

Lower Thames Crossing
6.3 Environmental Statement
Appendices
Appendix 4.1 - The Inspectorate's
Scoping Opinion and National
Highways Response

APFP Regulation 5(2)(a)

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

Volume 6

DATE: October 2022

Planning Inspectorate Scheme Ref: TR010032
Application Document Ref: TR010032/APP/6.3

VERSION: 1.0

Lower Thames Crossing

6.3 Environmental Statement Appendices Appendix 4.1 – The Inspectorate’s Scoping Opinion and National Highways Response

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1 The Inspectorate’s Scoping Opinion and National Highways responses

1.1 Introduction

- 1.1.1 This appendix provides a comment-by-comment copy of the Planning Inspectorate’s Scoping Opinion (13 December 2017). A response is provided against each comment to explain how the comment has been addressed in the Environmental Statement (ES).
- 1.1.2 Given that the nature of the proposals remains the same as at the EIA scoping stage, the Scoping Opinion remains current and robust. Whilst the Applicant acknowledges that the site area has increased since the EIA scoping stage, the majority of this increase relates to the inclusion within the Order Limits of additional land for the purposes of mitigating the impacts of the proposals. All the included land has been assessed in the Environmental Statement (Application Document 6.1).
- 1.1.3 The scope and extent of the study area considered in the Scoping Report was sufficiently broad to accommodate the Order Limits as now presented. Where methodologies have been updated since the Scoping Opinion was sought, for example due to changes in guidance or legislation, the most recent methodology has been implemented. More information on how the project has responded to the Scoping Opinion is set out in each of the topic specific Chapters of the Environmental Statement (Application Document 6.1)

1.2 Responses to Planning Inspectorate comments

2 The Inspectorate’s Scoping Opinion

- 2.1.1 Table 2.1 (pages 2 and 3 of this appendix) sets out the general context and background to the Scoping Opinion as provided by the Planning Inspectorate, to which no specific responses are needed. Table 3.2 (pages 4 to 58 of this appendix) then provides National Highways responses to comments made under each topic area.

2.2 Responses to Prescribed Consultee comments

- 2.2.1 Table 4.1 to Table 33.1 (page 65 onwards) provide National Highways responses to each comment made by the prescribed consultees.
- 2.2.2 A Statement of Common Ground has been prepared with the majority of these consultees, recording details of matters which have been agreed, not agreed, or remain under discussion at the time of DCO submission. This includes details related to matters of Scoping which are relevant to this appendix. The Statements of Common Ground form Application Document 5.4.

3 The Inspectorate’s Scoping Opinion

Table 2.1 The Inspectorate’s Scoping Opinion – Introduction and Background

Para/ID	The Inspectorate’s comments
Introduction - Background	
1.1.1	On 02 November 2017, the Planning Inspectorate (the Inspectorate) on behalf of the Secretary of State (SoS) received a scoping request from National Highways (the Applicant) under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) for the proposed Lower Thames Crossing (the Proposed Development).
1.1.2	In accordance with Regulation 10 of the EIA Regulations, an Applicant may ask the SoS to state in writing its opinion ‘ <i>as to the scope, and level of detail, of the information to be provided in the environmental statement</i> ’.
1.1.3	This document is the Scoping Opinion (the Opinion) provided by the Inspectorate on behalf of the SoS in respect of the Proposed Development. It is made on the basis of the information provided in the Applicant’s report entitled ‘Lower Thames Crossing Environmental Impact Assessment –Scoping Report’ (the Scoping Report). This Opinion can only reflect the proposals as currently described by the Applicant. The Scoping Opinion should be read in conjunction with the Applicant’s Scoping Report.
1.1.4	At the same time as submitting the request for a Scoping Opinion the Applicant also notified the SoS under Regulation 8(1)(b) of the EIA Regulations that they propose to provide an Environmental Statement (ES) in respect of the Proposed Development. Therefore, in accordance with Regulation 6(2)(a) of the EIA Regulations, the Proposed Development is determined to be EIA development.
1.1.5	Regulation 10(9) of the EIA Regulations requires that before adopting a scoping opinion the Inspectorate must take into account: <ul style="list-style-type: none"> • any information provided about the proposed development; • the specific characteristics of the development; • the likely significant effects of the development on the environment; and • in the case of a subsequent application, the environmental statement submitted with the original application.
1.1.6	This Opinion has taken into account the requirements of the EIA Regulations as well as current best practice towards preparation of an ES.

Para/ID	The Inspectorate’s comments
1.1.7	The Inspectorate has consulted on the Applicant’s Scoping Report and the responses received from the consultation bodies have been taken into account in adopting this Opinion (see Appendix 2).
1.1.8	The points addressed by the Applicant in the Scoping Report have been carefully considered and use has been made of professional judgement and experience in order to adopt this Opinion. It should be noted that when it comes to consider the ES, the Inspectorate will take account of relevant legislation and guidelines. The Inspectorate will not be precluded from requiring additional information if it is considered necessary in connection with the ES submitted with the application for a Development Consent Order (DCO).
1.1.9	This Opinion should not be construed as implying that the Inspectorate agrees with the information or comments provided by the Applicant in their request for an opinion from the Inspectorate. In particular, comments from the Inspectorate in this Opinion are without prejudice to any later decisions taken (e.g. on submission of the application) that any development identified by the Applicant is necessarily to be treated as part of a Nationally Significant Infrastructure Project (NSIP) or associated development or development that does not require development consent
1.1.10	Regulation 10(3) of the EIA Regulations states that a request for a scoping opinion must include: <ul style="list-style-type: none"> • a plan sufficient to identify the land; • a description of the proposed development, including its location and technical capacity; • an explanation of the likely significant effects of the development on the environment; and • such other information or representations as the person making the request may wish to provide or make.
1.1.11	The Inspectorate considers that this has been provided in the Applicant’s Scoping Report. The Inspectorate is satisfied that the Scoping Report encompasses the relevant aspects identified in the EIA Regulations.
1.1.12	In accordance with Regulation 14(3)(a) where a scoping opinion has been issued in accordance with Regulation 10, an ES accompanying an application for an order granting development consent should be based on “ <i>the most recent scoping opinion adopted (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion)</i> ”.
1.1.13	The Inspectorate notes the potential need to carry out an assessment under The Conservation of Habitats and Species Regulations 2017. As stated in paragraph 5.12.5 of the Scoping Report this document must be co-ordinated with the EIA, to avoid duplication of information between assessments. From the information in the Scoping Report it does not appear that the Conservation of Offshore Marine Habitats and Species Regulations 2017 will be triggered.

Table 3.2 The Inspectorate’s Scoping Opinion – comments and National Highways responses

Para/topic	The Inspectorate’s comments	National Highways response
The Planning Inspectorate’s Consultation		
1.2.1	In accordance with Regulation 10(6) of the EIA Regulations the Inspectorate has consulted the consultation bodies before adopting a scoping opinion. A list of the consultation bodies formally consulted by the Inspectorate is provided at Appendix 1. The consultation bodies have been notified under Regulation 11(1)(a) of the duty imposed on them by Regulation 11(3) of the EIA Regulations to make information available to the Applicant relevant to the preparation of the ES. The Applicant should note that whilst the list can inform their consultation, it should not be relied upon for that purpose	National Highways response to comments raised by prescribed consultees are presented in Table 4.1 to Table 33.11 of this appendix.
1.2.2	The list of respondents who replied within the statutory timeframe and whose comments have been taken into account in the preparation of this Opinion is provided, along with copies of their comments, at Appendix 2, to which the Applicant should refer in undertaking the EIA.	Noted the comments from respondents have been considered in the preparation of this Environmental Statement.
1.2.3	The ES submitted by the Applicant should demonstrate consideration of the points raised by the consultation bodies. It is recommended that a table is provided in the ES summarising the scoping responses from the consultation bodies and how they are, or are not, addressed in the ES.	This appendix provides a tabulated response to all scoping responses including consideration of points raised by the consultation bodies. In addition, each ES chapter (Application Document 6.1) includes a consultation section which summarises additional engagement with consultees through emails and meetings.
1.2.4	Any consultation responses received after the statutory deadline for receipt of comments will not be taken into account within this Opinion. Late responses will be forwarded to the Applicant and will be made available on the Inspectorate’s website. The Applicant should also give due	The only consultee to provide a late response was the London Borough of Bexley which stated it had no comments to make on the scope of the ES.

Para/topic	The Inspectorate’s comments	National Highways response
	consideration to those comments in carrying out the EIA.	
Article 50 of the Treaty on European Union		
1.3.1	On 23 June 2016, the United Kingdom (UK) held a referendum and voted to leave the European Union (EU). On 29 March 2017 the Prime Minister triggered Article 50 of the Treaty on European Union, which commenced a two-year period of negotiations regarding the UK’s exit from the EU. There is no immediate change to legislation or policy affecting national infrastructure. Relevant EU Directives have been transposed into UK law and those are unchanged until amended by Parliament.	Noted.
The Proposed Development - Introduction		
2.1.1	The following is a summary of the information on the Proposed Development and its site and surroundings prepared by the Applicant and included in their Scoping Report. The information has not been verified and it has been assumed that the information provided reflects the existing knowledge of the Proposed Development and the potential receptors/resources.	Noted.
The Proposed Development - Description of the Proposed Development		
2.2.1	The Applicant’s description of the Proposed Development, its location and technical capacity (where relevant) is provided in Scoping Report Chapters 1 and in more detail within Chapter 2.	No response required.
2.2.2	The Proposed Development is to construct a new connecting road system within the counties of Kent and Essex. The new road system includes a new crossing of the River Thames to the east of London and the existing Dartford Crossing and Queen Elizabeth II Bridge. The Proposed Development will connect the A2 east of Gravesend to the M25 in Essex.	No response required.

Para/topic	The Inspectorate’s comments	National Highways response
2.2.3	<p>The Proposed Development is being designed as a high-speed route approximately 31km long with grade separated junctions and a speed limit of 120km/h or 70mph. Between the A2 and the A13 the Proposed Development will be a dual three lane carriageway. The section north of the A13 will be a dual two-lane carriageway connecting to the M25. The route includes a 3.5km crossing under the River Thames by means of two bored tunnels. From the A2 the route extends north towards the A226 which it crosses, before reaching the proposed tunnel south portal location near the settlement of Chalk. The proposed tunnel underneath the Thames has a north portal proposed approximately 1km south of West Tilbury. The route is aligned between West and East Tilbury, passing to the north of Chadwell St Mary to the A13 around Orsett where a new junction is proposed. From Orsett the route will join the M25 south of Junction 29 and west of North Ockendon. The final section of the Proposed Development ends east of Upminster, north of Junction 29 of the M25. A new junction near East Tilbury and section of road towards Tilbury Port will also be constructed. The indicative route alignment is explained in Chapter 1 of the Scoping Report.</p>	<p>No response required. It should be noted that the junction near East Tilbury and section of road towards Tilbury Port is no longer part of the Project’s design. Full details of the Project are included in the Project description (chapter 2) of the Environmental Statement.</p>
2.2.4	<p>Indicative plans depicting the extent of the Proposed Development have been provided in the Scoping Report. New junctions are proposed at the following locations; on the A2; near East Tilbury; at Tilbury Port; at the A13, and the M25. A number of bridges and other structures would be constructed as part of the Proposed Development, as well as a drainage scheme involving a number of engineered features. Lighting and technology installation, including signage, would also form part of the Proposed Development.</p>	
2.2.5	<p>The area in which the Proposed Development is situated is comprised of a combination of expanses of agricultural land,</p>	<p>No response required.</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<p>grasslands, floodplain, woodland, existing infrastructure and buildings, and leisure and recreational facilities (golf courses and a shooting range). The Proposed Development is also partly within an Area of Outstanding Natural Beauty (AONB) and a Site of Special Scientific Interest (SSSI) at its southern extent. There are also areas of ancient woodland, local nature reserves, and conservation areas within and around the proposed DCO boundary. On the southern side of the Thames the proposed tunnel is situated under land designated as a Ramsar site and associated SSSI, land identified by the Applicant as potential functional habitat related to this designation and the adjacent Special Protection Area (SPA), and land designated as a Local Wildlife Site.</p>	
2.3.6	<p>The ES should describe the approach to construction including the anticipated phasing of works, demolition requirements, likely number of construction workers, the size scale and location of compounds, the approach to material/waste handling in particular tunnel excavation spoil, and traffic management measures.</p>	<p>ES Chapter 2: Project Description (Application Document 6.1) provides construction information and is supported by more detailed construction information in ES Appendix 2.1: Construction Supporting Information. These documents provide the construction information requested by the Planning Inspectorate.</p>
2.3.7	<p>The Scoping Report states in Paragraph 5.8.5 that decommissioning of the Proposed Development is not envisaged so will not be included in the EIA. The Inspectorate considers that this is a reasonable approach taking into account the information in the Scoping Report and the specific characteristics of the Proposed Development as a whole. However, the Inspectorate considers that any decommissioning associated with dismantling and replacing particular elements of the Proposed Development once they reach the end of their design life, for example the potential proposed jetty or rail sidings, should be assessed where significant effects are likely to occur</p>	<p>As detailed in ES Chapter 2 Project Description (Application Document 6.1.), it is highly unlikely that the Project would be decommissioned before the end of its 120-year design life, as the Project road would have become an integral part of the Strategic Road Network (SRN). However, if the Project needed to be decommissioned, this would conform to the statutory process at that time and EIA or similar assessment undertaken in line with regulatory requirements. No jetty or rail sidings are included as part of the application.</p>

Para/topic	The Inspectorate’s comments	National Highways response
2.3.8	<p>The ES should include a description of the nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) to be used during construction. The ES should describe and assess the likely significant effects associated with any particular technologies or substances proposed to be used for the construction phase. The Inspectorate considers that this should include energy usage where significant effects are likely to occur.</p>	<p>Information on the nature and quantity of materials and natural resources required for construction are described within ES Chapter 11: Material Assets and Waste (Application Document 6.1). The likely significant impacts of material usage are also assessed as part of that chapter. The nature and quantity of natural resources (water, land, soil and biodiversity) can be found in:</p> <ul style="list-style-type: none"> • ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • ES Chapter 10: Geology and Soils (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) <p>Any technologies proposed are described in the project description and assessed within the relevant technical chapters.</p>
2.3.9	<p>The Inspectorate notes that there are a number of existing utility assets in the area which may be affected by the Proposed Development. A number of responses have been provided by consultees (Appendix 2) in this regard including from; Anglian Water, Cadent Gas Ltd, the Health and Safety Executive (HSE) (in terms of major accident hazards), and National Grid. Royal Mail Group Ltd also indicate that the Proposed Development may affect their operations in the wider area particularly during construction. The ES should explain the anticipated impacts to existing assets from the Proposed Development and assess any associated significant environmental effects.</p>	<p>ES Chapter 2: Project Description (Application Document 6.1) contains a section on services and utility diversions that would be required as part of the Project. Details of agreements with stakeholders in relation to their concerns can be found in the Statements of Common Ground (application document 5.4), including with Royal Mail Group Ltd.</p> <p>The potential effects of these works have been assessed within each topic chapter of the ES (Application Document 6.1) as part of the assessment of impacts associated with the construction phase.</p>
Alternatives		

Para/topic	The Inspectorate’s comments	National Highways response
2.3.10	The EIA Regulations require that the Applicant provide ‘A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects’.	ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) outlines the reasonable alternatives that have been considered during the development of the Project. This includes Department for Transport (DfT) studies in 2009 and 2013, an overview of options identified and the selection process in 2014. ES Chapter 3 also provides information on why options were discounted and why the chosen option was taken forward and a comparison of the environmental effects.
2.3.11	The Inspectorate would expect to see a discrete section in the ES that provides details of the alternatives considered and the reasoning for the selection of the chosen option(s), including a comparison of the environmental effects.	
2.3.12	Chapter 3 of the Scoping Report provides a description of the alternatives considered before deciding in favour of the Proposed Development. The Route Options considered and the selection process (including reasons that support the chosen alignment) are set out and this includes consideration of environmental effects. Specific alternatives in regard to different technologies and materials used are not included, due to the fact these aspects are yet to be finalised.	Table 3.1 of ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) details information against each type of alternative (e.g. technology, design, size and scale, demand, activity, location, delivery, scheduling, input and mitigation) and highlights how this is covered in the ES and a reference to the relevant section of ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).
Flexibility		
2.3.13	The Inspectorate notes the intention to present the project design in the ES in line with the principles set out in the Inspectorate’s Advice Note 9 ‘Using the ‘Rochdale Envelope’1.	The parameters used as part of the Rochdale Envelope are clearly defined in ES Chapter 2: Project Description (Application Document 6.1).
2.3.14	The Proposed Development parameters will need to be consistently and clearly defined in both the draft DCO (dDCO) and in the accompanying ES. At the time of application, any Proposed Development parameters should not be so wide-ranging as to effectively represent different developments. It is a matter for the Applicant, in preparing an	

Para/topic	The Inspectorate’s comments	National Highways response
	ES, to consider whether it is possible to robustly assess a range of impacts resulting from a large number of undecided parameters. The description of the Proposed Development in the ES must not be so wide that it is insufficiently certain to comply with the requirements of Regulation 14 of the EIA Regulations.	
2.3.15	It should be noted that if the Proposed Development changes substantially during the EIA process and prior to submission of the application the Applicant may wish to consider requesting a new scoping opinion.	There have been no substantial changes to the Project between the issue of the Scoping Opinion and the submission of the DCO application that would warrant a new Scoping Opinion.
EIA Approach		
3.1 Introduction		
3.1.1	This section contains the Inspectorate’s specific comments on the scope, and level of detail of information to be provided in the Applicant’s ES. General advice on the presentation of an ES is provided in the Inspectorate’s Advice Note 7 ‘Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping’ ² and associated appendices.	Noted.
3.1.2	Aspects/matters are not scoped out unless specifically addressed and justified by the Applicant and confirmed as being scoped out by the Inspectorate. The ES should be based on the Scoping Opinion in so far as the Proposed Development remains materially the same as the Proposed Development described in the Applicant’s Scoping Report. The Inspectorate has set out in this Opinion where it has/has not agreed to scope out certain aspects or matters on the basis of the information available at this time. The Inspectorate is content that this should not prevent the Applicant from subsequently agreeing with the relevant consultees to scope such aspects/matters out of the ES,	Each topic chapter of the ES includes a section on the scope of the assessment and compliance with the Scoping Opinion. This section provides detail on any items scoped out and justification for doing so, including any reference to agreements with relevant consultees. It is also stated if no items have been scoped out.

Para/topic	The Inspectorate’s comments	National Highways response
	<p>where further evidence has been provided to justify this approach. However, in order to demonstrate that the aspects/matters have been appropriately addressed, the ES should explain the reasoning for scoping them out and justify the approach taken.</p>	
3.1.3	<p>Where relevant, the ES should provide reference to how the delivery of measures proposed to prevent/minimise adverse effects is secured through DCO requirements (or other suitably robust methods) and whether relevant consultees agree on the adequacy of the measures proposed.</p>	<p>The Project as submitted in the DCO application includes a range of environmental commitments. Each technical ES chapter includes relevant commitments as embedded and essential mitigation and good practice approaches and actions. Embedded mitigation is also included in the Design Principles (Application Document 7.5). Good practice and essential mitigation can be found in the Register of Environmental Actions and Commitments (REAC) within ES Appendix 2.2: Code and Construction Practice (CoCP). ES Appendix 2.2: CoCP would be controlled via a Requirement in the DCO (Requirement 2) if the application is granted. An overview of the proposed environmental mitigation can be found on the Environmental Masterplan (Figure 2.4, Application Document 6.2).</p> <p>Environmental impacts and mitigation workshops were held with local authorities and Statutory Environmental Bodies to report on potential significant effects and emerging mitigation proposals. These workshops provided consultees with an opportunity to comment and provide input. Meetings on mitigation proposals were held with specific consultees where required and requested.</p>
3.2 Relevant National Policy Statements (NPSs)		
3.2.1	Sector-specific NPSs are produced by the relevant	The National Policy Statement for National Networks

Para/topic	The Inspectorate’s comments	National Highways response
	Government Departments and set out national policy for NSIPs. They provide the framework within which the Examining Authority (ExA) will make their recommendations to the SoS and include the Government’s objectives for the development of NSIPs. The NPSs may include environmental requirements for NSIPs, which Applicant’s should address within their ES as relevant.	(NPSNN) sets out the Government’s policies to deliver the development of NSIPs on the national road and rail networks in England. There are some additional National Policy Statements which are also relevant to the Project. The overarching National Policy Statement for Energy (EN-1) sets out the Government’s policies to deliver the development of major energy infrastructure. NPS EN-4 contains policy relevant to Gas Supply Infrastructure and Gas and Oil Pipelines and NPS EN-5 contains policy relevant to Electricity Networks Infrastructure.
3.2.2	The designated NPS relevant to the highways sector is the National Policy Statement for National Networks (NPSNN).	Evidence of compliance against specific planning policies and guidance at a national and local level, including the NPSNN, has been demonstrated in each topic chapter of the ES (Application Document 6.1), which includes a table listing each relevant policy and the Project response. Evidence of compliance against NPS EN-1, EN-4 and EN-5 has been demonstrated in the Planning Statement (Application Document 7.2).
3.3 Scope of Assessment		
3.3.1	The Inspectorate recommends that in order to assist the decision-making process, the Applicant uses tables: <ul style="list-style-type: none"> • To demonstrate how the assessment has taken account of this Opinion; 	This appendix provides tables to demonstrate how the assessment has taken account of the Scoping Opinion.
	<ul style="list-style-type: none"> • To identify and collate the residual effects after mitigation for each of the aspect chapters, including the relevant interrelationships and cumulative effects; 	<p>The summary section of each ES topic chapter provides a table to summarise the residual effects.</p> <p>Each ES topic chapter reports the cumulative impact of the Project in terms of interrelationships between different environmental topics.</p> <p>ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) includes an assessment of</p>

Para/topic	The Inspectorate’s comments	National Highways response
		<p>the inter-project effects. These effects can occur due to the Project in combination with other existing and/or approved development.</p>
	<ul style="list-style-type: none"> To set out the proposed mitigation and/or monitoring measures including cross-reference to the means of securing such measures (e.g. a DCO requirement); 	<p>A Project design and mitigation section is included in each ES topic chapter, detailing the embedded, essential and good practice mitigation associated with that topic. It is stated if there is none. It is also stated where these are secured in the DCO. A section is also included on any monitoring requirements.</p> <p>Within the CoCP (ES Appendix 2.2, Application Document 6.1) is the Register of Environmental Actions and Commitments (REAC) which provides a table of the essential and good practice mitigation and monitoring proposed. This is appended to the ES for the DCO application submission and will be secured via Requirement 4 in the draft DCO.</p>
	<ul style="list-style-type: none"> To describe any remedial measures that are identified as being necessary following monitoring; and 	<p>No remedial measures are identified as being necessary in ES topic chapters.</p> <p>However, ES Chapter 10: Geology and Soils (Application Document 6.1) has considered the impact on receptors from contamination and includes an Outline Remediation Strategy (ES Appendix 10.11, Application Document 6.3). The Contractors would develop proposals for site-specific remediation in consultation with the Environment Agency (EA) and the relevant local authority prior to implementation. The Contractors would have regard for the Outline Remediation Strategy (ES Appendix 10.11, Application Document 6.3) which identifies techniques that could be implemented by the Contractors for the remediation of contamination.</p> <p>ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) refers to the</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<ul style="list-style-type: none"> To identify where details in the HRA report (where relevant), such as descriptions of European sites and their locations, together with any mitigation or compensation measures, are to be found in the ES. 	<p>potential for remedial action, if any impacts were identified during monitoring of existing flood defences. ES Chapter 15: Climate (Application Document 6.1) refers to remediating greenhouse gas (GHG) emissions in line with the Design Manual for Roads and Bridges (DMRB) LA 114 Standard, though only after avoidance and/or prevention and reduction of GHG emissions.</p> <p>The Habitats Regulations Assessment (HRA) (Application Document 6.5) makes cross-references to the relevant sections of the ES, including to descriptions of European sites and their locations, and mitigation or compensation measures.</p>
3.3.2	<p>The ES should include details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.</p> <p>The Inspectorate considers that where a DCO application includes works described as ‘associated development’, that could themselves be defined as an improvement of a highway, the Applicant should ensure that the ES accompanying that application distinguishes between; effects that primarily derive from the integral works which form the proposed (or part of the proposed) NSIP and those that primarily derive from the works described as associated development, for example through a suitably compiled summary table. This will have the benefit of giving greater confidence to the Inspectorate that what is proposed is not in fact an additional NSIP defined in accordance with s22 of the PA2008.</p>	<p>Each ES topic chapter includes a section setting out ‘assumptions and limitations’, which includes any encountered limitations or difficulties experienced during the assessment, particularly in reference to the collection of data to establish the baseline.</p> <p>The Project does not comprise any improvement works to a highway which would be an improvement NSIP in their own right. This is on the basis that under section 22 of the Planning Act 2008 an NSIP must fall within one of the three categories specified and which are stated to be alternatives. The Project is a “construction” NSIP for the purposes of section 22(1)(a) – further explanation is provided in the Explanatory Memorandum (Application Document 3.2).</p> <p>Where the diversion of utilities could and do constitute a NSIP in accordance with the PA2008 the specific effects are referred to in the Environmental Statement (Application Document 6.1).</p>
3.3.4	The Inspectorate notes that it is proposed in paragraph 5.5.4	Due to the release of the new DMRB standard LA 112

Para/topic	The Inspectorate’s comments	National Highways response
	<p>to consider effects on human health in the People and Communities chapter, to be informed by other chapters including the Air Quality and Noise and Vibration chapters. The Inspectorate has had regard to the information provided in the Scoping Report and has taken into account the nature and characteristics of the Proposed Development and is generally content with this approach. However, the Inspectorate considers that human health effects may also be relevant to soil handling and waste management, which is understood to be assessed within the ‘Geology and Soils’ and the ‘Materials’ chapters respectively, and to the Road Drainage and Water Environment chapter. Public Health England (PHE) have also provided comment in their scoping consultation response, contained in Appendix 2 of this Opinion, on the approach to assessing effects on human health.</p>	<p>Population and Human Health, the People and Communities chapter has been renamed as Population and Human Health to reflect the change.</p> <p>A Health and Equalities Impact Assessment (HEqIA) (Application Document 7.10) has been undertaken and is summarised in ES Chapter 13: Population and Human Health (Application Document 6.1). ES Chapter 13 has also been informed by the following ES chapters in relation to changes in amenity and quality of life for local residents and businesses:</p> <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document 6.1) • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) <p>ES Chapter 10: Geology and Soils (Application Document 6.1) describes the potential effects of the Project as they relate to agricultural land (for example Best and Most Versatile (BMV) land) and human health risks associated with chemical pollutants in ground and groundwater.</p>
3.3.5	<p>While the structure of the ES remains for the Applicant to decide, the information that would be expected to appear in a Transport chapter must be provided in the ES. The ES must demonstrate where the information gathered as part of the traffic assessment has been applied to other assessments within the ES. The absence of a Transport chapter, supported by a Transport Assessment, has been noted by Essex County Council (ECC), the London Borough of Havering (LBH), and Thurrock Council (TC). The Inspectorate considers that these concerns should be</p>	<p>A separate ES Transport Assessment chapter has not been produced. The typical assessments that would be included within an ES Transport Assessment chapter are provided within the following documents:</p> <ul style="list-style-type: none"> • Appendix B: Transport Model Package and Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7) • Transport Assessment (Application Document 7.9)

Para/topic	The Inspectorate’s comments	National Highways response
	addressed.	<ul style="list-style-type: none"> ES Chapter 13: Population and Human Health (Application Document 6.1) <p>In support of this approach, an explanation for this and the locations of the relevant information within the Application Documents is provided within ES Appendix 4.4: Transport Assessment.</p> <p>This approach has been shared with local authority stakeholders.</p>
3.3.6	<p>The Inspectorate has received particularly detailed consultation responses from the Environment Agency (EA), Historic England (HiE), Natural England (NE), the PLA, and several local planning authorities regarding the Applicant’s proposed scope to the assessment. The Inspectorate’s comments in Section 4 of this Opinion identify those matters deemed to be of particular relevance to the scope of each assessment and where necessary these comments incorporate advice provided by consultees. However, as stated in paragraph 1.2.3 above the ES submitted by the Applicant should demonstrate consideration of the points raised by the consultation bodies.</p>	<p>A summary of the Applicant’s response to all Scoping Report consultation comments are provided in the respective tables of this appendix.</p>
Baseline Scenario		
3.3.7	<p>The ES should include a description of the baseline scenario with and without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.</p>	<p>Each ES topic chapter includes a description of the baseline and future baseline scenario with and without the Project, based on available environmental information and scientific knowledge.</p>
3.3.8	<p>The Inspectorate notes the information in Section 5.8 which sets out the assessment scenarios in this regard and advises that it is content with this approach to be carried forward into the ES.</p>	<p>This approach has been carried forward into the ES, albeit that the construction start and opening years have changed.</p>

Para/topic	The Inspectorate’s comments	National Highways response
Forecasting methods or evidence		
3.3.9	The ES should contain the timescales upon which the surveys which underpin the technical assessments have been based. For clarity, this information should be provided either in the introductory chapters of the ES (with confirmation that these timescales apply to all chapters), or in each aspect chapter.	Each ES topic chapter includes information on any surveys completed to establish the baseline environmental conditions (including survey dates).
3.3.10	The Inspectorate expects the ES to include a chapter setting out the overarching methodology for the EIA, which clearly states which effects are 'significant' and 'non-significant' for the purposes of the EIA. Any departure from that methodology should be described in individual aspect assessment chapters.	ES Chapter 4: EIA Methodology (Application Document 6.1) provides the overarching approach for the EIA and indicates the level of impact that would be considered significant for the purposes of EIA. Each ES topic chapter then includes a more detailed method of assessment for construction and operation.
3.3.11	The ES should include details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Each ES topic chapter includes a section which sets out ‘assumptions and limitations’, which includes any encountered limitations or difficulties experienced during the assessment, particularly in reference to the collection of data to establishing the baseline.
3.3.12	The traffic modelling applied to the assessment is likely to have implications for the design of the Proposed Development, and subsequently the basis for the assessments in the ES. The Applicant should seek to agree the approach to the traffic modelling with the relevant statutory consultees. Transport for London (TfL) have provided specific comments on the approach and methodology applied to the traffic model and the scope of the assessment of traffic effects. The Applicant should ensure that the scope and methodology are fully explained in the ES.	<p>A separate ES Transport Assessment chapter has not been produced. The typical assessments that would be included within an ES Transport Assessment chapter are provided within the following documents:</p> <ul style="list-style-type: none"> • Appendix B: Transport Model Package and Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7) • Transport Assessment (Application Document 7.9) • ES Chapter 13: Population and Human Health (Application Document 6.1) <p>In support of this approach, an explanation for this and</p>

Para/topic	The Inspectorate’s comments	National Highways response
		<p>the locations of the relevant information within the Application Documents is provided within ES Appendix 4.4: Transport Assessment.</p> <p>The Project’s transport model has been run a number of times and has helped inform the design of the Project.</p> <p>A detailed response to TfL’s comments are provided in Section 45 of this document.</p>
Residues and emissions		
3.3.13	<p>The EIA Regulations require an estimate, by type and quantity, of expected residues and emissions. Specific reference should be made to water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases, where relevant. This information should be provided in a clear and consistent fashion and may be integrated into relevant aspect assessments.</p>	<p>The following type and quantities of expected residues and emissions are included in the following chapters:</p> <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document 6.1) • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 10: Geology and Soils (Application Document 6.1) • ES Chapter 11: Material Assets and Waste (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). <p>Heat and radiation have been scoped out of the assessment as agreed by PINs.</p>
3.3.14	<p>Paragraph 5.5.3 of the Scoping Report states that an assessment of heat and radiation has been scoped out of the EIA, as it is considered not to be relevant to the Proposed Development. The Inspectorate has taken into account the nature and characteristics of the Proposed Development and</p>	<p>No response required.</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<p>agrees significant effects resulting from heat and radiation are unlikely to arise and therefore agrees that this aspect may be scoped out.</p>	
Mitigation		
<p>3.3.15</p>	<p>Any mitigation relied upon for the purposes of the assessment should be explained in detail within the ES. The likely efficacy of the mitigation proposed should be explained with reference to residual effects. The ES should also address how any mitigation proposed is secured ideally with reference to specific DCO requirements or other legally binding agreements.</p>	<p>The Project as submitted in the DCO application includes a range of environmental commitments. Each ES topic chapter includes relevant commitments as embedded, essential and good practice mitigation and takes these into account in the determination of residual effects.</p> <p>ES Chapter 2: Project Description (Application Document 6.1) confirms that embedded mitigation is included in the Design Principles (Application Document 7.5), and that essential mitigation and good practice is in REAC which is part of the CoCP (ES Appendix 2.2) which would be controlled via a Requirement in the DCO (Requirement 2) if the application is granted. The Environmental Master Plan (Figure 2.4, Application Document 6.2) provides a plan view of the environmental mitigation for the Project.</p>

Para/topic	The Inspectorate’s comments	National Highways response
Vulnerability of the development to risks of major accidents and/or disasters		
3.3.16	<p>The ES should include a description of the potential vulnerability of the Proposed Development to risks of major accidents and/or disasters, including the vulnerability to climate change, which are relevant to the Proposed Development. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.</p>	<p>A summary of the methodology for the assessment of major accidents and/or disasters is provided in ES Chapter 4: EIA Methodology (Application Document 6.1).</p> <p>All major accidents and/or disasters are either considered within the topic chapters (where there is a potential related environmental effect), or the design and mitigation measures of the Project are such that no significant risk of adverse effects is predicted. The full findings of the assessment are provided in:</p> <ul style="list-style-type: none"> • ES Appendix 4.2: Major Accidents and Disasters Long List • ES Appendix 4.3: Major Accidents and Disasters Short List
3.3.17	<p>The Inspectorate notes from Chapter 17 that it is not proposed to provide a separate chapter in the ES on major accidents and disasters, but that the requirements of the 2017 EIA Regulations will be reflected. Paragraph 5.5.3 states that the potential effects on receptors resulting from major events will be reported in relevant chapters. It is noted that there is also a commitment to assess the vulnerability of the Proposed Development to major accidents and disasters. The ES should also assess major accidents and disasters that may occur as a consequence of the Proposed Development.</p>	
Transboundary effects		

Para/topic	The Inspectorate’s comments	National Highways response
3.3.18	Schedule 4 part 5 of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in an ES. The Inspectorate notes that the Applicant has indicated in Chapter 18 of the Scoping Report by way of a Transboundary Effects Screening Matrix that the Proposed Development at the current design stage is not likely to have significant impacts on another European Economic Area (EEA) State.	It is considered that no transboundary effects could arise from the construction and operation of the Project, and therefore this is not considered further in the ES. Full justification is provided in Section 4.8 of ES Chapter 4: EIA Methodology (Application Document 6.1). Schedule 4, Part 5 of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in the ES. The Project lies within the counties of Essex and Kent and the Thurrock unitary authority area. The nearest European Economic Area (EEA) state is France, approximately 110km away across the English Channel. Given this separation, it is considered that no transboundary effects could arise from the construction and operation of the Project, and this is therefore not considered further in this ES. This is consistent with the Scoping Opinion on transboundary impacts. Transboundary screening was also undertaken by the Planning Inspectorate in April 2018 (Planning Inspectorate, 2018b) which concluded that the Project is not likely to have significant effects on the environment in another EEA state.
3.3.19	Regulation 32 of the EIA Regulations inter alia requires the Inspectorate to publicise a DCO application on behalf of the SoS if it is of the view that the proposal is likely to have significant effects on the environment of another EEA state, and where relevant, to consult with the EEA state affected.	
3.3.20	The Inspectorate considers that where Regulation 32 applies, this is likely to have implications for the examination of a DCO application. The Inspectorate recommends that the ES should identify whether the Proposed Development has the potential for significant transboundary impacts and if so, what these are, and which EEA States would be affected.	
A reference list		
3.3.21	A reference list detailing the sources used for the descriptions and assessments must be included in the ES.	A full list of references is included at the end of each ES chapter.
3.4 Confidential Information		
3.4.1	In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to information about the presence and locations of rare or sensitive species such as badgers, rare birds and plants where disturbance, damage, persecution or commercial exploitation may result from publication of the information.	Confidential documents have been compiled separately and marked appropriately. A full list of these documents are provided in the Covering Letter to the application (Application Document 1.1).

Para/topic	The Inspectorate’s comments	National Highways response
	<p>Where documents are intended to remain confidential the Applicant should provide these as separate paper and electronic documents with their confidential nature clearly indicated in the title and watermarked as such on each page. The information should not be incorporated within other documents that are intended for publication or which the Inspectorate would be required to disclose under the Environmental Information Regulations 2014.</p>	
4. Aspect Based Scoping Tables		
4.1 Air Quality		
4.1 Air Quality	<p>The study area for the local air quality assessment is defined using the traffic change-based criteria defined in the Design Manual for Roads and Bridges (DMRB). Roads that meet the criteria are defined as ‘affected roads’, all of which together comprise the Affected Road Network (ARN). The study area will include sensitive receptors located within 200m of these roads.</p>	<p>The air quality assessment methodology has been updated from that outlined in the Scoping Report following the issue of DMRB LA 105 Air Quality (National Highways, 2019), which supersedes DMRB HA 207/07 Volume 11, Section 3, Part 1 (2007) and the four associated Interim Advice Notes. The assessment follows the requirements of LA 105 to ensure that the latest standard is followed to determine whether the Project complies with the NPSNN (and the NPSEN). LA 105 provides guidance to determine whether the Project results in a significant impact on air quality or affects the UKs ability to comply with the Air Quality Directive. This would not result in a material change to outcomes of assessment. The study area for the assessment of construction dust includes a 200m buffer around any construction works. The study area for the assessment of construction road traffic and traffic management is shown in ES Figure 5.2: Construction Traffic Study Area (Application Document 6.2) and is focused on those areas within the combined-period ARN where there is a risk of Air Quality Strategy (AQS) objectives being exceeded. The study area for the operational phase</p>

Para/topic	The Inspectorate’s comments	National Highways response
		includes the major roads that form the ARN.
4.1 Air Quality	Potential effects on local air quality resulting from both the construction and operation of the Project would be assessed in accordance with the guidance outlined in DMRB HA207/07 Volume 11, Section 3, Part 1; associated Interim Advice Notes (IANs) and Defra’s Local Air Quality Management Technical Guidance (LAQM.TG (16)). As required by the DMRB, the air quality assessment will be based on the most likely traffic flows.	The air quality assessment methodology has been updated from that outlined in the Scoping Report following the issue of DMRB LA 105 Air Quality (National Highways, 2019), which supersedes DMRB HA 207/07 Volume 11, Section 3, Part 1 (2007) and the four associated Interim Advice Notes. The assessment follows the requirements of LA 105 to ensure that the latest standard is followed to determine whether the Project complies with the NPSNN. LA 105 provides guidance to determine whether the Project results in a significant impact on air quality or affects the UKs ability to comply with the Air Quality Directive. This would not result in a material change to outcomes of assessment
4.1 Air Quality	The air quality assessment considers the impacts on both Air Quality Strategy Objectives and EU Limit Values. The Applicant identifies that the proposed development has potential to give rise to air quality effects during construction and operation, including those on designated nature conservation sites in the locality.	No response required.
4.1 Air Quality	Specific mitigation measures are not set out within the scoping report. The Applicant should set out within the ES the proposed measures to minimise emissions from construction and operational activities.	Where appropriate, construction related mitigation is presented with ES Chapter 5: Air Quality (Application Document 6.1) and in ES Appendix 2.2: CoCP, which includes the Register of Environmental Actions and Commitments (REAC). Embedded mitigation is also described ES Chapter 5: Air Quality (Application Document 6.1) and in the Design Principles (Application Document 7.5). Environmental considerations including air quality have influenced the Project throughout the design development process, from early route options assessment through to refinement of the Project design.

Para/topic	The Inspectorate’s comments	National Highways response
		An iterative process has facilitated design updates and improvements through information provided by environmental assessment including potential air quality effects.
4.1 Air Quality	The Applicant is not specifically proposing to scope any matters out from the air quality assessment	No matters have been scoped out of the air quality assessment.
ID1 Air Quality – Assessment of effects	The scoping report states that PM2.5 is not currently assessed and reported as part of the DMRB HA207/07 air quality assessment. The Inspectorate considers that the ES should include an assessment of impacts associated with increased PM2.5 resulting from the Proposed Development. In determining significance, the assessment should take into account performance against relevant target/limit values. Gravesham Borough Council (GBC) and TC in their responses also highlight the need to consider PM2.5 in the assessment.	Operational impacts from PM _{2.5} are now considered within this assessment, in response to comments from the Planning Inspectorate, Gravesham Borough Council and Thurrock Council. Please refer to Section 5.6 of ES Chapter 5: Air Quality (Application Document 6.1).
ID2 Air Quality – Baseline Information	An NO2 diffusion tube monitoring survey is being undertaken for a 12-month period at locations representative of public exposure. The surveys should be in accordance with the most relevant Defra guidance relating to diffusion tube monitoring. The dates of these surveys, together with the locations and justification of why the locations were selected should be included within the ES. In their responses, GBC and Shorne Parish Council (SPC) make recommendations regarding air quality monitoring locations. In addition, TC state that they hold data from NO2 diffusion tube surveys. The Applicant should make effort to agree monitoring locations and the data used in the assessment with consultees.	<p>The latest monitoring data available was published in the Local Authority 2020 Air Quality Annual Status Reports produced for the Department for Environment, Food and Rural Affairs (Defra), which report annual mean data for 2019 and earlier.</p> <p>A Project specific survey has been undertaken to address gaps in air quality monitoring data within the vicinity of roads likely to be affected by the Project, which was conducted in line with Defra guidance and best practice. Full details of the monitoring method, locations and results are reported within ES Chapter 5: Air Quality (Application Document 6.1).</p> <p>All local authorities within the extent of the survey were consulted regarding the proposed monitoring locations. Recommendations for additional sites have been</p>

Para/topic	The Inspectorate’s comments	National Highways response
		<p>reviewed and implemented where considered necessary.</p> <p>The initial monitoring survey was conducted throughout 2018. Additional sites were surveyed in 2019, in response to an increased understanding of the air quality baseline conditions. Sites were added where there was a risk of an exceedance of the annual mean NO₂ AQS objective based on the modelling presented in the Preliminary Environmental Information Report (PEIR) and Project monitoring data.</p> <p>The locations of these monitoring sites are shown in ES Figure 5.4: Air Quality Monitoring Sites (Application Document 6.2) and in ES Appendix 5.2: Air Quality Baseline Conditions.</p> <p>A specific response to the Gravesham Borough Council and Shorne Parish Council recommendations are addressed in Table 1.8 and Section 42 of this document respectively.</p>
ID3 Air Quality – Baseline information	Monitoring is being undertaken close to ecological sites to inform the baseline and model verification to support the calculations of nitrogen deposition and NO _x concentrations for comparison against the appropriate air quality standards. Dates of monitoring together with the locations and justification of the monitoring locations should be included within the ES.	A Project-specific survey has been undertaken to address gaps in air quality monitoring data within the vicinity of the roads likely to be affected by the Project. NO ₂ diffusion tubes were installed in the study area, covering various periods from January 2018 to February 2020. The locations of these monitoring sites are shown on Figure 5.4: Air Quality Monitoring Sites (Application Document 6.2) and detailed in ES Appendix 5.2: Air Quality Baseline Conditions.
ID4 Air Quality – Effects on ecological receptors	The ES should clearly identify those designated sites which may be impacted by changes in air quality, identifying those sites where the critical loads may be exceeded. The Inspectorate considers that there is a need to assess whether significant effects could arise on other sensitive	An air quality assessment of the changes in critical load on sensitive ecological receptors (including European, national and local designated sites), as well as ancient woodland and veteran trees, has been undertaken. These are reported in ES Chapter 8: Terrestrial

Para/topic	The Inspectorate’s comments	National Highways response
	nature conservation sites. The sites to be assessed should be established through consultation with the relevant statutory consultees. NE provide advice in their response on the scope of the air quality assessment with respect to determining significant effects on designated nature conservation sites. They also recommend that the assessment should include potential air quality effects on other sensitive ecological receptors, for example ancient woodland.	Biodiversity and Chapter 5: Air Quality (Application Document 6.1). Consultation with Natural England has been ongoing throughout the Project. Meetings and engagement have been held to discuss which sites to include, the assessment methodology and the results.
ID5 Air Quality – Methodology	GBC have provided detailed comments and advice regarding the methodology and approach to the Air Quality assessment, including reference to guidance used for analysis. The Inspectorate considers that this advice should be taken into account in the ES, where appropriate.	Gravesham Borough Council comments and advice has been taken on board in the ES, where appropriate. Please refer to Table 9.1 to find responses to Gravesham Borough Council’s comments on the Scoping Report.
ID6 Air Quality – Mitigation of construction and operation	General methods of mitigation are set out in the scoping report; however, the ES should describe and justify any specific mitigation measures designed to address significant adverse effects. The ES should report predicted residual effects following mitigation.	The ES contains full details of the Project design and mitigation including embedded mitigation, good practice and essential mitigation. The topic chapters of the ES report residual effects taking mitigation into account.
4.2 Cultural Heritage		
4.2	The study area is described in the Scoping Report as extending to 1km from the proposed boundary for both designated and non-designated assets. Paragraph 7.7.6 (last bullet point) makes reference to setting a Zone of Visual Influence (ZVI) in consultation with the landscape architect team involved in the EIA. The ZVI is not defined at this stage.	The ZVI for the Project has been determined as part of the landscape and visual impact assessment. The methodology is presented in ES Chapter 7: Landscape and Visual (Application Document 6.1) and shown on ES Figures 7.8 to 7.15 (Application Document 6.2)
4.2	The methodology proposed is based on DMRB HA208/07, along with industry guidance, listed in paragraph 7.7.2, including publications from HiE and the Chartered Institute for Archaeologists. Under the DMRB methodology, a detailed assessment is proposed, to include desk-based assessment	DMRB HA208/07 has been superseded by DMRB LA 106, released in January 2020. Other methodology guidance documents of relevance have been detailed in the ES Chapter 6: Cultural Heritage (Application Document 6.1). This would not result in a material

Para/topic	The Inspectorate’s comments	National Highways response
	and site-based evaluation. The role of professional judgement in this determination is explained in the Scoping Report.	change to outcomes of assessment.
4.2	The Scoping Report provides information about how potential effects will be described. No specific effects are detailed at this stage; however potential effects are identified in general terms for both the construction and operational phases of the Proposed Development. An outline mitigation strategy is described in Section 7.9 of the Scoping Report, although embedded mitigation measures which could form part of the Proposed Development design are described in paragraph 7.8.4.	Project design and mitigation and an assessment of impacts are presented in ES Chapter 6: Cultural Heritage (Application Document 6.1).
ID1 Cultural Heritage - Study area	It is noted that the ZVI is yet to be determined, however with respect to the study area the Inspectorate would expect this to be determined by the likely extent of impacts. The distance of 1km from the proposed boundary is not justified in the Scoping Report, and the Applicant should ensure that the study area applied is adequate and justified in the ES.	The ZVI for the Project has been determined as part of the landscape and visual impact assessment. The methodology is presented in ES Chapter 7: Landscape and Visual (Application Document 6.1) and shown on ES Figures 7.8 to 7.15 (Application Document 6.2) The 1km study area has been agreed with statutory heritage stakeholders as appropriate and in line with best practice. Designated assets that are outside the study areas have been incorporated into the assessment in line with ZVI and walkover setting surveys and following consultation with stakeholders.
ID2 Cultural Heritage – Baseline Information	The baseline assessment in the ES should be established using all relevant data. HiE’s response highlights additional sources of information relevant to the baseline assessment which should be taken into account. Kent County Council (KCC) have also provided advice regarding historical mapping and LIDAR data which should be utilised where relevant.	The information sources recommended by Historic England and the local planning authorities were utilised in the cultural heritage assessment ES Chapter 6: Cultural Heritage (Application Document 6.1).
ID3 Cultural Heritage -	The assessment in the ES should assess impacts to all	All cultural heritage assets potentially affected by the

Para/topic	The Inspectorate’s comments	National Highways response
Receptors	relevant cultural heritage receptors, and agreement should be sought from consultees on which receptors to include. HiE identify a number of receptors where impacts may occur e.g. North Ockenden conservation area and associated listed heritage assets. The Inspectorate considers that impacts to these receptors should be assessed within the ES. SPC have also provided information relating cultural heritage assets.	Project have been included in the assessment and are described in the existing baseline of ES Chapter 6: Cultural Heritage (Application Document 6.1).
ID4 Cultural Heritage - Surveys	The Inspectorate considers that the location and need for surveys necessary to inform the assessment in the ES should be discussed and agreed with relevant consultees. The Inspectorate notes that HiE has in its response provided advice on the approach archaeological evaluation.	The type and extent of surveys was agreed with stakeholders during consultation. This is detailed within ES Chapter 6: Cultural Heritage (Application Document 6.1). Technical specifications for all investigations were reviewed by stakeholders for quality assurance.
ID5 Cultural Heritage - Limitations and assumptions	The Scoping Report states that the magnitude of impact can be difficult to predict given the nature of archaeological deposits. The ES should contain a section on the limitations which apply to the assessment and any assumptions made, with a clear explanation as to the implications for the interpretation of the assessment.	A section on assumptions and limitations has been included in ES Chapter 6: Cultural Heritage (Application Document 6.1).
ID6 Cultural Heritage - Mitigation	The ES must clearly describe the mitigation measures which form part of the Proposed Development design and those which are designed to address the significant effects. The ES must set out to what degree the measures will be effective and how they are/will be secured in the DCO.	Embedded, essential and good practice mitigation measures have been included. Embedded mitigation describes the measures that form part of the Project design. Embedded mitigation are secured in the Design Principles (Application Document 7.5) and are illustrated in ES Figure 2.4: Environmental Masterplan (Application Document 6.2). The REAC within the CoCP (ES Appendix 2.2) includes essential and good practice mitigation measures and shows how they are secured in the draft DCO (e.g. through DCO Requirements). ES Appendix 2.2: CoCP would be implemented through the

Para/topic	The Inspectorate’s comments	National Highways response
ID7 Cultural Heritage – Inter-relationships	The ES should include an assessment of interrelationships between aspects including those which would have an influence on the historic environment. For example, Chapter 7 Biodiversity, Chapter 8 Landscape and Visual Assessment, Chapter 10 Geology and Soils and Chapter 14 Road Drainage and Water Environment.	<p>construction and operational phases of the Project.</p> <p>ES Chapter 6: Cultural Heritage (Application Document 6.1) has considered interrelationships with the following chapters of the ES:</p> <ul style="list-style-type: none"> • Chapter 7: Landscape and Visual (Application Document 6.1) • Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • Chapter 10: Geology and Soils (Application Document 6.1) • Chapter 12: Noise and Vibration (Application Document 6.1) • Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) <p>The cultural heritage assessment considers the results of other topic assessments and proposed mitigation. ES Figure 2.4: Environmental Masterplan (Application Document 6.2) provides information regarding proposed environmental mitigation. The cultural heritage assessment considers the effect that the mitigation for other environment topics would have on heritage assets.</p>
ID8 Cultural Heritage - Slurry TBM	If a slurry Tunnel Boring Machine (TBM) is used to construct the tunnel, the ES should assess the impacts which would occur if there was a slurry breakout. The assessment should address the specific concerns of HiE in this regard.	The assessment presented in ES Chapter 6: Cultural Heritage (Application Document 6.1) has considered the potential for a slurry breakout to occur and the implications of a breakout on surrounding archaeological features and deposits, including composition and properties of the slurry such as its pH value.
4.3 Landscape		
4.3 Landscape	The Scoping Report identifies that the EIA will consider both landscape and visual effects. The study area for the	The study area has been defined and justified through agreements with consultees. This is reported within the

Para/topic	The Inspectorate’s comments	National Highways response
	<p>landscape assessment has been designed to follow the criteria in IAN 135/10. The study area for the visual amenity assessment is described as including the area from which the Proposed Development can be seen.</p> <p>The Scoping Report then sets a study area of 2km either side of ‘the application boundary’ for the assessment of landscape, townscape and visual amenity.</p> <p>Paragraphs 8.7.9 to 8.7.11 set out the timescales applied to the assessment including the consideration of future baseline</p>	<p>ES.</p> <p>DMRB has been updated and the landscape assessment follows LA 107 Landscape and visual effects Rev 2 (formerly replaces DMRB Volume 11 Section 3 Part 5 Landscape Effects and IAN 135/10) (National Highways, Feb 2020).</p>
4.3 Landscape	<p>Section 8.7 describes the methodology to be applied with reference to the DMRB and applicable IANs in particular IAN 135/10, and to standard industry guidance in the form of IEMA and the Landscape Institute’s guidance. In addition, reference is made to the Institution of Lighting Engineers ‘Guidance Notes on the Reduction of Obtrusive Light’ with respect to light pollution effects. The methodology for determining significance is also set out in the Scoping Report.</p>	<p>DMRB Volume 11, Section 3 Part 5 Landscape Effects and IAN 135/10 has been superseded by DMRB LA 107 Landscape and visual effects (National Highways, Feb 2020).</p>
4.3 Landscape	<p>Effects are to be considered during the construction phase assuming a maximum activity situation for any given view, and for the operational phase for the winter of opening and the summer of the fifteenth year after opening. Key potential effects identified are landscape effects on sensitive landscapes including Kent Downs AONB and land identified as green belt. Sensitive visual receptors along the scheme which could be subject to adverse effects include residents, users of cycle routes, visitors to heritage assets and recreational facilities, and the Public Right of Way (PRoW) network</p>	<p>The assessment scope aligns with the scoping opinion and is presented in ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
4.3 Landscape	<p>A general strategy for mitigation during construction is presented, with reference to the use of a Construction</p>	<p>An outline Landscape and Ecology Management Plan (oLEMP) (Application Document 6.7) (secured via</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<p>Environmental Management Plan (CEMP), to include careful siting of compounds and tall structures (for example batching plants) and retention of mature vegetation. The use of hoarding and sensitive lighting is also mentioned. Operation phase mitigation is also described in general terms.</p>	<p>Requirement 5 of the draft order) has been submitted as part of the DCO application and has been developed based on the Project’s preliminary design and in consultation with stakeholders. The oLEMP would be further developed during the detailed design phase by the Principal Contractor for approval by the Secretary of State in consultation with relevant stakeholders. ES Appendix 2.2 CoCP is was also known as an Outline Environmental Management Plan (OEMP). In accordance with DMRB LA 120, an OEMP is now known as the ‘First iteration of EMP’. DMRB LA 120 defines the Construction Environmental Management Plan (CEMP) as the ‘Second iteration of EMP’ or EMP2. The Contractors responsible for the delivery of the construction of the Project, once appointed, would be required to develop an EMP2 specific to their work. Embedded, essential and good practice mitigation are reported in ES Chapter 7: Landscape and Visual (Application Document 6.1). The landscape and visual impact assessment chapter should be read in conjunction with ES Figure 2.4: Environmental Masterplan (Application Document 6.2) which provides the basis for the assessment of the operational Project with mitigation.</p>
4.3 Landscape	<p>The Applicant has not identified any matters as being scoped out of the EIA.</p>	<p>No matters have been scoped out of the landscape and visual assessment.</p>
ID1 Landscape Receptors	<p>The Inspectorate considers that the ES should also assess impacts to views to and from Tilbury Fort which is a sensitive receptor on the north side of the River Thames. Views to and from the Kent Downs AONB will also require thorough consideration.</p>	<p>A selection of Representative Viewpoints has been agreed with the local authorities, which includes views to and from the Kent Downs AONB and Tilbury Fort.</p>
	<p>The Applicant should have regard to comments by</p>	<p>The landscape and visual assessment considers both</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<p>Sevenoaks District Council (SDC) in their response in relation to the traffic assessment and impacts on roads within the AONB.</p>	<p>landscape and visual impacts upon the Kent Downs AONB as a result of the Project (in accordance with the methodology set out) and effects on its purpose of designation. Indirect effects as a result of changes on traffic flows within the Kent Downs AONB road network are considered, please refer to ES Appendix 7.11: Indirect Effects of traffic and noise within the Kent Downs Area of Outstanding Natural Beauty’.</p>
<p>ID2 Landscape Study area for visual amenity</p>	<p>The Scoping Report implies that 2km either side of the application boundary equates to the whole of the area from which the Proposed Development could be visible. It is not clear how this has been justified or how this may be refined upon determination of the ZVI. The visual assessment study area and the landscape effects study area must be adequate to establish the likely impacts of the Proposed Development. Comments have been received from ECC, GBC, and TC regarding the study area to be applied. The Applicant should make effort to agree the study area with consultees.</p>	<p>The ‘area of search’ is set out in ES Appendix 7.3: Area of Search. This includes the analysis undertaken with regard to Zone of Theoretical Visibility analysis and identification of the Zone of Visual Influence (ZVI) which informs the selection of the study area considered for assessment of landscape and visual effects. This includes the rationale and justification for the study area which is the extent to which significant effects could occur.</p> <p>The study area has been discussed with stakeholders during the preparation of the landscape and visual impact assessment.</p>
<p>ID3 Landscape Assessment Periods/Scenarios</p>	<p>This paragraph estimates construction of 6 years duration; however, the description in Chapter 2 states that overall construction will be approximately 5 years. The ES should include a clear and consistent description of the construction phase and the assumptions used to inform the assessments including the anticipated duration of construction works. The construction work duration used in the assessment should be an accurate representation of the works required</p>	<p>ES Chapter 2: Project Description (Application Document 6.1) sets out the description of the Project including high-level anticipated construction activities, their duration and available phasing information. Since submission of the environmental Scoping Report, the construction approach and programme has been developed in more detail, and is now expected to start in 2024, opening in 2030.</p>
<p>ID4 Landscape Description of effects</p>	<p>Chapter 5 states that the terms ‘short-term’, and ‘long-term’ are defined differently depending on the environmental aspect chapter. However, these terms are not defined in the Scoping Report. The ES should include an explanation of</p>	<p>ES Appendix 7.2: Landscape and Visual Assessment Methodology sets out a detailed assessment methodology, including an explanation of the various terms (which includes the definition of short and long</p>

Para/topic	The Inspectorate’s comments	National Highways response
	any such terms and other similar terms which influence the assessment approach, for example ‘medium term’.	term) referred to in ES Chapter 7: Landscape and Visual (Application Document 6.1) relating to duration of change.
ID5 Landscape Mitigation (operational phase)	If mitigation is relied upon in the ES it should be clear how this is secured, including any commitment to returning land to agriculture. The means by which land management in the operational phase is to be secured must also be explained, for example whether an area is to be retained within the highways estate or returned to management by other landowners.	<p>The Land Plans (Application Document 2.2), and Book of Reference (Application Document 4.2) identify temporary and permanent land requirements of the Project.</p> <p>ES Figure 2.4: Environmental Masterplan (Application Document 6.2) has been prepared to present the embedded environmental mitigation measures for the Project. This includes environmental mitigation measures which would be secured through the DCO.</p> <p>The default long-term land management of mitigation measures within the permanent land take would be the responsibility of National Highways or its appointed agent.</p> <p>Mitigation measures which fall outside the permanent land take for the Project include soft landscaping and their future land management agreement are set out in Annex B of the Statement of Reasons (Application Document 4.1). ES Figure 2.4: Environmental Masterplan (Application Document 6.2) identifies land to be returned to agriculture which aligns with temporary land acquisition for the Project.</p> <p>An outline Landscape and Ecology Management Plan (oLEMP) (Application Document 6.7) (secured via Requirement 5 of the draft order) has been submitted as part of the DCO application and has been developed based on the Project’s preliminary design and in consultation with stakeholders. The oLEMP would be further developed during the detailed design phase by</p>

Para/topic	The Inspectorate’s comments	National Highways response
		the Principal Contractor for approval by the Secretary of State in consultation with relevant stakeholders.
4.4 Biodiversity		
4.4 Biodiversity	The study areas to be applied for the assessment of effects on ecological features are varied depending on the nature of the feature in question. The study areas are described in Table 9-1 (terrestrial) and 9-2 (marine) which list all potential surveys to be carried out.	<p>The terrestrial biodiversity study area has been defined to encompass the Project’s Zone of Influence (Zoi), within which terrestrial biodiversity features could potentially be affected by the construction and/or operational phases of the Project. This is set out in detail in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p> <p>The marine biodiversity study area includes an area of 11km both up and downstream of the Order Limits to account for the movement of water and sediments within an average tidal excursion. This is set out in detail in ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
4.4 Biodiversity	Survey and assessment methodologies are described (with detail provided in Appendix 3) and reference is made to a number of guidance and professional standards including the Phase 1 Handbook (JNCC), CIEEM EcIA Guidelines (2016), DMRB Vol 11 Section 3 Part 4 and IAN 130/10.	The full survey and assessment methodologies are presented in ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1).
4.4 Biodiversity	The assessment period is discussed in paragraphs 9.7.15 to 9.7.18, and reference is made to the future baseline, which is set at 2026 (opening year). The method applied to the determination of significance of effects is explained and follows the CIEEM guidance.	
4.4 Biodiversity	Potential effects are described for both the construction and operational phases. Tables 9-8 and 9-9 outline the potential for these to occur for all the ecological features scoped into the assessment.	No response required.

Para/topic	The Inspectorate’s comments	National Highways response
4.4 Biodiversity	Construction and operation effects on marine ecology are discussed separately. Again, Table 9-10 illustrates the likelihood of these occurring for each feature considered. The Scoping Report states that adverse operational effects on the marine environment are not foreseeable based on any proposed new jetty structures provided to facilitate construction of the Proposed Development being no longer in use, and the additional boat traffic associated with the Proposed Development construction period having ceased.	Construction and operational effects on marine ecology are presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1). There is no new jetty structure proposed as part of the Project.
4.4 Biodiversity	Mitigation measures are discussed in general terms, with reference to avoidance of impacts through scheme design.	Embedded mitigation (avoidance of impacts through the Project’s design) is explained in ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1). It is presented on ES Figure 2.4: Environmental Masterplan (Application Document 6.2), and further explained in the Design Principles (Application Document 7.5)
4.4 Biodiversity	The Applicant does not specifically identify any matters proposed to be scoped out of the EIA, however, matters excluded are included below.	No aspects of the terrestrial biodiversity assessment have been scoped out of the assessment. No specific marine biodiversity receptors have been scoped out of the assessment. However, through liaison with the MMO, it was agreed that a Marine Conservation Zone (MCZ) or a Marine Strategy Framework Directive (MSFD) assessment was not required.
ID1 Biodiversity Interrelationship	The ES should assess inter-related impacts to biodiversity including those that occur from changes to landscape and hydrology. The ES should specifically address the points raised by the EA relating to the impacts associated with the proposed drainage design and designated sites.	ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1) have interrelationships with other chapters of the ES including: <ul style="list-style-type: none"> • Chapter 5: Air Quality (Application Document 6.1) • Chapter 12: Noise and Vibration (Application Document 6.1) • Chapter 14: Road Drainage and the Water

Para/topic	The Inspectorate’s comments	National Highways response
		Environment (Application Document 6.1).
ID2 Biodiversity Survey timing and review	The Inspectorate notes that bird surveys designed to support the HRA are ongoing until March 2019 (refer to Table 9.1 and Appendix C). Paragraph 9.5.6 states that the intended application submission date as 2019. The Inspectorate considers that survey work necessary to inform the assessment must be completed prior to submission of the application.	The ornithological baseline conditions are presented in ES Appendix 8.7 which describes the baseline conditions as they were in the years surveyed. This is considered to be representative of the baseline conditions at the start of construction.
ID3 Biodiversity Impacts on barn owl	The table does not mention surveys for barn owl to confirm presence/absence within the study area. The Inspectorate considers that these should be included and if impacts such as habitat loss during construction and collision risk during the operational phase are likely to occur these should be assessed in the ES.	Barn owl surveys were undertaken, and the results can be found in ES Appendix 8.7. Impacts have been assessed and results are presented in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
ID4 Biodiversity Study area	The abbreviation ‘Zol’ is used here for the first time. The ES should explain this term: and in describing the study area(s) for the assessment, define the Zone of Influence applied.	The terrestrial biodiversity study area has been defined to encompass the Project’s Zone of Influence (Zol), within which terrestrial biodiversity features could potentially be affected by the construction and/or operational phases of the Project. Further details are presented in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). The marine biodiversity study area includes an area of 11km both up and downstream of the Application Site to account for the movement of water and sediments within an average tidal excursion. Further details are presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
ID5 Biodiversity Study area	This paragraph states the ‘application boundary plus a 500m buffer’ as the Phase 1 survey area, Table 9-1 gives it as the application boundary plus 50m. It is noted that Figure 9.4 shows this as 500m. The ES must ensure that the survey	The terrestrial and marine biodiversity study area varies depending on the biodiversity feature being assessed. Statutory designated sites were assessed up to 2km from the Order Limits, with an expanded study area of a

Para/topic	The Inspectorate’s comments	National Highways response
	area is appropriately wide to identify and assess all likely significant effects and is accurately described.	30km radius for European Sites designated for bats. For non-statutory sites, a 500m ZOI was established. An exception has been made where there is a potential direct hydrological link between a non-statutory site and the Order Limits, in which case the ZOI was extended to 2km. Further details on the extent of the survey areas are presented in in ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1).
ID6 Biodiversity Impacts of marine works	<p>The Inspectorate is not content from the information in the Scoping Report that the marine survey areas shown on this figure are adequate to assess the impacts of the Proposed Development. The areas shown do not appear to correspond with the location of the proposed potential jetty.</p> <p>The impacts of the estuarine/marine elements of the Proposed Development must be assessed in the ES, and the information on which the assessment is based provided.</p>	<p>The marine biodiversity study area includes an area of 11km both up and downstream of the Order Limits to account for the movement of water and sediments within an average tidal excursion.</p> <p>There is no jetty proposed as part of the Project.</p> <p>Further details are presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
ID7 Biodiversity Surveys	<p>The Inspectorate recommends the Applicant provides a robust assessment of the effects of underwater noise, and highlights comments provided by the Marine Management Organisation (MMO) regarding this matter and the approach to the assessment.</p> <p>Survey approach must be agreed as far as possible with consultees. The PLA recommend discussion of surveys with the EA and Cefas and the Inspectorate supports this recommendation.</p> <p>Sampling and surveys to inform works which will require a Marine License, such as works associated with a new jetty, should be agreed with the MMO.</p>	<p>An underwater noise assessment has been undertaken by a specialist and can be found as ES Appendix 9.1.</p> <p>The extent of existing baseline data for the area allowed the fieldwork as part of the EIA to be concentrated on specific areas. A summary of existing data and a proposed survey programme was agreed with the EA and MMO.</p> <p>The marine monitoring and modelling scopes have been fully discussed and agreed with the MMO. Full details of these consultations can be found in ES Chapter 9: Marine Biodiversity (Application Document 6.1). There is</p>

Para/topic	The Inspectorate’s comments	National Highways response
	<p>Detailed technical comments have been provided by the EA, PLA and the MMO regarding proposed surveys, including the approach to aquatic invertebrate sampling, and otter and water vole surveys. NE also provide advice on the scope of the marine surveys (to inform the effects of the proposed jetty works) and the methodology for determining potential receptors.</p>	<p>no jetty included in the application.</p> <p>As noted above, the marine monitoring and modelling scopes have been fully discussed and agreed with the MMO and other consultees. The scope of aquatic invertebrate sampling and otter and water vole surveys can be found in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
<p>ID8 Biodiversity Potential effects</p>	<p>In the text ‘barrier effects’ is identified (paragraph 9.8.15) but this is not featured as a heading in the table, instead ‘noise disturbance’ appears in the table but not in the list of potential effects.</p> <p>The ES must be clear as to which effects have been assessed and how and must assess all matters which could give rise to significant effects.</p>	<p>Indirect effects through construction disturbance, air quality, vibration, noise, light or hydrological impacts have been assessed in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p> <p>The effects of changes to air quality and noise are referred to throughout ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1), and this was based on results from modelling. For full information on modelling please refer to:</p> <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document: 6.1) • ES Chapter 12: Noise and Vibration (Application Document: 6.1) <p>ES Chapter 9 Marine Biodiversity (Application Document 6.1) has links with other chapters of the ES including:</p> <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document 6.1) • ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water

Para/topic	The Inspectorate’s comments	National Highways response
		<p>Environment (Application Document 6.1)</p> <ul style="list-style-type: none"> ES Appendix 14.7: Water Framework Directive Assessment
<p>ID9 Biodiversity Potential effects</p>	<p>The ES should assess impacts to aquatic invertebrates to be affected by noise disturbance including cumulative underwater noise. The Applicant should discuss and agree the extent of the assessment with the MMO.</p>	<p>Modelling has been used to predict underwater noise levels (including cumulative) associated with both construction (action arising from use of the tunnel boring machines) and operation (tunnel road noise) of the Project. Other modelling, such as hydrodynamic and sediment modelling, was discussed with the MMO and it was agreed that it would not be required. Further information on the assessment methodology can be found in ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
<p>ID10 Biodiversity Potential effects</p>	<p>Following on from above, barrier effects are not discussed in these paragraphs, however, noise disturbance effects are. The ES must assess all matters which could give rise to significant effects and in absence of further explanation the Inspectorate considers this should include barrier effects.</p>	<p>Please refer to response above. Consideration of habitat fragmentation and the potential significant effects have been assessed in ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
<p>ID11 Biodiversity Operational effects on the marine environment</p>	<p>Whilst not stated as being scoped out, the Inspectorate is unclear as to the assumptions made which lead to these effects not being anticipated. In particular, the ES must clearly explain if any jetty (or other relevant structures) will be constructed, removed or retained, and show how any associated impacts (such as those from demolition) have been assessed.</p>	<p>Construction and operational effects on marine ecology are presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1). The Project is no longer proposing to construct a new jetty.. Further information can be found in ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
<p>ID12 Biodiversity Impacts from drainage</p>	<p>The ecological impacts of highways drainage discharges to the surface water environment should be assessed. Any ditch or watercourse which could receive or be impacted by the drainage design should be assessed. Particular attention must be paid to features with hydrological linkages to the Thames Estuary and Marshes</p>	<p>Both ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1) have links to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). ES Chapter 9: Marine Biodiversity (Application Document 6.1) also links to ES Appendix 14.7: Water Framework</p>

Para/topic	The Inspectorate’s comments	National Highways response
	Ramsar site. Comments have been provided by the EA in their response regarding these matters.	Directive Assessment. More information on the assessment of ecological impacts of highways drainage discharges to the surface water environment can be found in the respective ES chapters.
ID13 Biodiversity Impacts on designated and sensitive sites	The assessment should be based on up to date information regarding designated sites including local sites of nature conservation value. NE have provided information on the separation of the former Thames Estuary recommended Marine Conservation Zone (MCZ) into two distinct sites and their ecological features. LBH and TC both provide information on locally important sites for nature conservation which should be taken into account in the ES.	All data used to inform the assessments has been updated regularly over the course of the Project. This includes statutory and non-statutory designated site data, including locally important sites. For example, datasets on Local Wildlife Sites and species were re-ordered from the relevant biological record centres, as well as Essex Field Club, in early 2021. As per guidance from Defra, only the Swanscombe MCZ has been considered in the assessment. This approach has been agreed with the MMO. Further details are presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
4.5 Geology and Soils		
4.5 Geology and Soils	The study area for this aspect is set out in the Scoping Report as the application boundary plus a 250m buffer zone. The study area has been proposed to allow for surrounding geological and environmental features in order to assess potential significant effects. The study area for effects on soils comprises the application site but is extended to include affected farm enterprises (see section 10.7.4-10.7.6 for a full description of the study area).	Full details of the study area for the assessment of geology and soils can be found in ES Chapter 10: Geology and Soils (Application Document 6.1).
4.5 Geology and Soils	The assessment proposes to use guidance from CLR11, CIRIA C552, DMRB (vol. 11) along with professional judgment to determine significant effects on geology and soils. A full description of the significance criteria is given in Table 10-6, Table 10-7 and Table 10-8. The criteria used to determine the magnitude of the effects on soils are to be	Key standards and guidance used for the geology and soils assessment includes DMRB LA 109 Geology and Soils (2019) and Land Contaminations: Risk Management (LCRM) (Environment Agency, 2021). These are fully described in ES Chapter 10: Geology and Soils (Application Document 6.1).

Para/topic	The Inspectorate’s comments	National Highways response
	based on DMRB Vol.11 and professional judgment. A full description is given in Table-10-9, Table 10-10 and Table 10-11.	
4.5 Geology and Soils	Potential impacts are set in terms of construction and operational affects. The potential impacts during construction include; loss of geological resources, land contamination, disturbance of contaminated land, creation of new contamination pathways, permanent loss of agricultural land, (especially Best and Most Versatile Land, BMVL) and the disturbance and potential explosion of Unexploded Ordinance (UXO).	The potential impacts during construction remain the same and are reported in ES Chapter 10: Geology and Soils (Application Document 6.1).
4.5 Geology and Soils	Potential Impacts during operation include: contamination due to fuel spillages, impacts to human health due to the release of landfill gases, and settlement due to ground movement.	It is noted that since the receipt of the Scoping Opinion, the published standard DMRB LA 109 Geology and Soils (National Highways, 2019), has removed the assessment of geotechnical hazards and land stability within the Environmental Statement (ES). These aspects are addressed within the design through the application of the DMRB Standard, CD 622 Managing Geotechnical Risk (National Highways 2020a). To demonstrate compliance with the clauses of the NPS and the Scoping Opinion, a preliminary assessment on land instability has been undertaken and is presented in Appendix 10.2: Stability Report. The Stability Report has taken a precautionary approach, demonstrating that there are no significant risks related to ground instability and geohazards within the study area and as a result of the Project.
4.5 Geology and Soils	The Applicant has not identified any matters as being scoped out of the EIA.	No aspects were scoped out for the assessment on geological receptors. The effects on BMV land are addressed under the construction phase and are not addressed again as part of the operational phase assessment.

Para/topic	The Inspectorate’s comments	National Highways response
ID1 Geology and Soils Baseline	The Landmark Envirocheck database version 2005 has been used for data on man-made cavities. The Inspectorate notes that this database is now 12 years old. The ES should be based on more up to date data where such data exists.	The establishment of baseline conditions has been based on up-to-date information, as fully described in ES Chapter 10: Geology and Soils (Application Document 6.1). This included soil and ALC surveys and predictions of ALC grades where surveys have not been possible.
ID2 Geology and Soils Baseline	The Scoping Report states that ‘some information on the soils and land quality is available from published sources’; this should be expanded in the ES to provide a comprehensive understanding of the soil and land quality baseline. GBC and LBH have provided information regarding the local geology, with reference to experience during construction of High Speed 1 (HS1), which may have implications for the Proposed Development design and therefore the basis for the assessment of impacts which could arise. The assessment in the ES should take this into account.	
ID3 Geology and Soils Study Area	The Inspectorate notes that the ‘surrounding geological environment’ and ‘distance over which significant effects can be reasonably thought to have the potential to occur’ have no clear definition in the Scoping Report. A full description and justification of the study area must be provided within the ES.	The Study area for the geology and soils assessment has been defined and justified in the ES Chapter 10 Geology and Soils (Application Document 6.1). Further details are presented in ES Chapter 10: Geology and Soils (Application Document 6.1).
ID4 Geology and Soils Study area for soils	The Inspectorate notes that the study area for impacts on soils is limited to the application site and affected farm enterprises. The ES should ensure that an appropriate study area is established and justified taking into account the extent of the likely impacts including those relating to run-off of contaminated land.	The Zol has been defined and justified in ES Chapter 10: Geology and Soils (Application Document 6.1). ES Chapter 10: Geology and Soils (Application Document 6.1) has links to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) to cover potential issues in relation to sediment-laden runoff as required.
ID5 Geology and Soils Economic minerals	The ES should assess any likely impacts to mineral reserves from the Proposed Development. KCC and LBH have also	DMRB LA110 Material Assets and Waste provides for the evaluation of impacts to mineral reserves within the

Para/topic	The Inspectorate’s comments	National Highways response
	<p>provided comments regarding the need to safeguard economic minerals which should be taken into account in relevant aspect chapters.</p>	<p>Order Limits, as such a Mineral Safeguarding Assessment will be submitted to support the DCO Application. The LA110 standard, however, does not contain provision for evaluation of impacts to wider landbanks/reserves. As a result, a technical note (“LTC Aggregate Use Briefing Note”) on the results of an assessment for the impact of the project on Essex and Kent landbanks was prepared and sent to Essex and Kent County Council for review on 17 July 2020. Essex County Council responded with comments on 24 July 2020. However, no response was received from Kent. Essex County Council requested the technical note be shared with Thurrock Council. This was shared with Thurrock on 9 September 2020. Thurrock Council provided their comments on the technical note on 1 October 2020.</p> <p>As a result of the comments and considering changes to the Project after the first DCO submission in October 2020, the technical note was further updated and engagement with the relevant authorities is ongoing.</p>
4.6 Materials		
4.6 Materials	<p>A specific study area for material resources has not been identified. For the waste assessment, the study area comprises of the application boundary and for Construction, Demolition and Extraction (CD&E) waste, the study area is Kent and Greater Essex. For hazardous waste arisings, the study used is the South-East. See section 11.7, paragraphs 11.7.2-11.7.5 for a full description of the study area.</p>	<p>In line with DMRB LA 110 Material assets and waste, the study area for the assessment of construction materials and the operational phase materials use encompasses all land within the Order Limits. A wider study area of Kent, Essex and the East London Waste Authority Area was then defined to consider local waste infrastructure. Further details and justification of the study area can be found in ES Chapter 11: Material Assets and Waste (Application Document 6.1).</p>
4.6 Materials	<p>The methodology did not use any guidance and only professional judgement has been used. The assessment of</p>	<p>Subsequent to the submission of the Scoping Report, National Highways has released formal assessment</p>

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	the materials value/sensitivity and the criteria for each value/sensitivity is set out in Table 11-6. An assessment on how the usage of materials will affect the local material markets based on the future baseline figures as set out in section 11.7.8-11.7.10. Furthermore, the affects CD&E waste products will have on the landfill sites within the study will be assessed against the future baseline set out in sections 11.7.11-11.7.17.	methodology and significance criteria through DMRB LA 110 Material assets and waste. ES Chapter 11: Material Assets and Waste (Application Document 6.1) was completed in compliance with this standard. A summary of the assessment criteria that were applied is provided in Table 11.5 of ES Chapter 11: Material Assets and Waste (Application Document 6.1).
4.6 Materials	Potential impacts during construction and operation include the depletion of finite natural resources, the environmental effects of producing, transporting and processing waste, and the reduction in landfill capacity. See section 11.8 for a full description of potential impacts.	No response required.
4.6 Materials	The Applicant does not specifically identify any matters proposed to be scoped out of the EIA, however, matters excluded are included below.	No response required.
ID1 Materials Offsite manufacture and extraction	The Inspectorate agrees that this can be excluded from the scope due to the large amount of variables involved in the manufacturing of products and processing of extracted primary materials.	At the time of submission of the Scoping Report, carbon was included in the material assets and waste assessment. The assessment of carbon impacts is now subject to full assessment in ES Chapter 15 Climate (Application Document 6.1).
ID2 Materials Baseline	It is noted that these tables have no units of measurement. The Inspectorate requests that units of measurement are included in all tables (where relevant) in the ES to improve the overall clarity.	Units of measurement have been incorporated into the tables presented in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
ID3 Materials Waste Capacity	The Scoping Report states that the assessment will include consideration of total capacity of landfills within 20km of the Proposed Development. The method used to determine this as an appropriate distance from the Proposed Development is not described. The ES should include a clear description of the methods used to determine the assessment. A	As noted above, in line with DMRB LA 110 Material assets and waste, the study area for the assessment of construction materials and the operational phase materials use encompasses all land within the Order Limits. A wider study area of Kent, Essex and the East London Waste Authority Area was then defined to

Para/topic	The Inspectorate’s comments	National Highways response
	justification should be included to support decisions made such as the use of a 20km search area for landfill capacity.	consider local waste infrastructure. Further details and justification of the study area can be found in ES Chapter 11: Material Assets and Waste (Application Document 6.1). The assessment methodology is based on DMRB LA 110. Further details on the assessment methodology can be found in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
ID4 Materials Key Environmental Receptors	The Scoping Report states that the ES will include a quantification of the typical key material resources required for the Proposed Development. The ES should include a clear explanation as to how it has been taken into account the assessments.	A quantification has been made of the types and quantities of key materials required for the construction and operation of the Project. Further detail can be found in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
ID5 Materials Key Environmental Receptors	The Inspectorate requests that when the Applicant refers to distances in the ES, specific and justifiable distances are used to increase clarity as the term ‘reasonable proximity’ can be misinterpreted.	Specific and justifiable distances have been used when referring to distances in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
ID6 Materials Future Baseline	The Scoping Report states different years in regard to the future baseline. The Applicant should clearly state and justify the year used for the future baseline and show consistency within ES when referring to the future baseline.	The future baseline for material assets and waste was defined as 2025 which is the year Project construction starts and when landfill capacity is forecast to be at its lowest capacity during the construction phase within the study area. . The future baseline is presented in Section 11.4 of ES Chapter 11: Material Assets and Waste (Application Document 6.1).
ID7 Materials General	The ES should assess the need for an availability of mineral reserves. KCC and ECC have both commented on the approach to assessing impacts to mineral reserves. To support this assessment both ECC and TC have also provided an indication of the likely location for baseline information.	A Mineral Safeguarded Area Assessment has been completed (and is presented in ES Appendix 11.2) to support ES Chapter 11: Material Assets and Waste (Application Document 6.1). An assessment of potential use of mineral landbanks in Essex and Kent has been provided to Essex County Council, Thurrock Council and Kent County Council

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		through stakeholder engagement, see Table 11.4 in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
4.7 Noise and Vibration		
4.7 Noise and Vibration	The study area for construction noise is based upon a distance of 300m from the boundary of the Proposed Development. Impacts from rail noise will be assessed to a distance of 300m from loading facilities and sidings which may be used during construction. Airborne traffic induced vibration will be assessed at all residential receptors within 40m of the Proposed Development as specified within the methodology presented in the DMRB.	The study area for the construction and operational noise assessment is fully defined and justified in ES Chapter 12: Noise and Vibration (Application Document 6.1). The Scoping Report referred to the possibility of transporting materials by rail. This has since been discounted by the Applicant as it would have involved upgrading the Tilbury Loop railway line and creating additional access roads. The noise and vibration assessment methodology has been updated from that outlined in the Scoping Report following the issue of DMRB LA 111 Noise and Vibration (National Highways, 2020a), which supersedes DMRB HD 213/11 Volume 11, Section 3, Part 1 (2011) and the associated Interim Advice Notes. The assessment follows the requirements of DMRB LA 111 and the NPSNN and leads to the same outcome of the assessment on likely significant effects.
4.7 Noise and Vibration	The operational road traffic noise study area will be derived in accordance with the requirements of DMRB Volume 11 Section 3 Part 7 HD213/11 ‘Noise and Vibration’ Detailed Assessment Methodology (HD213/11).	The noise and vibration assessment methodology has been updated from that outlined in the Scoping Report following the issue of DMRB LA 111 Noise and Vibration (National Highways, 2020a), which supersedes DMRB HD 213/11 Volume 11, Section 3, Part 1 (2011) and the associated Interim Advice Notes. The assessment follows the requirements of DMRB LA 111 and the NPSNN and leads to the same outcome of the assessment on likely significant effects.
	A ‘detailed’ assessment will be carried out regarding impacts	The operational road traffic noise assessment has been

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	<p>from operational traffic noise, due to the size and nature of the proposed development.</p>	<p>undertaken in accordance with DMRB LA 111. Refer to ES Chapter 12 Noise and Vibration (Application Document 6.1).</p>
	<p>The scoping report sets out the relevant British Standards used to assess construction noise. Impacts from rail noise will be carried out in accordance with Calculation of Rail Noise (CRN) methodology.</p>	<p>The British Standards (BS) used in the assessment of construction noise comprise:</p> <ul style="list-style-type: none"> • BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise (British Standards Institution, 2014) • BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Vibration (British Standards Institution, 2014) • BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (British Standards Institution, 2019) <p>Further details are presented in ES Chapter 12: Noise and Vibration (Application Document 6.1).</p> <p>The Scoping Report referred to the possibility of transporting materials by rail. This has since been discounted by the Applicant as it would have involved upgrading the Tilbury Loop railway line and creating additional access roads.</p>
	<p>Tunnel ventilation static plant noise will be assessed at selected sensitive receptors to be agreed through consultation. Reference is made to relevant British Standards and impacts from the TBM will be considered based on criteria used on other major tunnelling projects.</p>	<p>The tunnel ventilation system has been assessed in accordance with the methodology of BS 4142:2014+A1:2019 ‘Methods for Rating and Assessing Industrial and Commercial Sound’. Ground borne noise and vibration from operation of a tunnel boring machine (TBM) has been assessed as part of ES Chapter 12: Noise and Vibration (Application Document 6.1) which has been undertaken using proprietary software</p>

Para/topic	The Inspectorate’s comments	National Highways response
		FINDWAVE.
4.7 Noise and Vibration	The Applicant identifies the following impacts during construction: noise from the operation of construction plant; noise from HGV movements to and from the site, increase in noise levels in the vicinity of rail lines and/or barge loading areas should spoil be removed via these modes of transport; and noise and vibration from piling activities.	No response required.
4.7 Noise and Vibration	During operation the following impacts are identified: changes in road traffic noise levels at sensitive receptors; noise level changes due to changes in vehicle flow, speed and composition on the existing road network; and noise impacts from the tunnel ventilation system.	No response required.
4.7 Noise and Vibration	The Inspectorate has provided comments on matters that the Applicant has set out as being scoped out of the EIA.	No response required.
ID1 Noise and Vibration Ground borne traffic vibration	The scoping report states that impacts from ground borne traffic vibration will not be assessed based on advice in DMRB HD213/11. The Inspectorate has considered the nature of the proposals (which include significant junction works involving existing roads and the introduction of new carriageways and a 3.5km tunnel), and the receiving environment where a number of settlements and sensitive sites exist on and adjacent to the proposed alignment. Combined with the limited evidence provided in the Scoping Report, the Inspectorate considers that significant effects cannot be ruled out at this stage. Therefore, construction and operational ground borne vibration should be assessed as part of the ES.	Consideration of road traffic induced ground-borne vibration has been undertaken in accordance with the methodology presented within TRL RR246 based upon the specific design parameters of the Project. This methodology was not originally referred to in the Scoping Report but is a method supported by DMRB LA 111 and an assessment of operational ground borne vibration has been completed, refer to Section 12.6 of ES Chapter 12 Noise and Vibration (Application Document 6.1).
ID2 Noise and Vibration Identification of receptors	The ES will need to provide a full detailed description of sensitive receptors within the area affected by the Proposed Development, whilst avoiding duplication of baseline information between chapters where possible.	A description of identified noise sensitive receptors is presented within Section 12.4 of ES Chapter 12: Noise and Vibration (Application Document 6.1). Sensitive receptors have been defined in accordance with DMRB

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		LA 111 and include dwellings, hospitals, schools, community facilities and designated areas.
ID3 Noise and Vibration Locations for short term and longer-term monitoring.	The ES should provide details of the position and duration of noise monitoring equipment. The Inspectorate notes that GBC have provided comments on monitoring locations and information on emerging monitoring data. The locations used for the assessment should be agreed with relevant consultees where possible.	Noise monitoring locations and durations have been consulted on with all local authorities within the detailed noise study area, and where possible agreements made/responses addressed accordingly. Refer to ES Chapter 12: Noise and Vibration (Application Document 6.1) Section 12.3 for further details on consultation, Section 12.4 for baseline noise monitoring locations and ES Figure 12.5: Baseline Noise Survey Information (Application Document 6.2).
ID4 Noise and Vibration Identification of sensitive receptors	Sensitive receptors within the 300m study area for assessment of construction noise are proposed to be identified in conjunction with relevant Local Authorities. This should be reported in the ES, and the use of a figure to illustrate where receptors are located would be a helpful inclusion.	
ID5 Noise and Vibration Impacts from barge loading	Receptors which are identified as sensitive to the impacts of barge loading should be represented in the ES. A figure would be a helpful inclusion within the ES. The Applicant is referred to the comments from the PLA which indicate the possibility of larger vessels being used. The Inspectorate considers that if any other vessels are proposed to be used the impacts associated should be assessed in the ES.	Temporary barge loading activities have been considered in the construction assessment of ES Chapter 12: Noise and Vibration (Application Document 6.1) and would occur at the northern tunnel compound. ES Figure 12.1: Construction Noise and Vibration Study Area (Application Document 6.2) presents the locations of the construction noise and vibration sensitive receptors.
ID6 Noise and Vibration Impacts from TBM	As there are currently no UK standards for impacts for when ground borne noise becomes significant, the assessment for London Thames Crossing will be based on criteria used for other major tunnelling projects such as the Silvertown Tunnel. The methodology used should be fully documented in the ES.	The methodology and significance categories used in the assessment of ground-borne noise and vibration from tunnelling are provided in Section 12.3 of ES Chapter 12: Noise and Vibration (Application Document 6.1), and in further detail within ES Appendix 12.6: Assessment of Ground-borne Noise and Vibration at land-based receptors (Application Document 6.3) which includes criteria used for other major tunnelling projects.
ID7 Noise and Vibration	The TBM will be in operation 7 days a week, 24 hours a day,	The construction noise assessment has assessed the

Para/topic	The Inspectorate’s comments	National Highways response
TBM operations	the noise impacts from this continual use should be fully assessed.	TBM and slurry plant activity based on it operating 24 hours a day, seven days a week. This assessment is presented within Section 12.6 of ES Chapter 12: Noise and Vibration (Application Document 6.1).
ID8 Noise and Vibration Mitigation measures	<p>Noise barriers have been listed as potential mitigation measures to be used to reduce effects from noise. The effectiveness of noise barriers should be fully described and assessed. Any inter-relationships with other chapters such as the Landscape and Visual assessment or Ecology should also be considered.</p> <p>Details must be provided of how the mitigation design will be secured.</p>	<p>The details of proposed noise barriers and how the mitigation design will be secured are presented in Section 12.5 of ES Chapter 12: Noise and Vibration (Application Document 6.1) and the proposed noise barriers are shown on ES Figure 2.4: Environmental Masterplan (Application Document 6.2) and ES Figure 12.7: Operational Road Traffic Noise Mitigation (Application Document 6.2).</p> <p>In the development of the barriers, other work streams were consulted, including engineering design, landscape design, utilities, ecology and cultural heritage.</p>
4.8 People and Communities		
4.8 People and Communities	The spatial scope to be applied to assessments in this aspect is described in Tables 13-4 of the Scoping Report. The table depicts a wider study area in relation to socio-economic effects, which is described in terms of local authority areas.	No response required.
4.8 People and Communities	The Scoping Report refers to the approach set out in the DMRB, in particular: Volume 11 Section 3 Part 6 ‘Land Use; Part 8 ‘Pedestrians, Cyclists and Equestrians and Community Effects’; Part 9 ‘Vehicle Travellers’; and IAN 125/25. With respect to wider socio-economic effects reference is made to guidance from the Homes and Communities Agency. Sensitivity criteria for community and private assets, and development land are set out in Table 13-3. Reference is made to the use of professional judgement to set criteria for severance effects and changes	The DMRB was updated in 2019 and now includes LA 112 Population and Human Health. This replaces previous DMRB guidance (Volume 11, Section 3, Part 6 ‘Land Use’, Part 8 ‘Pedestrians, Cyclists and Equestrians’ and Part 9 ‘Vehicle Travellers’). The new standard sets out the requirements for assessing and reporting the environmental effects on population and health from construction, operation and maintenance of highways projects.

Para/topic	The Inspectorate’s comments	National Highways response
	in amenity.	
4.8 People and Communities	Potential significant effects are described in Section 13.9, for both the construction and operational phases. Construction effects on assets are predicted from demolition, land-take, and severance to access. Disruption to other development land is also predicted. Changes to amenity and disruption to non-motorised routes is predicted.	No response required.
4.8 People and Communities	Wider socio-economic effects are predicted during construction and operation. Operational phase effects identified include those associated with increased noise and reduced air quality (i.e. reduced amenity) and changes to travellers’ views.	No response required.
4.8 People and Communities	Mitigation measures are outlined in Section 13.9 with reference of the use of a CEMP to minimise construction effects and to sensitive design. A commitment is made in the Scoping Report to prepare detailed mitigation for effects on commercial and residential properties.	Embedded, essential and good practice mitigation has been described in the ES Chapter 13: Population and Human Health (Application Document 6.1). This includes mitigation for commercial and residential properties.
ID1 People and Communities Decommissioning	The Inspectorate has provided comments on matters that the Applicant has set out as being scoped out of the EIA. Notwithstanding comments made at paragraph 2.3.7 of this Opinion the Inspectorate is content to scope this matter out of the assessment of impacts to people and communities in the ES.	No response required.
ID2 People and Communities Transportation of excavated material	The Scoping Report identifies road, river or rail as being options for transporting excavated material. The ES should clearly set out the assumptions that have been made within the assessment of transportation impacts. A worst-case scenario should be assessed. Where transportation by river or rail is relied upon to mitigate road transportation impacts (as implied in paragraph 6.9.4 of the Scoping Report), the Inspectorate would expect to see commitments made to	It is possible for some construction material to be transported via existing ports on the northside of the River Thames. Material supplies and oversize equipment could be brought into the Port of Tilbury London Limited (PoTLL) and Port of Tilbury2 (Tilbury2). Assumptions made in the assessment of transportation impacts and potential impacts on river navigation and the marine environment, in the vicinity of the Project are

Para/topic	The Inspectorate’s comments	National Highways response
	these movements e.g. through the draft DCO. The Applicant should also have regard to the points raised by PLA on this matter.	considered under the private property and housing topic in ES Chapter 13: Population and Human Health (Application Document 6.1). The comments raised by the Port of London Authority (PLA) in relation to existing infrastructure and activities within the River Thames have been considered in the assessment. Please also refer to Table 23.1 in this appendix, which sets out responses to Port of London Authority’s comments on the Scoping Report.
ID3 People and Communities Impacts on navigation	The Scoping Report identifies the potential for impacts on navigation from the construction and use of a jetty, however the methodology in section 13.7 does not propose to assess such impacts. The Inspectorate considers that impacts on navigation for both commercial and recreational craft should be assessed within the ES. Risk mitigation methods should also be identified.	There is no longer a proposed jetty in the Project.
ID4 People and Communities Marine environment - baseline	The Applicant should ensure that the ES accurately reflects the existing infrastructure and the activities that take place within the River Thames and is directed to the comments of the PLA in this regard.	The existing baseline of marine and riparian assets is detailed in ES Chapter 13: Population and Human Health (Application Document 6.1).
ID5 People and Communities Study area and baseline	The Inspectorate considers that the provision for construction workers accommodation and facilities should be assessed, and that significant effects may extend into a wide geographical area. Dartford Borough Council (DBC) have provided comment in this regards, and express concerns that consideration of potential impacts should be expanded across the wider North Kent area. ECC also provide comments on the study area applied to the assessment in their response.	An assessment of construction workforce accommodation has been undertaken to determine whether there is sufficient capacity for construction worker accommodation and facilities. The study area for construction workforce impacts on accommodation provision has focused on a 60-minute travel time catchment area from northern and southern tunnel entrance compounds which include the local authority areas of Gravesham, Medway, Dartford, Thurrock, Havering and Brentwood. The findings from this assessment of likely significant effects of construction worker accommodation are reported in ES Chapter 13:

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		Population and Human Health (Application Document 6.1). Further information can be found in the Worker Accommodation Report (Application Document 7.18).
ID6 People and Communities Health Baseline and Methodology	Table 13-4 mentions local roads being included in the study area, and paragraph 13.5.1 mentions data from traffic models being used to establish the baseline. Assumptions regarding future traffic conditions are also mentioned in paragraph 13.7.27. However, very little detail is supplied as to how traffic modelling data will be applied to the assessments in this chapter of the ES, and how much of the assessment will be based on qualitative criteria. This should be fully demonstrated in the ES.	A human health assessment was undertaken to consider impacts arising from changes to traffic conditions in relation to landscape amenity. Refer to Table 13.72 and Table 13.77 of ES Chapter 13: Population and Human Health (Application Document 6.1) for a summary during construction and operation respectively, and for a full description of effects refer to the Health and Equalities Impact Assessment (Application Document 7.10).
ID7 People and Communities Methodology	This paragraph does not mention residential assets in the discussion of private assets that may be affected, although earlier in the Scoping Report these are identified as relevant. The Inspectorate considers that residential assets should be included in this assessment and are relevant to the assessment of private assets. The ES should address this, and the methodology applied must be explained.	Residential assets have been included in ES Chapter 13: Population and Human Health (Application Document 6.1), under the heading of commercial and private assets.
ID8 People and Communities Methodology – assessment criteria	The methodology and criteria applied to the assessment must be explained and justified in the ES.	The methodology and criteria applied to the assessment have been explained and justified within ES Chapter 13: Population and Human Health (Application Document 6.1).
	Paragraph 13.7.14 makes reference to the criteria to be applied in the assessment of severance effects, and to Table 13-5. However, these criteria are not presented in the Scoping Report (Table 13-5 lists the numbers of different types of non-motorised routes likely to be severed). Paragraph 13.7.15 makes reference to the criteria to be applied in the assessment of changes in amenity, and to Table 13-6. These	ES Chapter 13: Population and Human Health (Application Document 6.1) considers likely significant effects relating to community severance and has sought to mitigate these effects and details the assessment criteria that has been used. The Project has sought to improve accessibility within and between communities, providing opportunities for people to connect with jobs, services and community services and facilities.

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	criteria are not presented in the Scoping Report (there is no Table 13-6 presented).	
ID6 People and Communities Construction effects and mitigation	The ES should clearly describe how design, construction phasing, multiple construction crews, and traffic management measures are expected to affect local roads, amenities, and non-motorised routes. A number of consultees have provided information which should be taken into account within this assessment.	The assessment of construction impacts within ES Chapter 13: Population and Human Health (Application Document 6.1) clearly sets out the impacts of construction phasing, multiple construction crews, and traffic management measures on local roads, amenities and non-motorised routes.
	For example, KCC provide advice on important non-motorised user routes in the vicinity of Gravesend, and considerations in relation to the proposed England Coast Path national trail due to be in place by 2020. NE provide additional comment regarding this national trail from a design perspective.	The England Coast Path project has been considered and is reported as part of the baseline for the South of the Thames Public Right of Way (PRoW) network in ES Chapter 13: Population and Human Health (Application Document 6.1).
	KCC also address the need to assess severance of non-motorised routes in their response, as well as impacts on minor local roads in particular during construction. TC express concerns regarding impacts to PRoW and include reference to the England Coast Path in their response.	PRoW which would be severed by the Project are listed in ES Chapter 13: Population and Human Health (Application Document 6.1) together with detail regarding estimated periods of time for which use of the routes would be affected and changes in journey length for users. The England Coast Path project has been considered and is reported as part of the baseline for the South of the Thames PRoW network.
ID7 People and Communities Operational effects	It will be important to explain in the ES the significance of air quality and noise effects in relation to amenity, with appropriate cross- reference to the relevant aspect chapters.	<p>There are linkages between the assessment of potential effects on population and human health and other chapters of the ES, notably:</p> <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document 6.1) • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 10: Geology and Soils (Application

Para/topic	The Inspectorate’s comments	National Highways response
	<p>The Inspectorate notes that Medway Council (MC) have provided information on the predicted growth in Medway and the emerging development strategy, with respect to the Lower Thames Area Model for traffic modelling proposed in the Scoping Report. This information is also likely to be relevant to the Air Quality and Noise assessments.</p> <p>ECC have also provided advice regarding growth on the A127 corridor and emerging Local Plans. The assessment in the ES should take this information and any other relevant information of this sort into account.</p>	<p>Document 6.1)</p> <ul style="list-style-type: none"> ES Chapter 12: Noise and Vibration (Application Document 6.1) <p>Local authorities were contacted for information regarding the status and degree of certainty regarding new developments planned for their area, and interrogation was made of their online planning portals. This information is stored in the Uncertainty Log which can be found in Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7). A summary of the approach taken is provided in the Combined Modelling and Appraisal Report (Application Document 7.7). Local policies, including transport plans and strategies, local plan core strategies have been considered. These are detailed in ES Chapter 13: Population and Human Health (Application Document 6.1) and include Medway Council’s Local Plan (Adopted 2003) and Essex County Council’s Essex Transport Strategy – The Local Transport Plan for Essex (2011 – 2025).</p>
<p>ID8 People and Communities Potential effects and mitigation</p>	<p>The Inspectorate considers that effects on amenity will also result from changes to traffic conditions, both during construction and operation. The ES should assess this matter and explain how traffic modelling data will be applied to the assessment.</p> <p>In undertaking this assessment, the detailed comments from ECC regarding the assessment of community effects, in particular economic effects, should be taken into account.</p>	<p>This impact on community assets is presented in ES Chapter 13: Population and Human Health (Application Document 6.1). This assessment takes into account traffic modelling inputs, such as traffic management measures and how these may impact various aspects such as residents, user experience of amenities and businesses.</p> <p>Please refer to Table 7.1 in this document.</p>
<p>4.9 Road Drainage and the Water Environment</p>		

Para/topic	The Inspectorate’s comments	National Highways response
4.9 Road Drainage and Water Environment	The Study Area for surface water is defined in section 14.7.3 and constitutes the area within the Proposed Development red line boundary as well as downstream reaches of the River Thames and the River Mardyke and any other surface water within 500m of the Proposed Development. The ground water Study Area is defined in section 14.7.6 as any receptor or resource within 3km of the Proposed Development.	The study areas are described in Section 14.3 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and are illustrated in ES Figures 14.1 and 14.2 (Application Document 6.2).
4.9 Road Drainage and Water Environment	The Methodology is based on guidance from DMRB Volume 11, Part 10 HD45/09, the EA 2017 guidance on preventing ground water pollution, and various CIRIA publications as stated in section 14.7.6. The assessment of the magnitude and significance impacts will be based upon criteria set out in the DMRB-HD45/09 in sections 14.7.11-14.7.14 and Table 14-3.	Since submission of the Scoping Report, the DMRB has been updated. The methodology is now based on DMRB LA 113 Road Drainage and the Water Environment (National Highways, 2020) and various guidance documents as listed in Section 14.3 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). This does not result in a material change to outcomes of assessment.
4.9 Road Drainage and Water Environment	Potential impacts during construction identified in the Scoping Report include: the contamination of ground and surface waters, a decrease in local water levels, and changes to the geomorphology and hydrodynamics of the area.	Construction and operational impacts are assessed in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and its supporting appendices, notably Appendix 14.5: Hydrogeological Risk Assessment and Appendix 14.6: Flood Risk Assessment (Application document 6.3).
4.9 Road Drainage and Water Environment	Potential impacts during operation identified include: increased flood risk, adverse effects to ground water, adverse effects to water quality, and impacts to human health due to increased pollution.	
4.9 Road Drainage and Water Environment	No matters have been proposed to be scoped out of the assessment.	No matters have been scoped out of the road drainage and water environment assessment. It was agreed with the EA during consultation and the MMO that no modelling or sampling was required to assess any impacts on the hydrodynamics and sediment transport regimes of the River Thames.

Para/topic	The Inspectorate’s comments	National Highways response
ID1 Road Drainage and Water Environment Baseline information	The Scoping Report states that ‘limited’ field testing to record abiotic water quality data on the surface waterbodies is proposed. The Inspectorate advises that the Applicant undertakes sufficient field tests to enable the understanding of the interactions between surface water and groundwater, as these tests will inform the assessment of effects on designated sites including the Thames Estuary and Marshes Ramsar site. The results of all field tests undertaken should be included in the ES.	Details of field tests undertaken are provided in Section 14.3 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and Appendix 14.2: Water Features Survey (Application Document 6.3). Assessment of these aspects of the Project are addressed in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and in ES Appendix 14.5: Hydrogeological Risk Assessment.
ID2 Road Drainage and Water Environment Study area	The Applicant has stated that the ‘downstream reaches’ of the river Thames and Mardyke will be included in the study area. The Inspectorate requests that the study area is clearly defined in the ES, with the use of figures as necessary.	Study areas are described in Section 14.3 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and are illustrated in ES Figure 14.1: Surface Water Receptors and Resources and ES Figure 14.2: Groundwater Receptors and Resources (Application Document 6.2).
ID3 Road Drainage and Water Environment Groundwater receptors	The ES should assess all relevant groundwater receptors including those that would result in direct/indirect discharge to the Thames. The Applicant should discuss and agree the approach to this assessment with the MMO.	The results of the assessment of effects on groundwater receptors is provided in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and in ES Appendix 14.5: Hydrogeological Risk Assessment. Details of discussions with the MMO are tabled in Section 9.1 of ES Chapter 9: Marine Biodiversity (Application Document 6.1).
ID4 Road Drainage and Water Environment Marine processes	The ES should include assessment of impacts to marine processes and the implications for ecological receptors. The extent and approach to the assessment should be discussed and agreed with relevant statutory consultees.	This assessment is presented in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
ID5 Road Drainage and Water Environment Flood defences,	The ES should assess impacts to existing flood defences including those that may result from vibration during	This assessment is presented in ES Appendix 12.6: Assessment of Ground-borne Noise and Vibration at land-based receptors.

Para/topic	The Inspectorate’s comments	National Highways response
drainage, watercourse impacts	construction. The Applicant should agree the approach the assessment with the EA and any other relevant consultees.	
ID6 Road Drainage and Water Environment Sources of flooding	The Inspectorate considers the potential for existing infrastructure to contribute to flooding should be included in the assessment, where significant effects could occur. It is noted that Anglian Water have commented on the need to consider sewer flooding when assessing sources of flooding and flood risk.	Assessment of all relevant forms of flooding, including sewer flooding, has been considered in the assessment presented in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and Appendix 14.6: Flood Risk Assessment (Application Document 6.3).
4.10 Climate		
4.10 Climate	The study area for the assessment of climate change adaption comprises the South East of England (see section 15.7.3). The study area in relation to Green House Gas (GHG) emissions would comprise the application boundary and the traffic model area (see section 15.7.3 and Plate 2-1)	<p>The study areas have been clearly described and justified in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1).</p> <p>The Project has not defined a geographical spatial boundary for the GHG emissions impact assessment for the construction phase and the maintenance, repair and replacement during operation, as these include emissions irrespective of the geographic location in which they occur.</p> <p>The study area for the road-user GHG emissions is the fully modelled area of the Project’s transport model as set out in the Combined Modelling and Appraisal Report (ComMA) (Application Document 7.7).</p> <p>The study area for assessing the potential effects resulting from the vulnerability of the Project to climate change during the construction and operational phases is the Order Limits, which captures all assets, environmental mitigation areas and physical infrastructure associated with the Project (e.g. earthworks, structures, pavement, temporary land take and compounds)..</p>

Para/topic	The Inspectorate’s comments	National Highways response
4.10 Climate	For both elements data collection has been undertaken utilising a range of desk study sources and following the overarching guidance from the Climate Change Act 2008. For climate change adaption, the UKCP09 data provides the predicted climate conditions and a qualitative assessment methodology as shown in Table 15-4 is proposed to be used.	The Climate Change Act 2008 has been a key reference throughout the climate assessment. All standards and guidance used in the assessment can be found in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1).
4.10 Climate	A range of sources have been used with respect to the GHG emissions assessment and a full list can be found in section 15.7.2. The GHG emissions will be assessed by undertaking a qualitative desk study with further quantitative study is proposed to be undertaken to inform the assessment.	The methodology of the climate assessment can be found in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1).
4.10 Climate	The Proposed Development will have the impact of adding to the UKs GHG emissions (see sections 15.7.27 and 15.7.28). Furthermore, due to the potential for increased climate variability and frequency of extreme weather events, the Proposed Development’s vulnerability will be considered with respect to: material deterioration due to high temperatures and periods of heavy rainfall; flooding and damage to drainage systems; and storm damage to structures and other assets (Table 15-5 of the Scoping Report presents a full description of potential effects).	The scope of the climate assessment was to consider the impacts of the Project on climate change as a result of GHG emissions, and also the vulnerability of the Project to climate change. Further details on the scope of the assessment can be found in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1). A separate assessment of major accidents and disasters has been undertaken and is reported in ES Appendix 4.2: Major Accidents and Disasters Long List and ES Appendix 4.3: Major Accidents and Disasters Short List.
4.10 Climate	The Inspectorate has provided comments below on matters that the Applicant has set out as being scoped out of the EIA.	Decommissioning during the post-operational stage has been scoped out.
ID1 Climate GHG assessment of deconstruction, demolishing, and decommissioning.	Notwithstanding comments made at paragraph 2.3.7 of this Opinion the Inspectorate is content to scope decommissioning out of the assessment of climate in the ES.	No other matters have been scoped out of the climate assessment.
ID2 Climate GHG assessment of	Noting that the Scoping Report predicts low GHG emissions, and given the nature of the Proposed Development, it is	The climate assessment methodology was updated from that outlined in the Scoping Report, following the issue

Para/topic	The Inspectorate’s comments	National Highways response
operational water use, other operational processes, transport of plant and equipment to the construction site	agreed that significant effects are unlikely to arise, but the Inspectorate asks that the evidence for scoping these processes is included in the ES. Specifically, the reasoning (i.e. the ‘cut- off rules’) for exclusion should be given in the ES, and an explanation of what is meant by ‘other operational processes’.	<p>of DMRB LA 114 Climate (National Highways, 2021). DMRB LA 114 Climate makes provision for the requirements outlined within EU Directive 2011/92/EU as amended by 2014/52/EU and the Climate Change Act 2008 (as amended) and remains consistent with the Scoping Opinion. This would not result in a material change to outcomes of assessment.</p> <p>The quantification of GHG emissions, based on PAS 2080:2016, has been extensively reported in the C&EMP (Application Document 7.19). This includes a presentation of which PAS 2080:2016 modules are included and provides an explanation of those that have been excluded (with the cut-off rules). ES Chapter 15: Climate (Application Document 6.1) refers to the C&EMP for details on the matter.</p> <p>GHG emissions from operational activities have been compared to the UK carbon budgets in line with NPSNN requirements. The “other operational processes” that the Scoping Report referred to, include management of operational water and waste.</p>
ID3 Climate Climate change adaptation assessment	As set out in the NPSNN the Applicant should take into account the potential impacts of climate change using the latest UK Climate Projections, this should include the anticipated UKCP18 projections where appropriate. The predicted climate changes presented in the Scoping Report appear to contradict one another. The Applicant must ensure the data relevant to the assessment is presented clearly in the ES.	<p>The existing baseline has been developed using the Project’s transport model which is based on the existing road network and its predicted use, accounting for any increase in traffic and associated congestion in 2016 (the model’s base year). The model has been used to establish a baseline against which the Project can be compared to identify any variations in GHG emissions over time.</p> <p>Data have been sourced from UKCP18 and the Met Office Observational data for the stations nearest to the Project (Stanford-le-Hope, Writtle, Gillingham No2 and East Malling) and this has been presented in ES</p>

Para/topic	The Inspectorate’s comments	National Highways response
		Chapter 15: Climate (Application Document 6.1) and in ES Appendix 15.2: Climate Resilience Baseline.
ID4 Climate Study Area- south East of England	The inspectorate has concerns regarding the robustness of the assessment over this large study area. The ES should include a justification of the chosen study area with reference to relevant guidance and consultation undertaken, if applicable.	The study area is described and justified in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1). In line with DMRB LA 114 the study area for assessing the potential effects resulting from the vulnerability of the Project to climate change during the construction and operational phases is the Order Limits, which captures all assets, environmental mitigation areas and physical infrastructure associated with the Project (e.g. earthworks, structures, pavement, temporary land take and compounds). It should be noted that the existing baseline and forecast future baseline reported for the assessment has been derived using regional climate and projection data.
ID5 Climate Study Area	The Inspectorate requests that the traffic model area is defined in the ES, and acknowledges this information will underpin the traffic, air quality and noise assessments as well as the assessment in this chapter. With this in mind, it would be appropriate to cross reference in this chapter to where it is defined elsewhere in the ES.	The Affected Road Network (ARN) is fully described in Section 5.3 of ES Chapter 5: Air Quality (Application Document 6.1) and underpins the air quality and noise assessments. Appendix B: Transport Model Package and Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7), and ES Figure 5.3 (Application Document 6.2) depicts the traffic model area which is referenced in ES Chapter 15: Climate (Application Document 6. 1)
4.11 Cumulative Effects		
4.11 Cumulative Effects	From the information in the Scoping Report, the study area (or Zone of Influence, ZoI) for the cumulative effects assessment is determined relevant to the environmental aspect considered, which in turn informs the determination of what ‘other developments’ to be included. This chapter	More detail on the study area and methodology of the cumulative effects assessment can be found in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).

Para/topic	The Inspectorate’s comments	National Highways response
	explains how the list of other projects is to be determined and Figure 16.1 illustrates the location of those identified at the scoping stage.	
4.11 Cumulative Effects	In terms of methodology, the Scoping Report states that the list of other developments is to be determined following the advice in the Inspectorate’s Advice Note on cumulative effects assessment. The Scoping Report outlines the approach taken to setting the Zol, and to applying criteria to arrive at a short list of developments for detailed information gathering. Chapter 16 explains how a ‘tiered approach’ will be applied to allow judgement on the certainty of other development in the Zol going ahead at the same time as the Proposed Development. As well as inter-project effects, intra-project effects also form part of this assessment. The methodology for this aspect of the assessment is based on identifying receptors which are subject to residual effects under more than one environmental assessment.	No response required.
4.11 Cumulative Effects	The Applicant has not identified any potential cumulative impacts at this stage.	The full cumulative effects assessment can be found in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).
4.11 Cumulative Effects	The Inspectorate has provided comments below on matters that the Applicant has set out as being scoped out of the CIA.	No response required.
ID1 Cumulative Effects Methodology	The Scoping Report describes how developments which do not/will not overlap on a temporal scale with the Proposed Development, and do not meet defined criteria for scale and nature, will not be included in the ‘short list’ for the scope of the cumulative assessment. The methodology is clearly laid out and justified and the Inspectorate is content with this approach.	No response required.

Para/topic	The Inspectorate’s comments	National Highways response
ID2Cumulative Effects Study area/methodology	The Inspectorate acknowledges the intention to refine the Zone of Influence in light of the emerging traffic model, and the proposed inclusion of other Road Investment Strategy road projects. The Inspectorate notes that there are a number of other proposed NSIP developments in proximity to the Proposed Development. The Applicant’s assessment should be consistent with advice contained in the Inspectorates Advice Note 17. The ES should in particular assess any impacts the Proposed Development may have with and to other proposed development. The Applicant’s attention is drawn to the comments of Port of Tilbury London Ltd (PoTLL) in this regard, and particularly the timescales applicable to the assessment and overlapping impacts to proposed mitigation.	ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) has been undertaken following the Planning Inspectorate’s Advice Note 17. Port of Tilbury London Ltd (PoTLL) comments have been taken into consideration. The Applicant has recognised the overlapping nature of other NSIPs/major development in the area. Additional developments have been compiled in the short list which have been shared with relevant stakeholders.
ID3 Cumulative Effects Scope – other developments	The cumulative assessment should be based on the most up to date information available regarding the other developments considered. The EA, the Forestry Commission, and TC all provide comment on additional developments which should be taken into account in the assessment. NE also refer to a number of other developments including the A2 Bean to Ebbsfleet Improvement Scheme which has been subject to a request for a Scoping Opinion from the Inspectorate. The Applicant should have regard to this information when determining the scope of the assessment.	The EA, the Forestry Commission, Thurrock Council and NE comments have been taken into consideration. The A2 Bean to Ebbsfleet Improvement Scheme has been included in the cumulative assessment short list (ES Appendix 16.2).
5. Information Sources		
5.0.1	The Inspectorate’s National Infrastructure Planning website includes links to a range of advice regarding the making of applications and environmental procedures. These include: <ul style="list-style-type: none"> • Pre-application prospectus • Planning Inspectorate advice notes: 	The Applicant has used the Planning Inspectorate’s pre-application prospectus and advice notes where appropriate, as per the list in the Scoping Opinion. Since the Scoping Opinion was received some of these advice notes have been updated. The Applicant has referred to the most up-to-date versions, apart from Advice Note

Para/topic	The Inspectorate’s comments	National Highways response
	<p>Advice Note Three: EIA Notification and Consultation; Advice Note Four: Section 52: Obtaining information about interests in land (Planning Act 2008); Advice Note Five: Section 53: Rights of Entry (Planning Act 2008); Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping; Advice Note Nine: Using the Rochdale Envelope; Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects (includes discussion of Evidence Plan process); Advice Note Twelve: Transboundary Impacts Advice Note Seventeen: Cumulative Effects Assessment; Advice Note Eighteen: The Water Framework Directive.</p>	<p>Seven where version six was used. This advice note was referred to during the screening and scoping stages of the EIA in 2017.</p>
5.0.2 Information Sources	<p>Applicants are also advised to review the list of information required to be submitted with an application for development consent as set out in The Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (as amended).</p>	<p>The list of information required to be submitted with an application for development consent as set out in the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (as amended) has been taken into account.</p>

4 Anglian Water

Table 4.1 Anglian Water

Anglian Water comment	National Highways response
<p>It would be helpful if we could discuss the following issues:</p> <ul style="list-style-type: none"> • Wording of the Draft DCO including protective provisions specifically for the benefit of Anglian Water. • Requirement for wastewater services. • Impact of development on Anglian Water’s assets and the need for mitigation. • Relationship to other nationally significant infrastructure projects e.g. Tilbury 2. • Pre-construction surveys 	<p>Meetings were held with Anglian Water between November 2017 and October 2019 to discuss and agree principles for disposal of foul water arising from the Project in the Essex area to the sewer network with discussions culminating in the preparation of developer services applications, submitted in December 2019. Engagement has, and shall continue between both parties with regards to the proposals for remediation of impacted assets via diversions or protective measures with appropriate consents and rights to be sought by the Applicant via the Order to ensure network continuity for Anglian Water. Relationships to other nationally significant infrastructure projects is considered in Application Document 7.17.</p>
<p>The Environmental Statement should include reference to Anglian Water’s existing assets and any potential impacts from the above development. We would expect any requests for alteration or removal of foul sewers or water mains to be conducted in accordance with the Water Industry Act 1991.</p>	<p>Assets diversions have been identified as part of the Project design. ES Chapter 2: Project Description (Application Document 6.1) sets out proposals in relation to these assets, as assessed within the ES.</p>
<p>Consideration should be given to all potential sources of flooding including sewer flooding as part of the Environmental Statement and related Flood Risk Assessment.</p>	<p>All aspects of potential flooding have been assessed, as reported in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment (Application Document 6.3).</p>
<p>At this stage it is unclear whether there is a requirement for wastewater services for the above site. It is suggested that the Environmental Statement should include reference to the foul sewerage network and sewage treatment.</p>	<p>Wastewater generated from the compound welfare facilities would be discharged to sewer, subject to agreements with the utility providers.</p>

5 Dartford Borough Council

Table 5.1 Dartford Borough Council

Dartford Borough Council comment	National Highways response
Air Quality	
<p>Fig 6.1: The area shown on the Air Quality Management Areas (AQMA) and Exceedances map should be extended to include the Dartford Crossing, since there may be beneficial effects if the Project is implemented at the A282 Crossing Approach as well as the A2 approach to the M25, both of which have AQMA’s.</p>	<p>AQMAs are shown in ES Figures 5.2 and 5.3 (Application Document 6.2), which includes the Dartford Crossing.</p>
<p>The proposal states that three scenarios are to be modelled: base line, do minimum (i.e. Project not in operation) and do something. In order to fully assess the impact of these scenarios at the existing crossing further consideration should be given to the impact that would be felt on local roads. The scoping report states that receptors are to be considered within 200m of the project, as beyond this pollution levels return to background, however the impacts on the local road network resulting from vehicles displaced from the trunk road on to the local road network is felt over a much greater distance. If the Project is not built forecasts of air quality should also be applied at the existing Dartford Crossing, which the Project is intended to relieve (Para 6.2.2).</p>	<p>The air quality assessment incorporates receptors within 200m of roads where changes in traffic flow, composition and speed meet the change criteria set out in DMRB (i.e. not just the Project itself), and as such, wider traffic effects are considered.</p> <p>Forecasts of the air quality without the Project are provided as part of the Do Minimum scenario.</p>
<p>The scoping report states that the local air quality results are used to assess whether the project represents a risk to compliance with the EU Ambient Air Quality Directive. It should be noted that the PCM model used by DEFRA to determine compliance with this directive does not identify a breach of EU limit values at the existing Dartford crossing, which is not consistent with local air quality monitoring results.</p>	<p>Assessment of compliance with the Directive is undertaken using both monitoring (Automatic Urban and Rural Network) and data from Defra’s Pollution Climate Mapping (PCM) model. The Defra PCM modelling is undertaken at a much larger scale than the modelling undertaken for this Project, as it covers the national road network. The Project modelling is much more locally focused and, as such, is verified at a local level rather than on a national scale. Consequently, there are differences in the results between both models (and monitoring data). Whilst the Defra PCM modelling is used to inform which areas are included in the compliance risk</p>

Dartford Borough Council comment	National Highways response
	assessment in accordance with LA105, the outputs of the air quality model built to assess the impacts of the Project is used to determine whether there are any exceedances of limit values.
Noise and Vibration	
<p>The Council has some concerns with regard to the methodology proposed for the noise assessment and its reliance on the DMRB model. Although this does not have a direct impact on the Borough, the Council is keen to ensure that they take a consistent approach in responding to scoping reports. As this guidance gives unreliable predictions of noise exposure where barriers are concerned and has limitations in terms of the accuracy at distance from the proposed carriageway, the Council’s Environmental Health Officer advises that ISO 9613 may provide a more accurate model for both barriers and distance.</p>	<p>The Project team does not agree that ISO 9613-2:1996 provides a more accurate model for both barriers and distance than that used within DMRB LA 111 (i.e. CRTN).</p> <p>It is first worth noting that the DMRB LA 111 clearly advises that CRTN should be used. In addition, the Noise Insulation Regulations specify within provision 6 that noise levels “shall be ascertained in accordance with the advice and instruction contained in the technical memorandum entitled “Calculation of Road Traffic Noise”, and the National Policy Statement for National Networks (NPSNN) states in paragraph 5.191 that “<i>The prediction of road traffic noise should be based on the method described in Calculation of Road Traffic Noise</i>”.</p> <p>Considering distance alone, CRTN is validated to a distance of 600m for road traffic noise, and beyond this it is recommended that only distance attenuation is included in calculations. The stated limit of validity of ISO 9613-2:1996 standard is 1km. While it is acknowledged that this distance is greater than that to which CRTN is validated, it should be noted that ISO 9613-2:1996 has been validated as a general method for fixed sources of noise and has not been validated for the prediction of road traffic noise.</p> <p>For a noise barrier to be effective at reducing noise, the receiver generally needs to be within 200m of the barrier. Beyond this distance the reduction in noise provided by the barrier is negligible. For the Project, only barriers within 200m of the new road have</p>

Dartford Borough Council comment	National Highways response
	<p>been considered. Any differences between the two calculation methods are likely to occur beyond this distance, and it is therefore considered that CRTN provides a reliable indication of noise barrier performance.</p> <p>For a combination of barriers and distance, ISO 9613-2:1996 method is not valid for combinations of large distances and tall barriers. This is confirmed by the standard itself, where in Note 14 of Section 7.4 it states that <i>“For large distances and high barriers, the insertion loss calculated by equation [12] is not sufficiently confirmed by measurements.”</i></p>
<p>It is noted that Amax levels have not been included in the scoping documentation, yet it is clear that impulsive noise is likely to be an issue in the construction phase.</p>	<p>The assessment of construction noise has followed the guidance within DMRB LA111 which advises the use of the L_{Aeq} noise index. However, assessments of impacts from the TBM have been undertaken using the dB L_{ASmax} noise indicator. Impulsive noise is only likely from a few construction activities, such as piling. It is not possible to predict the frequency or noise level of such occurrences of impulsive noise as these are very much dependent on the localised circumstances. Even if it were possible to predict such instances there is no robust evidence to how these affect human response and so an assessment of possible effects is not possible. Where impulsive noise is expected during construction then nearby residents will be made aware through advance communications.</p>
<p>It is also unclear without extensive evaluation (not DMRB) how the requirements of paragraph 5.195 of the NPSNN can be met as this is fundamental and is effectively the requirement for the Noise Policy Statement for England (NPSE) and must be met to demonstrate acceptability.</p>	<p>The Project has been assessed in accordance with appropriate UK policy requirements. In accordance with paragraph 5.195, the ES has considered the potential adverse impacts of noise and identified measures to avoid or mitigate these. This is detailed further within the appropriate sections of ES Chapter 12: Noise and Vibration (Application Document 6.1).</p>
<p>Population and Human Health</p>	

Dartford Borough Council comment	National Highways response
<p>In considering the impact on People and Communities, a wider spatial context should be considered with regard to the ‘local and wider economy’. It is not clear at para 13.1.3 that the cumulative impact of the Project in combination with other large-scale projects in the wider area is to be considered. Table 13-4 only refers to the host boroughs in with respect to the ‘wider study area’. Dartford Council considers that due to the significance of developments in its area, the study area should be extended to cover Dartford.</p> <p>Likewise, Figure 16.1 showing current planned ‘other developments’ in the Zone of Influence should be extended to include the Dartford area and that these other developments should include the proposed London Resort which has been accepted as a Nationally Significant Impact Proposal and a DCO is to be submitted in 2018. The scoping report seems to be conflicted over what is Zone of Influence, as table 1-1 advises 500km.</p>	<p>The local and wider economy has not been considered within ES Chapter 13: Population and Human Health (Application Document 6.1). Please refer to the Need for the Project (Application Document 7.1) and Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report (Application Document 7.7)</p> <p>The proposed development being taken forward by London Resort Company Holdings Ltd has been considered as part of the development land within the assessment in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
<p>It should be noted that unemployment in Dartford is below the national average. The cumulative impacts of development need to consider the potential for labour shortages.</p> <p>However, as mitigation, the intra-project effects need to take account of improved journey times from north of the River Thames and the potential to draw on a wider labour market.</p>	<p>The potential benefits of the Project on employment and journey times have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
Education, skills, employment and legacy	
<p>Dartford experiences significant demand adjacent to the Dartford Crossing from employment uses seeking close proximity to the strategic road network. In this respect, the Council would welcome a comprehensive assessment of a new junction at the A226 to understand the implications for investment and economic development opportunities at this location and to establish potential benefits of spreading demand over the North Kent area and mitigating potential over-heating in the proximity of the Dartford Crossing in the future.</p>	<p>The A226 junction was removed from the Project design before Statutory Consultation because of concerns from stakeholders it would have resulted in significant increases in traffic flows on unsuitable local routes. Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) for more information on the alternatives considered.</p> <p>An assessment of the wider economic benefits of the Project has been undertaken as part of Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report</p>

Dartford Borough Council comment	National Highways response
	(Application Document 7.7) which identifies the opportunities for investment and economic development across the region.
The Project	
<p>Section 2.8 refers to the technology to be utilised as part of the project. It is welcomed that the need for additional variable message signs on the roads approaching the Project (M25, A2 and A13) will be discussed with stakeholders as part of the project development.</p> <p>However, the current message signing at the approach to the Dartford crossing is considered inadequate and an enhancement of this should be considered (para 2.8.7).</p> <p>There is no reference in the Technology section to the use of mobile communications with freight traffic. It is hoped this will be considered further as the project is developed and discussed with stakeholders, so as to ensure the most effective utilisation of the new capacity.</p>	<p>Additional information on technology was provided in the PEIR (National Highways, 2018) during Statutory Consultation in 2018 and has been discussed further with stakeholders.</p> <p>The approach to Dartford crossing is outside of the Project’s Order Limits and so has not been considered.</p>
<p>There is no mention in the description of the Project of how over-size and special loads will be dealt with. Again, it is hoped this will be discussed with stakeholders as part of the further development of the Project.</p>	<p>The Project would provide an alternative route across the Thames, without the need for an escort, for vehicles carrying hazardous materials. The tunnel would be designed as a category A tunnel. These matters have been discussed at ongoing Tunnel Design Safety Consultation Group (TDSCG) sessions. TDSCG includes members of the Project team, National Highways tunnel specialists, National Highways Operations Directorate, the emergency services, adjacent local highway authorities and environmental bodies. This forum would continue to assess safety throughout the development of design. The main outcome of these consultations was the provision of fire suppression plant in operational space for plant and operatives to maintain the tunnels and access to the running tunnels during a potential incident. For further information, please refer to the Project Design Report (Application Document 7.4).</p>

6 Environment Agency

Table 6.1 Environment Agency

Topic	Environment Agency comment	National Highways response
Surface Water Drainage and Biodiversity	The scoping report suggests that highways drainage will discharge to soakaway in this area. This has yet to be agreed however, as soakaways at this location may pose an unacceptable risk to groundwater. Highways drainage discharging to the ditch network raises other complexities, therefore we would welcome further discussion with the applicant on this point to allow us work towards a solution.	Discussions with the EA regarding the drainage solution for the north Kent section of the Project have been ongoing throughout the pre-application phase. Pollution risk to groundwater bodies that would receive discharges of highway drainage, via soakaways, has been assessed and suitable measures are secured within the drainage design to prevent groundwater pollution. Further information is provided in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and its Appendix 14.5:Hydrogeological Risk Assessment (Application Document 6.3).
Surface Water Drainage and Biodiversity	If highways drainage discharges to the surface water environment in north Kent, the applicant must fully consider the potential water quality and ecological impacts of this. Therefore, the ecological assessment must include surveys of the Filborough marshes, and any ditch or watercourse which could receive, or be impacted by highways drainage.	No operational drainage discharges are proposed in the north Kent section of the Project. A temporary discharge is proposed to be received by one ditch, comprising surface water runoff from the southern tunnel entrance construction compound. The potential for this temporary discharge to impact the flow regime and water quality of the receiving ditch is assessed in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). The surveys undertaken of Filborough Marshes and its ditches, are identified in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and ES Appendices 8.1 to 8.13 and Appendix 14.2 (Application Document 6.3).
Surface Water Drainage and Biodiversity	The otter surveys should consider suitable holt locations which could be impacted by highways noise. In addition, they should consider the potential impact of suddenly increasing water levels resulting from drainage. This also applies to the water vole surveys. Ideally preliminary calculations of	The scope of ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) assessment includes degradation of aquatic habitats and potential resultant effects on protected or otherwise notable aquatic species that occupy those habitats. This includes otters and water voles.

Topic	Environment Agency comment	National Highways response
	volumes of drainage should be used to help determine the survey area, as additional water vole surveys may be required to assess these potential impacts.	
Surface Water Drainage and Biodiversity	The surveys note a wide area for potential hydrological impacts on the Ramsar site aquatic invertebrates. However, they should also consider potential chemical impacts from pollution if highways drainage is proposed to discharge to the Ramsar site.	Discussions with the EA regarding the drainage solution for the north Kent section of the Project have been ongoing throughout the pre-application phase. It is confirmed that the drainage design does not include for discharges of highway drainage to ditches within the Ramsar site. Appropriate assessments of pollution risk and hydrological impacts linked to drainage discharges are included in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Surface Water Drainage and Biodiversity	We request to see details of how many ditches will be sampled for aquatic invertebrates. The methodology must be agreed with Natural England and the Environment Agency. There may be historic survey data available for parts of the site. This may help with assessing impacts if it is only possible to gather one year of data. This is important because if there are particularly dry conditions during 2018, this may produce results that are at variance to normal wetter years.	Consultation with the EA and NE has been ongoing throughout the application phase. A full description of the baseline conditions relating to freshwater ecology is presented in ES Appendix 8.4.
Surface Water Drainage and Biodiversity	Surveys should also consider non- Ramsar wetland, such as the local wildlife site at Eastcourt Marshes and the Thames and Medway Canal, as it is possible they may receive highways drainage too.	All wetland areas proposed to receive highway drainage discharges have been surveyed. Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). It is confirmed that the drainage design does not include for discharges of highway drainage to the Thames and Medway Canal or any watercourses at Eastcourt Marshes.
Surface Water Drainage - Essex	Chapter 2 details two potential options for surface water drainage from the development to the North of the Thames: Discharge to soakaway (probably via swales) or discharge to surface water courses. Whatever options are chosen, the applicant would need to demonstrate that there will be no	The effects of the discharge of highway runoff on the receiving water environment are fully assessed in the ES and no significant effects are reported for ground or surface water quality during construction or operation. Please refer to ES

Topic	Environment Agency comment	National Highways response
	adverse impact from the construction or operation of the new crossing/road impact on surface waters or groundwater, and further mitigation/attenuation measures may be required to ensure this. There may be areas where swales or soakaways present too great a risk and are not appropriate (at least without some pollution prevention/attenuation measures).	Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Land Contamination	We have met with the applicant to discuss the proposed temporary works area located east of the northern portal. This area is located over a historic landfill that received liquid hazardous sludge. Further work is required to assess the suitability of this location, as exposing these liquid hazardous wastes should be avoided. Furthermore, the additional surcharging due to the works has the potential to cause mobilisation of these wastes. This must also be assessed. These issues have not been highlighted in the scoping report and will need full consideration in the EIA.	Relevant assessment in relation to historic landfills has been undertaken and is reported in ES. Chapter 10: Geology and Soils (Application Document 6.1) and ES Appendix 10.6 Preliminary Risk Assessment Report.
Dewatering	It is important that the potential impacts on flow in the aquifers from tunnelling and dewatering is assessed as part of the EIA. Please note that dewatering will become a regulated activity from 1 January 2018. We look forward to further discussion relating to dewatering and the pump tests.	Discussions with the EA regarding dewatering and pump tests have been ongoing throughout the pre-application stage. Further details on pumping test are provided in ES Appendix 14.5: Hydrogeological Risk Assessment.
Flood Risk Assessment	We have had some preliminary discussions with the applicant to determine the scope of the flood risk assessment (FRA). We are keen to continue engaging with the applicant regarding this, and the supporting flood modelling that they will need to undertake. We have provided detailed comments below in the section entitled “specific comments on the report”. Please note, control buildings, service buildings satellite compounds and sub stations (both temporary and permanent) should ideally be above the 0.1 cc AEP (1 in 1000) to ensure they remain operational in the extreme event.	As noted above, discussions with the EA on the FRA have been ongoing throughout the pre-application stage. The FRA has been scoped in line with discussions with the EA. Details of the agreed flood modelling are provided in Parts 4 and 5 of Appendix 14.6: Flood Risk Assessment.

Topic	Environment Agency comment	National Highways response
Flood Risk Management Assets and Defences	The EIA will need to consider the interactions between the Lower Thames Crossing (LTC) project and the Thames Estuary 2100 (TE2100) Plan. For example, a new tidal flood barrier may need to be constructed in the estuary by 2070, and Tilbury is one of the potential locations of this barrier. We would welcome further discussions to ensure that the LTC does not limit options for a flood barrier at this location in the future. It is also worth noting that the LTC project will become a beneficiary of future flood defence works in this area, and therefore we may seek contributions from you for these works	As noted above, discussions with the EA have been ongoing throughout the assessment and pre-application phase, and the TE2100 policies and projects have been discussed at meetings. The relationship between the Project and local flood risk management policies, including TE2100, is detailed in Part 2 of Appendix 14.6: Flood Risk Assessment. The EA was also consulted on the TE2100 Plan projects to be included in the cumulative impact assessment. Details of these projects can be found in ES Appendix 16.1: Other Development Longlist.
Heritage	As part of our current programme of works delivered through TEAM2100, we will need to carry out environmental and heritage surveys and assessments at similar locations to the LTC. There may be opportunities to deliver some of these assessments in partnership, to reduce cost to the public purse	Continued regular engagement with the EA has considered opportunities for synergies in the delivery of survey and assessment work.
Flooding	The LTC is likely to significantly impact on our appraisal of the Shorne & Higham Marshes tidal defences as part of our TEAM2100 programme. The defences in the eastern part of this area currently have a P3 policy which means we will not keep pace with climate change, and therefore the standard of protection from flooding will decline over time. This is likely to have an impact on the tunnel and services including the tunnel portal itself. Please note, today’s undefended flood map does not include for climate change scenarios.	Continued regular engagement with the EA has included detailed discussions regarding tidal defences, the impacts of climate change and their relationship to the Project.
Flooding	We are particularly interested in the addition of the spur road to Tilbury Port. It appears that this section of road will have at least 6 interfaces with main river. This is a complex area from a flood risk management perspective, and we would welcome further detailed discussions.	The Tilbury link and proposed jetty are no longer part of the Project.

Topic	Environment Agency comment	National Highways response
Flooding	We would also welcome detailed discussions on the proposed construction compound which may temporarily culvert extensive sections of the West Tilbury Main. We do not maintain this section; however, the sluice and adjacent tidal defences are scheduled for works to be undertaken by TEAM2100. It would be advisable that at least 16m from the landward toe of the tidal defences are left clear during construction, so that works to the defences may be carried out.	Detailed discussions with the EA regarding Project activities affecting the West Tilbury Main watercourse have been ongoing throughout the pre-application stage and the effects of all proposed works are presented in ES Chapter 14: Road drainage and the water environment, and its Appendix 14.4: Hydromorphology Assessment.
Coastal	The applicant should be aware that due to coastal processes, the historic landfills on the northern riverbank are becoming exposed and eroding.	
Flooding	The proposed new jetty could impact on the existing flood defence infrastructure, and the Thames Estuary more generally. This will need to be considered with the EIA.	
Marine Water Quality	The scoping opinion appears to satisfactorily scope marine water quality issues. These are generally restricted to the potential construction of a jetty in the Thames Middle Water Framework Directive (WFD) waterbody, with associated potential dredging and piling works. A full WFD assessment of the proposals will need to be undertaken in due course.	A full WFD assessment has been prepared and is provided in ES Appendix 14.7: Water Framework Directive Assessment. A jetty is no longer proposed as part of the Project.
Ecological Enhancement and Project Legacy	With a project of this nature and scale, there are likely to be significant environmental impacts and a need for substantial mitigation or compensatory habitat. We would strongly encourage the applicant to consider ambitious environmental enhancements on a strategic scale. We would be keen to meet with the applicant, jointly with partners such as Natural England and the Forestry Commission to discuss options.	Various bilateral meetings and workshops have been held with Statutory Environmental Bodies, local authorities and key stakeholders, and outcomes have informed the Project design and its mitigation strategy. These are summarised in Table 8.5: Stakeholder engagement of ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).

Topic	Environment Agency comment	National Highways response
Flooding	2.6.4 - The use of a variety of SuDS techniques can create ecological enhancements. There must be no deterioration to the WFD status of the relevant waterbodies.	Potential to deliver ecological value through use of SuDS techniques has been considered during project development. A full WFD assessment has been prepared and is provided in ES Appendix 14.7: Water Framework Directive Assessment.
Flooding	2.10.2 - Not all parts of the development that lie within flood zone 3 benefit from existing flood defences. Flood defences in the area provide protection against tidal flooding from the Thames, but these defences do not protect against fluvial flooding (e.g. the River Mardyke and West Tilbury Main) where the route passes through fluvial floodplain. We note that an FRA will be prepared (section 2.10.1) to demonstrate how flood risk to the development will be managed now and when taking future climate change in to account. This should include consideration of fluvial as well as tidal flood risks.	Fluvial flood modelling of the Mardyke and the West Tilbury Main has been undertaken for a range of flood events, inclusive of climate change allowances. Please refer to ES Appendix 14.6: Flood Risk Assessment. The modelling has informed the proposed flood protection works and flood risk mitigation measures.
Flooding	2.12.9 – There is a clear risk to the current flood defence embankments during construction of the tunnel. We need to be clear not only about the potential settlement on the embankment but also the potential for failure of the embankments during construction. We note in Section 14.9 that construction phase monitoring of existing flood defences will take place, which we welcome. We would expect this to include associated flood defence assets and also advise that monitoring should be continued post construction phase.	The assessment of these aspects is set out in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and in ES Appendix 14.6: Flood Risk Assessment. Monitoring is an integral part of implementing the mitigation proposed, which is detailed within ES Appendix 2.2: CoCP and would be agreed with the relevant environmental regulator. For more information, please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Flooding	2.13.7 – The construction compound should be considered in the FRA. The impact of any land raising and/or stockpiling with the floodplain will need to be considered in terms of their wider impact on the flood cell, both tidal breach flood risk and fluvial flood risk. We do not have modelled fluvial flood data for West Tilbury Main (a designated main river) and therefore any proposals for positioning a compound within the	Flood risk has been considered for the construction and the operational phases of the Project and is supported by flood modelling (tidal and fluvial, including the West Tilbury Main watercourse). Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and in ES Appendix 14.6: Flood Risk Assessment.

Topic	Environment Agency comment	National Highways response
	floodplain will need to be supported by flood modelling to demonstrate no increased risk to people, property or land.	
Flooding	2.17.5 – Consideration will need to be given to where tunnel arising will be stored. If this storage will be required within the floodplain, then this will need be considered in detail within the FRA to ensure no increased flood risk.	The impact of storing tunnel arisings in the floodplain has been considered. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment.
Flooding	2.17.6 - There should be an ambition to beneficially re-use tunnel arisings where possible.	A series of meetings were held with the Environment Agency and local authorities to agree the Project’s approach to the reuse of excavated materials in line with the waste hierarchy. Commitments around the reuse of materials are included in ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Flooding	2.17.7 - Any embankments required for the highway that cross floodplain will need to be thoroughly considered within the FRA to show there will be no increase in flood risk as a result.	Modelling has been undertaken to assess the flood risk associated with construction of road embankments in the floodplain of the Mardyke and West Tilbury Main watercourses. Flood risk management measures are secured through Project commitments to ensure no increase in flood risk. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment.
Flooding	3.2.7 – Although it would appear from the plans that the tunnel portals will be outside of the current undefended floodplain, we request confirmation on this point. The FRA should consider whether, with climate change, the tunnel portals could come within flood zone 3 in the future, and therefore require their own defences.	The proposed South Portal would be located in Flood Zone 1 (low risk), outside of the undefended floodplain. The proposed North Portal would be located within the defended floodplain (Flood Zone 3), and flood protection measures to ensure that the portal is safe from flooding over the design life of the Project, including for climate change allowances and additional freeboard, are integrated into the design. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment.

Topic	Environment Agency comment	National Highways response
Biodiversity	9.2.8 - We strongly agree with the statement that the development should use opportunities for building beneficial biodiversity. Please see our comments above on “Ecological Enhancements and Project Legacy”.	Various bilateral meetings and workshops have been held with Statutory Environmental Bodies, local authorities and key stakeholders, and outcomes have informed the Project design and its mitigation strategy. These are summarised in Table 8.5: Stakeholder engagement of ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
Waste	9.7.7 - Further details of the compound and spoil strategy will be required as part of the EIA.	Details of the site compounds are detailed within ES Chapter 2: Project Description (Application Document 6.1). An outline Site Waste Management Plan (ES Appendix 2.2, Appendix A) has been prepared in consultation with stakeholders. The contractor would develop this further during detailed design. An outline Materials Handling Plan (oMHP) has also been developed and sets out the earthwork strategy, including excavated material quantities and key movements based on the development design supporting the DCO. The Outline Traffic Management Plan for Construction (Application Document 7.14) provides details on the arrangements of construction compounds, their purpose and locations
Ecology	9.7.14 - Post-construction monitoring will be required of any habitat creation/ enhancement projects to ensure long-term viability.	Long-term commitments to habitat monitoring and management are included within the oLEMP (Application Document 6.7)
Flooding	10.4.18 - Please note that the watercourses are a mixture of main river and ordinary watercourses.	Noted.
Flooding	10.4.59 - When the Environment Agency constructed the defences in this area in the 1980s, we experienced issues with stability in a section near to the Thames. This is unlikely to impact the tunnel and it should be possible to address this with details gathered during ground investigations. However, we may hold some details on this topic if it were of use to the LTC project team.	The EA has been consulted throughout the pre-application stage and the relevant information has been incorporated in the ES. Please refer to Table 14.4: Stakeholder engagement in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1)

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Flooding	10.4.73 - For information, the main river north of the railway also receives pumped groundwater from the Network Rail Higham Tunnel.	Noted.
Flooding	10.8.12 - A long term monitoring scheme will be required to monitor settlement of the surrounding land, including the flood defences.	Monitoring is an integral part of implementing flood mitigation proposed, which is detailed within ES Appendix 2.2: CoCP and would be agreed with the relevant environmental regulator. For more information, please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Flooding	12.2 - Third Party Assets: This must include all Flood Defence structures and associated assets, as we note they are not specifically mentioned. We note that the proposed monitoring and mitigation measures refer only to during the construction phase. However, it likely that this will need to be continued post construction.	
Flooding and vibration	12.8.2&3 – The EIA should consider in greater detail the impact of vibration on the flood defences and the risk this poses to their stability during construction.	The assessments of these aspects are addressed in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and more fully in ES Appendix 14.6: Flood Risk Assessment.
Access	13.9 – The EIA will need to consider and propose mitigation for any impacts on Environment Agency access for maintenance during the construction phase. For example, whether different access routes would be required.	The EA has been consulted with throughout the pre-application phase. Mitigation has been proposed where the Project crosses the statutory main rivers: Mardyke, Orsett Fen Sewer and Golden Bridge Sewer. To protect riverbanks and facilitate EA access to these watercourses for future maintenance, a bankside access track would be incorporated into the design of the crossings, the width of which would be subject to agreement with the EA.
Flooding	14.3.1 – This section states that a WFD Assessment Scoping Note has recently been submitted to the Environment Agency. We have not received this note but would be keen to review it when it becomes available.	The WFD Assessment was sent to the EA to review during the pre-application stage. Please refer to ES Appendix 14.7: Water Framework Directive Assessment.

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Flooding	14.4.6 - The WFD status for the Mardyke is Moderate at present. The LTC should aim to deliver environmental benefits to enhance this status where possible	<p>In the Mardyke catchment the following is proposed to contribute toward improving its ecological status:</p> <ul style="list-style-type: none"> • A culvert on an ordinary watercourse would be broken out, providing for a net increase in the open channel reach of the culvert (subject to landowner agreement and other permissions) and improving potential for improvements in hydromorphological diversity. • Wetland restoration and wet woodland planting is proposed on land adjacent to the Mardyke viaduct, combining habitat improvement in this area with the provision of floodplain compensation storage. • Planting of marshy grassland as habitat creation for riparian macroinvertebrates and macrophytes contributing to the biological quality status of the watercourse, in an area proposed for floodplain compensation adjacent to Mardyke West Tributary. <p>Please refer to ES Appendix 14.7: Water Framework Directive Assessment for more information.</p>
Flooding	14.5.2 - Aquatic water quality sampling may be required for the Ramsar and local wildlife sites where surface water discharge is a possibility. This is because the existing water quality including salinity and pollutants should be well understood to establish how this could be impacted. Sufficient sampling should take place across the site to understand this, whilst taking into account the current prevailing conditions, which during 2018, may include below average long-term rainfall.	<p>A summary of existing data and a proposed survey programme for the Ramsar were agreed with the EA and Natural England prior to the surveys being carried out.</p> <p>Data was also collected from existing sources to establish a robust baseline, such as EA water quality data, and targeted sampling and analysis.</p> <p>More information can be found in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1 and its Appendix 14.2: Water Features Survey. ES Chapter 9: Marine Biodiversity provides details of marine aquatic surveys.</p>
Flooding	The Road Drainage and Water Environment chapter should explain the proposed drainage strategy and determine its likely impact on the Ramsar/SSSI and Local Wildlife Site. This	Discussions with the EA regarding the drainage solution in this area have been ongoing throughout the pre-application stage. Meetings are detailed within Table 14.4 of ES Chapter 14: Road

Topic	Environment Agency comment	National Highways response
	<p>is because proposals to drain to the wetlands may not be acceptable if this will lead to a change in water chemistry and overall quality. As mentioned above, we are keen to continue discussions with the project team on this point.</p>	<p>Drainage and the Water Environment (Application Document 6.1). The drainage design does not include for any operational discharges to the Ramsar/SSSI.</p> <p>The effects of a proposed temporary discharge have been fully considered in the road drainage and water environment assessment , which also includes assessment of proposed discharges to the River Thames, after the application of proposed essential mitigation.</p> <p>Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) for more information.</p>
Flooding	<p>14.5.6 - Please note the Thurrock Strategic Flood Risk Assessment is currently being updated, therefore should be referenced if this is published during this project.</p>	<p>Thurrock Strategic Flood Risk Assessment was published in June 2018 and has been referred to in ES Appendix 14.6: Flood Risk Assessment.</p>
Flooding	<p>14.7.7 & 14.9.1 - We note that compensatory storage will be provided to replace any lost floodplain storage volumes. This should also be expanded to ensure that consideration is given to displaced floodwaters, where flood cells may be divided following the construction of road/placement of spoil, for example.</p>	<p>An assessment of displacement of floodwater has been included in ES Appendix 14.6: Flood Risk Assessment</p>
Flooding	<p>14.7.15 - These bullet points should also reference integrity of defences.</p>	<p>The integrity of flood defences has been considered in ES Appendix 14.6: Flood Risk Assessment</p>
Flooding	<p>14.8.7 – Operation: Information should be provided on the impact of surface water delivery and discharge timing against existing hydrological conditions to determine the effects of change on the hydrological regime.</p>	<p>This has been considered as part of the Surface Water Drainage Strategy, presented in Part 7 of the Flood Risk Assessment, ES Chapter 14 Appendix 14.6 (Application Document 6.3).</p>
Flooding	<p>14.9 - We are keen to discuss the design of appropriate watercourse crossings or watercourse diversions.</p>	<p>Discussions with the EA have been ongoing throughout the pre-application phase.</p>

Topic	Environment Agency comment	National Highways response
Drainage	14.9.1 - As stated above, we would expect the scheme to deliver an ambitious SuDS strategy and seek opportunities for flood storage and ecological enhancement.	Part 7 of the ES Appendix 14.6: Flood Risk Assessment describes how the Project proposed to manage surface water . Overarching principles have been agreed in consultation with the EA and relevant Lead Local Flood Authorities. Opportunities for combining flood storage and ecological enhancement have been considered and have been implemented for example, in the Mardyke catchment at Orsett Fen.
Flooding	14.9.1 – See note on 10.8.12. It would appear that only Construction Phase monitoring of the existing flood defences is proposed, however post construction monitoring will be required.	Monitoring is an integral part of implementing the mitigation proposed. Flood defences would be monitored to establish a pre-construction baseline and for a period of at least 2 years after completion of works to construct the tunnel which is detailed in the REAC (Ref RDWE007) within ES Appendix 2.2: CoCP, commitment RDWE007.For more information, please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Drainage	14.10.1 - We agree that no aspects/impacts relevant to road drainage and the water environment can be scoped out of the EIA at this stage.	Noted.
Climate Change	15.9.8 - We note that ‘Allowances for increased river flows due to climate change would be incorporated in design of elements’. 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. Should a new set of UK Climate Projections become available after the preparation of any environment statement, the Examining Authority should consider whether they need to request additional information from the applicant.	A meeting took place with the EA on 16 May 2019 to agree the flood modelling climate change scenarios and climate change allowances. Since this meeting there have been further updates to EA climate change guidance, most recently in May 2022, these updates have been discussed with the EA and agreements reached as to their application on the Project. More information can be found in ES Appendix 14.6: Flood Risk Assessment.

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Cumulative Impacts	Chapter 16 – we consider it would be useful to consider the cumulative impacts of other large projects in this area, such as TE2100, Tilbury2, Tilbury power station, Coryton oil refinery and DP World.	The EA was consulted on the TE2100 Plan projects to be included in the ES Chapter 16 Cumulative Effects Assessment (Application Document 6.1). Details of these projects can be found in ES Appendix 16.1: Other Development Longlist.
Waste	Figure 11.1 – This does not show all authorised landfills. The ash disposal landfill is still permitted and forms part of the route.	All relevant landfills for which information is available have been included in the assessment, including Tilbury Ash Disposal Site. Please refer to ES Appendix 11.3: List of third-party off-site waste infrastructure receptors and ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Drainage	Table 14-1 - This should also consider water quality and water resource impacts from the SuDS scheme.	This is considered in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Flooding	Table 14.2 - States that the water quality value of unnamed main rivers and ordinary watercourses is low on the basis that they are not classified under WFD. WFD applies to all waterbodies, not just those that are classified under WFD. Only waterbodies above a certain size are classified and monitored under our surveillance programme, but WFD requirements still apply to all waterbodies. Some of these watercourses may support important biodiversity. Therefore, they should not automatically be screened out as low quality.	The attribute quality has been revisited in the assessment and values assigned based on all available baseline data. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).

7 Essex County Council

Table 7.1 Essex County Council

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Referencing	Plate 1-1 the reference to “Southend Airport” on the map – should be amended to read “London Southend Airport” to correctly reflect the name of the Airport.	This has been noted and is correctly referred to in chapters, plates and figures within the ES (Application Document 6.1, 6.2 and 6.3).
Alignment	Please be advised that ECC declares the A127/B186 Warley Street Interchange immediately east of M25 Junction 29, as a planned highway improvement scheme for construction 2018/19 Please be advised the emerging Brentwood Local Plan includes a Strategic Employment Allocation at the M25, Junction 29, which is within both the permanent and temporary land requirements of the site boundary as defined in Appendix F: Figure 2.1 Application Site Location Plans Sheet 5 of 5.	The A127/B1286 Warley Street Interchange Junction Improvements scheme is included in the short list for cumulative effects assessment (ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) and Appendices 16.1 and 16.2). Employment allocations and planning applications at M25 junction 29 have been included in the cumulative effects assessment.
Lighting	ECC welcome the proposal to include lighting on the new network and wish to be engaged with design as the project progresses including the scope, extent and design.	This was noted and more information on lighting was supplied during Supplementary Consultation.
Technology	2.8 Technology – <u>Incident Management Strategy</u> In Section 2.8 , the Scoping Report refers to the technology to be used for traffic management but the Scoping Report does not address an incident management strategy for the construction phase and the continual operation of the scheme. Incidents of whatever nature that could close or significantly disrupt any of the major routes, including the LTC link roads which could have a significant impact on the Essex network and environment. Incidents management plans should be	Incident management during the construction phase will be managed using a Detailed Local Operating Agreement (DLOA), which sets out the roles and responsibilities of National Highways, any existing maintenance provider and the Contractors. A DLOA would be most likely completed with Thurrock Council, but not Essex County Council as the length of the Project route within Essex County Council’s authority area is quite short. Incident management would be included in the document, including vehicle recovery, communication, vehicle clearance escalation etc. The Contractors will develop incident management arrangements and agree them with relevant

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	<p>developed early and ECC would like to be engaged and informed.</p> <p>ECC support the optimal use on advance warning by VMS, radio, live maps etc.</p> <p>ECC recommend that the scope of the Technology should include sufficient provision for future connected car ‘Vehicle to Infrastructure’ (V2I) technology.</p> <p><u>Future proofing – integrated transport, bus and coach trips</u></p> <p>ECC considers there to be an opportunity within what is essentially a strategic highways scheme to examine opportunities for buses and coaches could be examined. The Thames is a natural barrier to movements by public transport and although bus and coach movements will largely be determined by operators, the crossing will undoubtedly be able to facilitate shorter distance trips between origins and destinations in north Kent and south Essex. If planned holistically this could reduce the use of the crossing for shorter car-based travel, for example to work or in the course of business. The study should examine these opportunities with Local Authorities and public transport operators, and this should be part of the Scope of the transport impact assessment undertaken. The study should identify what infrastructure requirements may be required such as ideas of local park and ride sites, bus infrastructure and interchange at local rail stations or near employment centres or town centres as well as bus priority. It would also be useful to establish which local origins and destinations could usefully be targeted. For example, in conjunction with rail travel bus could provide the final or starting leg of multi-modal travel opportunities across the Thames. This whole topic is most important as the</p>	<p>stakeholders at a later date. For the operational phase, there will be standard operational procedures as per National Highways standards at that time. This will broadly be covered in the ES Appendix 2.2: CoCP as part of the DCO submission.</p> <p>The Project has involved Essex County Council in workshops covering potential legacy items and subsequent details around their scope, timing and delivery. Further details of engagement with Essex County Council can be found in the relevant Statement of Common Ground, Application Document 5.4.4.5.</p>

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	new crossing can be expected to generate new journeys a proportion of which may be quite short length trips.	
Non-Motorised User (NMU) Provision	2.9 Non-Motorised User (NMU) Provision and 13.2 - refers to non-motorised users, including cycling and walking, and ECC would like to be assured that these modes will be addressed in the design and that any potential severance will be addressed as envisaged in Section 2.9.	The term NMU is not used within the DCO application. The term used is “walkers, cyclists and horse riders (WCH)”, in line with DMRB LA 112. More information on WCH was presented in the consultation materials at Statutory Consultation in 2018, and further refined at the Supplementary, Design Refinement and Community Impacts Consultations in January and July 2020 and July 2021. In its operational phase, the Project would provide significant benefits for WCH using public rights of way. Refer to ES Chapter 13: Population and Human Health (Document Reference 6.1). Severance issues are discussed in the Health and Equalities Impact Assessment (Application Document 7.10). Mitigation options were discussed with relevant stakeholders before DCO submission, as they became available.
Consultation	ECC would wish to be informed and consulted on the construction traffic planning and management, as there could be significant impacts on the transport network during construction.	Consultation with Essex County Council has been ongoing throughout the pre-application stage.
Cumulative Effects Assessment	This should also take into account the wider HE transport projects and other NSIP projects such as Tilbury 2 in the vicinity, for example with the construction period and therefore construction traffic clash with Tilbury 2 construction?	The cumulative impacts of wider National Highways projects and other NSIPs, as well as other developments, have been assessed as part of the ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).
Materials and Waste Assets	Section 2.17 Waste Management largely leaves the method of waste disposal undecided as potentially road, rail and or water transport. There could be significant local impact depending on mode of transport and if disposal sites are in Essex and /or Essex network used for transport of waste.	Detail related to waste generated from bulk earthworks (i.e. excavated material) is contained in the oMHP (Application Document 6.3 Appendix 2.2). Detail related to other aspects of waste management are contained in the OSWMP and ES Chapter 11 Materials Assets and Waste (Application Document 6.1).

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	Further information is required – please also refer to our comments raised as the Minerals and Waste Planning Authority in Section 11 (Materials).	Construction traffic has been included in the Project’s transport model, which has been used to provide a reasonable worst-case for the environmental assessment associated with the movement of materials and waste. Please refer to the Transport Assessment (Application Document 7.9).
User Charging	Section 2.18 suggests that the user charging strategy has not been developed in much detail. Traffic demand and route choice on the Essex network could be significantly influenced by the chosen charging strategy and ECC would like to be fully informed and engaged in the development, implementation and management of a user charging strategy.	Refer to Road User Charging Statement (Application Document 7.6).
Traffic and Transport	It is noted with concern that there is no dedicated “Transport Section” within the emerging PEIR. A specific and full Transport Assessment is essential to fully understand the potential impacts, mitigations and benefits on both the transport network and environment.	Please refer to Appendix B: Transport Model Package and Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7) and the Transport Assessment (Application Document 7.9). Elements of the transport assessment are also presented in ES Chapter 13 Population and Human Health (Application Document 6.1). A full transport assessment has been carried out. This is presented across the documents referenced above rather than in a dedicated Traffic and Transport ES chapter. An explanation of the approach taken is provided in ES Appendix 4.4.: Transport Assessment.
	ECC requires a full transport assessment to be undertaken to assess the impact of the LTC on the immediate south Essex highway network and the wider Essex highway network. This should also have regard to HE’s own Transport Projects in Essex. This was a key aspect of our previous responses and ECC would expect the Scope to include and understand the following:	The Project has provided the authority with outputs from the Project’s transport model to help them understand the forecast changes in traffic In addition, please refer to the Combined Modelling and Appraisal Report (Application Document 7.7) and the Transport Assessment (Application Document 7.9). These replace the draft versions of the documents shared with the authority.

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	<ul style="list-style-type: none"> The changes in route assignment from origins in central and north of Essex/East Anglia; Key routes and junctions which may become under pressure such as A12, A127, A13; and junctions including routes involving M25 J27, 28, 29 and 30; M11 J6, 7 and 8; A127 all junctions in Essex, A13 Sadlers Farm (A13/A130), A127 Fairglen Interchange (A127/A130); A12 Howe Green junction (A12/A130); and Mitigation where changes in route choice have a detrimental effect on performance. 	Impacts from the Project on the wider roads network are identified in the Transport Assessment (Application Document 7.9) and the National Highways approach to management and monitoring is set out in the Wider Network Impacts Management and Monitoring Plan (Application Document 7.12).
Transport Assessment / Traffic modelling	ECC wish to understand the sphere of influence within the Transport Model which should extend beyond the area shown in Plate 2-1 (page 24) to include the area around Colchester as traffic could be using the A12 to Junction 29, given the onward connectivity to Felixstowe, Suffolk and Norfolk areas.	The Project has provided the authority with copies of the Local Model Validation Report and Traffic Forecasting Report at Statutory Consultation, and, more recently, draft copies of the Transport Model Package and Transport Forecasting Package dated October 2020.
Transport Assessment / Traffic modelling	ECC would like to see the coverage extended to include at least the M11 north of Junction 9 (Stumps Cross) and to be assured that impacts on the M11 will be fully captured despite it being on the edge of the model. Details of the actual network is not shown, but ECC would wish to be assured that the model will include the following key routes: M11 (up to Junction 9), A12 (up to Junction 29) and the A13, A127, A128, A120, A130, A131 and A414 in their entirety (in both directions).	The authority has also been provided with a cordon of the Project’s transport model on a number of occasions, most recently in spring 2022.
Transport Assessment	It is essential that the designs adequately and safely accommodate forecast demands and that the forecasts cover not only forecast traffic flows but also environmental impact, including Air Quality, Noise and Vibration.	The initial traffic model runs determined the likely flows and from this, the number of lanes, the merge and diverge details at junctions, the number of lanes on slip roads, interchanges and connector roads was determined. Once the layout was designed, this was re-modelled to check it performed to the required levels in terms of capacity. For each major iteration of

Topic	Essex County Council comment	National Highways response
		<p>the design, this process was repeated, to ensure adequate capacity would be provided.</p> <p>Environmental considerations have influenced the Project throughout the design development process, from early route options assessment described in ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1), through to design refinement to reach the Project design as described in ES Chapter 2: Project Description (Application Document 6.1). An iterative process has facilitated design updates and improvements, informed by environmental assessment and input from the Project engineering teams, stakeholders and public consultation. The design of the Project has also taken into account results from the air quality and noise and vibration assessments. The design includes embedded mitigation for noise, including cuttings, false cuttings and bunds as well as noise barriers.</p> <p>Please refer to Appendix C: Transport Forecasting Package C of the Combined Modelling and Appraisal Report (Application Document 7.7) for forecast traffic flows.</p>
Population and Human Health / HEqIA	Section 13.2 refers to cycling and walking, but ECC would need to be assured that these modes will be addressed in the design and that any potential severance will be addressed.	The potential effects of the Project on WCHs have been considered during the design process and mitigation measures have been proposed. Severance of WCH routes has been assessed in Health and Equalities Impact Assessment (Application Document 7.10).
Material assets & waste	<p>Section 2.17 The Minerals and Waste Planning Authority (MWPA) welcome the positive statements made with regard to waste being managed in accordance with the Waste Hierarchy and the planned approach with regard to the re-use of contaminated land.</p> <p>Support is also given to paragraph 2.17.2, where it is stated that the Project “will identify all wastes that are likely to be</p>	This has been noted.

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	<p>produced, the quantities likely to be generated and set out the approach for the control and sustainable management of excavated materials and waste from the construction, operation and maintenance of the Project”.</p> <p>Landfill mining, reclamation or other such re-working are accepted as potentially being required to facilitate the preferred route of the LTC. Proposals for works which impact on closed landfill sites in Essex will be required to be in conformity with Policy 14 – Landfill Mining and Reclamation in the Essex and Southend-on-Sea Waste Local Plan 2017.</p>	
Material assets & waste	The title of this Section does not fully reflect its Scope, the section should be renamed “Materials and Waste Management”	ES Chapter 11 was renamed to ‘Material Assets and Waste’ (Application Document 6.1), in line with DMRB standards.
Material assets & waste	<p><u>Assessment of the expected Volume of waste arising</u></p> <p>The MWPA are pleased to note that the requirement of the NPSNN with regard to ensuring that there is sufficient waste capacity to manage waste volumes arising from the construction of the Project has been understood. It is therefore expected that the Environmental Statement will provide an assessment of the expected volume of waste arising from the Project and potential after-uses and disposal routes for this waste, as envisioned in para 11.2.5.</p>	ES Chapter 11: Material Assets and Waste (Application Document 6.1) provides full details and assessment of the expected volumes of waste associated with the Project.
Material assets & waste	<p>Assessment of Expected quantity of Material Resources: it is noted in Paragraph 11.1.3 that <i>“this chapter does not make reference to impacts associated with the offsite manufacture of products or the off-site extraction of primary materials. These stages of the products’ or material resources’ life-cycles are outside the scope of this assessment due to the range of unknown variables associated with the extraction and manufacturing processes”</i>. This is accepted.</p>	This has been noted.

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Material assets & waste	<p>The Methodology in Paragraph 11.7.2 further states that <i>“In respect of the assessment in relation to material resources, a specific study area has not been identified due to the whole market approach that will be used to procure material resources required for the Project”</i>.</p> <p>However, for such a large project, the Environmental Statement could present an understanding of the amount of mineral required for the project and likely sources of that mineral, particularly as the Statement identifies that the amount of waste arising from the project can be quantified. Should sufficient detail be available at this stage to quantify a mineral need, it would be useful to understand how the LTC may impact on productive capacity, annual sales and permitted reserves in relevant mineral planning areas. Such an assessment could conclude whether the LTC presents a basis from which to boost the permitting of mineral supply, as detailed in NPPF Para 145.</p>	<p>A wide range of aggregates is required to satisfy design specification requirements. However, a high-level assessment has been undertaken, estimating the proportion of the total aggregate demand that could be satisfied from local sources. The source of aggregate has been determined by market forces and the use of secondary aggregate prioritised whenever possible. Please refer to ES Chapter 11: Material Assets and Waste (Application Document 6.1).</p>
Material assets & waste	<p>Paragraph 11.4.4 The following statement and the inference to be drawn, is not understood <i>“As a specific study area has not been set for material resources as data for all material resources to be used is not available for the waste study area (Kent and Greater Essex). The quantitative assessment has been based on available material resources data for the UK”</i>.</p> <p>It is further noted that the Study area identified excludes Thurrock and London - data from these waste and mineral planning areas must also be included as part of the baseline evidence.</p>	<p>The study area for ES Chapter 11: Material Assets and Waste (Application Document 6.1) was updated and now includes Kent, Essex (including Thurrock) and East London Waste Authority.. The baseline was also updated to include these waste and mineral planning areas.</p>
Material assets & waste	<p>All information taken from the Greater Essex Local Aggregate Assessment has been updated by way of a later iteration of the report – available here (published October 2017).</p> <p>Table 11-2 (Aggregates Produced within Greater Essex, 2015) is incomplete. Appendix D of the EIA scoping report</p>	<p>ES Chapter 11: Material Assets and Waste (Application Document 6.1) has utilised the Greater Essex Local Aggregate Assessment 2021 (Essex County Council, 2021) (note this assessment includes Essex and Thurrock).</p>

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	contains a version of Table 11-2 which was correct at the time, but which has since been updated in the Local Aggregate Assessment linked above.	
Material assets & waste	The Environmental Statement makes no mention of the possibility of reducing mineral miles by exploring the potential for borrow pits. The use of borrow pits to supplement the total mineral demand may result in the employ of more sustainable building techniques. Policy S6 of the Essex Minerals Local Plan 2014 sets out the basis upon which mineral extraction outside of Preferred or Reserve sites is assessed in the County.	The Project is not proposing to use borrow pits as material requirements are being managed by the cut-fill balance.
Material assets & waste	Waste data relating to Essex (which excludes Thurrock as they are a separate waste planning authority), which underpinned the recently adopted Essex and Southend-on-Sea Waste Local Plan can be obtained from the following documents: Waste Capacity Gap Update - December 2015 and BPP Paper on London Waste Imports Exports Issue.	Essex & Southend on Sea Waste Local Plan, Topic Paper 1: Waste Capacity Gap Update (Essex County Council, 2015) was one of the documents used to establish the baseline conditions for ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Material assets & waste	<p>Paragraph 11.7.10 states that: <i>“As of 31 December 2011, the combined Thurrock and Essex updated landbank for sand and gravel was 8.3 years. Planning permissions secured on the preferred sites identified in the Essex Minerals Local Plan (ECC, 2014) will increase the permitted landbank which otherwise decreases through sales of the aggregates”.</i></p> <p>It is not understood why the December 2011 value has been reported. The latest figure presented in the LAA which informed the EIA Scoping Report is 7.35 years, which rises to 7.95 years in the October 2017 iteration. Given a statutory minimum of 7 years for the sand and gravel landbank, as mentioned above it, it is considered to be helpful if a quantification of mineral need could be ascribed to the LTC.</p>	<p>The latest mineral data was requested from all local authorities and incorporated within the assessment of mineral assets and waste.</p> <p>An assessment of potential use of mineral landbanks in Essex and Kent has been provided to Essex County Council 17 July 2020 in response to this Scoping Opinion comment. Please refer to ES Chapter 11: Material Assets and Waste (Application Document 6.1) for more information.</p>

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	<p>This will assist in the forward planning of mineral release to ensure a steady and adequate supply of mineral for all development needs as well as conformity with NPPF paragraph 145.</p>	
<p>Material assets & waste</p>	<p>Paragraph 11.7.16 quotes the “<i>Essex County Council Capacity Waste Gap Report</i>”, stating that: <i>“In line with the predictions of waste management capacity higher up the waste hierarchy, there would be a surplus of non-hazardous landfill capacity at 2031/32, if no further permissions are granted and all permissions that have secured planning permission become operational”.</i></p> <p>This capacity is not relevant, as the project is assumed to rely on inert landfill capacity rather than non-hazardous capacity. In respect of inert waste management capacity, as highlighted in the Essex and Southend-on-Sea Waste Local Plan, there is a predicted shortfall of inert landfill management capacity at the end of the Plan period (2032), equating to 7.05mt of CD&E waste should no new facilities come forward. Even when factoring in all relevant WLP allocations it is forecasted that there remains a significant capacity gap at the end of the Plan period.</p>	<p>The waste classification determines if waste is inert, non-hazardous or hazardous and can be compared to relevant capacity baseline. The Project design has applied the waste hierarchy to minimise the volume of inert and non-hazardous material being disposed at landfill sites. This has been estimated in the ES.</p>
<p>Material assets & waste</p>	<p>The assessment of the expected volume of waste arising from the LTC Project and potential after-uses and disposal routes for this waste, as envisioned in paragraph 11.2.5, will need to be clearly set out in light of the capacity shortfalls in Essex and Southend-On-Sea. This is of particular importance given the requirements of the NPSNN as articulated in paragraph 11.2.4</p>	<p>ES Chapter 11: Material Assets and Waste, Appendix 11.6 (Application Document 6.1) presents the policy expectations and how the Project complies with them.</p> <p>ES Chapter 11: Material Assets and Waste (Application Document 6.1) includes an estimate of waste arisings from the Project and the potential impacts to local waste infrastructure.</p>
<p>Road Drainage and Water Environment</p>	<p>ECC is the Lead Local Flood Authority (LLFA) in the two-tier administrative area of Essex. The LLFA team has had initial meetings with HE’s representative looking at the drainage and flood risk for the LTC project and are satisfied that at this</p>	<p>This has been noted.</p>

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	stage of the process that consideration is being given to the requirements of the development in relation to surface water drainage.	
Road Drainage and Water Environment	ECC would expect the information relating to the drainage strategy for the scheme to be provided as standard and should be in line with ECC’s SuDS guide supporting documentation referenced in that document. If information relating to these criteria are supplied as part of the general strategy, then we would not require additional consideration of surface water flooding issues to be addressed as part of an EIA report.	More information on drainage proposals were included in Statutory Consultation materials in 2018 and the Community Impacts Consultation in 2021. There has been ongoing detailed technical engagement with LLFA officers regarding the drainage strategy and agreement has been reached that sufficient space is included within the Order Limits to accommodate the drainage design that achieves the criteria set out in the ECC SuDS guide. Details are provided in Part 7 of ES Appendix 14.6: Flood Risk Assessment.
Road Drainage and Water Environment	However, at this stage of the process ECC has significant concerns about the extent of the redline boundary that has been made publicly available. It does not provide allowance for the provision of above ground attenuation features.	
Road Drainage and Water Environment	This was raised during early discussions with water consultants. ECC is concerned that if the space required for these features is not accounted for at this stage of the process there will be limited scope to increase the extent of the development boundary at a later stage. This could lead to the implementation of a substandard surface water drainage system as part of a development that is significantly increasing the amount of hardstanding in a number of administrative areas, which could in turn increase flood risk or decrease water quality in these areas. The redline boundary should be amended to reflect initial discussions about spatial requirements to facilitate the delivery of a suitable drainage scheme.	
HEqIA	ECC suggests that Public Health England (PHE), as the lead nationally for health protection, is made aware of this nationally significant infrastructure project (NSIP).	Public Health England provided comment in their scoping consultation response on the approach to assessing effects on

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	<p>At present, the scoping of the EIA human health element is very much focused upon the environmental impacts of this proposal on the population and environmental health has been consulted to provide their input and expertise. We very much support the inclusion of this to ensure that the health of our residents is protected.</p> <p>However, it is not clear what the assessment of the population in 5.5.4 will address as little detail is provided. ECC recommend that multiple issues should be included and ECC Public Health would be able to provide advice and signpost HE to the relevant data sources for this.</p>	<p>human health. National Highways responses to these comments can be found in Table 25.1.</p> <p>A Community Impacts and Public Health Advisory Group (CIPHAG) was set up during the pre-application stage, and meetings were held every 2-3 months.</p> <p>The purpose of this group was to bring together key stakeholders and provide an update on relevant topics covered under the Community Impacts workstream and specifically the Health and Equalities Impact Assessment (Application Document 7.10).</p>
HEqIA	<p>It is not clear how the proposal to divide human health throughout the various chapters as defined in in 5.5.3 page 56, will provide an overview of the overall health impact and this has the potential to not allow for a true assessment of the impacts on health from this development, if the impacts are not in a single form to be reviewed. As such, it is suggested that undertaking a health impact assessment (HIA) could make this assessment more robust as either a standalone assessment to compliment the EIA or integrated into the EIA in more detail.</p> <p>HIA address health impacts of development specifically and have the ability to incorporate the wider determinants of health. They are designed to ensure that both the positive elements of development are identified and subsequently optimised, whilst the negative impacts of health are recognised and mitigated against.</p> <p>HIA are supported by Local Planning Authorities across Greater Essex by the Essex Planning Officers Association. They are promoted as best practice and strongly supported by the Director of Public Health at ECC.</p>	<p>A Health and Equalities Impact Assessment (Application Document 7.10) has been prepared. The findings of this assessment are summarised within ES Chapter 13: Population and Human Health (Application Document 6.1).</p>

Topic	Essex County Council comment	National Highways response
Population and Human Health	The project objectives of this report include considerations to the economy (to support local development, regional economic growth in the medium to long term). Public Health within ECC has a focus on employment and the health improvement and the positive impact upon wider determinants of health from this. We feel that there are many potential employment opportunities from the construction and operational phases including the actual development, supply chain and the wider economy as 13.8.5 and 13.8.13 (page 248/249). This supports ECC’s vision of helping the people of Essex prosper by increasing their skills and improving the health of people in Essex.	As noted above, CIPHAG meetings were held every 2-3 months, to bring together key stakeholders and provide an update on relevant topics covered under the Community Impacts workstream and specifically the Health and Equalities Impact Assessment (Application Document 7.10).
Population and Human Health	ECC recommend discussion with relevant authorities including ECC on the skills, education and employment opportunities that could arise from this proposal. ECC Public Health can contribute to these conversations and support 13.7.9 (page 244).	As noted above, CIPHAG meetings were held every 2-3 months, to bring together key stakeholders and provide an update on relevant topics covered under the Community Impacts workstream and specifically the Health and Equalities Impact Assessment (Application Document 7.10).
Population and Human Health / HEqIA	ECC is concerned with the potential severance issues for the local community that has been raised in paragraph 13.9.7 (page 251). At ECC we have some support that could input into this so that the movement, access and connectivity of our residents are not negatively impacted upon.	
Population and Human Health / HEqIA	<p>Conclusions</p> <p>The EIA considers the health impacts from the environment to health. However, the elements of the development which could impact upon the wider determinants of health have not been included to the level that we would want to be considered including those to the economy.</p> <p>It is not clear how this will be achieved nor clear how this would be included as part of the proposed EIA. It is common</p>	<p>Recommendations 1 and 2 – A Health and Equalities Impact Assessment (Application Document 7.10) has been prepared. The findings of this assessment are summarised within ES Chapter 13: Population and Human Health (Application Document 6.1).</p> <p>Recommendation 3 – Refer to Table 25.1 of this appendix.</p> <p>Recommendations 4, 5 and 6 – CIPHAG was set up during the pre-application stage and came together at meetings held every 2-3 months. The purpose of this group was to bring together</p>

Topic	Essex County Council comment	National Highways response
	<p>for the wider determinants of Public Health to be addressed via a health impact assessment (HIA). ECC therefore recommends the following;</p> <ol style="list-style-type: none"> 1- Consider an HIA to either be integrated into the proposed EIA or as a stand-alone assessment. 2- The report will need to identify the duration of impacts of development on health and the wider determinants, in which phase they arise, whether they are positive or negative. 3- Consider advising PHE about this report so that they can provide advice, guidance and information on the health protection elements to human health arising from this proposal as required. 4- Speak with Directors of Public Health at authorities impacted upon by this development at the earliest opportunity so that they can advise on the methodology of any chosen report. 5- Speak with skills and employment teams at authorities impacted upon by this development so that they can provide support and increase the positive opportunities of these proposals with specific reference to 13.4.29 6- ECC have cycling support dedicated to infrastructure and we would advise that they could be contacted on this point so that residents can still move freely across the County and that connectivity is not negatively impacted upon. 	<p>key stakeholders and provide an update on relevant topics covered under the Community Impacts workstream and specifically the Health and Equalities Impact Assessment (Application Document 7.10).</p>
<p>Population and Human Health / HEqIA</p>	<p>The potential economic benefits of a new Crossing are significant and at this location there is the greatest potential for regeneration and job creation. The 'proposal' also has the potential to have a significant impact and opportunity on the local and wider area of South and Greater Essex in respect of businesses, economic growth, development and planning. It is recommended that wider engagement is undertaken.</p>	<p>These organisations have formed part of the stakeholder engagement process.</p>

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	<p>Paragraph 13.3.2 sets out the scope of engagement with communities and businesses to date and we welcome the ongoing engagement with ECC. ECC also recommend that the following bodies are also directly engaged with this process, namely:</p> <p>All the South Essex Authorities collectively (Basildon BC, Brentwood BC, Castle Point BC, ECC, Rochford DC and the unitary authorities of Southend on Sea BC and Thurrock Council). The authorities collectively wrote to DCLG on the 9th November 2017, to accept an invitation to be a pilot scheme to prepare a “Statement of Common Ground” to support the preparation of a joined Strategic Planning Framework for South Essex.</p> <p>Opportunity South Essex Partnership –the South Essex federated area of SELEP</p> <p>DP World: London Gateway Port</p> <p>Port of Tilbury Limited (there is a specific need to engage with the Port of Tilbury and their port expansion Tilbury2 an NSIP project - “Tilbury2”</p> <p>London Southend Airport</p> <p>Essex Chamber of Commerce</p> <p>South Essex Growth Partnership</p> <p>Haven Gateway Partnership</p>	
<p>Population and Human Health / HEqIA</p>	<p>Paragraph 13.4.9 The paragraph should be amended to reflect the Thames Estuary Coastal path on the north side of the Thames from Grays to Southend on Seastates to read as follows:</p> <p><i>“The England Coast Path is a new National Trail proposed to be complete in 2020; the Grain to Gravesend section in Kent and Grays to Southend section in Essex are both at an early stage of development.”</i></p>	<p>Noted.</p>

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Population and Human Health / HEqIA	<p>Paragraph 13.4.28 ECC can advise that Paramount are no longer linked to the Theme Park development in Kent.</p> <p>In addition to the reference to the Theme Park development in Kent, parallel reference should also be made to the impending Purfleet Film Studios project, (part Thurrock Councils Purfleet Regeneration Scheme). It is also understood that the overall provision of planned commercial filming space has recently been increased above what was originally stated – and has potentially doubled, to close to 1 million square feet. It is considered that this should be taken into account, given the potential impact on the economic character and activity in the area and is due to commence in the next few years.</p>	<p>Noted.</p> <p>Purfleet Regeneration Scheme has been included in the baseline of ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
Population and Human Health / HEqIA / Material assets and waste	<p>It is noted that 13.7.8 takes into account Development Land, which includes adopted and emerging Local Plans as well as planning permissions and applications. Within the two-tier administrative area in the vicinity of the M25 Junction 29 the respective adopted and emerging Local Plans & planning are:</p> <p><u>ECC – Minerals and Waste Planning Authority</u></p> <ul style="list-style-type: none"> • Essex Minerals Local Plan Adopted July 2017 • Essex and Southend on Sea Waste Local Plan – Adopted October 2017 <p>Please refer to the Minerals and Waste Planning section for further details.</p> <p><u>Brentwood BC – Local Planning Authority</u></p> <ul style="list-style-type: none"> • Brentwood Replacement Local Plan - Online Version Adopted August 2005 • Emerging Draft Local Plan Regulation 18 consultation March 2016 	<p>ES Chapter 13: Population and Human Health (Application Document 6.1) has used the relevant Local Plans, including Brentwood Borough Council’s emerging Local Plan 2019, to inform the existing and future baselines of the assessment.</p> <p>Engagement with all host authorities has been ongoing throughout the pre-application stage.</p>

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Population and Human Health / HEqIA	<p>It is noted that the Brentwood emerging Local Plan includes strategic sites allocations along the A127 transport corridor, including an emerging employment allocation “Brentwood Enterprise Park” at the M25, Junction 29. This emerging employment allocation includes part of the LTC’s permanent and temporary Land Requirements, as defined in Appendix F: Figure 2.1 Application Site Location Plans Sheet 5 of 5.</p> <p>ECC would welcome the opportunity to explore this matter further with both HE and Brentwood BC, to understand the wider implications and relationship with the emerging Brentwood Local Plan.</p>	<p>The effects of the construction of the Project on Brentwood Enterprise Park has been assessed in ES Chapter 13: Population and Human Health (Application Document 6.1). Engagement with all host authorities has been ongoing throughout the pre-application stage.</p>
Population and Human Health / HEqIA	<p>Furthermore, please be advised that ECC declares the A127/B186 Warley Street Interchange immediately east of M25 Junction 29, as a planned highway improvement scheme for construction 2018/19.</p>	<p>Noted.</p>
Population and Human Health / HEqIA	<p>ECC considers the definition of the “Local Study Area” to extend to 200m from the application boundary to be insufficient given the nature and scale of this national project and the potential economic impact across Essex and South Essex.</p> <p>As indicated above, in our letter of 24 March 2017, ECC supported Location C in which the KPMG study in 2010, calculated that a new crossing at Location C could contribute £12.7 billion to the local economy. On this basis it is considered that the Local & wider Study Areas in Table 13-4 should be expanded to include an assessment of the economic benefits/implications arising from the project and should include Brentwood BC as a host authority and the Basildon BC as a Neighbouring Authority.</p> <p>At present both Brentwood BC and Basildon BC are preparing their new Local Plans with strategic allocations, which include</p>	<p>The study areas have been defined on a topic-by-topic basis as set out in Table 13.2 in ES Chapter 13: Population and Human Health (Application Document 6.1). In line with the release of DMRB LA 112 Population and Human Health (National Highways, 2020), the local and wider economy has not been considered within ES Chapter 13: Population and Human Health (Application Document 6.1). Please refer to the Need for the Project (Application Document 7.1) and Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report (Application Document 7.7).</p> <p>The study area for human health has been defined to include communities directly and indirectly affected by the Project. At a local level, this primarily includes wards identified as being within 1km of the Order Limits. A wider study area has been used to provide comparative information and this encompasses the local authority areas of Gravesham, Medway, Dartford,</p>

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	<p>growth on the A127 Corridor, and these too should be taken into account.</p> <p>The Wider Study Area should not be limited to the host Local Planning Authorities, it should be expanded to include ECC and all the Essex Authorities to reflect the significance of this project on the national, regional and sub-regional transport network and sphere of influence, in the same manner the wider study area refers to the Greater London Authorities.</p> <p>The Wider Study Area Overall this is a national project which could have a significant impact on the region (both north and south of the river Thames) and the economic implications would spread much more widely than the local authority areas through which the route passes. Given the nature and connectivity to the LTC, including links to the A13, A127 and impact on the strategic road network it is considered that the local study area should be expanded to reflect the wider Transport Model assessment, (see above) and but as a minimum it should incorporate both Brentwood and Basildon Borough Councils, with a view to expanding eastwards to have regard to the London Southend Airport and Saxon Business Park in Southend BC /Rochford DC, and northwards to Chelmsford and Witham given the connectivity of A130 and A12.</p>	<p>Tonbridge and Malling, Thurrock, Southend-on-Sea, Havering, Brentwood and Basildon.</p> <p>National Highways will undertake best endeavours to implement the principles and measures set out within the Skills, Education and Employment Strategy ('the SEE Strategy') [which would be appended to Section 106 agreements for the Project], which sets out how measures would enable the skills, education and employment opportunities associated with the Project to be realised. The SEE Strategy is to be updated every two years to ensure it responds to changing needs and priorities.</p>
<p>Population and Human Health / HEqIA</p>	<p>Paragraphs 13.7.9 and 13.8.5: refer to the local and wider economy. Whilst it recognises the socio-economic impact, consideration should be made to entering into early discussions partners, such as SELEP and Local Authorities (including ECC), to develop a supplementary planning document to develop a local employment legacy, skills and training needs. The construction phase will see a number of skills pinch-points and early consideration and engagement is needed to address these skills and local labour challenges. This may include the need for investment in the local skills</p>	

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	<p>provision in order to address skills issues and develop a skills legacy. ECC would welcome the opportunity to explore this aspect with HE, to promote and develop the skills and employment required for these projects, having regard to the number of imminent HE schemes across the Essex area. This would benefit both HE and the residents and businesses in Essex.</p>	
<p>Historic Environment & Archaeology</p>	<p>7.3.4 The heritage stakeholders identified should not be consulted in isolation. Any future meetings should, where possible, include all relevant heritage advisors.</p>	<p>Monthly meetings were undertaken between all relevant heritage advisors including Historic England, county archaeologists and heritage advisors as appropriate. For a summary of the meetings held, please refer to Table 6.4 in ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>
<p>Historic Environment & Archaeology</p>	<p>7.4 This should include any existing (as mentioned in 7.5.1) or emerging Local Heritage Lists which have yet to be adopted</p>	<p>The Applicant has obtained a large amount of data from Historic England and has also utilised information available from local authorities as part of the desk-based studies for the cultural heritage assessment. This has included Conservation Area boundary data and appraisals and information on local lists of heritage assets. This information was originally obtained in 2017 and has been updated prior to submission of the DCO application.</p>
<p>Historic Environment & Archaeology</p>	<p>7.6.7 & Figure 7.1 - Tilbury Fort and Coalhouse fort as combined monuments forming defensive structures along the Thames should be viewed as Very High Value. This should be discussed with Historic England. This list is not exhaustive, for example The Grade II* Riverside Station is not included although is within the search area of Figure.7.1. It is accepted that this list will continue to evolve.</p>	<p>The cultural heritage assessment, reported in in ES Chapter 6: Cultural Heritage (Application Document 6.1), has since captured all listed buildings within the study area. Tilbury Fort and Coalhouse Fort are defined as Very High Value scheduled monuments. Regular engagement with Historic England and local authority archaeological advisors has included discussion of receptor value.</p>
<p>Historic Environment & Archaeology</p>	<p>7.7.4 It has been recommended that an initial survey a programme of aerial photographic rectification is undertaken as part of the desk-based phase of work. This will then feed into the follow up stages of ground investigation.</p>	<p>A Project-commissioned study of Light Detection and Ranging (LiDAR) and aerial photography has been undertaken for the cultural heritage assessment, reported in in ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>

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	Applicants should also be using the Historic Environment Characterisation Work undertaken by ECC for the Thurrock area. They should also look at the work undertaken by Chris Blandford on Characterisation in the Thames Gateway	
Historic Environment & Archaeology	7.7.6 It is considered that trial trenching should be used in its own right, not just related to geophysics. For those areas where geophysics cannot be used, a general trial trenching evaluation at 5% should be considered ZVI should be defined in conjunction with heritage consultees, to be in accordance with Historic England’s Advice Note 3.	Trial trenching for sensitive areas has been completed. The assessment of buried archaeology in ES Chapter 6: Cultural Heritage (Application Document 6.1) has been undertaken on a robust and precautionary basis. Further trial trenching will continue after the submission of the DCO application, for completeness, and intrusive works would not take place until that is completed. Please refer to ES Appendix 6.8: Trial Trenching Reports.
Historic Environment & Archaeology	7.7.8 The Local Authorities, as curators, should be undertaking monitoring visits to all of the sites investigated. Where possible the number of separate contractors should be kept to a minimum to ensure consistency of results. A consortium of large contractors has been successful on large scale projects in the past.	Local authorities have completed monitoring visits during the ongoing trial trenching. The trial trenching will continue past submission of the DCO application.
Historic Environment & Archaeology	7.7.10 There should be consideration to using side scanning sonar for the Thames. It is recommended that there is discussion with Wessex Archaeology, who may have already undertaken this for the London Gateway.	Side scanning sonar for the Thames has been considered and discussed with Wessex Archaeology. Side scanning sonar has not been completed for the Project because there are no impacts identified within the river or on the riverbed. Side-scanning sonar would not have recorded any archaeological features with the potential to be impacted by the Project.
Historic Environment & Archaeology	7.7.11 In addition to Noise/Traffic Impact, need to cross over with reports/analysis into associated lighting and potential light pollution. This can impact upon Cultural Heritage. It is recommended that Thurrock Councils Nighttime Sky’s data/resources are utilised.	Associated Project lighting has been assessed as part of the cultural heritage assessment and interrelates with ES Chapter 7: Landscape and Visual (Application Document 6.1) which also assesses the effect of light pollution. The cultural heritage assessment takes into account the results of the landscape and visual assessment and the proposed mitigation.

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Historic Environment & Archaeology	7.7.14 Assessments should always assess the 'worst case scenario' for all elements of the proposed.	This has been noted and the assessment assesses a reasonable worst-case scenario.
Historic Environment & Archaeology	7.7.26 It would be more appropriate to discuss the terms of harm with all the specialist heritage advisors involved with the project and not just Historic England.	The Applicant engaged with all relevant stakeholders during the pre-application stage, including county specialists along with Historic England.
Historic Environment & Archaeology	7.8 In relation to changes in groundwater level, the project will especially need to assess the impact on the grazing marsh area and the potential heritage assets it contains.	The cultural heritage assessment considers the interrelationships with ES Chapter 10: Road Drainage and the Water Environment (Application Document 6.1) and takes into account the results of this assessment and proposed mitigation.
Historic Environment & Archaeology	Scheduled Monument at A13 junction - Consideration needs to be given in any EIA for the appropriate recording of the scheduled monument at the junction with the A13 considering the extensive damage that will be caused. Consideration needs to be given to undertaking a total excavation of the scheduled area and associated elements of this nationally important complex.	This area was prioritised as part of the first phase of trial trenching, which allowed the Project specialists to fully understand potential impacts and mitigation required. Trenching results and mitigation has been discussed with local historic environment stakeholders during workshops in April and June 2020 and in monthly meetings in 2021 leading up to submission of the DCO application.
Historic Environment & Archaeology	Cumulative effects - Consideration needs to be given to the cumulative effect of the various developments on the link road (Tilbury II, New power station, Wood processing plant and the Lower Thames routes). How do these various developments impact on the designated assets within the Lower Thames Corridor?	The cumulative effects of developments are considered within Section 6.7 of ES Chapter 6: Cultural Heritage (Application Document 6.1).
Landscape	8.3 Given the nature, location and scale of this project as well as the extension of the LTC route including land within the two-tier area of Essex, ECC welcomes the opportunity to engage with the process and the development of the Landscape and Visual impact assessments. It is recommended that the scope and extent of the assessments are re-considered to ensure the new northern	Essex County Council prepared a character assessment in 2003 – Essex Landscape Character Assessment (Essex County Council, 2003) – which considered the landscape north of the River Thames at a county scale. Given the length of time elapsed since its publication, the regional-scale basis of the assessment, and the local assessments which have been

Topic	Essex County Council comment	National Highways response
	<p>section (beyond M25 Junction 29) is fully considered. ECC recommend that the Essex Landscape Character Assessment.</p>	<p>published more recently, it was not considered appropriate to make reference to this study.</p>
Landscape	<p>The Zone of Theoretical Visibility (ZTV) shown in drawings ZTV CALCULATION NORTH OF RIVER THAMES DETAILED MAP HE540039-CJV-ELS-SNP_ENG0000000-DR-LE-00005,6,7,8,9,10 and 11 Revision P1.1 have been produced using 500m buffers, up to 2500m. However, the ZTV is still largely present at the 2500m boundary, it is therefore recommended that further buffers are added, possibly to 5000m. This will help decipher the extent of the ZTV and then further allocation of viewpoints.</p> <p>Because of this advice, ECC recommend that additional viewpoint locations are proposed based on the larger ZTV before recommending any further viewpoint locations in the area currently allocated. Due to the extent of the site and its intrusion in the landscape, it’s crucial that locations at all buffer boundaries are provided. At present it appears that the viewpoints have only been allocated between 500m – 1500m, which isn’t substantial.</p>	<p>Throughout 2017 a series of meetings were held with host authorities and Natural England to discuss the Project’s ZTV. A meeting took place 17 November 2017 with Essex County Council (Place Services) where it was agreed to extend the Project operational phase ZTV to 5km, and to select Representative Viewpoints beyond the suggested 2km study area, and a suggestion made to include construction phase ZTVs.</p> <p>On 02 May 2019, a site walkover was undertaken with representatives from Essex County Council, Thurrock Council and London Borough of Havering to visit Representative Viewpoint locations to be used for production of photomontages and discuss and agree methodologies and selections. These were shared with stakeholders by email on 11 April 2019.</p>
Landscape	<p>Addition recommendations All documents supplied to ECC Place Services (HE540039-CJV-ELS-SNP_ENG0000000-DR-LE-00005, 6, 7, 8,9,10 and 11) were based on the finished site boundary/road layout.</p> <p>It is therefore recommended that further assessments are made for the areas that will be affected during the construction phase of the project. This includes:</p> <ul style="list-style-type: none"> • any areas that will be storage land for spoil, • excavation areas for balancing ponds and • material storage areas. 	<p>Spoil storage, excavated areas and material storage areas have been considered in ES Chapter 7: Landscape and Visual (Application Document 6.1).</p> <p>To inform the landscape and visual assessment, a ZTV was prepared to consider the main works construction compounds.</p>

Topic	Essex County Council comment	National Highways response
	<p>Assessments such as further ZTV calculations, landscape and visual impact assessments and site photography should all be provided for this construction phase. Whilst it is understandable that these areas may only be temporarily affected, however the impact will still influence a large expanse of the surrounding landscape and settlements for a considerable amount of time, and therefore it would be beneficial that impacts are assessed and mitigation where necessary, is proposed.</p>	
<p>Natural Environment</p>	<p>Section 9.4 Baseline Information: identified the desktop assessment request (see also Appendix B) which includes both the Essex Recorders Partnership (ERP) co-ordinated by Essex Field Club (EFC) and Essex Wildlife Trust (EWT) and covers designated sites (statutory and non-statutory e.g. Local Wildlife Sites), protected, priority (terrestrial and marine) and Schedule 9 species as these records should inform survey requirements. I note that the scope of the data search has already been discussed with Natural England with regard to the Zones of Influence for SSSIs, e.g. South Thames Estuary and Marshes SSSI, and the recommended Thames Estuary MCZ as identified on MAGIC website.</p> <p>There is however no information regarding the area to be covered by the data search which should cover a minimum of 1km corridor along the route of the new highway. Any records from any surveys undertaken should be provided to local records centres, e.g. EFC and EWT.</p>	<p>The Project Team requested background data searches from all the listed bodies. This was received and used to supplement field work data, and informed the assessments contained in the Environmental Statement (Application Document 6.1). National Highways is happy to provide records from its surveys to relevant local records centres where appropriate.</p>
<p>Natural Environment</p>	<p>Methodology: Section 9.7 provides details of survey and assessment (also Appendix C) which is to be undertaken to assess the impacts of this development on biodiversity. ECC supports the use of nationally agreed guidelines for these and other surveys and that all survey work should be undertaken in the appropriate season by appropriately qualified ecological</p>	<p>All surveys were completed by competent ecologists and in accordance with best practice. A reference to all survey guidance is provided within ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). In compliance with regulation 14 of the EIA Regulations the ES has been prepared</p>

Topic	Essex County Council comment	National Highways response
	consultants. Survey and assessment should meet the requirements of both Natural England Standing Advice, and the Essex Biodiversity Validation Checklist, using Defra’s biodiversity metrics, as well as CIEEM Guidelines for Ecological Impact Assessment (EclA) 2016.	by competent experts and a statement to confirm as such is included in the ES in [chapter].
Natural Environment	Surveys should include walkover surveys to inform further surveys on habitats and species, to include Priority habitats and both protected and Priority species, sufficient for the Secretary of State to discharge all associated statutory duties, including NERC s40. This should meet the EclA definitions of Important Ecological Features of local or greater importance for biodiversity and include terrestrial and marine environments. The assessment of likely ecological impacts needs to inform the evaluation of alternatives and incorporate effective and deliverable mitigation measures to minimise the impacts as well as identify compensation or offsetting requirements for any residual impacts.	An extended Phase 1 Habitat Survey was completed, followed by further surveys as required.
Natural Environment	One seasonal constraint not obvious in the survey methodology for Arboriculturists surveying trees is foliage obscuring bat potential roost features (PRFs) during the summer months even from aerial surveys; this is best undertaken November-April so for any trees identified as being affected, this window should be used to improve the survey dataset for bats.	Tree assessments were carried out in line with BCT Guidelines (3rd Edition, 2016) and were undertaken during winter where possible. All assessments were undertaken in pairs, with at least one member holding a minimum of a Natural England Class 2 bat licence. Full methodology and details of limitations are available in the ES Appendix 8.8: Bats Technical Appendix.
Natural Environment	A ‘Shadow’ Habitats Regulations Assessment (HRA) will be required to assess if the proposal is likely to result in an adverse effect on site integrity (either alone or in combination with other plans and projects) for the Natura 2000 sites within scope of the Part One Appropriate Assessment i.e. Thames Estuary and Marshes SPA and Ramsar site, North Downs Woodlands Special Area of Conservation (SAC) and Holehaven Creek potential SPA (pSPA). This is necessary for	An HRA (Application Document 6.5) has been completed for the Project.

Topic	Essex County Council comment	National Highways response
	the Secretary of State to provide sufficient information for Natural England to consider this before the DCO is confirmed.	
Natural Environment	<p>Potential Impacts: Section 9.8 provides details of the likely impacts and mitigation measures for this NSIP. It has the potential to have adverse effects on designated and non-designated sites as well as protected and priority species.</p> <p>This includes European Sites such as the Thames Estuary and Marshes SPA and Ramsar site and their qualifying features outside of the Natura 2000 site boundaries i.e. functional habitat, and others in Kent. Potential impacts include air quality on Ramsar vegetation and noise on birds on the SPA and the SSSI.</p> <p>It is also likely to affect Priority habitats e.g. brownfield (previously developed open mosaic), hedgerows and arable field margins, and both protected and Priority species (NERC s41), in particular farmland birds, especially skylark, given the route is across arable farmland habitat. The potential impact on all the relevant species and habitats must be effectively assessed and appropriate mitigation & compensation to minimise adverse impacts on health and the environment as agreed with DfT, and this should be included within the Scope. In delivering new schemes, the Government expects applicants to avoid and mitigate environmental impacts in line with the principles set out in the NPPF and the Government’s planning guidance.</p>	<p>The ES has a series of technical reports appended with a summary of each species, and species-specific mitigation. This is summarised in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p> <p>A Health and Equalities Impact Assessment (Application Document 7.10) has been prepared to cover potential impacts on health.</p> <p>Each chapter in the ES includes a policy section which addresses alignment with policy expectations including the National Planning Policy Framework (NPPF).</p>
Natural Environment	There will be opportunities to enhance parts of the site and in particular by creating Priority habitats such as hedgerows, to improve connectivity across the landscape particularly to mitigate for disconnections caused by the new road.	National Highways has committed to achieving no net loss in biodiversity by the end of the second Road Investment Strategy period (2020-2025) and will work towards net biodiversity gain by 2040 across its estate. Although the construction of the Project would have significant adverse effects on statutory designated sites and irreplaceable habitats, such as veteran trees and some sections of ancient woodland, the design has
Natural Environment	ECC would expect the EclA to thoroughly explore all reasonable options to enhance the development for	

Topic	Essex County Council comment	National Highways response
	biodiversity including Protected and Priority species to support the HE Biodiversity Action Plan.	sought to provide biodiversity gains wherever possible. An assessment of baseline biodiversity value and that achieved by the Project’s design post development is presented within the Sustainability Statement (Application Document 7.12).

8 Forestry Commission

Table 8.1 Forestry Commission

Forestry Commission comment	National Highways response
<p>Ancient Woodlands and veteran trees must be included in all future habitat and species surveys in relation to the extended Phase 1 habitat survey within the application boundary of the Project.</p>	<p>Ancient woodland and veteran trees have been considered in the EIA. Broadleaved woodland, wood-pastures and parkland have also been considered.</p>
<p>Consideration must also be given to mixed broadleaved woodland, wood-pastures and parkland. Under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, these habitats “<i>are of principal importance for the purpose of conserving biodiversity.</i>” Therefore, these woodland habitats must also be included in all future habitat surveys to ensure adherence to the requirements of the NPSNN report Paragraph 5.25.</p>	<p>Areas of woodland listed on the Ancient Woodland Inventory, together with information provided by Biological Records Centres and the Project’s field survey work have provided a comprehensive baseline against which potential impacts were assessed.</p>
<p>9.6 Table 9-4: Nationally Important Ecological Features In line with the NPPG, the Forestry Commission recommends that this table clearly defines the status of ancient woodland sites, to include ASNW and PAWS sites, veteran trees and woodland habitats recognised as a habitat of principal importance under Section 41 of the NERC Act 2006 are included in all survey work and study reports. This will ensure that a thorough assessment will acknowledge the impacts on any potential losses of irreplaceable and important habitats.</p>	<p>The status of ancient woodland sites, including ASNW and PAWS sites, veteran trees and woodland habitats are included in survey work and study reports. Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1), ES Appendix 7.12: Arboricultural Impact Assessment and ES Appendix 8.1: Designated Sites Technical Appendix.</p>
<p>Due to the nature of ancient woodlands and veteran trees being irreplaceable habitat, the Forestry Commission recommends that every effort is afforded to avoid this scheme affecting ancient woodlands or veteran trees. The Planning Inspectorate and developer should start by looking for ways to avoid the development affecting ancient woodland or veteran trees e.g. where possible, redesigning the scheme in line with the recommendations outlined in BS 5837:201210. It is not possible to fully compensate for the loss or damage to ancient woodlands, thus compromising National Highways’ aim to achieve no net loss of</p>	<p>The Project design has taken account of the mitigation hierarchy of avoid, reduce, restore, and offset. Where impacts to ancient woodland have been unavoidable, compensatory habitat has been included within the design to offset this loss.</p>

Forestry Commission comment	National Highways response
<p>biodiversity by 2020 as set out in their strategy document: ‘Our plan to protect and increase biodiversity’ (Highways England 2015)11.</p>	
<p>9.7 Forestry Commission would be pleased to work with the applicant to consider the impacts of other neighbouring developments such as the A2 Bean to Ebbsfleet improvements and the Ebbsfleet Garden City to maximise the environmental benefits that can be achieved by working in partnership. We would be pleased to advise further on these strategic opportunities to consider the cumulative impacts of all developments to consider biodiversity impacts at the wider landscape scale.</p>	<p>Engagement with the Forestry Commission has been ongoing throughout the pre-application stage.</p> <p>This has included bilateral meetings with other stakeholders, workshops and forums to update on Project design, net loss, green infrastructure opportunities, legacy opportunities, integration of woodland into the Project and opportunities of new community woodland.</p>
<p>9.7 The Forestry Commission would also encourage the inclusion of measures to build the evolving network of green infrastructure to link the Thames side towns to adjacent countryside. This will aid the promotion of help encourage people to access the countryside by the local community for quiet enjoyment. There are a range of options for green infrastructure and the Forestry Commission would bring attention to what has been achieved at Jeskyns. Linking Jeskyns to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of landscape scale green infrastructure.</p>	<p>Regular meetings with the Forestry Commission have been held to discuss updates to Project design, the reduction in land take of ancient woodland and proposals for compensatory environmental mitigation.</p> <p>Cumulative effects of relevant neighbouring developments, including The A2 Bean to Ebbsfleet junction improvements scheme, are considered in ES Chapter 16 Cumulative Effects Assessment (Application Document 6.1). The chapter describes the approach taken to selecting developments for inclusion and assessing their impacts with the Project.</p>
<p>9.9 The Forestry Commission would welcome the opportunity to provide advice at the appropriate time to ensure the most applicable measures are adopted to minimise and / or compensate for the impacts on Ancient Woodlands.</p>	<p>The assessment of impacts and compensation in relation to woodland, including Ancient Woodland, is contained in ES Chapter 8 Terrestrial Biodiversity (Application Document 6.1). The balance of public benefit against the loss of irreplaceable and principally important habitats is described in the Planning Balance section (Chapter 7) of the Planning Statement (Application Document 7.2).</p>
<p>From the information supplied in the EIA Scoping Report, we advise that in respect of loss of any woodland, particularly the loss of irreplaceable and principally important habitats and ecosystems must be included in the test of public benefit to demonstrate accurately “that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm” as outlined in bullet point 7.2.6 of the EIA Scoping Report.</p> <p>For the loss of any woodland, the Forestry Commission would ask:</p>	

Forestry Commission comment	National Highways response
<p>1. To explore with you how this loss could be further reduced and how direct and indirect impacts on ancient woodlands can be minimised;</p> <p>2. How best to target the creation of new woodland to compensate for the loss of trees and woodlands;</p> <p>3. That the applicant engages with the Forestry Commission at the earliest opportunity so that our expertise can be used to support the development of options and design of the chosen way forwards.</p>	

9 Gravesham Borough Council

Table 9.1 Gravesham Borough Council

Topic	Gravesham Borough Council comment	National Highways response
General Comments	<p>Regulation 10 of the EIA Regulations says (3) A request under paragraph (1) must include:</p> <ul style="list-style-type: none"> • a plan sufficient to identify the land; • a description of the proposed development, including its location and technical capacity; • an explanation of the likely significant effects of the development on the environment; and • such other information or representations as the person making the request may wish to provide or make. <p>At the broad level the material contained within the Scoping Report adequately covers points (a) and (c) subject to the comments made below. The Borough Council does however wish to raise two issues in relation to point (b):</p> <ul style="list-style-type: none"> • The documentation does not contain an adequate description of the technical capacity of the scheme. For a road scheme it would be expected that this would be both in terms of maximum peak hour vehicle flows and maximum daily vehicle flows, ideally covering the main the scheme elements (main route/tunnel, slip roads, link roads and A2). • The scheme description does not adequately describe what is being proposed with particular reference to the junction with the A2 and the consequential widening of the A2 back to the M2. Certain assumptions have been made but the comments have to be set in the context of this lack of clarity. The scheme description has been interpreted as a reasonable worst case. <p>As it currently stands, Gravesham is of the opinion that this scoping appears not to meet the requirements of Regulation 10(3)(b). Gravesham requests therefore that as a minimum the technical capacity of the tunnel is provided before the Scoping Opinion is issued. This is because the technical capacity is the worst-case scenario</p>	<p>ES Chapter 2: Project Description (Application Document 6.1) has been prepared in line with the requirements of the EIA Regulations and, where relevant, any specific requests raised by consultees within the Scoping Opinion.</p> <p>Please refer to Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7) for the technical capacity of the Project including the tunnel.</p>

Topic	Gravesham Borough Council comment	National Highways response
	against which environmental impacts should be assessed. This needs to be made clear within the Scoping Opinion to be issued.	
General Comments	Whilst the Scoping Report sets out in very broad terms where construction sites will be required and located, there are no indicative plans to show how they may be laid out or their scale. Given the constricted nature of the sites to the south of the river and proximity to residential areas and areas of high nature conservation value, this information should have been included.	<p>The information set out in the Scoping Report was indicative and based on the outline design known at the time.</p> <p>Further information on the construction areas required have been provided during consultation as the Project design has evolved.</p> <p>The proposed layout and scale of construction compounds are described in ES Chapter 2: Project Description (Application Document 6.1). Indicative layouts are provided in Appendix 2.1: Construction Supporting Information (Application Document 6.3).</p> <p>National Highways has had a number of discussions with Gravesham Borough Council regarding construction compounds. The latest details and status of agreement are presented in the relevant Statement of Common Ground (Application Document 5.4.4.6).</p>
General Comments	The heritage assessment follows DMRB guidance which is out of date in terms of the requirements set out in the NPSNN and relevant court decisions. Analysis on all topics should start from the basis of the NPSNN requirements not from any other guidance.	<p>The EIA methodology presented in the ES is consistent with the requirements of the NPSNN, using the methodology presented in DMRB, LA 106 (National Highways, 2020). This is in line with other highways NSIP applications accepted by the Planning Inspectorate. In cases where the terminology specified by DMRB is inconsistent with the NPSNN, the NPSNN takes precedence. All</p>

Topic	Gravesham Borough Council comment	National Highways response
		<p>impact assessment is undertaken using appropriate professional judgement and with reference to relevant heritage guidance.</p>
<p>Reasonable Alternatives</p>	<p>The text describes the options process that National Highways has gone through, leading to the Secretary of State selecting the current route corridor. Whilst what is set out may be sufficient for this scoping exercise, the Borough Council is strongly of the opinion that the work to date is insufficient to discharge the requirement to consider reasonable alternatives when it comes to the actual application. The reasons for this are as follows:</p> <p>The consultation on options undertaken between 26 January - 24 March 2016 prematurely discounted Route 1 (Dartford Crossing or route A in older terminology) in advance of any substantive work being undertaken in relation to Habitats Regulation Assessment (HRA). Whilst the EIA Scoping Report states that Route 1 (with bridge) was taken forward to the post-consultation stage (see Table 3 - 7), the 2016 consultation documents made it clear that this was not being considered - even though the relevant Minister stated no decision had been made.¹ The consultation was therefore flawed and misleading.</p> <p>The fact that National Highways had not undertaken any substantive work in relation to HRA and a range of other qualitative issues not capable of being monetised under their WebTag methodology (i.e. key environmental issues including biodiversity, historic environment and landscape etc.) means that the decision-making process was imbalanced. Indeed, the only consideration given to HRA within the 2016 consultation was a reliance on (unpublished) Counsel’s advice that a bored tunnel at Route 3/Option C presented a lower consenting risk than a bridge or immersed tunnel after National Highways had discounted Route 12. The Post Consultation Assessment Report dismisses Route 1 primarily because it is claimed it fails to meet scheme objectives, but that conclusion is challengeable particularly because the preferred option does not resolve the longer-term issue at Dartford.</p> <p>The 2016 consultation failed to properly consider Green Belt as a significant policy constraint in relation to the preferred option. In accordance with the WebTag approach, Green Belt was only considered as a landscape constraint and not a</p>	<p>ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) provides a full explanation of the options process including the assessment of strategic alternatives, location options, route options (including updated reappraisals), road standards, the design of the tunnel, tunnel portals, junctions, structures and utility diversions.</p>

Topic	Gravesham Borough Council comment	National Highways response
	<p>policy constraint whereby there is a presumption against inappropriate development that must be accorded significant weight unless there are material considerations that clearly outweigh harm. Whilst this is discussed further below, it too requires a consideration of reasonable alternatives irrespective of the requirements of EIA/HRA.</p> <p>Finally, much of National Highways’ case that Route 1 should not be considered a reasonable alternative is based on its WebTag calculation of the relative Benefit Cost Ratios (BCR) of the options, with Route 3/Option C being considered high value for money and Route 1 low. This is questionable for a number of reasons⁴ and the Council would argue that given that socio-economic impacts form part of the EIA process, this aspect needs to be properly considered by the examining authority. We would also point out that National Highways only appeared to consider the options against a ‘do nothing’ baseline whereas it was inevitable that something would have had to be done at Dartford in the absence of the LTC option. In this respect, the additionality of Route 3/Option C over Route 1 in adjusted BCR terms is only 0.95 – or poor value for money. The proper examination of reasonable alternatives therefore becomes important in weighing actual socio-economic benefits against environmental impacts – particularly if HRA is engaged and it is necessary to make an IROPI case. As noted above and elsewhere, it is also important in determining whether harm to Green Belt is clearly outweighed by other material considerations.</p>	
Reasonable Alternatives	<p>It is important that the EIA properly considers reasonable alternatives, whether they deliver comparable benefits (see for example NPSNN para 5.151) and weigh them against environmental impact. These must include alternative locations for a Thames Crossing as well as the design parameters (e.g. reducing the design speed to 50 mph). The analysis to date therefore has to be revisited in an open and transparent way. Given much of this work will also be needed to construct the Business Case required to support the DCO application, this is considered proportionate and entirely reasonable.</p>	<p>Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).</p>
Reasonable Alternatives	<p>In this respect, LTC is intended to improve river crossing for motorised users but the severance caused by the River Thames for others will remain largely unresolved. As this may have implications under the Equalities Act 2010, we</p>	<p>Severance and inequality have been assessed as part of the Health and Equalities Impact Assessment (Application Document</p>

Topic	Gravesham Borough Council comment	National Highways response
	<p>consider that the EIA should set out how this will be addressed under the People and Communities chapter, consistent with the policy requirement above. In particular, we would draw attention to the fact that there is potential to improve facilities and service frequency/times for ferry users and that this could be subsidised on an on-going basis from LTC revenue streams. This would also provide an alternative to motorised trips, provide economic benefits by better integrating Gravesham and Thurrock, assist in reducing carbon emissions and environmental impacts, whilst freeing capacity on the crossing.</p>	<p>7.10), the outcomes of which are summarised in ES Chapter 13: Population and Human Health (Application Document 6.1). Cross-river movement by non-motorised users has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1). However, the inclusion of facilities to allow WCHs to use the road tunnel has not been progressed due to safety reasons.</p>
Air Quality	<p>The A2 is an AQMA on the basis of current monitoring, and the background levels are generally high across the urban part of the Borough. Against the background of changing technical evidence on vehicles emissions and the implications for public health, there is serious concern about the effect of the introduction of a significant new source of pollution on the Borough (particularly at Marling Cross, Thong, Riverview Park and Chalk) as well as the impact on the existing AQMA on the A2 because of widening.</p>	<p>Potential effects on local air quality resulting from both the construction and operation of the Project have been assessed in accordance with DMRB LA 105. As required by DMRB LA 105, the air quality assessment is based on the most likely traffic flows.</p>
Air Quality	<p>Analysis should be based on the latest version of the Emissions Factor Toolkit (currently November 2017) and any updates that may occur during the preparation of the EIA. It is noted that although nitrogen dioxide NO₂ and particulate matter PM₁₀ are to be modelled and monitored, there is a significant omission of PM_{2.5}, which should be included in the analysis. It is already included in the Public Health Outcomes Framework (PHOF) for Public Health purposes. This should also apply to the analysis of the regional implications (para 6.7.17).</p>	<p>National Highways continually reviews the PM_{2.5} levels across England; there are no breaches of the EU levels. There is nowhere on the strategic road network which is close to exceeding the limit. National Highways has calculated that even a large increase in vehicles at a single point would cause a very minor increase not sufficient to cause an exceedance or even be close to exceedance. There is no need therefore to specifically model PM_{2.5} as part of DMRB assessments to determine whether the Project may result in significant effects. PM_{2.5} concentrations have not been specifically modelled as this is not a</p>

Topic	Gravesham Borough Council comment	National Highways response
		requirement of DMRB LA 105. However, the modelled PM ₁₀ results have been utilised (as they contain the PM _{2.5} fraction) to demonstrate that there would be no risk of PM _{2.5} exceeding statutory thresholds.
Air Quality	Future pollution levels with the implications of electric or other technology along with self-driving vehicles are great unknowns. The base position should be an analysis based on the current trends and understanding and any allowance for potential future changes should be done as a sensitivity test.	Potential effects on local air quality resulting from both the construction and operation of the Project have been assessed in accordance with DMRB LA 105 and Defra’s Local Air Quality Management Technical Guidance (LAQM.TG (16)). As required by DMRB, the air quality assessment is based on the most likely traffic flows.
Air Quality	As stated above, part of the route is within the A2 Trunk Road Air Quality Management Area, and measures should be taken to mitigate any adverse impact on this AQMA during both the construction and operation phase so that air pollution levels do not worsen in the existing AQMA and also so that its area does not need to be expanded. It is noted that 6.7.15 confirms that the impact on the AQS Objectives will be assessed.	The air quality assessment has identified all potential significant impacts resulting from the Project. Potential effects on local air quality resulting from both the construction and operation of the Project have been assessed in accordance with DMRB LA 105 and Defra’s Local Air Quality Management Technical Guidance (LAQM.TG (16)). As required by the DMRB, the air quality assessment will be based on the most likely traffic flows.
Air Quality	Local background monitoring data should be used if the data set shows monitored background levels to be higher than the national background mapping. Again, it would be useful for both to be used for comparison. Some additional monitoring locations are suggested: <ul style="list-style-type: none"> • GR137 - Lamp post opp. 2 Peartree Place Gravesend Road • GR138 - Telegraph Pole Foxbury Manor, Old Watling St Rochester • GR141 - Telegraph Pole A2 Watling St, Park Pale, ME2 3UD. • GR142 - Light Post Inn on the Lake Watling Street Shorne DA12 3HB 	This additional data has been incorporated into the air quality assessment. ES Appendix 5.2: Air Quality Baseline Conditions includes a table detailing the local authority monitoring taken into account.

Topic	Gravesham Borough Council comment	National Highways response
Air Quality	<p>Consideration of the exposure of the vehicle occupants to air pollution should be made in relation to congestion particularly in cuttings and in the tunnel. Mitigation measures must then be included in the design to ensure their exposure does not exceed the EU Limit Values.</p>	<p>Sensitive receptors have been selected in accordance with LA 105 and do not include vehicle occupants. This is because the air quality objectives and limit values used in the air quality assessment are typically annual averages. Vehicle occupants are not in the same location for long enough for the thresholds to apply. Human health receptors include residential uses, schools, hospitals, care homes and hotels (note that only short-term AQS objectives apply at hotels).</p> <p>Broad air quality impacts on human health and wellbeing are also considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
Air Quality	<p>All reasonable steps should be taken to design the route, the road’s construction and intrinsic design and construction so that there are no adverse impacts on any relevant receptor during the operation phase. It is noted that if the tunnels are bored from the south there are significant implications for the Chalk area and any access routes. The impact on the locality through the storage of spoil must be assessed and relevant mitigation measures implemented into the construction phase.</p>	<p>Potential effects on local air quality resulting from both the construction and operation of the Project have been assessed in accordance with DMRB LA 105 and Defra’s Local Air Quality Management Technical Guidance (LAQM.TG (16)). As required by DMRB, the air quality assessment will be based on the most likely traffic flows.</p>
Air Quality	<p>Disappointingly the Scoping Report states that if there are no sensitive receptors (such as residential properties, schools and designated sites) within 200m of the affected roads then the local air quality effect of the scheme can be considered not significant and no further air quality assessment is required.</p> <p>During heavy congestion, particularly with a high proportion of HGV/HDV vehicles in the queues this is likely to affect an area bigger than 200m. It may also cause breaches of the EU Limit Values. The Scoping Report makes reference to the EU Limit Values in 6.7.10, 6.7.11 and 6.7.16 and confirms that a Compliance Assessment will be undertaken to determine whether the Project will have an</p>	<p>The operational study area is defined by the change in traffic associated with the Project in the Project opening year (2030).</p> <p>Concentrations of NO₂ and PM₁₀ have then been predicted at worst case sensitive receptors located within 200m of the Affected Road Network which is line with DMRB LA 105.</p>

Topic	Gravesham Borough Council comment	National Highways response
	<p>impact on compliance with the EU Air Quality Directive. All steps should be taken so as not to cause a breach of the EU Limit Values.</p>	<p>For the compliance risk assessment, which determined whether the Project affects the UK’s reported ability to comply with the Air Quality Directive in the shortest timescale possible, refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
Air Quality	<p>There is reference to there being some potential for adverse effects during the construction phase and goes on to say that as these are temporary they will be minimised. However, the construction phase is 6 years, and as such the impact is long term, albeit that it may cease at the end of the construction phase. Six years is a significant amount of time and as such any adverse impact during the construction phase should be given due consideration and all reasonable steps should be carried out to mitigate these impacts as far as is possible.</p>	<p>Air quality modelling has been undertaken to assess the air quality effects of emissions from vehicles and traffic management measures during construction and shows that no significant effects are anticipated to occur. The construction phase is likely to affect air quality as a result of emissions of construction dust, and mitigation is required to reduce the potential nuisance at properties.</p>
Air Quality	<p>Air Quality monitoring should be continued indefinitely after the opening year so that the local authorities, the public and National Highways are aware of the impact on nearby residents and areas of importance e.g. SSSIs etc. and so that any areas of exceedance of the objectives and any AQMA boundaries are kept up to date.</p>	<p>The requirements for air quality monitoring during the construction phase are outlined in the REAC within ES Appendix 2.2: CoCP. During operation the assessment has indicated that the Project may have a significant effect on biodiversity sites as a result of changes in nitrogen deposition. Monitoring would not provide valid data to confirm this impact but measures to reduce the impact have been considered. A Project Air Quality Action Plan has been completed which has determined what mitigation is available to reduce the schemes impacts on biodiversity. Speed enforcement to reduce vehicle emissions is proposed on the M2, which will not be time limited and therefore monitoring to determine</p>

Topic	Gravesham Borough Council comment	National Highways response
		when the measure can be removed is not required. The air quality effects on Human Health and Compliance with Limit Values have been assessed as being not significant and as a result monitoring is not required..
Air Quality	The provision of buffer zones along the length of the new road should be ensured so as to provide space for air quality mitigation, e.g. bunding, this will assist in the mitigation of noise also. Bunding would also be a good use for left-over spoil.	Taking into account the implementation of good practice measures of the REAC within ES Appendix 2.2: CoCP and the predicted changes in air quality during construction and operation, no likely significant effects are expected, and as such, no essential mitigation measures are required for air quality.
Air Quality	Overall, Gravesham would expect any DCO to contain a provision that, should relevant Air Quality objectives and EU limits not be met, National Highways will implement mitigation measures to bring the project and its impact on the wider road network back into compliance. A commitment to this, together with a range of indicative measures, should be included in this chapter of the EIA.	The requirements for air quality monitoring during construction are outlined in the Register of Environmental Actions and Commitments (REAC) within ES Appendix 2.2: Code and Construction Practice (CoCP). The Project does not require mitigation for operational air quality effects for Human Health or Compliance with Limit Values. Therefore, in line with the advice of DMRB LA 105, air quality monitoring is not required during operation.
Cultural Heritage	The NPSNN refers to the term ‘substantial harm’, which would be considered to constitute an effect of ‘very large adverse’ significance. ‘Harm’ would be considered to be an effect of ‘large adverse’ significance. Both terms and their application to assessment of this Project would be discussed in more detail with Historic England. The contention in 7.7.26 above that ‘harm’ only corresponds with ‘large adverse impact’ also appears at odds with the statutory duty imposed under s.66(1) and 72(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 that requires the decision maker to accord ‘considerable weight and importance’ to	The EIA methodology presented in the ES is consistent with the requirements of the NPSNN, using the methodology presented in DMRB LA 106. This is in line with other highways NSIP applications accepted by the Planning Inspectorate. In cases where the terminology specified by DMRB is inconsistent with the NPSNN, the NPSNN

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	<p>preserving and enhancing the significance of Listed Buildings and Conservation Areas.</p> <p>Given the Courts have determined that ‘preservation’ in this context means ‘doing no harm’, less than substantial harm would still occur even where impact is considered to be only moderate or slight. The statutory duty would still apply therefore in terms of the weight to be attached to this factor in the decision-making process, as set out in the <i>Barnwell Manor</i> (2014) judgment</p>	<p>takes precedence. All impact assessment is undertaken using appropriate professional judgement and with reference to relevant heritage guidance.</p> <p>The cultural heritage assessment identifies the level of impact on designated heritage assets through assessment of the magnitude of impact, determined based on the degree to which this would adversely affect (harm) the value (significance) of heritage assets, in order to identify any total loss of value. Criteria for assessing the value of cultural heritage assets, the magnitude of impact and the resulting significance is explained in ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>
Cultural Heritage	<p>Whilst the Mausoleum is over 1 kilometre from the A2, it sits in an elevated position and may be affected by increased noise and disturbance etc. and should therefore form part of the assessment. Reference should be made to the material contained in the conservation plan for the historic Cobham Park to understand the full significance of the asset (supplied to National Highways). Please note that the Parish Boundary Stone referred to above was relocated as part of the works associated with the construction of HS1 (Channel Tunnel Rail Link).</p>	<p>The Mausoleum and the Parish Boundary Stone (its relocated location) form part of the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>
Cultural Heritage	<p>The Borough Council does not have an up-to-date ‘local list’ of undesignated heritage assets but would draw attention in particular to the significance of the London County Council development of smallholdings for ex-World War 1 servicemen at Thong and Church Lane, Chalk that took place the early 1920s. These are noted to be a rare survival within Historic England’s South East Farmsteads Character Statement (2014)¹³. A series of photographs and other documents relating to the creation of the smallholdings are available at the London Metropolitan Archive.</p>	<p>This has been considered in the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>

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Cultural Heritage	Whilst much of the land to the west of Thong and around the Riverview Park Estate (including the Cascades Leisure Centre) once formed part of the former Gravesend Airport (later RAF Gravesend) there is little evidence of this phase of land use remaining. The surfaced section of footpath NS169 running from Michael Gardens to Thong is believed to be part of one of the perimeter roads and storage areas for aircraft dating from the wartime use of the site.	This has been considered in the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Cultural Heritage	It should be noted that there is a distant view of Cobham Church (Grade 1 Listed) when progressing southwards along footpath NS169 and it is likely therefore that the junction with the A2 and the tunnel approach road may impact upon its significance and how it is experienced as development within its setting. Whilst the distance between the site and Cobham Church exceeds 1 kilometre, this should be checked and evaluated within this part of the ES.	This has been considered in the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Cultural Heritage	Advice on archaeological potential of the area affected by the project should be sought direct from Kent County Council and Historic England, to whom we would defer. It should be noted however that we have discussed this area of work with Kent Country Council and are of the view that a comprehensive approach should be taken to better reveal the archaeological context of the application site itself. A detailed LiDAR survey of the wider area and its interpretation as part of any archaeological report would assist in this respect.	Ongoing consultation has been undertaken with heritage stakeholders and assessment methodologies have been approved by them.
Cultural Heritage	We would expect part of the legacy of this project to provide a better understanding of how human interventions have shaped this area in the past, with a permanent record being provided using the Channel Tunnel Rail Link as an example of best practice. This should include a commitment to ensure that artefacts etc. are put on permanent display locally.	Suitable publication and outreach are included in the programme of mitigation, as detailed in ES Appendix 6.9: Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation. Following completion of archaeological recording work on site, a programme of post-excavation assessment, analysis and reporting would be undertaken, including publication of the results and deposition of the archive in an approved local museum.

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Cultural Heritage	Whilst the intention to use viewpoints from the landscape work to inform the analysis of impacts on the historic environment is noted, those we have suggested to date were only selected with landscape in mind. Additional viewpoints will be needed to illustrate impacts on the historic environment and heritage assets, and we will seek to agree these with the applicant’s consultants as the project progresses. Longer distance views from Thurrock towards Chalk and Thong should also not be ignored given the LTC could be a highly conspicuous scar in the landscape affecting not only the setting of the AONB but also some key heritage assets	Regular meetings between all heritage stakeholders have been ongoing since 2019. Viewpoints were shared and agreed with heritage stakeholders. Please refer to Table 6.4: Stakeholder consultation in ES Chapter 6: Cultural Heritage (Application Document 6.1).
Cultural Heritage	The development of a 3D computer generated landscape model to properly assess impacts would also greatly assist in this process.	Appropriate computer modelling and visualisation techniques were used to inform the assessment, which is detailed in ES Chapter 7: Landscape and Visual (Application Document 6.1).
Cultural Heritage	We would expect the landscape and historic environment sections of the EIA to be closely aligned and to include a detailed analysis of the development of landscape form over time. In this respect, we consider that it is important to understand how the land in this area has been used in the past, sub-divided and farmed etc. given this may provide a range of options on how impacts can be mitigated in ways that are appropriate to and enhance the setting of identified heritage assets.	This is integrated into the assessment. A specialist historic landscape character assessment was undertaken as part of the cultural heritage assessment process. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Cultural Heritage	The Historic Environment Record search already carried should be updated so that any new information which has been added will be taken into account.	Datasets from all providers were updated at regular intervals throughout the assessment process.
Cultural Heritage	It is not clear from the scoping report which historic maps will be checked but it is essential that both the 25 inch and the 6-inch OS maps are checked as they were often surveyed at different times and include different features and, for the 25 inch, more detail. The OS surveyors drawing should also be checked together with any available estate or other mapping such as for sewers etc. LiDAR data held by other bodies not just the Environment Agency should be consulted – Kent County Council holds data for part of the area.	Cartographic analysis of all relevant available maps has been undertaken and included in assessment. The specialist LiDAR assessment utilises various sources of data.

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Cultural Heritage	7.6.7 - does not list all the Scheduled Monuments within the area of search in the Kent area e.g. bowl barrow in Ashenbank wood and cf fig 7.1.	Updated datasets for designations were acquired at regular intervals throughout the assessment process. Scheduled Monuments, including bowl barrow in Ashenbank Wood, are listed in ES Appendix 6.15 Gazetteer and Schedule of Heritage Assets (Application Document 6.3).
Cultural Heritage	7.7.6 - the Assessment phase should include preparation of a deposit model to consider the potential for significant archaeological remains or palaeoenvironmental evidence to be buried beneath alluvial or colluvial deposits. The model should be further developed through borehole and/or geophysical survey; Historic England is currently preparing guidance for deposit modelling which should be consulted.	The deposit modelling of River Thames basin has been produced by a geoarchaeologist from the geotechnical exploration data between the two tunnel portals. A specialist in Pleistocene-Palaeolithic archaeology was commissioned to prepare a report on this area for the ES. Please refer to ES Appendix 6.5: Palaeolithic and Quaternary Deposit Model and Report and ES Appendix 6.6: Palaeolithic Archaeological Assessment Report and Research Framework.
Cultural Heritage	Assessment and fieldwork should be developed in the light of the resource assessment and research objectives of the Greater Thames Archaeological Research Framework and the emerging SERF. This is a rare opportunity to examine a transect across the Lower Thames and the research potential of the proposed mitigation work should be taken full advantage of.	Regional research frameworks have been obtained and considered in the assessment process and include: <ul style="list-style-type: none"> • East of England Regional Historic Environment Research Framework, Association of Local Government Archaeological Officers East of England/Historic England (2000/2011/2017) • Greater Thames Estuary Historic Environment Research Framework, Greater Thames Estuary Archaeological Steering Committee/Historic

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		<p>England (2010)</p> <ul style="list-style-type: none"> South East research Framework, East Sussex/Kent/Surrey/West Sussex/Historic England (2007/2019) <p>Refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for more information.</p>
Cultural Heritage	The Desk-based assessment and field evaluation should involve a Palaeolithic specialist where relevant.	A specialist in Palaeolithic archaeology was commissioned to prepare a report on this area for the ES.
Cultural Heritage	It would also be useful if the locations of contractors’ compounds and any service diversions required could be assessed as soon as possible.	The ES as a whole assesses construction compound locations and service diversion impacts. For the cultural heritage assessment, please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Landscape	There is a lack of clarity in the scheme description of what is being proposed along the A2 corridor within the North Downs AONB, or the layout of the A2 junction which affects the setting of the AONB. It has therefore been necessary to assume a 5 lane A2 or similar, potential rebuilding of some overbridges, a link road from Marling Cross to Thong Lane and revised access arrangements arising from the deletion of the Cobham junction	Further information on Project design was provided to stakeholders throughout the pre-application stage during meetings as well as during the consultation events. ES Chapter 2: Project Description (Application Document 6.1) sets out the details of the Project which have been assessed in the EIA.
Landscape	<p>This corridor contains substantial landscaping from the construction of HS116 and the widening of the A2 to 4 lanes, along with the separation of the existing carriageways.</p> <p>Potentially, on the basis of the red line boundary, there could be severe disruption during construction and considerable damage to existing landscaping and planting. A worst case would be a hard-built form corridor of road and rail combined which is of much greater width (and therefore impact) than at present. It will be necessary to</p>	The impact of the Project on receptors has been considered in the landscape and visual assessment. This includes an assessment of tranquillity.

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	consider the combined impact of both the widened A2 and HS1. There is potential for significant reduction in tranquillity as a result of both construction and the final scheme.	
Landscape	The scheme from the tunnel portal to the A2 has implications for the setting of the AoNB as well as the open landscape east of Gravesend and views from the North Kent Marshes and possibly from Thurrock. The cutting leading up to Thong Lane could be a white scar if it has steep sides with no seeding. Views of residents in Riverview Park, along Thong Lane and in the village of Thong could be significantly impacted upon. At Chalk as well as visual intrusion the scale of any buildings at the tunnel portal (including any ventilation stack) could be significant in the flatter landscape. It is unclear if the scheme has any implications for Three Crutches/Strood residents.	The landscape impact of the Project on receptors has been considered in the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).
Landscape	The noise (chapter 12) part of the analysis deals with impact on receptors, but it is important to note that the impact of the scheme on tranquillity in such places as Jeskyns, Cobham Park and Shorne Country Park is also relevant. The biodiversity analysis will also have to examine the implications of noise on wildlife.	Tranquillity is a defining characteristic of a number of character areas across the study area and has been assessed where the Project is likely to result in effects on this component characteristic.
Landscape	8.2.1 - reference is made to local development plans and policies, but these do not seem to be referenced anywhere in the Scoping Report. Gravesham Local Plan Core Strategy, Gravesham Local Plan 1st Review saved policies, Kent Minerals and Waste Plan, and Kent Downs AoNB Management Plan are all of potential relevance to the EIA process – along with the relevant documents from other Local Authority areas.	There is a legislative and policy framework section in each ES chapter which presents the relevant national and local planning policy.
Landscape	8.4.2 - it should be emphasised that parts of Cobham Park are open to the public (National Trust land including the Mausoleum) and the area round Cobham Hall (a school) is accessible on a restricted basis. Users of the Rochester and Cobham Golf Park Club and the Knights Place Farm riding stables are also relevant. The area south of the A2 therefore needs to be subject to as much analysis as the north. This is in addition to the PROW network and local routes like the Darnley Trail.	The location of Representative Viewpoints across the study area and beyond was discussed and agreed with stakeholders including Gravesham Borough Council.

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Landscape	8.4.3 - makes reference to the setting of AoNB north of the A2 but this also applies to the south at Jeskyns (Forestry Commission) which straddles the AoNB boundary.	Noted.
Landscape	8.7.1 – references to DMRB and IAN 135/10 need to be checked for consistency with the NPSNN, NPPF and the 2017 Environmental Regulations - all of which take precedence	LA 107 Landscape and visual effects Rev 2 (National Highways, 2020) replaces DMRB Volume 11, Section 3, Part 5 Landscape Effects and IAN 135/10. Relevant landscape and visual assessment legislation and national and local policy that has been considered is presented in Section 7.3 of ES Chapter 7: Landscape and Visual (Application Document 6.1).
Landscape	8.7.3 & 8.7.10 - design year 15 in winter should be included as well	A detailed landscape and visual methodology is set out in ES Chapter 7: Landscape and Visual (Application Document 6.1) with relation to DMRB LA 107 and GLVIA 3. The winter yr. 15 assessment provided unlikely to result in a different significance of effect, so this has not been reported within the landscape and visual assessment.
Landscape	8.7.5 - indirect impacts will need to include an assessment of the changes on the local road network and junction arrangements as a result of the proposals in terms of traffic, noise and disturbance. From the point of view of the North Downs AONB as a whole this scheme has potential implications for a much wider area which will be clarified by the transport modelling.	A detailed landscape and visual methodology is set out in ES Chapter 7: Landscape and Visual (Application Document 6.1) with relation to DMRB LA 107 and GLVIA3. This includes reference to indirect effects methodology.
Landscape	8.8.1 & 8.8.2 - as result of the revised proposals there is likely to be a significant impact from the removal of existing vegetation with consequential impacts on the AoNB. The potential impacts of ash die back disease, given the number of trees of this species in this area, need to be included as this could significantly change the baseline.	The removal of existing vegetation has been considered within the landscape and visual assessment, as reported in ES Chapter 7: Landscape and Visual (Application Document 6.1).

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Landscape	8.7.8 – the ZVI should extend as far as is necessary and not be subject to an arbitrary 2km limit. It needs to take into account the height of structures (bridges, gantries etc.). This will need to be agreed with the Borough Council.	The methodology for the ZVI is set out in ES Chapter 7: Landscape and Visual (Application Document 6.1).
Landscape	8.9.1 – the possible need to reconstruct or modify existing bridge structures over the A2 could have significant further impacts.	This has been noted.
Landscape	8.9.1 & 8.9.2 – potential landscape impacts are a product of the current route choice and design parameters. For reasons discussed elsewhere both these elements will need to reviewed. In particular reducing the design speed of the crossing to 50 mph would have major benefits in mitigating the impact on landscape and other features	Please refer to ES Chapter 2: Project Description (Application Document 6.1) and ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) for full details on route alternatives and project designs considered, taking into account landscape and other environmental considerations. Different design speeds are proposed as per Section 2.4 of ES Chapter 2: Project Description (Application Document 6.1); however, the signed speed limit is proposed to be 70mph.
Landscape	8.9.1 & 8.9.2 – although mitigation is mentioned as should be the first resort, compensation should also be considered. As a result of HS1 (then Channel Tunnel Rail Link) the Cobham Ashenbank Management Scheme was set up with an endowment from the developer of £750,000 (1996 prices) which created a series of projects which delivered over £7m worth of work in the area because of the impact on the historic park.	In accordance with the NPPF hierarchy, opportunity to avoid, reduce (mitigate) and compensate has been followed with regard to the design of the A2 and the A2/Lower Thames Crossing junction. Where avoidance cannot be achieved and suitable mitigation cannot be implemented, compensation is being considered in discussion with Kent Downs AONB Unit. The latest details and status of this discussion are presented in the relevant Statement of Common Ground (Application Document 5.4.1.4).

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Biodiversity	Whilst this section concentrates primarily on designated habitats and protected species etc., the Council is surprised that there is not a reference to the general duty imposed by s.40 of the Natural Environment and Rural Communities Act 2006 to conserve biodiversity, which includes in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.	ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) provides a robust assessment of all sensitive ecological receptors including, where relevant, those species and habitats listed in accordance with the requirement of Section 41 of the NERC Act 2006. Where relevant, details of the local Biodiversity Action Plan BAP have also been taken into consideration.
Biodiversity	The Council would expect the EIA to recognise identified biodiversity opportunity areas given consideration should be given to enhancements in these areas as part of any scheme of mitigation. It is understood that the potential habitat area shown on Figures 9.1 produced by Natural England is to be refined in 2018. Reference should also be made to the Greater Thames Marshes Nature Improvement Area (NIA), as this is a form of mechanism by which mitigation could be delivered.	Details of ecological mitigation areas can be found in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and presented in ES Figure 2.4: Environmental Masterplan (Application Document 6.2).
Biodiversity	A major concern with the section on biodiversity is that it includes no reference to the science that underpins the assessment methodology or the justification for the extent of surveys areas. For example, impacts are likely to be different having regard to habitat and between species and, in terms of the latter in particular, no justification is provided for the specific area of survey identified in column 2 of table 9 – 1 (page 123).	The ES provides full detail of, and justification for, the scope of all surveys.
Biodiversity	In addition, whilst reference is made to the CIEEM and IAN significance guidelines in Table 9 – 7, no indication is given of the thresholds that will be used to determine what category will apply in relation to each habitat or species or the science that underpins those thresholds. This becomes of particular importance when one considers the CIEEM ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ (2016) set out in relation to the precautionary principle at 5.36	
Biodiversity	No scientific justification is provided to limit the survey to within 200 metres of the application site. In terms of impact on habitat, Gravesham would expect the previous work undertaken by Jacobs in 2014 to be fully updated having regard to	The study area was defined not only by the Project Order Limits, but also by areas within which terrestrial biodiversity features could potentially be affected by indirect impacts that

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	the theoretical capacity of the link and latest data on vehicle emissions and background air quality.	might arise from the Project. These include possible changes arising from emissions to air, water pollution and changes to the water regime, and increased noise and visual disturbance, during both construction and operational phases.
Biodiversity	Whilst the Jacobs work also only looked at a 200-metre zone, it should be noted that there will be a need to consider the implications of any system of tunnel ventilation including where such vents are located and how pollutants are dispersed – the Jacobs report specifically refers to the issue of ventilation at a number of points. The EIA should also clearly set out whether there is any scientific evidence of species-specific air quality impacts and how these have been taken into account.	The study area for protected and notable species and habitats was determined on an individual basis based on their sensitivity to environmental change and is detailed in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
Biodiversity	A thorough understanding of the impact of the project on the water environment (having regard to climate change) will be required. The impacts are likely to be different between the construction and operational stages. Dewatering is likely to have a direct impact on the Ramsar/SPA, where a water level management plan operates. The approach taken toward dealing with tunnel/surface water drainage during the operational phase will clearly also be important.	The impacts of the Project on the water environment have been assessed. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). The impacts on Ramsar/SPA have been considered as part of the HRA (Application Document 6.5).
Biodiversity	In terms of noise impacts on birds, it is of some concern that this is being limited to only 500 metres of the application boundary. Once again, noise impacts are likely to be different during the construction and operational phases and could be species specific. Gravesham has undertaken a literature review and found work undertaken in the 1980s on the impact of road noise on lapwing, black tailed godwit and redshank (Ramsar/SPA qualifying species) which indicated that the zone of influence could extend to around 1.8 kilometres and result in a 60% decrease in populations. A more up-to-date study from 1995 also shows that the zone of influence extends significantly beyond the 500-metre survey area suggested and that oystercatchers	The ES presents a robust assessment of all potential impacts on sensitive ecological receptors, including noise disturbance to birds, in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). Where zones of influence have been employed, justification for their area has been provided.

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	<p>(another Ramsar/SPA qualifying species) may also be affected with a disturbance distance of around 3.5 kilometres.</p> <p>What is of particular concern is that the above studies were considering road schemes that were of a smaller scale than the Lower Thames Crossing and would have had a lesser impact – i.e. the largest involved a two-lane dual carriageway with a maximum daily traffic flow of around 52,000 vehicles rather than a three-lane dual carriageway subject to far higher traffic loads and presumably, noise levels.</p>	
Biodiversity	<p>Whilst the Lower Thames Crossing south of the river close to the Ramsar/SPA will be in cutting before entering the tunnel, this will not in itself eliminate adverse noise impacts. Indeed, one of the effects of the cutting may be that it funnels and amplifies traffic noise down towards the marshes. We would suggest therefore that the noise impacts of the new road and any associated plant and equipment needs to be acoustically modelled to establish the potential zone of impact on the internationally designated sites and the survey area set accordingly.</p>	<p>The noise modelling completed for the EIA included ecological receptors. The significance of noise effects is reported in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
Biodiversity	<p>Our review of the literature has only identified research into the noise impact of some of the Ramsar/SPA qualifying species found within the affected area and that the science may not be there to properly consider all impacts. The ES should set out clearly where this is the case as the precautionary principle may be automatically engaged.</p>	<p>Each ES topic chapter set out the assumptions and limitations.</p>
Biodiversity	<p>The impact of noise from the Lower Thames Crossing on woodland birds within the SSSIs adjoining the A2 etc. and the biodiversity of non-designated ancient woodland will clearly be more difficult to assess given existing high levels of traffic noise in the area. The EIA will however need to attempt to distinguish between the existing baseline and any potential worsening caused by the new road.</p>	<p>The noise modelling completed for the EIA included ecological receptors. The significance of noise effects is reported in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
Biodiversity	<p>Clearly, there are likely to be other impacts on biodiversity caused by the proposals, with potential severance of habitat being a major issue. This is likely to be a particular problem with small mammals, although roadside verges may provide additional habitat. Consideration needs to be given to how existing issues of severance caused by the A2 and any worsening of the situation due to Lower Thames Crossing can be addressed. The use of land bridges that can also accommodate non-motorised rights of way should be considered in this context.</p>	<p>Habitat fragmentation and its potential to adversely affect sensitive ecological receptors have been identified within the ES. Where appropriate, measures such as over-sized culverts, mammal ledges and green bridges have been included to mitigate potential adverse effects.</p>

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Biodiversity	Gravesham suggests that the EIA Scoping Report needs to clearly set out the most up to date scientific evidence in relation to the relevant impacts so that the approach both to survey and methodological analysis is fully transparent.	The ES presents a robust assessment of all potential impacts on sensitive ecological receptors.
Biodiversity	The EIA will need to clearly set out proposed mitigation measures and where these will be implemented to address particular issues. Should road noise be an issue, then consideration may need to be given to reducing traffic speeds below the proposed 70 mph. Gravesham would expect any DCO to contain a requirement to introduce mitigation (including a reduction in speed) should predicted thresholds and impacts be exceeded.	The ES presents all relevant and appropriate mitigation, which has been developed in consultation with various stakeholders including Gravesham Borough Council.
Biodiversity	Consideration should also be given to the mitigation of residual impacts through ongoing financial or other support for nature conservation measures under the s.106 agreement potentially through similar initiatives to the Greater Thames Estuary NIA	The details of mitigation measures can be found in the ES topic chapters (Application Document 6.1). Essential and good practice mitigation commitments are detailed in the REAC within ES Appendix 2.2: CoCP and where appropriate the location of these can be viewed in ES Figure 2.4: Environmental Masterplan (Application Document 6.2). Long-term commitments to habitat monitoring and management are included within the oLEMP (Application Document 6.7). Section 106 agreements are not being used to deliver required mitigation for Project impacts on biodiversity, but do include a commitment to creating community funds focussed on themes including Environment.
Biodiversity	Given the ES is required to consider reasonable alternatives; Gravesham would expect to see an analysis of the potential impact of Route 1 (Dartford Crossing) on biodiversity that can be directly compared with the proposal. This will need to go beyond the simple statement to date that a bridge at Dartford may present a risk of bird collision and loss of functional habitat and provide (for example) a quantitative and qualitative assessment of impact on qualifying species at the SPA/Ramsar.	The consideration of alternatives is included within ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).

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Biodiversity	Fig 9.1 – sheet 1 the unnamed ancient woodland at Three Crutches is Cole Wood now fragmented as a result of HS1, M2/A2 widening and the junction with A289 Wainscott Bypass.	Cole Wood has been included within the ES in Appendix 8.1 Designated Sites (Application Document 6.3).
Geology and Soils	<p>The underlying geology is chalk, with alluvium around the Thames and complex of London Clay, Thanet sands etc. in the Shorne/Cobham area. The latter caused issues with cutting slopes, and therefore widths, for HS1 due to stability issues and there are also some perched water tables. It is understood that a primary reason for the split carriageways on the A2 was for stability reasons.</p> <p>On the area from Cobham Services down to Chalk it has been found elsewhere in the area that the quality of the chalk can vary significantly over a very short distance. Detailed survey work is needed on the geology and ground conditions, and the consequences for the design of the scheme, at the earliest possible stage to ensure that the impacts are correctly assessed. This happened with HS1, where significant alterations were required in the Cobham/Shorne area to what had initially been assumed.</p>	This has been noted.
Geology and Soils	The route crosses Grade 1, Grade 2 and Grade 3 agricultural land. NPSNN para 5.168 should therefore be applied. This needs to include the impact on farm viability.	Best and Most Versatile land is covered as part of the wider value of soils (through cross-referencing as required). Please refer to ES Chapter 10: Geology and Soils (Application Document 6.1) For farm viability, please refer to ES Chapter 13: Population and Human Health (Application Document 6.1).
Geology and Soils	Should the project result in the Southern Valley Golf Course being removed or replaced, the impact of this on agricultural land, soils and the viability of farm units will also need to be assessed. In the event of the golf course ceasing to operate in its existing position, the restoration of the site is also likely to be material. This needs to be considered through the EIA.	Agricultural and other land is covered, as is its restoration where required. Please refer to ES Chapter 10: Geology and Soils (Application Document 6.1) Farm and business viability has also been considered, please refer to ES Chapter 13: Population and Human Health (Application Document 6.1).
Geology and Soils	Fig 10.9 sheet 1 – site of the former Gravesend airport is noted – see chapter 7: Cultural Heritage. Both Cobham North (site of) and South (in operation) services	The relevant information/assessment has been incorporated in ES Chapter 10:

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	<p>may be polluted from their use as petrol stations. North has been subject to remediation following its closure.</p>	<p>Geology and Soils (Application Document 6.1) and interrelationships have been referred to between topic chapters including cultural heritage.</p>
<p>Materials</p>	<p>Waste and minerals is primarily a matter for Kent County Council as Minerals and Waste Planning Authority. The source of materials for construction and the destination of spoil are of concern because of the transport implications and the knock-on effect on local residents. It is difficult to specify the origins/destinations in a project that has not yet defined how it will be constructed, let alone what the options will exist in a few years’ time. Some reasonable options as the volume and generalised location should therefore be assessed.</p>	<p>.</p> <p>The flow of waste and materials, both internally within the Project Order limits, using a combination of the existing highway network and dedicated haul roads and externally on the surrounding highway network, are detailed in the Outline Materials Handling Plan (oMHP), which forms Appendix B of the CoCP (Appendix 2.2).</p> <p>It would be up to the appointed Contractor to source materials and manage waste during the construction of the Project, and typically they would look to use local (sub-regional) material sources and waste infrastructure wherever feasible to minimise the environmental impact and cost of transport, and support the economic well-being of local communities. Procurement rules mean that it is not possible to prescribe specific material suppliers and waste management facilities to be used during construction of the Project, and these rules prevent setting a precedent that would potentially tie the appointed Contractor to exclusive arrangements with specific material suppliers and waste management facilities. The ability to use material suppliers and waste management infrastructure from a wide range of locations would allow existing material resources and</p>

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		waste management capacity to be used effectively and efficiently, without resulting in local overcapacity to the detriment of the local economy.
Noise and Vibration	Gravesham would therefore ask that the EIA include both details of existing, and projected daytime and night-time noise levels at a selected range of sensitive receptors. Noise contour mapping both with and without mitigation measures in place to provide an indication of the severity and extent of area likely to be impacted upon by a worsening noise environment. As with air quality, any DCO should include a requirement that should noise levels exceed prediction to an unacceptable level, National Highways will be required to address the issue and provide additional mitigation – which may include a reduction in traffic speeds.	<p>In accordance with DMRB LA 111, both the short term and long-term impacts of the Project have been assessed. This assessment is based on calculation of noise levels using the prediction methodology of CRTN using the traffic outputs from the Lower Thames Area Model. The results of this assessment, and the conclusions drawn, are presented in ES Chapter 12: Noise and Vibration (Application Document 6.1). Where unacceptable noise levels are predicted, mitigation has been considered or a justification included as to why this is not possible in the context of sustainable development.</p> <p>Figure 12.8: Opening Year Noise Change Contour (DSOY – DMOY) (Application Document 6.2) shows the predicted change in noise with the mitigated Project. There is no figure shown of this comparison without mitigation as this is considered to be a scenario that could not occur.</p>
Noise and Vibration	12.4.6 - it is noted Figure 12.1 presents indicative short- and long-term noise monitoring locations along the route again to be agreed with the LAs. It is noted in Gravesham there are 7 short term monitors and 2 long term monitors identified. The two long term monitors are located to the east of the proposed route further from more densely populated areas. There needs to be more long-term measurement points on the western side of the route.	Noise monitoring locations and durations have been consulted on with all local authorities within the detailed noise study area, and where possible agreements made/responses addressed accordingly. Along with the two locations to the east of the

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		Project there were two long term measurement locations to the west (LT-NML3 and LT-NML5). These are shown on Figure 12.5: Baseline Noise Monitoring Locations (Application Document 6.2).
Noise and Vibration	12.6.3 - welcome a commitment to agree receptors with Local Authority so as to provide a representative baseline including changes during the day and at weekends. It should be noted that Bluewater does, and London Resort if it is built may, create significant flows off peak.	Noise monitoring locations and durations have been consulted on with all local authorities within the detailed noise study area, and where possible agreements made/responses addressed accordingly. Traffic flows associated with Bluewater are included within the LTAM outputs and consequently form part of the dataset used for the operational noise assessment. Specifics of the cumulative schemes included within the scope of the traffic modelling and assessments are contained within ES Chapter 12: Noise and Vibration (Application Document 6.1). Traffic from the proposed London Resort has not been included in the LTAM
Noise and Vibration	12.6.9 - table 12.2 and Table 12.3 of the report provide information on operational and construction noise level triggers based on other large infrastructure projects. This approach is accepted.	Noted.
Noise and Vibration	12.7 - the report proposes separate construction and operational noise effects assessment methodologies which are accepted. It also identifies that certain operations (removal of spoil by barge) will take place on a 24-hour, 7 day a week basis. The report also identifies there could be further less localised noise impacts around management of on-site material in order to facilitate transportation and potential re-use. This should include the opportunity to transport material by rail or water to reduce the number of construction movements by road. If transport by water is found to be practicable then this may require either the construction of a	There are no longer plans to move materials via rail. The Project does not include a new jetty option.

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	<p>new jetty, or the modification of an existing jetty located on the River Thames. The nearest rail facilities to the tunnel are the North Kent Line in Kent. These should be investigated to identify if there is an opportunity to transport material by rail. If this was identified as feasible then new rail head facilities may be required. Haulage routes to the railhead and jetty facilities would be required, as well as large storage areas next to the jetty or rail head facilities. The report commits to ensuring any such development will be fully assessed re dust as well as noise.</p>	
<p>Noise and Vibration</p>	<p>12.8.2 – previous experience with elsewhere in the Borough has shown that in chalk due to the fissure structure vibration can manifest itself in unexpected locations and distances from the source.</p>	<p>ES Chapter 12: Noise and Vibration (Application Document 6.1) presents a summary of the calculation of construction generated ground-borne vibration from the operation of a TBM. The soil type is a major influencing factor on the propagation of vibration and is taken into account during this assessment. The full assessment of ground-borne noise and vibration is presented in Appendix 12.6: Assessment of Ground-borne Noise and Vibration at Land-based Receptors (Application Document 6.3).</p>
<p>Noise and Vibration</p>	<p>Sect 12.9 - this will include low noise surfacing, noise barriers and measures to control and noise from sources like pumping equipment or ventilation equipment.</p>	<p>Mitigation measures are presented in ES Chapter 12: Noise and Vibration (Application Document 6.1) and ES Appendix 2.2: Code of Construction Practice (Application Document 6.3).</p>
<p>People and Communities – Impacts on Community and private assets</p>	<p>The proposal results in the demolition of residential and commercial property, the former primarily at Marling Cross. Businesses are lost at Thong and impacts on the Inn of the Lake Motel, Boughurst Cottage (kennels and cattery) and Park Pale Farm are not clear, along with access to the Rochester and Cobham Park Golf Club. The Southern Valley Golf course is severed, and proposals are needed as to its future since this could impact on future land use. Cascades Leisure Centre though not directly affected may suffer from increased disturbance from noise and poorer air quality.</p>	<p>The effects of the Project on the commercial and private assets referred to have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>

Topic	Gravesham Borough Council comment	National Highways response
<p>People and Communities – – Impacts on Community and private assets</p>	<p>Figure 13.1 contains a 1 km study area which should be treated flexibly depending on the specific topic and likely impacts. The theoretical exclusion of an area at Shorne Village is anomalous and logically Cobham village should be included. The amount of the urban area affected will be a product of the traffic impacts inter alia.</p>	<p>ES Chapter 13: Population and Human Health (Application Document 6.1) has taken into account comments from stakeholders regarding the need for flexibility surrounding the study areas. The findings of the Transport Assessment (Application Document 7.9) have also fed into consideration of effects.</p>
<p>People and Communities – – Impacts on Community and private assets</p>	<p>NPSNN para 5.206 requires that the transport implications be examined. Access routes will sufferer disruption from the new junction arrangements and the possible impact of significantly different traffic patterns on the strategic highway network. For non-motorised users see below. Given the convoluted proposals in particular the slip roads at Marling Cross, the traffic modelling (or other appropriate approach) should address the issue of how traffic flows across the Gravesend/Northfleet urban and rural area (for example A227) will change as a result, whether any highway improvements will be needed as a result, and the resulting potential impacts on local residents. The use of the various A2 junctions may change, all of which at peak are operating at the margins, with implications for traffic flow within the area. This may affect development sites. Given the regional scale of this project the same question clearly needs to be answered on a much large scale since the project inherently requires a redistribution of flows from the Dover and the Channel Tunnel away from the M20 corridor and onto A2/M2.</p>	<p>The findings from the Transport Assessment (Application Document 7.9) have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1) Cross-river movement by non-motorised users has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1), however the inclusion of facilities to allow WCHs to use the road tunnel has not been progressed due to safety reasons.</p>
<p>People and Communities – – Impacts on Community and private assets</p>	<p>The physical implications for HS1 from the current proposals are unclear. As a high speed (186 mph) railway carrying domestic and international services it has its own safeguarding zone which is in the process of being revised, but which overlaps with the red line boundary for this project. As well as the railway itself there is the Singlewell Feeder station and Infrastructure Maintenance Depot that might be impacted by both construction and the completed scheme. As noted above the Cobham area is known for geological instability. The detail of the promoter’s proposal and any implications are for HS1 Ltd and the appropriate railway safety authorities to respond to, but the integrity and operation of the railway is a wider transport concern.</p>	<p>Implications of the Project for HS1 assets have been considered and discussed directly with High Speed Rail Limited. Details of engagement and agreements are contained within the relevant Statement of Common Ground (Application Document 5.4.3.10).</p>

Topic	Gravesham Borough Council comment	National Highways response
People and Communities - – Impacts on Community and private assets	NPSNN para 5.205 requires that the opportunities to support other transport nodes be considered. The implications for public transport therefore need to be considered, including bus and ferry services across the Thames and rail.	ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) considered alternative ways of meeting demand including improvements to public transport.
People and Communities - Human health and well-being	The analysis needs to examine the potential impacts on health from air quality, noise and disturbance. Para 13.4.20 picks up the variations in health by Local Authority area. However, the analysis needs to be more finely grained as the urban population has significantly worse health than the rural. The Borough Council would support the request by Thurrock Council for a Health Impact Assessment.	A Health and Equalities Impact Assessment (Application Document 7.10) has been produced as part of the DCO application. The scope of this covers an assessment of health impacts from changes in air quality, noise and disturbance as a result of the Project.
People and Communities - Development Land	The route on the east side of Gravesham is located in the Metropolitan Green Belt. Green Belt policy within the NPSNN (at 5.164; 5.170 – 172; and 5.178) follows that set out in the NPPF. Whilst Green Belt is not an issue required to be covered by the 2017 EIA Regulations, it does cut across a number of important aspects that do. There is therefore a clear interrelationship between the EIA to be submitted in support of the DCO application and the case that will need to be made in Green Belt terms.	Implications of the Project on Green Belt has been considered in the Planning Statement (Application Document 7.2) submitted with the DCO application.
People and Communities - Development Land	Inappropriate development within the Green Belt is deemed by definition to be harmful and should only be permitted where the applicant can demonstrate very special circumstances that clearly outweigh harm through inappropriateness and any other harm. The decision maker is required to accord harm to the Green Belt significant weight in the final planning balance.	Implications of the Project on Green Belt has been considered in the Planning Statement (Application Document 7.2).
People and Communities - Development Land	Whilst the NPSNN does not refer to the closed list of exceptions within paragraphs 89 – 90 of the NPPF considered not ‘inappropriate’, NPSNN paragraph 6.164 effectively brings them into play. In terms of new buildings, the proposed development would fall outside the list of exceptions contained in NPPF paragraph 89.	

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People and Communities - Development Land	Gravesham’s view is that LTC will comprise ‘inappropriate development’ within the Green Belt, requiring the demonstration of very special circumstances in the normal way. In addition, it is clear that the actual level of harm (as opposed to definitional) will be substantial and that ‘other harms’ will potentially be both wide ranging and serious.	
People and Communities - Development Land	Those chapters within the EIA identifying such ‘other harms’ will therefore be important in assessing the Green Belt case and whether ‘very special circumstances’ that clearly outweigh harm to the Green Belt and any other harms actually exist. As part of this, a consideration of reasonable alternatives will also be required and those sections of the EIA dealing with this aspect will also be material. As noted elsewhere within this response, Gravesham does not consider the work done to date in respect of reasonable alternatives is sufficient to meet the requirements of policy and further justification will be required.	Implications of the Project on Green Belt has been considered in the Planning Statement (Application Document 7.2). Route selection information in contained in ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1), and the Project Design Report (Application Document 7.4) contains information on design evolution.
People and Communities - Development Land	The red line boundary does not include any major development sites as defined in the Local Plan Core Strategy. However, the economic implications go far wider than sites on or near the route itself. The wider analysis will need to look at the implications of the scheme for the development of sites both in Gravesham and wider across North Kent. Locally there are the sites as set out in the Gravesham Core Strategy, which include parts of Ebbsfleet that need to be treated as a whole. The implications for development across Kent Thameside will need to form part of the transport analysis.	An assessment of the Project against local plans for each of the ‘host’ local authorities has been undertaken. It considers whether the Project is in accordance with the policy framework at this level. Refer to Appendix B of the Planning Statement (Application Document 7.2).
People and Communities - Pedestrian, Cycle and Equestrian routes	Figure 13.1 shows the Public Rights of Way and other routes that are affected. It should be noted that informal routes inside Shorne County Park, Jeskyns, Ashenbank Wood and Cobham Park are also relevant since they help determine where people actually go and function as part of a wider network. Heat maps produced by mobile phone applications like Strava (https://labs.strava.com/heatmap/#14.19/0.39758/51.40764/bluered/all) are a useful starting point (with the caveat they show the activity of a particular type of user). Count surveys would establish actual popularity.	Surveys were undertaken to inform the assessment of potential impacts on WCH. A walkover survey was undertaken to confirm locations of PRowS and ascertain the condition of those PRowS potentially severed by the Project. The purpose of the survey was also to gain an understanding of what facilities and services were accessed by these routes and how they were potentially

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		<p>used by local people. The walkover surveys informed the selection of routes for which more detailed user surveys were required.</p> <p>Further surveys were undertaken to establish the use of PRowS and minor roads affected by the Project during construction and operation. The surveys included a combination of user counts and questionnaire surveys.</p>
<p>People and Communities - Pedestrian, Cycle and Equestrian routes</p>	<p>The default position would be that all existing routes should be maintained with minimal diversion.</p> <p>A particular concern is the NCR 177 along the north side of the A2 and how that is affected by the slip roads and widening of the A2. The impact on sections of road that are currently quiet but may become considerably busier should be included in the analysis. The southern end of Thong Lane, including the bridge over the A2, are an obvious example where there is a horse-riding route through Shorne Woods Country Park that then uses Thong Lane to cross the A2 and connect into Scotland Lane south towards Cobham. The Thong Lane bridge is wide enough to accommodate them, but this may not be the case if traffic flows considerably increase. New structures should be built to bridleway standard to allow flexibility and that may be relevant to modification of existing structures if required (e.g. higher parapets).</p>	<p>Cross-river movement by non-motorised users has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1). However, the inclusion of facilities to allow WCHs to use the road tunnel has not been progressed due to safety reasons.</p>
<p>People and Communities - Pedestrian, Cycle and Equestrian routes</p>	<p>The scheme description excludes cross-river movement by non-motorised users, whereas there is provision at the existing Dartford Crossing. This topic should be explored further.</p>	<p>Cross-river movement by non-motorised users has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1), however the inclusion of facilities to allow WCHs to use the road tunnel has not been progressed due to safety reasons.</p>

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People and Communities - Pedestrian, Cycle and Equestrian routes	Section 2.15 talks about diversion of high voltage electricity lines and high-pressure gas pipelines. This is particularly pertinent in the narrow gap between Thong and the south east corner of Riverview Park which already contains both of these and into which the Lower Thames Crossing is attempting to fit. The diversion of these utilities may produce environmental impacts in their own right.	The diversion of utilities has been assessed in the ES (Application Documents 6.1, 6.2 and 6.3).
People and Communities - Construction Impacts	The nature of the construction impacts is unknown at this stage. There would appear to be a major site adjacent to Thong Village which on the basis of 2.13.8 will have some 24-hour activities. Based on previous experience of works on the A2 some construction operations at least will have to be performed at night because of the day time impact on traffic flows. The construction period will be considerable in length of up to 6 years.	The Applicant recognises that main compounds with proposed 24/7 working hours over a long construction period are likely to give rise to significant environmental effects and has proposed appropriate mitigation measures which are detailed in ES Appendix 2.2 CoCP.
People and Communities - Pedestrian, Cycle and Equestrian routes	The question of from which end the tunnel is bored is left open. If it is from the south the implications are highly significant due to the immediately surrounding residential population and the 24-hour working involved. Spoil disposal will be a major issue as significant traffic along the A226 through Higham or through Gravesend would not be acceptable. Rail and river access would only be possible by building a bridge over the railway to avoid the Ramsar site and the Metropolitan Police rifle range. Haul back along the trace to the A2 gives access to the A2 coast-bound (and access from) requiring a U-turn at a junction outbound or on return depending to the destination(s). The AADF of this road is over 110,000 vehicles per day.	<p>The Project has since developed, and the tunnel bores would be constructed from the north of the River Thames southwards. Driving from the north minimises impacts on the local area by reducing the number of construction traffic journeys and provides a single central location for all tunnelling logistics.</p> <p>The Scoping Report referred to the possibility of transporting materials by rail. This has since been discounted by the Applicant as it would have involved upgrading the Tilbury Loop railway line and creating additional access roads</p> <p>The flow of waste and materials, both internally within the Project Order limits, using a combination of the existing highway network and dedicated haul roads and</p>

Topic	Gravesham Borough Council comment	National Highways response
		externally on the surrounding highway network, are detailed in the Outline Materials Handling Plan (oMHP), which forms Appendix B of the CoCP (Appendix 2.2).
People and Communities - Detailed points	Para 13.4.3 – no reference to the potential impacts in the Shorne/Cobham area around the A2 – for example access to Shorne Country Park	Impacts on access to Shorne Woods Country Park has been assessed within ES Chapter 13: Population and Human Health (Application Document 6.1).
People and Communities -- detailed points	Para 13.4.6 – although not crossed by the proposals the widened A2 abuts HS1 and has potential implications for its stability and operation	Potential risks associated with construction activities and HS1 have been considered and discussed directly with High Speed Rail Limited, although no significant impacts have been identified. The Project design has sought to limit any impact at the boundary with HS1. Details of engagement and agreements are contained within the relevant Statement of Common Ground (Application Document 5.4.3.10).
People and Communities -- detailed points	13.4.26 – Gravesham has the lowest GVA of any authority in Kent	Noted.
People and Communities -- detailed points	Para 13.4.17 – Town Pier and pontoon for Tilbury ferry should be mentioned as part of the local transport infrastructure	These assets have been included in the baseline section of the ES Chapter 13: Population and Human Health (Application Document 6.1).
People and Communities -- detailed points	Para 13.4.29 – London Resort now not Paramount Park	This is now referred to as London Resort within ES Chapter 13: Population and Human Health (Application Document 6.1).

Topic	Gravesham Borough Council comment	National Highways response
People and Communities -- detailed points	Figure 13.1 – The Gravesend Crematorium and Cemetery is shown in the wrong location – it is further east. The shared cycleway/footway south along the A227 from Tollgate to Istead Rise is not shown. Old Road West Surgery is McKenzie Way Branch of the Old Road West Surgery – the main surgery is in Old Road West	ES Figure 13.2: PRow and WCH routes (Application Document 6.2) which presents these facilities has been updated.
Road Drainage and Water Environment	The A2 has a series of drainage lagoons, some of which also serve HS1, that will need to be maintained/expanded/replaced as appropriate. The cutting from Thong Lane down to the tunnel portal is steep and is likely to require pumping of surface water since it is effectively a channel without a natural escape and soakaways may not be adequate to cope with the potential volume of water.	These aspects have been considered in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Road Drainage and Water Environment	The marshes are a sensitive receptor so a detailed understanding of water quality, the drainage network and management of water levels for wildlife will be required. Water from the tunnels may well be saline or subject to pollution so will require separate treatment.	
Road Drainage and Water Environment	Construction of the tunnel may have implications for the water table on the marshes and there are similar concerns over disposal of any water extracted due to impacts on biodiversity. The current red line boundary makes no provision for surface water management in the area between the tunnel portal and the river, which logically may be required.	The Order Limits have been revised and includes sufficient land to accommodate all proposed surface water management infrastructure, including features for the provision of attenuation storage and treatment.
Road Drainage and Water Environment	Tunnelling under the soft defences to the east of Gravesend may result in settling, reducing crest height or lead to the defences being made more vulnerable to breaching through fissuring etc. It is important therefore that the defences are regularly surveyed during construction and thereafter to ensure that they are not compromised, and any necessary remedial action undertaken.	The effects of the Project on flood defences have been considered in the road drainage and the water environment assessment, which has been prepared in consultation with Environment Agency.
Road Drainage and Water Environment	Para 14.4.3 - Thames and Medway Canal actually sits above the drainage network on the marshes	Noted.
Road Drainage	Para 14.4.8 – perched water tables do exist in the Cobham area (from HS1 construction). There are a number of water features in the area, for example the	These water features are included in the assessment, which forms part of ES Chapter

Topic	Gravesham Borough Council comment	National Highways response
and Water Environment	Repton Ponds, which must be maintained and although not directly impacted might be if the local water table was affected.	14: Road Drainage and the Water Environment (Application Document 6.1).
Climate	<p>Whilst paragraph 4.41 refers to the UKCP09 projections, Gravesham’s understanding is that the Meteorological Office has issued guidance in advance of the publication of fresh projections under UKCP18 that sea level rise is likely to be worse than predicted. See http://ukclimateprojections.metoffice.gov.uk/media.jsp?mediaid=88739&filetype=pdf</p> <p>This means that there may be uncertainty as to what level to use for a storm surge flood level until UKCP18 becomes available and this is factored into the EA’s flood model for the tidal Thames. It would be useful therefore for the EIA Scoping to set out how this should be addressed.</p>	Data for the climate assessment have been sourced from UKCP18, which was released in November 2018. Further details on how the methods used to establish the climate baseline and assessment can be found in ES Chapter 15: Climate (Application Document 6.1).
Climate	The long term upgrading of the Thames tidal flood defences is considered through the Environment Agency’s Thames Estuary 2100 Plan (TE2100). This provides for a flexible response to climate change adaptation and sea level rise through a programme of interventions including renewal and upgrading of defences and the construction of a new Thames Barrier either at Long Reach, Dartford or to the east of Gravesend.	Noted.
Climate	For the purposes of EIA Scoping, it is necessary therefore to know whether National Highways require the trace of the LTC across the marshes to be inside the new flood defences. This is because under paragraph 4.44 of the NPSNN it may trigger the need for the combined impact of LTC and the TE2100 flood defence to be included in the EIA, even if it isn’t constructed at the same time. It would also have implications in terms of HRA.	Section 15.6 of ES Chapter 15: Climate (Application Document 6.1) has considered identification and implementation of any adaptation measures incorporated into the design. The embedded adaptation measures have been based on the latest UK Climate Change Risk Assessment 2022, which is based on The Independent Assessment of UK Climate Risk – Advice to Government for the UK’s third Climate Change Risk Assessment (CCRA3) of the Committee on Climate Change. The Environment Agency has been consulted.

Topic	Gravesham Borough Council comment	National Highways response
		TE2100 is one of the developments considered in Chapter 16: Cumulative Effects Assessment (Application Document 6.1).
Climate	<p>Given the material that will be generated as a result of building the LTC in a deep cutting south of the river, it may therefore make sense to look at LTC and TE2100 in this area as complementary projects that could be covered by the same DCO application. The material could be used to construct new flood defences, whilst the creation of new habitat could act as mitigation for the adverse impact of both. Any CPO powers contained in the DCO could also extend to those areas of land required to build and access the new flood defences.</p> <p>In any event, the LTC project needs to be cognisant of the need to upgrade flood defences to the east of Gravesend under the TE2100 plan and show that it does not compromise the ability to undertake those works in the future in an acceptable way.</p>	<p>The EA was consulted on their TE2100 projects as part of the Cumulative Effects Assessment long and short list consultation. This can be found ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).</p> <p>To define future baseline flood risk to the Project, climate change allowances have been selected in consultation with the EA. Further details are provided in ES Appendix 14.6: Flood Risk Assessment. The latest climate change allowances (UKCP18) have been applied to the FRA and the surface water drainage design.</p>
Cumulative Effects	<p>The major projects in the immediate area that are potentially relevant to the cumulative effects are:</p> <ul style="list-style-type: none"> • A2 Junctions (EIA Scoping just out to consultation for DCO submission in 2018) • Ebbsfleet Garden City (as omnibus term for the major existing permissions in the Ebbsfleet/Eastern Quarry/Bluewater area) • London Resort (DCO being prepared) • Tilbury 2 (DCO submitted) • Tilbury Energy Centre <p>On a wider canvass</p> <ul style="list-style-type: none"> • M20 Lorry Park (if that is progressed further) • Silvertown tunnel (TfL – SoS decision awaited) • Cumulative impact of the housing delivery implied by the ‘Right Homes’ 	<p>These developments were reviewed, and further information on the developments included in the long and short list of the cumulative effects assessment can be found in ES Chapter 16: Cumulative Effects Assessment and ES Appendix 16.1: Other Development Longlist.</p>

Topic	Gravesham Borough Council comment	National Highways response
	consultation across Kent, Thurrock and Essex	

10 Health and Safety Executive

Table 10.1 Health and Safety Executive

Health and Safety Executive comment	National Highways response
<p>The redline boundary of the development falls within the consultation zones of one major accident hazard site and several major accident hazard pipelines. <i>[HSE provided a table of the known site as fore mentioned].</i></p>	<p>The following Major Accident Hazard Pipelines cross the Order Limits (please refer to ES Appendix 4.2):</p> <ul style="list-style-type: none"> • Barking Power Station >7barg (high pressure gas) Pipeline • Cadent Gas >7barg (high pressure gas) Pipelines • National Grid >7barg (high pressure gas) Pipelines • Southern Gas Network >7barg (high pressure gas) Pipelines • Thurrock Flexible Generation Plant >7barg (high pressure gas) Pipeline <p>Consultation has been undertaken with the pipeline operators and agreements are being sought with regard to diverting or applying protective provision to third party assets where needed. It is therefore not considered likely that the Project would increase the risk of utilities failure.</p>
<p>Hazardous substance consent would be required if the site is intending to store or use any of the named Hazardous Substances or Categories of substances and preparations at or above the controlled quantities set out in schedule 1 of these regulations.</p>	<p>This has been noted and would be determined if required post-consent, by the Contractor.</p>
<p>This project routes the bridge through the safeguarding zone between green and yellow lines of the tilbury berths and just outside the purple line for another berth. We would therefore expect to review the licence for both of these berths.</p>	<p>The Project has been engaging with the MMO and Port of London Authority in regard to the tunnelling of the River Thames.</p>

11 Historic England

Table 11.1 Historic England

Topic	Historic England comment	National Highways response
General Comments	<p>Historic England has in the past raised concerns about the use of matrices and tables to determine significance, magnitude of impacts and receptor sensitivity. Whilst the standardised EIA matrices are a useful tool, the analysis of impact, harm, significance and setting is a matter of qualitative and expert judgment which cannot be achieved solely by the use of systematic matrices and the use of tables should be seen primarily as supporting material. We recommend that the applicant seek to deliver a clearly expressed, iterative and non-technical narrative for significance and harm, which is tailored to this specific environment. We advise that the impact of the proposed development on the setting and significance of designated and non-designated heritage assets to be fully assessed in accordance with legislation, policy and guidance. In particular, we recommend the analysis follows the staged approach to assessment set out in Historic England’s Good Practice Advice in Planning 3: The Setting of Heritage Assets. The ES document would need to provide sufficient visual information to illustrate how the proposed infrastructure</p>	<p>The general approach to assessment is based on the determination of impact significance from a combination of the sensitivity of the baseline conditions and the magnitude of potential changes.</p> <p>Environmental value, magnitude and significance matrices are presented in ES Chapter 4: EIA Methodology (Application Document 6.1) which are reproduced from DMRB LA 104. This approach is used throughout each of the topic chapters.</p>

Topic	Historic England comment	National Highways response
	<p>would be seen in views from key designated heritage assets and we would be pleased to provide more detailed advice on proposed viewpoints for photomontages once an initial list has been drawn up.</p>	
<p>General Comments</p>	<p>We note that a single chapter (Chapter 7) on the historic environment is proposed for the ES. However, impacts dealt with in other chapters which would have a bearing on the historic environment, need to be clearly identified in those chapters and cross-referenced back to Chapter 7. This is particularly true of Chapter 10 on Geology and Soils, which is highly relevant to geoarchaeology and early prehistory. Equally important is the Landscape and Visual Assessment (Chapter 8), where we consider it important to use historic environment receptors in to the assessment process, but the scope for other aspects of the project to impact on the historic environment should be fully considered.</p>	<p>The assessment reported in ES Chapter 6: Cultural Heritage (Application Document 6.1) has interrelationships with the following other chapters of the ES:</p> <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • ES Chapter 10: Geology and Soils (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1)
<p>General Comments</p>	<p>We consider that photomontages and/or wire scape images from heritage specific viewpoints would be essential, particularly from key designated heritage assets. Wider landscape views are also needed, including any images that would seek to illustrate cumulative impacts. The assessment of 'setting' likewise should not</p>	<p>The settings of heritage assets are identified and the contribution that they make to an asset’s significance assessed in ES Chapter 6: Cultural Heritage (Application Document 6.1).</p> <p>Viewpoints and photomontages from specific heritage assets have been produced and included in the cultural heritage assessment. This has been undertaken in collaboration with the landscape and visual assessment. Please refer to ES Figure 6.5 and 6.6 (Application Document 6.2).</p>

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	<p>be solely be restricted to visual impact and would need to consider the impact from other environmental factors such as noise, traffic and lighting.</p>	
<p>General Comments</p>	<p>2.2.7/3.2.3 The Tilbury Docks link road shows roundabouts which would provide link into Fort Road. This would result in two rather than a single replacement road very close to the northern boundary of the Tilbury Fort scheduled monument which would increase the adverse impact on its setting. Consideration should be given to downgrading Fort Road so that it is for local access to Tilbury Fort and Worlds End Pub only.</p>	<p>The Tilbury link road is no longer part of the Project. The existing Fort Road immediately to the north of the asset would be utilised as online main construction access road. The impact on Tilbury Fort is considered to be of negligible magnitude, resulting in a slight adverse significance of effect.</p>
<p>General Comments</p>	<p>2.12.3 If a Slurry TBM is selected to construct the tunnel, the potential for slurry breakout to occur and the implications that this may have on any surrounding archaeological features and deposits will need to be considered. This may include the infilling/coating of features/remains in the slurry mixture and how this may impact their degradation and/or preservation in the future. The composition and properties of the bentonite slurry will need to be defined in order to determine if, for example, it would alter the pH of the nearby deposits.</p>	<p>This potential impact has been included in the cultural heritage assessment (Application Document 6.1).</p>
<p>General Comments</p>	<p>2.12.7 The hydrogeological assessment may be of value when investigating the preservation conditions and potential of</p>	<p>ES Chapter 6: Cultural Heritage (Application Document 6.1) has interrelationships with ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>

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	<p>any archaeological deposits, as it will help define how vulnerable the system is to change in water levels and therefore what this would mean for any organic archaeological remains that are preserved in these deposits. This may include palaeoenvironmental remains (pollen, plant remains, insects, shells etc.) through to artefacts, such as structures/objects composed of wood or leather. Additional information on the value of this information for archaeological assessments can be found in the Historic England 'Preserving Archaeological Remains' (2016) guidance: <https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/></p>	
<p>General Comments</p>	<p>2.15.1 If there is a need to move or introduce new high voltage power lines, will consideration be given to undergrounding where this might enhance the setting of DHAs or landscape character?</p>	<p>There are requirements to move overhead power lines as part of the Project. The proposals for these works have been designed in consultation with National Grid. Strategic utility diversions are identified on the Works Plans within the Book of Plans (Application Document 2.6) which include the diversion of electricity cables both below and above ground. More information on utility diversions can be found in the Project Design Report (Application Document 7.4).</p>
<p>General Comments</p>	<p>2.16.1 When assessing the contaminated land mentioned north of the River Thames, it may be useful to refer to the Historic England 'Land Contamination and Archaeology' (2017) guidance. This document discusses the commonality in approach to risk assessment for both land contamination studies and archaeology,</p>	<p>This document has been a source of guidance in the cultural heritage assessment.</p>

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	highlighting that information gathered for one discipline may enhance the understanding and management of the other: < https://historicengland.org.uk/images-books/publications/land-contamination-and-archaeology/ >	
General Comments	2.17.6. It is stated that materials may be transported by water, which would require the construction of a new jetty. If this option is selected then it should be discussed with Chris Pater (Head of Marine Planning, Historic England) due to the impact that this may have on any near surface or buried archaeology, both through the construction and dredging required as part of the development, as well as the anchorage of vessels.	A new jetty is not proposed as part of the Project.
Air Quality	6.6.5 No reference to assessing impacts on DHAs in the DMRB according to this section, but we believe these should be assessed where they are not identified as residential, places of worship etc. For example, if the Tilbury rail loop were to be used transport/removal of arisings then there would be an impact on the Tilbury fort which is an important visitor attraction.	All relevant impacts to designated heritage assets have been considered in the cultural heritage assessment.
Cultural Heritage	7.3.3 Record of meeting with Historic England and heritage consultants in October 2017 should be included. Was any corresponding meeting held with ECC	Meetings with ECC Place Services were carried out after finalisation of the Scoping Report. Stakeholder engagement has been ongoing throughout the pre-application phase. A full list of stakeholder engagement relevant to cultural heritage is included in the ES Chapter 6: Cultural Heritage (Application Document 6.1).

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	Place Services, alongside that for Kent CC?	
Cultural Heritage	7.3.4 The list of Historic England roles which will contribute to pre-application advice is incomplete and inaccurate. Please see attached contact list/organogram and revise in line with this.	Noted.
Table 7-1: Datasets Consulted	Data sets on scheduled monuments are from Historic England, not English Heritage	This reference has been corrected in all the documentation prepared for the DCO application.
Table 7-1: Datasets Consulted	Date of baseline data for conservation areas is as of Feb-Mar 2015 at latest and will need checking for updates.	Datasets from all providers were updated at regular intervals throughout the assessment process.
Table 7-1: Datasets Consulted	It should be stated that the GLHER also records archaeological remains of value in the study area, not just the Kent and Essex HERs.	
Table 7-2: Additional Baseline Information	The scope of the assessment should be explicitly informed by an understanding of and reference to regional heritage/archaeological Research Frameworks which exist for the study area (East of England, Greater Thames Estuary, South East and London, insofar as they are relevant to the project.	Regional research frameworks were acquired and considered in the assessment process and include: <ul style="list-style-type: none"> • East of England Regional Historic Environment Research Framework, Association of Local Government Archaeological Officers East of England/Historic England (2000/2011/2017) • Greater Thames Estuary Historic Environment Research Framework, Greater Thames Estuary Archaeological Steering Committee/Historic England (2010) • South East research Framework, East Sussex/Kent/Surrey/West Sussex/Historic England (2007/2019) Refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for more information.

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Table 7-2: Additional Baseline Information	HERs are typically inadequate for the Palaeolithic and a few additional baseline sources are included in Table 7-1, but it would be worth including additional sources such as the English Rivers Palaeolithic Survey and the Southern Rivers Palaeolithic Project (Wessex Archaeology) and relevant Quaternary Research association Field Guides, as well as Regional Research Assessments in Table 7-2.	Baseline data acquisition includes these sources.
Table 7-2: Additional Baseline Information	The Historic England Heritage at Risk Register should be added to baseline data, to inform mitigation measures and whether there may be an opportunity to secure benefits which address at risk issues if any assets on the register are affected.	Heritage at Risk data was included in the cultural heritage assessment.
Table 7-2: Additional Baseline Information	Thames Chase Community Forest desk-based assessment produced by the Passmore Edwards Museum would also be valuable (to note Essex CC have a hard copy and that no digital one exists).	This report was acquired and considered in cultural heritage assessment.
Table 7-2: Additional Baseline Information	In addition, placename and Domesday evidence should be explored in relation to the often-cited Saxon roots of Ockendon, which are currently poorly attested in the archaeological record.	The cultural heritage assessment includes place name analysis.
7.6.7 Key Environmental Receptors	Grade II listed buildings in Essex should be properly identified.	These are described in detail, shown on figures and impacts assessed in the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) and ES Appendix 6.1: Desk-Based Assessment.

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	<p>There are nine grade II listed buildings within approximately 1 00m radius of the site. In particular, the following five grade II listed buildings are located within, or immediately adjacent to the boundary of the application site.</p> <ul style="list-style-type: none"> • Thatched Cottage, Baker Street, Orsett (within) • Murrells Cottages, 1 and 2 Stanford Road, Orsett (within) • 1 and 2 Grays Corner Cottages, Baker Street, Orsett (within) • Whitecrofts Farmhouse, Stanford Road, Orsett (adjacent) • Polwicks, Church Road, West Tilbury (adjacent) • Heath Place, Hornsby Lane, Chadwell St Mary • Former Gateway at Groves Barns, North Road, South Ockenden • Barn and Stable Block to the North of Broadfields Farmhouse, Cranham • Little Wellhouse, Stifford Clays Road, Orsett 	
<p>7.6.7 Key Environmental Receptors</p>	<p>The development will also have a negative impact on the West Tilbury Conservation Area and the North Ockenden Conservation Area, both of which are located within approximately 1 00m radius of the site.</p>	

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7.6.7 Key Environmental Receptors	Grade II listed buildings in Havering should be properly identified. It is not clear why some conservation areas are listed within high value or medium value -is this based on their perceived significance or the likely severity of impact?	The listed buildings are described in detail, shown on ES Figure 6.2: Built Heritage (Application Document 6.2), and impacts assessed. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1). The value of heritage assets is determined by their heritage importance.
7.6.7 Key Environmental Receptors	Unlisted historic buildings in Chadwell St Mary, Orsett and South Ockendon -it is not stated if these make a contribution to any conservation areas.	Descriptions of Conservation Areas and the buildings, both listed and non-designated, that contribute or detract from their historic character are included in ES Appendix 6.1: Desk-Based Assessment.
7.6.7 Key Environmental Receptors	In Havering, North Ockenden conservation area should be identified. The listed heritage assets within it, especially the grade I church of St Mary Magdelene (which is identified), are very vulnerable in terms of the new junction and slip roads. In Havering, Is Manor Farm and associated outbuildings (S of B 1421, Ockendon Road) among unlisted historic buildings assessed? These appear to be very close to the new M25 junction.	All Conservation Areas and designated assets within the study area are assessed. Unlisted buildings, including curtilages, with heritage value within 100m of the Order Limits are assessed. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
7.6.7 Key Environmental Receptors	In Havering, if widening of the M25 between the new junction and J29 takes place outside the existing corridor, Broadfields Farm and Franks Farm, both listed historic buildings grade 11, are close to M25 on the west side.	All designated assets within 100m of the Order Limits have been included in the building conservation assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
7.6.7 Key Environmental Receptors	Is the Cranham conservation area, and associated listed buildings, in the study area?	All designated assets within the study area were assessed and are shown on ES Figure 6.1 and 6.2 (Application Document 6.2).

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7.6.7 Key Environmental Receptors	<p>There are Palaeolithic remains of at least national significance in the area of the crossing route and it would certainly be worth including non-designated Palaeolithic remains in 7.6. 7 to demonstrate that there are likely to be archaeological deposits of equivalent importance to the designated heritage assets they include. A number of internationally significant Quaternary sites such as Purfleet, Aveley, Swanscombe, and Tilbury are located. In addition, regionally significant Holocene sequences have also been recorded at Tilbury that contributes to our understanding of climate and environmental change, relative seal level changes and archaeology.</p>	<p>Palaeolithic information was provided by a specialist in Palaeolithic assessment. This assessment is reported in ES Appendix 6.4: Palaeolithic and Quaternary Deposit Model Report.</p>
7.6.7 Key Environmental Receptors	<p>7.6.8 Unknown value Archaeological remains: this should be informed by an overarching understanding of regional research frameworks as well as site distribution, topography, geology etc., all of which would contribute to modelling. There is also potential for impacts on deposits which contain evidence for the early history of the Thames and palaeoenvironment (including information on Relative Sea Level changes), and this should be which cross referenced to Ch. 10 (Geology) and vice versa. There is also the potential for impacts on marine archaeological remains should jetty</p>	<p>Research frameworks and other publications associated with these specialist areas have been utilised to inform the assessments, along with specialist palaeolithic and marine assessments.</p> <p>Regional research frameworks were acquired and considered in the assessment process and include:</p> <ul style="list-style-type: none"> • East of England Regional Historic Environment Research Framework, Association of Local Government Archaeological Officers East of England/Historic England (2000/2011/2017) • Greater Thames Estuary Historic Environment Research Framework, Greater Thames Estuary Archaeological Steering Committee/Historic England (2010) • South East research Framework, East Sussex/Kent/Surrey/West Sussex/Historic England (2007/2019)

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	facilities for transport of arisings be required (cross-ref to 7.7.10). It should be noted that any Palaeolithic remains present could be of national significance based on the known Palaeolithic archaeology of the Lower Thames area.	Refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for more information.
7.6.7 Key Environmental Receptors	7.7.3 Archaeological evaluation needs to be considered in relation to the total project land take. It is extremely important that all areas which may result in ground works are identified by cross referencing as necessary, even though their physical locations are not yet known. These include, for example, all ground works relating to construction compounds, the management and storage of arisings, works relating to drainage and flood prevention, habitat compensation etc.	The cultural heritage assessment considers the potential physical impact of both construction and operational activity, and land take required for mitigation. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
7.6.7 Key Environmental Receptors	7.7.4 Additional AP and Lidar cover should be commissioned where cover is incomplete, or detail can be improved. Given the Palaeolithic significance of the river terraces in particular, it is essential for the Palaeolithic potential of the scheme to be assessed by a Palaeolithic/Pleistocene specialist as part of the OBA. Existing records could also be used to develop an initial deposit model that could be enhanced following the later geoarchaeological sampling mentioned in Section 7.7.6. Given the presence (and potential impact on) deep Quaternary (i.e.	Deposit modelling of River Thames basin has been undertaken by a geoarchaeologist using the geotechnical exploration data between the two tunnel portals. A specialist in Pleistocene-Palaeolithic archaeology was commissioned and has prepared ES Appendix 6.5: Palaeolithic and Quaternary Deposit Model and Report and ES Appendix 6.6: Palaeolithic Archaeological Assessment and Research Framework.

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	<p>Pleistocene and Holocene) deposits of archaeological significance along the route there is likely to be archaeology buried within the natural deposit sequence, which will not be adequately represented in the HER and by shallow geophysics and field walking or even shallow evaluation trenches. The best way to identify the potential depth and character of this archaeology is to undertake a preliminary deposit model (based on any available stratigraphic information including archaeological, geotechnical, Quaternary) to follow the route footprint, as part of the OBA. The model will help illustrate the depth, characteristics and potential of the Quaternary deposits of archaeological interest and should inform any subsequent evaluation trenching, borehole sampling and/or geophysical survey. A geoarchaeologist would need to do the deposit modelling.</p>	
<p>7.6.7 Key Environmental Receptors</p>	<p>It is also important to note that based on available information the OBA should start to help understand the state of preservation of any surviving archaeology on the site, as described in the Historic England 'Preservation of Archaeological Remains' (2016) guidance, which should consider:</p> <ul style="list-style-type: none"> ● What categories of archaeological 	<p>This assessment has been undertaken and is reported in ES Chapter 6: Cultural Heritage (Application Document 6.1). The placement and methodology of the evaluation has been informed by all available information and agreed with heritage stakeholders.</p>

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	<p>remains are likely to be preserved?</p> <ul style="list-style-type: none"> • What is the expected state of preservation of these remains? • Is waterlogged archaeology likely to survive? • Are similar conditions likely to extend across the whole site or are they likely to vary? <p>To answer these questions the author would need to examine:</p> <ul style="list-style-type: none"> • landscape position; • geology; • hydrology; • evidence from local sites in similar situations; • geotechnical information; • land-use history etc. <p>The collection and assessment of this information would pave the way for the evaluation to include questions that address the state of preservation and burial environment of any archaeology and environmental evidence found, as well as flagging up the need for a deposit model (or/and a water environment study as part of a subsequent stage of work).</p>	
7.6.7 Key Environmental Receptors	7.7.6 What is the rationale for only doing geophysical survey on areas of cut and fill? The use of embankments cannot, at this stage, be considered to represent the	Geophysical survey was undertaken in areas within the Order Limits, including temporary and permanent land take. The results supplemented other sources of information regarding the known archaeological resource. The survey areas and methodology were agreed with stakeholders.

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	<p>opportunity for preservation in situ, not compound/storage areas etc. In addition: geophysical survey should include deep penetrating techniques (such as electromagnetic induction (EMI) and electrical resistivity (ERT) in appropriate areas; geoarchaeological boreholes might be better than 'geoarchaeological sampling' and their location would be aimed to understand gaps and elucidate uncertainties identified through the deposit modelling undertaken in the OBA.</p>	
<p>7.6.7 Key Environmental Receptors</p>	<p>The opportunity to undertake these boreholes as part of the proposed ground investigation work (10.5.2) should be made use of the .</p>	<p>The British Geological Survey (2020) website was consulted for borehole and geological data. The borehole data of relevance taken from the ground investigation works has been examined by geoarchaeological specialist.</p>
<p>7.6.7 Key Environmental Receptors</p>	<p>Geophysics and geoarchaeological coring may be required if a new jetty is to be built and may allow the terrestrial and marine sequences to be linked into a single scheme, which would provide information of value to the archaeological community.</p>	<p>A new jetty is not proposed as part of the Project.</p>
<p>7.6.7 Key Environmental Receptors</p>	<p>Given the recent guidance, there will be a need to consider the state of preservation of any archaeology and palaeo-environmental remains found</p>	<p>The scope of the cultural heritage assessment includes the palaeoenvironmental / geoarchaeological resource. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1), ES Appendix 6.5: Palaeolithic and Quaternary Deposit Model and Report and ES Appendix 6.6: Palaeolithic Archaeological Assessment and Research Framework.</p>
<p>7.6.7 Key Environmental Receptors</p>	<p>7.7.7. The Team should include a Palaeolithic specialist and a geoarchaeologist</p>	<p>External specialists have been employed for those aspects of the historic environment which require specialised technical assessment (e.g. Palaeolithic remains, marine archaeology, geoarchaeology and Historic Landscape Character).</p>

Topic	Historic England comment	National Highways response
		The latest guidance on assessment of impacts to heritage assets has been utilised by these specialists.
7.6.7 Key Environmental Receptors	7.7.8 The scope and methodologies for all aspects of assessment and evaluation should be agreed by the relevant archaeology advisers, not just the ones for further stages of survey, as is currently stated. Any geophysical work should be additionally agreed in consultation with the HE specialists at Fort Cumberland and archaeological trenching and geoarchaeological work should be carried out according to methodologies agreed with HE science advisers	For the geophysical surveys and archaeological trial trenching, WSIs have been prepared for all land parcels within the Order Limits, which have been approved by the archaeological advisors to the local planning authorities. Section 6.3 of ES Chapter 6: Cultural Heritage (Application Document 6.1) contains a list of standards and guidance which have been used to devise the methodology for data collection and assessment.
7.6.7 Key Environmental Receptors	7.7.10 Archaeological assessment/evaluation/ mitigation would be required if a jetty is constructed, which may include geoarchaeological and palaeoenvironmental assessments.	As noted above, external specialists have been employed for those aspects of the historic environment which require focused assessment. However, a new jetty is not proposed as part of the Project.
7.6.7 Key Environmental Receptors	7.7.11 Air quality, as well as Noise and Traffic should also be considered in relation to DHAs where appropriate.	Noted and incorporated in ES. Further to ES Chapter 6: Cultural Heritage (Application Document 6.1), refer to the following: <ul style="list-style-type: none"> • ES Chapter 5: Air Quality (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • Transport Assessment (Application Document 7.9).
7.6.7 Key Environmental Receptors	7.8.1 The physical impacts of the proposed development on archaeological features/deposits may also include the presence of bentonite slurry if it spreads out from the source of the tunnel boring.	This aspect is integrated into the cultural heritage assessment.

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7.6.7 Key Environmental Receptors	7.9.1 Archaeological recording and sampling strategies: Appropriate strategies would also be required for historic buildings and landscape features, as appropriate.	Mitigation measures are applied to all heritage assets experiencing negative impacts and described in ES Chapter 6: Cultural Heritage (Application Document 6.1).
7.6.7 Key Environmental Receptors	7.9.2 Preservation in situ should be the presumption where ground works can be moved away from buried archaeological remains: HE has issued guidance on physical preservation of archaeological remains < https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/ > major engineering projects may offer only limited scope to achieve this. It is therefore important to ensure that the OBA and evaluation seek to understand the state of preservation of archaeological remains and the nature and vulnerability of their burial environment. This will ensure that remains remaining buried close by or below the direct impact of the scheme are not indirectly affected by factors such as lowered water tables or chemical changes to the burial environment.	This assessment has been undertaken and potential impacts considered in ES Chapter 6: Cultural Heritage (Application Document 6.1). Also refer to ES Appendix 6.1: Desk-Based Assessment.
7.6.7 Key Environmental Receptors	Mitigation should also include improved public understanding of the heritage that is to be lost through open days, outreach programmes, social media and popular publication. Provision for this should be built into the project at an early stage.	Suitable publication and outreach have been included in the mitigation, as detailed in ES Chapter 6: Cultural Heritage (Application Document 6.1).

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Landscape	Table 8.1 when will HE be consulted on receptors for DHAs?	Engagement with Historic England has been ongoing through the pre-application stage. A record of this engagement can be found in ES Chapter 6: Cultural Heritage (Application Document 6.1).
Landscape	8.4.4. Add Tilbury Fort	Tilbury Fort forms part of the cultural heritage and landscape and visual impact assessment’s existing baseline.
Landscape	Table 8.2/8.3 reference Resource/Receptor in relation to the importance of settings for Tilbury and Coalhouse Forts.	Tilbury and Coalhouse Forts form part of the cultural heritage and landscape and visual impact assessment’s existing baseline. Both of these features are considered to have high value in the cultural heritage and landscape and visual assessments.
Landscape	Table 8.4 High Sensitivity - this should include 'users' of DHAs.	Recreational users are considered within the landscape and visual assessment.
Landscape	8.9.2 Any impacts on buried archaeology from landscape mitigation areas need to be considered to avoid mitigation of one impact resulting in harm to another. The assessment of historic landscape features which contribute to landscape character and grain should be identified. Opportunities to conserve and manage impacts on historic landscape features such as field boundaries, hedgerows, woodland and routeways should be taken, using a multidisciplinary approach derived from ecological, landscape and archaeological techniques, so that their significance can be properly identified, and recording undertaken where loss is unavoidable, together with the careful design and mitigation of the impacts arising from new offset habitat creation.	ES Figure 2.4: Environmental Masterplan (Application Document 6.2) sets out the operational phase mitigation requirements for the Project and provides a holistic strategy balancing needs for all environmental topics including heritage aspects.

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Biodiversity	Some parts of the Biodiversity chapter should also be reviewed as part of the Cultural Heritage assessment. Some archaeology, which cannot easily be designated in its own right is given some protection as a bi-product of ecological designation and where relevant this should be identified in the assessment	All sensitive archaeological receptors have been identified and, where relevant, included within the impact assessment. Their inclusion was based on a consideration of whether potential effects of the project could result in significant impacts on these receptors.
Biodiversity	Reference to Hangmans Wood SSSI and Deneholes scheduled monument which is not reflected in Chapter 7. Is there any heritage impact? Similarly, there is important but non-designated Mesolithic archaeology surviving in Cobham and Shorne Woods SSSIs, which should be considered / reflected in Chapter 7 or 9. Some archaeology (e.g. Palaeolithic, waterlogged) is given some protection as a bi-product of ecological designation and where relevant this should be identified in the assessment.	Deneholes scheduled monument in Hangman’s Wood and non-designated heritage assets are part of the cultural heritage baseline and is part of the assessment.
Chapter 10: Geology and Soils	<p>10.1.4 Needs cross reference to Chapter 7 Cultural Heritage. Certain parts of this chapter are highly relevant for understanding archaeological potential and value and the information should be utilised in the cultural heritage assessment. These include:</p> <ul style="list-style-type: none"> 10.1.3 which deals with geology and soils in relation to their engineering properties, contamination and agriculture. It does not, however 	<p>Cross referencing between the cultural heritage and geology and soils has been made and data shared as required to ensure matters such as geodiversity and landscape history are covered.</p> <p>Chapter 6: Cultural Heritage includes an assessment of the impacts of the Project on geological deposits of archaeological interest, and Appendix 6.5, Palaeolithic and Quaternary Deposit Model, Appendix 6.6, Palaeolithic Archaeological Assessment and Research Framework, and Appendix 6.13, Holocene Geoarchaeological Desk Based Assessment all present a deposit focussed approach to the earlier archaeological periods. The development of the landscape</p>

Topic	Historic England comment	National Highways response
	<p>address the changing environment and earth surface processes the geology, soils and geomorphology represents. Could the impact of the scheme on the geodiversity and geomorphology resource / receptor be scoped into the EIA / Environmental Statement/ next stage of work? We have an interest in this being included because geodiversity has strong links with cultural heritage (the geology shapes the landscape occupied and utilised by human communities). At the moment geodiversity is alluded to in both chapters but not covered at all.</p>	<p>in terms of underlying geology is referred to in Appendix 6.1 Desk Based Assessment.</p>
<p>Geology and Soils</p>	<p>Geology: the route is divided into landscape sections based on geology and topography. These zones/this approach would also be useful in describing archaeological potential and would mesh well with the construction of a deposit model.</p>	<p>Cross referencing and relevant assessment in relation to cultural heritage, geo-archaeology and the water environment have been made in the EIA and are reported in the ES.</p> <p>Archaeological potential across the Project has been considered based on a robust programme of over 4000 archaeological trial trenches and the results are reported in Chapter 6: Cultural Heritage, Appendix 6.8, Trial Trenching Reports. The landscape zones were considered in the development of Appendix 6.5, Palaeolithic and Quaternary Deposit Model.</p>
<p>Geology and Soils</p>	<p>Hydrogeology: - this information would usefully feed into an understanding of the water environment in the alluvial parts of the site and hence provide information about the likely preservation of archaeological remains. The dewatering mentioned in 10.8.6 also needs to be considered and cross working between</p>	<p>Dewatering of sites has been considered, particularly with reference to the peat deposits around the North Portal, and the impact has been considered within Chapter 6: Cultural Heritage.</p>

Topic	Historic England comment	National Highways response
	the hydrogeologists and archaeological consultants recommended.	Ground Treatment has been acknowledged as a potential impact on buried archaeological remains and is assessed in Chapter 6: Cultural Heritage.
Landfills	The infilled quarries are likely to be areas where most archaeology has been removed and should be identified (if not done so already) on the maps of archaeological value that are produced as part of the OBA.	Additionally, mitigation proposals have been subject to on-going discussions with Historic England and the Local Authority Archaeological Advisors. The documents referred to by Historic England are included within the standard suite of good practice guidance used by the Project.
Landfills	<p>Table 10-5: Land stability hazards: these hazards could affect the survival and preservation of archaeology; and tackling some of these hazards could impact on archaeology 10.4.18-10.4.29.</p> <p>If significant organic archaeological remains are recorded in the deposits impacted by the proposed development, and it is decided that they should be preserved in situ (as suggested in Section 7.9.2), then it may be necessary to develop a conceptual model for the hydrology/hydrogeology for parts of the proposed development area. These sections provide information that may be of value to this process, as well as Table 10-6. The conceptual model would aid the understanding of the system present and how vulnerable it is to change (see the Historic England guidance 'Preserving Archaeological Remains: Appendix 3 - Water Environment Assessment Techniques' (2016)). This information would be required if the proposed</p>	<p>The cultural heritage team has worked closely with colleagues in geology and soil to identify the extent of landfill sites.</p> <p>Mines and Quarries of heritage interest are identified within the Cultural Heritage baseline reported on in Chapter 6: Cultural Heritage and Appendix 6.1, Desk Based Assessment.</p>

Topic	Historic England comment	National Highways response
	development could alter the hydrology of an area, as this may impact the preservation conditions on the site and therefore if it is possible to preserve archaeological remains in situ. A preliminary hydrodynamic model was prepared (see Figures 14.1, 14.2 and 14.5 in Appendix F) and may provide some of the relevant information required for the conceptual model.	
Landfills	10.4.43-51 There needs to be cross working between cultural heritage and geological consultants to have certainty about the extent of all landfills so that archaeological sterile areas can be identified with confidence. It may also be useful to refer to the Historic England 'Land Contamination and Archaeology' (2017) guidance for the reasons discussed for Section 2.16.1 above (same comment for section 10. 7.2).	
Landfills	10.4.54 Mines: any historical interest in these mines/quarries?	
Landfills	10.4.64 -10.4.66 Soils: soil characteristics will influence the preservation of archaeology.	Cross referencing in relation to heritage has been made, and data shared as required to ensure matters such as geodiversity and landscape history are covered. Preservation conditions have been confirmed through fieldwork and are reported in Chapter 6: Cultural Heritage, Appendix 6.8, Trial Trenching Reports.
Landfills	Table 10.5 mentions the potential hazard of compression when certain deposits are loaded or compressed as part of the	Cross referencing and relevant assessment in relation to cultural heritage and geo-archaeology have been made in the EIA.

Topic	Historic England comment	National Highways response
	<p>construction and operation phases of a project. The impact that compression may have on any archaeological remains will need to be discussed along with the strategy that would be implemented to mitigate the potential damage. This section should also refer to Fig 10.6 not 10.5; Landslides: this should refer to Fig 10.5, not 10.6</p>	<p>Compression of deposits has been acknowledged as a potential impact on buried archaeological remains and is assessed in Chapter 6: Cultural Heritage. Additionally, mitigation proposals have been subject to on-going discussions with Historic England and the Local Authority Archaeological Advisors. The documents referred to by Historic England are included within the standard suite of good practice guidance used by the Project.</p>
Landfills	<p>10.5.2 The ground investigation will also inform archaeological assessment (see 7.5.1 and 7.7.6). It would be most cost-effective and provide more robust baseline information if there was geoarchaeological input to the design (methodology, locations) of the ground investigation and if a geoarchaeological watching brief was included in the work.</p>	<p>Geoarchaeology input/assessment has been undertaken as part of the ground investigation scope.</p> <p>The ground investigation programme was archaeologically monitored, and the results incorporated into Appendix 6.5, Palaeolithic and Quaternary Deposit Model, Appendix 6.6, Palaeolithic Archaeological Assessment and Research Framework, and Appendix 6.13, Holocene Geoarchaeological Desk Based Assessment and ES Chapter 6: Cultural Heritage.</p>
Landfills	<p>10.5.2 Other baseline information (10.5.2) and section 10.9.1 mention proposed extensive ground investigations. Geoarchaeological input into the location of boreholes and test pits, the recording, monitoring/ watching brief strategy and the need for additional purposive geoarchaeological boreholes should take place. This will require discussion between the geological/geotechnical and archaeological consultants to ensure maximum gain from the ground investigation work.</p>	

Topic	Historic England comment	National Highways response
Landfills	10.6.1 Are there any receptors relating to Geodiversity or geomorphology that might be impacted (do Natural England identify, for example), given that such receptors are considered in Table 10-6?	Cross referencing and relevant assessment in relation to cultural heritage and geo-archaeology has been made. The potential for contaminants impacting on archaeological fieldwork was considered in the ATT programme ES Chapter 6: Cultural Heritage Appendix 6.11, ATT WSI South and Appendix 6.12 ATT WSI North and will be part of any further archaeological mitigation.
Landfills	Table 10-7 highlights the criteria for determining the magnitude of impact on the geology, mentioning geodiversity value. The geology can help to provide information about the past environmental context for archaeology and will therefore need to be taken into account.	
Landfills	10.8.5 Contaminants: the potential for contaminants to be mobilised or for new pollutant pathways to be introduced might have an effect on archaeological preservation and recovery, which needs to be assessed. The impact that this would have on the archaeology would need to be discussed by cross-working with the archaeological consultants.	
Landfills	10.8.6 Mentions that dewatering may be required as part of the construction phases. The impact that this may have on any archaeological remains present on the site would need to be discussed, and how any damage would be mitigated. Again, cross-working between the hydrogeologists and archaeological consultants is recommended.	Cross referencing and relevant assessment in relation to cultural heritage, geo-archaeology and water environment has been made. Dewatering of deposits has been acknowledged as a potential impact on buried archaeological remains and is assessed in Chapter 6: Cultural Heritage. Additionally, mitigation proposals have been subject to on-going discussions with Historic England and the Local Authority Archaeological Advisors. The documents referred to by Historic England are included within the standard suite of good practice guidance used by the Project

Topic	Historic England comment	National Highways response
Landfills	10.9.1 As mentioned above in relation to 10.5.2, the ground investigation will also inform archaeological assessment (see 7.5.1 and 7.7.6). It would be most cost-effective and provide more robust baseline information if there was geoarchaeological input to the design (methodology, locations) of the ground investigation and if a geoarchaeological watching brief was included in the work.	<p>Geoarchaeology input/assessment has been undertaken as part of the ground investigation scope.</p> <p>The ground investigation programme was archaeologically monitored, and the results incorporated into Appendix 6.5, Palaeolithic and Quaternary Deposit Model, Appendix 6.6, Palaeolithic Archaeological Assessment and Research Framework, and Appendix 6.13, Holocene Geoarchaeological Desk Based Assessment and ES Chapter 6: Cultural Heritage.</p>
Noise and Vibration	12.1.4 Should be cross-referenced to Chapter 7 Cultural heritage.	ES Chapter 12: Noise and Vibration (Application Document 6.1) has been cross referenced with ES Chapter 6: Cultural Heritage (Application Document 6.1) and identified receptors have been assessed accordingly.
Noise and Vibration	12.3.3 Should include other DHAs (listed buildings etc.) not just scheduled monuments.	<p>The cultural heritage baseline has been established through desk-based research and through field surveys and evaluation. This includes the following designated assets as well non-designated assets:</p> <ul style="list-style-type: none"> • Scheduled monuments • Listed buildings • Registered park and gardens • Conservation Areas
People and Communities	13.1.4 Add cross-reference to Chapter 7 Cultural Heritage.	Cross-reference has been made between the cultural heritage and population and human health assessment chapters.
People and Communities	13.2.4 Historic England are keen to engage with discussions to identify how the project can deliver environmental and social benefits for the historic environment as part of the scheme (this objective should be cross referenced in Chapter 7).	Historic England has been engaged with during the Project development and pre-application stage and social benefits for the historic environment have been considered.

Topic	Historic England comment	National Highways response
People and Communities	13.4.12 We welcome the reference to Tilbury Fort as a community asset. Other DHAs should be identified as appropriate, for example Coalhouse Fort and others and these should be referred to in Chapter 7.	The cultural heritage baseline has been established through desk-based research and through field surveys and evaluation. This includes the following designated assets as well non-designated assets: <ul style="list-style-type: none"> • Scheduled monuments • Listed buildings • Registered park and gardens • Conservation Areas
People and Communities	13.4.8 No reference to fact that Cruise terminal is listed Grade II* (nor is this referred to in Chapter 7 which should be amended to include it, given the Tilbury link road proposal?)	A cross reference has been made to the Cruise Terminal listing in ES Chapter 13: Population and Human Health (Application Document 6.1).
People and Communities	Table 13.3 High Value should include DHAs.	The value of receptors has been reviewed and amended.
Chapter 14: Road Drainage and Water Environment	14.2.2 The information gathered to investigate the road drainage and water environment discussed in this section could also help understand the water system affecting archaeological deposit/features of interest and therefore the potential preservation conditions of the site, such as the discussion of hydraulic connectivity presented in Section 14.4.12. The mitigation strategies suggested in Section 14.9.1 would also need to take into account how any changes would impact on the archaeological remains present in the proposed development area.	Compression of deposits has been acknowledged as a potential impact on buried archaeological remains and is assessed in Chapter 6: Cultural Heritage. Additionally, mitigation proposals have been subject to on-going discussions with Historic England and the Local Authority Archaeological Advisors. The documents referred to by Historic England are included within the standard suite of good practice guidance used by the Project.

Topic	Historic England comment	National Highways response
Chapter 14: Road Drainage and Water Environment	14.5.5 The risk of harm to buried waterlogged archaeological remains and palaeoenvironmental remains need to be taken into account when the details of surface and groundwater are being considered and should be cross referenced to Chapter 7.	Waterlogged archaeological remains have been considered and their potential is assessed in Chapter 6: Cultural Heritage. Additionally, mitigation proposals have been subject to on-going discussions with Historic England and the Local Authority Archaeological Advisors. The documents referred to by Historic England are included within the standard suite of good practice guidance used by the Project..
Chapter 14: Road Drainage and Water Environment	Table 14.2 Surface ground water dependent for Thames estuary and marshes: Add cultural heritage/ very high/ Tilbury fort.	The role of water in the setting of the Thames coastal forts has been considered in the assessment of the Project and is reported in Chapter 6: Cultural Heritage.
Cumulative Effects	Missing: retrospective application by Stobart for waste wood processing (17/00977/FUL) falls into category 1 c (not yet determined).	This was determined in January 2018; the retrospective application was for the retention and completion of the waste wood processing plant. This has not been included as part of the cumulative impact assessment, given the Stobart’s development is currently in operation.
Cumulative Effects	Given the nature of the application and the number of designated heritage assets involved we would recommend that the applicant continue to engage in further pre-application discussion with us and jointly with other partners and stakeholders in the sector.	Historic England and other stakeholders have been consulted with throughout the pre-application process.

12 Kent County Council

Table 12.1 Kent County Council

Topic	Kent County Council comment	National Highways response
The Project	The scoping report does not outline what options have been examined in order to maximise economic benefit to North Kent and how local economic benefits south of the River Thames will be enlarged. Therefore, the County Council would suggest National Highways fully engage on the options, particularly around design of the A2 junction, to ensure benefits are secured.	Refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).
The Project	Current cross-river provision for cyclists consists of a vehicle that drives cyclists across the Dartford Crossing on a limited timetable and a ferry across the river at the site of the proposed route. The popularity of this existing service should be reviewed to ascertain demand for a similar service operating across the proposed LTC.	Cross river movement by non-motorised users has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1), however the inclusion of facilities to allow WCHs to use the road tunnel has not been progressed due to safety reasons. Please refer to Project Design Report (Application Document 7.4) for full details of those WCH options through the tunnel considered.
The Project	Consideration should also be given to any excavation works required during the preconstruction phase, including evaluating ground conditions and erecting reptile fencing to conduct ecological surveys. The results of these investigations may influence and determine the final design of the LTC, and the process of collecting the data may cause disruption to Public Rights of Way (PRoW) users. Therefore, the County Council asks for appropriate mitigation measures to be implemented during this time to ensure minimal disruption to the PRoW network.	This was noted and appropriate measures were followed during all intrusive survey work. Trial trenching for sensitive areas has been completed. The assessment of buried archaeology in ES Chapter 6: Cultural Heritage (Application Document 6.1) has been undertaken on a robust and precautionary basis. Further trial trenching will continue after the submission of the DCO application, for completeness, and enabling works would not take place until that is completed. Please refer to ES Appendix 6.8: Trial Trenching Reports.
The Project	Section 2.14 provides a general description of the construction works including the haul routes and location of the compounds. The effects of construction works on local transport networks in the vicinity of the route will	Please refer to ES Chapter 2: Project Description (Application Document 6.1) which details the construction works including haul roads and locations of the compounds. This chapter provides a description of the A122 Lower Thames Crossing which has informed

Topic	Kent County Council comment	National Highways response
	need careful consideration in the full Environmental Impact Assessment	the assessments undertaken in the topic-specific chapters of the ES (Application Document 6.1).
Cultural Heritage	7.4 The Historic Environment Record search already undertaken using data provided by the County Council in April 2015 should be updated so that any new information which has been added will be taken into account.	Updated Historic Environment Record searches were undertaken to inform the assessment.
Cultural Heritage	7.5 It is not clear from the scoping report which historic maps will be checked but it is essential that both the 25 inch and the 6-inch OS maps are checked as they were often surveyed at different times and include different features and, for the 25 inch, more detail. The OS surveyor’s drawing should also be checked together with any available estate or other mapping such as for sewers etc.	Cartographic analysis of all available maps has been undertaken and included in the cultural heritage assessment, both Ordnance Survey (OS) and non-OS.
Cultural Heritage	7.5 Light Detection and Ranging (LiDAR) data held by other bodies not just the Environment Agency should be consulted as Kent County Council also holds data for part of the area.	The specialist LiDAR assessment utilised all relevant sources of data, including Lower Thames Crossing topographic survey.
Cultural Heritage	7.6 Paragraph 7.6.7 does not list all the Scheduled Monuments within the area of search in the Kent area e.g. bowl barrow in Ashenbank Wood. This should be reconsidered when undertaking a full EIA.	Updated datasets for designations were acquired at regular intervals throughout the assessment process.
Cultural Heritage	7.7 Methodology: The Assessment phase should include preparation of a deposit model to consider the potential for significant archaeological remains or palaeoenvironmental evidence buried beneath alluvial or colluvial deposits. The model should be further developed through borehole and/or geophysical survey; further Historic England is currently preparing guidance for deposit modelling which should be used to guide National Highways’ assessment process	Deposit modelling of River Thames basin has been produced from the geotechnical exploration data between the two tunnel portals. A specialist in Pleistocene-Palaeolithic archaeology was engaged for this purpose.

Topic	Kent County Council comment	National Highways response
Cultural Heritage	Assessment and fieldwork should be developed in light of the resource assessment and research objectives of the Greater Thames Archaeological Research Framework and the emerging South East Research Framework. This is a rare opportunity to examine a transect across the Lower Thames and an opportunity to take full advantage of the research potential of the proposed mitigation work.	Regional research frameworks were acquired and used to inform the assessment process.
Cultural Heritage	The desk-based assessment and field evaluation should involve a Palaeolithic specialist where relevant.	A specialist in Palaeolithic archaeology was commissioned to produce a report on this area for the ES. Please refer to ES Appendix 6.5: Palaeolithic and Quaternary Deposit Model and Report and ES Appendix 6.6: Palaeolithic Archaeological Assessment and Research Framework.
Cultural Heritage	Table 7.4 refers to World Heritage Sites (WHS) but archaeological sites of international significance are not designated as WHS and therefore should be included as Very High.	This has been incorporated in the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Biodiversity	The results of the noise and air quality surveys must be reviewed throughout the survey period. If the results of the surveys identify that the breeding/wintering/migratory bird surveys need to be expanded to cover a wider area, they must be completed prior to any planning application submission;	The surveys undertaken to support the baseline are considered comprehensive, following appropriate good practice guidance over their scope and methodology. As a result, the baseline is considered sufficiently robust to allow an accurate ecological impact assessment. The design of an appropriate and proportionate mitigation strategy has been included as part of the assessment. All air quality monitoring, noise monitoring and terrestrial biodiversity surveys were completed prior to the submission of the DCO application.
Biodiversity	The results of the ecological surveys must be regularly reviewed.	
Biodiversity	The project should identify if there is a need for additional surveys to be carried out or the surveys to be repeated.	
Biodiversity	The results of the ecological surveys may highlight that the survey area needs to be expanded in order to require additional information on bat commuting routes;	

Topic	Kent County Council comment	National Highways response
Biodiversity	All surveys must be carried out at the optimum time of year for the species/habitats. For example, it is not appropriate to carry out the National Vegetation Classification surveys for all habitats at the same time of year;	
Biodiversity	The survey areas must include the proposed mitigation areas to provide an understanding about whether the mitigation can be implemented and if it will have a negative impact on other habitats/species of interest;	
Biodiversity	All surveys must be completed by the time the Development Consent Order is submitted;	
Biodiversity	Due to the scale of the development, a detailed mitigation strategy will have to be produced and submitted to provide an understanding of how the impact can be mitigated and if such mitigation can be achieved;	
Biodiversity	The surveys must include all areas associated with the development, – including construction compounds.	
Biodiversity	The County Council also highlights that any development must follow the mitigation hierarchy described in British Standard BS 42020:2013:	
Biodiversity	The Biodiversity Survey Methodology outlines how Environmental DNA (eDNA) pond surveys will be used to indicate Great Crested Newt (GCN) presence. Previously when this method was trialed at Shorne Woods Country Park, records indicated that some ponds had no evidence of GCN which directly contradicts the experiences of site staff who have visibly seen GCNs in these ponds on numerous occasions. The County Council recognises the limitations of eDNA surveys and would argue that it is not	Presence/absence surveys using conventional methods were undertaken at all potential breeding ponds within the GCN study area. Ponds where access was not permitted during this period were excluded from these surveys. In cases where access was permitted at the end of the survey season, environmental DNA (eDNA) surveys were undertaken instead, where appropriate. Further information can be found in ES Appendix 8.5: Amphibians.

Topic	Kent County Council comment	National Highways response
	a conclusive method; therefore, KCC recommends the need for full torchlight surveys to be included to provide clarity on the presence of GCNs.	
Geology and Soils	The County Council is concerned at the absence of reference to the need to safeguard potentially economic minerals within the EIA Scoping Report and requests for this to be considered when undertaking a full EIA.	The relevant assessment regarding potentially economic minerals has been made. Please refer to ES Appendix 11.2: Mineral Safeguarding Assessment.
Materials	The County Council does not agree with the conclusion made in Paragraphs 11.4.6 and 11.4.7 in relation to current local aggregate reserves. Our recent Local Aggregate Assessment calculates Kent having some 3,790,000 tonnes of permitted reserves (not overall resources). Comparing this figure to the 75,680,000 tonnes stated within the scoping report, the County Council has identified an inconsistency with monitoring records and would recommend this information is amended.	The latest data has since been requested directly from the local authorities, and a response from Essex County Council was received. This data has been used in the assessment of material assets and waste.
Materials	Appendix D shows active and inactive quarries in Kent. It is not possible to differentiate between the two in the presented tables.	A list of active landfill sites in the study area including Kent is provided in ES Appendix 11.3: List of third party off site waste infrastructure receptors (Application document 6.3).
People and Communities	Paragraph 13.1.3 in the Scoping Report states the issues related to people and communities that will be considered during both the construction and operation phases. This includes severance, pedestrians, cyclists and equestrian, vehicle travellers, changes experienced to journey length, amenity, traveller views and driver stress. The County Council requests that these issues are carefully considered in the vicinity of the proposed junction with the A2, particularly around the villages of Shorne, Thong and Higham.	The impact of the Project on severance, pedestrians, cyclists, equestrians, changes experienced to journey lengths on PRoWs and amenities has been considered in the population and human health assessment. As a result of the introduction of DMRB LA 112 in November 2019, driver stress and views from the road no longer form part of the assessment required within ES Chapter 13: Population and Human Health (Application Document 6.1). Driver stress is considered qualitatively under Section 7.7 Road Safety of ES Chapter 13: Population and Human Health (Application Document 6.1). Views from the road remains a component of the wider landscape

Topic	Kent County Council comment	National Highways response
		assessment and further information is set out in ES Chapter 7: Landscape and Visual (Application Document 6.1). Please refer to ES Appendix 7.13: Views from the Road Assessment.
People and Communities	The scoping report has identified recorded PRow located within the boundary of the development area that would be affected by the LTC project. This valuable network of paths provides significant opportunities for outdoor recreation and active travel. The applicant must therefore consider the potential effects of the project on the PRow network and its users, assessing noise, air quality, drainage and visual impacts.	The population and human health assessment has considered the effects of the Project on PRow in relation to severance and other direct impacts. Cross-reference is made to the ES Chapter 7: Landscape and Visual (Application Document 6.1) which considers visual effects on users of PRow.
People and Communities	With reference to the National Policy Statement for National Networks (NPSNN), this project provides an opportunity to improve the existing PRow network and develop new links for active travel and outdoor recreation. The creation of new paths and upgrading of existing routes should be considered as positive outcomes of the scheme. The public benefits of such work would compensate for the disruption caused by temporary network closures and potentially offset the loss of any permanent path extinguishments or diversions, which are required to facilitate the delivery of the LTC.	The opportunities presented by the Project to improve the PRow network have been considered during Project design as part of the iterative EIA process.
People and Communities	The applicant should be aware of the County Council’s Countryside and Coastal Access Improvement Plan, which highlights the lack of existing equestrian provision in this area. The LTC provides an opportunity to address this issue, as new routes with higher user rights could be created within the development area. The potential for establishing new equestrian provision and cycle routes which provide safe alternatives to existing on-road routes should be explored.	This has been considered in the population and human health assessment. In its operational phase, the Project would provide significant benefits for WCH using public rights of way. Refer to ES Chapter 13: Population and Human Health (Document Reference 6.1).

Topic	Kent County Council comment	National Highways response
Human Health and Wellbeing	The County Council has reviewed the scope in respect to human health and wellbeing and believes it to be comprehensive and inclusive of the areas we would prioritise in terms of public health such as; cardiovascular disease, respiratory disease, effects on wider determinants of health including socioeconomic status, and noise and air quality.	The effects of the Project on potential employment opportunities have been considered during both construction and operational phases in the population and human health assessment.
Human Health and Wellbeing	Section 13.7 With regards to the placement of receptors, it is pleasing to note that PRoW have been identified within the scoping report. However, additional thought should be given to routes used by equestrians, as horses are particularly sensitive to noise disturbance.	Noted. WCH have been considered as part of the population and human health assessment. Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1).
Human Health and Wellbeing	Section 13.7 In order to monitor path use before, during and after the construction phase of the project, it is requested that people counters are installed on PRoW at key gateway locations. Data obtained from these counters can be used to assess the impact of the new road and crossings. It is recommended that electronic people counter sensors are installed, instead of manual surveys, as these counters will be able to operate 24 hours a day and capture sporadic path users.	PRoW usage has been surveyed at key gateway locations, in consultation with relevant local authorities, and the findings have been considered in ES Chapter 13: Population and Human Health (Document Reference 6.1). A combination of camera and manual surveys were undertaken according to location. Information collected by manual surveys included evidence of activities being undertaken by PRoW users.
Human Health and Wellbeing	Section 13.8 Path extinguishments and long-term severance of routes should be avoided, in order to prevent fragmentation of the PRoW network. Important links between residential neighbourhoods, community facilities and areas of outdoor recreation, should be preserved. For example, the existing connections between Shorne Woods Country Park and the densely populated urban area of Gravesend are of particularly high value to local residents.	The links provided by PRoW have been included in the population and human health assessment, including the example referred to here of Shorne Woods Country Park and Gravesend. In its operational phase, the Project would provide significant benefits for WCH using public rights of way. Refer to ES Chapter 13: Population and Human Health (Document Reference 6.1).
Human Health and Wellbeing	Paragraph 13.8.14 notes that existing PRoW “permanently severed by the Project would be mitigated by the provision	These factors have been considered in Project design and the population and human health assessment. In its operational phase,

Topic	Kent County Council comment	National Highways response
	<p>of a footbridge or underpass”. When designing this new access infrastructure, it is requested that structures are ‘future proofed’ to accommodate potential users with higher access rights (equestrians and cyclists). For example, underpass routes should have sufficient height clearance for bridleway users and bridges should allow for equestrian loading and include appropriate parapets for such use.</p>	<p>the Project would provide significant benefits for WCH using public rights of way. Refer to ES Chapter 13: Population and Human Health (Document Reference 6.1).</p>
<p>Human Health and Wellbeing</p>	<p>The County Council is currently working in partnership with Natural England to establish the England Coast Path in this area. This is a new national trail walking route that will eventually circumnavigate the entire English coastline, establishing rights for the public to explore the coast. These Coastal Access rights are likely to be in effect during the construction phase of this project, as the coast path is scheduled for completion by 2020.</p>	<p>The England Coast Path National Trail has been considered in ES Chapter 13: Population and Human Health (Document Reference 6.1).</p>
<p>Human Health and Wellbeing</p>	<p>The Coast Path should not be directly affected by the LTC, as this section of the trail will pass over the proposed new tunnel. However, impacts on the Coast Path will need to be considered if materials and spoil excavated from the project is to be transferred by the sea, as suggested in the scoping report. If materials are to be transported via the River Thames, there would be a requirement for new marine infrastructure, which may then have a direct impact on coastal access.</p>	<p>Impacts of the Project on the England Coast Path National Trail (including potential effects from transport of excavated material) have been considered in ES Chapter 13: Population and Human Health (Document Reference 6.1).</p>
<p>Human Health and Wellbeing</p>	<p>Section 13.9 Efforts should be made to minimise path closures and retain popular routes during the project. Where temporary closures are required, convenient diversion routes should be provided to reduce disruption to path users. Robust information boards explaining temporary access restrictions should be considered for paths that will be closed for long periods.</p>	<p>Closures of routes used by WCH are assessed in ES Chapter 13: Population and Human Health (Document Reference 6.1). Mitigation measures relating to path closures have been discussed with Kent County Council. The Outline Traffic Management Plan for Construction (Application Document 7.14) provides details of traffic management measures during the construction phase.</p>

Topic	Kent County Council comment	National Highways response
Human Health and Wellbeing	Furthermore, the impact of the project on quiet rural lanes should be considered in conjunction with the PRow network, as these roads provide useful connections for equestrians and cyclists travelling between PRow routes. The project could potentially deter public use of the PRow network if these road links are designated as haulage routes and vehicular traffic substantially increases along these more rural lanes.	The effects of construction traffic on the local road network have been considered as part of ES Chapter 13: Population and Human Health (Document Reference 6.1).
Human Health and Wellbeing	Appendix F – Figures Appendix F mentions how impacts on the PRow network will be managed. The networks of paths within Shorne Woods Country Park are not all designated PRow, most are permissive paths and not formally adopted. Therefore, these paths need to either be mentioned specifically in order to be given the same consideration as the PRow routes or alternative arrangements for the permissive paths clarified. The current plans for the road will sever the Darnley Trail circular route that links all the local sites around Shorne together using the permissive routes at Shorne Woods to link into the PRow network, creating a partnership linking Ranscombe, Cobham Woods, Ashenbank Woods and Jeskyns. As this is a key path in the local network and essential in the Darnley Trail, it needs to be included in this section specifically as breaking the link will have a significant impact on access for people.	Impacts to the Darnley Trail are considered in ES Chapter 13: Population and Human Health (Document Reference 6.1). In its operational phase, the Project would provide significant benefits for WCH using public rights of way.
Climate	Section 15.7 The County Council would note that any mitigation for surface water runoff increases needs to account for climate change. Climate change predictions are based upon the life-time of the proposed development. Paragraph 15.7.8 states that climate change allowances will be based upon “a maximum design life of 40 years for the highway element of the Project and a design life of 120	Existing environmental conditions are expected to be subject to change in future years. Future baseline conditions with regard to water quality and flood risk have been forecast by taking into consideration legislative and policy drivers, and environmental trends, including the predicted effects of climate change. Further information can be found in ES Chapter 14: Road Drainage and the

Topic	Kent County Council comment	National Highways response
	years for the tunnel element.” We would expect that the operational life of the development is considered collectively as 120 years. The life span of the surface of the highway element would be 40 years as this is when re-surfacing will be required; however, the roadway carriageway would expect to still be in service for the design life of the tunnel.	Water Environment and ES Chapter 15: Climate (Application Document 6.1).

13 Kent Fire and Rescue Service (KFRS)

Table 13.1 Kent Fire and Rescue Service (KFRS)

Kent Fire and Rescue Service comment	National Highways response
<p>Paragraph 2.11.2 – This refers to the tunnel design solution. In order to ensure that the design takes account of any firefighting strategy that KFRS may implement I would request that KFRS is involved with any design considerations at an early stage around issues such as fixed installations, fire detection, access arrangements, and facilities to assist with the management of any hazardous materials and that this is reflected in the statement.</p>	<p>Within the context of the Tunnel Design Safety Consultation Group (TDSCG), all emergency services have an opportunity to participate in discussions regarding tunnel safety provision and incident response planning. Engagement with Kent Fire & Rescue (KFRS) has taken place since January 2018 to discuss tunnel design solutions, including the safety systems and access arrangements. The type of fixed firefighting system (FFFS) to be installed at the tunnel will be determined in the course of detailed design and KFRS can contribute to the decision-making process within TDSCG.</p>
<p>Paragraph 2.11.3 - this refers to the drainage capacity of the tunnels and makes reference to the use of a deep pump sump to remove firefighting water. Whilst such a sump system is necessary, KFRS would like to be included in the development of the plans for the system. Specifically, KFRS would like to understand the capacity for holding firefighting water run-off. The system design will need to take account of the firefighting strategy, including the use of suppression systems and anticipated use of water by emergency responders. This is important because KFRS may need to introduce firefighting media, such as foam, which has the potential to damage the environment. Therefore, should such a system require the removal of firefighting water once the capacity is reached, the design will need to take account of where this waste water will be removed to, in order to alleviate any environmental impact both during an incident and post incident.</p>	<p>Within the context of TDSCG, KFRS will be involved in incident response planning, including what firefighting systems will operate and the potential duration of operation. The operation of tunnel firefighting systems has been considered in determining the capacity of the tunnel low-point drainage sump. Sump contents can be pumped (ATEX rated pumps) to an impounding sump that is off-line from the general drainage system and retained there for specialist removal by road tanker if necessary (the impounding sump will also play a role in managing tunnel spillage incidents).</p> <p>The low-point drainage sump is equipped with an Aqueous Film Forming Foam (AFFF) system to manage any fire threat within the sump. A facility allowing FRS to top-up sump AFFF is included for use if needed.</p>
<p>Paragraph 2.11.13 – this refers to special access for emergency responders to the tunnel in the event of an emergency. Whilst KFRS recognise that this will be discussed at the TDSCG I would like to emphasise the importance of ensuring that such an access point is put in place to ensure that KFRS emergency crews can access the tunnel in</p>	<p>Emergency service access to both tunnel portals (northbound and southbound carriageways) will be available at each end of the tunnel crossing. At the southern end access to each portal will be available from both the Project route (from A2) and from the A226.</p>

Kent Fire and Rescue Service comment	National Highways response
<p>a timely manner. This will facilitate a rapid intervention. From an environmental perspective this is important to ensure that we can mitigate the environmental impact of an emergency as early as possible (for example, minimising air pollution as a result of a fire). Without an access junction at the A226 it is anticipated that attendance times to the tunnel or on the tunnel approach network will be increased if the primary access point is via the new junction on the A2. As well as increased attendance times, all emergency vehicles will be travelling the same route as the general flow of traffic which may also delay emergency service attendance. Any delay in emergency service attendance may result in a longer period of unchecked environmental damage as a result of an incident. There is clearly a need to balance the removal of the proposal for a junction with the A226 with the need to maintain an emergency access route.</p>	<p>National Highways has engaged regularly with the emergency services, including Kent Fire and Rescue Service (KFRS), and set up the Emergency Services and Safety Partnership Steering Group in June 2021. This group, which includes KFRS, has regular ongoing meetings to discuss the Project and design and safety considerations such as those raised here. Details of these discussions are presented in the relevant Statement of Common Ground (Application Document 5.4.4.4).</p>
<p>Paragraph 2.12.2 – this refers to the use of tunnel boring machines and the associated construction of a sub-station to provide power. I would request that KFRS is sighted on the arrangements for accessing this site and that any associated risk information regarding safe response to the site during an incident is communicated to KFRS.</p>	<p>The tunnel boring machines (TBMs) will be launched and driven from north to south. The TBM sub-station will be on the north portal site and general access and servicing will be from the north. It is expected that in the event of an emergency, Essex County Fire & Rescue Service would be the primary responders to an incident relating to tunnel construction activities. However, there is possibility that, once bores are complete and in MEICA fit-out phase, there could be an incident whereby Kent could be first on the scene (rather than Essex).</p> <p>Following construction activities, power supplies would be provided to the tunnel from suppliers on the Kent side of the crossing to facilitate normal tunnel operation, with associated transformer and switching gear located at the Tunnel Services Buildings and through the tunnel itself. KFRS can be kept informed of tunnel power distribution arrangements, as necessary.</p> <p>National Highways has engaged regularly with the emergency services, including Kent Fire and Rescue Service (KFRS), and set up the Emergency Services and Safety Partnership Steering Group in June 2021. This group, which includes KFRS, has regular ongoing meetings to discuss the Project and design and safety considerations such as</p>

Kent Fire and Rescue Service comment	National Highways response
	those raised here. Details of these discussions are presented in the relevant Statement of Common Ground (Application Document 5.4.4.4).

14 London Borough of Barking and Dagenham

Table 14.1 London Borough of Barking and Dagenham

London Borough of Havering comment	National Highways response
<p>It is noted that the Scoping Report does not include a specific section addressing traffic and transport. This is an important omission and must be rectified in the ES.</p>	<p>A separate ES Transport Assessment chapter has not been produced. The typical assessments that would be included within an ES Transport Assessment chapter are provided within the following documents:</p> <ul style="list-style-type: none"> • Appendix B: Transport Model Package and Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7) • Transport Assessment (Application Document 7.9) • ES Chapter 13: Population and Human Health (Application Document 6.1) <p>In support of this approach, an explanation for this and the locations of the relevant information within the Application Documents is provided within ES Appendix 4.4: Transport Assessment.</p>

15 London Borough of Havering

Table 15.1 London Borough of Havering

Topic	London Borough of Havering comment	National Highways response
General	It is also noted that considerable work needs to be undertaken still linked to the construction of the project and concerning how the construction will be delivered. Many aspects of construction have very considerable potential to have adverse impacts on the surroundings to the route and the communities within this. It is essential that the ES has a comprehensive suite of information and measures to deal with and mitigate the adverse impacts of construction. A Construction Code of Practice needs to be incorporated into the ES.	Mitigation measures are included in the ES topic chapters, please refer to Application Document 6.1. The CoCP can be found in ES Appendix 2.2.
General	The preparation of the final ES should take place alongside an Equalities Impact Assessment and a Health Impact Assessment and the findings of these should inform the ES.	A Health and Equalities Impact Assessment (Application Document 7.10) has been prepared as part of the DCO application. The findings of this assessment are summarised in ES Chapter 13: Population and Human Health (Application Document 6.1).
General	The ES should include an assessment of socio-economic impacts arising from the proposal particularly in the light of the agricultural and rural activities in the vicinity of the route.	In line with the release of DMRB LA 112 Population and Human Health (National Highways, 2020), the local and wider economy has not been considered within ES Chapter 13: Population and Human Health (Application Document 6.1). Please refer to the Need for the Project (Application Document 7.1) and Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report (Application Document 7.7). The impact of the Project on agricultural land holdings has been assessed as part of ES Chapter 13: Population and Human Health (Application Document 6.1).

Topic	London Borough of Havering comment	National Highways response
General	The conclusions reached about ‘scoping out’ topics (as identified at the end of each section) have been reviewed and the approach is supported.	Noted.
Section 1 Introduction	<p>Reference is made in para. 1.2.5 to existing traffic use of the current crossing. It is understood that all of the traffic assessments / modelling underpinning the project are being revisited.</p> <p>This should be reflected in the ES. In particular, the further traffic modelling work, and the ES, should both take full account of the growth in traffic that will be associated with the project itself and in delivering the London Mayor’s ambitious agenda for growth</p>	The highway networks for future years were produced by including any highway schemes that have a high degree of certainty, as set out by TAG, that they will be constructed in the future. National Highways, Transport for London and the local highway authorities in the area were contacted about their future investment plans. Detailed information on the traffic forecasts is provided within Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7).
Section 1 Introduction	Because of the proximity to the new link road serving the crossing, the A127 is a particular concern because it will remain a key route into / from Havering. This route is already the subject of considerable work by various stakeholders including Essex County Council and Local Authorities. Work is being undertaken to support further investment in this corridor.	Noted.
Section 1 Introduction	The improvements in accessibility to markets beyond Havering are likely to increase traffic on this route. The Council is aware from the significant ‘over-run’ in the programme for the Transport for London A127 Ardleigh Green Bridge replacement project that this corridor is highly sensitive to un-planned traffic delays.	Noted.
Section 1 Introduction	The ES must look at how traffic growth generally will impact on the existing highways network (both TfL and Havering) in regard to severance and congestion (as well as environmental impacts such as additional noise, disturbance and vibration). This must encompass	<p>Refer to:</p> <ul style="list-style-type: none"> • Transport Assessment (Application Document 7.9) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • ES Chapter 13: Population and Human Health (Application Document 6.2)

Topic	London Borough of Havering comment	National Highways response
	considering all modes (private vehicles, cycling, walking and public transport).	Document 6.1)
Section 1 Introduction	The ES should consider the overlap between this project and the proposals for improvement at Junction 28 of the M25 where it meets the A12.	The Project has identified the M25 junction 28 improvements as having potential to overlap with the Project construction and therefore there is potential for cumulative effects to occur. These improvement works have been included in the transport model and have been included in the cumulative effects assessment presented in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).
Section 1 Introduction	The ES needs to reflect that the new junction with the M25 Motorway will be in the London Borough of Havering and not Essex (para.1.4.9).	This has been noted. London Borough of Havering is one of the Project’s host authorities.
Section 1 Introduction	Section 1.5 gives the impression that the scheme will only have impacts south of the River Thames as there is very little context provided for the parts of the route north of the river. This must be revised in the ES to better reflect that the scheme will have extensive impacts north of the River including in Havering.	Potential impacts of the Project have been assessed for both the north and south of the River Thames and for the River Thames itself.
Section 1 Introduction	It is accepted that the ES is not in itself a policy document, but it is important that the EIA recognises that the part of the route in Havering is in the Green Belt because this provides an important context for considering the visual impact of the proposal (especially the proposed junction of the new link road and the M25). National planning policy requires that a very careful and sensitive approach is taken to development in the Green Belt so as to protect and maintain its character and appearance. Havering strongly considers that this test is applicable to the part of the route in Havering’s Green Belt and all aspects of the scheme in Havering should be designed and delivered to address this.	The visual impacts on the openness of Green Belt have been included within the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1). Refer also to the Planning Statement (Application Document 7.2).

Topic	London Borough of Havering comment	National Highways response
Section 1 Introduction	Specific text should be included in the ES to take account of and recognise the potential impact of the new link road and junction on the rural residential settlements of North and South Ockendon. Both settlements include extensive heritage assets and a Conservation Area focussed on North Ockendon. This will be consistent with the current work looking at the scope to remodel the new junction to help mitigate the impact of the junction arrangements on these settlements.	The population and human health assessment has assessed the impacts of the Project on the rural residential settlements of North and South Ockendon. Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1). The cultural heritage assessment has assessed the impact of the Project on heritage assets and Conservation Areas. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Section 1 Introduction	Reference must be added to the route passing through the important Thames Chase Community Forest as it travels north from Tilbury to the new junction with the M25 as this is an important emerging asset for the community.	Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1) which incorporates the existing baseline conditions at Thames Chase Community Forest, including the paths within it.
Section 1 Introduction	Thames Chase Community Forest organisation should be fully engaged in taking the project forward (as well as the Forestry Commission) given the importance of this project to delivering landscape and recreational improvements across an extensive area of east London and south Essex. Thames Chase Community Forest can be contacted at: Thames Chase Community Forest, Broadfields Farm Cottage, Pike Lane, Upminster RM14 3NS.	Engagement with Thames Chase Community Forest organisation has been ongoing throughout the Project.
The Project	Reference must be made in the ES to the current feasibility work on the new link road joining the M25 from underneath rather than from a bridge over the motorway.	The Project would connect with the M25 between junctions 29 and 30 via a new junction which would be located about 3km south of junction 29 near Ockendon Road. It would have north facing slip roads for northbound traffic on the A122 to join the M25 and for southbound M25 traffic to join the A122. A two-lane parallel link road would be constructed to the west of the existing M25, providing a connection from the A122 to the M25 junction 29 and to the A127. This can be seen on General Arrangement drawings provided in the Book of Plans (Application Document 2.5).

Topic	London Borough of Havering comment	National Highways response
The Project	The ES must recognise that the lighting proposed for the new junction with the M25 will need to be carefully designed to ensure that it does not adversely impact on the adjoining residential settlements at North and South Ockendon.	Information on considerate lighting design can be found in the Design Principles (Application Document 7.5).
The Project	Regarding Section 2.10 Flood Risk Management, Havering has undertaken a Strategic Flood Risk Assessment to support the new Havering Local Plan and a copy can be provided to inform the preparation of the final ES.	This has been considered in the assessment reported in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment.
The Project	Havering is very concerned that much of the detail about how the project will be constructed is still absent (Section 2.13 Construction Works) and this prevents a full assessment of the potential impact of the scheme and means that mitigation measures cannot be identified and secured. This prevents a full understanding of the impact of the scheme being assessed. These details must be resolved and reflected in the final ES.	Consultation with London Borough of Havering has been ongoing throughout the pre-application phase. Please refer to ES Chapter 2: Project Description (Application Document 6.1) and supporting ES Appendix 2.1: Construction Supporting Information, which provides the information on which the environmental assessment in the ES is based and on which mitigation measures are proposed.
The Project	Havering has particular concerns about the adverse implications for traffic on the existing highway network that will arise as a result of the construction phase of the project. Havering’s roads are already very busy and the network in the borough and further afield lacks resilience during periods of heavy traffic or when unexpected events happen or there is bad weather.	Construction phase traffic has been considered and measures to manage this are presented in the outline Traffic Management Plan for Construction (Application Document 7.14).
The Project	The ‘satellite’ compounds or worksites requiring access from borough roads in Havering have the potential to be a safety risk for other road users (including pedestrians) and may result in structural damage to the borough’s highway assets. This was noticeable during the recent widening of the M25 motorway, for example.	

Topic	London Borough of Havering comment	National Highways response
The Project	During the period when the new link road for the crossing is ‘tied’ into the M25 motorway, there will be the likelihood that partial or full closures of the motorway may impact on the adjoin borough highway network.	
The Project	There are major hazard gas pipelines in Thurrock close to the boundary with Havering and these do not appear to have been addressed in the Scoping Report. The ES must include an assessment of risk to these from construction work linked to the project.	Refer to the Major Accidents and Disasters assessment, for which the high-level methodology is presented in ES Chapter 4: EIA Methodology (Application Document 6.1), with findings in ES Appendix 4.2: Major Accidents and Disasters Long List and ES Appendix 4.3: Major Accidents and Disasters Short List.
Section 3: The reasonable alternatives considered	The ES must take full account of the implications and all impacts associated with widening a section of the M25 to improve traffic flow (para. 3.2.2). This should encompass traffic and environmental matters.	The ES has assessed all aspects of the Project which are described in ES Chapter 2: Project Description (Application Document 6.1).
Section 4: Consultation	Reference must be included in the ES to the extensive programme of stakeholder meetings facilitated over the development of the project by means of the Stakeholder Advisory Panel fora.	Each ES topic chapter contains a table that details stakeholder meetings and engagement facilitated over the pre-application period, as relevant to each environmental topic.
Section 6: Air quality	It is noted in Section 6.5 that an NO ₂ diffusion tube monitoring survey will be undertaken for a twelve-month period at locations representative of public exposure. Given that this survey will inform the baseline and model verification, Havering wants to be provided with the map showing the diffusion tube monitoring locations, so that it can comment on the selected locations.	The proposed air quality monitoring locations for the Project were shared with the London Borough of Havering for comment and their comments taken into consideration where possible in the delivery of the surveys.
Section 6: Air quality	As stated in Section 6.7 Methodology (para. 6.7.3) a construction dust assessment (CDA) should be undertaken, in order to assess the air quality impacts of dust during construction. An assessment of the construction vehicle emissions may also be required. Mitigation measures to control dust and emissions would	The air quality impact assessment included an assessment of construction dust and construction vehicle emissions. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).

Topic	London Borough of Havering comment	National Highways response
	be required and should be included in the Construction Environmental Management Plan (CEMP) at a later stage.	
Section 6: Air quality	As stated in Section 6.8 Description of Possible Significant Effects on Receptors, a detailed air quality assessment should be undertaken to assess the air quality impacts during the operational phase of the development. Local, regional impact assessment, WebTAG appraisal and Compliance Risk Assessment with the EU Directive on ambient air quality should be undertaken, in accordance with the relevant guidance documents.	These assessments have been undertaken. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).
Section 6: Air quality	There should be early involvement and consultation with London Borough of Havering prior to the commencement of the air quality assessment to agree on the methodology which will be followed (e.g. modelling, model verification etc.).	The London Borough of Havering has been consulted on the air quality assessment and methodology throughout the pre-application phase of the Project.
Section 7: Cultural Heritage	The ES must reflect that Place Services (linked to Essex County Council) provide advice on heritage matters to London Borough of Havering as well as the other stakeholders identified in para. 7.3.4.	Essex Place Services has been consulted with a part of a monthly heritage stakeholder meeting. Consultations with stakeholders were combined wherever feasible.
Section 7: Cultural Heritage	A primary requirement is an assurance that identified stakeholders will not be consulted in isolation. Any future meetings regarding heritage should include representatives of all areas irrespective of local planning authority boundaries to ensure a consistent approach. It would be beneficial for Archaeology, Historic Buildings and Landscape to be considered and consulted together given the interrelation of the disciplines.	
Section 7: Cultural Heritage	The London Borough of Havering is in the process of adopting new criteria for assessing Non-Designated Heritage Assets (NDHAs) for inclusion onto their Local Heritage List. As the Local Heritage List progresses, the	Relevant assets on the Local Heritage List are considered in the cultural heritage assessment. The data used to inform the assessment were updated at regular intervals during the assessment process.

Topic	London Borough of Havering comment	National Highways response
	<p>Lower Thames Crossing EIA should take into account any new additions adopted from now until the application is submitted. The London Borough of Havering should endeavour to update their Local Heritage List as soon as practically possible to ensure the LTC applicants can conduct a thorough analysis of NDHAs.</p>	
<p>Section 7: Cultural Heritage</p>	<p>The Zone of Visual Influence (ZVI) and viewpoints for analysis should be agreed with the LBH Heritage Advisors and Historic England as well as neighbouring local planning authorities. Once determined, it would be advantageous for joint-visits to key viewpoints to be arranged to facilitate discussions and negotiations of potential impacts/mitigation.</p>	<p>Viewpoints relevant to heritage assets were agreed with heritage stakeholders and are included in ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
<p>Section 7: Cultural Heritage</p>	<p>At present, the LTC principle Heritage Consultant is scheduled to conduct an analysis of heritage assets within 50m of the proposed route with an additional 20m buffer zone. This will be limited to assessing the potential impact of the proposed upon the fabric of these heritage assets – not their setting which will be conducted separately. It would be preferable for this area to be increased to 75m with a 25m buffer zone. This should also include principle delivery routes to/from the construction zones to ensure the increased number of heavy goods vehicles over a prolonged period of time is assessed. Secondary ‘reactive’ direct impacts to fabric such as the necessity for secondary glazing to alleviate noise pollution should also be considered at an early stage.</p>	<p>The building conservation assessment has considered historic buildings within the Order Limits and a buffer of 100m extending from it. Both direct and indirect effects are considered in the assessment.</p>
<p>Section 7: Cultural Heritage</p>	<p>The LTC principle Heritage Consultant will undertake an analysis of heritage assets within the search area with the view to better understand the heritage assets. It would be preferable for Designated Heritage Assets within this area to be assessed by Historic England as part of their</p>	<p>Designated Heritage Asset data was derived from Historic England. Consultation with Historic England has been ongoing throughout the pre-application phase.</p>

Topic	London Borough of Havering comment	National Highways response
	Enhanced Advisory Service. This would help give greater weight/confidence to these findings and allow them to be incorporated onto the National Heritage List for England.	
Section 7: Cultural Heritage	In addition to cross referencing noise and vibration assessments the heritage report needs to reference potential light pollution which may arise.	Associated Project lighting has been assessed as part of the cultural heritage assessment and interrelates to ES Chapter 7: Landscape and Visual (Application Document 6.1) which also assesses the effect of light pollution. The cultural heritage assessment takes into account the results of the landscape and visual assessment and the proposed mitigation.
Section 7: Cultural Heritage	Assessments should always assess 'worst case scenario' for all elements of the proposed. Whilst it is beneficial to have an open dialogue with LTC throughout the pre-application process, all material for review should be submitted with a minimum two-week consultation period to ensure meaningful discussions.	The EIA has been based on reasonable worst-case scenarios to provide a robust assessment.
Section 8: Landscape	The preparation of the ES must include consultation and engagement with both the Forestry Commission and the Thames Chase Community Forest as their activities are already an important component of the landscape north of the River Thames.	Consultation with both the Forestry Commission and the Thames Chase Community Forest has been undertaken during the pre-application stage.
Section 8: Landscape	Table 8.2 Landscape and Townscape Resource should include London Borough of Havering in the stakeholder/Local Authority column given that the route passes through Havering’s Green Belt.	London Borough of Havering has been consulted throughout the pre-application stage.
Section 8: Landscape	References to land identified as ‘green belt within the rural urban fringe’ (Section 8.8 Description of Possible Significant Effects on Receptors) are inappropriate and must be amended. As set out, it implies that these are less important parts of the Green Belt.	Within the landscape and visual assessment, urban fringe and Green Belt have been assessed separately. No Green Belt is referred to as ‘ <i>green belt within the rural urban fringe</i> ’. The impacts on the openness of Green Belt have been included within the landscape and visual assessment.

Topic	London Borough of Havering comment	National Highways response
	<p>To support its current Local Plan work Havering has undertaken an assessment of its Green belt to ensure that it all meets the statutory purposes of the Green Belt. The study concludes that all of the Green Belt satisfies these tests. The text should be amended to reflect that the route passes through the Havering Green Belt and that its proximity to the built-up area is irrelevant.</p>	
<p>Section 9: Biodiversity</p>	<p>The ES must recognise that the railway corridor close to the route is identified as a Site of Importance for Nature Conservation.</p>	<p>All statutory and non-statutory designated wildlife sites have been identified and included as part of the ecological impact assessment contained in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). Consultation with the local wildlife trusts and local planning authorities has taken place as the Project's design and mitigation strategy has developed.</p>
<p>Section 10: Geology and Soils</p>	<p>Havering wants to be involved prior to the commencement of the investigation works, in order to agree on the design of the ground investigation (e.g. soil sampling strategy, gas monitoring strategy etc.)</p>	<p>London Borough of Havering has been consulted throughout the pre-application stage.</p>
<p>Section 10: Geology and Soils</p>	<p>The ES should take account of ‘winnable’ minerals reserves in proximity to the route and the scope for excavating these prior to construction should be considered so that they are not ‘sterilised’ unnecessarily.</p>	<p>The Project complies with the policies of the National Policy Statement for National Networks (NPSNN) (Department for Transport, 2014) regarding the proposed management of wastes and safeguarding of mineral resources, set out in paragraphs 5.42, 5.43, 5.169 and 5.182 of the NPSNN.</p> <p>The mineral and peat assets were determined from ES Appendix 11.2: Mineral Safeguarding Assessment and ES Chapter 10: Geology and Soils (Application Document 6.1).</p> <p>The full assessment relating to material assets and waste can be found in ES Chapter 11: Material Assets and Waste (Application Document 6.1).</p>
<p>Section 11: Materials</p>	<p>Preparation of the ES must include engagement with the East London Waste Authority (Section 11.3 Consultations Undertaken and proposed) as this body is responsible for</p>	<p>The East London Waste Authority was contacted, at the request of the London Borough of Havering, to provide a high-level</p>

Topic	London Borough of Havering comment	National Highways response
	the management of waste in east London including Havering.	summary of the Project’s approach to waste and materials assessment and provide an opportunity for engagement. East London Waste Authority confirmed the continued use of the targets and objectives in the Joint Waste Development Plan for the East London Waste Authority Boroughs (East London Waste Authority, 2012) and that this was currently under review. East London Waste Authority stated that its principal concern was the management of municipal waste and therefore had no further comment.
Section 12: Noise and Vibration	Havering is concerned about the use of defined numerical values to determine the impact of the scheme particularly with reference to noise. For the scheme in its entirety (and particularly in quieter rural areas such as where the route passes through Havering), the impact would be better determined/assessed by looking at the change in noise levels at the agreed receptor points, whether this be positive or negative	The assessment has been undertaken in accordance with DMRB which considers the magnitude of change in noise level and the resultant end state noise level. In accordance with DMRB, both the short term and long-term impacts are considered based on the outputs of the LTAM and in accordance with the prediction methodology of CRTN to identify operational impacts. The results of this, and the conclusions drawn are presented within ES Chapter 12: Noise and Vibration (Application Document 6.1).
Section 12: Noise and Vibration	Havering wants early working/consultation with National Highways and their consultants to determine and agree sensitive receptors within this borough for both the preparation of the EIA and the position of long term and short-term monitoring stations/positions.	All sensitive receptors used in the noise assessment have been consulted with London Borough of Havering.
Section 12: Noise and Vibration	The appointed contractor will be expected to follow the procedures set out in COPA74, S61 and make and make a prior application for all works of construction and demolition.	Once a contractor for the Project has been appointed and only once DCO consent is granted, Section 61 applications would be made where relevant and agreed as appropriate with specific local authorities prior to the start of the construction phase.
Section 13: People and communities	Assessment of the project against people and communities must include the established residential communities in the North and South Ockendon settlements which will be in very close proximity to the proposed new junction with the M25. Residents in these settlements are likely to be very	The population and human health assessment included residential communities in North and South Ockendon. Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1) for the assessment results as well as the mitigation measures proposed.

Topic	London Borough of Havering comment	National Highways response
	significantly affected by the construction of the new link road and junction with the M25. It is essential that the ES addresses fully the need for measures to mitigate the adverse impact of the scheme and its construction.	
Section 13: People and communities	The assessment must also take account of the travelling community in this area.	The travelling community has been included in the assessment. Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1).
Section 16: Cumulative effects	Explicit reference should be made to the proposal from National Highways for re-modelling the M25 / A12 Junction.	The A12 Chelmsford to A120 Widening Scheme was included in the Long List for the cumulative effects assessment but scoped out of the Short List because there is no direct receptor source pathway identified due to distance from the Project. Please refer to ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) and ES Appendix 16.1: Other Development Longlist.
Section 18: Transboundary screening	Table 18.1 should recognise that the project is partly located in the London Borough of Havering.	This has been noted and London Borough of Havering is one of the host authorities for the Project.

16 Marine Management Organisation

Table 16.1 Marine Management Organisation

Topic	Marine Management Organisation comment	National Highways response
Habitats Directive Wild Birds Directive Nature Conservation	4.1.6 Mucking Flats and Marshes SSSI - Although this site has been included in some tables in the submitted scoping report, it is not clear the outcome of the assessment. If this site has been screened out, an explanation should be given to this effect.	Designated sites potentially affected by the project are fully assessed in the EIA. Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Habitats Directive Wild Birds Directive Nature Conservation	4.1.7 South Thames Estuary and Marshes SSSI - Although this site has been included in some tables in the submitted scoping report, it is not clear the outcome of the assessment. If this site has been screened out, an explanation should be given to this effect.	
Benthic Ecology	In Table 9-10, there is no predicted direct habitat loss to subtidal coarse sediment or subtidal sand while there are predicted losses on the various other intertidal habitats. Further detail should be provided in the ES including clarity regarding the nature and location of the physical impacts of the project.	Direct loss of subtidal habitat as a consequence of the Project is fully assessed in the EIA. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Benthic Ecology	In Appendix C, while it is prudent to follow the JNCC Marine Monitoring Handbook guidelines for the intertidal habitat mapping survey methods, consideration should be given to allocating sampling stations according to visual changes in sediment type or obvious habitat differences as opposed to following a strategic grid of stations. The former is more likely to ensure that all types of habitats/biomes are captured as part of the characterisation survey.	Baseline data was collated from a number of sources to ensure the best understanding of the habitats present. These are presented with the baseline section of ES Chapter 9: Marine Biodiversity (Application Document 6.1).

Topic	Marine Management Organisation comment	National Highways response
Marine Processes	The MMO note that no specific section has been dedicated to marine processes but that they have been noted within the report. The MMO recommend that this should be included as a separate chapter in the ES.	The proposed type and scale of the Project elements that impinge on the marine environment have resulted in marine processes being captured within ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Marine Processes	The assessment should ensure that it explicitly addresses whether groundwater or surface drainage into the Thames is materially affected	Changes to existing drainage has been assessed and is reported in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Marine Processes	The assessment should also ensure that the potential requirement for new Thames transport infrastructure is fully assessed including, if necessary, consideration of potential impacts on flow around any new or substantially altered jetties. This may require modelling if there is potential to affect the stability of nearshore sediments in any important areas.	There is no proposal to construct a new jetty. Through the consultation process, the MMO agreed that no hydrodynamic or sediment modelling would be required due to the type and scale of the project's marine elements.
Marine Processes	The assessment should address the potential for changes to the marine process supporting the identified substrates i.e. quantified impacts on pathways to impact on ecological receptors being, in this case, sediment transport / stability.	
Marine Processes	The groundwater baseline diagram is presented in low resolution and it is difficult to interpret some symbols. This diagram should be made clearer if it is to be included in the ES	Groundwater is fully assessed in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
Noise and Vibration	No specific detail has been provided regarding the impact of underwater noise and vibration on receptors. This should be included within the ES as a section of the Biodiversity chapter rather than the Noise and Vibration chapter, which focusses on noise and vibrations in air.	Underwater noise is fully assessed in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Noise and Vibration	Table 9-9: ‘Potential Operational Effects on Potentially Important Ecological Features’ does not consider that aquatic invertebrates will be affected by noise disturbance. The MMO recommend that the potential impacts on marine	Underwater noise effects on invertebrates are fully assessed in ES Chapter 9: Marine Biodiversity (Application Document 6.1).

Topic	Marine Management Organisation comment	National Highways response
	invertebrates are taken forward for assessment.	
Noise and Vibration	Table 9-2 identifies potential marine ecological surveys, including an underwater noise survey and modelling to assess impacts to fish and marine mammals. The MMO would expect to see more information on these surveys.	The extent of the marine modelling and monitoring programme for the Project has been agreed with MMO. The outputs are presented in the ES, including the underwater noise modelling. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Noise and Vibration	The report does not state whether an unbiased statistical accuracy assessment will be undertaken as a result of the underwater noise survey and modelling to assess impacts on fish and marine mammals. The survey and modelling is to be based on the potential jetty location for 2 weeks survey (timing to be confirmed with MMO, PLA, EA) to be conducted once in Year 2 (2018). This should be confirmed in detail in the ES.	The underwater noise modelling has been completed to industry standards. No specific underwater noise monitoring has been completed, but existing datasets on ambient levels in the Thames drawn upon. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Noise and Vibration	Cumulative impacts in relation to underwater noise should be considered.	Cumulative underwater noise has been considered in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Noise and Vibration	At this stage there does not appear to be much assessment of the impact of underwater noise and vibration on receptors in the vicinity of the project before year 2 of the project when the two-week trial is undertaken. The MMO recommend further evaluation, assessment and identification of receptors are included in the ES so that mitigation measures can be identified and included.	Underwater noise modelling has been completed and the results utilised in the assessment of effects. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Fish Ecology and Fisheries	The MMO would expect an assessment of impacts to fish and fisheries be included in the ES.	ES Chapter 9: Marine Biodiversity (Application Document 6.1) assessed the impacts of the Project to fish and fisheries.
Archaeology / Cultural Heritage	The MMO are content with the 2km buffer used to detect impacts to Archaeology and Cultural Heritage but would defer on this matter to Historic England.	Noted.

Topic	Marine Management Organisation comment	National Highways response
Navigation / Other Users of the Sea	The MMO would expect that impacts to navigation and other users of the sea are considered in the ES and a navigational risk assessment produced to inform final assessments.	Impacts on marine and riparian assets have been considered. A preliminary Navigational Risk Assessment has been prepared (Application Document 7.18). The MMO was consulted on the preliminary Navigational Risk Assessment and no comments made on the document as PLA have been consulted though out the process.
Cumulative Impacts & In-Combination Impacts	The MMO would expect the cumulative and in-combination impacts in all chapters to be considered with the addition of that mentioned in this response.	The EIA considered the cumulative effects which may occur as a result of interrelationships between different environmental topics ('intra-project impacts'). A summary of those interrelationships is presented in each ES topic chapter.
Risk to Human Health	In order to comply with the recent change in the legislation, the MMO would expect to see a full consideration on how the proposed project will impact human health.	Public health impacts have been assessed in a standalone document. Please refer to Health and Equalities Impact Assessment (Application Document 7.10). The findings of this assessment have been summarised in ES Chapter 13: Population and Human Health (Application Document 6.1).
Risk of Major Accidents and Disasters Relevant to the Project (including those caused by Climate Change)	In order to comply with the recent change in the legislation, the MMO would expect to see a full consideration on how the surrounding environment would be impacted should a major accident/disaster destroy or damage the new route but particularly the bored tunnel.	Please refer to: <ul style="list-style-type: none"> • ES Chapter 4: EIA Methodology (Application Document 6.1) • ES Appendix 4.2: Major Accidents and Disasters Long List • ES Appendix 4.3: Major Accidents and Disasters Short List
Sediment Quality	The MMO support the approach that a desk study has been proposed to review public documents on sediment contaminants, including data requested from the EA, MMO and PLA. Where data is lacking sediment sampling should be used to identify areas of risk.	A full baseline, including sediment quality, has been prepared and is included in ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Sediment Quality	As the decision on the necessity of dredging and disposal activities has not yet been decided, the MMO are unable to provide comment on the conclusions relating to this.	There is no dredging required as part of the Project, so this has not been covered in the EIA.

Topic	Marine Management Organisation comment	National Highways response
	However, the MMO approve of the proposed plan to develop a ‘baseline’ regarding sediment quality in the area near to potential jetty construction and associated dredging, as well as the proposed methods to establish this.	
Sediment Quality	The MMO approve of the project aim to minimise the volume of waste by utilising material for beneficial re-use where possible, including the separation and potential treatment of contaminated land where necessary. Details of this should be included in the ES.	Please refer to ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Sediment Quality	A thorough description of how evidence will be gathered is not provided at this stage, however, the report states (in section 14.5.9) that “the requirement for subsequent chemical analysis at a potential construction jetty location(s) would be discussed and agreed with consultees”, which provides assurances that standard practices will be followed.	A new jetty is not proposed as part of the Project.
Sediment Quality	Details of an unbiased statistical accuracy assessment have not been provided at this stage. However, section 14.5.11 states that “the preliminary hydrodynamic modelling carried out at the options stage of the Project would be revisited and updated as necessary”. Therefore, the MMO expect that an unbiased statistical accuracy assessment has been detailed during the options stage and will be further explored if it is deemed necessary to utilise or update this model for any activities. This assessment must be included in the ES.	As agreed with MMO, no hydrodynamic or sediment transport modelling has been conducted.
Mitigation	Details on mitigation are low but the MMO support the proposed likely measures that would be used. Once the potential impacts are more understood then appropriate mitigation can be implemented. Should any mitigation be identified during the assessment and reporting then this should be fully detailed and considered within the ES.	All mitigation measures relating to marine biodiversity are fully detailed in ES Chapter 9: Marine Biodiversity (Application Document 6.1.) and in the REAC within ES Appendix 2.2: CoCP.

Topic	Marine Management Organisation comment	National Highways response
General Comments	Sensitive marine receptors that are not taken forward for assessment should be fully justified and supported in the report.	All receptors have been covered in the assessment. An MCZ assessment was scoped out through consultation with the MMO, however potential effects were still considered in the marine biodiversity assessment. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1) for details on the scope of the marine biodiversity assessment.

17 Maritime and Coast Guard Agency

Table 17.1 Maritime and Coast Guard Agency

Maritime and Coast Guard Agency comment	National Highways response
<p>From the information provided, it appears that the only aspect for MCA to consider with regards to the safety of navigation will be as a result of any infrastructure required in the marine environment. These will likely require a marine licence, at which time the MCA will be invited to comment on the application from a navigation safety perspective.</p>	<p>There has been continued engagement with the MMO, EA and Port of London Authority throughout the pre-application stage. A Deemed Marine Licence (Schedule 15 of the draft DCO (Application Document 3.1)) has been submitted as part of the DCO application.</p>
<p>It would be useful to see in the Environmental Statement the expected marine infrastructure requirements, consideration of their impact on the safety of navigation for both commercial and recreational craft, and proposed risk mitigation methods.</p>	<p>No infrastructure has been proposed in the marine environment.</p>
<p>I note that the proposed crossing location falls within the jurisdiction of the Port of London Authority. The MCA would like to point the developers in the direction of the Port Marine Safety Code (PMSC). They will need to liaise and consult with the Port of London Authority to develop a robust Safety Management System (SMS) for the project under this code.</p>	<p>There has been continued engagement with the MMO, EA and Port of London Authority throughout the pre-application stage.</p>

18 Medway Council

Table 18.1 Medway Council

Topic	Medway Council comment	National Highways response
General Comments	Future reports should include the expected level of congestion on the A2/M2 over its expected lifetime, a study on the potential for an increase through Medway and its potential impact on the Air Quality Monitoring Areas.	Please refer to ES Chapter 5: Air Quality (Application Document 6.1) for full details of the air quality impacts in Medway.
General Comments	It will be crucial to ensure that the Lower Thames Area Model inputs capture the scale of growth in Medway. The Council intends to consult on a development strategy, including site allocations, in early 2018; therefore, National Highways will need to ensure that the latest information is used in modelling work. It should be noted that Medway has developed an Aimsun Model with a calibrated 2016 base year. It will be important to ensure that the Lower Thames Area Model outputs can be used to undertake sensitivity testing to inform the emerging Local Plan and wider strategic infrastructure planning. Medway Council would welcome ongoing engagement with National Highways on this matter.	The Lower Thames Area Model includes development that is either under construction, has a planning application or a planning permission as of 30 September 2021 and in line with TAG. More detail is contained in the Combined Modelling and Appraisal Report, Appendix C: the Transport Forecasting Package (Application Document 7.7). Engagement with Medway Council has been ongoing throughout the pre-application phase with regard its emergent local plan.
General Comments	The Council would welcome a comprehensive assessment of the reasonable alternatives considered in the Environmental Statement in order to understand the implications for investment and regeneration opportunities as a result of these changes to the design.	Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).

19 Ministry of Defence

Table 19.1 Ministry of Defence

Topic	Ministry of Defence comment	National Highways response
General Comments	This application relates to a site outside of Ministry of Defence safeguarding areas. I can therefore confirm that the Ministry of Defence has no safeguarding objections to this proposal.	This has been noted.

20 NERL Safeguarding Office National Air Traffic Services

Table 20.1 NERL Safeguarding Office National Air Traffic Services

Topic	NERL Safeguarding Office National Air Traffic Services comment	National Highways response
General Comments	<p>The proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company (“NERL”) has no safeguarding objection to the proposal. If any changes are proposed to the information supplied to NATS in regard to this application which become the basis of a revised, amended or further application for approval, then as a statutory consultee NERL requires that it be further consulted on any such changes prior to any planning permission or any consent being granted.</p>	<p>This has been noted.</p>

21 National Grid

Table 21.1 National Grid

Topic	National Grid comment	National Highways response
General Comments	Electricity Transmission assets affected by the Order: <ul style="list-style-type: none"> • 4YN 400kV Overhead Transmission Line – Kingsnorth – Northfleet East Northfleet East – Singlewell • 4VG 400kV Overhead Transmission Line – Kingsnorth – Tilbury Grain – Kingsnorth • Singlewell 400kV Substation Site • Decommissioned underground cable running along the M2 (green line, appendix 2, plan 1) • YYJ 400kV Overhead Transmission Line – Tilbury – West Thurrock 1 Littlebrook – Tilbury 2 • ZJ 400kV Overhead Transmission Line – Coryton Sth – Tilbury 400 – Tilbury 275 Rayleigh main – Tilbury 400 – Tilbury 275 • ZB 275kV Overhead Transmission Line – Tilbury – Warley 1 Tilbury – Warley 2 	Consultation and liaison with National Grid has been ongoing throughout the pre-application process in regard to the diversion of National Grid assets. Monthly meetings with National Grid enabled these diversions to be discussed, including impact to design, environmental assessment and land and property.
General Comments	Gas Transmission assets affected by the Order: <ul style="list-style-type: none"> • FM 18 • FM 5 	
Electricity Infrastructure	National Grid along with representatives of National Highways have identified that some assets will need to be diverted in order to progress the development. National Grid will continue to liaise with a number of Lower Thames Crossing teams in order to achieve what has been set out.	

22 Natural England

Table 22.1 Natural England

Topic	Natural England comment	National Highways response
General comments	Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EclA) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website.	The methodology of the biodiversity assessment follows guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM).
General comments	EclA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EclA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.	
General comments	The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA	A full assessment of the potential impacts of the Project on local landscape character can be found in ES Chapter 7: Landscape and Visual (Application Document 6.1). This assessment is based on DMRB standards and GLVIA3, as well as An Approach to Landscape Character Assessment (Natural England, October 2014). The other guidance used in the assessment is detailed in ES Chapter 7: Landscape and Visual (Application Document 6.1).

Topic	Natural England comment	National Highways response
	<p>provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.</p>	
<p>General comments</p>	<p>The landscape assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescales of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.</p>	<p>The EIA considers intra-project effects, which can occur as a result of interrelationships between different environmental impacts on the same receptors. A summary of those interrelationships is presented in each ES topic chapter, including landscape and visual.</p>
<p>Statutory designated nature conservation sites</p>	<p>2.1 The ES should thoroughly assess the potential for the proposal to affect designated sites at the national, European and international level. European sites (e.g. designated Special Areas of Conservation and Special Protection Areas) fall within the scope of the Conservation of Habitats and Species Regulations 2017. In addition, paragraph 118 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed</p>	<p>The ES (Application Document 6.1 to 6.3) and HRA (Application Document 6.5) provide full and robust assessments of all relevant statutory designated sites and those which are candidates for designation.</p>

Topic	Natural England comment	National Highways response
	<p>Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.</p>	
<p>Statutory designated nature conservation sites</p>	<p>The proposal has the potential to result in direct and indirect impacts to a number of Sites of Special Scientific Interest (SSSIs) detailed below. Information on the SSSIs and their special interest features can be found at www.magic.gov.uk. The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites and should identify such measures as may be required in order to avoid, minimise or reduce any adverse significant effects. Further site-specific guidance is provided below</p>	
<p>Statutory designated nature conservation sites</p>	<p>In addition to the SSSIs, there are a number of Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Wetlands of International Importance under the Ramsar Convention (Ramsar Sites) detailed below which may be directly and indirectly impacted. The Natura 2000 network site conservation objectives are available on our internet site which should be helpful when undertaking the impact assessment.</p>	

Topic	Natural England comment	National Highways response
Statutory designated nature conservation sites	<p>The ES should fully consider the likely impacts from the proposal to species and habitats associated with these designated sites; in particular the ES should include an assessment of the following for land within the designated sites and also land outside the designated sites supporting species associated with them (often referred to as functionally linked land):</p> <ul style="list-style-type: none"> • Alterations to hydrological regimes within the grazing marsh habitats during both the construction and operational phases • The impacts from any pits/ventilation shafts that may be required to facilitate the construction of the tunnel • Noise, lighting and visual disturbance impacts during the construction period from plant, machinery and personnel • Noise and lighting impacts during the operational phase • Surface water run-off and disposal of liquid from de-watering, both during the construction and operation phases • Air quality impacts during the construction and operation phases (please see Section 3 of this letter for further information) 	<p>The ES (Application Document 6.1 to 6.3) provides a full and robust assessment of all potential effects on statutory designated sites, including species and habitats associated with these designated sites. Both direct and indirect effects from changes in baseline conditions of noise, vibration, visual disturbance, air quality and hydrology have been considered, as well as effects on land which is outside the site boundaries but is functionally linked to those sites.</p>
Mucking Flats and Marshes SSSI, Thames Estuary	<p>As with the coastal designated sites south of the River Thames in Kent, the ES should fully consider the likely impacts from the</p>	

Topic	Natural England comment	National Highways response
and Marshes SPA and Ramsar Site	<p>proposal to species and habitats associated with the coastal sites in Essex. In particular the ES should include an assessment of the following for land within the designated sites and also the functionally linked land:</p> <ul style="list-style-type: none"> • Noise, lighting and visual disturbance impacts during the construction period and operational phase from plant, machinery and personnel • Direct and indirect impacts to the foreshore, intertidal and other areas of functionally linked land 	
Shorne and Ashenbank Woods SSSI	<p>It is unclear from the information provided whether the widening of the A2 between the new junction adjacent to Claylane Wood and the M2 will result in direct impacts to the SSSI. We understand that the proposal is to widen the existing road within the confines of the existing highway boundary but from discussions with the Applicant it is not known at present how many additional lanes are to be added in each direction to accommodate the increased traffic volume. Natural England advises that as a first principle of the design of the scheme should be to avoid the loss of SSSI habitat and we welcome the scheme’s avoidance of Great Crabbles Wood SSSI.</p>	<p>Impacts on designated sites are reported in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
Shorne and Ashenbank Woods SSSI	<p>Notwithstanding the potential for direct impacts detailed above, the widened A2 will bring the road into much closer proximity to the SSSI than is presently the case and the</p>	<p>The ES (Application Document 6.1 to 6.3) provides a full and robust assessment of potential effects on statutory designated sites, including both direct and indirect effects resulting from changes in baseline conditions of noise, vibration, visual disturbance, air quality and hydrology, as well as effects</p>

Topic	Natural England comment	National Highways response
	<p>ES should fully assess the indirect impacts from air quality (please see Section 3 of this letter for further details), lighting and urbanising effects (from litter, for example). The ES should fully detail these impacts along with the measures that will be provided to mitigate (and where necessary compensate) these impacts. Detailed habitat and botanical studies are likely to be required to inform these.</p>	<p>on land which is outside the site boundaries but is functionally linked to those sites. Appropriate and proportionate strategies have been developed in discussion with Natural England to mitigate adverse effects.</p>
<p>Hangman’s Wood and Deneholes SSSI</p>	<p>The linking road to the new crossing has the potential to result in indirect impacts to Hangman’s Wood and Deneholes SSSI. The interruption or severance of key flight lines for bats associated with the site should be fully considered as part of the ES. Similarly, impacts from lighting of the route also need to be fully considered</p>	<p>Potential impacts of the Project, including habitat fragmentation through direct habitat loss and indirect effects such as changes in lighting, have been considered as part of the ecological impact assessment.</p>
<p>Hangman’s Wood and Deneholes SSSI</p>	<p>Hibernation sites are often important autumn swarming sites for significant numbers of bats so we would recommend that hibernation and swarming surveys are undertaken to inform the impact assessment. An understanding of key flight lines for bats is also likely to be required to ensure that the scheme does not sever them.</p>	<p>Sites with hibernation potential have been identified, as have records of swarming activity. Key flight lines have been identified and used to inform the design of key crossing points across the Project.</p>
<p>Hangman’s Wood and Deneholes SSSI</p>	<p>If impacts to important flight lines are likely to occur, then detailed avoidance, mitigation and where necessary compensatory measures will need to be implemented. These could include the</p>	<p>The Project design includes the provision of a number of green bridges which are located along key flight lines to mitigate severance effects.</p>

Topic	Natural England comment	National Highways response
	provision of living bridges or the creation of dark vegetated corridors for example.	
Thorndon Park SSSI	Given the proposed location of the connecting roads from the M25 to the proposed crossing itself, Natural England recommends that the ES includes a detailed assessment of potential air quality impacts on Thorndon Park SSSI. Further details are provided in Section 3 of this letter.	An assessment of potential impacts on designated habitats has been completed, informed by the outputs of the air quality modelling. This is reported in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1), and detailed air quality monitoring results can be found in ES Appendix 5.3 and 5.4.
Recommended Marine Conservation Zones	The former Thames Estuary recommended Marine Conservation Zone (rMCZ) has now been split into two separate sites; the first site (Upper Thames) stretches from Richmond Bridge to Battersea Bridge and is recommended as it is an important area for smelt (<i>Osmerus eperlanus</i>). The ES should consider the indirect impacts to this site since smelt are a migratory species found along the whole of the tidal Thames. The most sensitive time for this species is spring; smelt can be impeded from migrating through the river, for example by sediment plumes or underwater noise.	Defra’s Ministerial Contact Unit has confirmed that the Upper Thames Estuary site is no longer being proposed. As a result, the site has not been considered within the ES. However, the presence of smelt and potential pathway of effects to fish are assessed within ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Recommended Marine Conservation Zones	The second site (Swanscombe) stretches from The Queen Elizabeth II Bridge to Columbia Wharf/Grays. The boundary for the Swanscombe rMCZ has been determined to fit more closely around records of the tentacled lagoon-worm (<i>Alkmaria romijni</i>) for which there is currently considered to be a gap in the	Defra’s Ministerial Contact Unit has confirmed that the Swanscombe site is now a full MCZ. Due to the distance from the Project, effects are considered unlikely, however potential effects are fully assessed in the ES. The Project does not consider there to be a requirement for a full MCZ assessment which has been agreed with the EA and MMO.

Topic	Natural England comment	National Highways response
	<p>ecological network. Other broadscale habitats that were initially considered when the whole of the tidal Thames was an rMCZ are included within the recommended Swanscombe site.</p>	
<p>Recommended Marine Conservation Zones</p>	<p>The information on these rMCZs is in draft status only and forms part of Natural England’s scientific advice on the sites that are under consideration for Tranche 3 of the MCZ designations. Defra and the Minister will make final decisions regarding which sites and which features will go forward to a public consultation. Whilst these sites are not currently a material consideration, we would recommend that the ES considers the potential impacts to them. The sites and features that are put forward to consultation in the future will become a material consideration at that stage.</p>	<p>Defra’s Ministerial Contact Unit has confirmed that the Upper Thames Estuary site is no longer being proposed. As a result, the site has not been considered within the ES. However, the presence of smelt and potential pathway of effects to fish are assessed within ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
<p>Recommended Marine Conservation Zones</p>	<p>In terms of the proposed marine surveys, Natural England agrees that an analysis of sediment type (particle size analysis) and sediment contaminants will be required for works associated with the potential jetty works. Natural England also agrees that there will be a requirement for intertidal and subtidal benthic ecology studies. The requirements for ecological surveys should however be determined after the hydrodynamic and sediment modelling has been completed since this will inform</p>	<p>The need for and scope of marine surveys has been discussed and agreed with the MMO. The output of these surveys allowed the Project to establish a robust baseline against which potential effects were assessed. Various pathways of effects, including increased vessels movements, have been considered. The Project scope does not include dredging.</p>

Topic	Natural England comment	National Highways response
	<p>impact pathways and potential receptors. Requirements to be determined include survey area, timings, methodology, etc. Survey needs should be based on predicted impacts to receptors that occur in all phases of the scheme, including construction and operational phases. For example, there should be a consideration of increased vessel movements and dredging needs as well as any footprint loss associated with new structures.</p>	
<p>Recommended Marine Conservation Zones</p>	<p>From the information provided in the biodiversity section of the scoping report (section 9), the only aspect of the scheme identified as having the potential to generate marine impacts is from the potential jetty works. If other structures or pathways for marine impacts are identified as the scheme progresses then further survey requirements may be required, and we will of course be please to provide more detailed advice as required.</p>	<p>Noted. A new jetty is not proposed as part of the Project. If the Contractor requires, the existing East Tilbury jetty could be used temporarily, but the Contractor would be required to seek planning permission and permits separately to the DCO application for the Project.</p>
<p>Recommended Marine Conservation Zones</p>	<p>In addition to assessing the impacts of the jetty during its installation and throughout the construction phase for the crossing, consideration should also be given to the long-term impacts of a new/expanded jetty that may continue after the project has finished, for example the long-term maintenance dredging requirements.</p>	
<p>Recommended Marine</p>	<p>In addition, if any of the works associated with the scheme have the ability to impact</p>	<p>This has been considered in ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>

Topic	Natural England comment	National Highways response
Conservation Zones	water levels or flows in the Thames, as well as water quality, then this needs to be assessed within the EIA, and potentially within any HRA/MCZ assessments.	
Air quality	Natural England welcomes the confirmation that air quality impacts to designated sites will be assessed during both the construction and operational phases of the development. Much of the emphasis in the proposed air quality assessment understandably relates to traffic borne impacts, both from plant and machinery during the construction phase and vehicles using the road during the operational phases. In addition to traffic generated dust and emissions, the ES should fully detail the potential air quality impacts from any construction processes such as batching plants or delivery of material by boat, for example, along with the mitigation measures proposed.	ES Chapter 5: Air Quality (Application Document 6.1) has fully considered air quality effects during construction, including non-road transport.
Air quality	Natural England notes that consideration of air quality impacts once the scheme is operational in relation to designated nature conservation sites will be based upon the guidance within the Design Manual for Roads and Bridges. This would mean consideration of impacts would be undertaken within a 200-metre corridor either side of the route where the modelling shows that the scheme will result in an increase of 200 heavy duty vehicles or	The ES has taken into consideration in-combination effects (i.e. other plans or projects in combination with the Project). Please refer to ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1). The approach to in-combination effects has been the subject of past discussions with Natural England. The recommendations of the Judgment in <i>Wealden District Council v. Secretary of State for Communities and Local Government</i> , <i>Lewes District Council and South Downs National Park Authority</i> [2017] EWHC 351 (Admin) have been considered by the air quality specialist and author of ES Chapter 5: Air Quality (Application Document 6.1). Details of

Topic	Natural England comment	National Highways response
	1000 light duty vehicles compared to the current annual average daily traffic (AADT).	the in-combination effects assessment are contained in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).
Air quality	Whilst this approach provides a helpful coarse screening tool to evaluate whether further investigation is required, the increase in vehicle movements will need to be considered in combination with other plans or projects where impacts to Special Protection Areas, Special Areas of Conservation or Wetlands of International Importance under the Ramsar Convention (Ramsar Sites) may result. We would therefore suggest that the Applicant liaises with the Local Planning Authorities to ensure that any transport modelling fully considers the in-combination impacts of this proposal with developments proposed within their local plans.	
Air quality	Natural England also advises that the Applicant considers the recommendations of the Judgment in Wealden District Council v. Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority [2017] EWHC 351 (Admin) when undertaking the air quality impact assessment.	
Air quality	In addition to the potential for impacts to designated nature conservation sites within 200 metres of the application boundary, consideration also needs to be given within the ES to potential impacts to sites adjacent	It should be noted that ES Chapter 5: Air Quality (Application Document 6.1) incorporates receptors within 200m of roads where changes in traffic flow, composition and speed meet change criteria set out in DMRB LA 105 (and not just the Project itself). Forecasts of the air quality without the Project are provided as part of the Do Minimum scenario.

Topic	Natural England comment	National Highways response
	<p>to the wider motorway and trunk road network and other local roads where an increase in AADT is likely to occur. In the absence of traffic modelling information, it is not possible for Natural England to provide an exhaustive list of designated sites which should be considered at this stage but based upon our local knowledge the following sites as a minimum are likely to require the impacts from air quality to be considered:</p> <ul style="list-style-type: none"> • North Downs Woodland SAC • Queendown Warren SAC • Darenth Woods SSSI • Halling to Trottscliffe Escarpment SSSI • Hangman’s Wood and Deneholes SSSI • Holborough to Burham Marshes SSSI • Thorndon Park SSSI • Wouldham to Detling Escarpment SSSI 	
Air quality	<p>When the traffic modelling data showing how traffic volumes will alter on the road network outside the application boundary becomes available, Natural England will be pleased to work with the Applicant to refine the scope of designated sites which need to be considered as part of the air quality impact assessment.</p>	<p>Consultation with Natural England has been ongoing throughout the pre-application process.</p>
Air quality	<p>In addition to the consideration of air quality impacts to designated sites, the ES should also include a detailed assessment of the</p>	<p>In addition to statutory designated sites and in accordance with DMRB LA 105, ES Chapter 5: Air Quality (Application Document 6.1) considers air quality</p>

Topic	Natural England comment	National Highways response
	potential impacts that may result to other sensitive ecological receptors such as ancient woodland, priority habitats and the habitats supporting protected or priority species which are susceptible to changes in air quality, along with details of the proposed mitigation measures.	impacts at ancient woodland, local nature reserves, local wildlife sites and nature improvement areas. These have been reported within ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). The results of air quality monitoring at these sites can be found in ES Appendix 5.3 and 5.4.
Biodiversity	Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.	A HRA (Application Document 6.5) has been submitted as part of the DCO application, and includes: <ul style="list-style-type: none"> • The HRA Stage 1 Screening Report • HRA Stage 2 Statement to Inform an Appropriate Assessment (SIAA) Natural England has been consulted on this assessment; the details of this consultation are detailed within the HRA (Application Document 6.5).
Biodiversity	Should a Likely Significant Effect (LSE) on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case the Planning Inspectorate) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.	
Biodiversity	Where a LSE is identified, the Environmental Statement should include a chapter detailing the necessary information for the competent authority to undertake the Appropriate Assessment, often referred to as a ‘Statement to Inform an Appropriate Assessment’.	

Topic	Natural England comment	National Highways response
Biodiversity	Natural England welcomes the studies that are underway or proposed in relation to habitats which are outside the coastal designated SPAs and Ramsar Sites, but which may support birds associated with the designations (functionally linked land). Impacts to any functionally linked land should also be considered as part of any Appropriate Assessment.	The HRA (Application Document 6.5) includes consideration of all functionally linked habitat relevant to the coastal designated SPAs and Ramsar sites.
Biodiversity	We advise the consideration of a LSE should not be confined to designated sites within close proximity to the application boundary where wider impacts could occur. For example, the increase in traffic to the wider road network a considerable distance from the application boundary as detailed within Section 3 of this letter could result in a LSE and therefore would need to be fully considered within any Appropriate Assessment.	All relevant pathways of effects on relevant ecological receptors have been assessed within the ES (Application Document 6.1 to 6.3) and HRA (Application Document 6.5).
Protected landscapes	South of the River Thames, the application boundary in part lies within the Kent Downs Area of Outstanding Natural Beauty (AONB) and has the potential to significantly impact the special qualities of the AONB.	The Project falls within the Kent Downs AONB at its north-western extent, to the west of the River Medway. The potential landscape character and visual effects in respect of the Kent Downs AONB are considered in ES Appendix 7.9: Schedule of Landscape Effects and ES Appendix 7.10: Schedule of Visual Effects. Refer also to ES Chapter 7: Landscape and Visual (Application Document 6.1).
Protected landscapes	Natural England welcomes the reference to the National Character Areas within paragraph 8.2.1 of the Scoping Report along with the relevant local plan policies and the 3 rd Edition of the Guidelines for Landscape and Visual Impact Assessment.	Due consideration has been given to the AONB Management Plan. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).

Topic	Natural England comment	National Highways response
	<p>Given that the southern section of the scheme is either within the Kent Downs AONB or its setting, we would also recommend that during the assessment process, due consideration is given to the AONB Management Plan.</p>	
Protected landscapes	<p>Natural England attended a joint site visit with the Applicant’s landscape specialists and the Kent Downs AONB Unit on Monday 6 November and we agreed further viewpoints to be considered as part of the Landscape and Visual Impact Assessment in the vicinity of the A2 and Jeskyns Community Woodland. Similarly, additional suggested locations for the tranquillity studies were discussed. We anticipate that these will be confirmed through ongoing discussions with the Applicant in the near future.</p>	<p>Engagement with Natural England has been ongoing throughout the pre-application phase including further consultation and agreement of the viewpoints used in the landscape and visual assessment.</p> <p>The Project design has evolved, and Natural England has been consulted with on the changes during consultation events and technical meetings.</p>
Protected landscapes	<p>The widening of the A2 from the new junction in the vicinity of Claylane Wood and the M2 has the potential to remove a significant amount of mature woody vegetation from the central reserve and land adjacent to both the east and westbound carriageways. This vegetation currently screens significant sections of the A2 (along with the Channel Tunnel Rail Link/High Speed 1 rail line) from key publicly accessible areas of the AONB. I understand that it is not yet known how many additional lanes will be required to</p>	

Topic	Natural England comment	National Highways response
	<p>accommodate the increased volume of traffic on the A2 as a result of the proposed crossing, but the EIA should fully consider these impacts. We will be pleased to continue working with the Applicant over the coming months on this assessment as more details become available.</p>	
Protected landscapes	<p>In addition to the potential direct and indirect impacts to the AONB and its setting within the application boundary, the EIA should fully consider the potential visual and tranquillity impacts that may result along the A2/M2 corridor, the A249 Detling Hill and the A229 Bluebell Hill. These routes are likely to see a significant increase in traffic flow, particularly heavy-duty vehicles, travelling to and from the channel ports as a result of the Lower Thames Crossing, as Detling and Bluebell Hills (which cross the Kent Downs AONB in an approximately north/south direction) are the main links from the A2/M2 to the M20.</p>	<p>The indirect effects assessment within the Kent Downs AONB are reported in ES Appendix 7.11: Indirect Effects of traffic and noise within the Kent Downs Area of Outstanding Natural Beauty’. Visual and tranquillity impacts are reported in ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
Protected landscapes	<p>Much of the landscape section of the Scoping Report appears to focus on visual impacts; Natural England recommends that a full tranquillity assessment for people recreating within publicly accessible areas of the AONB and its setting is included within the ES. Details of the mitigation measures to be implemented should also be included.</p>	<p>Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>

Topic	Natural England comment	National Highways response
Protected landscapes	<p>The Scoping Report details the measures that are to be implemented to mitigate the landscape impacts. As part of the environmental legacy for this project, Natural England recommends that opportunities to deliver landscape enhancements to restore areas previously degraded by the A2/M2 widening and the Channel Tunnel Rail Link/High Speed 1 Rail Line should be provided; we would be pleased to work with the Applicant and the Kent Downs AONB Unit to help realise the Applicant’s environmental legacy ambitions. Opportunities to work with other developments such as the A2 Bean to Ebbsfleet improvements, the London Resort and the Ebbsfleet Garden City should also be sought to maximise the environmental benefits that can be achieved by working in partnership. We would be pleased to advise further on these strategic opportunities (both in relation to landscape and biodiversity).</p>	<p>The Project has been presented to National Highways Design Review Panel (NHDRP), firstly within a primarily engineering led approach, using traditional engineering principles. Feedback was given to approach design that delivers enhancement to the local character. The Project was presented again to NHDRP with a new landscape led approach. Engineering challenges became subservient to the prevalent context and project legacy. The Project was presented again to NHDRP, with representatives from Thurrock, Gravesham, Historic England and Natural England in attendance. Please refer to the Project Design Report (Application Document 7.4) for more detail on this engagement. Legacy items include signature bridges, additional woodland for public use and enjoyment, reuse of excavated material on site, and addressing historic severance from the M25 through new footbridges. More information on these legacy items can be found in Project Design Report (Application Document 7.4).</p> <p>Details of National Highways engagement with a number of stakeholders regarding environmental legacy, including Natural England, can be found in relevant Statements of Common Ground in Application Document 5.4.</p>
Protected landscapes	<p>In addition to impacts to the AONB, there are likely to be local landscape impacts along the route and Natural England recommends the views of the Local Planning Authority are sought and fully considered in relation to these impacts.</p>	<p>Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1) for details of the extensive Local Authority engagement undertaken in relation to these matters. There will also be relevant details within some Statements of Common Ground for the Local Authorities (Application Documents 5.4.4.1 to 5.4.4.13).</p>
Protected landscapes	<p>We advise the ES should also consider whether there is land in the area affected by the development which qualifies for</p>	<p>Noted. This has been considered in undertaking the EIA.</p>

Topic	Natural England comment	National Highways response
	conditional exemption from capital taxes on the grounds of outstanding scenic, scientific or historic interest. An up-to-date list can be obtained at www.hmrc.gov.uk/heritage/lbsearch.htm .	
Public rights of way	Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Relevant aspects of local authority green infrastructure strategies should be incorporated where the development could help to achieve their aims.	This has been considered in the design of the Project and in the environmental assessment. Please refer to: <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 13: Population and Human Health (Application Document 6.1) • Project Design Report (Application Document 7.4) • Design Principles (Application Document 7.5)
Public rights of way	Natural England has a duty to provide coastal access on foot around the whole of the English coast and is aiming to complete this by 2020. This is a new National Trail with an associated margin of land predominantly seawards of this, for the public to access and enjoy. Natural England takes great care in considering the interests of both land owners/occupiers and users of the England Coast Path, aiming to strike a fair balance when working to open a new stretch. We follow an approach set out in the approved Coastal Access Scheme and	The England Coast Path National Trail has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).

Topic	Natural England comment	National Highways response
	<p>all proposals have to be approved by the Secretary of State.</p> <p>We would encourage any proposed development to include appropriate provision for the England Coast Path to maximise the benefits this can bring to the area. We suggest that the development includes provision for a walking or multi-user route, where practicable and safe. This should not be to the detriment of nature conservation, historic environment, landscape character or affect natural coastal change. We would welcome discussions as to how this could best be achieved within the development proposals and would also be happy to provide suggestions as to the most appropriate areas for coastal access on site.</p> <p>Further details of the England Coast Path in the vicinity of the application boundary can be found on the Natural England website.</p>	
Public rights of way	<p>The EIA should also consider potential impacts on access land, public open land, and rights of way in the vicinity of the development. Appropriate mitigation measures should be incorporated for any adverse impacts to pedestrians and non-motorised vehicle users.</p> <p>Natural England also recommends reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the</p>	<p>The ES has considered potential impacts on access land, public open land, and Public Rights of Way in the vicinity of the Project. Please refer to ES Chapter 7: Landscape and Visual and ES Chapter 13: Population and Human Health (Application Document 6.1). Appropriate mitigation measures have been incorporated in relation to potential adverse impacts to pedestrians and non-motorised users.</p>

Topic	Natural England comment	National Highways response
	proposed site that should be maintained or enhanced.	
Soils and agricultural land quality	Impacts from the development should be considered in light of the Government’s policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 112 of the NPPF. We also recommend that soils should be considered under a more general heading of sustainable use of land and the ecosystem services they provide as a natural resource in line with paragraph 109 of the NPPF.	BMV land has been covered as required in the NPPF, as well as the wider value of soils (through cross referencing as required). Impact to soil are considered in ES Chapter 10: Geology and Soils (Application Document 6.1).
Soils and agricultural land quality	<p>Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society, for example as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The Applicant should consider the following issues as part of the Environmental Statement:</p> <ol style="list-style-type: none"> The degree to which soils are going to be disturbed/harmed as part of this development and whether ‘best and most versatile’ agricultural land is involved. <p>This may require a detailed survey if one is not already available. For further</p>	<p>ALC surveys were undertaken in 2019 in accordance with published guidelines (MAFF, 1988).</p> <p>It was not possible to undertake surveys across the entire extent of agricultural land within the Order Limits due to constraints relating to the presence/likely presence of contamination and unexploded ordnance (UXOs). In addition, the travel and work restrictions associated with the COVID-19 pandemic prevented the final phase of survey work in 2020 being completed.</p> <p>Where surveys were not possible a methodology was proposed to and accepted by Natural England 13 May 2020 predicting the likely ALC grade, based on the Welsh Government Predictive Agricultural Land Classification Map (Wales) Guidance Note (2017). The following desk-based information was gathered for locations on a 1ha grid to assess the likely most limiting factor in relation to land grade:</p> <ul style="list-style-type: none"> Climate Elevation Gradient Flood zone

Topic	Natural England comment	National Highways response
	<p>information on the availability of existing agricultural land classification (ALC) information see www.magic.gov.uk. Natural England Technical Information Note 049 – Agricultural Land Classification: protecting the best and most versatile agricultural land also contains useful background information.</p> <p>2. If required, an agricultural land classification and soil survey of the land should be undertaken. This should normally be at a detailed level, for example one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres.</p>	<ul style="list-style-type: none"> • BGS Bedrock (1:50k) • BGS Superficial Deposits (1:50k) • Soil Association and associated characteristics (texture, Wetness Class and droughtiness) • MAFF Provisional (Pre 1988) ALC grade • Defra/Natural England ‘Likelihood of encountering BMV agricultural land’ class (GIS layer available free online: http://publications.naturalengland.org.uk/publication/6056482614804480). <p>Whilst the impact from the pandemic-related restriction on travel have had an impact in terms of delays to surveys, an additional phase of ALC survey work has been undertaken in 2022 and will be continued post submission to maximise the extent of land covered by detailed ALC surveys.</p> <p>The combined information from the detailed surveys and the ALC predictions was used to determine the extent of land at each grade present within the Order Limits.</p>
Protected species	For mobile species such as bats where key flight lines or access to foraging areas will be severed, the scheme should ensure measures to maintain habitat connectivity, for example, through the provision of land bridges, are detailed within the ES.	The Project design includes the provision of a number of green bridges which are located along key flight lines to mitigate severance effects.
Protected species	The ES should assess the impact of each phase of the proposal on all protected species including, for example, great crested newts, reptiles, birds, water voles, badgers and bats.	The ES provides a robust assessment of potential effects of the Project on all relevant sensitive ecological receptors. Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
Protected species	In addition, there are known records of a number of marine species afforded	These species have been considered as part of the assessment provided ES Chapter 9: Marine Biodiversity (Application Document 6.1).

Topic	Natural England comment	National Highways response
	protection under the Wildlife and Countryside Act within the tidal Thames including the tentacled lagoon worm, seahorses and the lagoon sea slug and these should be considered as part of the EIA.	
Protected species	Whilst the scoping report contains brief details on the survey methodologies for protected (and priority species), Natural England will continue to offer detailed advice to the Applicant on the scope and detailed methodology of the surveys as part of our ongoing dialogue.	Natural England has been consulted on all aspects of the ecological impact assessment (refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and the HRA (Application Document 6.5) submitted as part of the DCO application.
Habitats and species of principal importance	Natural England welcomes the confirmation within the Scoping Report that the EIA will consider the potential for both direct and indirect impacts to habitats and species of principal importance.	Noted.
Habitats and species of principal importance	The ES should thoroughly assess the impact of the proposals on habitats and species listed as ‘Habitats and Species of Principal Importance’ within the England Biodiversity List, published under the requirements of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, to conserve and enhance biodiversity. Further information on this duty is available at https://www.gov.uk/guidance/biodiversity-	ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) provides a robust assessment of all sensitive ecological receptors including, where relevant, those species and habitats listed in accordance with the requirement of Section 41 of the NERC Act 2006.

Topic	Natural England comment	National Highways response
	duty public-authority-duty-to-have-regard-to-conserving-biodiversity.	
Habitats and species of principal importance	Government Circular 06/2005 states that Biodiversity Action Plan (BAP) species and habitats, ‘are capable of being a material consideration...in the making of planning decisions’. Natural England therefore advises that survey, impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.	ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) provides a full and robust assessment of all relevant sensitive ecological receptors including species and habitats listed in accordance with the requirement of Section 41 of the NERC Act 2006. Where relevant, details of the local BAP have also been taken into consideration.
Habitats and species of principal importance	<p>Natural England advises that a habitat survey (equivalent to Phase 2) is carried for the scheme, in order to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present. The ES should include details of:</p> <ul style="list-style-type: none"> • Any historical data for the site affected by the proposal (e.g. from previous surveys); • Additional surveys carried out as part of this proposal; • The habitats and species present; • The status of these habitats and species (e.g. whether priority species or habitat); 	<p>ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and its technical appendices provide robust detail on the baseline, assessment, mitigation and all enhancement proposals related to the Project. The assessment approach included a range of surveys, including habitat, ornithological, botanical and invertebrate surveys.</p> <p>ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) includes details of the items listed in Natural England’s comment.</p>

Topic	Natural England comment	National Highways response
	<ul style="list-style-type: none"> • The direct and indirect effects of the development upon those habitats and species; • Full details of any mitigation or compensation measures that might be required. • Full details of any enhancement measures that are to be delivered 	
Habitats and species of principal importance	Ancient woodland is an irreplaceable resource of great importance for its wildlife, its history, and the contribution it makes to our diverse landscapes. Local Authorities have a vital role in ensuring its conservation, in particular through the planning system. The ES should have regard to the requirements under the NPPF (Paragraph 118) which states: <i>‘Planning permission should be refused for development resulting 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 need for, and benefits of, the development in that location clearly outweigh the loss.’</i>	Consideration of all relevant legislation, policy and guidance has been made throughout the ecological impact assessment including that relating specifically to ancient woodland. The ecological impact assessment is contained in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
Habitats and species of principal importance	Natural England acknowledges that the preferred route has tried to minimise the direct loss of ancient woodland, particularly through the avoidance of Great Crabbles Wood SSSI. The application boundary however appears to encompass areas of ancient woodland, the direct loss of which	The Project design was developed following the mitigation hierarchy of avoid, reduce, restore, and offset. Opportunities for collaborative working have been explored and, where appropriate, included as part of the project’s overall design. National Highways has engaged with all relevant stakeholders, including Natural England and the Forestry Commission, regarding the design, mitigation and, where relevant, compensation.

Topic	Natural England comment	National Highways response
	<p>will have both biodiversity and landscape impacts. The nature and scale of the direct and indirect impacts to ancient woodlands that will result from the proposal are currently unclear. We would however recommend that as a first principle, the detailed design should aim to avoid impacts to ancient woodland and other habitats of nature conservation importance to avoid biodiversity and landscape impacts. If impacts cannot be fully avoided, compensatory habitat provision will be required, and it would appear appropriate for this to be delivered in conjunction with other projects such as the A2 Ebbsfleet to Bean improvements. Natural England will of course continue to provide advice on impacts to ancient woodland alongside colleagues from the Forestry Commission as the scheme progresses towards the submission stage.</p>	
<p>Habitats and species of principal importance</p>	<p>We would be pleased to advise the Applicant on the scope and methodology of the surveys for priority habitats and species, particularly in relation to the requirement for invertebrate surveys along the Essex coastline, as part of our ongoing dialogue with the ecology team.</p>	<p>National Highways has consulted Natural England regarding the scope of all surveys as part of the Project.</p>
<p>Regionally and locally important wildlife sites</p>	<p>The ES will need to consider any impacts upon local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geoconservation group or a</p>	<p>All statutory and non-statutory designated wildlife sites have been identified and included as part of the ecological impact assessment. Consultation with the local wildlife trusts and local planning authorities has occurred to inform the Project design and mitigation as appropriate.</p>

Topic	Natural England comment	National Highways response
	<p>local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geodiversity. The ES should therefore include an assessment of the likely impacts on the wildlife and geodiversity interests of such sites. The assessment should include proposals for mitigation of any impacts and if appropriate, compensation measures. Contact the local wildlife trust, geoconservation group or local sites body in this area for further information.</p>	
<p>Regionally and locally important wildlife sites</p>	<p>Natural England notes Section 9.6.5 details that ‘habitats and species associated with local wildlife sites and local nature reserves are considered to have local importance’. Whilst this approach appears to be in accordance with CIEEM’s Guidelines for Ecological Impact Assessment, information available on the assemblage of invertebrate species within some of the Essex local wildlife sites suggests they may be of national importance.</p> <p>Natural England therefore recommends that the assignment of ecological value should be undertaken once all of the ecological information is available and this should be site specific. We will of course be pleased to advise the Applicant further on this when the survey results are available.</p>	<p>The valuation of each sensitive ecological receptor, and the justification behind it, is set out within the ES. Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>

Topic	Natural England comment	National Highways response
<p>Projects to be considered as part of the cumulative impact assessment</p>	<p>The ES should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment, (subject to available information):</p> <ul style="list-style-type: none"> • a. existing completed projects; • b. approved but uncompleted projects; • c. ongoing activities; • d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and • e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects. 	<p>In-combination effects have been considered, please refer to ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) and HRA (Application Document 6.5)</p>
<p>Projects to be considered as part of the cumulative impact assessment</p>	<p>Natural England welcomes the list of projects contained with Appendix D ‘Other Development Matrix for Cumulative Effects Assessment’ which will be considered as part of the cumulative assessment. Specific projects that Natural England is currently</p>	<p>These projects have been included in the cumulative impact assessment. Please refer to ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1).</p>

Topic	Natural England comment	National Highways response
	<p>aware of which we consider should form part of the cumulative impact assessment are:</p> <ul style="list-style-type: none"> • A2 Bean to Ebbsfleet junction and road improvements (NSIP development) • M2 Junction 5 improvements (particularly in relation to the Kent Downs AONB) (potentially an NSIP development) • Tilbury Energy Centre (NSIP development) 	
<p>Projects to be considered as part of the cumulative impact assessment</p>	<p>On a more general note, Natural England recommends that the existing and emerging housing allocations within the relevant Local Plans should also be included within the table, particularly in relation to the potential in-combination effects from traffic generated air quality impacts.</p>	<p>The developments fitting the criteria for inclusion in the Project’s transport model are those developments either under construction, have planning permission or a planning application submitted, as advised by the local authorities and in line with TAG as of 30 September 2021. The criteria applied for the identification of developments for inclusion in the transport model were used to identify planning applications, local plan site allocations, highway schemes and junction improvements for ES Appendix 16.1: Other Development Long List. This is a wider scope than the transport model which only included near certain or more than likely developments, consequently developments not included within the transport model were included in the long list. The criteria for inclusion within the transport model is housing developments of 200 dwellings or more. The inter-project effects (the combined action of a number of different projects, in combination with the project being assessed, on a single resource / receptor) have been assessed in the shortlist (ES Appendix 16.2).</p>
<p>Projects to be considered as part of the cumulative impact assessment</p>	<p>Natural England also recommends that the views of the Local Planning Authorities should be sought in relation to potential developments that should form part of the cumulative effects assessment as they may</p>	<p>ES Appendix 16.1: Other Development Longlist was shared with Local Planning Authorities for comment in March 2020, July 2021 and July 2022 in addition to the HRA (Application Document 6.5) in-combination effects technical note and short list.</p>

Topic	Natural England comment	National Highways response
	be aware of other developments that are likely to come forward in the near future.	
Mitigation measures and environmental enhancements	Natural England welcomes the commitment from the Applicant to deliver a lasting environmental legacy from this project which we advise should be aspirational and visionary in its approach. In addition to the required mitigation and compensatory habitat provision measures that may be required for impacts to habitat and/or species, Natural England recommends that the scheme should deliver a net benefit for biodiversity and the protected landscape whilst helping to facilitate people’s access to and enjoyment of their local environment. Such enhancements should consider terrestrial, aquatic and marine habitats and species.	National Highways has committed to achieving no net loss in biodiversity by the end of the second Road Investment Strategy period (2020-2025) and will work towards net biodiversity gain by 2040 across its estate. Although the construction of the Project would have significant adverse effects on statutory designated sites and irreplaceable habitats, such as veteran trees and some sections of ancient woodland, the design has sought to provide biodiversity gains wherever possible. An assessment of baseline biodiversity value and that achieved by the Project’s design post development is presented within the Sustainability Statement (Application Document 7.12).
Mitigation measures and environmental enhancements	Options for reconnecting habitats through the creation of new semi-natural habitat or the creation of living bridges should be fully explored. A living bridge (or bridges) may also help to mitigate some of the landscape impacts associated with the proposal. Enhancements to public rights of way should also be fully considered. The ES should fully detail the environmental enhancements that will be provided to realise the Applicant’s aspiration.	The ES (Application Document 6.1 to 6.3) provides full detail of all mitigation, compensation and enhancement proposed as an integral part of the Project design. Please also refer to ES Appendix 2.2: CoCP and ES Figure 2.4: Environmental Masterplan (Application Document 6.2).
Mitigation measures and	The high-level principles of mitigation detailed within Section 9.9 of the Scoping Report appear appropriate at this stage in	National Highways has consulted Natural England regarding the assessment and mitigation strategy throughout the pre-application stage.

Topic	Natural England comment	National Highways response
environmental enhancements	the absence of information on the impacts. Natural England will continue to work with the Applicant as the scheme progresses to help ensure an appropriate mitigation strategy can be achieved.	
Mitigation measures and environmental enhancements	As mentioned previously, Natural England recommends that due consideration is given by the Applicant to working closely with other major projects on both sides of the Thames to deliver a coherent, landscape scale mitigation and enhancement strategy.	The Project has been working in collaboration with a number of major developments on both sides of the Thames to ensure that the Project’s proposed construction and mitigation did not impinge on their developments and to explore opportunities for synergies, including on matters of environmental legacy.
Mitigation measures and environmental enhancements	Where off-site compensation will be required for any of the habitats or species impacted by the development, the long-term security and management of the site(s) needs to be secured and we recommend that this should be detailed within the ES.	The security of all mitigation and compensation has been detailed within the relevant control documents submitted as part of the DCO application.

23 Port of London Authority

Table 23.1 Port of London Authority

Topic	Port of London Authority comment	National Highways response
Tunnel Design	<p>It is understood that the Lower Thames Crossing would connect the A2 in Kent, crossing under the River Thames by means of two bored tunnels, before joining the M25 south of Junction 29. At least 3 km of the route would be in tunnel, with cut and cover tunnel approaches. A twin bored tunnel is proposed with the external diameter of each tunnel bore proposed to be approximately 15.8m. There is no indication in the Scoping Report of the depth of the tunnel below the river bed, an issue of critical importance to the PLA due to the potential implications for users of the River Thames. The ES must therefore address the depth of the tunnel under the River Thames.</p>	<p>Consultation has been ongoing throughout the pre-application stage with the Port of London Authority. During meetings and consultations, more information on the evolving design of the Project has been released including depths of the tunnel.</p> <p>The ES has assessed the Project as described in ES Chapter 2: Project Description (Application Document 6.1).</p> <p>National Highways has agreed that the navigable channel of the River Thames can be maintained by the PLA to a depth of at least 12.5m below chart datum and that the undertaker must allow for potential over-dredge of 0.5m. Restriction on upward LoD for tunnel alignment has been agreed.</p> <p>Article 6 of the draft DCO has been amended to prevent any upward vertical change in the limits of deviation under the river Thames.</p>
Tunnel Design	<p>Whilst the project does not appear to include possible intervention or protection from the river it may include ground treatment from below. The ES must provide details of any scour protection/rock armour that the applicant may be placing on top of the tunnel and any ground treatment.</p>	<p>The vertical tunnel alignment has been developed to achieve appropriate cover beneath the river, and has considered current and historical bathymetric data, likely future navigation channel depths and potential scour of the riverbed.</p> <p>National Highways does not intend to carry out any activities that will cause scour above the tunnel or in the navigable channel. The Project design does not include the requirement for scour protection.</p>

Topic	Port of London Authority comment	National Highways response
Tunnel Design	It must also be confirmed whether the applicant would be looking for an exclusion zone(s) around the tunnel and if so, whether there would be any limitations in the area. For example, would there be a limitation on anchoring due to the depth of the tunnel which would impact on river users? Would the applicant be looking to temporarily or permanently extinguish the public right of navigation? Any extinguishment should be justified and be the minimum necessary.	The Project does not intend to extinguish public rights of navigation. The Project has agreed a list of activities with the PLA within the draft DCO (article 48) that the PLA may wish to undertake as part of standard operations, to be exempted from requiring consent from National Highways within the second protection zone of the tunnel, shown on the river restrictions plan. There would be no need for a shipping exclusion zone above the tunnel. Engagement with relevant stakeholders and authorities about any necessary restrictions would continue if development consent for the Project is granted and as construction of the river crossing is ready to begin.
Tunnel Design	It is noted that the tunnel would involve permanent land take of the PLA’s land. Discussions will be needed with the PLA about this and any land take should be justified and be the minimum necessary.	Consultation with the Port of London Authority has been ongoing throughout the pre-application stage regarding the Project’s Order Limits. Permanent acquisition of subsoil and rights is proposed below the river Thames, and all other land belonging to the PLA is proposed as temporary possession, or temporary possession with permanent acquisition of rights. The Project continues to engage with the PLA regarding land and property matters. Since the Scoping stage, the Tilbury Junction and Lind Road has been removed from design. The Tilbury Link Road and junction do not form part of the Project and are not within the draft DCO. More information on the Tilbury Link Road is set out in the Interrelationships with other Nationally Significant Infrastructure Projects and Major Development Schemes Document (draft DCO, 7.17).
Tunnel Alignment	The Scoping Report identifies at paragraph 2.2.7 that a number of junctions are being considered including a new junction east of Tilbury and a new link road. The views of the Port of Tilbury on these matters should be sought to ensure that both the existing port and the proposed Tilbury scheme are appropriately served. Discussions should also take place with London Gateway to ensure that the project appropriately addresses the concerns raised by them about the A13 interface.	
Use of the River / Materials	The Scoping Report does not commit to river use but instead highlights at paragraph 2.12.5 that methods of transport of	The Project proposals for use of the River Thames that have been assessed within the ES are described in ES

Topic	Port of London Authority comment	National Highways response
	<p>excavated material may be by road, river or rail. The PLA believes that use of the water is the best and most sustainable option. If river transport was to occur, the Applicant envisages that it would be by barges which could require infrastructure in the Thames. The ES should clearly set out the applicant’s consideration and commitments to river use including, not only the transport of excavated material but also construction materials (such as tunnel lining segments). Projections should be provided for each aspect, including the sizes and types of vessels involved. For example, it may be possible to use coasters to transport material away from the construction sites.</p>	<p>Chapter 2: Project Description (Application Document 6.1).</p> <p>Further information on use of the River Thames is included in the preliminary Navigational Risk Assessment (Application Document 7.18) and the outline Materials Handling Plan (Annex B of Appendix 2.2).</p> <p>The Project is not proposing the use of a new or existing jetty and would utilise existing port facilities, as described in the document identified above.</p>
<p>Use of the River / Materials</p>	<p>Given the location of the tunnel it is also recommended that a full analysis of potential wharves in the area which could be utilised in connection with the delivery of construction and waste materials is undertaken. The ES should demonstrate how the use of the river for the transport of construction and waste materials is to be maximised in line with planning policy.</p>	
<p>Use of the River / Materials</p>	<p>Clearly once the river use commitments are known by the Applicant then this will need to be reflected consistently throughout all the ES chapters.</p>	
<p>Use of the River / Materials</p>	<p>It is noted at the moment that the applicant is unclear whether an existing jetty would be required or whether an existing jetty would be re-used, the ES will therefore need to consider both alternatives. If a new jetty is proposed or significant alterations proposed to an existing structure then a reference design will be required to inform the scope of hydrodynamic assessments.</p>	
<p>Use of the River / Materials</p>	<p>A Navigational Risk Assessment will be required, which in-line with the approach taken to the Silvertown Tunnel, may at this stage need to be a preliminary risk assessment, with more detailed risk assessments being undertaken once more detail is known.</p>	

Topic	Port of London Authority comment	National Highways response
Environment	<p>Whilst the PLA’s comments and environmental consideration of the project is limited to the important sites, habitats and species within the PLA’s jurisdiction, clearly some sites, habitats and species rely on connections outside of the PLA’s jurisdiction in order to maintain good or improve status within it, to create a coherent network of ecological functioning habitats along the Thames.</p>	<p>Noted.</p>
Air Quality	<p>Potential impacts from use of the river during construction will be assessed qualitatively based on the number of vessel movements, local site conditions and the location of sensitive receptors within 200m, and by applying professional judgement. Whilst the matter has not been scoped out, it is noted that at this stage the applicant considers it unlikely that there will be significant emissions. Given that paragraph 6.9.4 of the Scoping Report refers to switching to river and rail potentially being mitigation for emissions from road, it will be necessary to have a full understanding of the potential vessel numbers and type of vessel along with the location of any river facilities in order to fully assess this matter in the ES.</p>	<p>The Port of Tilbury handled an average of 3,260 vessels per year between 2016 and 2019 (which would generate at least 6,520 two-way vessel movements). Furthermore, the Tilbury2 terminal opened in 2020, enabling the Port of Tilbury to increase its capacity, which will further increase the number of baseline movements. There are also over 900 vessel transits per month in some sections of the authorised channel within the Order Limits.</p> <p>It is anticipated that there would be a maximum of 126 two-way vessel movements per year associated with the transport of material via the Port of Tilbury and Tilbury2 during the construction phase. A limited number of Project vessels will also be used for limited periods (likely to be less than 10 in total) for activities such as surveying. This number of vessels and movements is considered to be very small in relation to the number of baseline movements. The small temporary increase in construction river transport is considered to be negligible in terms of impacts on local air quality.</p>
Marine Archaeology	<p>It is noted that there may be a need to undertake a marine based examination of data and the Applicant is requested to keep the PLA up to date with this matter as consent may be required from the PLA for whatever is proposed. Full information should be provided of any permanent in river structures required during the construction period (see paragraph 7.7.10 of the Scoping</p>	<p>Noted. The Project has maintained close ongoing engagement with the PLA, through which such matters have been discussed. The relevant Statement of Common Ground (Application Document 5.4.1.7) provides further details of some of the discussions.</p>

Topic	Port of London Authority comment	National Highways response
	Report) and incorporated into the relevant chapters of the ES. It is of note that other chapters of the Scoping Report refer to temporary, not permanent structures.	
Biodiversity	The terrestrial ecology section of the Biodiversity chapter references the Thames Estuary and Marshes RAMSAR, Holehaven Creek SPA (this is also a SSSI), South Thames Estuary and Marshes SSSI (also a RAMSAR & SPA) and Mucking Flats and Marshes SSSI (also a RAMSAR and SPA). However, the impact referred to in the marine section relates to the overwintering birds. It is confusing whether the two have been separated and in particular if the marine ecology, beyond the overwintering birds, of these sites is to be assessed for impact.	Effects on marine ecology receptors across all of the internationally and nationally designated sites is addressed in ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Biodiversity	The PLA would recommend discussions regarding marine ecology surveys are also undertaken with the Environment Agency and CEFAS in relation to fisheries resources of the marginal habitats most likely to be impacted by marine infrastructure during construction.	The need for and scope of marine surveys has been discussed and agreed with the relevant agencies. The output of these surveys has allowed the Project to establish a robust baseline, against which potential effects have been assessed. Various receptors, including fish, have been considered, refer to ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Biodiversity	The sampling should take into account not only the footprint of the jetty but also the area taken up by a berthing vessel and any access channel needed to use the structure. Sampling locations must be identified in consultation with the PLA and MMO for them to be relevant for any necessary dredging assessment and WFD evaluation.	The need for and scope of marine surveys has been discussed and agreed with the MMO. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Biodiversity	Since eels as mobile species are no longer part of Tranche 2 MCZ designation, they are not part of the rMCZ on the Thames. It is recommended that detailed discussions are held with Natural England regarding the specific areas the MCZ will apply	The relevant MCZs have been considered in the ES, as set out in ES Chapter 9: Marine Biodiversity (Application Document 6.1). Defra has confirmed the Swanscombe

Topic	Port of London Authority comment	National Highways response
	to, as the LTC application boundary would appear to be outside the current MCZ proposed boundaries.	site as a MCZ and the proposal for the Upper Thames Estuary site has been withdrawn.
Biodiversity	The approach to establishing the survey area for marine ecology should be clearly explained and justified and in particular the eastern boundary on the south shore, given the proximity of the protected sites on this side of the river. The boundary does not reflect some of the landscape areas including at Mucking Marshes, that have been identified as important in chapter 8 of the Scoping Report and this interrelationship has been identified in general in paragraph 9.4.16.	The need for and scope of marine surveys has been discussed and agreed with the MMO. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).
Noise	The PLA supports noise from marine traffic being considered for the human receptors. However there has been an assumption that barges are being used, where most other chapters have not necessarily assumed any specific shipping type. As highlighted above it may also be possible to utilise vessels larger than barges. All worst-case scenarios should be considered for the marine source of noise.	The information informing the construction noise assessment is based on construction programme and methodology information as per ES Chapter 2: Project Description (Application Document 6.1). This is discussed further in ES Chapter 12: Noise and Vibration (Application Document 6.1).
Road Drainage and Water environment	A WFD assessment has been identified in this Chapter. This could mean there is potentially a strong link with the contents of the Biodiversity chapter although this does not seem to have been noted in the report. This inter-relationship will need to be addressed in the ES.	Interrelationships between ES topic chapters have been considered and is set out within each topic chapter. ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) has assessed the dewatering from tunnelling and other Project activities resulting in groundwater alteration that in turn could affect hydrologically sensitive habitats, such as marshy grassland, and the species they support, including some that form qualifying features of designated sites.
Climate	The use of waterborne freight can significantly reduce the project’s carbon emissions. Lessons learnt from major construction projects such as Crossrail, Northern Line Extension and Thames Tideway Tunnel should be considered when	Please refer to ES Chapter 15: Climate (Application Document 6.1) and ES Appendix 15.1: Carbon and Energy Plan for more information on the approach to reducing the Project’s carbon emissions.

Topic	Port of London Authority comment	National Highways response
	developing ways to reduce the projects construction impact on climate.	
People and Communities	The scoping report identifies at paragraph 1.2.8 that the new crossing will open opportunities for investment and regeneration, supporting local businesses, national companies and international trade through the Channel and Thames Estuary ports. It is assumed that this point will be expanded upon as part of the socio-economic factors within the People and Communities section of the ES.	In line with the release of DMRB LA 112 Population and Human Health (National Highways, 2020), the local and wider economy has not been considered within ES Chapter 13: Population and Human Health (Application Document 6.1). Please refer to the Need for the Project (Application Document 7.1) and Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report (Application Document 7.7). However, the impact of the Project on development land and businesses has been assessed as part of ES Chapter 13: Population and Human Health (Application Document 6.1).
People and Communities	The People and Communities section of the Scoping Report identifies that this topic will consider the impact and effect of the construction and operation of the project on amongst other things private property; development land and the local and wider economy. It will also consider the impact on navigation in the event of marine infrastructure being required. It may however be necessary to consider the impact on navigation even if marine infrastructure is not required e.g. as a result of the use of existing infrastructure or in the event that the draft DCO seeks to extinguish the public right to navigate temporarily and / or permanently.	A preliminary Navigational Risk Assessment has been prepared (Application Document 7.18). Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1) for further detail.
People and Communities	The baseline information obtained / surveys undertaken make reference to the Thames Estuary being a major shipping route as well as being popular for recreational boating. Further information is then provided on the River Thames at paragraph 13.4.15 and whilst accurate for the River Thames generally, it does not appear to be reflective of the activities that take place in the vicinity of the proposed route of the LTC. For example, the	The baseline section of ES Chapter 13: Population and Human Health (Application Document 6.1) has been amended and expanded in light of comments received.

Topic	Port of London Authority comment	National Highways response
	Great River Race and Barge Race both take place above Greenwich and, at the moment, whilst there is the Gravesend to Tilbury Ferry there is no fast ferry service into London.	
People and Communities	The marine infrastructure that is listed at 13.4.17 is not complete and Gravesend Reach needs to be defined. For example, on the PLA charts there is Gravesend Reach Lower, Middle and Upper. Again, the list of marine assets on the North Bank of the river is incomplete and does not include for example, East Tilbury Jetty.	
People and Communities	It is recommended that the other baseline information to be obtained includes information from London Gateway given the comments at paragraph 1.2.8 of the Scoping Report about Thames Estuary ports.	
People and Communities	Whilst paragraph 13.9.5 refers to any marine infrastructure affected by the work, being reinstated to its pre-project condition, opportunities for legacy should be explored and taken wherever possible.	Opportunities for legacy have been explored during Project design and assessment.
Conclusion	The PLA welcomes the pre-application discussions that have been held with the LTC Team to date and would be happy to discuss the content of this representation to ensure that the matters that have been raised are addressed in the ES.	Engagement and consultation with the Port of London Authority have been ongoing throughout the pre-application stage.

24 Port of Tilbury London Limited

PoTLL’s overall position on LTC	PoTLL supports the urgent need for an additional crossing of the river Thames between Essex and Kent and supports in principle the alignment of the crossing shown in the Scoping Report. This support is on the basis that the scheme now provides for a much-needed link to Tilbury.	Noted.
PoTLL’s overall position on LTC	The description of the scheme should make clear the implications for the classification of the road network when the LTC is brought into operation, particularly in relation to the A1089, with confirmation that this will remain a trunk road and dual carriageway with no diminution in operating capacity.	Once the Project opened, it would form part of the strategic road network that includes the Dartford Crossing. The route would operate as an All-Purpose Trunk Road (APTR) with an ‘A road’ classification and would be subject to variable mandatory speed limits (VMSL) with a default speed limit of 70mph. Please refer to ES Chapter 2: Project Description (Application Document 6.1). There would be no change to the A1089, which would remain a trunk road and dual carriageway, with no change to its capacity.
Interaction with Tilbury2 NSIP	At its western end, the proposed link to Tilbury will cross land owned by PoTLL that is the subject of proposals known as “Tilbury2.” This NSIP application proposes to create a new Port Terminal on the north bank of the Thames a short distance east of the existing Port of Tilbury and includes an ‘infrastructure corridor’ comprising a new single carriageway road between Ferry Road and Fort Road, linking the Tilbury2 site back to the mainline rail network. This infrastructure corridor is on a broadly similar alignment as the western end of the proposed LTC / Tilbury link road. PoTLL propose to work closely with the promotor of LTC to ensure that the details of the Tilbury link from the LTC are consistent with PoTLL’s own proposals for its infrastructure corridor in the Tilbury2 DCO application in order to avoid abortive works and cost and to minimise the environmental effects of the LTC link.	Tilbury2 is now operational and has been taken into account as part of the project baseline. Engagement and consultation with PoTLL has been ongoing throughout the pre-application stage. Details can be found in the relevant Statement of Common Ground (Application Document 5.4.2.2).

Cumulative Assessment/Future Baseline	The Tilbury2 proposals will therefore need to operate in the absence of the LTC and this is the basis for the assessment of highways impacts and inter-related environmental effects in the environmental statement submitted with the Tilbury2 DCO application. This approach is necessary as not only is the delivery of LTC uncertain at this early stage, but even if an Order is made to allow for its construction, the LTC and associated link to Tilbury will not open prior to the first operation of Tilbury2.	Tilbury2 is now operational and has been taken into account as part of the project baseline. Engagement and consultation with PoTLL has been ongoing throughout the pre-application stage. Details can be found in the relevant Statement of Common Ground (Application Document 5.4.2.2).
Cumulative Assessment/Future Baseline	PoTLL is therefore appreciative of the indication in the LTC Scoping Report that the LTC environmental assessment will include Tilbury2 in the assessment of cumulative effects of LTC with other projects. However, whilst PoTLL considers that, given the temporal separation set out above, it would be more appropriate for the LTC environmental statement to include Tilbury2 in a defined 'future baseline' (i.e. the situation pertaining prior to the first operation of L TC), rather than as a 'cumulative' project.	Tilbury2 has been scoped out of Project’s cumulative assessment as the development is now operational. It therefore forms part of the baseline assessed in the ES (Application Document 6.1).
Cumulative Assessment/Future Baseline	At the time of submission of the Tilbury2 application, PoTLL explained within the Tilbury2 environmental statement that it had concluded that it was not possible to properly define an LTC 'scheme' in order to assess the cumulative impacts of Tilbury2 with the LTC proposals. Given this context the submitted Environmental Statement does not assess the cumulative impact of Tilbury2 with the LTC. The LTC Scoping Report having now been published, PINS have requested that PoTLL carry out a Cumulative Assessment of Tilbury2 with LTC.	
Cumulative Assessment/Future Baseline	PoTLL remain of the view that given the temporal separation of the proposals it must rightly be for the assessment of the environmental effects of the LTC to assess the effects of the LTC scheme together with Tilbury2. Moreover, at this stage, whilst the LTC Scoping Report provides more information as to the proposed route and sets out the methodology for assessment it provides little information as to operational	

	parameters such as forecast levels of traffic or the design of the scheme.	
Cumulative Assessment/Future Baseline	In considering the future baseline with Tilbury2 operational, PoTLL would emphasise that the LTC assessment should take account of the full extent of mitigation across all environmental topics that forms part of the Tilbury2 proposals, as particularly set out in the Tilbury 2 ES and DCO; and any impact the LTC might have on that proposed mitigation.	Tilbury2 has been included within the transport model, however it has been scoped out of ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) as construction of this development will be complete when construction of the Project commences. Tilbury2 therefore forms part of the baseline that has been assessed within the ES.
Minimising adverse economic consequences during construction and operation.	PoTLL would emphasise the need for the LTC scheme to consider mitigation during both construction and operation in relation to minimising any adverse consequences on the operation of the Port. During construction, the proposals will need to consider detailed phasing in relation to the access to the Tilbury2 site in order to maintain access and operation of the port terminal which, as set out above, will be operational by that time. Failure to adequately address this issue would have adverse economic consequences.	Given the complex nature of the Project construction, phasing of the works and activities would be required to ensure safe and timely delivery. This would facilitate critical initial works to be completed prior to the main works, ensure well planned and efficient construction logistics and minimise the impact on local communities and existing road network users through traffic management and other disturbance. Please refer to ES Chapter 2: Project Description (Application Document 6.1) for more information on construction phasing.
Minimising adverse economic consequences during construction and operation.	In order to minimise adverse economic consequences during operation, the proposals will need to demonstrate, through the consideration of alternatives, that the loss of land to Port operations has been minimised.	The Statement of Reasons (Application Document 4.1) describes each parcel of land required for the Project, providing justification for its temporary and permanent acquisition.
Overall Scope of proposed Environmental Assessment	PoTLL support the scope of environmental topics set out in the document. PoTLL would request that consideration is, however, given to any impacts on navigation of vessels on the Thames in the vicinity of the crossing during construction.	A preliminary Navigational Risk Assessment has been prepared (Application Document 7.18). This considers risk from both the construction and operational phases of the project.
Land requirements	PoTLL would highlight the need for full and early engagement in respect of the permanent and temporary acquisition of PoTLL	Engagement and consultation with PoTLL has been ongoing throughout the pre-application stage. Details can

	land in order that discussions in this regard can be well advanced prior to the application.	be found in the relevant Statement of Common Ground (Application Document 5.4.2.2).
Land requirements	The DCO boundary for LTC at the extreme western end of the link to Tilbury includes land within the existing Port operational area where the Port’s status as a statutory undertaker would also apply. PoTLL intends to discuss the detailed boundaries in this regard with the objective of avoiding or minimising the extent of this land.	
Use of the Port during construction of LTC	Finally, PoTLL would emphasise that the Port itself can play a significant part in mitigating the environmental effects of the construction of LTC by its role in the logistics and construction materials supply chain, thereby assisting with maximisation of the use of the river for such materials and minimising construction traffic impacts. This is a role that has been played by the Port on other major construction projects such as the Olympic Park.	Noted. Use of the Port by the Project has been described within the DCO Application, including ES Chapter 2: Project Description (Application Document 6.1).

25 Public Health England

Table 25.1 Public Health England

Topic	Public Health England comments	National Highways response
General Approach	<p>The EIA should give consideration to best practice guidance such as the Government’s Good Practice Guide for EIA. It is important that the EIA identifies and assesses the potential public health impacts of the activities at, and emissions from, the installation. Assessment should consider the development, operational, and decommissioning phases.</p>	<p>The EIA has been undertaken using the DMRB standard and various guidance relevant to the EIA topics. These are detailed in each ES topic chapter as relevant.</p> <p>Public health impacts have been assessed, please refer to Health and Equalities Impact Assessment (Application Document 7.10). The findings of this assessment have been summarised in ES Chapter 13: Population and Human Health (Application Document 6.1).</p> <p>The EIA considers impacts from the construction and operational phases of the Project.</p> <p>It is highly unlikely that the Project would be decommissioned before the end of its 120-year design life as the road would have become an integral part of the strategic road network. However, if the Project needed to be decommissioned, this would conform to the statutory process at that time, and an EIA or similar assessment would be undertaken in line with regulatory requirements at that future point in time.</p>
General Approach	<p>Consideration of alternatives (including alternative sites, choice of process, and the phasing of construction) is widely regarded as good practice. Ideally, EIA should start at the stage of site and process selection, so that the environmental merits of practicable alternatives can be properly considered. Where this is undertaken, the main alternatives considered should be outlined in the ES.</p>	<p>Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).</p>

Topic	Public Health England comments	National Highways response
Receptors	The ES should clearly identify the development’s location and the location and distance from the development of off-site human receptors that may be affected by emissions from, or activities at, the development. Off-site human receptors may include people living in residential premises; people working in commercial, and industrial premises and people using transport infrastructure (such as roads and railways), recreational areas, and publicly-accessible land. Consideration should also be given to environmental receptors such as the surrounding land, watercourses, surface and groundwater, and drinking water supplies such as wells, boreholes and water abstraction points.	The EIA has been undertaken recognising all of these receptor groups and the impacts upon them are reported within the ES.
Impacts arising from construction and decommissioning	Any assessment of impacts arising from emissions due to construction and decommissioning should consider potential impacts on all receptors and describe monitoring and mitigation during these phases. Construction and decommissioning will be associated with vehicle movements and cumulative impacts should be accounted for.	The EIA considers impacts from the construction and operational phases of the Project. It is highly unlikely that the Project would be decommissioned before the end of its 120-year design life as the road would have become an integral part of the strategic road network. However, if the Project needed to be decommissioned, this would conform to the statutory process at that time, and an EIA or similar assessment would be undertaken in line with regulatory requirements at that future point in time.
Impacts arising from construction and decommissioning	We would expect the promoter to follow best practice guidance during all phases from construction to decommissioning to ensure appropriate measures are in place to mitigate any potential impact on health from emissions (point source, fugitive and traffic-related). An effective Construction Environmental Management Plan (CEMP) (and Decommissioning Environmental Management Plan (DEMP)) will help provide reassurance that activities are well managed. The promoter should ensure that there are robust mechanisms in place to respond to any complaints of traffic-related pollution, during construction, operation, and decommissioning of the facility.	Please refer to ES Appendix 2.2 CoCP for mitigation measures to be implemented during construction.
Emissions to air and water	When considering a baseline (of existing environmental quality) and in the assessment and future monitoring of impacts these: <ul style="list-style-type: none"> • should include appropriate screening assessments and 	Dispersion modelling was undertaken to predict annual mean NO ₂ and PM ₁₀ concentrations at all receptors selected in the construction and operational assessment

Topic	Public Health England comments	National Highways response
	<p>detailed dispersion modelling where this is screened as necessary</p> <ul style="list-style-type: none"> should encompass all pollutants which may be emitted by the installation in combination with all pollutants arising from associated development and transport, ideally these should be considered in a single holistic assessment 	<p>for the base year of 2016. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p> <p>The air quality assessment considers NO₂ and PM₁₀ (and PM_{2.5} as a component of PM₁₀).</p>
Emissions to air and water	<ul style="list-style-type: none"> Should consider the construction, operational, and decommissioning phases 	<p>The EIA considered impacts from the construction and operational phases of the Project. It is highly unlikely that the Project would be decommissioned before the end of its 120-year design life as the road would have become an integral part of the strategic road network. However, if the Project needed to be decommissioned, this would conform to the statutory process at that time, and an EIA or similar assessment would be undertaken in line with regulatory requirements at that future point in time.</p>
Emissions to air and water	<ul style="list-style-type: none"> should consider the typical operational emissions and emissions from start-up, shut-down, abnormal operation and accidents when assessing potential impacts and include an assessment of worst-case impacts. 	<p>ES Chapter 5: Air Quality (Application Document 6.1) assesses the reasonable worst-case impacts in accordance with DMRB LA 105.</p>
Emissions to air and water	<ul style="list-style-type: none"> should fully account for fugitive emissions 	<p>Construction dust, road traffic and traffic management has been assessed as part the air quality assessment. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
Emissions to air and water	<ul style="list-style-type: none"> should include appropriate estimates of background levels 	<p>The air quality baseline has been estimated using local authority monitoring results, automatic monitoring results, National Highways monitoring results as well as a series of Project-specific monitoring results. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
Emissions to air and water	<ul style="list-style-type: none"> should identify cumulative and incremental impacts (i.e. assess cumulative impacts from multiple sources), including those arising from associated development, other existing 	<p>The traffic data used in the assessment of air quality already accounts for traffic growth, and for traffic generated by developments either under construction, or</p>

Topic	Public Health England comments	National Highways response
	<p>and proposed development in the local area, and new vehicle movements associated with the proposed development; associated transport emissions should include consideration of non-road impacts (i.e. rail, sea, and air).</p>	<p>those that have planning permission, or a planning application submitted, as advised by the local authorities and in line with TAG as of 30th September 2021. In accordance with the Planning Inspectorate’s (2019) Advice Note Seventeen: Cumulative Effects Assessment, no additional cumulative assessment of these aspects is required.</p>
<p>Emissions to air and water</p>	<ul style="list-style-type: none"> should include consideration of local authority, Environment Agency, Defra national network, and any other local site-specific sources of monitoring data. 	<p>The air quality baseline has been estimated using local authority monitoring results, automatic monitoring results, National Highways monitoring results as well as a series of Project-specific monitoring results. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
<p>Emissions to air and water</p>	<ul style="list-style-type: none"> should compare predicted environmental concentrations to the applicable standard or guideline value for the affected medium (such as UK Air Quality Standards and Objectives and Environmental Assessment Levels) 	<p>Please refer to ES Chapter 5: Air Quality (Application Document 6.1) for full results of the assessment.</p>
<p>Emissions to air and water</p>	<ul style="list-style-type: none"> If no standard or guideline value exists, the predicted exposure to humans should be estimated and compared to an appropriate health-based value (a Tolerable Daily Intake or equivalent). Further guidance is provided in Annex 1. 	
<p>Emissions to air and water</p>	<ul style="list-style-type: none"> This should consider all applicable routes of exposure e.g. include consideration of aspects such as the deposition of chemicals emitted to air and their uptake via ingestion 	<p>The air quality assessment has been undertaken in accordance with DMRB LA 105.</p>
<p>Emissions to air and water</p>	<ul style="list-style-type: none"> should identify and consider impacts on residential areas and sensitive receptors (such as schools, nursing homes and healthcare facilities) in the area(s) which may be affected by emissions, this should include consideration of any new receptors arising from future development 	<p>The air quality assessment has been undertaken in accordance with DMRB LA 105 which stipulates those sensitive receptors for human health include residential properties, schools and hospitals. The traffic data used in the assessment of air quality already accounts for traffic growth, and for traffic generated by other planned or reasonably foreseeable major developments.</p>

Topic	Public Health England comments	National Highways response
Emissions to air and water	<p>Whilst screening of impacts using qualitative methodologies is common practice (e.g. for impacts arising from fugitive emissions such as dust), where it is possible to undertake a quantitative assessment of impacts then this should be undertaken.</p>	<p>The construction dust air quality assessment has been undertaken in accordance with DMRB LA 105 which requires the construction dust risk potential of the Project to be determined (either ‘large’ or ‘small’) and the receiving environment sensitivity in accordance with the set criteria. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
Emissions to air and water	<p>PHE’s view is that the EIA should appraise and describe the measures that will be used to control both point source and fugitive emissions and demonstrate that standards, guideline values or health-based values will not be exceeded due to emissions from the installation, as described above. This should include consideration of any emitted pollutants for which there are no set emission limits.</p> <p>When assessing the potential impact of a proposed installation on environmental quality, predicted environmental concentrations should be compared to the permitted concentrations in the affected media; this should include both standards for short and long-term exposure.</p>	<p>Good practice mitigation measures are included in ES Appendix 2.2: CoCP which comprises of measures to reduce the air quality effects associated with construction dust as well as emissions from Non-Road Mobile Machinery (NRMM) and construction vehicles.</p> <p>Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
Emissions to air and water	<p><i>Additional points specific to emissions to air</i> When considering a baseline (of existing air quality) and in the assessment and future monitoring of impacts these:</p> <ul style="list-style-type: none"> • should include consideration of impacts on existing areas of poor air quality e.g. existing or proposed local authority Air Quality Management Areas (AQMAs) • should include modelling using appropriate meteorological data (i.e. come from the nearest suitable meteorological station and include a range of years and worst-case conditions) • should include modelling taking into account local topography 	<p>The air quality assessment has used AQMAs to inform the baseline of the assessment.</p> <p>The air quality modelling takes into account topography as well as meteorological data.</p>

Topic	Public Health England comments	National Highways response
Emissions to air and water	<p>When considering a baseline (of existing water quality) and in the assessment and future monitoring of impacts these:</p> <ul style="list-style-type: none"> • should include assessment of potential impacts on human health and not focus solely on ecological impacts • should identify and consider all routes by which emissions may lead to population exposure (e.g. surface watercourses; recreational waters; sewers; geological routes etc.) • should assess the potential off-site effects of emissions to groundwater (e.g. on aquifers used for drinking water) and surface water (used for drinking water abstraction) in terms of the potential for population exposure • should include consideration of potential impacts on recreational users (e.g. from fishing, canoeing etc) alongside assessment of potential exposure via drinking water 	<p>ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) reports the effects on the water quality attributes of surface and groundwater bodies during construction and operation, including flows and levels, the hydromorphology of watercourses, Groundwater Dependent Terrestrial Ecosystems (GWDTEs) and effects on flood risk and existing land drainage regimes.</p> <p>Attributes of receptors linked to recreation are addressed in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
Land quality	<p>We would expect the promoter to provide details of any hazardous contamination present on site (including ground gas) as part of the site condition report.</p>	<p>Please refer to ES Chapter 10: Geology and Soils (Application Document 6.1)</p>
Land quality	<p>Emissions to and from the ground should be considered in terms of the previous history of the site and the potential of the site, once operational, to give rise to issues. Public health impacts associated with ground contamination and/or the migration of material off-site should be assessed and the potential impact on nearby receptors and control and mitigation measures should be outlined.</p> <p>Relevant areas outlined in the Government’s Good Practice Guide for EIA include effects associated with ground contamination that may already exist:</p> <ul style="list-style-type: none"> • effects associated with the potential for polluting substances that are used (during construction / operation) to cause new ground contamination issues on a site, for example 	

Topic	Public Health England comments	National Highways response
	introducing / changing the source of contamination <ul style="list-style-type: none"> • impacts associated with re-use of soils and waste soils, for example, re-use of site-sourced materials on-site or offsite, disposal of site-sourced materials offsite, importation of materials to the site, etc 	
Waste	The EIA should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal). For wastes arising from the installation the EIA should consider: <ul style="list-style-type: none"> • the implications and wider environmental and public health impacts of different waste disposal options • disposal route(s) and transport method(s) and how potential impacts on public health will be mitigated 	Please refer to ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Other aspects	Within the EIA PHE would expect to see information about how the promoter would respond to accidents with potential off-site emissions e.g. flooding or fires, spills, leaks or releases off-site. Assessment of accidents should: identify all potential hazards in relation to construction, operation and decommissioning; include an assessment of the risks posed; and identify risk management measures and contingency actions that will be employed in the event of an accident in order to mitigate off-site effects.	Please refer to: <ul style="list-style-type: none"> • ES Chapter 4: EIA Methodology (Application Document 6.1) • ES Appendix 4.2: Major Accidents and Disasters Long List • ES Appendix 4.3: Major Accidents and Disasters Short List
Other aspects	The EIA should include consideration of the COMAH Regulations (Control of Major Accident Hazards) and the Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations 2009: both in terms of their applicability to the installation itself, and the installation’s potential to impact on, or be impacted by, any nearby installations themselves subject to these Regulations.	Inter Terminals UK Ltd, Upper Tier COMAH site (Fuel storage and distribution) is approximately 2.3km from Order Limits boundary. The operations are subject to the COMAH Regulations 2015 and therefore measures necessary to prevent a major accident and limit their consequences to people and the environment are in place and inspected by the competent authority. This includes a requirement to prepare a Major Accident Prevention Policy. Implementation of the above Policy and procedures would limit the potential to impact on the

Topic	Public Health England comments	National Highways response
		Project, and as such these matters are not carried forwards.
Other aspects	There is evidence that, in some cases, perception of risk may have a greater impact on health than the hazard itself. A 2009 report, jointly published by Liverpool John Moores University and the HPA, examined health risk perception and environmental problems using a number of case studies. As a point to consider, the report suggested: “Estimation of community anxiety and stress should be included as part of every risk or impact assessment of proposed plans that involve a potential environmental hazard. This is true even when the physical health risks may be negligible.” PHE supports the inclusion of this information within EIAs as good practice.	Mental health has been considered in Health and Equalities Impact Assessment (Application Document 7.10).
Electromagnetic fields (EMF)	PHE recommends the adoption in the UK of the EMF exposure guidelines published by the International Commission on Non-ionizing Radiation Protection (ICNIRP). Formal advice to this effect was published by one of PHE’s predecessor organisations (NRPB) in 2004 based on an accompanying comprehensive review of the scientific evidence http://webarchive.nationalarchives.gov.uk/20140629102627/http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1502/ http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/PublicHealth/Healthprotection/DH_4089500	Electromagnetic fields (EMF) from National Grid owned overhead lines that are required to be repositioned as part of the Project have been assessed by a specialist at National Grid. The assessment can be found in Annex D of Health and Equalities Impact Assessment (Application Document 7.10).
Electromagnetic fields (EMF)	For static magnetic fields, the ICNIRP guidelines published in 2009 recommend that acute exposure of the general public should not exceed 400 mT (millitesla), for any part of the body, although the previously recommended value of 40 mT is the value used in the Council Recommendation. However, because of potential indirect adverse effects, ICNIRP recognises that practical policies need to be implemented to prevent inadvertent harmful exposure of people with implanted electronic medical	

Topic	Public Health England comments	National Highways response
	<p>devices and implants containing ferromagnetic materials, and injuries due to flying ferromagnetic objects, and these considerations can lead to much lower restrictions, such as 0.5 mT.</p>	
<p>Electromag-netic fields (EMF)</p>	<p>At 50 Hz, the known direct effects include those of induced currents in the body on the central nervous system (CNS) and indirect effects include the risk of painful spark discharge on contact with metal objects exposed to the field. The ICNIRP guidelines published in 1998 give reference levels for public exposure to 50 Hz electric and magnetic fields, and these are respectively 5 kV m⁻¹ (kilovolts per metre) and 100 µT (microtesla). The reference level for magnetic fields changes to 200 µT in the revised (ICNIRP 2010) guidelines because of new basic restrictions based on induced electric fields inside the body, rather than induced current density. If people are not exposed to field strengths above these levels, direct effects on the CNS should be avoided and indirect effects such as the risk of painful spark discharge will be small. The reference levels are not in themselves limits but provide guidance for assessing compliance with the basic restrictions and reducing the risk of indirect effects.</p>	
<p>Electromag-netic fields (EMF)</p>	<p>There is concern about the possible effects of long-term exposure to electromagnetic fields, including possible carcinogenic effects at levels much lower than those given in the ICNIRP guidelines. In the NRPB advice issued in 2004, it was concluded that the studies that suggest health effects, including those concerning childhood leukaemia, could not be used to derive quantitative guidance on restricting exposure. However, the results of these studies represented uncertainty in the underlying evidence base, and taken together with people’s concerns, provided a basis for providing an additional recommendation for Government to consider the need for further</p>	

Topic	Public Health England comments	National Highways response
	<p>precautionary measures, particularly with respect to the exposure of children to power frequency magnetic fields.</p>	
<p>Human health risk assessment (chemical pollutants)</p>	<p>The points below are cross-cutting and should be considered when undertaking a human health risk assessment:</p> <p>The promoter should consider including Chemical Abstract Service (CAS) numbers alongside chemical names, where referenced in the ES</p> <p>Where available, the most recent United Kingdom standards for the appropriate media (e.g. air, water, and/or soil) and health-based guideline values should be used when quantifying the risk to human health from chemical pollutants. Where UK standards or guideline values are not available, those recommended by the European Union or World Health Organisation can be used</p> <p>When assessing the human health risk of a chemical emitted from a facility or operation, the background exposure to the chemical from other sources should be taken into account</p> <p>When quantitatively assessing the health risk of genotoxic and carcinogenic chemical pollutants PHE does not favour the use of mathematical models to extrapolate from high dose levels used in animal carcinogenicity studies to well below the observed region of a dose-response relationship. When only animal data are available, we recommend that the ‘Margin of Exposure’ (MOE) approach.</p>	<p>Existing soil and groundwater contamination potential is identified in ES Chapter 10: Geology and Soils (Application Document 6.1).</p>

26 Royal Mail

Table 26.1 Royal Mail

Royal Mail comment	National Highways response
<p>The ES should include information on the needs of major road users (such as Royal Mail) and acknowledge the requirement to ensure that major road users are not disrupted through full advance of consultation by the applicant at the appropriate time in the DCO and Development process.</p>	<p>Please refer to the Combined Modelling and Appraisal Report (Application Document 7.7) for information on the traffic modelling undertaken and the Transport Assessment (Application Document 7.9) for information on the impact of the Project, once in operation, on the strategic and local highway network.</p> <p>The Outline Traffic Management Plan for Construction (Application Document 7.14) provides details of traffic management measures during the construction phase.</p>
<p>The ES and DCO application should include detailed information on the construction traffic mitigation measures that are proposed to be implemented by National Highways/its contractor, including draft Construction Traffic Management Plan (CTMP).</p>	
<p>Royal Mail requests we are fully pre consulted by National Highways/its contractors on any proposed road closures/diversions/alternative access arrangements. Hours of working and the content of the CTMP. The ES should acknowledge the need for this consultation with Royal Mail and other relevant major road users.</p>	
<p>Royal Mail is able to supply National Highways with information on its road usage/trips if required.</p>	<p>Noted.</p>

27 Sevenoaks District Council

Table 27.1 Sevenoaks District Council

Sevenoaks District Council comment	National Highways response
<p>It is noted that the project is located close to a number of Air Quality Management Areas (AQMAs) and that these could be affected by the future operation of the project. The project is likely to have significant impacts on the air quality within adjoining authorities and may also result in changes to traffic flows that would have an impact on designated AQMAs within Sevenoaks District. The ES should therefore include a Transport Assessment (TA) sufficient to demonstrate the impacts of the development on local highways, including within Sevenoaks District and provide a consideration of the impacts of that traffic on air quality. It is recommended that the scope of the TA be agreed with the local Highways Authority (Kent County Council).</p>	<p>Sevenoaks District Council AQMA No.1, 2, 3, 6 and 13 have been considered in establishing the baseline for the air quality assessment. Please refer to ES Chapter 5: Air Quality (Application Document 6.1). Detailed information on traffic modelling is provided within the Combined Modelling and Appraisal Report (Application Document 7.7). Please also refer to the Transport Assessment (Application Document 7.9).</p>
<p>Part of the site is located within the Kent Downs Area of Outstanding Natural Beauty (AONB) and particular consideration should be given in the ES to the direct and indirect effects upon this designated landscape and in particular the effect upon its purpose for designation. The ES must refer to the relevant management plan for the Kent Downs AONB. Please see detailed comments from the Kent Downs AONB Unit attached.</p>	<p>Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1), which considers the Kent Downs AONB including the purpose for its designation and references the relevant management plan.</p>
<p>Given the distance of the development from Sevenoaks District it is considered unlikely that it would have any impacts on this District’s cultural heritage or geology and soils. The development would also be unlikely to have any local impacts in terms of materials, noise and vibration, people and communities or drainage. Notwithstanding this we note that the project is likely to have significant impacts on these issues within adjoining authorities and we would therefore request that they are fully addressed within the ES as appropriate.</p>	<p>Noted.</p>

28 Kent Downs AONB Unit

Table 28.1 Kent Downs AONB Unit

Kent Downs AONB Unit comment	National Highways response
<p>At para 8.2.1 reference is made to local development plans and policies. We consider it important for the Kent Downs AONB Management Plan to be included within these documents as this can be a material consideration in determining planning applications, as acknowledged in the Planning Practice Guidance at paragraph 004 Reference ID 8-00420140306</p>	<p>This document has been considered. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
<p>At para. 8.4.3 reference is made to the setting of the AONB, however this appears to be limited to land north of the A2. Land outside of the AONB boundary south of the A2 is also considered to comprise the setting of the AONB.</p>	<p>The assessment of the setting of the Kent Downs AONB considers those areas falling within the study area of the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
<p>It is advised, at paras 8.7.3 and 8.7.10 that in line with relevant guidance documents, an operational assessment on the landscape will be provided at Year of Opening (Winter) and Design Year 15 (Summer). We consider however that it would be beneficial to also include an assessment at Design Year 15 on winter as well as summer views so that the full impacts of the proposal in the winter months can be assessed.</p>	<p>A detailed methodology is set out in ES Appendix 7.2: Landscape and Visual Assessment Methodology with relation to DMRB LA 107 and GLVIA3. The winter 15 years after opening assessment is not likely to result in a different significance of effect so this has not been reported.</p> <p>The potential for traffic to be displaced onto local roads, including those in the proximity of the AONB, has been assessed and reported in the Transport Assessment (Application Document 7.9). The resultant impacts including noise, air quality and tranquillity are assessed and reported in the relevant technical chapters of the ES (Application Document 6.1). Tranquillity formed part of the Landscape and Visual Impact Assessment (LVIA) presented in Chapter 7 of the ES (Application Document 6.1).</p>
<p>In addition to the indirect impacts identified at para 8. 7.5, it is considered that the impacts of the proposed road closures in terms of displacement of traffic on local rural roads should be assessed. The proposed alterations to the existing road network include the removal of the existing A2 east bound lane near Nell's Cafe at Hever Court Road. Instead east bound traffic would need to access a new link road provided to the Brewer’s Road roundabout where east bound traffic would then be required to travel on Brewers Road, over the A2 and to the Junction onto the A2 close to Shorne Woods Country Park. This would lead to an increase in local traffic into the AONB that should be assessed.</p>	<p>The potential for traffic to be displaced onto local roads, including those in the proximity of the AONB, has been assessed and reported in the Transport Assessment (Application Document 7.9). The resultant impacts including noise, air quality and tranquillity are assessed and reported in the relevant technical chapters of the ES (Application Document 6.1). Tranquillity formed part of the Landscape and Visual Impact Assessment (LVIA) presented in Chapter 7 of the ES (Application Document 6.1).</p>
<p>The proposed works have been developed from the scheme that was the subject of consultation last year and now includes the widening of the A2 for a length of some 2.5km from the new junction serving the link road and Junction 1 of the M2 which is</p>	<p>Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1) for the full assessment results of potential for adverse effects on the Kent Downs AONB.</p>

Kent Downs AONB Unit comment	National Highways response
<p>all land within the AONB. This is likely to result in the loss of significant amounts of mature vegetation which currently helps mitigate the impact of the A2 as well as HSI infrastructure on the landscape. As such reference to the potential for adverse effects on the AONB (in addition to its setting) should be included at paragraphs 8.8.1 and 8.8.2.</p>	
<p>Given that a significant amount of tree cover in this locality comprises Ash, it will be important that the likely impacts of ash die back disease is fully taken into account in assessing the visual impact of the proposal.</p>	<p>Ash dieback has been considered in the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).</p>
<p>At 8.9.2 a number of potential mitigation measures are proposed. In addition to mitigation, it would be appropriate for compensation to be made available. Compensation would not offset harm to the AONB;- damage to the AONB and its setting cannot be substituted by other means. Such an approach would be consistent with the Kent Downs AONB Management Plan Policy SD12. This requires essential transport and infrastructure schemes to, amongst other things, provide environmental compensation by benefits to natural beauty elsewhere in the AONB. The level of compensation should be commensurate with the significant level of harm. Compensation provided by National Grid in respect of the installation of a gas pipe through a 41 km length in the Cotswold AONB exceeded £1m, which represented approximately 1% of the cost of construction. This contributed towards wider mitigation measures in the AONB including dry stone walling grants and funding for community and climate change projects. The impact of this scheme was a temporary one due to the undergrounding of the pipe. Given the permanent harm that would result in the Kent Downs AONB as a result of the proposed highways infrastructure, the Executive would expect a commensurate amount of compensation.</p>	<p>In accordance with the NPSNN hierarchy, opportunity to avoid, reduce (mitigate) and compensate has been followed with regard to the design of the A2 and the M2/A2/Lower Thames Crossing junction.</p>
<p>With regards to the Traffic Forecasting as set out at Section 2.19, we consider it inevitable that the provision of a route further east than the existing one, connecting directly to the A2/M2 will result in a significant shift in traffic heading southwards into Kent, including Dover Port and Channel Tunnel traffic. This is likely to result in a significant increase in traffic using the A229 (Bluebell Hill) and choosing the M2/A2 over the M20. It could also potentially impact on the A260.</p>	<p>National Highways acknowledge the concern raised by Kent Downs AONB Unit. The Traffic Forecasts Non-Technical Summary (Application Document 7.8) Plates 5.7, 5.8 and 5.9 presents the forecast percentage change in flow as a result of the Project, and an increase is indicated along the A229.</p>
<p>The A229 Bluebell Hill cuts directly through the North Downs escarpment and with the exception of a small section at the southern end, lies within the Kent Downs</p>	<p>Any future development of the A229 would be subject to the requirements of the National Planning Policy Framework if</p>

Kent Downs AONB Unit comment	National Highways response
<p>AONB. The route is predominantly a dual carriageway although a proportion of the northern bound carriageway comprises three lanes. The road is already often congested, and it is considered inevitable that there will be increased traffic using this route. It has previously been advised that the widening of this route is not required as a result of the new LTC, and that traffic modelling demonstrated that route choice between the two Thames crossings would not be directly influenced by an upgrade to the A229. We are concerned however that there will be future pressure for this route to be widened in response to increased traffic flows. Indeed, it was suggested in National Highways’ consultation last year that further consideration to this link would be considered separately 'as part of Highway's England's ongoing route planning'. Upgrading of this route would have significant impacts on the Kent Downs AONB.</p>	<p>developed by Kent County Council, or the National Policy Statement for National Networks if developed by National Highways. Both of these policy frameworks only allow for development in exceptional circumstances and where it can be demonstrated that it is in the public interest.</p>
<p>There are also likely to be implications for the M2/A2 which forms the northern boundary of the AONB for much of its length between Rochester and Faversham and passes through a significant length of the AONB south of Canterbury. From Junction 4 of the M2 the carriageway reduces to two lanes and sections further south on the approach to Dover are only single carriageway. As such, increased use of the M2/A2 is likely to result in capacity issues, leading to potential future pressure for works to this route as well as potential increase for services, lorry parks etc. which would all impact on the Kent Downs AONB. A significant increase in traffic could also impact on tranquillity as this road passes through/adjacent to the AONB.</p>	<p>Please refer to the Combined Modelling and Appraisal Report (Application Document 7.7) and the Transport Assessment (Application Document 7.9). Impacts on perceived tranquillity have been assessed and a series of baseline landscape noise surveys have been undertaken at key locations where the defining characteristics include a perceived level of tranquillity. These locations and survey durations were discussed with stakeholders and include locations within the Kent Downs AONB and within its setting, locations adjacent to the River Thames, and within Orsett Fen. Locations are identified on ES Figure 7.6: Landscape Tranquillity Baseline Noise Survey Locations (Application Document 6.2) and noise results summarised in ES Appendix 7.5: Local Landscape Character Baseline. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1) for results of the assessment.</p>

29 Shorne Parish Council

Table 29.1 Shorne Parish Council

Shorne Parish Council comment	National Highways response
Main Points	
<p>The EIA Scoping report document is very long and detailed, and highly technical in parts. We were surprised that the EIA is being undertaken after the route decision rather than prior, as would normally have been expected to be the case.</p>	<p>Environmental impacts were an important consideration in making the route decision and a comprehensive EIA was undertaken on the proposed route, which is the normal approach.</p>
<p>It is difficult to properly evaluate a changing proposal, where detail of changes already made have not been provided to us, and where meetings are referred to having occurred to which we were not invited. The junction with the A2, the design of which is a major concern for us due to the large loss of land adjacent to/within an AONB, appears to have been modified but we have not seen proper drawings.</p> <p><i>Parish Councils and other local community representative groups should be key consultees and provided with the same information, simultaneously as that provided to other consultees.</i></p>	<p>Shorne Parish Council is a prescribed consultee for the Project and has been consulted during the pre-application stage. Engagement with Shorne Parish Council has been ongoing since 2017 during formal Statutory, Supplementary and Design Refinement Consultation as well as through numerous meetings, on key aspects of the Project. Shorne Parish Council has provided valuable feedback as the design has developed.</p>
<p>The documents refer to a “Decision Maker” or otherwise a Secretary of State, but do not say which one. From previous documents it has been said this is to be the Secretary of State for Transport. This would mean that the Secretary of State for Transport is to give himself permission to damage/destroy land, including SSSI’s. This does not seem appropriate.</p> <p><i>The Parish Council considers that the decisions as regards Environmental adverse effects might be better managed independently of the department causing the damage.</i></p>	<p>The Planning Inspectorate will examine the DCO application on behalf of the Secretary of State for Transport. This is done in a fair, open and timely way.</p>
<p>The document reviews the history of the project. Since this process started in 2009, with traffic data and forecasting programs being even older, traffic volumes in the area have increased enormously. Many local residents believe that the location is unsuitable as traffic volume locally is too high for it to work. Options which were dismissed early on may now be viable or more advantageous than that presently proposed. The decision to use a tunnelled river crossing removes some constraints</p>	<p>Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) which discusses option selection.</p>

Shorne Parish Council comment	National Highways response
<p>over location. These kinds of large projects, with decisions made sequentially, can go off on a tangent away from reality.</p> <p><i>The previously discarded options D and E, and others further east, as well as a crossing at Dartford, should be revisited with up to date traffic figures and forecasting programs so as to verify that C is still the optimal location.</i></p>	
<p>The document reviews the project objectives. The project objectives have been altered over time and become less linked to the actual problems at the Dartford Crossing, particularly as regards south to north flow of traffic already on the M25 travelling anticlockwise.</p> <p><i>The objectives should be reviewed and updated to reflect the actual traffic problems, and for it be verified that location C will optimally solve them rather than another crossing elsewhere including at Dartford.</i></p>	<p>The various issues driving the need for the Project have informed the development of the Scheme Objectives. Please refer to ES Chapter 2: Project Description (Application Document 6.1) and ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1).</p>
<p>The project has been expanded to include widening a section of the A2, required to make the project function. There are other junctions and required enabling works that need similar attention, particularly the A229 and its junctions with the M20 and M2, and the junctions of the M25 to M20 and A2 both anticlockwise to eastbound, which are not free-flowing. The project also needs to address the questions of how unsuitable traffic is to be prevented from using the A227 and A228 and other routes through villages.</p> <p><i>Works to enable free-flowing traffic in all directions of travel at the M25 junctions with the M20 and M2 need to be evaluated and included in the project as does means to prevent unsuitable traffic using the A227 and A228 to reach the LTC and to protect other unsuitable routes and village areas from excessive and inappropriate traffic.</i></p>	<p>National Highways acknowledge the concerns raised by Shorne Parish Council. The Traffic Forecasts Non-Technical Summary (Application Document 7.8) Plates 5.7, 5.8 and 5.9 presents the forecast percentage change in flow as a result of the Project, and an increase is indicated along the A229.</p> <p>Any future development of the A229 would be subject to the requirements of the National Planning Policy Framework if developed by Kent County Council, or the National Policy Statement for National Networks if developed by National Highways. Both of these policy frameworks only allow for development in exceptional circumstances and where it can be demonstrated that it is in the public interest.</p> <p>The Outline Traffic Management Plan for Construction (Application Document 7.14) provides details of traffic management measures during the construction phase.</p>
<p>The various assessment criteria are almost entirely subjective, being “value judgements” (as in critical, common parlance) and not based on data or hard evidence. We do not agree with various of them, in some cases we strongly disagree.</p>	<p>The EIA has been undertaken in accordance with the DMRB standards and by suitably qualified and</p>

Shorne Parish Council comment	National Highways response
<p>The value people living in an urban zone, or an area where building is threatened, place on their adjacent open and green spaces, and their concern about its loss, will be high.</p> <p><i>Subjective assessments should be avoided, care is needed in validating the results and describing significance to the outputs.</i></p>	<p>experienced experts. Please refer to ES Appendix 1.1: Competent Expert Evidence.</p>
<p>The document describes many good aims around environmental protection, but we have concerns about how these will be transformed into reality.</p> <p><i>The project needs to deliver the environmental outcomes that are specified, there need also to be firm plans for remedial actions if it does not.</i></p>	<p>Each ES topic chapter provides a series of mitigation measures. Embedded mitigation is shown on ES Figure 2.4: Environmental Masterplan (Application Document 6.2) and essential and good practice mitigation commitments can be found in ES Appendix 2.2: CoCP. These commitments would be secured through the CoCP, a certified document.</p>
<p>The present red line boundary effectively severs the area into quarters. There is major severance of communities, of the urban area from the rural, of many footpaths, a bridle path and long-distance cycle path, and access to farmland access etc. This will be a major issue south of the river Thames.</p> <p><i>Severance south of the river Thames should be discussed as a separate topic.</i></p>	<p>Severance is assessed as part of Health and Equalities Impact Assessment (Application Document 7.10) and ES Chapter 13 Population and Human Health (Application Document 6.1).</p>
<p>Effect of the project on climate change is mentioned but we could not find anything discussing the local weather conditions (Estuarine weather may differ from the rest of the South East) and how this will influence the project, we would specifically mention the amount of rainfall, and hence contaminated water run-off that will need to be contained and neutralised; sea fogs; strong winds; and problems with ice and snow given there will be a 2km long incline at 4%.</p> <p><i>There should be discussion of local weather conditions, their severity and effect on design and operational aspects.</i></p>	<p>The EIA has been undertaken in accordance with the DMRB standards and aligns with the requirements of the NPSNN and EIA Directive.</p> <p>Please refer to:</p> <ul style="list-style-type: none"> • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) for the assessment of runoff and contaminated water. • ES Chapter 15: Climate (Application Document 6.1) for the assessment of climate and the vulnerability of the Project to climate change.
<p>Green Belt designation is mentioned in the document (never with capital letters) but not discussed as a discrete topic or shown on maps. While infrastructure projects may not consider Green Belt as a constraint on their proposals, that is not usually the understanding of the general public, and its potential loss is a matter of great</p>	<p>Implications of the Project on Green Belt has been considered in the Planning Statement (Application Document 7.2) submitted with the DCO application.</p>

Shorne Parish Council comment	National Highways response
<p>importance to many nationally and locally. In North West Kent, The Green Belt to the west of Gravesend has already been lost, and this proposal will slash through the anyway narrow remaining part to the east of Gravesend. The Parish Council together with others have expended considerable energies defending and protecting the Green Belt locally from development only to now see its destruction cavalierly proposed.</p> <p><i>Green Belt loss should be discussed as a specific item.</i></p>	
<p>Non-motorised users are not mentioned in connection with the proposed LTC location, yet it would be an obvious route linking to the existing long-distance cycle routes and Coastal Path.</p> <p>Linking bus routes would be desirable.</p> <p><i>We would like to see proposals that cater for non-motorised users to use the LTC brought forward in the plans.</i></p>	<p>Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1) for information on walkers, cyclists and horse riders (WCH). The Transport Assessment (Application Document 7.9) also considers interaction of the Project with both WCH and bus routes.</p>
<p>Recreational and other areas contain lakes that are wildlife sites, these need to be retained.</p> <p><i>The effects of the project on nearby lakes (e.g. at the Inn on the Lake Hotel which is very near to the A2 junction) need to be discussed.</i></p>	<p>Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
<p>The water table is high, and flooding and flood defences are an issue as they need enhancing. There was discussion in earlier documents about enhancing flood defences along with the project, but it is not clear how this can be achieved with the present proposals.</p> <p><i>We would like to see more detail of how flood defences will be enhanced.</i></p>	<p>Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and ES Appendix 14.6: Flood Risk Assessment.</p>
<p>Air Quality Monitoring, Noise and Vibration</p>	
<p>Existing monitoring positions relate to the former alignment of the A2. Although the AQMA was repositioned in 2011 after the A2 was realigned, the monitoring was not altered. There is only one fixed monitoring station, which remains in its original position (near Painters Ash school). All the other existing monitoring points are NO₂ tubes. These are known to be inaccurate, and the figures obtained from them are manipulated (downwards) many times before being declared correct. There are no monitoring positions east of Marling Cross (Nell’s Café), and none that relate to SSSI’s or recreational areas, e.g. alongside the A2, for which the regulatory limits are lower than for residential properties.</p>	<p>The air quality baseline has been established using local authority monitoring results, automatic monitoring results, National Highways monitoring results as well as a series of Project specific monitoring results.</p> <p>Please refer to ES Chapter 5: Air Quality (Application Document 6.1), ES Appendix 5.2: Air Quality Baseline Conditions and ES Figure 5.4: Air Quality Monitoring Sites (Application Document 6.2) for locations of the monitoring undertaken for the Project.</p>

Shorne Parish Council comment	National Highways response
<p><i>Air Quality monitoring needs to be undertaken by fixed type monitoring and at locations actually related to the overall traffic route, being repositioned if needed. We would suggest additional monitoring on both sides of the road at Ashenbank Wood: Shorne Woods, at the Inn on the Lake hotel, at Boughurst Cottage, at Park Pale, and at the top of the rise of the M2 westbound from the River Medway. The lower regulatory limit for SSSI’s needs to be borne in mind. Manipulations of data must be transparent and justified.</i></p>	
<p>The new crossing route will cause changes in traffic volumes and types on other roads as traffic will use these to access the crossing, air quality on these routes also needs to be monitored.</p> <p><i>Air quality monitoring should also be undertaken on other routes which will experience increased traffic volumes and where there are communities residing close to roads. We suggest this will be relevant on the A227 and A228, and also the A229.</i></p>	<p>A Project specific air quality monitoring survey for nitrogen dioxide has been conducted at sites along the A228 and A229. The initial monitoring survey was conducted throughout 2018 and sites were later added in response to an increased understanding of the air quality baseline conditions. Local authority air quality monitoring data has also been collected for sites along the A227, A228 and A229.</p>
<p>The new LTC route will feature a 2km long 4% slope. There will also be a long slope from the LTC junction with the A2 to the Shorne: Cobham turn off, as well as there being a long slope from the River Medway to there. It is known that traffic, particularly diesel and HGV’s, emit significantly more pollutants when on slopes than when on the flat.</p> <p><i>Calculations of predicted Air Quality changes must factor in that there are junctions and significant slopes and not be based, as presently, solely on completely horizontal lengths of road.</i></p>	<p>The air quality modelling is undertaken in accordance with best practice to determine whether there are likely to be any exceedances of air quality thresholds. Please refer to ES Chapter 5: Air Quality (Application Document 6.1).</p>
<p>Existing monitoring shows large inter-day variation.</p> <p><i>Baseline monitoring, including at increased locations, must be of sufficient duration to produce representative results.</i></p>	<p>An additional survey was undertaken to address gaps in air quality monitoring data within the vicinity of roads likely to be affected by the Project. Please refer to ES Appendix 5.1: Air Quality Methodology for the full details of diffusion tubes installed in the study area. The locations of these monitoring sites are shown in ES Figure 5.4: Air Quality Monitoring Sites (Application Document 6.2).</p>

Shorne Parish Council comment	National Highways response
	All of the sites were adjusted to 2016 base year following the procedure outlined in ES Appendix 5.1: Air Quality Methodology.
<p>The significant effect criteria assessments (Table 6.5) are not appropriate or valid in rural areas with few properties. <i>The assessment method should be altered to produce outputs in terms of % of properties affected.</i></p>	<p>The air quality assessment has been undertaken in accordance with DMRB LA 105. The criteria is not adapted based on the size of the Project or the number of receptors within the study area.</p>
<p>Traffic on the new route is already forecast to rise in the years after opening so the effect of the scheme should be assessed with predictions of further deterioration in air quality over time. <i>Assessments should be made for years further into the future and not just for the opening year.</i></p>	<p>Traffic data used in the assessment were obtained from the Lower Thames Area Model (LTAM), developed by National Highways. Traffic flow forecasts were derived using the Simulation and Assignment of Traffic in Urban Road Networks (SATURN) software and were converted into the format required for the air quality assessment. The opening year will be worst case in terms of impacts on air quality due to cleaner vehicles entering the fleet. This demonstrated by the fact that total emissions of the key traffic related pollutants NO_x and PM₁₀ are lower in the design year (2045) compared to the opening year (2030).</p>
<p>Noise and vibration nuisance will be introduced into areas where there is none presently or added to existing. This will (further) reduce the amenity of the areas affected. We would particularly flag up the absence of useful noise attenuation presently for the A2 around the area of the LTC junction with the A2, and also for the Shorne Woods Country Park. <i>Poor noise attenuation in the LTC:A2 junction area should be corrected and noise reduction measures introduced/increased.</i></p>	<p>Please refer to ES Chapter 12: Noise and Vibration (Application Document 6.1) for the noise assessment and details on noise mitigation proposed. The route of LTC is proposed to be surfaced with a low noise surface that has better noise reducing properties than a conventional low noise surface. This will help to minimise the impact of LTC along the new alignment and junctions with the existing road network. Proposed noise barriers are shown in ES Figure 2.4: Environmental Masterplan (Application Document 6.2) and ES Figure 12.7: Operational Road Traffic Noise Mitigation (Application Document 6.2).</p>
<p>The noise important areas do not include other noise receptors close to the A2, e.g. Boughurst Cottage or the Harlex yard.</p>	<p>Sensitive receptors outside of Noise Important Areas (NIAs) are included within the assessment and treated equally in terms of assessment and consideration of</p>

Shorne Parish Council comment	National Highways response
<p><i>All relevant properties close to the route need to be included in noise mitigation measures.</i></p>	<p>mitigation. Boughurst Cottage is listed as receptor CN5 in ES Appendix 12.4 (Application Document 6.3). The Harlex yard does not qualify as a noise sensitive receptor under DMRB LA111.</p>
<p>There is discussion about noise from ventilation towers and plant. With the presently suggested tunnel portal location many residential properties, St Mary’s Church (Chalk) and the Gravesend Crematorium could all be badly affected. Vibration during construction and operation would also badly affect the same areas.</p> <p><i>We would like to see the tunnel portal location discussed in terms of impact on Chalk (and subsequently moved southwards).</i></p>	<p>As shown in Supplementary Consultation materials in 2020, the southern entrance has been relocated approximately 350m to the south to significantly reduce potential adverse impacts on the Thames Estuary and Marshes Ramsar and Special Protection Area. Changes to the M2/A2/Lower Thames Crossing junction enabled this, which has been moved further away from the residential area of Chalk.</p>
<p>The North Kent Marshes ecosystem and other water issues</p>	
<p>The North Kent Marshes ecosystem comprises, from west to east, areas of increasingly high environmental protection designated, from Green Belt via SSSI to Special Protection Area to RAMSAR site. The Marshes interconnect, particularly in terms of their water supply. The proposed crossing has potential to damage the Marshes in a variety of ways, both directly and indirectly.</p> <p><i>We would like to see evidence of understanding that the North Kent Marshes are a single, internationally important entity, an interconnected ecosystem whereby damaging one part damages the entirety.</i></p>	<p>The interrelationships are recognised by the Project and are assessed between ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>
<p>The overall water supply to the marshes comes from two directions: freshwater drains northwards from the lands to the south and water from the tidal River Thames permeates southerly with some salinity, variably through the chalk and alluvium depending on the tides. On drawing 14.1, sheet 1/5 this is shown as culverted. We are not certain that is genuinely the case but rather believe that it is an underground river/stream. In either circumstance the LTC alignment and adjacent permanent land take coincides with a considerable length of this water course and physical drainage area, which would effectively remove the main water supply to the marshes: once in the marshes, the water flows from west to east through the ditches as “rivers”.</p>	<p>Field testing was undertaken to enable an understanding of the interactions between surface and groundwater to inform the assessment of effects on sensitive sites including the Thames Estuary and Marshes Ramsar site. Groundwater modelling studies, ground investigations, pumping tests and topographical channel surveys were undertaken, as well as a water balance study. For the full assessment and mitigation measures please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>

Shorne Parish Council comment	National Highways response
<p><i>The importance of the water supply to the marshes must be recognised, included in the relevant hydrology sections. Plans must be included to ensure the water supply is not compromised but is protected and safeguarded.</i></p>	
<p>Sectional drawings have not been included in the scoping application document, the most recent shared with us showed the tunnel rising very close to the surface of the marsh and therefore leaving the chalk layer and invading into alluvial clay layers. This breach would affect the drainage in that area by increasing permeability and potentially lead to drying out. <i>The tunnel vertical alignment must be revised to ensure that it remains well inside the chalk layer and does not rise to the surface under the marshes.</i></p>	<p>A programme of intrusive ground investigation works was carried out in two phases to help develop the reference design and, where data has been available, support the core assessments of the DCO. Phase 1, completed between September 2017 – February 2018 and September 2018 – January 2019, was focused on the alignment of the Tunnel and the areas surrounding the proposed North and South Portals.</p> <p>The proposed tunnel and tunnel structures have a varied limit of deviation, please refer to the Tunnel Limits of Deviation (Application Document 2.15). The tunnel is not wholly within the chalk layer under the marshes, however assessments have been made to confirm the potential impact of this on the groundwater and habitats of the marshes. Please refer to ES Chapter 9: Marine Biodiversity (Application Document 6.1).</p>
<p>The documentation refers to the tunnel portal as being below the groundwater level, this will require considerable dewatering both during and after construction. <i>We are concerned about the possibility of dewatering in the marshes supply areas and for agricultural areas adjacent. We would like to see an explanation of what will be the consequences in practice and how these will be mitigated locally.</i></p>	<p>The southern tunnel portal has now been moved further south, which means it is now above the chalk groundwater level. However, the chalk aquifer that feeds fresh water to North Kent Marshes is an important receptor considered in the road drainage and water environment assessment. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>
<p>The drawing Figure 14.5, sheet 2/5 shows four water abstraction points close to the tunnel route. <i>There needs to be discussion of what these water abstraction points are presently used for, whether such use will be compromised, and how the use will be maintained during construction and then subsequently.</i></p>	<p>Information regarding existing water abstractions is provided in ES Appendix 14.2: Water Features Survey, and impacts on water abstraction points are considered in the road drainage and water environment assessment. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>

Shorne Parish Council comment	National Highways response
<p>The LTC south of the Thames will have a 4% incline for 2km of road surface, this will create a very large volume of contaminated water run-off, which must not be allowed to reach the marshes. <i>We want to see more explanation of how this contaminated water is to be contained and treated to ensure that routinely, and in high volumes of rainfall, there is no possibility of contamination.</i></p>	<p>The pollution potential for road drainage south of the Thames has been subject to detailed assessment and treatment measures are embedded into the design to ensure no detriment to the receiving water environment. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) and its Appendix 14.5: Hydrogeological Risk Assessment.</p>
<p>The North Kent Marshes Internal Drainage Board (hosted by Medway Council) has responsibilities for the water balance of the protected marsh areas. <i>While they have been consulted once recently, there needs to be much closer liaison and discussions about how the marshes ecosystems are to be protected.</i></p>	<p>North Kent Marshes Internal Drainage Board has been consulted on the proposed drainage strategy as well as the ground investigation work associated with the Project.</p>
<p>Dealing with and understanding the effects of the project and the threats it poses are made very difficult by the issues being divided into many different chapters. <i>It would be beneficial for understanding risk to specific areas such as the North Kent Marshes and affected areas of AONB for there to be discussion which is receptor based rather than threat based.</i></p>	<p>The North Kent Marshes are included as an important receptor in the road drainage and water environment assessment. Please refer to ES Chapter 14: Road Drainage and the Water Environment and in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
<p>During construction there will also be other contamination threats from the tunnelling and boring itself, such as creation of routes of flow of contaminated waste materials. <i>We are also concerned about how the water of the marshes will be protected from contamination arising during the tunnelling.</i></p>	<p>Several protections against pollution during the tunnelling process are secured within the DCO Application.</p>
Landscape and other environmental issues	
<p>During the 2016 consultation the project was sold to the public with a bucolic “artists impression” (see below). Since then it was first hinted, then stated that the tunnel and link road will be three lanes each way, and that a long section of the A2 will be widened to five lanes each way as part of the project. The scoping document similarly tells us that there “could” be a 25m high ventilation tower and plant, an escape route for prohibited vehicles and an access route for emergency vehicles (both to and from which road?), crossing offices/control/service building and parking, pumping stations, cameras, signalling gantries, firefighting water storage etc. The LTC route is close to and affecting the setting of an Area of Outstanding Natural Beauty (particularly affected by the now massively sprawling A2 junction), listed buildings and the amenity</p>	<p>Please refer to Section 3.5: Structures in the Design Principles (Application Document 7.5), which describes the design principles of the structures and ES Figure 2.4: Environmental Masterplan (Application Document 6.2) which details and illustrates the location of the structures and the proposed landscaping around them.</p>

Shorne Parish Council comment	National Highways response
<p>of a considerable population. The ventilation tower threatens to pollute the North Kent Marshes and the lives of local residents.</p> <p><i>We think it is reasonable to expect there to be explicit information about the intended associated structures and detailed discussion of how these will be camouflaged in the landscape, what the environmental effects will be etc.</i></p>	
<p>The “red line boundary” has recently been extended but no explanation has been given in the documents as to the reasons. Equally, although the A226 junction has been deleted (for which we are very grateful), a large area of land is still shown there as being permanently taken.</p> <p><i>We would like to see an explanation and details of why land is being permanently taken.</i></p>	<p>Please refer to the Statement of Reasons (Application Document 4.1) which details the land required to be permanently acquired for the Project and why.</p>
<p>There is a large network of footpaths, bridleways and cycle tracks etc in the affected area, including the Gravesham “Green Grid”, these are being severed by the LTC route.</p> <p><i>We would like to see more information about how walking routes are to be maintained, both during and after construction in a way that retains and potentially enhances their amenity for users.</i></p>	<p>Impacts to WCH have been assessed, as reported in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
<p>There are lakes at the Inn on the Lake hotel which will be very close to the A2 junction.</p> <p><i>Water features close to the LTC must be discussed as to how they will be protected, and their water supplies safeguarded.</i></p>	<p>Water quality is considered in the road drainage and water environment assessment. Please refer to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).</p>
Cultural Heritage	
<p>There is no mention of the Victorian rifle targets at the firing range, or the former Gravesend Airport/RAF Gravesend.</p> <p><i>Need to ensure all historical sites/assets are included, there may be increased risk of unexploded ordnance.</i></p>	<p>The risk of unexploded ordnance (UXO) has been considered in ES Chapter 10: Geology and Soils (Application Document 6.1).</p> <p>Milton Rifle Range and the site of Gravesend Airfield (the former RAF Gravesham) have been considered as part of the cultural heritage baseline. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>

Shorne Parish Council comment	National Highways response
<p>The North Kent Marshes are part of the Cultural Heritage of the area, their ditch pattern is almost unchanged since it was mapped in 1694. <i>The Cultural Heritage importance of the Marshes must be recognised in the documents.</i></p>	<p>Marshland is recognised and assessed as part of the cultural heritage baseline. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>
<p>There is a significant history of Roman occupation in the area and it is highly likely that there may be archaeological finds. <i>Finds should be fully characterised and photographed, to be available on-line. Finds should be held by local museums and not taken off to distant Universities.</i></p>	<p>Trial trenching for sensitive areas has been completed. The assessment of buried archaeology in ES Chapter 6: Cultural Heritage (Application Document 6.1) has been undertaken on a robust and precautionary basis. Trial trenching for sensitive areas has been completed. The assessment of buried archaeology in ES Chapter 6: Cultural Heritage (Application Document 6.1) has been undertaken on a robust and precautionary basis. Further trial trenching will continue after the submission of the DCO application, for completeness, and enabling works would not take place until that is completed. Please refer to ES Appendix 6.8: Trial Trenching Reports. Finds to date are being shared with stakeholders and will be catalogued.</p>
<p>The overall landscape is of cultural significance as Charles Dickens lived in and wrote about the area. <i>Literary connections should be included.</i></p>	<p>Features relating to Charles Dickens, such as the commemorating plaque of a visit to 1 Chalk Road (listed building) have been included as part of the baseline for the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).</p>
<p>The marshes have not been identified as very high value historic landscape, but we believe that to be incorrect. The assessment should be revisited.</p>	<p>A Historic Landscape Characterisation (HLC) study has also been undertaken and is presented in full in ES Appendix 6.1: Desk-Based Assessment. The marshes have been considered as medium value due to character type’s rarity and importance regionally as a landscape character type. The value assigned has followed the requirements within DMRB LA 2014 Environment assessment and monitoring, which describes medium as <i>“medium or high importance or rarity, regional scale, limited potential for substitution”</i>.</p>

30 Surrey County Council

Table 30.1 Surrey County Council

Surrey County Council comment	National Highways response
I have had a look at the Scoping Report, and the proposed development is unlikely to have an impact upon the highway network within Surrey. On this basis, I can confirm that we do not have any comments to make on the Scoping Report.	Noted.

31 Thurrock Council

Table 31.1 Thurrock Council

Topic	Thurrock Council comment	National Highways response
Overall Comment	<p>The Council strongly requests that a Health Impact Assessment (HIA) is required and that this is completed in relation to this proposed development, to ensure that any negative consequences of the development are identified and mitigated and that opportunities for improving the well-being of the community are maximised. We note that an Equalities Impact Assessment is being undertaken as a separate assessment. We have also noted that precedents have been set by several NSIP developments such as the Silvertown Tunnel and the A14 have had health impact assessments completed as part of their applications.</p>	<p>A Health and Equalities Impact Assessment (Application Document 7.10) has been completed and submitted as part of the DCO application.</p>
	<p>The Council has major concerns regarding the proposed junction with the A13 and the A1089. This is likely to be significantly elevated, which would be very prominent in the landscape. The elevation in combination with the complex arrangement is also likely to cause adverse visual effects, worsen air quality and increase noise levels significantly. As noted in the Cultural Heritage comments below, the junction is also located on a nationally significant Scheduled Monument, and therefore the construction of this junction would have direct effects on (through the removal of) the scheduled monument. The significant adverse effects caused by this junction will need considerable mitigation e.g. tunnelling to ensure the effects are reduced and the introduction of the junction is acceptable. In addition to the strategic routing model for traffic across the region,</p>	<p>ES Chapter 7 Landscape and Visual (Application Document 6.1) describes the assessment of visual impacts, including in the locality of this junction.</p> <p>Please refer to ES Figure 12.7 (Application Document 6.2) which shows where acoustic barriers have been incorporated into the operational design. ES Chapter 5: Air Quality (Application Document 6.1) does not report any significant effects.</p> <p>The impact of the Project on scheduled Orsett cropmark complex has been fully assessed as part of ES Chapter 6: Cultural Heritage (Application Document 6.1).</p> <p>Detailed information on traffic modelling is provided within the Combined Modelling and Appraisal Report (Application Document 7.7).</p>

Topic	Thurrock Council comment	National Highways response
	<p>we expect National Highways to undertake a detailed micro simulation of this new junction and the local road network, to prove that the full impacts have been understood, and that it represents a workable solution compared to all other alternatives.</p>	
	<p>The Council would like to better understand National Highways consideration for a new direct spur into Tilbury, and the respective role of the current A1089. This new spur would re-route all of the Port of Tilbury traffic south of the town rather than through the town on the A1089. This new spur that National Highways have now included in their proposal, would introduce new residential receptors to air quality issues and expose new parts of the town to noise. This fails to recognise the ambition of the Council to better link Tilbury with the river. In addition to the strategic routing model, we expect National Highways to undertake a detailed micro simulation of the proposed road changes, to understand the impact on the local road network and the implication of changes to the local roads following any de-trunking.</p>	<p>The Project no longer includes a Tilbury link.</p>
	<p>The Council has key concerns regarding the adverse visual, noise and air quality effects that are likely to result from the Lower Thames Crossing. The Council therefore believes that National Highways should evidence how and why it has chosen not to provide a tunnel beneath Thurrock, as this would alleviate these effects.</p>	<p>A detailed explanation of why a tunnel wasn’t provided beneath Thurrock was provided at a Task Force Meeting in early January 2020 and is fully explained in ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1). The EIA considered potential visual, noise and air quality effects likely to be caused by the Project, and appropriate mitigation has been proposed.</p>
	<p>The wider impact on Thurrock’s socio-economic mix has not been considered, for example the effect on housing delivery and how a Lower Thames Crossing will impact on future growth and investment. The existing and emerging Thurrock Local Plan sets out the basis on</p>	<p>The EIA considered community and socio-economic impacts thoroughly, in accordance with the NPSNN requirements. The assessment work for ES Chapter 13: Population and Human Health (Application Document 6.1) was completed in parallel</p>

Topic	Thurrock Council comment	National Highways response
	<p>which growth is planned, to balance the opportunities of growth in homes and jobs. The visual and aesthetic aspects of the development alone will affect the monetary value of residential neighbourhoods which in turn will lower house values, which could ultimately change the social mix by reducing higher income groups (those who can afford to choose where they live are discouraged from settling in the borough). Also, there may be an impact on future development, as developers will not build homes for higher income groups as there will be no demand. Mixed and balanced communities are an essential component otherwise unfair disadvantage is based on the borough, for example deprived communities place greater demand on healthcare services and current local skill shortages will become worse. An increase and improvement in open and greenspace that is restorative and relaxing must compensate the scheme to ensure Thurrock remains a desirable place to live and proposals are needed in this regard. As the new Local Plan is progressed, the Council requests that an additional and standalone socio-economic study is undertaken to assess in detail the impact the Lower Thames Crossing would have on the Borough.</p>	<p>with the Health and Equalities Impact Assessment (Application Document 7.10).</p>
<p>Chapter 1 Introduction and Chapter 2 The Project / General</p>	<p>The initial chapters reflect the current existing knowledge of the proposed project. The proposed scheme is continuing to evolve, and therefore it is essential the Council understand the reasoning for changes and is genuinely consulted on changes to the Scheme design. National Highways should also give the Council the opportunity to inform the ongoing changes to the project design. Significant changes are being made by National Highways to the current preferred</p>	<p>Thurrock Council has been consulted throughout the pre-application phase. Route selection information is contained in the Planning Statement Chapter 4 Project Evolution and Alternatives (Application Document 7.2). ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) and the Project Design Report (Application Document 7.4) contains information on design evolution.</p>

Topic	Thurrock Council comment	National Highways response
	route that are in advance of any robust published traffic model, and therefore this appears to be occurring without a clear foundation i.e. it is unclear how National Highways are arriving at the decision for Route 3 as opposed to Route 4, and in turn how they are making significant changes to Route 3, in advance of an approved traffic model. This leads to significant concerns over the validity and robustness of their preferred route.	
Chapter 1 Introduction / Section 1.2.8	The Council wants to understand how the new crossing would open opportunities for regeneration in addition to how the crossing will benefit the local community.	The Need for the Project (Application Document 7.1) includes information on the benefits of the Project to the local and regional economy including opportunities for regeneration.
Chapter 1 Introduction / Section 1.3.1	Under 'Project Objectives', there is a clear objective for the Environment and Community to minimise adverse impacts on health and the environment, yet no suggestion has been made that there will be a full health impact assessment undertaken as a separate chapter or as a standalone assessment. This project objective will not be achieved without this.	A Health and Equalities Impact Assessment (Application Document 7.10) has been submitted with the DCO application. ES Chapter 13: Population and Human Health (Application Document 6.1) summarises the impacts on human health described in the above document. The Need for the Project (Application Document 7.1) includes information on the benefits of the Project to the local and regional economy.
Chapter 1 Introduction / Table 1.3	National Highways need to demonstrate how the development would benefit the local economy of Thurrock and not just the regional economy.	
Chapter 2 The Project / Section 2.2.7	The Council wants to understand how the new junctions would be managed safely to reduce the number of road traffic accidents resulting from the new road network.	The new junctions have been designed in accordance with DMRB standards, the parameters within which have been developed to result in safe designs. Where it is necessary to vary these standards, risk assessments are undertaken to consider the safety of the designs. Furthermore, at key stages of the design process, the design has been audited by an independent team of road safety auditors.
Chapter 2 The Project / Section 2.5.1	National Highways need to consider the use of green bridges including foot bridges and underpasses. This	The Project design includes seven green bridges. The design has strived to minimise the loss of fen and marsh habitats, and

Topic	Thurrock Council comment	National Highways response
	not only creates a visually pleasing environment but may potentially work towards mitigating some of the air pollution that already exists as well as that possibly generated by the proposed development.	where any losses are likely to occur proposals are set out to enhance the retained habitat in addition to restoring surrounding areas/creating new habitat. The ecological mitigation measures for the Project focus on not only the provision of suitable habitats, but also the connectivity to other suitable habitats.
Chapter 2 The Project / Section 2.5.3	The report lists a number of new bridges, underpasses etc. but does not provide any detail as to which if any will be provided for public rights of way.	Please refer to the ES Figure 2.4: Environmental Masterplan (Application Document 6.2) and Design Principles (Application Document 7.5). In addition, the Rights of Way and Access Plans (Application Document 2.7) show any new or altered means of access, stopping up of streets or roads and any diversions, extinguishment or creation of rights of way.
Chapter 2 The Project / Section 2.6.1	The report states that the Lower Thames Crossing north of the Thames will be at grade or on embankments, though the Kent section will be in a deep cutting which is likely to lessen its visual effects. The reasoning for this will need to be clearly presented and fully justified. To assess the landscape and visual effects, National Highways need to provide plans showing which sections would be on embankments and which at grade.	Please refer to: <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Figure 2.4: Environmental Masterplan (Application Document 6.2) • Design Principles (Application Document 7.5)
Chapter 2 The Project / Section 2.6.1	The Council would like to see 3D visualisations for the Scheme to ascertain the visual impact, especially in regard to where the road will be on embankments.	
Chapter 2 The Project / Section 2.7	The proposed lighting design has not yet been finalised. This will be an essential component of any Landscape and Visual Impact Assessment (LVIA) as it is likely to have major effects if lighting is proposed on elevated sections across the Mardyke Valley.	
Chapter 2 The Project / Section 2.9	Non-Motorised User Provision - The statement recognises the need to ensure public rights of ways remain open by providing suitable crossing points	Please refer to ES Chapter 13: Population and Human Health (Application Document 6.1).

Topic	Thurrock Council comment	National Highways response
	and/or diversions. It will be vital that the studies take into account the closure of public rights of ways during the construction period, which is estimated to be 6 years.	
Chapter 2 The Project / Section 2.10	National Highways need to consider what the flood defences look like and their impact on accessibility to the river. Visual impact and access to nature can impact on health and well-being.	Please refer to: <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 13: Population and Human Health (Application Document 6.1) • ES Figure 2.4: Environmental Masterplan (Application Document 6.2) • Design Principles (Application Document 7.5)
Chapter 2 The Project / Section 2.11.2	Further clarification is required in relation to the potential detour route for over-sized vehicles in terms of where this is likely to be and how it will be safely managed. The council request an explanation on how this will impact on reducing the number of such over-sized vehicles still accessing the Dartford Crossing.	The height gauge of the tunnel is at least equivalent to the clearance of the other structures on the approach (e.g. overbridges). Therefore, there is no need for a specific height detection system for the tunnel, nor a route to extract and redirect over-sized vehicles at the tunnel portal. The tunnel would be suitable for all vehicle heights that can use the road network without special permission. Any vehicles exceeding that height would need to notify their journey in advance and they would need to use a high load route depending on their specific dimensions.
Chapter 2 The Project / Section 2.12	The construction of the tunnel under the Thames is likely to be from north or south. This would result in large areas of land east of the power station site being set aside for construction purposes. This is adjacent to the Two Forts Way recreational route. The material extracted during the tunnel construction is likely to be stored in this area which will have visual effects. The EIA will need to take into consideration the maximum proposed heights of stored materials plus heights of machines etc. being used during the construction. It is	Please refer to: <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 11: Material Assets and Waste (Application Document 6.1)

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	<p>also proposed that a substation will be required in this area. Again, the EIA will need to take the size of this into consideration. The Council would like to see the heights of the stockpiles, machinery, and substation. The final restoration of this area will need to demonstrate landscape and ecological benefits e.g. restoring the land immediately west of Coalhouse Fort as coastal grazing grass or wetland. In addition, the longer term the impact of the 25m chimneys at the tunnel mouths to filter air will create long term visual impacts.</p>	
<p>Chapter 2 The Project / Section 2.12.5</p>	<p>It is noted that consideration will be paid to the feasibility of using rail and river to transport materials during construction which will aim to reduce the level of transport by road. If found to be feasible it is possible that additional construction works will be required. This may include the construction of new jetty or modification of a new jetty, as well as new rail heads. Consideration of the potential impacts of the possible additional construction works needs to take into account a potential for increases in noise, air pollution and dust emissions.</p>	<p>Refer to ES Chapter 2: Project Description (Application Document 6.1) for full details of what has been included in the Project. No new jetty has been proposed. Further information on the transport of materials and construction traffic is provided in the outline Materials Handling Plan (Annex B of Appendix 2.2: Code of Construction Practice) and the outline Traffic Management Plan for Construction (Application Document 7.14)</p>
<p>Chapter 2 The Project / Section 2.14.4</p>	<p>Consideration of the mental health and wellbeing of landowners whose land falls within the design boundary (64 residential and 4 commercial properties North of the Thames) and may be acquired for building the new junction at the A13 needs to be investigated. Further information is required in relation to how this will be managed, and what will likely happen should landowners decline to sell their land/properties and potential impacts on their livelihoods; whilst the project will create new employment opportunities, the Council</p>	<p>These issues have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1) and the Health and Equalities Impact Assessment (Application Document 7.10).</p>

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	would like to see whether it is possible that it will damage existing ones.	
Chapter 2 The Project / Section 2.14.5	The report recognises that the scheme would have a direct effect on the Orsett Fen Open Access Area. It will be necessary for National Highways to ensure that there is connectivity and consider mitigation measures for landscape, ecology and water management that can be integrated to ensure that the historic fenland habitat can be recreated.	Please refer to <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1)
Chapter 2 The Project / Section 2.18	A residence scheme should be considered for those living in Thurrock and areas affected in Kent.	A Road User Charging Statement (Application Document 7.6) has been prepared to accompany the DCO application. The Lower Thames Crossing Assessed Case assumes that a Local Residents’ Discount Scheme (LRDS) would be offered. The Dart Charge offers heavily discounted charges to users who pay council tax to Dartford Borough Council or Thurrock Council. The DCO would allow the Secretary of State to enter into a similar discount arrangement, at the same rates as offered to Dartford and Thurrock residents on the Dart Charge, with residents who pay their council tax to Gravesham Borough Council or Thurrock Council.
Chapter 3 The Reasonable Alternatives Considered / General	The Scoping Report does not fully justify the reason Location C was chosen as the preferred route. The reasons provided focus on the Scheme objectives and cost, and do not take into consideration the effects on the environment / communities / Thurrock’s Strategic Growth Plans. The Council requests that full justification regarding the preferred route selection, which includes outlining a comparison of the environmental effects of each option to reach the decision on the preferred route, is provided in the ES.	Further information was provided in the post consultation Scheme Assessment Report (2016), and the Preferred Route Announcement was made in April 2017 by the Secretary of State. Route selection information is contained in the Planning Statement Chapter 4 Project Evolution and Alternatives (Application Document 7.2). ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) and the Project Design Report (Application Document 7.4) contains information on design evolution.

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Chapter 3 The Reasonable Alternatives Considered / General	The Council would like additional information on how the methodology of the sifting process, particularly how the objectives were weighted within the process.	
Chapter 3 The Reasonable Alternatives Considered / Table 3.1	We note that Option B was discounted due to severance, when the preferred route Option C creates severance throughout the borough of Thurrock	
Chapter 3 The Reasonable Alternatives Considered / General	The Council has major concerns over the route selection process and the fact that this was based on out of date traffic data. Further information should be provided by National Highways to document this process.	Please refer to ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1) and Chapter 4 of Need for the Project (Application Document 7.1) for information on the history of the Project and the route selection process.
Chapter 4 Consultation / General	Please provide a breakdown of the results of the consultation as part of the EIA document, in particular those from the local community of Thurrock.	This information can be found in the Consultation Report (Application Document 5.1)
Chapter 5 EIA Method / General	The Council agrees with the approach to EIA and inclusion of a Habitat Regulations Assessment (HRA).	The HRA (Application Document 6.5) has been submitted with the DCO application.
Chapter 5 EIA Method / General	It is a requirement of the new EIA regulations (Infrastructure Planning (Environmental Impact Assessment) Regulations 2017) to assess 'the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant to the development'. Therefore, under these new regulations National Highways should undertake sensitivity testing to assess unusual but not uncommon traffic scenarios due to major accidents, e.g. the closure of both crossings, and the impact this would have on traffic/transport, noise, air quality, people, and communities. This assessment should be presented within the ES and must recognise the impact of closures	<p>The ES has considered major accidents and disasters in accordance with the latest (2017) EIA Regulations. Potential for major accidents and/or disasters are either considered within the topic chapters (where there is a potential related environmental effect), or the design and mitigation measures of the Project are such that no significant risk of adverse effects is predicted. The full findings of the assessment are provided in the following:</p> <ul style="list-style-type: none"> • ES Appendix 4.2: Major Accidents and Disasters Long List • ES Appendix 4.3: Major Accidents and Disasters Short List

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	<p>to the crossing on the jobs and livelihoods across the borough.</p>	<p>A Regional Operating Centre would monitor incidents, linked into the wider network for diversions (M2/A2, M25, A13 and Lower Thames Crossing). If the tunnel is closed for long periods plans would be implemented to deal with emergency scenarios and clear incidents quickly.</p> <p>Noise and air quality assessments are based on the traffic modelling undertaken for the Project during normal operation. Please refer to ES Chapter 5: Air Quality and ES Chapter 12: Noise and Vibration (Application Document 6.1)</p>
<p>Chapter 5 EIA Method / Section 5.2.2</p>	<p>The report mentions opportunities to deliver environmental enhancements, however there is no explicit mention of any enhancements that have been identified. National Highways need to consider and identify opportunities for enhancements throughout the duration of the design process and include these in the ES. Opportunities should consider (but should not be limited to) enhancements to the existing public rights of way network, in line with Thurrock Rights of Way Improvement Plan (which is currently in draft form), and enhancements to the landscape and air quality. National Highways need to demonstrate through their design principles how the earthworks and subsequent landscaping and planting will provide a new corridor for wildlife, and with it, a new route for non-motorised travel that brings together new and existing rights of way. Aside from direct opportunities through careful scheme design to build in future new connections, the Council also advises National Highways to utilise their Environment and Air Quality Designated Funds to ensure that environmental enhancements are delivered across the widest possible network of rights of way, in order to maximise local opportunities for reduced car travel; at least to the extent that it balances the increase</p>	<p>Environmental enhancements have been explained in the following documents submitted as part of the DCO application:</p> <ul style="list-style-type: none"> • ES Chapter 13: Population and Human Health (Application Document 6.1) • ES Figure 2.4: Environmental Masterplan (Application Document 6.2) • Design Principles (Application Document 7.5) • Transport Assessment (Application Document 7.9) • Health and Equalities Impact Assessment (Application Document 7.10)

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	in total traffic mileage generated by the new crossing and the new motorway.	
Chapter 5 EIA Method / Section 5.5.3	The Council requests that a dedicated chapter be provided to cover the subject of Human Health. This will provide a clearer, more concise assessment of the potential impacts on human health and how these will be mitigated against to reduce such impacts in subsequent EIAs, ES and planning applications. Additionally, the Council strongly request that a separate Health Impact Assessment (HIA) is required and that this is completed in relation to this proposed development to ensure that any negative consequences of the development are identified and mitigated and that opportunities for improving the well-being of the community are maximised. Assessment on human health, and methodology on how this will be done is not made clear in any of the chapters highlighted in 5.5.3.	A Health and Equalities Impact Assessment (Application Document 7.10) has been produced. ES Chapter 13: Population and Human Health (Application Document 6.1) has been produced as part of the EIA which covers the following topic areas for both construction and operational phases: <ul style="list-style-type: none"> • Private property and housing • Community land and assets • Development land and businesses • Agricultural land holdings • Walkers, cyclists and horse riders (WCH) • Human health – this chapter includes a summary of the findings from the Health and Equalities Impact Assessment (Application Document 7.10).
Chapter 5 EIA Method / Section 5.6.1	It is noted that study areas will be individually designed for environmental topic based on the geographical scope of the impacts. It will be important to ensure that the full health impacts for residents living in the 9 Wards in Thurrock closest to the proposed development (Tilbury Riverside and Thurrock Park, Tilbury St Chads, Ockendon, Belhus, Stifford Clays, Little Thurrock Blackshots, East Tilbury, Orsett and Chadwell St Mary) are undertaken. A focus on the Tilbury wards, Ockendon, Chadwell St Mary and Stifford Clays in particular will be vital due to the existing health inequalities that assist in these wards. Wider borough health impacts as a result of the traffic modelling and as such should also be considered.	The human health study area has been defined to include communities directly and indirectly affected by the Project. As such, the study area encompasses the local authority areas of Thurrock Council, London Borough of Havering, Medway Council, Gravesham Borough Council, Dartford Borough Council, Brentford Community Council and Southend-on-Sea Borough Council. This accords with the study area defined in the Health and Equalities Impact Assessment (Application Document 7.10). The Community Impact Report (Application Document 7.16) summarises impacts at a community/ward level for selected topics, including health and wellbeing.

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Chapter 5 EIA Method /Section 5.7.4	Future Baseline - National Highways will need to agree this with the Council as there are a number of former minerals sites on or close to the route that are currently being restored. It is important that these are taken into account of as they would then have a higher landscape value once restored.	As the Project would seek to use local materials where feasible, the future baseline data on minerals sites have been collated from Kent, Medway Council, Greater Essex and a review undertaken of their Local Aggregate Assessments.
Chapter 5 EIA Method / Section 5.11	The Council agrees that a separate equalities impact assessment needs to be undertaken. This should include information relating to the severance through the borough in terms of ensuring that all residents residing in Thurrock are able to access the same social and economic opportunities across the borough. Health inequalities should be considered as a part of this assessment - there are significant health inequalities across the borough and an assessment should be undertaken to ensure that these will not be further increased. Again, a full HIA should be able to support this. It is noted that an EIA is being undertaken and we would request a full HIA.	The topics scoped in to the Health and Equalities Impact Assessment (Application Document 7.10) include severance, relating to the extent to which the Project may separate residents from facilities and services they use within their community either as a result of changes in routes used or by change in traffic flows.
Chapter 6 Air Quality / General	This chapter predominantly focuses on exceedances to Air Quality Objectives and EU limits, which whilst important, it does not focus in on the potential impact on health, particularly on identified vulnerable populations, from increases in air pollutants and exceedances as a result of the proposed crossing. In addition, annual means are focussed on, but it is known when there are incidents on the existing crossing the local road network is impacted significantly, thereby impacting in the short term on air pollutants. Consideration should be paid to frequency and average number of daily exceedances in an annual period and the impact this might have on vulnerable populations. This supports the point above	The Health and Equalities Impact Assessment (Application Document 7.10) has identified vulnerable populations within the local authority areas potentially affected by the Project. The Health and Equalities Impact Assessment (Application Document 7.10) has drawn on the results of the Air Quality Assessment undertaken for the ES and the overall findings in this context have been summarised in ES Chapter 13: Population and Human Health (Application Document 6.1)

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	<p>which states that sensitivity testing should be undertaken for different unusual, but not uncommon traffic scenarios.</p>	
<p>Chapter 6 Air Quality / Section 6.3.2</p>	<p>Section 6.3.2 outlines that baseline monitoring was agreed with Local Authorities for nitrogen dioxide (NO2) and particulate matter (PM10). However, the proposed road layout has changed since this consultation was conducted, which has introduced some new potential receptors not considered in the original proposed baseline monitoring. There is now to be an additional road junction in the south of Thurrock linking onto a trunk road which will potentially serve the new proposed Tilbury2 Port facility.</p> <p>In addition to this it may serve as an access road for Heavy Goods Vehicles (HGVs) from the original Port of Tilbury. This will likely generate more traffic along this new access road, where there will be potential residential receptors in close proximity to the new access road in Tilbury itself. We propose that some additional baseline monitoring is setup in these areas by National Highways, in order to establish a more appropriate baseline for use in the detailed dispersion modelling assessment.</p>	<p>There have been multiple meetings with local authorities to discuss the air quality assessment methodology including baseline monitoring survey which has been summarised in ES Chapter 5: Air Quality (Application Document 6.1).</p> <p>With respect to comments on changes to junction design: as changes to the design have been introduced, the traffic modelling and the environmental baseline including residential receptors has been updated, such that the assessments reported in the DCO application documents are based on the current design for which Development Consent is being sought.</p> <p>It was agreed with Thurrock Council that additional baseline monitoring sites would be installed in some locations, such as Baker Street.</p>
<p>Chapter 6 Air Quality / Section 6.3.2</p>	<p>In addition to the above there is a change in the design of the main junction linking the A13 and A1089 to the new crossing. It is proposed to be a new roundabout junction which links onto the A1013, this also links to the A1089 dock approach road, but in the process will sever the existing A1089 dual carriage way and introduce a pinch point for traffic on this road as they will now have to navigate via the new roundabout junction.</p>	

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	<p>This will likely cause queuing at this junction; a lot of this traffic will be from the Tilbury Docks and predominantly HGV’s. The A1089 serves as the primary route for all traffic generated by the Port of Tilbury, this roundabout will likely hinder the currently free flowing nature of this dual carriageway.</p> <p>This new junction will also introduce a number of residential receptors which were not considered in the previous design. There are a number of residential properties just off the A1013 along Heath Road which will be close to this roundabout junction. The Council recommend that further baseline monitoring is introduced here as well.</p> <p>Also, there are residential properties along Baker Street which lie in close proximity to the proposed junction which have not been included in the baseline monitoring, the Council propose that further baseline monitoring sites should be setup in in key locations along this road also.</p>	
<p>Chapter 6 Air Quality / Section 6.4.3</p>	<p>The Council agrees that the baseline PCM model (2015 base) should be applied to the assessment and not CAZ or CAZ+additional measures scenarios.</p>	<p>The latest version of the PCM model has been used to inform the compliance risk assessment. However the air quality model for the scheme which is more detailed than the PCM model has been used to determine whether there will be any exceedances of Limit Values on qualifying features next to the PCM Links, in accordance with LA105.</p>
<p>Chapter 6 Air Quality / Section 6.4</p>	<p>The Council have in response to the new proposed road layout set up its own NO2 diffusion tube monitoring sites in key locations as of November 2017. There are a total of five new monitoring locations. These should be included within National Highways air quality assessment for establishing a baseline and for model verification.</p>	<p>The diffusion tube monitoring sites, referred to as SCR LTC, BSA LTC, BSB LTC and HR LTC, have been included within the air quality assessment. SR LTC was not incorporated as it is not within 200m of the Affected Road Network (ARN), and so is not within the study area for air quality. As it is a background air quality site, it would not normally be used for</p>

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		verification, as only roadside sites are used to do this. Please refer to ES Appendix 5.2: Air Quality Baseline Conditions.
Chapter 6 Air Quality / Section 6.6.4	Section 6.6.4 of the report states that PM2.5 is not currently assessed and reported as part of the DMRB HA207/07 and hence will not be included within the assessment for the project. The Council believes that this should also be included as part of the assessment, as it is PM2.5 which is potentially more prejudicial to health than PM10. The evaluation of significance of this pollutant should also be assessed, particularly as it is the very fine elements of particulate matter i.e. PM2.5, such as brake & tyre wear emissions and diesel exhaust emissions that contribute to the bulk of PM2.5 emissions and it is this element which is most prejudicial to health.	PM _{2.5} has not been modelled as a separate pollutant but is considered through the results of the PM ₁₀ modelling, as PM _{2.5} is a component of PM ₁₀ . There would be no exceedances of the PM _{2.5} EU Limit Value, even if it was assumed that all of the modelled PM ₁₀ existed in the PM _{2.5} size fraction. Explicit modelling of PM _{2.5} is therefore not directly relevant or necessary for the assessment.
Chapter 6 Air Quality / Section 6.7.6	National Highways should undertake modelling of the construction vehicles. The number of construction vehicles in each phase/year of construction should be quantified. A good reason for scoping out a simple or detailed construction phase assessment should be included in the EIA when construction vehicle numbers are available. It is considered that an increase in construction vehicles just below the DMRB screening criteria may still lead to long term effects due to the duration (6 years) of construction.	The scope of the air quality assessment includes construction phase combined assessment of additional construction traffic and traffic management.
Chapter 6 Air Quality / Section 6.7.14	The EIA should confirm that the opening year (currently 2026) is worst case in terms of air quality impacts.	The operational assessment is based on the opening year (2030) and is worse case in terms of impact on air quality. For more information please refer to ES Chapter 5: Air Quality (Application Document 6.1).
Chapter 6 Air Quality / Section 6.7.26	The EIA must include the latest PCM data available at the time of assessment. This paragraph states that the PCM 'model provides predicted concentrations for each	The most recent published PCM data have been used for the air quality compliance risk assessment. For more information

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	link in a number of years at five-year intervals.' The latest (August 2017 (as referred to in other places in this scoping report)) PCM data should be applied to the assessment. This data is provided by Defra as yearly concentrations from 2017 and not five-year intervals as suggested in paragraph 6.7.37.	please refer to ES Chapter 5: Air Quality (Application Document 6.1).
Chapter 6 Air Quality / Section 6.7.41	Section 6.7.41 of scoping report states that emissions from vehicles in particular diesels, do not perform to their prescribed European standards and limited evidence on Euro 6 emissions. Any modelling using DEFRA’s Emission Factor Toolkit V7.0 (EFT 7.0) is likely to underestimate these emissions considerably, as they are known to greatly under-represent real world emissions. A conservative approach should be adopted for this, upscaling of diesel emissions in particular should be undertaken. Air Quality Consultants (AQS) have developed such a conservative approach known as CURED V2A, which better represents diesel emissions than EFT 7.0, something similar should be adopted in this case also.	The latest Defra air quality tools (published November 2021), including background air quality maps and emission projections (i.e. Emission Factor Toolkit version 11) have been used to inform the air quality assessment presented in ES Chapter 5: Air Quality (Application Document 6.1). EFT provides emission factors for 2017 to 2050, and the developers of the tool (Bureau Veritas) provided National Highways a version to allow speed band emissions to be calculated for 2016 based on EFTv11.0.
Chapter 6 Air Quality / Section 6.7.47	Section 6.7.47 of the scoping report states It will only consider receptors which exceed the Air Quality Standards / Objectives i.e. (annual mean of 40 µg/m ³ for NO ₂ and PM ₁₀) in either the, with or without scenarios are used to inform the evaluation of significance. The Council recommends that any receptor be considered in the evaluation of significance proposed if it has a medium >2 µg/m ³ or large >4 µg/m ³ magnitude of change. As some of these may be near the objective limit and have a large magnitude of change but fall just below the objective limit. Considering the uncertainties	The assessment method has been undertaken in accordance with DMRB LA 105. In addition, the air quality modelling has been undertaken using tools and guidance issued by Defra in Local Air Quality Management Technical Guidance 2016 (LAQM.TG(16)). Only receptors which exceed the AQS Objectives are included in the judgement of significance. In addition to account for uncertainty the assessment is based on the uplifted results based on the LTTE6 approach in accordance with DMRB LA 105. There are no predicted exceedances of AQS objectives/EU Limit Values for PM ₁₀ or PM _{2.5} (particulate matter smaller than

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	<p>associated with air quality modelling I’d like to see these sites listed as well as those above the objective limits.</p>	<p>2.5 microns) at human receptors across the study area with or without the Project.</p> <p>There are 25 human receptor locations where an exceedance of the annual mean NO₂ AQS objective with a greater than imperceptible change in NO₂ (>0.4µg/m³) is predicted in the Project opening year. These receptors are mainly confined to the A282 Dartford Crossing, A2 London Road, Strood, A228 and M25 Holmesdale Tunnel. The Project is expected to lead to more air quality improvements than worsenings where the annual mean AQS objective for NO₂ is exceeded.</p> <p>The Project was also assessed as not affecting the UK’s ability to achieve compliance with the EU Air Quality Directive.</p> <p>Further information can be found in ES Chapter 5: Air Quality (Application Document 6.1).</p>
<p>Chapter 6 Air Quality /Section 6.9</p>	<p>It is assumed that best practice mitigation measures will be applied during the construction phase, this needs to be clarified.</p>	<p>Good practice mitigation measures for air quality are detailed in ES Chapter 5: Air Quality (Application Document 6.1) and ES Appendix 2.2: CoCP.</p>
<p>Chapter 6 Air Quality / General</p>	<p>Other than the points that have been raised, the proposed methodology for assessment is acceptable. However, the recommendations that have been outlined should be considered as there has been a significant of change in the proposed layout of the new crossing and change in the road junctions, that warrants further consideration before the full EIA and subsequent Air Quality Assessment is undertaken.</p>	<p>The design of the Project has evolved throughout the pre-application stage.</p> <p>The traffic data used in the air quality assessment were obtained from the Lower Thames Area Model (LTAM), developed by National Highways.</p> <p>It should be noted that the air quality assessment methodology has been updated from that outlined in the Scoping Report, following the issue of DMRB LA 105 Air Quality (2019) which supersedes DMRB Volume 11, Section 3, Part 1 HA207/07 (2007) and the associated IANs. The assessment presented in ES Chapter 5: Air Quality (Application Document 6.1) follows the requirements of LA 105 to ensure that the latest standard is followed to determine whether the Project complies with the NPSNN.</p>

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Chapter 6 Air Quality / General	National Highways should include information or a map outlining where the highest levels of pollutants would occur as a result of the development.	ES Figure 5.6: Operational Phase Receptors and Results (Application Document 6.2) shows the results of the operational air quality modelling. This figure maps out where there would be a perceptible increase in the annual mean NO ₂ or an imperceptible change.
Chapter 7 Cultural Heritage / General	A Heritage Statement should be undertaken and reported in compliance with Historic England Good Practice Advice Note 3: The Setting of Heritage Assets 2015.	Relevant guidance has been used in devising the methodology for data collection and assessment. This includes The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (GPA3) (Historic England, 2017).
Chapter 7 Cultural Heritage / Section 7.2	There is no consideration of local policy, National Highways needs to take this into consideration in the EIA.	Consideration has been given to local policy relating to cultural heritage from Gravesham Borough Council, Thurrock Council and London Borough of Havering which is detailed in ES Chapter 6: Cultural Heritage (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.3.4	The heritage stakeholders identified should not be consulted in isolation. Any future meetings should, where possible, include all relevant heritage advisors.	Monthly meetings between the Project cultural heritage team and heritage stakeholders including Historic England, Essex Place Services, Greater London Archaeology Advisory Services, Kent County Council were ongoing during the pre-application stage.
Chapter 7 Cultural Heritage / Section 7.4.1	The baseline should include any existing (as mentioned in 7.5.1) or emerging Local Heritage Lists which have yet to be adopted.	The desk-based research completed as part of the cultural heritage assessment included sourcing local lists of heritage assets from local authorities. This comprised of reports and maps obtained originally in 2017 and refreshed whenever updates became available subsequently. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for information on baseline establishment.
Chapter 7 Cultural Heritage / Section 7.5.1	The baseline should include the rectification of all available aerial photographs with an assessment of images available online such as Google Earth.	A specialist aerial mapping study has been undertaken for the section of the route north of the River Thames, presented in ES Appendix 6.2: Aerial Investigation and Mapping Report.

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		This consists of rectification of historic aerial photographs and an analysis of LiDAR data.
Chapter 7 Cultural Heritage / Section 7.6	The applicant should outline the proximity of the assets to the scheme.	All assessed assets and their location in relation to the Project has been set out in ES Chapter 6: Cultural Heritage (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.6.7	Tilbury Fort and Coalhouse fort as combined monuments forming defensive structures along the Thames could be viewed as Very High Value. This should be discussed with Historic England.	These scheduled monuments are both categorised in the ES as ‘High Value’ receptors, as set out in ES Chapter 6: Cultural Heritage (Application Document 6.1). The Project has engaged with Historic England regarding these assets during the pre-application stage.
Chapter 7 Cultural Heritage / Section 7.6.7	Consideration should be paid to the value rating of Tilbury Fort as a historic building. As a significant heritage site, access, supporting tourism and celebrating heritage should be considered. Impact of the proposed crossing on views, access and economic viability for the fort and other heritage sites (Coal house fort for instance) should be considered. These sites provide an important sense of community, pride, space for leisure activities, visual and scenic landscapes which all impact on health and well-being.	Tilbury Fort is categorised as a ‘Very High Value’ asset in the cultural heritage assessment. Potential impacts to this asset are considered in combination to take account of the potential for cumulative effects. The mitigation options were discussed with relevant stakeholders during the pre-application stage. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for further information. National Highways remains committed to future discussions around potential legacy items in the coming months, and subsequent details around their scope, timing and delivery.
Chapter 7 Cultural Heritage / Section 7.6.7	The list of heritage assets is not exhaustive, for example The Grade II* Riverside Station is not listed, though it is within the search area of Fig.7.1. This list will need to evolve.	The list of heritage assets has been updated several times since scoping and now includes many more assets, including The Grade II* Riverside Station.
Chapter 7 Cultural Heritage / Section 7.7.4	It has been recommended that as an initial survey a programme of aerial photographic rectification is undertaken as part of the desk-based phase of work. This will then feed into the follow up stages of ground investigation.	A Project-commissioned study of LiDAR and aerial photography has been undertaken as part of the cultural heritage assessment. Please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1) for more information

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Chapter 7 Cultural Heritage / Section 7.7.4	The Council would like the analysis of the aerial photography and LIDAR be rectified and mapped, to provide an accurate representation of identified archaeological remains.	
Chapter 7 Cultural Heritage / Section 7.7.4	National Highways should also be using the Historic Environment Characterisation Work undertaken by Essex County Council for the Thurrock area, and should also look at the work undertaken by Chris Blandford on Characterisation in the Thames Gateway.	The work undertaken by Chris Blandford on Characterisation in the Thames Gateway was reviewed as part of the cultural heritage assessment for the Project, reported in ES Chapter 6: Cultural Heritage (Application Document 6.1). Reference was also made to the Greater Thames Estuary Historic Environment Research Framework (Essex County Council et al).
Chapter 7 Cultural Heritage / Section 7.7.6	Visual inspection of listed buildings and other designated assets should be carried out as part of the desk-based assessment, not following results of it.	A visual inspection of listed buildings and other designated assets was undertaken as part of the cultural heritage desk-based assessment, please refer to ES Appendix 6.1.
Chapter 7 Cultural Heritage / Section 7.7.6	Is 'Aerial Photogrammetrical Survey' the rectification and mapping of features identified on the aerial photographs and LIDAR? If so this should be done in conjunction with the desk-based assessment.	This is the full name of the aerial photograph survey. This survey was used to inform the desk-based assessment which informed ES Chapter 6: Cultural Heritage (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.7.6	Trial trenching should be used in its own right, not just related to geophysics. For those areas where geophysics cannot be used, a general trial trenching evaluation at 5% should be considered.	Trial trenching has been undertaken for the Project. This included a mix of targeted trenches based on the results of the aerial mapping study and geophysical survey, and percentage sampling of areas in which other sources had not revealed details of archaeological remains.
Chapter 7 Cultural Heritage / Section 7.7.6	Consideration needs to be given in the EIA for the appropriate recording of the scheduled monument (Crop mark complex, Orsett) at the junction with the A13 and A1089 considering the extensive damage that will be caused. Consideration needs to be given to undertaking a total excavation of the scheduled area and associated elements of this nationally important complex.	The field evaluation necessary to determine the character and importance of heritage assets within the Project will, by its nature, have some physical impact on buried archaeological remains. However, any mitigation in the form of excavation to preserve by record, or physical impacts to built heritage, would only occur once the DCO was granted.

Topic	Thurrock Council comment	National Highways response
Chapter 7 Cultural Heritage / Section 7.7.6	The Zone of Visual Influence should be defined in conjunction with heritage consultees. This will be in accordance with Historic England's Advice Note 3.	The Zone of Visual Influence (ZVI) was prepared by the Landscape and Visual team for incorporation into the assessment. This complements the study areas chosen for heritage baseline data acquisition. ZVI and study areas were agreed with heritage stakeholders. The ZVI has been discussed with the local authorities during the preparation of ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.7.6	Setting assessments of assets should be carried out at the desk-based assessment stage. Note that setting does not solely relate to intervisibility and views but can relate to sound, tranquillity, relationship with the landscape, air quality etc (see Historic England guidance in GPA3).	The Project has undertaken tranquillity and noise monitoring surveys in relation to landscape and the setting of heritage assets. A final assessment of assets (and setting) is based on desk-based and field surveys. Please refer to ES Chapter 7: Landscape and Visual and Chapter 6: Cultural Heritage (Application Document 6.1). The potential for cumulative impacts is also addressed within the ES. Please refer to specific topic chapters for the intra-project effects and ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) for the inter-project effects.
Chapter 7 Cultural Heritage / Section 7.7.8	The Local Authorities, as curators, should be undertaking monitoring visits to all of the sites investigated.	Kent County Council and Essex County Council (Place Services) have completed monitoring visits of the site investigations as part of the Project.
Chapter 7 Cultural Heritage / Section 7.7.8	Where possible, the number of separate contractors should be kept to a minimum to ensure consistency of results. A consortium of large contractors has been successful on large scale projects in the past.	Noted. The supply chain is streamlined as far as practicable to improve consistency and to reduce risk and management burden.
Chapter 7 Cultural Heritage / Section 7.7.10	There should be consideration to using side scanning sonar for the Thames, or this should be discussed with Wessex Archaeology who probably have already undertaken this for London Gateway.	Side scanning sonar for the Thames has been considered and discussed with Wessex Archaeology. Side scanning sonar has not been completed for the Project because there are no impacts identified within the river or on the riverbed. Side-scanning sonar would not have recorded any archaeological features with the potential to be impacted by the Project.

Topic	Thurrock Council comment	National Highways response
Chapter 7 Cultural Heritage / Section 7.7.11	In addition to Noise/Traffic Impact, the assessment will need to cross over with reports/analysis into associated lighting and potential light pollution, as this also impacts upon Cultural Heritage. This assessment should utilise Thurrock Councils Nighttime Skys data/resources.	<p>The cultural heritage assessment has interrelationships with the following ES chapters:</p> <ul style="list-style-type: none"> • ES Chapter 7: Landscape and Visual (Application Document 6.1) • ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) • ES Chapter 10: Geology and Soils (Application Document 6.1) • ES Chapter 12: Noise and Vibration (Application Document 6.1) • ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) <p>ES Chapter 7: Landscape and Visual (Application Document 6.1) includes an assessment of light pollution.</p>
Chapter 7 Cultural Heritage / Section 7.7.12	The Council requests clarification on the methodology for determining where the study area can be refined.	<p>A detailed methodology for the cultural heritage assessment is presented in ES Chapter 6: Cultural Heritage (Application Document 6.1).</p> <p>Information on the baseline, study area and scope of the assessments was included in the Statement of Common Ground Technical Note sent to Thurrock for review in January 2020. A response was received from Thurrock Council in May 2020, which detailed that all aspects of the study area were agreed, apart from the built heritage assessment. The study area for this aspect of the assessment was later agreed.</p>
Chapter 7 Cultural Heritage / Section 7.7.13	Designated assets outside of the study area requiring assessment should be identified by the applicant and should be agreed with the consultees.	A study area of 1km was used for survey extent. However, a small number of cultural heritage assets were found outside the 1km boundary, but within the ZVI, and these were included in the assessment presented in ES Chapter 6: Cultural Heritage (Application Document 6.1).

Topic	Thurrock Council comment	National Highways response
Chapter 7 Cultural Heritage / Section 7.7.14	Assessments should always assess 'worst case scenario' for all elements of the proposed development.	The reasonable worst-case scenario for all elements of the Project have been assessed in the EIA.
Chapter 7 Cultural Heritage / Section 7.7.26	The term 'harm' relates to any adverse change in the heritage significance of an asset and should not be categorised simply into a large adverse effect. Substantial harm is a more nuanced categorisation of a change in significance which is separate to the DMRB significance of effect terminology. Under the methodology in the scoping report only a high or very high value asset could be subject to substantial harm, whereas substantial harm could be subjected to any heritage asset, regardless of value. For instance, demolition of a grade II listed building would certainly constitute substantial harm.	The word 'harm' has not been used in the assessment. Environmental value, magnitude and significance matrices are presented in ES Chapter 4: EIA Methodology (Application Document 6.1) which are reproduced from DMRB LA 104. This approach is used throughout each of the topic chapters. Criteria for assessing the value of cultural heritage assets, the magnitude of impact and the resulting significance are explained in ES Chapter 6: Cultural Heritage (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.7.26	It would be more appropriate to discuss the terms of harm with all of the specialist heritage advisors not just Historic England.	Regular meetings between all heritage stakeholders have been ongoing since 2019.
Chapter 7 Cultural Heritage / Section 7.8.1	No impact on archaeological remains has ever been shown through ground movements associated with the tunnel boring machine. Also, it is not vibrations from the tunnel boring machine, but ground settlement following the tunnelling which can effect historic structures.	Building condition surveys were undertaken due to the potential for the Project to cause physical impacts to built heritage, either through demolition, settlement or vibration, or through indirect impacts, such as the installation of secondary glazing to reduce noise. A vibration assessment has been undertaken. For more information on the results of these assessments and surveys, please refer to ES Chapter 6: Cultural Heritage (Application Document 6.1).
Chapter 7 Cultural Heritage / Section 7.8.3	In relation to changes in groundwater level, the impact on the grazing marsh area and the potential heritage assets it contains will need to be assessed.	This area is included in the assessment, including the specialist Historic Landscape Character study in ES Chapter 6: Cultural Heritage (Application Document 6.1)

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Chapter 7 Cultural Heritage / Section 7.8.5	This section notes that there may be some beneficial impacts to conservation areas and listed buildings outside of the study area through the amelioration of the deteriorating effects of traffic pollution. These effects should not be considered if they lie outside of the study area. If these effects are to be considered, then the study area needs to be widened and any other adverse effects within the study area would also need to be reported.	It is confirmed that beneficial impacts have not been considered if they lie outside of the study area.
Chapter 7 Cultural Heritage / Section 7.9	Mitigation should include measures set out in the CEMP/COCP to ensure best practice construction methodologies and ensure accidental damage to heritage assets is avoided.	ES Appendix 2.2: CoCP contains appropriate measures to manage construction activities and the potential for accidental damage.
Chapter 8 Landscape / Section 8.2.1	The landscape and visual impact assessment should have regard to the new (currently draft) Landscape Character Assessment for Thurrock (a timetable for its completion should be agreed by end of November 2017). In addition, consideration should also be given to the Land of the Fanns Landscape Character Assessment which covers a large proportion of the affected landscape north of the Thames. The Land of the Fanns is an heritage lottery funded Landscape Partnership scheme which should be considered as part of any landscape, ecology and cultural heritage assessment.	The Project Team met with Thurrock Council Officers on 21 February 2018 to discuss project updates including landscape character baseline, the Project ZTV, and selection of emerging Representative Viewpoints for assessment of visual effects. At this meeting, it was agreed the ZTV would be extended beyond the 2km extent. The Thurrock Landscape Capacity Study and the Historic Environment Characterisation Work undertaken by Essex County Council for the Thurrock area has been acquired and included in the ES, along with a specialist Historic Landscape Character assessment carried out by a specialist. The ‘Land of the Fanns’ Landscape Partnership Scheme, was consulted as part of the desk-based assessment.
Chapter 8 Landscape / Section 8.2.1	This section suggests that the text in italics is taken directly from the NPSNN as it appears in italics within speech marks, however, the bullet points are not a full representation of that provided within paragraphs 5.151-5.155 of the NPSNN. In addition to this, it is noted that sentences that may not align with the scheme vision are	A section on policy is included within each ES topic chapter. The NPSNN sets out the Government’s policies to deliver the development of NSIPs on the national road and rail networks in England. Please refer to Section 7.2 of ES Chapter 7: Landscape and Visual (Application Document 6.1).

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	actually left out altogether. This appears misleading and a misrepresentation of the NPSNN.	ES Chapter 6: Cultural Heritage (Application Document 6.1) provides a response for each relevant NPSNN paragraph.
Chapter 8 Landscape / Section 8.2.6	No mention is made of the relative tranquillity of the upper Mardyke Valley where there are few dwellings and no streetlights. This area should also be assessed for the combined effects of noise and visual intrusion in the same way as the Thames Estuary.	The landscape and visual assessment includes an assessment of the impacts on tranquillity specifically within rural recreational receptors within and in the setting to the Kent Downs AONB and those adjacent to the Thames Estuary. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Section 8.2.14	National Highways needs to demonstrate where off-site mitigation may be required as this will need to be included in the EIA and DCO.	All landscape and visual mitigation is presented in ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Section 8.4	Natural England's proposed England Coast Path needs to be considered in the assessment. This path is planned to go through Tilbury and will be an important leisure trail from the Thames Nature Reserve at Mucking through to the Coalhouse Fort and onto Tilbury Fort, and the ferry crossing to Gravesend. Natural England will need to be consulted on this. Other future projects include Land of the Fanns (a Thames chase and LA partnership) the project has been awarded 2.4 million from Heritage Lottery funding for a 5-year programme of activity to restore and promote landscapes within Essex. Strategic work is already underway and some of the projects will be affected by the LTC. The report does not give consideration to this significant project.	England Coast Path and Land of the Fanns is considered within ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Section 8.4.4	Reference is made to the Saxon Shore Way - this is only on the Kent side of the river. The reference should be Thames Estuary Path (including the Two Forts Way). Grangewaters is a recreation site close to the proposed	Thames Estuary Path (including the Two Forts Way) and Grangewaters are considered within ES Chapter 7: Landscape and Visual (Application Document 6.1).

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	route so should be included on the list of recreation/sports sites.	
Chapter 8 Landscape / Section 8.5	The Council will need to agree any proposed viewpoint receptors in advance of the landscape and visual impact assessment commencing. These will need to ensure that all settlements are assessed, as well as sites used for public recreation, cultural heritage assets and public rights of way and existing transport routes. Long views will also need to be assessed e.g. from Thorndon Park in Brentwood. Some future baseline viewpoints will also need to be considered.	A meeting was held with Thurrock Council in February 2018 to discuss project updates including landscape character baseline, the Project ZTV, and selection of emerging Representative Viewpoints for assessment of visual effects. In February 2019, a site walkover with Thurrock Council was undertaken to agree the Representative Viewpoints. Further clarity was sought on final locations and methodology in April 2019, with another site walkover undertaken in May 2019. There has since been ongoing engagement with Thurrock Council which has included discussion of landscape and visual assessment technical matters when required.
Chapter 8 Landscape / Section 8.5.1	Reference to Identifying tree protection orders - clearly this does not remove the need to undertake a proper arboricultural assessment as not all good quality trees are covered by a tree protection order e.g. they are not placed on council owned trees or on trees where there is no perceived threat.	An arboricultural assessment has been undertaken. Please refer to ES Appendix 7.12: Arboricultural Impact Assessment.
Chapter 8 Landscape / Table 6.2	Reference is made to the Local Character Areas defined in the current Landscape Capacity Study. The list should follow the new Landscape Character Areas which should be finalised soon.	The Thurrock Council (2005) Landscape Capacity Study has been used as a reference in the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Section 8.7	No methodology has been outlined for the production of photomontages. These should be produced for year 1 and year 15. There is also no mention of the methodology for production of the zone of visual influence. The Council would like clarification on whether this will be done using ground modelling software etc. Photomontages should be undertaken for the key views of the route, e.g. the proposed tunnel,	The methodology for photomontages was discussed and agreed with Thurrock Council on 02 May 2019. More information on baseline, scope and assessments was included in the Technical Note for Statement of Common Ground shared with Thurrock Council (and all other host local authorities) in January 2020.

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	A13 and Tilbury junctions, and where the route crosses through the Mardyke Valley	
Chapter 8 Landscape / Section 8.7.3	It is not clear whether the night time impacts will simply be informed and presented in line with the Lighting assessment undertaken in accordance with the Institute of Lighting Professionals Guidelines or whether it will be assessed from a landscape and visual impact assessment perspective. The lighting assessment does not consider the sensitivity and change in view in the same way as an landscape and visual impact assessment should. The lighting assessment simply looks at changes in lighting levels, not whether a series of lights will now be visible against an otherwise dark landscape etc/ take into account existing views, sensitivity to change of a landscape/view and the likely magnitude of change etc. National Highways needs to demonstrate that the night time impacts will be fully assessed in the landscape and visual impact assessment.	Night-time photography has been undertaken in addition to summer and winter as part of the landscape and visual assessment. These are presented in the form of photomontages in ES Chapter 7: Landscape and Visual (Application Document 6.1). The assessment of light pollution effects is based on the Institution of Lighting Professionals’ (2021) Guidance Notes on the Reduction of Obtrusive Light guidelines, which identify Environmental Zones that define the broad night-time characteristics of areas in terms of relative brightness or darkness. In addition, impacts on tranquillity considered the combined effects of traffic noise and visual intrusion for rural recreational receptors within and in the setting to the Kent Downs AONB and those adjacent to the Thames Estuary as set out in the Local Landscape Character Assessment baseline.
Chapter 8 Landscape / Section 8.7.3	National Highways has not made it clear whether tranquillity would be assessed for each character area. It does not appear to be mentioned. Only that tranquillity will be assessed on recreational receptors within AONB and on cycle routes and LDF. Tranquillity needs to relate to character and be assessed for all landscape character areas within study area.	As part of the baseline noise surveys, tranquillity monitoring has been undertaken within 5km of Orsett Fenn, which provides a representative tranquillity baseline for the Mardyke area. Results of this survey are presented in ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Section 8.7.8	No justification/explanation is given to the decision to adopt a 2km Zone of Visual Influence. This should follow standard best practice and identify a zone of visual influence which is likely to be much larger. This is particularly important for the land to the north, which is much more open. It is likely that the route (which is likely	ES Chapter 7: Landscape and Visual (Application Document 6.1) sets out the process undertaken with regard to preparation of Zones of Theoretical Visibility (ZTV) and selection of the Zone of Visual Influence (ZVI) which informs the selection of the study area considered for assessment of landscape and visual effects. This includes the rationale and

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	to be elevated through this area) would be very prominent from a long distance e.g. from Thorndon Country Park in Brentwood.	justification for the study area within 2km. This is also the likely extent to which significant effects could occur. The study area has been discussed with the local authorities during the preparation of the ES.
Chapter 8 Landscape / Section 8.7.11	As stated previously it is important for National Highways to take into account approved restoration schemes in the locality.	Noted. Approved restoration schemes have been considered.
Chapter 8 Landscape / Section 8.7.18	Significance should be shown as a matrix rather than a description for clarity.	A significance matrix is included in ES Chapter 4: EIA Methodology (Application Document 6.1)
Chapter 8 Landscape / Section 8.9	The Council would like to restate the importance of avoiding harm rather than mitigating it. National Highways need to demonstrate that design options have been considered that will reduce the landscape and visual harm being caused.	Environmental considerations have influenced the Project throughout the design development process, from early route options assessment described in ES Chapter 3: Assessment of Reasonable Alternatives (Application Document 6.1), through to design refinement to reach the Project design as described in ES Chapter 2: Project Description (Application Document 6.1). An iterative process has facilitated design updates and improvements, informed by environmental assessment and input from the Project engineering teams, stakeholders and public consultation.
Chapter 8 Landscape / Section 8.9.2	Mitigation measures should also include opportunities to restore/recreate historic landscape features such as marsh and fen which would link to biodiversity and water management mitigation. Green bridges will be important for public rights of way and biodiversity mitigation and the Council would like to see several provided.	The Project design includes seven green bridges. The design has strived to minimise the loss of fen and marsh habitats, and where any losses are likely to occur proposals are set out to enhance the retained habitat in addition to restoring surrounding areas/creating new habitat. The ecological mitigation measures for the Project focus on not only the provision of suitable habitats, but also the connectivity to other suitable habitats.
Chapter 8 Landscape / Section 8.10.1	The Council agrees that there is no landscape and visual impact assessment aspects than can be scoped out.	No response required.

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Chapter 8 Landscape / Figure 8.1	Grangewaters Outdoor Pursuits Centre needs to be included. The Thames Chase is shown as the Visitor Centre only, it needs to include the whole designated boundary. This figure also shows the limited zone of visual influence study boundary. This should be based on an appropriate zone of theoretical visibility with obscured viewpoints scoped out. The present approach is not considered acceptable as the boundary is arbitrary and not based on a sound justification.	The entirety of Thames Chase is included in the assessment. Area of Search sets out the process undertaken with regard to preparation and selection of the ZVI, which is representative of the study area considered for assessment of landscape and visual effects. This includes the rationale and justification for a ZVI within a 2km area. The ZVI has been discussed with local authorities during the preparation of ES Chapter 7: Landscape and Visual (Application Document 6.1).
Chapter 8 Landscape / Figure 8.1	The drawing title suggests that visual receptors are shown but none are actually identified, these need to be identified and included.	A selection of Representative Viewpoints has been agreed with the local authorities, which includes views to and from the Kent Downs AONB and Tilbury Fort. A site walkover was undertaken with Thurrock Council to agree the Representative Viewpoints on 02 February 2019.
Chapter 8 Landscape / Figure 8.2	Landscape Character Areas need to be agreed with the Council.	National Landscape Character Areas are detailed in ES Appendix 7.4: National Character Baseline including Seascape Character and presented in ES Figure 7.1: National Landscape Character including Seascape (Application Document 6.2). The study area falls within four National Character Areas. Local Landscape Character Areas are detailed in ES Appendix 7.5: Local Landscape Character Area Baseline and presented in ES Figure 7.2: Local Landscape Character Areas (Application Document 6.2). The study area falls within 23 local landscape character areas.
Chapter 9 Biodiversity / Section 9.2.8	Ecological corridors/networks should also have regard to the landscape character and seek to restore/enhance landscape features.	Ecological corridors/networks such as woodland features have been considered in the landscape and visual assessment. Please refer to ES Chapter 7: Landscape and Visual (Application Document 6.1)

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Chapter 9 Biodiversity / Table 9.1 and Section 9.7.8	Table 9.1 and Appendix C States that Extended phase 1 habitat survey (botanical) of application boundary + 50m buffer. Paragraph 9.7.8 states the extended Phase 1 survey covers the application boundary plus a 500m buffer. This needs to be clarified and consistent. A 500m buffer would be expected to be used for Extended phase 1, which will increase for some protected species.	The extended Phase 1 habitat survey extent was up to 50m from the Order Limits, which is considered appropriate and robust. Further details can be found in ES Appendix 8.2 Plants and Habitats (Application Document 6.3).
Chapter 9 Biodiversity / Table 9.1	The report details a comprehensive list of protected species that are being surveyed. However, there is no mention of barn owls. Barn owls should be considered, and surveys undertaken (if required), as barn owls have the potential to be impacted within a buffer zone of up to 1.5km from new roads.	ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) provides a summary of potential impacts on barn owls which is supplemented by a technical report on the species in ES Appendix 8.7: Ornithology Technical Appendix. The survey area for barn owls extended to 1km from the Order Limits.
Chapter 9 Biodiversity /Table 9.1	Bat emergence and activity surveys need to ensure Hangman's Wood and Deneholes SSSI is included as this is designated for its bat roost.	Bat surveys were undertaken at Hangman’s Wood and Deneholes SSSI. Further information can be found in ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) and ES Appendix 8.8: Bats Technical Appendix.
Chapter 9 Biodiversity / Table 9.1	Invertebrates - The Council agrees that surveys of Thames Terrace Grasslands and Ancient woodland are important but should also consider any brownfield. Open Mosaic Habitat sites such as Blackshots Nature Park Local Wildlife Site which are designated in part due to their value for invertebrates. OMH is also a s41 HPIE.	ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1) provides a robust assessment of all relevant sensitive ecological receptors, including habitats such as open mosaic habitats and the species they support. Reference to, and consideration of habitats and species listed in accordance with the requirements of Section 41 of the NERC Act 2006 is also provided.
Chapter 9 Biodiversity / Section 9.5.4	The project construction is over a 6-year period and there is no suggestion of a long-term fish monitoring project. The Council requests a confirmation that the Environment Agency are conducting this monitoring.	The EA conducts fish monitoring in the Thames Estuary approximately every three years.
Chapter 9 Biodiversity / Section 9.5.4	There is no mention of water quality surveys to be conducted during construction. Confirmation needs to be provided as to whether this will be covered in the	These surveys are not required as part of the Project as the potential effects on water quality are predicted to be negligible.

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	proposed survey mentioned in Table 9-2- Collection and analysis of sediments and contaminant samples.	
Chapter 9 Biodiversity / Table 9.5	The boundaries of the Local Wildlife Sites around Tilbury Power Station and Goshems Farm have been amended as a result of the Local Wildlife Site Review carried out in 2016 but which is still in draft (nearly finalised). National Highways need to work to the revised boundaries as they make more sense on the ground following recent restoration works at Goshems Farm.	Information on designated site boundaries is the most up to date that National Highways was able to obtain, including data from Natural England and relevant local biological records centres, as well as in consultation with local planning authorities.
Chapter 9 Biodiversity / Section 9.7	The Council agree with guidance referenced.	Noted.
Chapter 9 Biodiversity / Table 9.6	The Council agrees with the comparison of sources for determining valuation/importance.	Noted.
Chapter 9 Biodiversity / Section 9.7.12	It is important that any surveys take into account the ways animals move through the area and what effects the new route would have. The Council would like to see whether consideration has been given to whether the Scheme would form a barrier to commuting bats and how these effects can be mitigated.	Habitat fragmentation and its potential to adversely affect sensitive ecological receptors has been identified within ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1). Where appropriate, measures such as over-sized culverts, mammal ledges and green bridges have been included to mitigate potential adverse effects.
Chapter 9 Biodiversity / Section 9.7.15	Future baseline needs to take into account sites where restoration works should be completed during this period and where restoration is for biodiversity. The Council agrees that while much of area is arable some sites around Goshems Farm and East Tilbury will change during this period.	Where sites propose future restoration plans these have been taken into account as part of the ecological impact assessment.
Chapter 9 Biodiversity / Section 9.7.19	The CIEEM guidelines are proposed to be used to determine significant effects. Significance criteria has been based on CIEEM guidelines only, which are used for ecological assessment of non-infrastructure projects	An assessment of potential terrestrial biodiversity impacts associated with the Project was undertaken in accordance with DMRB LA 108 Biodiversity and DMRB LA 105 Air Quality (National Highways, 2019), and the Ecological Impact

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	<p>in the UK. However, this isn’t consistent with other disciplines included within the assessment. As the project is an infrastructure project, the assessment should describe the impacts and significance in accordance with DMRB, where effects of Moderate Adverse or Beneficial and above are considered to be significant. The CIEEM guidelines do not translate this across in a way which is consistent with other topics. Although the CIEEM guidelines should be referred to (as they are the recognised standard for EclA in the UK), the conclusion to the assessment should also use the terminology outlined within the DMRB to ensure language/consistency is maintained throughout the assessment.</p>	<p>Assessment guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).</p>
<p>Chapter 9 Biodiversity / Section 9.7.20</p>	<p>National Highways needs to consider increase of plastics into the marine environment during construction.</p>	<p>Plastics have not specifically been considered. They would be considered via discharge permits for the proposed outfall which would be prepared at detailed design and submitted to the EA.</p>
<p>Chapter 9 Biodiversity / Section 9.8.25</p>	<p>This section only takes into consideration the potential impacts to the qualifying features of the recommended Marine Conservation Zone during construction, which are acknowledged in table 9-10. Implications to other species of conservation importance, i.e. marine mammals, are not listed, although are acknowledged in the text in section 9.8.24. The EIA will need to take into consideration all species of conservation importance.</p>	<p>ES Chapter 9: Marine Biodiversity (Application Document 6.1) has taken into account all relevant species of conservation importance.</p>
<p>Chapter 9 Biodiversity / Section 9.8.30</p>	<p>Retention of the jetty could also provide substrate for subtidal communities (shellfish, fish species etc.). Possible negative implications of the jetty, re. invasive species habitat, as well as its construction should be covered in the hydrographic modelling. As part of any mitigation procedures, additional opportunities for</p>	<p>There is no proposed jetty within the Project.</p>

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	ecological enhancement within the Projects zone of influence that will enhance the designated sites identified features and support biodiversity and ecosystem services, especially in connection with the marine environment intertidal and subtidal especially, should be identified and implemented.	
Chapter 9 Biodiversity / Section 9.9.1	Marine mammal mitigation for underwater noise emission during any piling or dredging needs to be identified.	Mitigation for underwater noise emissions is detailed in ES Chapter 9: Marine Biodiversity (Application Document 6.1) and ES Appendix 2.2: CoCP.
Chapter 9 Biodiversity / Section 9.10	The Council agree that no topics are to be scoped out of the EIA assessment.	Noted.
Chapter 9 Biodiversity / General	In general, the Biodiversity section has been prepared following consultations with statutory agencies responsible for nature conservation as well as national and local conservation NGOs. The survey methodology is therefore considered generally appropriate.	Noted.
Chapter 9 Biodiversity / General	The key points however is to consider sufficient weight is given to the potential severance of ecological corridors for species such as bats. Also 'temporary disturbance during construction' is for a period of 6 years.	The terrestrial biodiversity assessment of construction phase effects includes a consideration of severance (division of habitats or wildlife corridors). Please refer to ES Chapter 8: Terrestrial Biodiversity (Application Document 6.1).
Chapter 9 Biodiversity / General	As a general point, access to nature and the impact this can have on human health could also be considered. Access via PRowS offer opportunity for people to have closer access to nature. This should be assessed in a standalone health impact assessment.	A Health and Equalities Impact Assessment (Application Document 7.10) has been produced.
Chapter 9 Biodiversity / Appendix C Survey Methodology	National Highways need to demonstrate that they have considered hedgerow surveys to determine if they are important under the Hedgerow Regs. 1997. There is no mention of this survey type specifically.	Hedgerows have been considered within the ecological surveys in accordance with best practice and current legislation (The Hedgerow Regulations 1997).

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Chapter 9 Biodiversity / Appendix C Survey Methodology	National Highways need to evidence that consideration has been given to crossing point surveys and landscape scale transects being as part of the survey methodology, with reference to methods outlined in Berthinussen & Altringham (2015).	The scope and methodology for all surveys, including those undertaken for bats, was developed in consultation with Natural England and is considered to provide a robust baseline against which the assessment has been made.
Chapter 9 Biodiversity / Appendix C Survey Methodology	Bat surveys have been proposed to continue 2 hrs after sunset. Natural England advise that transect and emergence/re-entry surveys are extended to 3 hours after sunset to account for late-emerging bat species, such as Horseshoes, if they are likely to be present. National Highways should consider extending survey requirements.	Dusk bat transects were undertaken from 15 minutes before sunset to 3 hours after sunset. Emergence surveys commenced 15 minutes before sunset and continued for 1 and a half to 2 hours after sunset. Re-entry surveys commenced 2 hours before sunrise and continued until up to 15 minutes after sunrise. This is in line with best practice (Collins, 2016). The Project does not overlap with horseshoe bat distribution (South West England and South Wales).
Chapter 9 Biodiversity / Appendix C Survey Methodology	The methodology for the reptile surveys only proposes 7 surveys. This will only give presence/absence data. National Highways need to demonstrate that consideration been given to understanding population i.e. undertaking 20 surveys or more over a season to establish this.	Seven survey visits are appropriate to establish presence/absence of reptiles. Peak counts from the seven presence/absence surveys were used to estimate population size. This is in line with best practice (Froglife, 1999).
Chapter 9 Biodiversity / Figure 9.1	Local Wildlife Site boundaries around Tilbury Power Station/ Goshems have been amended. This needs to be considered within the EIA.	The designated sites shapefile information has been updated to reflect the latest data, and these changes have been incorporated in the terrestrial and marine biodiversity assessments prior to submission of the DCO application.
Chapter 9 Biodiversity / Figure 9.3	The Priority Habitats don't accord with what is on the ground, though they are of use as a reference.	Noted. ES Chapter 8: Terrestrial Biodiversity and ES Chapter 9: Marine Biodiversity (Application Document 6.1), which contain the relevant assessments, provide details of habitats based on both desk review of existing data and field surveys.
Chapter 10 Geology and Soils / Section 10.1.3	Geological designations and SSSIs etc. covered in biodiversity and ecological conservation chapter, but not in the geology and soils assessment. These should be	Geological designations and relevant SSSIs have been included in ES Chapter 10: Geology and Soils (Application Document 6.1).

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	included within the geology and soils assessment for completeness.	
Chapter 10 Geology and Soils / Section 10.1.4	The interrelationship with the materials assessment needs to be considered.	ES Chapter 10: Geology and Soils (Application Document 6.1) has interrelationships with ES Chapter 11: Material Assets and Waste (Application Document 6.1) in terms of the reuse of suitable excavated soils during the construction.
Chapter 10 Geology and Soils / Section 10.4	Any designated sites with direct or indirect geological value should be considered (e.g. if none designated for geological value, those with habitats dependent on underlying geology/groundwater quality etc).	Geological designations have been included in ES Chapter 10: Geology and Soils (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.4.43- 10.4.52	The assessment needs to take into consideration the potential margin for error in landfill locations. Not all historic records are accurate and landfill extents can vary and presence can sometimes be unmarked.	Assessment of impacts to and from landfill sites has been assessed in ES. Please refer to ES Chapter 10: Geology and Soils (Application Document 6.1) and ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.4.68- 10.4.72	National Highways need to evidence where the agricultural land information has been collected from. The Council would like to know whether this is based on MAFF (1975) data, post 1988 ALC data or ALC survey data.	ALC surveys have been undertaken to inform the EIA process. Where it has not been possible to carry out ALC surveys, a critical evaluation of the likely grades has been performed to assess the extent of best and most versatile (BMV) land present within the study area. A summary of the findings of the detailed survey is presented in Section 10.4 of ES Chapter 10: Geology and Soils (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.4.73 and 10.4.74	National Highways need to identify the potential number of individual farms present.	The potential impacts on agricultural land, in particular BMV land, and soil function in relation to the construction of the Project have been assessed in ES Chapter 10: Geology and Soils (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.6	Key environmental receptors have been identified but value has not been assigned. It would be useful to separate geological resources (superficial/bedrock deposits of resource value) from soil resources (ALC etc). National Highways also need to consider	Geological designations have been included in ES Chapter 10: Geology and Soils (Application Document 6.1).

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	designated sites dependent on geological conditions/with geological value in this list.	
Chapter 10 Geology and Soils / Section 10.7.4	A wider area for controlled water impacts should be considered.	An appropriate area for controlled water assessment has been considered and cross reference to ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1) has been included.
Chapter 10 Geology and Soils / Table 10.6	Geological site importance is discussed in this table (and also in Table 10.7) but previously it has been stated that this is covered in biodiversity chapter. This should be included within the geology assessment. Very High would normally count as international importance (World Heritage Sites etc) with High being National. It is also recommended that built environment receptors (concrete structures, buried pipes etc) should be included, including a description for geological resource value.	The criteria for determining value of geology, soils and contamination is shown in Table 10.5 of ES Chapter 10: Geology and Soils (Application Document 6.1) and follows DMRB LA 109 Geology and soils (National Highways, 2019).
Chapter 10 Geology and Soils / Table 10.7	The definition for magnitude of impacts on superficial/bedrock geological resources (e.g. potential for sterilisation) and for generation of excess quantities of geological materials for re-use elsewhere (tie-in with materials chapter) should be included. Controlled water quality impacts should also be quantified e.g. changes with regard to Drinking Water Standards (DWS)/Environmental Quality Standards (EQS).	The criteria for determining the magnitude of impacts on geology, soils and contamination is shown in Table 10.6 of ES Chapter 10: Geology and Soils (Application Document 6.1) based on DMRB LA 109 Geology and soils (National Highways, 2019).
Chapter 10 Geology and Soils / Table 10.9	The Council believes that the quantity of land owned by a farm is also an important consideration. For example, a farm with a greater area of land is likely to be able have a greater degree of diversification, i.e. Crop/ livestock types, whilst a farm with a smaller area of land will have less flexibility.	The potential impacts on agricultural land, in particular BMV land, and soil function in relation to the construction of the Project have been assessed in ES Chapter 10: Geology and Soils (Application Document 6.1).

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Chapter 10 Geology and Soils / Table 10.10 and Table 10.11	The magnitude of impact should be major, moderate, minor (adverse or beneficial), negligible or no change as per DMRB Volume 11 Section 2 Part 5. For Table 10.10, this should also consider severance impacts and changes to drainage.	DMRB LA 109 Geology and soils (National Highways, 2019) criteria have been used in the geology and soils assessment. The significance of effects has been determined in accordance with the matrix provided in Table 4.4 of ES Chapter 4: EIA Methodology (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.8	Impacts relating to the generation of excess geological materials should be included (and tied in with the materials chapter).	ES Chapter 10: Geology and Soils (Application Document 6.1) cross references with ES Chapter 11: Material Assets and Waste (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.8.5	Effects also include the necessity for dewatering and requirement to manage potentially significant quantities of contaminated groundwaters, and the generation of significant quantities of potentially hazardous waste/soils requiring treatment. These effects need to be considered in the EIA.	These effects have been considered in the geology and soils assessment.
Chapter 10 Geology and Soils / Section 10.8.6	A Foundation Works Risk Assessment may be required in areas of piling/other foundations works in accordance with Environment Agency guidance to determine the potential likely effects relating to the driving of piles through any contaminated Made Ground/landfilled materials and into the underlying Aquifers, and to identify what mitigation measures will be appropriate for the site.	The impacts of piling have been assessed in the geology and soils assessment. During construction, if piling techniques are needed, appropriate techniques would be adopted to reduce the risk of pathway creation. Completion of a Foundation Works Risk Assessment is included within the mitigation.
Chapter 10 Geology and Soils / Section 10.8.11	This section highlights significant contamination of ground with the potential for migration of land gases from these contaminated areas during construction. The report mentions mitigation measures to prevent this, but the Council believes this should be more enhanced to include emergency measures for local residents in the event of failed mitigation leading to significant risk to public health. Impacts to human health need to be fully	A Health and Equalities Impact Assessment (Application Document 7.10) has been produced. The geology and soils assessment includes an assessment of construction and operational phase effects on receptors from the migration of ground gases generated from contaminated sites/landfill sites within the study area. The potential risks of ground gas associated with the Project and intrusive surveys to investigate issues were discussed with the EA.

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	assessed within a standalone health impact assessment.	A risk assessment in accordance with CIRIA C665 (CIRIA, 2007) was undertaken within the ES Appendix 10.8: Generic Quantitative Risk Assessment Report for the Phase 1 Investigation and ES Appendix 10.9: Generic Quantitative Risk Assessment Report for the Phase 2 Investigation (Annex A-D) to establish if mitigation measures were required within the design of the Project. Further detail can be found in ES Chapter 10: Geology and Soils (Application Document 6.1).
Chapter 10 Geology and Soils / Section 10.9.1	A Contaminated Land Risk Assessment and Detailed Quantitative Risk Assessment are required.	Please refer to ES Appendix 10.9: Generic Quantitative Risk Assessment Report for the Phase 2 Investigation (Annex A-D). ES Appendix 10.11: Remedial Options Appraisal and Outline Remediation Strategy has been prepared using current LCRM guidance (Environment Agency, 2021). The strategy demonstrates the techniques that could be implemented by the Contractor for the remediation of encountered contamination, which could include site-specific Detailed Quantitative Risk Assessment.
Chapter 10 Geology and Soils / Section 10.9.7	A Soil Management Plan should also be included as part of the Construction Environmental Management Plan (CEMP) (separate from the Materials Management Plan).	The details of the approaches to the management of soil resources, handling and reuse would be described in the EMP2 prepared by the Contractor, in the form of a soil management plan or equivalent.
Chapter 10 Geology and Soils / General	The Council is satisfied that the proposals within the chapter are adequate to address the potential impact of the development with regard to potentially contaminated land as long as the measures outlined in Section 10.9 are implemented. Particular regard should be given to the potential contamination at the former Goshems Farm landfill (THU0048), the ground investigation will need to fully determine the level of contamination present here.	The former Goshems Farm landfill (THU0048) has been fully assessed and further information can be found in ES Chapter 10: Geology and Soils (Application Document 6.1).

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Chapter 11 Materials / General	National Highways needs to demonstrate a clear understanding of the potential effects for Thurrock. Potential effects include increased minerals extraction e.g. opening new quarries or extending the life of existing operations with associated visual and ecological effects, as well as storage and disposal of material arising from tunnelling and wider construction, which could provide threats or opportunities in terms of land raising or restoring poor quality former landfill sites. Additionally, there is an issue of wider storage of materials during construction e.g. maximum heights or areas of pallets etc to reduce visual effects.	A wide range of aggregates are required to satisfy design specification requirements, and the assessment has considered locally available reserves. A high-level assessment has been undertaken to estimate the proportion of the total aggregate demand that could be satisfied from local sources. However, the source of aggregate will be determined by market forces, with the use of secondary aggregate prioritised whenever feasible. Thurrock Council has been contacted directly to discuss potential impacts on sand and gravel reserves to be excavated as part of delivering the highway alignment. It is considered that no new quarries are likely to be required. The Project is forecast to retain the majority of excavated materials and an Excavated Materials Assessment (ES Appendix 11.1) has been undertaken to verify sufficient capacity in the local area to accept any offsite waste requirements. Thurrock Council has provided a list of potential receiver sites and these were considered as part of the assessment.
Chapter 11 Materials / Section 11.3.3	The consultation focuses on waste, the Council would like to see a plan to consult on material availability, such as aggregate.	ES Chapter 11: Material Assets and Waste (Application Document 6.1) contains a table outlining aggregate reserves within each host local authority.
Chapter 11 Materials / Section 11.7	No methodology has been outlined. The methodology needs to be fully defined to ensure full understanding on how the conclusion regarding effects will be reached.	The methodology for assessing material assets and waste has been undertaken using DMRB LA110 standard and is detailed in ES Chapter 11: Material Assets and Waste (Application Document 6.1) The methodology for assessing embodied carbon of construction materials has been included within ES Chapter 15: Climate (Application Document 6.1)

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Chapter 11 Materials / Section 11.9	Although mentioned in section 11.2.7, the use of a SWMP, MMP and CTMP has not been specified in the mitigation section.	<p>ES Appendix 2.2 CoCP contains measures and controls around the management of construction activities, including management of waste, materials and traffic. Drafts of the CoCP and REAC were shared with relevant stakeholders for comment before submission of the DCO application. The following outline management plans have been produced in consultation with stakeholders and include:</p> <ul style="list-style-type: none"> • Outline Site Waste Management Plan (ES Appendix 2.2 CoCP Annex A) • Outline Materials Handling Plan (ES Appendix 2.2 CoCP Annex B) • Outline Traffic Management Plan (7.14) • Framework Construction Travel Plan (7.13) <p>These outline management plans would be developed further by the contractor during the detailed design phase.</p>
Chapter 12 Noise and Vibration / Overview	The Noise and Vibration Section has been produced in a normal scoping report format and scopes in all the matters relevant to Noise and Vibration for a project of this scale and extent. In general, the Council is satisfied that all relevant noise and vibration matters have been included and the proposed standards and methodologies are acceptable. If the Council has any concerns, comments or requests to make relating to specific paragraphs these will be shown below. The remaining paragraphs are accepted.	Noted.
Chapter 12 Noise and Vibration / Section 12.2	There is other over-arching legislation e.g. National Planning Policy Framework which should be referred to and referenced.	Each ES topic chapter contains a section which covers national and local legislation, detailing those relevant to the topic line by line with a Project response.

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Chapter 12 Noise and Vibration / Section 12.2.6	An explanation of Noise Important Areas should be included. Clarification as to what they mean and how they are defined should be included.	An explanation of Noise Important Areas (NIAs) is provided in ES Chapter 12: Noise and Vibration (Application Document 6.1).
Chapter 12 Noise and Vibration / Section 12.3.2	Local authorities should be consulted (not 'as appropriate').	All local authorities within the noise study area have been consulted in relation to the noise assessment.
Chapter 12 Noise and Vibration / Section 12.4.5	The proposed noise survey locations need to be agreed with the Council. In particular, the Council would like to see a long-term monitor in Baker Street closest to the proposed southbound new road to A13 eastbound slip road.	Noise monitoring locations and durations have been consulted on with all local authorities within the detailed noise study area, and where possible agreements made/responses addressed accordingly. Based on Thurrock Council’s response, the monitoring location position for ST50 (now A-NML 18) was updated in line with this comment. The closest long term monitoring location (LT-NML 11) was approximately 200m to the north-west of the position. All noise monitoring locations are shown on Figure 12.5: Baseline Noise Monitoring Locations (Application Document 6.2) and the results presented in Appendix 12.5: Baseline Noise Survey Information (Application Document 6.3).
Chapter 12 Noise and Vibration / Section 12.4.6	Noise Action Plans and Noise Important Areas. There are a number of Noise Important Areas that may be affected by the operational noise from the project directly or indirectly where traffic flows on local roads are perturbed. These NIAs fall within the responsibility of National Highways and the Thurrock Council Highways Authority.	NIAs have been assessed within the ES Chapter 12: Noise and Vibration (Application Document 6.1). In accordance with DMRB LA 111, the ES presents a list of noise mitigation that the Project will deliver at each NIA. Where mitigation is not possible a justification is provided.
Chapter 12 Noise and Vibration / Section 12.5.4	The Indicative noise monitoring locations in Figure 12.1 in Appendix F are generally in satisfactory positions. There are potentially some additional locations. In particular, the Council would like to see a long-term monitor in Baker Street that will be closest to the proposed southbound road to A13 eastbound slip.	Noise monitoring locations and durations have been consulted on with all local authorities within the detailed noise study area, and where possible agreements made/responses addressed accordingly. Based on Thurrock Council’s response, the monitoring location position for ST50 (now A-NML 18) was updated in line with this comment. The closest

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	Further monitoring may also be necessary in the south of Tilbury where the link could be preferentially used by the existing Tilbury port traffic rather than the A1089 dock access road.	long term monitoring location (LT-NML 11) was approximately 200m to the north-west of the position. All noise monitoring locations are shown on Figure 12.5: Baseline Noise Monitoring Locations (Application Document 6.2) and the results presented in Appendix 12.5: Baseline Noise Survey Information (Application Document 6.3)..
Chapter 12 Noise and Vibration / Section 12.6.3	The study area should be clearly defined by DMRB and not subject to development.	The noise and vibration study area has been defined in accordance with DMRB LA 111.
Chapter 12 Noise and Vibration / Section 12.6.5	The proposed Receptor Importance/Sensitivity criteria designations in Table 12-1 are acceptable. However, aligning sensitivity to receptors should be more than just professional judgement, references should be made to IEMA guidelines and DMRB Assessment of Environmental Effects.	Within DMRB LA 111 it is assumed that a receptor is either sensitive or it is not. A list of example noise sensitive receptors is provided within DMRB LA 111 but this list is not exhaustive and so professional judgement is required. Generally it has been assumed that a sensitive receptor is where a change in noise or vibration can cause disturbance to people using the building or area. The IEMA guidelines do not present a methodology for defining the sensitivity of receptors.
Chapter 12 Noise and Vibration / Section 12.6.8	The LOAEL and SOAEL levels assumed for operational road traffic noise in Table 12-2 are acceptable. It is assumed that LAeq levels are free-field and LA10 levels include a façade reflection component. It is assumed that the day is 16 hours 07:00 to 23:00, night is 8 hours 23:00 to 07:00 and LA10 is 18 hours 06:00 to 00:00. This should be confirmed with the Council.	This assumption is correct. The assessment presented in ES Chapter 12: Noise and Vibration (Application Document 6.1) has assumed free field LAeq values and façade LA10 values with the time periods as stated by Thurrock Council.
Chapter 12 Noise and Vibration / Section 12.6.9	The LOAEL and SOAEL levels assumed for construction noise in Table 12-2 are reasonable. Clarification of the LAeq,T period will be needed. Thurrock Section 61 consents typically have upper noise limit levels with T as 1 hour for more sensitive times of the day and the whole night time period.	Once a contractor for the Project has been appointed and consent has been granted, any S61 applications would be made where relevant and agreed as appropriate with specific local authorities prior to the start of the construction phase.

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	Weekdays T is 10 hours 08:00 to 18:00 and Saturday T is 5 hours 08:00 to 13:00.	
Chapter 12 Noise and Vibration / Section 12.7.2	What are the proposed vibration LOAEL and SOAEL level values for construction? Are these to be taken from BS5228-2 +A1:2014? (ref. to paragraph 12.7.18)? This needs to be clarified in the EIA.	The levels of LOAEL and SOAEL for construction vibration have been set in accordance with those given within DMRB LA 111. These values are defined within Chapter 12: Noise and Vibration (Application Document 6.1).
Chapter 12 Noise and Vibration / Section 12.7.4	The reason for limiting the construction study area to 300m need to be clarified, including the guidance referred to for this. In additional, haul routes need to be considered.	The 300m distance is taken from BS5228-1:2009+A1:2014 which states <i>‘At distances over 300m noise predictions have to be treated with caution, especially where a soft ground correction factor has been applied, because of the increasing importance of meteorological effects’</i> . In addition, DMRB LA 111 advises that <i>‘A study area of 300m from the closest construction activity is normally sufficient to encompass noise sensitive receptors’</i> . This distance is considered by the project team to be sufficient for LTC. Haul roads are considered within the noise and vibration assessment which is reported within Chapter 12: noise and Vibration (Application Document 6.1).
Chapter 12 Noise and Vibration / Section 12.7.13	The Council would like to see how the noise impacts from the tunnel ventilation systems will be calculated and assessed.	Potential noise impacts from the operation of the tunnel ventilation system have been considered at selected closest identified sensitive receptors. This assessment is summarised within Chapter 12: Noise and Vibration (Application Document 6.1) and the full assessment for the north portal is presented in Appendix 12.3: Operational Ventilation Noise Assessment: North Portal (Application Document 6.3).
Chapter 12 Noise and Vibration / Section 12.7.20	This is not consistent with other approaches set out, e.g. traffic noise.	The methodology and significance used in the assessment of TBM ground-borne noise and vibration, together with a

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Chapter 12 Noise and Vibration / Section 12.7.20	It would be useful to have an understanding of what this criteria is, which has been used on other major tunnelling projects, and any potential impacts this would have on local resident's health.	summary of the results, is provided in ES Chapter 12: Noise and Vibration (Application Document 6.1). The calculation of ground borne noise and vibration levels generated from the operation of the TBM has been undertaken using proprietary software FINDWAVE, implementing finite element analysis techniques. This modelling software calculates likely levels of ground-borne noise and vibration at receptors, taking into account various depths and geological conditions necessary to predict the physical decay of vibration with distance. The full assessment of ground-borne noise and vibration is presented in Appendix 12.6: Assessment of ground-borne Noise and Vibration at land-based receptors (Application Document 6.3).
Chapter 12 Noise and Vibration / Section 12.7.21	While the noise prediction models proposed are acceptable, Thurrock does not have a proprietary noise model and the Council would like access to the link-level input data used so that individual receptor location levels may be verified using a CRTN spreadsheet program.	A cordon model has been shared with Thurrock Council to meet this request.
Chapter 12 Noise and Vibration / Section 12.7.25	While the noise prediction models proposed are acceptable, Thurrock does not have a proprietary noise model and the Council would like access to the plant sound power (or SPL @distance) input data used so that individual receptor location levels may be verified if necessary using a ISO 9613- 2:1996 propagation method spreadsheet program.	Plant sound power levels from the tunnel ventilation system can be found in ES Appendix 12.2: Operational Ventilation Noise Assessment: South Portal and ES Appendix 12.3: Operational Ventilation Noise Assessment: North Portal (Application Document 6.3).
Chapter 12 Noise and Vibration / Section 12.7.23	Highway England needs to demonstrate the rationale for not looking at the short-term noise impacts. Consideration needs to be paid to the role that noise can play in relation to individual's sleep. A good night's	The short-term impacts at night are assessed within ES Chapter 12: Noise and Vibration (Application Document 6.1).

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	sleep is beneficial for health, as it increases concentration, mood and wellbeing.	
Chapter 12 Noise and Vibration / Section 12.8.4	Consideration will need to be paid to implementing appropriate mitigation measures to reduce the impact of noise on local residents in Thurrock. Measures will need to minimise residents experiencing sleep disturbance, as this could affect their mental health and wellbeing.	A night-time noise impact assessment has been provided in ES Chapter 12: Noise and Vibration (Application Document 6.1) and has been completed in accordance with the requirements of DMRB LA 111. Mitigation has been embedded into the Project to reduce noise, which has been augmented by specific mitigation where necessary based on the outcomes of the noise impact assessment. These mitigation measures are presented within Section 12.5 of ES Chapter 12: Noise and Vibration (Application Document 6.1).
Chapter 12 Noise and Vibration / Section 12.9.2	The construction works will require a CEMP that will include construction work noise. A Control of Pollution Act 1974 Section 61 Prior Consent should also be sought from the Council. This is not mandatory, but National Highways usually require contractors to apply for a S61 for major road construction projects.	Once a contractor for the Project has been appointed and planning consent has been granted, any Section 61 applications would be made where relevant and agreed as appropriate with specific local authorities prior to the start of the construction phase.
Chapter 12 Noise and Vibration / Section 12.9.5	The Council understood that all new National Highways projects and resurfaced carriageways would have a low-noise road surface as standard. The Council would like an explanation as to whether this is now not the case.	It is generally the case that a low noise surface is used on all new and resurfaced carriageways. However, there are some circumstances where other materials can be used and these are described within DMRB CD 236 - Surface course materials for construction. In areas deemed as ‘noise sensitive sites’ the use of other materials is not permitted unless it can be demonstrated that it <i>‘does not have an unacceptable impact on the health and well-being of those living near the scheme’</i> . A noise sensitive site is where there are sensitive receptors within 600m.
Chapter 12 Noise and Vibration / Section 12.10	Ground borne vibration from road traffic is unlikely to cause issues and the Council agrees that this may be scoped out of the EIA.	Noted.

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Chapter 13 People and Communities	The Council questions whether changes in traveller views and driver stress are relevant to NMUs, and equally whether changes in amenity are relevant for vehicle travellers.	Changes in visual impact for users of PRoW are considered within ES Chapter 7: Landscape and Visual (Application Document 6.1). The assessment of effects on views for vehicle travellers has been undertaken, please refer to ES Appendix 7.13: Views from the Road Assessment.
	The local and wider economy should be expanded to include opportunities and threats to local economy. Increased accessibility could improve the attractiveness of locations in Thurrock for new and existing business and could enable these to be by-passed for other locations	The ES chapter has taken into account comments from stakeholders regarding the need for flexibility surrounding the study area for effects on the local and wider economy, taking into account neighbouring local authorities and the wider region.
	The NPSNN expects applicants, where possible, to improve access on and around the networks - "applicants are advised to seek to deliver improvements that reduce community severance and improve accessibility". It is not clear at this stage how these improvements will be achieved, and this should be scoped into the EIA.	Effects on PRoW and community severance have been considered throughout the design process and mitigation measures (including improvements) identified where appropriate. The assessment of these effects is described in ES Chapter 13: Population and Human Health (Application Document 6.1).
	There is no mention of consultation with a wide range of community and business groups, businesses and residents, amenity groups etc. National Highways need to demonstrate that this will be undertaken and the outcomes of the consultation.	Consultation and engagement with community groups and stakeholders has taken place throughout the development of the Project. Findings from this have been incorporated into ES Chapter 13: Population and Human Health (Application Document 6.1) where relevant.
	Consultation with the Council will need to continue.	Noted.
	This section refers to 'identified facilities', but there are many that are not referred to here. The red line now includes Coalhouse Fort, a scheduled Ancient Monument that the council manages for conservation and leisure, which has not been included. There also needs to be a cross reference to wider consultation	Reference to Coalhouse Fort has been included within ES Chapter 13: Population and Human Health (Application Document 6.1).

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	<p>The key emergency services (East of England Ambulance Service NHS Trust, Essex Police, Essex County Fire and Rescue Service and the relevant local Acute Hospital Trusts with A&E facilities) should be consulted on this proposed new crossing, as a future potential increase in incidents and accidents will have a direct impact on their capacity to respond.</p>	<p>Consultation and engagement with stakeholders has taken place throughout the development of the Project.</p>
	<p>As outlined previously, the use of green tunnels/underpasses and bridges to replace any PRowS permanently affected by the development would be beneficial in creating visually pleasing environments as well as the potential to reduce some of the impacts of air pollution. Consideration should be paid to how the local walking and cycling infrastructure will be significantly enhanced to across the borough to mitigate congestion/air pollution/severance across the area.</p>	<p>Effects on PRow and community severance have been considered throughout the design process and mitigation measures (including improvements) identified where appropriate.</p>
	<p>Coalhouse Fort needs to be included.</p>	<p>Reference to Coalhouse Fort has been included within the assessment.</p>
	<p>This Scoping Report does not acknowledge all of the concerns Thurrock faces in terms of health and wellbeing which could be further impacted by the proposed crossing. In particular the variation across the borough in terms of lower life expectancy, higher cancer rates, higher mortality due to cardiovascular disease and respiratory illness, deprivation levels etc. Please see additional information provided in support of a Health Impact Assessment. There are 3 traveller sites in Thurrock and the Gammon Field site at Long Lane (22 plots) which will need to be relocated. The travellers affected have already been informed but the report does not consider the impact this will have on the health and wellbeing of this community. Gypsies and Travellers</p>	<p>Traveller sites have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>

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	<p>experience some of the poorest health outcomes including the lowest life expectancy of any group in the UK and high infant mortality rates. The travellers affected have already expressed concerns over the distance they will be relocated and subsequent disruption to their lives and community, in particular possible changes to healthcare providers and children’s schools. The report does not mention relocation options or how this community will be supported during this time.</p>	
	<p>Consideration of other routes, i.e. footways, crossings, long distance footpaths, national trails etc. is required.</p>	<p>Effects on PRoW and community severance have been considered throughout the design process and mitigation measures (including improvements) identified where appropriate. The assessment of these effects is described in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>The Natural England proposed English Coastal Path (from Tilbury to Southend) also needs to be considered in the EIA.</p>	<p>The England Coast Path National Trail has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>National Highways has not provided any baseline information for existing amenity. The Council would like to see a confirmation of any designated crossings/ bridges or underpasses for NMUs.</p>	<p>Baseline information relating to existing amenity has been included in the population and human health assessment, with reference to other environmental topics such as air quality and noise. Effects on PRoW and community severance have been considered throughout the design process and mitigation measures (including improvements where possible) identified where appropriate.</p>
	<p>The baseline needs to include more detail on the settlements that are likely to be directly affected by the scheme, including reference to the travellers community that is located on the proposed route.</p>	<p>Effects on the traveller community have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>

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	National Highways need to provide more details on the development sites in the area which will be considered in the assessment (for example a table listing them).	Development sites within the study area that may potentially be affected by the Project have been included in ES Chapter 13: Population and Human Health (Application Document 6.1).
	Baseline information on existing severance needs to be identified and included in the assessment. Given the level of detail on other topics, this feels like a significant omission.	Existing severance has been considered as part of ES Chapter 13: Population and Human Health (Application Document 6.1).
	Statistics in the local and wider economy baseline section should be provided to support the text.	In line with the release of DMRB LA 112 Population and Human Health (National Highways, 2020), the local and wider economy has not been considered within ES Chapter 13: Population and Human Health (Application Document 6.1). Please refer to the Need for the Project (Application Document 7.1) and Appendix D: Economic Appraisal Package of the Combined Modelling and Appraisal Report (Application Document 7.7).
	The Scoping Report has not made it clear whether NMU surveys will be undertaken. If there would be permanent modifications to NMU facilities, with the potential for significant effects, these should be undertaken.	PRoW usage has been surveyed at key gateway locations, in consultation with relevant local authorities, and the findings have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).
	National Highways need to demonstrate the value of these receptors (i.e. NMUs and vehicle travellers), NMUs are likely to be highly sensitive to change.	This has been included within ES Chapter 13: Population and Human Health (Application Document 6.1).
	The Council would like greater clarification on what engagement will be carried out with representatives of the community assets that will be affected by severance or demolition, and key interest groups such as those interested in cycling and walking in the local area affected by the severance of the PRoWs, in order to gain local knowledge on the effects on impacted assets.	Consultation and engagement with community groups and stakeholders has taken place throughout the development of the Project. Findings from this have been incorporated into this ES Chapter 13: Population and Human Health (Application Document 6.1) where relevant.

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	<p>This section refers to the impact on Community and Private Assets caused by demolition and land take, however the severance of catchment areas could also have a significant impact particularly in the short to medium term on a variety of such interests, and therefore needs to be considered in the assessment.</p>	<p>Catchment areas for affected community assets have been taken into account as part of ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>Community and Private Assets: National Highways need to clarify what assessment will be done in the local impact and wider impact areas, this needs to include reference to the relevant parts of DMRB Vol 11 Section 3 Part 6 and how the method will comply with the guidance.</p>	<p>This has been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>The methodology for assessing impact on health and wellbeing is not acceptable - a full Health Impact Assessment should be undertaken with recommended best practice methodology (e.g. HUDU), Thurrock Council Public Health and Public Health England should be consulted on the methods for full Health Impact Assessment.</p>	<p>Noted. A Health and Equalities Impact Assessment (Application Document 7.10) has been produced.</p>
	<p>Refers to an assessment of impact on development land being based on planning applications and development plans. The assessment should consider the strategic planning sites set out in the new Local Plan. The Council also has regeneration strategies which promote growth in locations and have been the basis for generating funding from other sources for implementation, these should also be included in scope of the assessment.</p> <p>The assessment also needs to recognise that the scheme could improve the attractiveness of some</p>	<p>Strategic planning sites have been included in ES Chapter 13: Population and Human Health (Application Document 6.1) The impact of the Project on development sites is included, whether negative or beneficial.</p>

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	development land and reduce the attractiveness others impacted by noise, reduced site areas etc.	
	Development Land: National Highways needs to clarify what assessment will be done on the effects on development land (not just identifying what development land is in the area). Greater clarity is also required on whether the focus will be on land taken, on accessibility or other factors.	The methodology for identifying and assessing effects on development land has been included in ES Chapter 13: Population and Human Health (Application Document 6.1).
	Local and wider economy: detailed modelling of the wider economic impacts was published for the appraisal of the shortlisted options. The Council would like greater clarification on whether the method used to assess economic impacts in the EIA will build on this.	The local and wider economy has been considered, please refer to the Need for the Project (Application Document 7.1) and Appendix D of the Combined Modelling and Appraisal Report (Application Document 7.7).
	Changes to Journey Length and Severance: The method steps could be set out more clearly. Existing journey lengths will need to be identified by mapping routes to key community facilities, and the changes to the journey lengths assessed. The scoping report states "The methodology to identify existing non-motorised traffic will be agreed with local authorities". The Council recommends that traffic counts are carried out at the site of PRoWs, using video monitoring at set times to identify the traffic at these routes. The data should then be used to identify the number of people affected by the changing journey length. This needs to be carried out in line DMRB Vol 11 Section 3 Part 8 by relevant transport planning specialists.	The population and human health assessment has been undertaken in line with the latest DMRB Standard LA 112. Surveys of PRoW usage have been undertaken at key gateway locations in consultation with relevant local authorities.
	The Council would like greater clarification on whether NMU surveys are going to be undertaken. DMRB Volume 11 Section 3 Part 8 Chapter 9 states that 'counts of pedestrians and others should be undertaken	PRoW usage has been surveyed at key gateway locations, in consultation with relevant local authorities, and the findings have been considered in the population and human health assessment.

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	<p>where this is necessary to achieve the objective of this stage of assessment' i.e. where there are going to be permanent changes to journey times, and safety and amenity is likely to be prejudiced. Furthermore, where 'pedestrians and others' travel patterns are complex and a scheme could have a major impact, origin destination surveys should be considered'.</p>	
	<p>The table references are incorrect. National Highways need to clarify whether Table 13-5 and Table 13.6 are still in the assessment. It isn't clear what the scale of impacts will be for changes in journey length or amenity or what the methodologies are based on, without the tables.</p>	<p>Noted. The impact on journey lengths and amenity value of WCH routes has been assessed as part of ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>National Highways needs to consider what changes in barriers between people and traffic will occur. In addition, the EIA should at least include a reference to forecast traffic flows (DMRB Volume 11 Section 3 Part 8 Chapter 4) for routes.</p>	<p>The findings of the Transport Assessment (Application Document 7.9) have been used to determine effects of the Project on both the local road network and issues such as severance. Severance is also considered in Appendix D of the Combined Modelling and Appraisal Report (Application Document 7.7).</p>
	<p>The Scoping Report refers to changes to amenity in terms of impact on pleasantness of the journey and driver exposure to fumes etc. Amenity of people living and working in the area and using established leisure facilities such as parks and PROWS should also be considered in the assessment.</p>	<p>Effects on residential amenity have been considered in the ES Chapter 13: Population and Human Health (Application Document 6.1).</p>
	<p>National Highways need to provide justification for the 200m local study area. It is generally accepted that 250m is the appropriate study area for the majority of people and community effects. Additionally, the Local Study Area needs to be more flexible. Some impacts could be outside of this zone such as severance of</p>	<p>A 250m study area has been utilised for the immediate local effects of the Project. Impacts arising from severance and changes to the local road network are not restricted to this study area and have been defined as a result of findings from the Transport Assessment (Application Document 7.9).</p>

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	catchment areas for community and private assets, changed traffic flows etc.	
	National Highways need to clarify what the study area will be for effects on driver stress.	As a result of the introduction of DMRB LA 112 in November 2019, driver stress and views from the road no longer form part of the assessment required within ES Chapter 13: Population and Human Health (Application Document 6.1). Driver stress is considered qualitatively under Section 7.7 Road Safety of ES Chapter 13: Population and Human Health (Application Document 6.1). Views from the road remains a component of the wider landscape assessment and further information is set out in ES Chapter 7: Landscape and Visual (Application Document 6.1). Please refer to ES Appendix 7.13: Views from the Road Assessment.
	The approach to determining the level of significance should have been set in the scoping report. There are tables referred to earlier in the method. However, they appear to have been removed from the report, this needs to be clearly set out in the EIA.	The approach to determining the level of significance is set out in ES Chapter 4: EIA Methodology (Application Document 6.1).
	There doesn't appear to be a section 1.14 however it states, "As outlined in section 1.14 of this EIA Scoping Report". More detail on the impacts on properties and community assets needs to be provided.	Effects of the Project on commercial and private assets (including residential properties) have been considered in ES Chapter 13: Population and Human Health (Application Document 6.1).
	National Highways need to provide detail on whether all PRoWs will be mitigated by a footbridge or underpass and if they will be provided at appropriate locations as determined by NMU Surveys. The mitigation for PRoWs is not clear and needs to be clarified. The use of green bridges and underpasses to replace any PRoWs that are permanently affected by the development would be beneficial.	Effects on PRoW and community severance have been considered throughout the design process and mitigation measures (including improvements where possible) identified where appropriate. The assessment of these effects is described in ES Chapter 13: Population and Human Health (Application Document 6.1).

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	National Highways need to give greater consideration to the severance of the community in regard to the crossing severing links across the community and essentially creating two sets of communities that work in isolation from each other.	Community severance has been included in ES Chapter 13: Population and Human Health (Application Document 6.1).
	The mitigation proposals for NMUs are not clear. National Highways need to clarify whether permanent diversions or crossing will be provided for NMUs.	Effects on PRow and community severance have been considered throughout the design process and mitigation measures (including improvements) identified where appropriate.
	The proposed development should also include enhancements for the existing public rights of way networks, which should take into consideration Thurrock’s Rights of Way Improvement Plan (which is currently in draft form), particularly it’s aims to increase east to west connectivity for equestrians.	Effects on PRow and community severance have been considered throughout the design process and mitigation measures (including improvements) identified where appropriate. Equestrian usage has also been considered.
Drainage and the Water Environment	The redline boundary only takes account of the road area itself and does not consider the space that will be required for attenuation storage and flood zone compensation. It is critical to consider this as early as possible to ensure the Council do not have any space issues further down the line.	The Order Limits have been defined to include sufficient land to accommodate all proposed compensatory flood storage areas and surface water drainage infrastructure, including features for the provision of attenuation storage and treatment.
	With regards to WFD, there is no mention of whether any of the waterbodies affected by the proposals are heavily modified waterbodies (HMWB). This is an important factor which should have early consideration - liaison with the Environment Agency at an early stage to discuss whether there are any mitigation measures for the waterbodies which could be delivered as part of the project should be undertaken.	HMWB status is reported in ES Appendix 14.7: Water Framework Directive Assessment. The assessment has been progressed in stages, engaging closely with EA and submitting each stage for EA review.
	Again, with regards to WFD, there is no specific mention of watercourse crossing design (where new	EA dialogue has been ongoing throughout the pre-application stage. Watercourse crossing design has been accounted for in

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	<p>watercourses are being crossed) which is a key consideration in highways schemes and the design for which needs to involve clear span bridges and not culverts etc. Early communication with Environment Agency on this will be essential.</p>	<p>the WFD assessment, as detailed in ES Chapter 14 Appendix 14.7 (Application Document 6.3).</p>
	<p>It is stated that a WFD assessment will be prepared and appropriate design and mitigation measures would be incorporated into design to facilitate WFD compliance. National Highways need to clarify whether this will be a separate, standalone assessment or included as part of the environmental statement. Additionally, the WFD will need to be considered as part of project design development (as an ongoing input) to facilitate WFD compliance, then a WFD assessment will need to be produced when the final design is frozen/confirmed so that compliance can be proven.</p>	<p>A standalone report has been prepared, please refer to ES Chapter 14 Appendix 14.7 (Application Document 6.3). The WFD assessment has informed a number of the Projects design principles and has been updated to reflect relevant changes as the design has evolved.</p>
	<p>It is noted that consultation with relevant regulatory authorities with regards to consents and licensing for project activities will occur, but it is also noted that there will be engagement with the 'ecology team'. The council requests greater clarity on whether it means ecology team at HE or at the council, at the Environment Agency, or within a consultancy.</p>	<p>The project has engaged with all relevant consultees with regard to ecology, including the EA, Natural England, local authorities, and NGOs.</p>
	<p>The Scoping Report states that 'none of these waterbodies [unnamed rivers and ordinary watercourses] are monitoring under the second cycle of the water framework directive'. Although they are not monitored under WFD anymore, National Highways need to clarify that works affecting the waterbodies still needs to comply with WFD, as they should be assessed as part of the downstream waterbody (as cumulative effects will need to be accounted for).</p>	<p>Project effects on water bodies that are not designated WFD waterbodies have been assessed, as detailed in ES Chapter 14 Appendix 14.7 (Application Document 6.3).</p>

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	<p>The Council expects compliance with Essex County Council’s (ECC’s) Sustainable Drainage Systems Design Guide, Non-statutory technical standards for sustainable drainage systems, The CIRIA SuDS Manual (C753), BS8582 Code of practice for surface water management for development sites. The Council will treat the development consistently with major planning applications which for which the Council is a consultee for. If evidence can be provided as to why the criteria cannot be achieved we may accept a lower standard.</p>	<p>These guides and standards have been referenced, as appropriate, in developing the Project drainage design and surface water management strategy.</p>
	<p>There is no mention of WFD objectives for the waterbodies within the study area. This should be clarified including where they are the study area, current status, HMWB classification and objectives.</p>	<p>This has been clarified in the Water Framework Directive Assessment (ES Appendix 14.7).</p>
	<p>The Council agrees that there is probably enough baseline data available to characterise quality of surface water receptors, though as noted, the approach will definitely require confirmation from the Environment Agency. The Water Features Survey sounds like a suitable and sensible approach to verify/check baseline data.</p>	<p>Noted. Engagement with the EA has been ongoing throughout the pre-application stage and methodologies for fluvial assessments have been agreed.</p>
	<p>The Thames Local Flood Risk Management Strategy including the Critical Drainage Areas included in this document should be considered. The Council would expect to see a detailed analysis of the impact of the scheme with reference to the latest surface water modelling in the Surface Water Management Plan. Any other relevant document should also be considered.</p>	<p>All relevant flood and surface water drainage risk documents have been considered and used to inform the FRA and drainage strategy as appropriate.</p>
	<p>It must be ensured that infiltration testing and groundwater testing in line with BRE 365 is conducted. In line with the discharge hierarchy, infiltration is first</p>	<p>It is confirmed that the highway drainage design has adopted a first-choice solution of infiltration to the ground as set out in DMRB. Where a discharge to ground is not considered</p>

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	<p>preference. Supporting infiltration tests will need to be provided if this is the proposed method and should be demonstrated that any infiltrating water will not be contaminated. The next preference is to discharge to watercourses, then sewers as a last resort (evidence from the water company of available discharge capacity to be provided if this is the proposed method). If discharging to the estuary then tide locking and surcharging must be considered.</p>	<p>appropriate, the drainage strategy adopts an approach based on a positive piped system out falling to a surface watercourse. Ground investigation to assess the feasibility of infiltration to ground solutions has followed best practice to assess the ease that water may infiltrate the ground and includes contamination testing where appropriate.</p>
	<p>Methodology regarding sediment contaminants to create a 'baseline' sounds sensible, particularly initial consultation with EA/MMO/PLA for any sediment analysis data prior to undertaking any sampling. Comparison to CEFAS criteria/guidance also sounds appropriate.</p>	<p>No response required.</p>
	<p>The River Thames Estuary has been assigned 'medium' value for water quality with rationale that the waterbody is currently at moderate status. The Council disagrees with this - just because the waterbody isn't in good condition (and may never be) it does not mean that the water quality should be valued any less. The value should be high/very high, as the project must present no deterioration to WFD status. The Council queries whether WFD waterbody status should be used as a rationale for receptor value, if a WFD assessment is being done separately to the assessment of effects.</p>	<p>Attribute quality has been revisited in the assessment and values assigned based on all available baseline data.</p>
	<p>Same comment as above but for Mardyke waterbody - value for water quality should be high/very high status.</p>	
	<p>The value for water quality for Unnamed main rivers and ordinary watercourses is 'low', with rationale that the waterbodies are unclassified under WFD with 'low rarity'</p>	

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	<p>at local scale. These two should be split up in to two separate categories (main rivers, and then ordinary watercourses and drainage ditches). The value for main rivers should be at least medium if not high. The value for the latter might be medium.</p>	
	<p>The methodology for assessment of potential effects on water environment following DMRB guidance, study area/assessment periods/future baseline/significance criteria sounds appropriate. Same applies to the FRA.</p>	<p>Noted.</p>
	<p>The Essex SuDS Guide and CIRIA SUDS Manual C753 provides an index approach to mitigating surface water /groundwater pollution which should be followed. This may help to pick appropriate SuDS in terms of water quality requirements.</p>	<p>These guides have been referenced, as appropriate, in developing the Project drainage design and surface water management strategy.</p>
	<p>The Environment Agency updated climate change allowances should be referred to.</p>	<p>The EA updated climate change allowances were used in the assessment.</p>
	<p>Consideration should be paid to the impact of flooding on local resident's health. Flooding can result in loss of a home and possessions, place of work and as such can have a major impact on mental health and wellbeing. More severe flooding could result in loss of life and family members left behind may experience poor mental health through bereavement (see justification for a full HIA provided). Flood mitigation measures will be of vital importance in relation to the proposed development. The selection of flood defences is also vitally important to the visual amenity and character of the local landscape, as well as access to the riverfront.</p>	<p>Flood mitigation, resilience and protection measures have been identified in the Flood Risk Assessment (ES Appendix 14.6) and incorporated in the Project design where feasible. Human wellbeing, visual impact and access issues have all been considered in the design.</p>
	<p>How water pollution will be mitigated should also be included in the FRA.</p>	<p>Water pollution mitigation measures have been included in the Flood Risk Assessment (ES Appendix 14.6), in the REAC (ES</p>

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		Appendix 2.2) and in ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
	It must be ensured that during construction and operation, flood risk or water pollution is not increased off site. If any features that will be used to manage surface water during construction will also be used as part of the final drainage scheme, it must ensure that appropriate features are in place to stop pollution/sediment entering these features. Any final surface water features should be fully inspected to ensure they are working efficiently.	Issues associated with flood risk and water pollution are considered in the assessment, please refer to the Flood Risk Assessment (ES Appendix 14.6) and ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1). Issues relating to condition of drainage assets constructed for the temporary works and included in the permanent works has been considered in the assessment, ES Chapter 14: Road Drainage and the Water Environment (Application Document 6.1).
	Description of significant effects (construction and operation) seem comprehensive and sensible.	Noted.
	The potential mitigation measures seem sensible, however as part of the attenuation storage, opportunities to (re) create new wetland features, e.g. fens on the Mardyke, to also benefit landscape and biodiversity need to be considered.	Potential for the Project to deliver benefits/enhancements has been considered.
	The Council agrees that no aspects can be scoped out at this stage.	Noted.
	SuDS should be located outside of undefended Flood Risk Zones. Additional volumes of water shown to flow to the site must be stored for/accommodated to ensure no increase in flood risk as a result of the development.	A Surface Water Drainage Strategy has been developed in consultation with the EA and relevant Lead Local Flood Authorities. This addresses these aspects.
Chapter 15 Climate / Section 15.4	The baseline information does not mention any actual average temperatures, rainfall etc., only observed changes, so there is no base to start from. National Highways need to take into consideration average met	Data have been sourced from UKCP18 and the Met Office Observational data obtained for the stations nearest to the Project (Stanford-le-Hope, Writtle, Gillingham No2 and East Malling) to establish the baseline.

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	data for the South East for Temperature, Rainfall, Wind, Sunshine and Air Frost, etc.	UKCP probabilistic projections for pre-defined 20-year periods for the certain average climate variables have been obtained and analysed. Further data have been obtained from UKCP18 for other climate variables and extreme weather events. Further information on baseline can be found in ES Chapter 15: Climate (Application Document 6.1).
Chapter 15 Climate / Section 15.4.4	National Highways need to clarify why has the 2080 scenarios has not been taken into account bearing in mind the design life for the tunnel is 120 years.	The likelihood and consequence of each identified operational impact occurring to each receptor (where relevant) has been assessed as part of the climate assessment, for the selected future timeframe for operation (2020-2039, 2040-2059,2060-2079 and 2080-2099).
Chapter 15 Climate / Section 15.4.5	There is no mention of local greenhouse gas emissions to the scheme, or embodied carbon from the construction industry. Bearing in mind the UK construction industry is the largest consumer of natural resources with an average of over 400 million tonnes of material consumed every year. This accounts for approximately 10% of the total UK carbon emissions (Embodied Energy and Carbon, ICE (Accessed September 2017)- https://www.ice.org.uk/knowledge-and-resources/briefing-sheet/embodied-energy-and-carbon).	Quantification of GHG emissions has been carried out following the methodology set out in PAS 2080:2016. This includes embodied carbon from the materials that would be used and emissions resulting from local construction activities. Further information is presented in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1) and the Carbon and Energy Management Plan (Application Document 7.19).
Chapter 15 Climate / Section 15.7	No reference has been made to National Highways Major Projects’ Instructions ‘Environmental Impact Assessment: Implementing the Requirements of 2011/92/EU as amended by 2014/52/EU (EIA Directive)’ (MPI-57-052017).	A list of the guidance documents referred to during the climate assessment is presented in Section 15.3 of ES Chapter 15: Climate (Application Document 6.1).
Chapter 15 Climate / Section 15.7.4	National Highways needs to consider embodied carbon from use of materials in construction within the assessment.	The Project has completed comprehensive modelling of GHG emissions, in line with the methodology set out in PAS2080:2016, across all project stages to

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		<p>understand/quantify its contribution. The quantification includes embodied carbon.</p> <p>Please refer to ES Chapter 15: Climate (Application Document 6.1) and the Carbon and Energy Management Plan (Application Document 7.19).</p>
Chapter 15 Climate / Section 15.7.6	National Highways need to clarify the methodology used to carry out the climate change risk assessment as it is not clear from the text.	The climate assessment methodology is presented in ES Chapter 15: Climate (Application Document 6.1).
Chapter 15 Climate / Section 15.7.10	<p>Clear and adequate mitigation measures at both the construction and operational phases of the project will be required to reduce the levels of greenhouse gas emissions, which in turn will aid in reducing the impact of climate change in the borough and wider areas. This will also work towards reducing poor air quality which can be detrimental to human health (for example leading to premature mortality and exacerbation of conditions such as Asthma and COPD). Climate change can lead to more extremes in the weather and is predicted to lead to hotter summers. In terms of health hotter summers may lead to increased A+E attendances related to heatstroke and other heat related ill health. Extreme weather events should be considered in terms of impact of this proposed crossing and consideration for mitigation measures such as tree planting which can provide shade and SUDS as well as other health benefits.</p>	<p>Mitigation measures are presented in ES Chapter 15: Climate (Application Document 6.1), the Carbon and Energy Management Plan (Application Document 7.19) and ES Appendix 2.2: REAC. Those included in ES Appendix 2.2 would be secured through Requirement 2 and those in the Carbon and Energy Management Plan through Requirement 16 of the DCO.</p>
Chapter 15 Climate / Table 15.2	Although mentioned further on in the chapter, there is no mention in this table of embodied carbon from materials used in construction, which for an average highways scheme will make up approximately 70%-80% of the construction carbon footprint.	The Project has completed comprehensive modelling of GHG emissions across all project stages, in line with the methodology set out in PAS2080:2016, to understand/quantify its contribution. The quantification includes embodied carbon.

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		Please refer to ES Chapter 15: Climate (Application Document 6.1) and the Carbon and Energy Management Plan (Application Document 7.19).
Chapter 15 Climate / Table 15.3	Again, there is no mention of embodied carbon associated with materials in the greenhouse gas assessment. This should be considered.	The Project has completed comprehensive modelling of GHG emissions across all project stages, in line with the methodology set out in PAS2080:2016, to understand/quantify its contribution. The quantification includes embodied carbon. Please refer to ES Chapter 15: Climate (Application Document 6.1) and the Carbon and Energy Management Plan (Application Document 7.19).
Chapter 15 Climate /Section 15.7.17	General comment - PAS2080 was bought in to try and reduce carbon and cost across the infrastructure industry, National Highways need to clarify whether any effort is going to be made to encourage Low Carbon design by monitoring Carbon throughout the project not just at the end with HE's Carbon Calculation tool.	National Highways is committed to reducing carbon emissions and working closely with suppliers to achieve this. In the Carbon and Energy Management Plan (Application Document 7.19), which is a secured document, National Highways has committed to low carbon design. The carbon commitments constitute a mechanism to achieve this, including obtaining PAS 2080 certification for the Project and by Contractors, and publishing an annual carbon performance report. For further details is referred to the Carbon and Energy Management Plan (Application Document 7.19) and Section 15.5 of ES Chapter 15: Climate (Application Document 6.1). It is not considered practical to monitor GHG emissions from road users during the Project operational phase. Please refer to ES Chapter 15: Climate (Application Document 6.1).
Chapter 15 Climate / Section 15.8.9	When the Project is operational, i.e. has vehicles on it, the greenhouse gas emissions from the increased volume of traffic has the potential to be significant. National Highways need to clarify why is this not considered here.	The GHG assessment includes assessment of operation and ‘use’ of the Project, including those emissions resulting from mechanical and electrical energy use such as tunnel lighting and ventilation and the impact from a variation in vehicle journeys travelling on the road and surrounding area (the fully modelled area of the Project’s transport model as set out in

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		the Combined Modelling and Appraisal Report (ComMA) (Application Document 7.7)). Please refer to ES Chapter 15: Climate (Application Document 6.1).
Chapter 16 Cumulative Effects / General	Consultation with the Council should be undertaken to agree on the final list of developments to be included in the cumulative assessment.	A technical note on the approach to the Cumulative Effects Assessment (CEA) and the long list and short list of developments to be included was shared with local authorities in March 2020, July 2021 and July 2022. Comments received in response have been duly considered and addressed within the assessment presented in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) and Appendices 16.2 and 16.2 where appropriate.
Chapter 16 Cumulative Effects / General	Tilbury Energy Centre has not been included within the list of developments for inclusion in the cumulative assessment. This is an NSIP located adjacent to the proposed development. Due to the proximity of all three NSIPs (Tilbury2, Tilbury Energy Centre and Lower Thames Crossing) the cumulative effects of these developments need to be thoroughly assessed, including the impacts on traffic due to the increased number of vehicles and HGVs all three NSIPs will create.	Tilbury2 was included in the long list for cumulative effects assessment but has been scoped out of the short list because it will be fully operational prior to the start of construction. Tilbury Energy Centre was also scoped out of the short list because the application was withdrawn in November 2018.
Chapter 16 Cumulative Effects / General	Although DP World London Gateway has been developed, the capacity at this site will continue to increase. Therefore, the cumulative assessment within the EIA should also take this into consideration, this is particularly important within the noise and air quality cumulative assessments.	DP World London Gateway has been included in the shortlist for cumulative effects assessment. The development has been included in the transport model and so is included within the traffic data used in the air quality and noise assessments.
Chapter 16 Cumulative Effects / General	National Highways need to consider the cumulative effect of the various developments (Tilbury2, Tilbury Energy Centre, and the Lower Thames Crossing). The Council requires further clarification on how does these	Tilbury2 was included in the long list of developments to be considered with respect to cumulative effects but has been scoped out of the short list because it is has been constructed and is now fully operational, so it is part of the baseline.

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	various developments impact on the designated assets within the Thames Corridor.	Tilbury Energy Centre was also scoped out of the short list because the application was withdrawn in November 2018.
Chapter 16 Cumulative Effects / General	Consideration of existing planning applications (both residential and commercial) and developments in close proximity to the proposed LTC and the cumulative impacts of construction and operation of all of these developments in terms of noise, air pollution, access and social cohesion and employment will be vital in developing appropriate mitigation measures that will reduce the impact on local resident's health.	Existing planning applications have been included in the cumulative effects assessment presented in Chapter 16: Cumulative Effects Assessment (Application Document 6.1) A technical note on the approach to the Cumulative Effects Assessment (CEA) and the long list and short list of developments to be included was shared with local authorities in March 2020, July 2021 and July 2022. Comments received in response have been duly considered and addressed within the assessment presented in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) and Appendices 16.2 and 16.2 where appropriate.
Chapter 16 Cumulative Effects / General	The chapter uses guidance outlined in the PINS Advice Note 17, which is the most up-to-date guidance on a methodology for assessing cumulative effects for Nationally Significant Infrastructure Projects.	Noted.
Chapter 16 Cumulative Effects / General	Cumulative impact on wider marine environment also needs to be accounted for.	Cumulative effects on marine biodiversity have been considered as part on the cumulative effects assessment presented in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1)
Chapter 16 Cumulative Effects / Section 16.2	The methodology does not include a significance criteria/indication as to how significance will be established. Section 3.4.7 of PINS Advice Note 17 provides information on the requirements of the significance criteria for cumulative effects assessment.	The significance criteria for the cumulative assessment has considered the guidance in the Planning Inspectorate Advice Note Seventeen. ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) sets out the significance criteria used in the assessment.
Chapter 16 Cumulative Effects / Section 16.2	The approach for the cumulative effects assessment of air quality and noise and vibration should be clarified in the methodology; as per Section 3.4.4 of PINS Advice Note 17, operational assessments for air quality and noise are often already due to the use the traffic	The approach to assessment of cumulative air quality and noise and vibration effects is explained in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1)

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	forecast results. If this is the case, this should be included for clarity.	
Chapter 16 Cumulative Effects / Section 16.2	National Highways need to ensure that a comprehensive cumulative assessment of the air quality effects during construction is undertaken. The construction of the lower Thames crossing would be likely to coincide with the construction of Tilbury2 and the cumulative impact on ambient air quality effects is likely to be significant.	The traffic data used in the air quality assessment accounts for traffic growth in future years, as well as a number of future developments that have been explicitly added into the Lower Thames Area Model (LTAM). Tilbury2 is now operational and the Project’s transport model and Transport Assessment (Application Document 7.9) includes the forecasts from the published Transport Assessment for Tilbury2. The air quality assessment is based on that data and therefore covers Tilbury2. Where developments have not been included in the transport assessment, a qualitative assessment has been undertaken using the available information.
Chapter 16 Cumulative Effects / Section 16.2.3	For 'Intra-Project Cumulative Effects', reference is made to results being presented in a matrix. Further clarity is required on this method, and sight of the assessment matrix proposed would be useful.	A technical note on the approach to the Cumulative Effects Assessment and the long list and short list of developments to be included was shared with local authorities in March 2020, July 2021 and July 2022. The matrix approach is based on the methodology set out in Advice Note Seventeen (Planning Inspectorate, 2019)
Chapter 16 Cumulative Effects / Section 16.2.5	Reference is made to the EIA Regulations (2009) as amended, National Highways need to refer to the Infrastructure Planning (EIA) Regulations (2017).	The Project has been assessed under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Chapter 16 Cumulative Effects / Section 16.2.10	In accordance with the Infrastructure Planning (EIA) Regulations 2017, the assessment of cumulative effects should include 'effects with other existing and/or approved projects'. The assessment methodology presented within the chapter states that all Tiers of 'other development' are included; justification should be provided to support this, such as the use of the Precautionary Principle.	All tiers of development have been included in the assessments presented in ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1). The long and shortlists which present the development included in the assessment are presented in Appendix 16.1 and 16.2.

Topic	Thurrock Council comment	National Highways response
Chapter 16 Cumulative Effects / Appendix E	The PINS Advice Note 17 recommends a table for recording the Long List of 'other developments' and the subsequent Short List. The table contained within Appendix E only contains the Short List of 'other developments', the Long List should also be included for clarity.	
Chapter 16 Cumulative Effects / Appendix E	A series of drawings should be produced to accompany the EIA, showing the proposed Scheme in relation to each of the 'other developments' with the ZOIs around both, so that the Zol overlaps are shown visually.	Please refer to ES Figures 16.1 and 16.2 (Application Document 6.2).
HIA	With regards to the Environmental Impact Assessment (EIA) Scoping report for the Lower Thames Crossing proposal, it is felt important that consideration is paid to the potential human health impacts in respect of this proposed development. This relates to the health and wellbeing of any person(s) employed during construction and operational stages, local residents living in communities close to the proposed development, and the wider community as a whole where impacts may be felt via the wider transport network.	A Health and Equalities Impact Assessment (Application Document 7.10) has been submitted as part of the DCO application.
HIA	It is felt to be a useful starting point, to provide a definition of what is meant by the term 'human health', to support and enable full consideration of any potential health impacts that may arise from this proposed development. This will allow the appropriate and adequate mitigation processes to be developed and implemented to reduce such impacts on health. The World Health Organisation (WHO) defines health as “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” This definition encapsulates the 'holistic'	Definitions of human health and wellbeing is included in the Health and Equalities Impact Assessment (Application Document 7.10)

Topic	Thurrock Council comment	National Highways response
	<p>and ‘whole’ person. Health and wellbeing can be affected by a variety of complex and interrelated factors including the built environment and communities that people live in. This definition also focusses on keeping people well.</p>	
HIA	<p>In order to support people to remain well, acknowledgement of the role that the wider determinants of health can play needs to be recognised. This includes consideration of issues in the built environment such as landscape, traffic, congestion, and air quality, and how these issues can impact on health.</p>	<p>The topics considered within the Health and Equalities Impact Assessment (Application Document 7.10) include accessibility, severance, access to open space and nature, road safety, air quality, noise, housing, social capital, climate change and pollution.</p>
HIA	<p>The proposed route for the Lower Thames Crossing essentially divides the borough into two halves. This has the potential to sever links across the borough and create two sets of communities that work in isolation from each other. The health impacts of such a proposal on community and social cohesion, as well the potential to inhibit access to health services and local amenities (e.g. healthy food environments), requires careful consideration.</p>	
HIA	<p>Alongside this, it will be vitally important to determine what the health needs of different wards within the borough are and how they might be affected, as well as identifying what the cumulative effects might be, as a result of the development of the crossing. The wards that are most likely to be affected, in regard to the resident’s health, have been identified and are discussed below in turn.</p>	<p>A cumulative assessment of effects has been undertaken as part of the Health and Equalities Impact Assessment (Application Document 7.10), which considers both in-combination and inter-development effects. In-combination effects relate to where the separate effects of the Project (for example noise and air quality) are considered together in terms of their combined impact on health, wellbeing and equality. Inter-development impacts relate to the potential effects of the Project in combination with likely significant effects from other developments.</p>

Topic	Thurrock Council comment	National Highways response
HIA	As a result, it is strongly recommended that a Health Impact Assessment (HIA) is required, and that this is completed in relation to this proposed development to ensure that any negative consequences of the development are identified and mitigated, and that opportunities for improving the well-being of the community are maximised. We would request that we are included and consulted on during the process of completing the HIA, in particular around the scope and methodology employed. As we have access to more localised health intelligence we feel that it would be useful for National Highways to consult with Thurrock Council Public Health Team to ensure all health impacts are fully identified and assessed, and to inform appropriate mitigation measures.	A Health and Equalities Impact Assessment (Application Document 7.10) has been submitted as part of the DCO application. A Community Impacts and Public Health Advisory Group (CIPHAG) was established and first met 26 November 2018 and have met every 2-3 months since. The meetings were held to discuss data sources and the scope of the Health and Equalities Impact Assessment (Application Document 7.10). Provisional findings were discussed with the group.
HIA	Tilbury - existing residents are more likely to be living in poverty and deprivation. They are more likely to die at a younger age from several conditions that could be appeased by better environmental conditions. There are higher proportions of older people living alone, leaving them at risk of social isolation. Additionally, childhood obesity is a key health priority in this area. See Thurrock Council Appendix 2 for further information on key health concerns for area.	A comprehensive baseline has been prepared as part of the Health and Equalities Impact Assessment (Application Document 7.10). This includes information relating to the topic areas raised by Thurrock Council in Appendix 2 of their submission. Obesity, social isolation, health metrics and deprivation information (raised in Appendix 2) have all been analysed at ward level within this baseline, amongst other information.
HIA	East Tilbury - There are higher numbers of children residing in this ward, who may be more vulnerable to the potential health impacts arising from the proposed development. In East Tilbury there are high levels of emergency hospital admissions for COPD which could be reduced by better environmental conditions that promote good health. See Thurrock Council Appendix 2 for further information on key health concerns for area.	Representatives from Thurrock Council have also formed part of a Community Impacts and Public Health Advisory Group which has met on a regular basis during the development of the Project. The meetings have been used as an opportunity to discuss baseline information sources, data and key themes that will need to inform the assessment of impacts on human health and equalities.

Topic	Thurrock Council comment	National Highways response
HIA	Orsett - Orsett has a significantly higher proportion of people aged 65 and over who may be more vulnerable to health impacts, including social isolation and poor health generally. See Thurrock Council Appendix 2 for further information on key health concerns for area.	
HIA	Ockendon - In Ockendon, higher proportions of people are living with long-term conditions, alongside higher premature mortality rates from conditions that could be reduced by better environmental conditions. Poverty is also a concern with high levels of children and families living in deprivation. As with some of the other wards in the borough social isolation is a health concern in Ockendon. Obesity is also a key consideration particular in relation to children and promoting their health and wellbeing. See Thurrock Council Appendix 2 for further information on key health concerns for area.	
HIA	Chadwell St Mary - Chadwell St Mary is an area with high levels of poverty. Life expectancy is significantly lower for both males and females. Premature mortality from several conditions could be appeased by better environmental conditions. There are high levels of people living with long-term conditions as well as emergency hospital admissions relating to COPD. Obesity is a priority health area for young children (aged 4-5 years) who may be more vulnerable to health impacts. See Thurrock Council Appendix 2 for further information on key health concerns for area.	
HIA	Little Thurrock Blackshots - In Little Thurrock Blackshots, there are high numbers of older people and people with long term conditions. Additionally, many older people are living alone, and as such are at	

Topic	Thurrock Council comment	National Highways response
	<p>increased risk of experiencing social isolation which can negatively impact on both physical and mental health. See Thurrock Council Appendix 2 for further information on key health concerns for area.</p>	
HIA	<p>Stifford Clays - There are significantly higher numbers of people with long-term conditions in Stifford Clays. High numbers of emergency hospital admissions related to COPD as well as premature mortality from CHD could be reduced with better environmental conditions. As with the many of the other wards discussed, there are higher numbers of older people living alone which puts them at increased risk of social isolation. See Thurrock Council Appendix 2 for further information on key health concerns for area.</p>	
HIA	<p>Belhus - Existing residents living in Belhus experience high levels of deprivation. The number of people dying prematurely from many conditions could be appeased by better environmental conditions. There are significantly higher numbers of older people living alone in this ward. This places these individuals at increased risk of social isolation. Obesity is an area of priority in relation to children, in terms of promoting health and wellbeing. See Thurrock Council Appendix 2 for further information on key health concerns for area.</p>	
HIA	<p>Although the evidence base on the built environment and particularly transport and health is in its infancy in parts or is sometimes differential or conflicting for different populations at a local or wider level, the emerging health evidence is also considered as a basis for fully investigating the health impact the proposed new road and crossing. Some of the highlighted impacts of new roads and transport interventions which are</p>	<p>The topics considered within Health and Equalities Impact Assessment (Application Document 7.10) include accessibility, severance, access to open space and nature, road safety, air quality, noise, housing, social capital, climate change and pollution.</p>

Topic	Thurrock Council comment	National Highways response
	<p>considered important in terms of the evidence base and the subsequent impact on local population health include:</p> <ul style="list-style-type: none"> • Noise – in particular its impact on mental health and wellbeing related to stress from noise, and sleep disturbance from noise, and on cardiovascular health (increased blood pressure and increased risk of coronary heart disease). • Air Pollution – impacts on respiratory and cardiovascular health and on vulnerable groups. • Community severance - impacts on mental well-being, social isolation, access to healthcare and amenities and services. • RTAs – consideration of the safety of the intersect between old and new road networks and the prevention of shifts in RTAs to other roads. • Physical Activity – impact on obesity, long-term conditions (such as cardiovascular diseases), and mental health and wellbeing. • Health Inequalities - the proposed route is located close to areas of high deprivation and health inequality. <p>This proposed development has the potential to add a further burden to already disadvantaged communities.</p>	
HIA	<p>Additionally, as part of any subsequent EIA, HIA and planning applications, we would like to see the following included:</p> <ul style="list-style-type: none"> • A noise impact assessment that takes into account the importance of implementing adequate noise mitigation measures (as needed) to reduce the 	<p>The Project has been designed to avoid or reduce impacts and effects on human health. This has been achieved through design principles and design development.</p> <p>For example, the Project design includes the creation of green bridges at Thong Lane, Brewers Road, North Road, and Muckingford Road, Rectory Road and Green Lane, the purpose of which is to maintain and enhance connectivity for</p>

Topic	Thurrock Council comment	National Highways response
	<p>impact on resident’s health and wellbeing.</p> <ul style="list-style-type: none"> An air quality impact assessment that includes consideration of the impact on human health that poor air quality can have, particularly in areas where health inequalities exist, and where premature mortality rates are high and there are large numbers of people with respiratory conditions or COPD that can be exacerbated by air pollution (as is the case in many of the wards located in close proximity to the proposed Lower Thames Crossing – see above for details). This will be vital considering the potential increase in traffic within the borough’s transport network as a result of the proposed Lower Thames Crossing. Consideration should also be paid to the inclusion of cycling and walking infrastructure across the borough to mitigate wider transport network activity and the replacement and enhancement of any potentially lost existing rights of way, as part of the development, which promotes social cohesion and encourages residents to engage in physical activity. Visually pleasing environments are beneficial for mental health and wellbeing and can support people to spend more time outside being physically active, feel safe in their local communities, enhance a sense of pride of their local area and increase social cohesion. Incorporation of mitigating actions such as green bridges that will connect local areas that will be severed by the proposed route would create aesthetically pleasing environments, connects communities and enhances social cohesion. Such bridges could incorporate some of the walking and cycling infrastructure proposed 	<p>walkers, cyclists and horse riders (WCH), to create habitat corridors and to allow for a better and more pleasant environment for those using, crossing and living in the immediate vicinity of the Project. The design also includes new and improved public open spaces (such as Tilbury Fields), WCH routes and ecological habitats.</p> <p>The ES (Application Document 6.1) includes topic chapters for noise and vibration (Chapter 12), air quality (Chapter 5), landscape and visual assessment (Chapter 7) and terrestrial biodiversity including habitat creation (Chapter 8). All of these are relevant to the points raised here.</p> <p>These various types of impacts and their implications for human health and wellbeing are brought together in ES Chapter 13: Population and Human Health (Application Document 6.1) and the Health and Equalities Impact Assessment (Application Document 7.10).</p>

Topic	Thurrock Council comment	National Highways response
	<p>above to promote more sustainable modes of travel and increase physical activity.</p> <ul style="list-style-type: none"> • There is emerging evidence about the effectiveness of urban greening and tree planting in mitigating the effects of air pollution. Strategic planting of trees can reduce the impacts of poor air quality. Some of the best species to use in terms of reducing air pollution as calculated by the urban tree air quality score (UTAQS) include; alder, field maple, hawthorn, larch, laurel, Lawson cypress, Norway Maple, pine and Silver birch. More broadly urban greening and planting create stimulating and pleasing environments which as noted above are beneficial to mental health and wellbeing. Introduction and enhancement of green environments also benefit in terms of participation in physical activity, social connectivity, and access to nature. Consideration should therefore be paid to the inclusion of tree planting and urban greening as part of the development process. 	

32 Transport for London

Table 32.1 Transport for London

Transport for London comment	National Highways response
<p>The base year model with Local Model Validation Report should be in line with the WebTAG/DMRB criteria.</p>	<p>The transport model has been produced in accordance with TAG/DMRB criteria.</p> <p>Detailed information on traffic modelling is provided within the Combined Modelling and Appraisal Report and its appendices (Application Document 7.7).</p>
<p>TfL agree with the proposed modelled area outlined within paragraph 2.19 of the Scoping Report, however, would like to request further information on the detail of the network within the area. The traffic model should be suitable to examine the traffic impacts for East London as changes on the M25 would affect London traffic. The outputs should allow TfL to understand the impacts within London, e.g. specific forecast changes in flows, congestion and delays on all links on the Transport for London Road Network (TLRN), trunk roads, M25 on and around London’s eastern boundary, especially the A127 which will be most directly impacted.</p>	<p>Detailed information on traffic modelling is provided within the Combined Modelling and Appraisal Report (Application Document 7.7). The transport model covers the areas of concern to Transport for London.</p> <p>The authority has also been provided with a cordon of the Project’s transport model (which covers some of the authority’s network) which enables detailed interrogation of the network that has been coded. The authority has also been provided with GIS shapefiles which cover all of the fully modelled area.</p>
<p>TfL agree with the model years outlined within paragraph 2.19.2 of the Scoping Report which outlines 2026 (opening year), 2031, 2041, 2051 for both with and without LTC. Modelled periods should be at least weekday AM peak, weekday inter-peak and weekday PM peak.</p>	<p>The modelled years have been updated to 2030, 2037, 2045, 2051 because of the change in opening year (2030). The time periods referred to in this comment have been modelled as requested.</p>
<p>Paragraph 2.19.6 outlines that growth forecasts will reflect National Trip End Forecasts (NTEM). TfL believe that NTEM over forecasts highway traffic growth within London and would advise LTC to adopt the GLA forecast for population and employment growth and liaise with TfL on highway growth.</p>	<p>The transport modelling has followed DfT TAG guidance and used TEMPro 7.2 growth forecasts.</p>

Transport for London comment	National Highways response
<p>Trip forecasts within London should reflect the TfL Highway Assignment Model (HAM) (version to be agreed; essentially the latest practical version which is available when the work is undertaken).</p>	<p>The transport model follows DfT TAG guidance and therefore uses the traffic forecasts produced by the DfT’s National Trip End Model Please refer to the Combined Modelling and Appraisal Report (Application Document 7.7) for more details.</p>
<p>TfL request that HE consult on a list of schemes to be included within the traffic modelling to ensure compatibility with TfL traffic modelling. Sensitivity tests should include the proposed Silvertown Tunnel and associated Blackwall user charging from 2023 (to be reviewed following the Development Consent Order (DCO) decision anticipated in 2018).</p>	<p>The Project’s transport model includes all schemes provided by local authorities and only those that were committed at the time this information was received. Liaison with TfL was undertaken to ascertain which to include as set out in TAG. The Silvertown Tunnel and user charging at Silvertown and Blackwall tunnels is included in the future year modelling. Please refer to Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7).</p>
<p>The modelling should include examination of induced traffic effects.</p>	<p>The model follows DfT TAG guidance and therefore uses the traffic forecasts produced by the DfT’s National Trip End Model. Please refer to Appendix C: Transport Forecasting Package of the Combined Modelling and Appraisal Report (Application Document 7.7).</p>

33 Trinity House

Table 33.1 Trinity House

Trinity House comment	National Highways response
I can confirm that Trinity House is content with the Scoping Report in connection with the above project.	Noted.

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Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ

National Highways Company Limited registered in England and Wales number 09346363