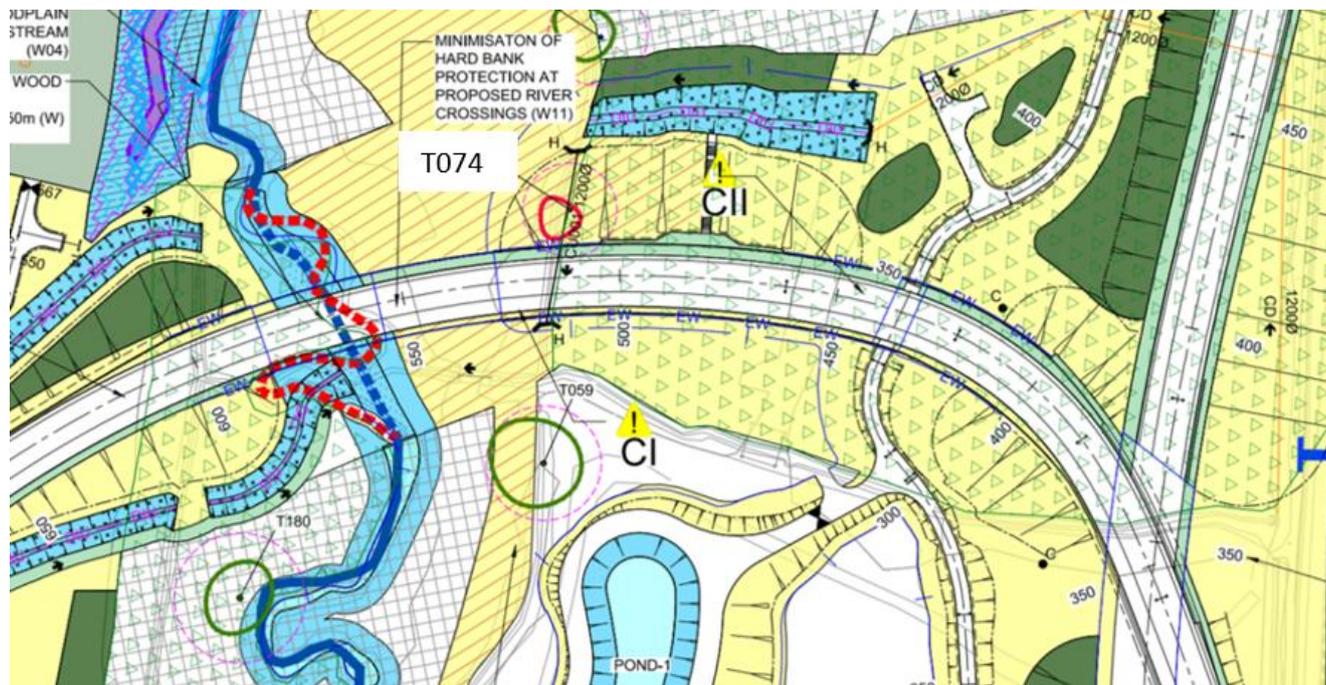
**Figure 1.3: Location of Tree T021A - DF2 design**

In design version (DF2), Tree T021A would have been located under the proposed embankment of the A12 off-slip, whilst its root protection zone would have been located under the earthworks supporting the nearside footpath. Even substituting reinforced earth walls for the conventional earthwork side slopes, the road would have encroached on parts of the root protection zone. The tree branches would have been affected by the deep excavations to construct the retaining walls and its roots would have been severed.

Whilst the DF2 alignment is no longer considered to be a feasible design for delivery of the Scheme, this too would have impacted directly on Tree T021A. It has not therefore been possible to preserve Tree T021A in this highly constrained location.

### Tree T074

A similar situation applies to Tree T074 (see Figure 1.4 below) which is located to the rear of the proposed offside verge of the new loop road. The proposed design consists of earthworks in this location. The provision of reinforced earth walls would not have afforded the necessary protection for the tree owing to its proximity to the excavation works. The root protection zone is located under the offside verge, and the same issues described with regards to DF2 A12 slip road design and Tree T021A apply. Excavation works would damage the roots and branches owing to the proximity of the tree to the carriageway.



**Figure 1.4: Location of Tree T074**

The only option to preserve the tree would have been to shift the loop road to the south. This cannot be achieved without reducing the diverge radius of the loop road. The loop already diverges from the M25 northbound carriageway with the minimum radius allowed by the design standards<sup>2</sup>. A further reduction in the loop radius is not possible given the detrimental impact upon road safety.

For loops diverging from a motorway, the minimum allowed horizontal curve radius is 75 m. The current radius is 81.5 m for the centre line, which allows a 76.5 m radius at the nearside white line at the edge of the trafficked lane.

<sup>2</sup> DMRB TD22

While a small reduction may seem possible, to reduce this to 75 m, this would not realise sufficient movement of the earthworks to preserve the tree. Full compliance with standards must be achieved at such junctions where incidents are most likely to occur.

A departure from standards is proposed on the proposed loop road with regards to the Desirable Minimum Stopping Sight Distance (SSD) (DMRB TD 22/06 paragraph 4.19). This is required because veteran Tree T059 (shown on Figure 1.5) obstructs forward visibility across the loop road but is considered acceptable because of the tree location and the non-continuous nature of the obstruction. This departure, together with other design changes, will allow retention of Tree T059. This is detailed in the next section of this note – Design Review of Tree T059.

However, with regards to Tree T074, a departure to reduce the minimum horizontal curve radius at the diverge, is considered highly undesirable where vehicles are reducing speed from an unrestricted motorway to negotiate the left-hand curve. Even with a compliant minimum radius, several mitigations have been proposed to mitigate the inherited hazard of loop geometries. These include a large radius vertical curve, a 7% vertical super elevation, high skid resistant surfacing, ‘SLOW’ road markings, bend and chevron signs, vehicle restraint systems, road lighting and a mandatory 50mph speed limit at the diverge point. Loop radius requirements are described in DMRB TD 22/06 paragraph 4.9.

The list of mitigations, specified so early in the design stage, highlights the importance that has been given to drivers’ safety. A departure from standards on the road geometry would contradict the design philosophy and will not therefore be proposed nor is it considered likely to be accepted.

Likewise, shifting the loop road to the north would impact Alder Wood and likely other veteran trees as well as increase the cost of the Scheme and significantly increase impacts on Maylands Golf Club. Tree survey suggests that veteran trees are present north of the loop road, in the adjacent woodland. A shift northbound of the loop is likely to impact on both trees and woodland.

Consideration was also given to the presence of other veteran trees. The proposed design for which development consent is sought significantly limits impact on Alder Wood to the north of the M25 diverge and to any associated veteran trees.

Veteran trees T114 and T077 will be preserved by the current loop alignment as shown in Figure 1.5 below. If the loop road design were to be shifted to the north, it is likely that these trees would be affected together with additional impacts on the woodland and landowners, including the golf club.

Therefore, no options have been explored in detail to confirm whether an alignment could be developed further north, as all preliminary options showed an increased impact.

In summary, Tree T074 cannot be retained without design refinement that would likely give rise to additional impacts on trees. The proposed alignment of the loop road is considered to present the best compromise between geometric standards, scheme constraints and environmental constraints, including the preservation of other adjacent veteran trees. Tree T074, the only veteran tree affected by the proposed loop road, and the loss of this tree is unavoidable.



**Figure 1.5: Location of Tree 077, Tree T059 and T114**

## Design review of T059

### Tree T059

Tree T059 is located close to the top of the loop road, in the vicinity of T074, see Figure 1.5 above. Following a design review in 2019, the Scheme design was revised to safeguard Tree T059 by amending the drainage design and extending a retaining structure to provide root protection for the tree.

Additionally, as stated earlier, the retention of this tree necessitated the introduction of a departure from standards, because Tree T059 will obstruct forward visibility across the loop road. In discussion with Highways England specialists, it was agreed that this departure would be acceptable as the tree is a singular obstruction. Its location in relation to the visibility envelope is not causing concern from a review of the visibility envelope created by the geometry of the loop. Therefore, it was agreed with Highways England that a departure for this singular obstruction would be acceptable and that the tree could be preserved. Further detail is shown in Figure 1.6 below.



**Figure 1.6: Departure from Standard associated to T059**

Following the implementation of the above changes, it would be possible to preserve T059 so long as adequate care to protect the tree is taken during the subsequent design and construction stages.

#### 1.4.1. Summary of findings

A detailed tree survey was requested by Highways England during the development of the preliminary design.

Efforts have been made to avoid the veteran trees present within the Scheme, but it was determined that veteran trees T021A and T074 cannot be avoided due to geometric standards specified in the Design Manual for Roads and Bridges, national significant utilities conflicting environmental and stakeholder constraints.

## 1.5. Proposed avoidance, mitigation and compensation strategy

The avoidance, mitigation and compensation measures pertaining to veteran trees are provided in Section 7.8 Design, mitigation and enhancement measures, in the Biodiversity chapter (Chapter 7) of the ES.

The Scheme has been designed to avoid loss of veteran trees and the loss of individual veteran trees has been minimised as far as possible throughout the preliminary design stage. This is further evidenced by the output of the design review summarised in the section 1.4.

An Outline Construction Environmental Management Plan (CEMP) (application document TR010029/APP/7.2) and Register of Environmental Actions and Commitments (REAC) (application document TR010029/APP/7.3) is included in the DCO application and will be adopted into a CEMP for all construction operations to protect retained veteran trees. The following measures are proposed and included in the Outline CEMP and REAC:

- The location of access tracks, haul roads, site compounds and material storage areas will be sited away from retained veteran trees.
- Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction. – Recommendations). A construction exclusion zone<sup>3</sup> will be established using steel mesh panel fencing, or similar, around retained veteran trees where works are not limited by the existing carriageway to protect veteran trees from accidental incursion.
- Protection of retained veteran trees from pollution during all clearance and construction works by adherence to the Pollution Prevention Guidelines (PPGs)<sup>4</sup>, the Construction Industry Research and Information Association (CIRIA) guidance<sup>5</sup> on the control of water pollution from construction sites, and mitigation measures set out in the Outline CEMP and REAC under the relevant headings of Air Quality, Noise and Vibration, and Road Drainage and Water Environment.
- An Ecological Clerk of Works (ECoW) and arboricultural specialist will be consulted, as required, to advise on the above measures during construction.

The retained veteran trees shall be assessed by an arboriculturist prior to construction to inform on any potential remedial works that may be required to manage any structural or physiological defect(s) that increase the likelihood of full or partial failure of the tree or tree part within falling distance of the works. This forms part of a duty of care to both people and property laid down in the Occupiers Liability Acts 1957 and 1984, the Highways Act 1980 and Health and Safety at Work Act 1974. Veteran habitat features are often defects, meaning any potential works will be sympathetic, whilst being reasonable in order to manage the risk of harm to people or property.

A total of two individual veteran trees will be lost during construction of the Scheme. The wider mitigation/compensation strategy will involve replanting temporary cleared habitats, and additional habitat creation.

<sup>3</sup> For retained veteran trees, a buffer zone of at least 15 times larger than the diameter of the tree or 5m from the edge of its canopy, if that's greater, will be used where practicable.

<sup>4</sup> Pollution prevention guidelines (PPGs) with particular reference to PPG1 (general guide to the prevention of water pollution), PPG3 (use and design of oil separators in surface water drainage systems), PPG5 (works near or liable to affect watercourses) and PPG6 (working at construction and demolition sites). Pollution Prevention Guidelines (PPGs) are a series of documents developed by the Environment Agency for England and Wales, the Northern Ireland Environment Agency (NIEA) for Northern Ireland and the Scottish Environment Protection Agency (SEPA) for Scotland. Each PPG is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. The PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating. The PPGs are available from <http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environmentagency.gov.uk/business/topics/pollution/39083.aspx>

<sup>5</sup> The CIRIA documents are a series of publications developed by the Construction Industry Research and Information Association. Each document is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution.

A Landscape and Ecology Monitoring and Management Plan (LEMP) (Appendix 7.16 of the ES, application document TR010029/APP/6.3) will be implemented, pursuant to requirement 5 of the DCO (application document TR010029/APP/3.1) for the maintenance and appropriate management of newly created habitats (particularly new woodland and individual trees) to ensure their successful establishment. Monitoring will take the form of arboricultural/ecological surveys (as required) of newly planted trees (focussing on those planted with the aim of developing into veteran trees) and woodland to inform appropriate ongoing management practices. An Outline LEMP (Appendix 7.16) has been prepared for the Scheme.

Monitoring will be undertaken by walkover survey annually in the first two years after planting. Newly planted trees will be monitored annually throughout the maintenance period. After the initial two years, an ongoing schedule of monitoring of newly created habitats will be agreed with Highways England's Contractor.

The above measures regarding the protection of retained veteran trees and actions to be taken to limit the adverse impacts of construction and compensate for veteran tree loss are provided as environmental commitments in the REAC and the Outline CEMP.

For each veteran tree lost, eight trees of the same native species (extra heavy standard size) will be planted with space around them to develop into an open crown. As one veteran oak and one veteran ash are lost, sixteen trees will be planted. This will include eight oak and, as it is not recommended to plant ash due to ash dieback, eight hornbeam trees. Hornbeam has been selected to replace ash as there are older specimens of this species at the edge of Alder Wood, in nearby Ancient Woodland and it is currently not under threat of disease or damage from pests. The locations of the new trees to be planted will be determined during detailed design.

At least two retained trees within the DCO boundary and selected in consultation with an arboriculturist and ecologist will be 'veteranised' to promote dead wood habitat to benefit invertebrates and other specialist wildlife. The trees to be made subject to these works will be determined during detailed design and will be of broad leaf species as those lost and in an appropriate location to complement the existing veteran tree resource. Examples of veteranisation will include ring-bar king of main stem and/or major limbs to promote heartwood and sapwood decay, coronet cuts and/or deliberate snapping or shattering of limbs to enable ingress of water and subsequently fungal attack and felling of whole trees to be retained in situ to benefit species that prefer deadwood in direct contact with, and under the ground. This includes the SPI stag beetle. To enhance the stag beetle habitat further, at least two large trees that need to be felled will be made in to monoliths. These are large deadwood trunks implanted approximately 1/3 into the ground to provide standing deadwood both above and below the ground surface.

To further compensate for the loss of dead wood habitat for invertebrates, where other (non veteran) trees are felled, some will be retained on-site and repositioned into a range of optimal situations from damp shady situations to full sun to benefit the widest range of invertebrates possible from damp-loving fly species to sun-loving stem-nesting bees and wasps. These felled trees and limbs will be retained in as large a single unit as possible since large volume pieces of wood remain ecologically viable for a much longer timeframe than sectioned-up material. These trees will not be cut up into rings or sawn up and stacked into log piles.

As part of the need to provide long-term continuity of deadwood resources at the site, innovative techniques supplementary to those outlined above will be undertaken including the planting of a non-native species. It is known that species of tree of the Prunus family (cherries and plums), grow fast and start to die comparatively young and when old, provide a similar rot type to other, slower growing tree species such as oaks. Therefore, a series of

Prunus specimens will be planted at strategic woodland edge and open situations in order to provide a stepping stone of deadwood resources between those created through veteranisation and the retained mature specimens of oak and beech becoming old enough to start producing their own saproxylic features.

## 1.6. Consultation with stakeholders

A Discretionary Advice Service contract has been set up with Highways England and Natural England. The first issue of this Technical Note has been shared with Natural England to gain their feedback on the mitigation and compensation proposals regarding veteran trees. Compensation measures were updated following this consultation.

The Forestry Commission provided a response to the supplementary consultation in December 2019 and they will be consulted on the information above to gain their feedback.

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