

# Lower Thames Crossing

## 6.1 Environmental Statement

### Chapter 16 – Cumulative Effects Assessment

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## 6.1 Environmental Statement

### Chapter 16 – Cumulative Effects Assessment

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## 16 Cumulative Effects Assessment

### 16.1 Introduction

- 16.1.1 This chapter presents the assessment of the likely significant cumulative effects of the A122 Lower Thames Crossing (the Project) during construction and operation.
- 16.1.2 The cumulative effects assessment (CEA) has been undertaken following the guidance in The Planning Inspectorate Advice Note Seventeen: cumulative effects assessment relevant to nationally significant infrastructure projects (Planning Inspectorate, 2019). The CEA has identified where two or more environmental effects interact to give rise to cumulative effects on common environmental resources or receptors.
- 16.1.3 Two types of cumulative effects have been considered:
- a. Intra-project effects – the combined action of a number of different environmental effects caused by the Project on the same resource or receptor.
  - b. Inter-project effects – the combined action of one or more other projects in combination with the A122 Lower Thames Crossing Project on the same resource or receptor.
- 16.1.4 This chapter is supported by Figures 16.1, 16.2 and 16.3 (Application Document 6.2), and additional information is contained within the following appendices (Application Document 6.3):
- a. Appendix 16.1: Cumulative Effects Assessment Long List of Developments
  - b. Appendix 16.2: Cumulative Effects Assessment Short List of Developments
  - c. Appendix 16.3: Cumulative Effects Assessment Legislation and Policy

### 16.2 Legislative and policy framework

- 16.2.1 This assessment has been undertaken in accordance with relevant legislation and having regard to national and local plans and policies. A list of plans is provided within Appendix 16.3: Cumulative Effects Assessment Legislation and Policy (Application Document 6.3) and further detail can be found in the Planning Statement (Application Document 7.2).

#### Legislative requirements

- 16.2.2 Relevant legislation related to the CEA that has been considered during the assessment is presented in Appendix 16.3 Cumulative Effects Assessment Legislation and Policy (Application Document 6.3).

## National policy framework

- 16.2.3 Nationally Significant Infrastructure Projects (NSIPs) are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant National Policy Statements (NPSs), as well as any other matters that are both important and relevant, which may include the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021).
- 16.2.4 The Department of Transport's (DfT, 2014) National Policy Statement for National Networks (NPSNN) sets out the Government's policies to deliver NSIPs on the national road and rail networks in England. Modifications to nationally significant energy infrastructure are also required as part of the Project. Four utilities diversions constitute NSIPs in their own right, and therefore the Project will also be assessed against the following energy policy statements:
- a. Overarching National Policy Statement for Energy (EN-1) (Department of Energy and Climate Change, 2011a)
  - b. National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Department of Energy and Climate Change, 2011b)
  - c. National Policy Statement for Electricity Network Infrastructure (EN-5) (Department of Energy and Climate Change, 2011c).
- 16.2.5 However, the NPSNN forms the 'case-making' basis for the Project, and the need for nationally significant utilities diversions arises solely from the need for the road element of the Project.
- 16.2.6 National Highways has taken these policy requirements into account during the development and design of the Project and the preparation of this ES.
- 16.2.7 The NPPF sets out the Government's planning policies. It provides a framework within which locally-prepared plans for housing and other development can be produced.
- 16.2.8 The NPPF does not contain specific policies for NSIPs. However, the NPPF advises that local authorities' planning policies should take into account NSIPs that are located within their local areas. Paragraph 1.17 of the NPSNN states that the NPS and NPPF are consistent, and paragraph 1.18 explains that the NPPF is an important and relevant consideration, '*but only to the extent relevant to [the] project*'.
- 16.2.9 Further information on how the application has responded to national planning policies is available in the Planning Statement (Application Document 7.2).

## Local policy framework

- 16.2.10 Consideration has been given to county policies within Kent, Essex, the Updated London Plan and local policies of the following local authorities within the study area (listed in alphabetical order):
- a. Basildon Council
  - b. Borough of Broxbourne Council
  - c. Brentwood Borough Council
  - d. Canterbury District Council
  - e. Castle Point Borough Council
  - f. Chelmsford City Council
  - g. Dartford Borough Council
  - h. Dover District Council
  - i. East Herts District Council
  - j. Epping Forest District Council
  - k. Gravesham Borough Council
  - l. Harlow Council
  - m. London Borough of Barking and Dagenham
  - n. London Borough of Bexley
  - o. London Borough of Enfield
  - p. London Borough of Havering
  - q. London Borough of Newham
  - r. Maidstone Borough Council
  - s. Medway Council
  - t. Rochford District Council
  - u. Royal Borough of Greenwich
  - v. Sevenoaks District Council
  - w. Southend on Sea Borough Council
  - x. Swale Borough Council
  - y. Tandridge District Council
  - z. Thurrock Council
  - aa. Tonbridge and Malling Borough Council
  - bb. Uttlesford District Council.

- 16.2.11 Where there are local policies that are relevant to CEA these are outlined in Appendix 16.3: Cumulative Effects Assessment Legislation and Policy (Application Document 6.3) and are considered further in the Planning Statement (Application Document 7.2), where these fall within the scope of the Planning Statement.

## 16.3 Assessment methodology

### Standards and guidance

- 16.3.1 The following standards and guidance documents have been used in devising the methodology for data collection and assessment of cumulative effects:
- a. The Planning Inspectorate (2019) Advice Note Seventeen: cumulative effects assessment relevant to nationally significant infrastructure projects
  - b. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations)
  - c. Highways England (2020) Design Manual for Roads and Bridges (DMRB): LA 104 Environmental assessment and monitoring

### Scope of the assessment

- 16.3.2 The CEA covers intra-project effects of the Project and inter-project effects, which are the effects of other developments in combination with the effects from the Project as presented in the ES topic assessment chapters. These are:
- a. Air quality (Chapter 5)
  - b. Cultural heritage (Chapter 6)
  - c. Landscape and visual (Chapter 7)
  - d. Terrestrial biodiversity (Chapter 8)
  - e. Marine biodiversity (Chapter 9)
  - f. Geology and soils (Chapter 10)
  - g. Material assets and waste (Chapter 11)
  - h. Noise and vibration (Chapter 12)
  - i. Population and human health (Chapter 13)
  - j. Road drainage and the water environment (Chapter 14)
  - k. Climate (Chapter 15)

## Scoping opinion

- 16.3.3 A Scoping Report (Highways England, 2017) was submitted to the Planning Inspectorate on 2 November 2017, setting out the proposed approach to this EIA. A Scoping Opinion was received from the Secretary of State on 13 December 2017, which included comments on the scope of assessment from the Planning Inspectorate and statutory environmental bodies. These comments have been taken into account in the preparation of this chapter, and the project response is set out in Appendix 4.1: The Inspectorate's Scoping Opinion and National Highways Response (Application Document 6.3).
- 16.3.4 In response to the Scoping Report, comments in the Scoping Opinion from the Planning Inspectorate confirmed that they were content with the proposed methodology for the CEA.
- 16.3.5 An initial list of 'other developments' was included in the Cumulative Effects chapter of the Scoping Report. Comments from consultees regarding the list of developments and the methodology were included in the Scoping Opinion (Planning Inspectorate, 2017).
- 16.3.6 A key request throughout the Scoping Opinion was that the CEA should consider the cumulative impacts of the Project with other large NSIPs that are likely to be constructed within a similar time period. The Scoping Opinion also requested that other highway projects providing strategic routes connectivity, capacity and resilience are considered in the CEA. Relevant NSIPs and highways projects have been included in the CEA; the methodology for selecting other developments for inclusion in the CEA is described in Section 16.3.

## Temporal scope

- 16.3.7 The environmental assessment uses defined temporal scopes to characterise the duration of potential effects. The temporal scope refers to the time periods over which impacts may be experienced by receptors.
- 16.3.8 Temporary (short- and medium-term) effects are typically those associated with demolition and construction works, and permanent (long-term) effects are typically those associated with the completed and operational development. Some of the effects of construction can also be permanent.
- 16.3.9 As the CEA is based on the topic assessments presented in the ES, the temporal scope for each topic is as defined for each relevant environmental topic (ES Chapters 5 to 15).

## Limits of deviation and Rochdale envelope

- 16.3.10 The Project's application of the Rochdale Envelope is summarised in Chapter 2: Project Description of this ES. The Limits of Deviation (LOD) for the Project (defined in the draft DCO (Application Document 3.1)) represent an 'envelope' within which the Project would be constructed and have informed the reasonable worst-case approach to assessment for the purposes of this chapter.
- 16.3.11 The topic-based assessments, which have been used to inform the cumulative effects assessments, already consider the LOD. Therefore, the assessments presented in this chapter have already incorporated consideration of the LOD.



## Use of the River

- 16.3.12 Based on the predicted vessel movements associated with the construction of the Project, as outlined in Chapter 2: Project Description, this chapter considers the requirement for assessment of the use of the river and a qualitative assessment has been undertaken.
- 16.3.13 Material supply vessels have been excluded from the preliminary Navigational Risk Assessment (pNRA) (Application Document 7.15), although Project vessels were included. Project vessels are those that would be used for temporary works site investigations and during temporary construction works. The reason for the exclusion of material supply vessels from the pNRA is that the imports would be to existing established facilities. The use of established facilities would not give rise to the use of any vessels or any additional vessel movements that would not otherwise be likely to occur in the absence of the Project. Therefore, these movements would be within the scope of the existing navigational risk assessments of the Port of London Authority (PLA) and any other Statutory Harbour Authority (SHA) (for example, Port of Tilbury London Limited (PoTLL)) if movements enter their limits. This position was agreed with the PLA and PoTLL in a meeting on 10 May 2021. Minutes of the meeting are provided in Appendix B of the pNRA (Application Document 7.15).

## Consultation

### Project consultation

- 16.3.14 Statutory Consultation under Section 42 of the Planning Act 2008 was undertaken on the Project from 10 October 2018 to 20 December 2018. This provided an opportunity for consultees to comment on the Preliminary Environmental Information Report (PEIR) (Highways England, 2018). A summary of the responses can be found in the Consultation Report (Application Document 5.1). Consultees comprised statutory bodies, local authorities, people with an interest in land affected by the Project and local communities.
- 16.3.15 The Project design continued to be developed and Supplementary Consultation was undertaken from 29 January 2020 to 2 April 2020. A further Design Refinement Consultation was undertaken from 14 July 2020 to 12 August 2020.
- 16.3.16 Community Impacts Consultation was undertaken from 14 July 2021 to 8 September 2021. This sought feedback on the impacts of the Project at a local ward level, as well as the mitigation proposed for those impacts. Changes to the Project since the Design Refinement Consultation in 2020 were also presented, along with a summary of how feedback to earlier consultation had shaped the development of the Project.
- 16.3.17 Prior to the submission of this DCO application, a Local Refinement Consultation was held between 12 May 2022 and 20 June 2022. This provided local communities with the opportunity to comment on proposed refinements to the Project.
- 16.3.18 These consultations all included information about the environmental impacts associated with the refinements presented for consultation. A summary of the responses to these consultation stages can also be found in the Consultation Report (Application Document 5.1).

## Stakeholder engagement

- 16.3.19 A summary of the stakeholder engagement specific to CEA during the EIA process is provided in Table 16.1.
- 16.3.20 The relevant stakeholders were consulted on the proposed methodology for inter-project effects assessment and the long and shortlists of other developments identified for inclusion within the CEA in March 2020. The methodology was revised during 2021 and the updated methodology, long list and shortlist were shared with relevant consultees in July 2021. The long list and shortlists were further updated, and these were shared in July 2022.
- 16.3.21 The stakeholders listed below were contacted for their comments on the long and short-lists of other developments. Not all of the listed stakeholders were contacted in 2020, as their areas were not included in the search extents at that time. A summary of the stakeholder consultation and Project responses is provided in Table 16.1.
- a. Basildon Council
  - b. Borough of Broxbourne Council
  - c. Brentwood Borough Council
  - d. Canterbury District Council
  - e. Castle Point Borough Council
  - f. Chelmsford City Council
  - g. Dartford Borough Council
  - h. Dover District Council
  - i. East Herts District Council
  - j. Epping Forest District Council
  - k. Essex County Council
  - l. Gravesham Borough Council
  - m. Greater London Authority
  - n. Harlow Council
  - o. Kent County Council
  - p. London Borough of Barking and Dagenham
  - q. London Borough of Bexley
  - r. London Borough of Enfield
  - s. London Borough of Havering

- t. London Borough of Newham
- u. Maidstone Borough Council
- v. Medway Council
- w. Rochford District Council
- x. Royal Borough of Greenwich
- y. Sevenoaks District Council
- z. Southend on Sea Borough Council
- aa. Swale Borough Council
- bb. Tandridge District Council
- cc. Thurrock Council
- dd. Tonbridge and Malling Borough Council
- ee. Uttlesford District Council

16.3.22 The shortlist (Application Document 6.3, Appendix 16.2) was also provided to Natural England for information. The Environment Agency were contacted for information on the Thames Estuary 2100 plan and other relevant projects to include in the shortlist.

**Table 16.1 Stakeholder engagement**

Stakeholder	Date of meeting / communication	Summary of discussions
<b>Request for responses on inter-project effects methodology and long and shortlists – March 2020</b>		
Thurrock Council	Response provided 06 October 2020	<ul style="list-style-type: none"> <li>Suggested changes to the identified Zones of Influence (Zoi) and search extents</li> <li>Comment on inclusion of Tier 3 developments</li> <li>Request for sharing of mitigation proposals and significance criteria</li> <li>Request for further engagement prior to the submission of the DCO application on any new 'other development'</li> <li>Suggested changes and additions to the long list were provided.</li> </ul> <p>Responses to queries and comments were provided. The long list was updated to included suggested developments.</p>
Gravesham Borough Council	Response provided 02 July 2020	
London Borough of Havering	Response provided 1 July 2020	
Dartford Borough Council	Response provided 02 July 2020	
Essex County Council	Response provided 11 March 2020	
Kent County Council	Response provided 5 June 2020	
<b>Request for responses on inter-project effects methodology and long and shortlists – July 2021</b>		
Transport for London	Response provided 25 October 2021	<p>Queries raised on extent of search area and suggestions for update to long list</p> <p>Responses to queries and comments were provided on search area and developments for inclusion. The long list was updated to included suggested developments</p>
Thurrock Council	Response provided 29 April 2022	
London Borough of Havering	Response provided 26 August 2021	<p>Discussion on approach taken to identifying developments, with explanation for approach provided to the Council</p>
Essex County Council	Response provided 21 July 2021	
London Borough of Havering	Follow on meeting to discuss response 10 January 2022	
<b>Request for responses on inter-project effects methodology and long and shortlists – July 2022</b>		
Essex County Council	Responses provided 11 and 14 July 2022	<p>Suggested developments for inclusion in the long list</p> <p>The long list was updated to included suggested developments</p>
Thurrock Council	Response provided 19 August 2022	
Medway Council	Response provided 4 August 2022	
Kent County Council	Response provided 3 August 2022	
Gravesham Borough Council	Response provided 5 and 12 August 2022	

## Study area

- 16.3.23 The study areas for the CEA are different for the intra-project effects assessment and the inter-project effects assessment. The same study areas for CEA for the construction phase assessments have been used for the operational phase assessments.

### Intra-project effects study area

- 16.3.24 The study areas for the intra-project CEA are based on the study area for the relevant environmental topics included in the assessment. This is based on the Project as described in Chapter 2 of this ES, which is broken down geographically into nine operational sections. These are shown in Figure 2.2 (Application Document 6.2).
- 16.3.25 Section 1 (A2/M2 corridor) comprises the alteration of the A2 from junction 1 of the M2 running west under Thong Lane green bridge south, towards the M2/A2/A122 Lower Thames Crossing junction. Section 1 predominantly passes through the ward of Shorne, Cobham and Luddesdown; together with a short extent within and adjacent to the wards of Higham and Strood South. Further to the south-east the Order Limits extend within the wards of Boxley; Aylesford North and Walderslade; and Burham and Wouldham.
- 16.3.26 Section 2 (M2/A2/A122 Lower Thames Crossing junction) comprises the alteration of the A2 and construction of the new junction with the Project continuing north to a point directly south of the new Thong Lane green bridge north over the A122. Section 2 also predominantly passes through the ward of Shorne, Cobham and Luddesdown; together with extents within and adjacent to the wards of Istead Rise; Singlewell; Woodlands; Painters Ash; and Northfleet South.
- 16.3.27 Section 3 (M2/A2/A122 Lower Thames Crossing junction to South Portal) comprises the construction of the Project road between the M2/A2/A122 Lower Thames Crossing junction, directly south of the new Thong Lane green bridge north over the A122, running north beyond the South Portal until Rochester Road. Section 3 includes construction of the portal structure and infrastructure associated with the tunnel. Section 3 also passes through the ward of Shorne, Cobham and Luddesdown; together with the wards of Riverview; and Westcourt; and with further extents within the Higham; Chalk; and Riverside wards.
- 16.3.28 Section 4 (A122 Lower Thames Crossing tunnel) comprises the construction of the tunnels and the A122 through the tunnels between the South Portal and North Portal. Section 4 predominantly passes through the wards of Westcourt and Chalk (to the south of the River Thames; and the East Tilbury ward (to the north).
- 16.3.29 Section 5 (North Portal to northern end of Tilbury Viaduct) comprises the construction of the A122 at the North Portal to the northern end of the Tilbury Viaduct. Section 5 includes construction of the portal structure and infrastructure associated with the tunnel and its maintenance access. Section 5 predominantly passes through the wards of East Tilbury; and Tilbury Riverside and Thurrock Park; and the Order Limits extend into Tilbury St Chads ward.

- 16.3.30 Section 6 (Chadwell St Mary link) comprises the construction of the A122 between the Tilbury Viaduct and the A13/A1089/A122 Lower Thames Crossing junction. Section 6 also predominantly passes through the ward of East Tilbury and extends into and adjacent to the wards of Chadwell St Mary and Orsett.
- 16.3.31 Section 7 (A13/A1089/A122 Lower Thames Crossing junction) comprises the alteration of the existing A13/A1089 junction, and construction of the new A13/A1089/ A122 Lower Thames Crossing junction. Section 7 predominantly passes through the ward of Orsett; and extend into and adjacent to the wards of Chadwell St Mary; Little Thurrock Blackshots; Little Thurrock Rectory; Stifford Clays; Chafford and North Stifford.
- 16.3.32 Section 8 (Ockendon link) comprises the construction of the highway between the junction with the A13 and the M25. Section 8 predominantly passes through the wards of Orsett; and Ockendon; and extends into and adjacent to the wards of Stifford Clays; Belhus; and Upminster.
- 16.3.33 Section 9 (A122 Lower Thames Crossing/M25 junction) comprises the construction of the A122 Lower Thames Crossing/M25 junction, and alteration of the M25 including junction 29. Section 9 passes through the wards of Ockendon; Upminster; Warley; and Cranham; and extends into and adjacent to the wards of Harold Wood; and South Weald.
- 16.3.34 In addition to the wards listed above, the following wards have been included within the study area for the CEA. The study areas for some topics extend into these wards, resulting in indirect effects from the Project, and consequently there is potential for cumulative effects to arise. The study areas for construction phase and operation phase differs for some topics and consequently not all wards listed below have been assessed for both construction and operation.
- 16.3.35 Wards within Medway:
- a. Cuxton and Halling
  - b. Strood South
  - c. Strood North
  - d. Strood Rural
  - e. Rochester West
- 16.3.36 Wards within Gravesham:
- a. Woodlands
  - b. Riverside
  - c. Northfleet South
  - d. Istead Rise
  - e. Painters Ash

16.3.37 Wards within Dartford:

- a. Newtown
- b. Stone Castle
- c. Stone House
- d. Bridge
- e. Temple Hill
- f. Wilmington, Sutton-at-Hone & Hawley
- g. Darent
- h. Bean and Village Park
- i. Longfield, New Barn and Southfleet
- j. Ebbsfleet
- k. Brent
- l. Newtown

16.3.38 Wards within Thurrock:

- a. Little Thurrock Rectory
- b. Chafford and North Stifford
- c. West Thurrock and South Stifford
- d. Stanford-le-Hope West
- e. Stanford East and Corringham Town
- f. The Homesteads
- g. Corringham and Fobbing

16.3.39 Wards within London Borough of Havering:

- a. Harold Wood

16.3.40 Wards south of the Project in Maidstone District and Tonbridge and Malling District:

- a. Boxley
- b. Aylesford North and Walderslade
- c. Burham and Wouldham

- d. Aylesford South
- e. Ditton
- f. Larkfield South
- g. West Malling and Leybourne
- h. Downs and Mereworth
- i. Wrotham, Ightham and Stansted
- j. Snodland East and Ham Hill

16.3.41 Wards within Sevenoaks district:

- a. Fawkham and West Kingsdown
- b. Ash and New Ash Green
- c. Farningham, Horton Kirby and South Darenth
- d. Swanley Christchurch and Swanley Village

16.3.42 Wards within Brentwood:

- a. Herongate, Ingrave and West Horndon

#### **Inter-project effects study area**

16.3.43 The study area for the inter-project CEA is illustrated in Figures 16.1 and 16.2 (Application Document 6.2). The study area is based upon the guidance set out in the DMRB LA 104 (Highways England, 2020), which states that *‘for the assessment of cumulative effects, the spatial boundary of the receptor/resource with potential to be affected directly or indirectly should be defined’*.

16.3.44 The study area for the inter-project CEA is defined by the Zones of Influence (Zoi) set out in Table 16.3 The established Zois for environmental topics which have been established with reference to the study areas used for each topic assessment using professional judgement and relevant guidance where appropriate.

16.3.45 Search areas based on the Zois were used to identify the other developments to be included within the inter-project effects assessment. This is discussed further under the ‘Inter-projects effects assessment’ heading in Section 16.3.

#### **Impact assessment methodology**

16.3.46 The assessment follows the general approach described in Chapter 4: EIA Methodology. This section provides topic-specific information regarding the methodology used for establishing the baseline conditions, and the methods used for the construction and operational phase assessments.



### Intra-project effects assessment

- 16.3.47 There is no formal guidance on how to undertake an intra-project effects assessment. As a result, professional judgement has been used to define the methodology for intra-project effects. The study area for intra-project effects was defined by the study areas for each individual environmental topic assessment, which are described in the relevant topic chapters of the ES.
- 16.3.48 The following receptor groups have been identified, based on the receptors identified in the topic assessments presented in the ES:
- a. People (including local residents and nearby communities)
  - b. Community land and assets
  - c. Development land and businesses
  - d. Agricultural land holdings
  - e. Walkers, cyclists and horse riders
  - f. Biodiversity receptors
  - g. Heritage assets
  - h. Landscape and visual receptors
  - i. Groundwater and surface water receptors
  - j. Climate
- 16.3.49 A number of interrelationships between topics have already been assessed within the topic chapters (Chapters 5 to 15) of the ES. Table 16.2 sets out where the combined action of these different effects on the receptor groups listed above have already been considered within the topic chapters and the conclusions presented have inherently taken into account the intra-project effects.
- 16.3.50 Table 16.2 shows for each receptor group where other topic effects could result in potential intra-project effects (represented by a Y). For example, potential effects on heritage assets include direct impacts resulting from the construction and operation of the Project but also indirect effects from visual impacts and changes to noise levels, habitats, hydrogeology and watercourses.
- 16.3.51 Where topic chapters have already incorporated intra-project effects into their assessments, as described in the right-hand column of Table 16.2, these intra-project effects have not been further reported in this chapter. Further explanations of these interrelationships are provided within the intra-project effects section of each topic chapter.

**Table 16.2 Potential for intra-project effects on receptor groups from other topics**

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
People (including local residents and nearby communities)	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	Chapter 13: Population and Human Health covers effects on people, but it does not present an assessment of intra-project effects on people living in surrounding locations affected by the Project. An assessment of intra-project effects on people is presented in this chapter. This assessment has used the topic assessments identified with a Y, with reference to the human health and wellbeing assessments as described in the HEqIA (Application Document 7.10).
Community land and assets	Y	N	Y	N	N	N	N	Y	Y	N	N	Chapter 13: Population and Human Health presents the assessment of effects on community land and assets, and includes effects from the topics identified with a Y, as follows: <ul style="list-style-type: none"> <li>• Effects on amenity resulting from changes to air quality and noise levels</li> <li>• Changes in landscape quality and visual amenity</li> </ul> These intra-project effects on community land and assets are therefore not duplicated in the intra-project effects assessment covered in this chapter.

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
Development land and businesses	Y	N	Y	N	N	N	N	Y	Y	N	N	Chapter 13: Population and Human Health presents the assessment of effects on development land and businesses, and includes effects from the topics identified with a Y, as follows: <ul style="list-style-type: none"> <li>• Effects on amenity resulting from changes to air quality and noise levels</li> <li>• Changes in landscape quality and visual amenity</li> </ul> These intra-project effects on development land and businesses are therefore not duplicated in the intra-project effects assessment covered in this chapter.
Agricultural land holdings	N	N	N	N	N	Y	N	N	Y	N	N	Chapter 13: Population and Human Health presents the assessment of effects on agricultural land holdings and includes effects from the topics identified with a Y, as follows: <ul style="list-style-type: none"> <li>• Effects associated with soil quality on agricultural land</li> </ul> These intra-project effects on agricultural land holdings are therefore not duplicated in the intra-project effects assessment covered in this chapter.

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
Walkers, cyclists and horse riders (WCH)	Y	N	Y	N	N	N	N	Y	Y	N	N	Chapter 13: Population and Human Health presents the assessment of effects on WCH and includes effects from the topics identified with a Y, as follows: <ul style="list-style-type: none"> <li>• Effects on amenity resulting from changes to air quality and noise levels</li> <li>• Changes in landscape quality and visual amenity</li> </ul> These intra-project effects on WCH are therefore not duplicated in the intra-project effects assessment covered in this chapter.
Biodiversity receptors	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	Chapters 8: Terrestrial Biodiversity and 9: Marine Biodiversity present the assessment of effects on biodiversity receptors and include effects from topics identified with a Y as follows: <ul style="list-style-type: none"> <li>• Air quality effects including degradation of habitats and species close to construction works or the ARN, resulting from increased deposition of nitrogen or fine dust</li> <li>• Effects on the water environment affecting controlled waters that support marine habitats and biodiversity</li> </ul>

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)										Approach to assessment of intra-project effects	
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
												<ul style="list-style-type: none"> <li>• Effects from construction activities that alter soil characteristics resulting in the degradation of some plants and habitats that have close affinities to particular soil types, including some that form qualifying features of designated sites</li> <li>• Water environment effects including 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</li> <li>• Effects from noise and vibration disturbing species, including some that form qualifying features of designated sites</li> </ul> <p>Intra-project effects on biodiversity receptors are also covered in the Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment (Application Document 6.5). These intra-project effects on biodiversity receptors are therefore not duplicated in the intra-project effects assessment covered in this chapter.</p>

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
Heritage assets	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Chapter 6: Cultural Heritage presents the assessment of effects on heritage assets and includes effects from topics identified with a Y as follows: <ul style="list-style-type: none"> <li>• Effects on heritage assets from dust</li> <li>• Effects on heritage assets as a result of changes to the visual aspects of assets’ settings</li> <li>• Effects on heritage assets resulting from the loss of existing habitats that inform the value of heritage assets and from the introduction of ecological mitigation, causing physical impacts to heritage assets through its implementation and change to setting</li> <li>• Effects on heritage assets as a result of increased noise levels and impacts resulting from ground-borne vibration</li> <li>• Effects from dewatering from tunnelling and other Project activities resulting in groundwater alteration that in turn could affect hydrologically-sensitive heritage assets, affecting the preservation of archaeological remains</li> </ul>

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
												<ul style="list-style-type: none"> <li>Effects on historic landscape features from alteration of watercourses</li> </ul> <p>These intra-project effects on heritage assets are therefore not duplicated in the intra-project effects assessment covered in this chapter.</p>
Landscape and visual receptors	N	Y	Y	N	N	N	N	Y	N	N	N	<p>Chapter 7: Landscape and Visual presents the assessment of effects on landscape and visual receptors and includes effects from topics identified with a Y as follows:</p> <ul style="list-style-type: none"> <li>Effects on historic landscape character and designated and non-designated assets, including their setting, leading to effects on the landscape’s perceptual qualities and/or cultural associations, and effects on visual receptors</li> <li>Effects on woodland and habitats which are key features of designated and non-designated landscapes.</li> <li>Noise and vibration effects on landscape receptors through changes to tranquillity</li> </ul>

Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
												These intra-project effects on landscape and visual receptors are therefore not duplicated in the intra-project effects assessment covered in this chapter.
Groundwater and surface water receptors	Y	N	N	N	N	Y	N	N	N	Y	N	Chapter 14: Road Drainage and the Water Environment presents the assessment of effects on groundwater and surface water receptors and includes effects from topics identified with a Y as follows: <ul style="list-style-type: none"> <li>• Effects from dust from construction traffic and nitrogen from operational traffic to be deposited, causing detriment to water environment quality</li> <li>• Effects from excavation of soils and earthworks on the rainfall runoff and land drainage regime. Effects associated with land contamination and pollution of the water environment, as a result of construction activities.</li> </ul> <p>These intra-project effects on groundwater and surface water receptors are therefore not duplicated in the intra-project effects assessment covered in this chapter.</p>
Climate	N	N	Y	N	N	Y	Y	N	Y	Y	Y	Chapter 15: Climate presents the assessment of effects on greenhouse gas emissions and climate resilience and



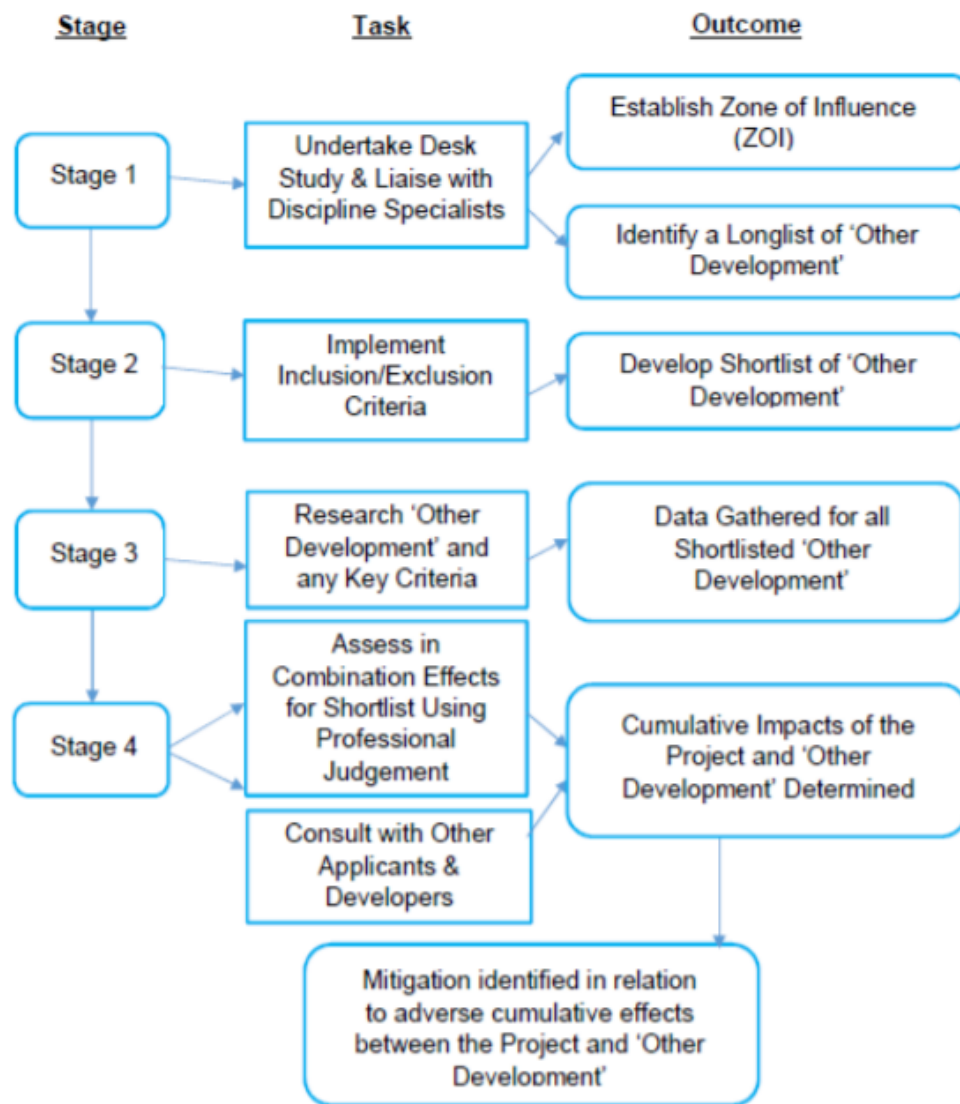
Receptor group	Potential for effects on receptor group from other ES topic chapters (Chapters 5 to 15)											Approach to assessment of intra-project effects
	5. Air quality	6. Cultural heritage	7. Landscape and visual	8. Terrestrial biodiversity	9. Marine biodiversity	10. Geology and soils	11. Material assets and waste	12. Noise and vibration	13. Population and human health	14. Road drainage and the water environment	15. Climate	
												<p>includes effects associated with climate associated with topics identified with a Y as follows:</p> <ul style="list-style-type: none"> <li>• Effects associated with landscape design and management proposals, and the impacts from more frequent heatwaves and droughts</li> <li>• Effects from greater frequency and severity of drought and high temperatures on reinstated (after excavation) soil quality for agricultural use</li> <li>• Effects associated with the material usage and production and transportation during construction</li> <li>• Effects from greater frequency and severity of short periods of high rainfall on drainage control measures, risk of flooding and potential for impacts to surface water and groundwater quality</li> </ul> <p>These intra-project effects on greenhouse gas emissions and climate resilience are therefore not duplicated in the intra-project effects assessment covered in this chapter.</p>

- 16.3.52 As set out in Table 16.2, a number of intra-project effects have already been assessed within the topic chapters (Chapters 5 to 15) and are therefore not assessed further within the intra-project effects assessment to avoid duplication. Where additional intra-project effects and interactions are not assessed within the individual topic chapters, they are assessed within this cumulative effects chapter. This comprises further assessment of the intra-project effects on people (including local residents and nearby communities), including consideration of the following:
- a. Air quality – effects on human health
  - b. Landscape and visual – visual effects
  - c. Geology and soils – pollution related effects on human health
  - d. Noise and vibration effects – effects on human health
  - e. Population and human health – health outcomes in relation to accessibility, access to open space and nature, mental health and wellbeing, and access to work and training
  - f. Road drainage and the water environment – flood risk effects associated with surface water and groundwater flooding
  - g. Climate – changes to health outcomes resulting from GHG emissions and vulnerability of the Project to climate change
- 16.3.53 The assessment identified relevant slight, moderate, or large significance effects within each topic chapter. These are the significant residual effects after the application of mitigation measures. Negligible and neutral effects were not considered in the intra-project effects assessment as it has been assumed that this would not increase the overall significance of effect. Where two or more residual effects would affect the same receptors, these have been identified and reported in Table 16.8 and Table 16.9. Due to the large number of receptors potentially affected by the Project, receptors have been grouped by electoral ward and further subdivided geographically based on locations reported in the topic chapters. Where wards are located at the further extents of the Order Limits or are on the edges of the study areas, these have been combined for assessment purposes. Further information on the relevant wards is provided under the ‘Study area’ heading in Section 16.3.
- 16.3.54 Where the study areas for two or more topics coincide, the effects associated with each topic assessment have been summarised in Table 16.8 for the construction phase and Table 16.9 for the operation phase. The tables show the likely effects that have been assessed for each location with an assessment of the intra-project effects and their likely significance. Further information on the determination of the likely significance of effects is provided in Section 16.3 under the heading ‘Determining significance of effects’. Where topic assessments have covered both opening year when the road is fully open to traffic and design year (15 years after opening), these have been reflected in the intra-project effects assessment.

### Inter-project effects assessment

16.3.55 The Planning Inspectorate Advice Note 17 (Planning Inspectorate, 2019) advises a four-stage process for assessing inter-project cumulative effects for NSIPs in combination with other developments. These four stages are outlined in Plate 16.1 and explained in further detail below.

**Plate 16.1 Flow diagram showing the critical processes involved in the CEA**



#### Stage 1: Zone of Influence and long list of other developments

16.3.56 Stage 1 of the process involves establishing an appropriate ZOI to identify 'other developments' relevant to the CEA. ZOIs have been established with reference to the study areas used for each topic assessment using professional judgement and relevant guidance where appropriate. In some cases, the ZOI extends beyond the topic study area to capture potential inter-project effects. The resultant ZOI determined for each topic is presented in Table 16.3.

**Table 16.3 The established Zols for environmental topics**

Environmental topic	Zone of Influence
Air quality	<ul style="list-style-type: none"> <li>• For construction dust effects - 200m from the areas expected to be affected by construction activities.</li> <li>• For changes in local air quality during construction - 200m from roads affected by changes in traffic during construction (the affected road network).</li> <li>• For changes in local air quality during operation - 200m from roads within the affected road network.</li> <li>• This is consistent with the study area used for the air quality assessment.</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>• Within 1km of the Order Limits for construction and operation effects.</li> <li>• The cultural heritage assessment also has regard to the landscape and visual study area, as defined below. The short-listed developments have been considered in relation to all heritage assets within the baseline, both within the 1km and the landscape and visual study area, and therefore the cumulative effects assessment has considered any assets likely to experience an effect resulting from the Project.</li> <li>• A further Palaeolithic Study Area (3km) was used to inform the baseline of the deeper Palaeolithic deposits impacted by the Tunnel and Tunnel Approaches, which had only been studied in detail at some distance from the Project. Given the specialist nature of this study area it was not used for the assessment of the shortlisted developments</li> <li>• This is consistent with the study area used for the cultural heritage assessment.</li> </ul>
Landscape and visual	<ul style="list-style-type: none"> <li>• For construction and operation, the Zol has been based on the study area used for the landscape and visual impact assessment in Chapter 7, which extends up to approximately 2km from the Order Limits according to the likely visual influence of the Project within the surrounding landscape.</li> <li>• In some cases, an inter-project effects assessment has been undertaken for another development outside the Zol, where there is potential for that project to be seen in conjunction with the Project.</li> </ul>
Terrestrial biodiversity	<ul style="list-style-type: none"> <li>• 30km from the Order Limits for Special Areas of Conservation (SACs) where bats are a qualifying feature (no sites are designated for bats within 30km of the Order Limits).</li> <li>• 6km from the Order Limits for bats.</li> <li>• 2km from the Order Limits for statutory designated sites including SACs, Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).</li> <li>• 1km from the Order Limits for barn owls.</li> <li>• 500m from the Order Limits for non-statutory sites, with an exception for where there is a potential direct hydrological link between a non-statutory site and the Order Limits, in which case the Zol was extended to 2km.</li> </ul>

Environmental topic	Zone of Influence
	<ul style="list-style-type: none"> <li>• 500m from the Order Limits for protected species including great crested newt, dormouse, water vole, otter, badger and other mammals.</li> <li>• 1km from the Order Limits for ornithology</li> <li>• 200m from the Order Limits for terrestrial invertebrates, aquatic invertebrates, lichen and bryophytes.</li> <li>• 20m from the Order Limits for veteran trees.</li> <li>• These distances are for construction and operational effects.</li> <li>• This is consistent with that used for the terrestrial biodiversity assessment with the exception of bats Zol which is a precautionary distance based on the maximum maternity roost core sustenance zone for species recorded in this area.</li> </ul>
Marine biodiversity	<ul style="list-style-type: none"> <li>• For construction and operational effects, a study area of 11km upstream and downstream of the Order Limits on the River Thames has been used.</li> <li>• This area accounts for the average tidal excursion on the River Thames and would therefore account for any movement of an impact with the tide.</li> <li>• This is consistent with the study area used for the marine biodiversity assessment.</li> </ul>
Geology and soils	<ul style="list-style-type: none"> <li>• 250m from the Order Limits for construction effects on geology, designated sites, and land contamination.</li> <li>• The operational study area for geological receptors is the alignment of the Project road where impact to geological receptors is likely to occur.</li> <li>• 3km from the Order Limits for soils to include impacts on agricultural land.</li> <li>• This is consistent with the study area used for the geology and soils assessment, with the exception of the soils Zol. This is wider than the study area used for soils as this incorporates effects from other developments on the agricultural land resource.</li> </ul>
Material assets and waste	<ul style="list-style-type: none"> <li>• The study area for the assessment of impacts to waste infrastructure encompasses Kent, Essex and the boroughs comprising the East London Waste Authority. This is considered to be sufficient to represent the Zol in the CEA as it is likely to encompass other schemes likely to require use of the same waste receptors.</li> <li>• Therefore, the study area of the assessment presented in Chapter 11 is relevant for the CEA.</li> </ul>
Noise and vibration	<ul style="list-style-type: none"> <li>• For construction noise assessment - up to 300m from all construction activities, compounds and haul routes.</li> <li>• For construction traffic assessment - all receptors within 50m of the kerb line of public roads with the potential for an increase in baseline noise level (BNL) of 1 dB(A) or more as a result of the addition of construction traffic to existing traffic levels in any construction year.</li> <li>• For operational effects, the Operational Road Noise and Vibration Study Area is as follows:</li> </ul>

Environmental topic	Zone of Influence
	<ul style="list-style-type: none"> <li>– 600m from any road physically changed or bypassed by the Project</li> <li>– 1,200m from the Project route to account for the separation distances to receptors and the rural nature of the Project</li> <li>– 600m from other road links within the noise study area where there is a predicted change in noise as a result of the Project in excess of 1.0dB(A) in the short term</li> <li>• This is consistent with the study area used for the noise and vibration assessment.</li> </ul>
Population and human health	<ul style="list-style-type: none"> <li>• 500m from the Order Limits for both construction and operation effects on private property and housing; community land and assets; development land and businesses; agricultural land holdings; and effects on WCH.</li> <li>• The study area for human health is defined by those communities/wards directly and indirectly affected by the Project as defined in Chapter 13: Population and Human Health.</li> <li>• This is consistent with the study area used for the population and human health assessment.</li> </ul>
Road drainage and the water environment	<ul style="list-style-type: none"> <li>• 500m from the Order Limits for surface water bodies for both construction and operation.</li> <li>• 3km from the Order Limits for groundwater bodies for both construction and operation.</li> <li>• This is consistent with the study area used for the road drainage and water environment assessment.</li> </ul>
Climate	<ul style="list-style-type: none"> <li>• The study area used in Chapter 15, and therefore for the inter-project effects assessment is defined as below.</li> <li>• For greenhouse gas (GHG) emissions the impact assessment distinguishes between the construction phase and operation phase as follows: <ul style="list-style-type: none"> <li>– The Project has not defined a geographical spatial boundary for the GHG emissions impact assessment for the construction phase as it includes emissions irrespective of the geographic location in which they occur. Instead, the study area has been aligned to the lifecycle stage modules presented within PAS 2080 (BSI, 2016) and therefore addresses GHG emissions associated with the Project’s construction activities and material usage within the Order Limits as well as the emissions associated with material production and transportation and staff transportation outside of the Order Limits.</li> <li>– As with the construction phase assessment, there is no spatial boundary for the GHG emissions arising from the maintenance, repair and replacement of the Project during its operation. The sources of GHG emissions related to this lifecycle stage are in alignment with the approach set out in PAS 2080 (BSI, 2016).</li> <li>– The study area for the road-user emissions was defined by the fully modelled area of the validated Project transport model.</li> </ul> </li> <li>• The study area for assessing the potential effects resulting from the vulnerability of the Project to climate change during the construction and operational phases was the strategic road network within the validated Project transport model.</li> </ul>

- 16.3.57 Following the establishment of the Zols for each topic, a desk study was undertaken to search for ‘other developments’ based on the Zols to create the long list, which is presented in Appendix 16.1: Cumulative Effects Assessment Long List of Developments (Application Document 6.3). The desk study was undertaken to obtain relevant available information about the planned ‘other development’. The Scoping Report (Highways England, 2017) used a search area for all planning applications based on the furthest Zol for all topics. This recognised that a suitable traffic model was not available at the time of writing the Scoping Report and that model extents would be more than 5km. The Scoping Report recognised that developments beyond these search areas would be addressed within the ES. At the time of writing the EIA, the Project’s transport model was available and therefore the data collected for the ES up to 31 May 2022 used amended search areas based on the ARN as defined by outputs from the Project’s transport model. Table 16.4 sets out the thresholds for the size and type of developments and the search areas used to identify other developments for inclusion in the long list. These thresholds and search areas consider the nature and location of the Project, the known proposed developments within the locality of the Project and the Zols for individual environmental topics.
- 16.3.58 The threshold criteria were identified based on the criteria set out in DMRB LA 104 (Highways England, 2020), the definition of major developments defined within the Town and Country Planning (Development Management Procedure) (England) Order 2015, and professional judgement.
- 16.3.59 The criteria were applied to planning applications, local plan allocations, highway schemes and junction improvements to identify developments for inclusion in the long list.

**Table 16.4 Thresholds and search areas used to identify other developments**

<b>Development type and size thresholds</b>	<b>Search Area</b>	<b>Comments</b>
NSIPs/significant development on the Planning Inspectorate’s Programme of Projects	Within 30km of the Order Limits	A 30km boundary from the Order Limits has been considered sufficient based on the Zols listed in Table 16.3.
Developments comprising more than 10,000m <sup>2</sup> of gross development floor area or more than 100 units	Within 3km of the Order Limits	A 3km boundary from the Order Limits has been considered sufficient based on the Zols listed in Table 16.3.
Development comprising 100-1,000 residential units	Within 400m from Affected Road Network (ARN)	Based on the Zol for air quality and noise, a search area of 400m from the ARN is considered reasonable given the scale of the anticipated effects.
Developments greater than 1,000 residential units or anticipated to be a significant contributor to traffic	Within 1km from ARN	Based on the anticipated potential for effects a search area of 1km has been used
Other developments including minerals and waste developments, Transport and Works Act Orders, Hybrid Bills and development plans and framework allocations	Within 3km from Order Limits	A search area of 3km, considered reasonable given the scale of the anticipated effects.

- 16.3.60 The criteria were applied to NSIPs, planning applications, local plan allocations, highway schemes and junction improvements to identify developments for inclusion in the long list.
- 16.3.61 Minor developments falling below the type and size thresholds identified above have been excluded from the assessment. This is because the type and scale of impacts generated from these developments and their potential to interact with similar types of effects from the Project would not be likely to result in significant effects. It has been assumed that this would also be the case for locations with multiple minor developments. However, where local authorities have advised of growth and regeneration areas comprising of multiple smaller developments, these have been included.
- 16.3.62 The process for identifying other developments for inclusion in the long list involved the following:
- a. Searches of the National Infrastructure Planning website
  - b. Searches of local planning authority planning portals
  - c. Review of the Uncertainty Log produced for the Project's transport model
  - d. Review of available Local Plan documents online
  - e. Liaison with local authorities and relevant stakeholders.

*Planning Inspectorate website*

- 16.3.63 The National Infrastructure Planning website was reviewed to identify other NSIPs which fall within the search areas.

*Planning portal searches*

- 16.3.64 A search of the relevant local authority planning portals was undertaken to identify other developments for inclusion in the long list. The search considered applications dating back five years to September 2017. This date was selected based on professional judgement, as most planning consents have a life span of three to five years (five in relation to outline planning consent). Therefore, it has been assumed that any applications older than this have commenced construction or their planning permission has expired. Older planning applications submitted before September 2017 that have yet to be constructed but which have associated additional applications submitted (for example, to discharge conditions) have been incorporated into the CEA through the latest applications.
- 16.3.65 The local authority planning portals that were searched are listed in Table 16.5. These include those within 3km from Order Limits and those within 1km from the ARN. Although searches were undertaken, no relevant developments were identified within Castle Point Borough Council and the London Borough of Bexley.



**Table 16.5 Local planning authorities within the search area**

<b>Within 3km of Order Limits</b>	<b>Within 1km of ARN</b>
Basildon Council	Basildon Council
Dartford Borough Council	Borough of Broxbourne Council
Brentwood Borough Council	Brentwood Borough Council
Essex County Council	Canterbury District Council
Gravesham Borough Council	Castle Point Borough Council
Greater London Authority	Chelmsford City Council
Kent County Council	Dartford Borough Council
London Borough of Havering	Dover District Council
Maidstone Borough Council	East Herts District Council
Medway Council	Epping Forest District Council
Thurrock Council	Essex County Council
Tonbridge & Malling Borough Council	Gravesham Borough Council
	Greater London Authority
	Harlow Council
	Kent County Council
	London Borough of Barking and Dagenham
	London Borough of Bexley
	London Borough of Enfield
	London Borough of Havering
	London Borough of Newham
	Maidstone Borough Council
	Medway Council
	Rochford District Council
	Royal Borough of Greenwich
	Sevenoaks District Council
	Southend on Sea Borough Council
	Swale Borough Council
	Tandridge District Council
	Thurrock Council
	Tonbridge & Malling Borough Council
	Uttlesford District Council

*Developments included in the transport model*

- 16.3.66 The long list was formed with reference to the Uncertainty Log used in the Project's transport model, as described in the Combined Modelling and Appraisal Report (ComMA) (Application Document 7.7). The Uncertainty Log, and therefore the transport model, include developments identified as 'near certain' or 'more than likely' between 2016 (the base year of the transport

model) and 2051 in line with TAG guidance (DfT, 2019). The assessments for air quality, noise and vibration and climate all make use of the traffic forecasts from the core scenario produced by the Project's transport model which includes these developments. Therefore, the assessment conclusions reported for Chapter 5: Air Quality, Chapter 12: Noise and Vibration, Chapter 14: Road Drainage and Water Environment, where the routine runoff water quality assessment uses data from the traffic model, and Chapter 15: Climate are already cumulative for these developments.

- 16.3.67 The transport model includes highway schemes and junction improvements within the Department for Transport's Road Investment Strategy 2015/16 – 2019/20 (DfT, 2015), the Road Investment Strategy 2: 2020–2025 (DfT, 2020), local authority schemes, and Transport for London (TfL) schemes. Where these fall within the search areas identified in Table 16.4, they have been included in the long list.
- 16.3.68 It should be noted that the CEA and Uncertainty Log differ in the following key respects:
- The searches for the CEA cover a different extent to the search area used to populate the Uncertainty Log. The searches for the CEA use the Affected Road Network (ARN) as defined in Chapter 5: Air Quality. The Uncertainty Log is based on local authorities that meet the criteria defined in Appendix A of the ComMA (Application Document 7.7).
  - The Project's transport model core scenario includes developments which are near certain or more than likely in line with TAG guidance (DfT, 2019).
  - The Uncertainty Log was finalised on 30 September 2021, whereas the CEA searches were completed on 31 May 2022.

#### *Local Plan site allocations*

- 16.3.69 Local plan site allocations have been included in the long list where information was available when the searches were undertaken up to 31 May 2022. A review was undertaken of relevant Local Plan documents available on local authority websites to identify proposed site allocations for future development. The local authorities were also contacted with a request for further information on proposed site allocations for inclusion in the long list.
- 16.3.70 Site allocations and future local plan projections were included in the long list where Local Plans were adopted or draft site allocation information was available online, or where information was provided by the local authorities.

#### *Liaison with local authorities and stakeholders*


- 16.3.71 Recommendations for specific developments to be included in the long list and considered for inclusion in the CEA were provided by some of the local planning authorities in response to the distribution of the proposed methodology and draft long list and shortlist in March 2020, July 2021 and July 2022. Where responses were received, these have been noted in Table 16.2.

16.3.72 Information on development activity was provided by the Environment Agency in July 2021 in relation to the TE2100 project and other relevant projects (for example, flood alleviation projects).

*Certainty of other developments*

16.3.73 A tiered approach in accordance with Advice Note 17 (The Planning Inspectorate, 2019) was applied to consider the level of certainty of ‘other development’ within the ZoI. The tiered approach is set out in Table 16.6.

**Table 16.6 Tiers for assigning certainty to ‘other developments’**

Tier	Description	
Tier 1	(a) Under construction (although if it is expected to be completed at the time of the Project commencement, the ‘other development’ will form part of the baseline as requested within Advice Note 17 (The Planning Inspectorate, 2019)).	Decreasing level of detail likely to be available
	(b) Permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented.	
	(c) Submitted application(s) whether under the Planning Act 2008 or other regimes, but not yet determined.	
Tier 2	Projects on the Planning Inspectorate’s Programme of Projects where a scoping report has been submitted.	
Tier 3	Projects on the Planning Inspectorate’s Programme of Projects where a scoping report has not been submitted.	
	[Projects] identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.	
	[Projects] identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.	

16.3.74 The long list of ‘other developments’ includes 424 records of planning applications, development plan allocations and other relevant developments. The information was captured in a table format based on Appendix 1 of Advice Note Seventeen (Planning Inspectorate, 2019). The long list is provided in Appendix 16.1: Cumulative Effects Assessment Long List of Developments (Application Document 6.3).

**Stage 2: develop shortlist**

16.3.75 Following completion of the desk study and in line with Stage 2 within Advice Note Seventeen (Planning Inspectorate, 2019), the likely temporal and spatial links and therefore the potential for cumulative effects were considered to exclude or include ‘other development’ from the long list to develop the shortlist of other developments for assessment.

16.3.76 This shortlisting process was undertaken to keep the CEA proportionate and focused so that ‘other developments’ are only taken through to further assessment stages if they have potential to give rise to significant cumulative effects by overlaps in temporal scope; and due to the scale and nature of the ‘other development’.

- 16.3.77 The shortlisting process used information available from planning applications, relevant development plans and other relevant sources. Where other developments would be operational prior to the start of construction of the Project, these have not been included in the shortlist, as these form part of the future baseline used in the topic assessments.
- 16.3.78 The long list of other developments shared with local authorities in March 2020, July 2021 and July 2022 identified which other developments were to be included in the shortlist. The long list of developments presented in Appendix 16.1: Cumulative Effects Assessment Long List of Developments (Application Document 6.3) identifies which developments were shortlisted and taken forward to Stages 3 and 4. Appendix 16.2 (Application Document 6.3) contains the shortlist of included developments, and Figure 16.2 (Application Document 6.2) shows indicative outlines and locations of the included developments. The lists reflect the temporal scope, scale and nature of the ‘other development’, in line with Stage 2 of the Advice Note.

### **Stage 3: information gathering**

- 16.3.79 Environmental information was gathered on the 209 shortlisted developments. This information came from the following sources:
- a. Consultation with specific local authorities and other stakeholders on the Stage 2 short list
  - b. Planning application documentation and supporting environmental assessments obtained from the LPAs’ planning portals
  - c. Draft and adopted Local Development Plans prepared by the respective LPAs
  - d. The Planning Inspectorate’s National Infrastructure Planning website, including EIA documents prepared for NSIPs
- 16.3.80 Information gathered included the following, in so far as it was available for each of the shortlisted developments:
- a. Proposed design and location
  - b. Construction, operation and decommissioning activities
  - c. Predicted environmental effects
- 16.3.81 The shortlist was compared against the Uncertainty Log, prepared for the Project’s transport model, to identify which developments were included the transport modelling.

#### Stage 4: assessment

- 16.3.82 Inter-project cumulative effects were assessed by the relevant specialists for each environmental topic. This considered the potential for interactions for each other development where they fall within the topic ZoI as defined in Table 16.3. This inter-project effects assessment was based on the assessment of the Project reported in Chapters 5 to 15 of the ES. In line with the approach presented in Advice Note Seventeen (Planning Inspectorate, 2019), the assessment columns within the shortlist (Application Document 6.3, Appendix 16.2) were completed to record the conclusions of the inter-project effects assessment and the residual cumulative effects for each other development for both construction and operation phases.
- 16.3.83 Where developments are included within the transport model, these have been included in the traffic data used for the modelling for air quality, noise and vibration, and climate. The assessments reported for Chapter 5: Air Quality and Chapter 12: Noise and Vibration, and Chapter 15: Climate are therefore already cumulative for these developments and the completion of the inter-projects effects assessment for these developments has taken this into account. Appendix 16.2: Cumulative Effects Assessment Short List of Developments (Application Document 6.3) indicates which developments have been included in the Uncertainty Log developed for the Project's transport model.
- 16.3.84 The transport model forecasts traffic growth based on assumptions for changes to the road network and general planned development included in the DfT forecasts published in 2018 for HGVs and 2017 for cars and light goods vehicles, as well as local adjustments based on the inclusion of 'near certain' or 'more than likely' developments contained within the Uncertainty Log. This is described further in the Combined Modelling and Appraisal Report (ComMA) (Application Document 7.7). The assessments for air quality, noise and vibration and climate all make use of the traffic forecasts from the core scenario produced by the Project's transport model which include this growth. A qualitative assessment of the air quality and noise and vibration inter-project effects of developments that are not included in the Uncertainty Log. This is based on professional judgement using the available information.
- 16.3.85 The methodology for the inter-project cumulative effects of the Project's greenhouse gas (GHG) emissions is considered identical to the methodology for the assessment of the Project's likely significant effects presented in Chapter 15: Climate. The Project's GHG emissions have an inherently cumulative impact on the carbon budgets together with the sum of carbon emissions over a range of sectors at the national level, including local developments. Therefore, further inter-project effects assessment for each development has not been undertaken within this chapter.
- 16.3.86 The inter-project cumulative climate change vulnerability assessment in Chapter 15: Climate has compared, in a qualitative way, potential effects (traffic congestion on the strategic road network) without the Project (do minimum scenario) with effects if the Project and its climate vulnerability mitigation were to be in operation (do something scenario). These scenarios are cumulative of future developments across the strategic road network.

## Determining significance of effects

- 16.3.87 The assessment of the significance of intra and inter-project cumulative effects has been determined using professional judgement and the criteria set out in DMRB LA 104 (Highways England, 2020). Typical descriptors for significance of effects are set out in Table 16.7 and are based on these criteria.
- 16.3.88 Consideration has also been given to the guidance provided in the Planning Inspectorate Advice Note Seventeen, which states that *‘the significance criteria used to assess cumulative effects should consider the capacity of the receiving environment and receptors to accommodate changes that are likely to occur.’*
- 16.3.89 Where the significance of a cumulative effect would be moderate or above (adverse or beneficial), it has been deemed to be ‘significant’. The need for additional mitigation measures has been considered, with the resulting residual significance of effects identified.

**Table 16.7 Intra-project and inter-project effects significance criteria**

Significance	Description of effect
Very large (adverse or beneficial)	Where intra-project effects or inter-project effects upon an individual or collection of environmental receptors would be very highly significant (positive or negative). Effects would be permanent for receptors of very high value.
Large (adverse or beneficial)	Where intra-project effects or inter-project effects upon an individual or collection of environmental receptors would be highly significant (positive or negative). Effects would be: <ul style="list-style-type: none"> <li>• Permanent for a receptor or receptors of high value</li> <li>• Localised for a receptor or receptors of very high value</li> <li>• Temporary for a receptor or receptors of very high value</li> </ul>
Moderate (adverse or beneficial)	Where intra-project effects or inter-project effects upon an individual or collection of environmental receptors would be significant (positive or negative). Effects would be: <ul style="list-style-type: none"> <li>• Permanent for a receptor or receptors of medium value</li> <li>• Localised for a receptor or receptors of high value</li> <li>• Temporary for a receptor or receptors of high value</li> </ul>
Slight (adverse or beneficial)	Where intra-project effects or inter-project effects upon an individual or collection of environmental receptors would be noteworthy but not significant (positive or negative). Effects would be: <ul style="list-style-type: none"> <li>• Permanent for receptors of low value</li> <li>• Localised for a receptor or receptors of medium value</li> <li>• Temporary for a receptor or receptors of medium value</li> </ul>
Neutral	Where intra-project effects or inter-project effects upon an individual or collection of environmental receptors would be negligible and not significant (positive or negative).

### Intra-project effects significance

- 16.3.90 The determination of the significance of intra-project effects has used professional judgement to consider how well the affected receptor is able to accommodate multiple impacts that would occur as a result of the Project. Professional judgement has been used to avoid double counting where effects are reported by more than one chapter, for example where health outcomes associated with noise effects are reported.

- 16.3.91 To ensure a consistent approach was used throughout the assessment, the highest significance assessed for an individual effect on a receptor was used in the assessment of the intra-project significance of effect. In some cases, the combined effect is equivalent to the ‘worst-case’ effect already identified for a single topic. Where it is considered that the combination of impacts may increase the overall effect magnitude, the resulting effect has been assigned based on the professional judgement of the relevant technical specialists and in accordance with the significance criteria set out in Table 16.7.

#### **Inter-project effects significance**

- 16.3.92 The assessment of inter-project effects has used the professional judgement from the relevant topic specialists to determine residual cumulative effects of the Project combined with each other development identified in the shortlist (Application Document 6.3, Appendix 16.2).
- 16.3.93 For the short-listed developments, where their environmental assessments may have used different significance criteria or terminology, their effects have been interpreted using professional judgement, based on the available environmental documents. No new assessment of the effects of individual developments has been carried out.
- 16.3.94 An assessment was undertaken of the likely cumulative significance of effects on the receptors or resource relevant to each topic, should all developments within a location progress. The significance of these cumulative effects was determined using professional judgement based on the criteria in Table 16.7.

#### **Assumptions and limitations**

- 16.3.95 General assumptions used throughout the ES, and limitations affecting the assessments, are set out in Chapter 4: EIA Methodology. Relevant assumptions and any other limitations encountered during the CEA are as described below. Acknowledging the assumptions and limitations identified below and in Chapter 4: EIA Methodology, the ES is considered robust and in line with relevant legislation, policy, and guidance.
- 16.3.96 The DCO application has been developed on the basis of a 2030 opening year. This assumes consent is granted in 2024. Following the DCO Grant there would be preparatory works, referred to in the draft DCO as preliminary works taking place in 2024. The main construction period for the Lower Thames Crossing would start in early 2025, with the road being open for traffic in late 2030. Construction may take approximately six years, but as with all large projects there is a level of uncertainty over the construction programme, which will be refined once contractors are appointed and as the detailed design is developed. The 2030 opening year has been selected as the basis for the assessments and is representative of the reasonable worst-case scenario. This has been used consistently across the environmental assessments, transport assessments and the economic appraisal of the Project.

#### **Intra-project effects assumptions and limitations**

- 16.3.97 A worst-case approach has been adopted assuming that effects on a receptor, or group of receptors, would occur at the same time, unless mentioned in the assessment.

### Inter-project effects assumptions and limitations

- 16.3.98 The large geographic spread of the Project has resulted in the consideration of a large number of potentially overlapping projects where many of these are in early stages of development and limited design and assessment detail is available for use in the inter-project effects assessment. A worst-case approach has been adopted for the inter-project CEA. Where construction periods or phasing is unknown, it has been assumed that there would be an overlap in construction phases due to the length of the Project construction period.
- 16.3.99 The inter-project CEA has been based on information on ‘other developments’ which is publicly available through desktop studies and through consultation with local planning authorities. This information is based on a final check of planning portal searches that was undertaken during May 2022 and took into account responses received from LPAs and stakeholders up to 01 September 2022.
- 16.3.100 The long and short lists include major developments where there is limited information currently available. These developments have been included in the inter-projects effects assessments based on feedback from stakeholders about potential interactions with the Project. These developments are listed below:
- a. Tilbury Link Road
  - b. Thames Freeport
  - c. East Anglia Green
- 1.1.2 The limited information on the development proposals, associated timescales and any resulting potential for environmental effects has been reflected in the inter-project effects assessment of these developments. Further information on how the development of the Project has recognised and responded to these major developments is included in Application Document 7:17: Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes.
- 1.1.3 Application Document 7:17: Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes sets out interfaces and agreements between the Project and the other nearby NSIPs and major schemes. These interfaces have been assumed in the assessment of cumulative effects.
- 16.3.101 Other developments where the level of detail is limited have been assessed based on the information available. This included proposed junction improvements where options are still in development, local plan allocations where the local plans are still under development. Where there is a limited amount of detail available, worst-case assumptions have been made. It is a worst-case assessment because it has been assumed that all third-party projects on the shortlist will proceed to implementation and that Project construction and operation would coincide with third party project construction and operation, which would not necessarily be the case.
- 16.3.102 In some cases, there is insufficient information available to assess the inter-project effects. Where it has not been possible to draw relevant conclusions, this has been stated in Appendix 16.2 (Application Document 6.3).



- 16.3.103 It is recognised that the London Resort DCO application has been withdrawn and it is intended that it will be resubmitted, although the dates for this are unknown. The assessment of inter-project effects has used the information from the withdrawn application to draw conclusions as this is the most up-to-date information available.
- 16.3.104 Applications related to existing ongoing activities by Ingrebourne Valley Limited (IVL) within the northern tunnel entrance compound are included in the long and shortlist. Application reference 18/01307/FUL relates to the ongoing recovery of pulverised fuel ash from the Ashfields site. It is assumed that these operations would be mostly complete prior to the start of construction of the Project, or would only continue away from construction worksites. Application reference 19/00051/CV relates to reprofiling and land-raising of the Ashfield site using inert material brought in by the river. It is understood that the land raising activities will continue during construction of the Project. It is assumed that the site would be used for the disposal of excavated material from the Project, that is not reused on site.
- 16.3.105 There are three proposed solar farms around South Ockendon, two are included in the shortlist for assessment, one would be operational prior to start of construction and so has not been included in lists for assessment. The shortlisted solar farms have been assessed for likely inter-project effects individually but where relevant, topics have also considered the three solar farm developments together. The solar farm developments are as follows:
- a. 14/00836/FUL South Ockendon Quarry and Landfill Site – not included in the shortlist for inter-project effects assessment
  - b. 21/02159/FUL Medebridge Solar Farm – included in the shortlist
  - c. 21/00077/FUL Land Adjacent Fen Farm Judds Farm and Part of Bulphan Fen Harrow Lane Bulphan – included in the shortlist (hereafter referred to as Bulphan solar farm)
- 16.3.106 All developments going through the planning system would follow the requirements in the NPPF and regulatory approval would be required prior to commencement. The promoters of other developments would be responsible for securing and delivering any mitigation required to reduce the adverse effects of their proposals on the environment, and for compliance with any regulatory requirements relevant to their proposals.
- 16.3.107 It is also assumed that good practice would be followed during construction for such developments; for example, to reduce the impacts of historic contamination becoming mobilised and migrating on to the Project.

## 16.4 Project design and mitigation

- 16.4.1 Environmental considerations have influenced the Project throughout the design development process, from early route options assessment through to refinement of the Project design. An iterative process has facilitated design updates and improvements, informed by environmental assessment and input from the Project engineering teams, stakeholders and public consultation.

- 16.4.2 The Project as submitted with the DCO application includes a range of environmental commitments. Commitments within the ES are set out in this section under the following categories:
- a. Embedded mitigation: measures that form part of the engineering design, developed through the iterative design process summarised above.
  - b. Good practice: standard approaches and actions commonly used on infrastructure development projects to avoid or reduce environmental impacts, typically applicable across the whole Project.
  - c. Essential mitigation: any additional Project-specific measures needed to avoid, reduce or offset potential impacts that could otherwise result in effects considered to be significant in the context of the EIA Regulations. Essential mitigation has been identified by environmental topic specialists, taking into account the embedded and good practice mitigation.
- 16.4.3 Embedded mitigation is included within the Design Principles (Application Document 7.5) or as features presented in Figure 2.4: Environmental Masterplan (Application Document 6.2). Design Principles relevant to mitigation of effects on each topic are described in the relevant topic chapter, each with an alpha-numerical reference code (for example, LSP.01). Good practice and essential mitigation are included in the Register of Environmental Actions and Commitments (REAC). The REAC forms part of Appendix 2.2: Code of Construction Practice (CoCP) (Application Document 6.3). Each entry in the REAC has an alpha-numerical reference code (for example, RDWE01) to provide cross reference to the secured commitment.
- 16.4.4 The Design Principles, Environmental Masterplan, CoCP and REAC, all form part of the Project control plan. The control plan is the framework for mitigating, monitoring and controlling the effects of the Project. It is made up of a series of 'control documents' which present the mitigation measures identified in the application that must be implemented during design, construction and operation to reduce the adverse effects of the Project. Further explanation of the control plan and the documents which it comprises is provided in the Introduction to the Application (Application Document 1.3).
- 16.4.5 Enhancement measures have been directly incorporated into the Project as part of the application of 'good design' principles. Enhancements are measures that are considered to be over and above any measures to avoid, reduce or remediate adverse impacts of the Project. Relevant beneficial effects arising as a consequence of this good design process are provided below.
- 16.4.6 The CEA has inherently considered the mitigation identified in each individual topic chapter as the assessment is based on the interactions of the likely significant effects identified. An assessment of the need for additional mitigation further to that already set out in Chapters 5 to 15 of the ES has been undertaken as part of the CEA. Mitigation measures are already proposed within the topic chapters to address the adverse effects identified. Further mitigation measures have not been identified as these were either not considered necessary or could not be implemented effectively.

## 16.5 Assessment of likely significant effects

### Intra-project effects assessment

- 16.5.1 The effects reported in the relevant topic chapters (as identified in Section 16.3 under the 'Impact assessment methodology' heading) have been assessed to identify the likely significant intra-project cumulative effects. The mitigation measures proposed for each topic have been considered as part of this assessment. The effects on people have been assessed for receptors within the relevant wards as identified in Section 16.3 under the 'Study area' heading.
- 16.5.2 Where more than one topic assessment has identified affected receptors in a location, the likely intra-project effects are reported in Table 16.8 and Table 16.9 for construction and operation phases respectively. In some cases, the combined effect is equivalent to the 'worst-case' effect already identified for a single topic. Where it is considered that the combination of impacts may increase the overall significance of effect, this has been reported. No additional mitigation to that proposed in the individual topic chapters has been proposed to address the intra-project effects identified.
- 16.5.3 Effects reported for each receptor will vary and all receptors will not experience the same impacts, magnitude or significance of effect. Intra-project effects can be both beneficial and adverse within a ward or identified location, in which case the adverse effect has been reported in this assessment.
- 16.5.4 There is potential for cumulative beneficial effects in relation to employment generation and training opportunities during construction, together with potential increased accessibility to employment and training during the operation of the Project. It is not, however, possible to accurately identify where receptors benefitting from such effects would reside and therefore such beneficial intra-project effects have not been reported against individual wards.

**Table 16.8 Intra-project effects on people during the construction phase**

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
Throughout the study area	Geology and soils	Temporary slight adverse effects on sensitive residential receptors adjacent to construction activities from fugitive dust (potentially containing contaminants). The health outcome is considered to be neutral. No significant effects have been identified.	These effects have been incorporated into the intra-project effects assessment presented for each location in the rows below.
Throughout the study area	Population and human health (see below for additional receptor specific effects)	There would be both positive and negative potential impacts on people’s health and wellbeing as a result of the construction phase. Temporary negative health outcomes for sensitive populations in relation to traffic-related severance, access to green space and outdoor recreation, impacts associated with the loss of private property and associated change in sense of community and in relation to mental health and wellbeing. A significant negative impact on the health of populations has been identified in relation to noise during the construction phase. The Project would benefit the local community by providing jobs during the construction phase, while also increasing the skill base of local residents working on the Project to benefit them post-construction. A significant positive health outcome has been identified for sensitive populations in relation to access to work and training.	These effects have been incorporated into the intra-project effects assessment presented for each ward in the rows below.
Throughout the study area	Road drainage and water environment	Temporary neutral to slight adverse effects on flood risk. No significant effects have been identified.	These effects have been incorporated into the intra-project effects assessment presented for each ward in the rows below.
Throughout the study area	Climate	Neutral health outcomes would be experienced in relation to GHG emissions and the vulnerability of the Project to climate change.	As the effects associated with climate are neutral these have not been further considered in the intra-project effects assessment presented for each ward in the rows below.
Shorne, Cobham and	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.	Adverse effects are likely, particularly on properties directly

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
Luddesdown ward		Temporary adverse effects from dust and emissions on residential receptors east of the proposed M2/A2/A122 Lower Thames Crossing junction and the A122 are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic. No significant effects have been identified.	affected by construction through demolition or restriction to access and in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual effects and effects on human health would arise. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors in the area immediately around the M2/A2/A122 Lower Thames Crossing junction where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified for the demolition of properties and visual effects in relation to some receptors at this location. Demolition effects would be permanent; all other significant effects would be temporary during construction.</li> <li>Receptors within the residential areas on the</li> </ul>
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from very large adverse to neutral, with predominantly slight adverse effects have been identified. Temporary significant adverse effects have been identified as follows: <ul style="list-style-type: none"> <li>Large and moderate adverse effects on residential receptors around the M2/A2/A122 Lower Thames Crossing junction</li> <li>Very large, large and moderate adverse effects on some residential receptors on the eastern edge of Gravesend</li> <li>Very large, large and moderate adverse effects on some residential receptors in and around Thong village</li> <li>Large and moderate adverse effects on some residential receptors to the west and south-west of Shorne</li> <li>Large and moderate adverse effects on some residential receptors along the A226 Gravesend Road</li> </ul>	
	Population and human health	Three residential properties on Henhurst Road would be demolished for the Project resulting in large and moderate adverse effects. Parts of the gardens of Park Farm House and Cheney's Farm on Thong Lane would be permanently required for the construction of the Project, resulting in slight adverse effects. A number of properties would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are at the following locations: <ul style="list-style-type: none"> <li>The Nook, Scalers Hill House</li> <li>Thong Lane, Thong</li> </ul>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		There is also potential for adverse effects for local residents associated with the loss of private property (for example in relation to anxiety, or loss of community).	<p>eastern edge of Gravesend where temporary adverse construction phase dust and emissions, noise and visual effects would combine. These effects would be no worse than the very large adverse effects identified from visual effects in relation to some receptors at this location.</p> <ul style="list-style-type: none"> <li>• Receptors along Thong Lane and Thong village where permanent loss of property and effects on access would combine with temporary adverse construction phase dust and emissions, noise and visual effects. These effects would be no worse than the very large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors to the west and south-west of Shorne where temporary adverse construction phase dust and emissions, noise and visual effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in</li> </ul>
	Noise and vibration	<p>Temporary adverse noise effects on receptors at the following locations are predicted:</p> <ul style="list-style-type: none"> <li>• Thong Lane</li> <li>• The eastern edge of Gravesend</li> <li>• Cobham</li> </ul> <p>However, with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>Temporary significant adverse noise effects associated with construction traffic are predicted for receptors on Cobhambury Road and Warren Road.</p> <p>No significant construction vibration effects have been identified.</p>	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			<p>relation to some receptors at this location.</p> <ul style="list-style-type: none"> <li>Receptors along A226 Gravesend Road where temporary adverse construction phase dust and emissions, noise and visual effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
Higham ward	Air quality	<p>The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.</p> <p>Temporary adverse effects on residential receptors located east of the M2 junction 1 and on Gravesend Road west of the A226/A289 junction are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic.</p> <p>No significant effects have been identified.</p>	<p>Adverse effects are likely, particularly on properties in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual effects and effects on human health would arise.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Receptors on the western edge of Strood and east of the M2 junction 1 where temporary adverse construction phase dust and emissions, noise and visual effects would combine. These effects would be no worse than the moderate adverse effects identified from visual</li> </ul>
	Landscape and visual	<p>Temporary significant moderate adverse visual effects on some residential receptors on the western edge of Strood have been identified.</p>	
	Population and human health	<p>No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).</p>	
	Noise and vibration	<p>Temporary adverse noise effects on receptors on Old Watling Street, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>No significant construction vibration effects have been identified.</p>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	effects in relation to some receptors at this location.
Singlewell ward	Air quality	<p>The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.</p> <p>Temporary adverse effects on residential receptors located along the southern edge of Singlewell, close to the A2 are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic.</p> <p>No significant effects have been identified.</p>	<p>Adverse effects are likely, particularly on properties directly affected by construction through demolition or restriction to access and in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual effects and effects on human health would arise.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>• Receptors located along the southern edge of Singlewell, close to the A2 where there would be demolition, changes to access during construction combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location. Demolition effects would be permanent; all other</li> </ul>
	Landscape and visual	Temporary significant large and moderate adverse visual effects on some residential receptors on the southern edge of Gravesend have been identified.	
	Population and human health	<p>One residential property on Watling Street would be demolished resulting in moderate adverse effects.</p> <p>A number of properties would be temporarily affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are at the following locations:</p> <ul style="list-style-type: none"> <li>• Properties along Watling Street</li> <li>• Sheldon Heights, Gravesend</li> </ul> <p>There is also potential for adverse effects for local residents associated with the loss of private property (for example in relation to anxiety, or loss of community).</p>	
	Noise and vibration	<p>Temporary adverse noise effects on receptors on Watling Street, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>No significant construction vibration effects have been identified.</p>	



Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	significant effects would be temporary during construction.
Riverview ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Overall negligible change in air quality during construction as a result of construction activities and traffic. No significant effects have been identified.	Adverse effects are likely, particularly on properties where combined construction phase noise, vibration, visual effects and effects on human health would arise. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors located on the eastern edge of Riverview Park where there would be combined temporary adverse construction phase dust and emissions, noise and visual effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from large adverse to slight adverse, with predominantly slight adverse effects have been identified. Temporary significant large and moderate adverse visual effects on some residential receptors on the eastern edge of Riverview Park.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	Temporary adverse noise effects on receptors on Thong Lane near Riverview Park, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Westcourt ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located along Gravesend Road are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic. No significant effects have been identified.	Adverse effects are likely, particularly on properties where combined construction phase dust and emissions, noise, vibration, visual effects and effects on human health would arise.

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Landscape and visual	Temporary significant large and moderate adverse visual effects on some residential receptors in the eastern part of the ward at Thong Lane have been identified.	Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors located on and around Thong Lane where there would be combined temporary adverse construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	Temporary adverse noise effects on receptors located on and around Thong Lane, but the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic noise effects are predicted. No significant construction vibration effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
Chalk ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located on the eastern side of Chalk, Lower Higham Road and Church Lane are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic. No significant effects have been identified.	Adverse effects are likely, particularly on properties where combined construction phase dust and emissions, construction phase noise, vibration, visual effects and effects on human health would arise.  Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors located along the eastern side of Chalk, Lower Higham Road and Church Lane where there would be</li> </ul>
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from moderate adverse to slight adverse, with predominantly moderate adverse effects have been identified. Temporary significant moderate adverse effects have been identified at some residential properties to the south and east edges of Chalk village and on Church Lane.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	combined temporary adverse construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location.
	Noise and vibration	Temporary adverse noise effects on Chalk village, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
East Tilbury ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located along Station Road and Muckingford Road are predicted. Other receptors would experience negligible change in air quality during construction as a result of construction activities and traffic. No significant effects have been identified.	Adverse effects are likely, particularly on properties where direct impacts from changes to access combine with effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors located to the west of East Tilbury and Linford where there would be direct effects on access, combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects</li> </ul>
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from large adverse to neutral, with predominantly slight adverse effects have been identified. Significant adverse effects have been identified as follows: <ul style="list-style-type: none"> <li>Large and moderate adverse effects on some residential receptors on the western edge of East Tilbury and Linford</li> <li>Large and moderate adverse effects on some residential receptors on the southern edge of East Tilbury</li> <li>Moderate adverse effects on some residential receptors on the eastern edge of West Tilbury</li> <li>Large adverse effects on some residential receptors on properties at the junction of Church Road and Low Street Lane</li> </ul>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Population and human health	<p>A number of properties would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are at the following locations:</p> <ul style="list-style-type: none"> <li>• South of East Tilbury</li> <li>• On Muckingford Road</li> </ul>	<p>identified from visual effects in relation to some receptors at this location.</p> <ul style="list-style-type: none"> <li>• Receptors located on the southern edge of East Tilbury where there would be direct effects on access, combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors located on the eastern edge of West Tilbury where there would be combined adverse effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors located around Church Road where there would be combined adverse</li> </ul>
	Noise and vibration	<p>Temporary adverse noise effects on receptors located as follows:</p> <ul style="list-style-type: none"> <li>• To the west of East Tilbury and Linford including Muckingford Road</li> <li>• On the southern edge of East Tilbury</li> <li>• On the eastern edge of West Tilbury</li> <li>• Around Church Road</li> </ul> <p>However, with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>No significant construction vibration effects have been identified.</p>	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.
Tilbury Riverside and Thurrock Park ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located on the west side of Tilbury are predicted. Other receptors would experience negligible change in air quality during construction, with the exception of minor worsening of air quality predicted in the A1089 Ferry Road area. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Receptors located around Ferry Road, Calcutta Road and Dock Road where construction phase air quality, noise, visual and human health effects combine. The effects are anticipated to be moderate adverse in relation to some receptors at these locations.</li> </ul>
	Landscape and visual	Temporary slight adverse visual effects on residential receptors have been identified. No significant effects have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. Temporary significant adverse noise effects associated with construction traffic are predicted at residential receptors on Calcutta Road and Dock Road. No significant construction vibration effects have been identified.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Tilbury St Chads ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located to the south of Chadwell St Mary are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	Temporary slight adverse visual effects on residential receptors have been identified. No significant effects have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Chadwell St Mary ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located along Brentwood Road in Chadwell St Mary are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where direct effects from changes to access combine with effects from construction phase dust and emissions, noise, , vibration, visual

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Landscape and visual	<p>Temporary adverse visual effects on residential receptors ranging from large adverse to slight adverse, with predominantly slight adverse effects have been identified.</p> <p>Significant adverse effects have been identified as follows:</p> <ul style="list-style-type: none"> <li>• Large and moderate adverse effects on some residential receptors on the northern and north-eastern edge of Chadwell St Mary</li> <li>• Large adverse effects on some residential receptors to the north of Orsett Heath</li> <li>• Large adverse effects on some residential receptors on High House Lane</li> </ul>	<p>effects and effects on human health.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>• Receptors on the northern and north-eastern edge of Chadwell St Mary where there would be combined adverse effects from construction phase dust and emissions, noise, vibration, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors to the north of Orsett Heath where there would be adverse effects from changes to access combined with construction phase dust and emissions, noise, vibration, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors on High House Lane where there would be</li> </ul>
	Population and human health	<p>A number of properties would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are at the following locations:</p> <ul style="list-style-type: none"> <li>• Orsett Heath</li> <li>• High House Lane</li> </ul>	
	Noise and vibration	<p>Temporary adverse noise effects on receptors located as follows:</p> <p>To the north of Chadwell St Mary</p> <p>To the north of Orsett Heath</p> <p>However, with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>Receptors at Brook Farm Cottages north of Chadwell St Mary and on Heath Road in Orsett Heath are predicted to experience temporary significant adverse effects from vibration during construction.</p>	
		<p>No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.</p>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			<p>adverse effects from changes to access combined with construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</p>
<p>Little Thurrock Blackshots ward</p>	<p>Air quality</p>	<p>The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located around the A1013 Stanford Road and south of Ashley Gardens towards the north-eastern edge of Grays are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.</p>	<p>Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health. Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Receptors located on the northern and eastern edge of Grays where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
	<p>Landscape and visual</p>	<p>Temporary adverse visual effects on residential ranging from moderate adverse to slight adverse, with predominantly moderate adverse effects have been identified. Temporary significant moderate adverse effects have been identified on some residential receptors on the eastern edge of Grays.</p>	
	<p>Population and human health</p>	<p>No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).</p>	
	<p>Noise and vibration</p>	<p>Temporary adverse noise effects on receptors located on the northern and eastern edge of Grays, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.</p>	



Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Stifford Clays ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Overall negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase noise, vibration, visual effects and effects on human health. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	Temporary slight adverse visual effects on some residential receptors on the northern edge of Grays have been identified. No significant effects have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	Temporary adverse noise effects on receptors located on Stifford Clays Road, but the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. Temporary Significant adverse noise effects associated with construction traffic are predicted at receptors on Medebridge Road. No significant construction vibration effects have been identified.	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Orsett ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located in the A1089 and the A13 corridors are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties directly affected by construction through demolition or restriction to access and in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from large adverse to neutral have been identified.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		<p>Temporary significant adverse effects have been identified as follows:</p> <ul style="list-style-type: none"> <li>• Large adverse effects on some residential receptors in and around Baker Street</li> <li>• Large adverse effects on some residential receptors on Hornsby Lane</li> <li>• Large adverse effects on some residential receptors at the Whitecroft</li> <li>• Moderate adverse effects on some residential receptors at the western edge of Orsett</li> <li>• Large adverse effects on some residential receptors on and around Stifford Clays Road</li> <li>• Large to moderate effects on some residential receptors to the north of the ward</li> </ul>	<p>effects and effects on human health would arise.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>• Receptors in and around Baker Street where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine. These effects would be no worse than the very large adverse effects identified for some receptors in relation to the demolition of properties at this location. Demolition effects would be permanent; all other significant effects on these receptors would be temporary during construction.</li> <li>• Receptors on Stanford Road where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine. These effects would be no worse than the very large adverse effects identified for some receptors in relation to the</li> </ul>
	Population and human health	<p>Residential properties would be demolished for the Project resulting in significant adverse effects as follows:</p> <ul style="list-style-type: none"> <li>• Properties in Baker Street resulting in very large and large adverse effects</li> <li>• Properties on Stanford Road resulting in very large and large adverse effects</li> <li>• Properties on Stifford Clays Road resulting in very large adverse effects</li> <li>• A number of properties would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are at the following locations:</li> <li>• Baker Street</li> <li>• Stanford Road</li> </ul> <p>There is also potential for adverse effects for local residents associated with the loss of private property (for example in relation to anxiety, or loss of community).</p>	
	Noise and vibration	<p>Temporary adverse noise effects on receptors located as follows:</p> <ul style="list-style-type: none"> <li>• In and around Baker Street</li> <li>• At the Whitecroft</li> </ul>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		<ul style="list-style-type: none"> <li>• On Stanford Road</li> <li>• On Stifford Clays Road</li> <li>• At the western edge of Orsett</li> <li>• To the north of the ward</li> </ul> <p>However, with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>Receptors on Woolings Row and Woolings Close are predicted to experience temporary significant adverse effects from vibration during construction.</p>	<p>demolition of properties at this location. Demolition effects would be permanent; all other significant effects on these receptors would be temporary during construction.</p> <ul style="list-style-type: none"> <li>• Receptors on Stifford Clays Road where demolition and adverse construction phase dust and emissions, noise, visual and human health effects would combine. These effects would be no worse than the very large adverse effects identified for some receptors in relation to the demolition of properties and visual effects at this location. Demolition effects would be permanent; all other significant effects on these receptors would be temporary during construction.</li> <li>• Receptors on Hornsby Lane where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in</li> </ul>
		<p>No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.</p>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			<p>relation to some receptors at this location.</p> <ul style="list-style-type: none"> <li>• Receptors at the Whitecroft where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors at the western edge of Orsett where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>• Receptors located to the north of the ward where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no</li> </ul>

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			worse than the large adverse effects identified from visual effects in relation to some receptors at this location.
Belhus ward	Air quality	There are no properties located within 200m of construction worksites and so no predicted effects from construction dust and emissions. Overall negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase noise, vibration, visual effects and effects on human health. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	No visual effects are anticipated for residential receptors in this ward.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	No relevant construction noise or vibration receptors have been identified. No significant noise effects associated with construction traffic are predicted.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
Ockendon ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located around North Road and Dennis Road are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties directly affected by construction through changes to access and in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual effects and effects on human health would arise. Locations likely to experience significant intra-project effects are:
	Landscape and visual	Temporary adverse visual effects on residential receptors ranging from large adverse to slight adverse have been identified. Temporary significant adverse effects have been identified as follows: Large and moderate adverse effects on some residential receptors around the northern edge of South Ockendon.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Population and human health	A number of properties would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects. These properties are located along North Road.	<ul style="list-style-type: none"> <li>Receptors around the northern edge of South Ockendon where there would be adverse effects from changes to access combined with construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> <li>Receptors around North Road and Dennis Road where there would be adverse effects from combined construction phase dust and emissions, noise, and human health effects. These effects are anticipated to be moderate adverse for some receptors.</li> </ul>
Noise and vibration	<p>Temporary adverse noise effects on receptors located on North Road, but with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>Temporary significant adverse noise effects associated with construction traffic are predicted at receptors on Dennis Road.</p> <p>No significant construction vibration effects have been identified.</p>		
No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.			
Upminster ward	Air quality	<p>The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.</p> <p>Temporary adverse effects on residential receptors located near Ockendon Road and Clay Tye Road are predicted. Other receptors would experience negligible change in air quality during construction.</p> <p>No significant effects have been identified.</p>	Adverse effects are likely, particularly on properties directly affected by construction through demolition or restriction to access and in proximity to construction activities where combined construction phase dust and emissions, noise, vibration, visual
	Landscape and visual	<p>Temporary adverse visual effects on residential receptors ranging from large adverse to neutral have been identified.</p> <p>Temporary significant adverse effects have been identified as follows:</p>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		<ul style="list-style-type: none"> <li>Moderate adverse effects on some residential receptors in and around North Ockendon</li> <li>Large and moderate adverse effects at some residential receptors on St Marys Lane</li> </ul>	<p>effects and effects on human health would arise.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Receptors on Ockendon Road where demolition, changes to access and adverse construction phase dust and emissions, noise, visual and human health effects would combine. These effects would be no worse than the very large adverse effects identified for the demolition of properties in relation to some receptors at this location. Demolition effects would be permanent; all other significant effects on these receptors would be temporary during construction.</li> <li>Receptors in and around North Ockendon where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
	Population and human health	<p>Residential properties would be demolished for the Project resulting in significant very large and large adverse effects on Ockendon Road. A number of properties located along Ockendon Road would be affected by changes to access as a result of construction of the Project, resulting in slight adverse effects.</p> <p>There is also potential for adverse effects for local residents associated with the loss of private property (for example in relation to anxiety, or loss of community).</p>	
	Noise and vibration	<p>Temporary adverse noise effects on receptors located as follows:</p> <ul style="list-style-type: none"> <li>On Ockendon Road</li> <li>In and around North Ockendon</li> <li>On St Marys Lane</li> <li>On Clay Tye Road</li> </ul> <p>However, with the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>Temporary significant adverse noise effects associated with construction traffic are predicted at receptors on Pea Lane and Pike Lane.</p> <p>No significant construction vibration effects have been identified.</p>	
		<p>No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.</p>	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
			<ul style="list-style-type: none"> <li>Receptors on St Marys Lane where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location.</li> </ul>
Cranham ward	Air quality	<p>The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.</p> <p>Temporary adverse effects on residential receptors located near the A127 Southend Arterial Road are predicted. Other receptors would experience negligible change in air quality during construction.</p> <p>No significant effects have been identified.</p>	<p>Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Receptors located on the northern and eastern edge of Cranham where there would be adverse combined effects from construction phase dust and emissions, noise and visual effects. These effects would be no worse than the moderate adverse effects identified from visual effects in</li> </ul>
	Landscape and visual	<p>Temporary adverse visual effects on residential receptors ranging from moderate adverse to slight adverse have been identified.</p> <p>Temporary significant moderate adverse effects have been identified at some residential receptors on the eastern side of Cranham.</p>	
	Population and human health	<p>No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).</p>	
	Noise and vibration	<p>With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted.</p> <p>No significant noise effects associated with construction traffic are predicted.</p> <p>No significant construction vibration effects have been identified.</p>	



Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	relation to some receptors at this location.
Warley ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors around the A127 Southend Arterial Road and Beredens Lane are predicted. Other receptors would experience negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, noise, vibration, visual effects and effects on human health. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	Temporary slight adverse visual effects on some residential receptors around Warley Street and at Hole Farm have been identified. No significant effects have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
South Weald ward	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Temporary adverse effects on residential receptors located near Nags Head Lane are predicted. Other receptors would experience negligible change in air quality during construction No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase dust and emissions, and effects on human health.
	Landscape and visual	No visual effects are anticipated for residential receptors in this ward.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	No significant intra-project effects are anticipated on receptors in this ward.
	Noise and vibration	No noise and vibration effects have been identified for residential receptors in this ward.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
Surrounding wards within Medway: <ul style="list-style-type: none"> <li>• Cuxton and Halling</li> <li>• Strood South</li> <li>• Strood North</li> <li>• Strood Rural</li> </ul>	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Within Strood South ward, a perceptible decrease in NO <sub>2</sub> levels has been predicted at receptors to the eastern side of M2 junction 1. No identified air quality effects for receptors in Cuxton and Halling ward and Strood North Strood Rural ward. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase noise, and effects on human health. No significant intra-project effects are anticipated on receptors in these wards.
	Landscape and visual	The landscape and visual study area does not extend to these locations. No visual effects are anticipated for residential receptors in these wards.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. Temporary significant adverse noise effects associated with construction traffic are predicted at receptors on Bush Road in Cuxton and Halling ward. No significant construction vibration effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions.	Adverse effects are likely, particularly on properties where

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
Surrounding wards within Gravesham: <ul style="list-style-type: none"> <li>• Woodlands</li> <li>• Riverside</li> <li>• Northfleet South</li> <li>• Istead Rise</li> <li>• Painters Ash</li> </ul>		Overall, negligible change in air quality during construction No significant effects have been identified.	there are combined effects from construction phase noise, vibration, visual effects and effects on human health. No significant intra-project effects are anticipated on receptors in these wards.
	Landscape and visual	Temporary slight adverse to neutral visual effects on residential receptors have been identified. No significant effects have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
Surrounding wards within Dartford: <ul style="list-style-type: none"> <li>• Newtown</li> <li>• Stone Castle</li> <li>• Stone House</li> <li>• Bridge</li> <li>• Temple Hill</li> </ul>	Air quality	There are no construction activities on receptors in these wards and there would be no adverse effects from construction dust and emissions. Overall, negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase noise, , and effects on human health. No significant intra-project effects are anticipated on receptors in these wards.
	Landscape and visual	The landscape and visual study area does not extend to these locations. No visual effects on residential receptors in these wards have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Surrounding wards within Thurrock: <ul style="list-style-type: none"> <li>• Little Thurrock Rectory</li> <li>• Chafford and North Stifford</li> <li>• West Thurrock and South Stifford</li> <li>• Stanford-le-Hope West</li> <li>• Stanford East and Corringham Town</li> <li>• The Homesteads</li> <li>• Corringham and Fobbing</li> </ul>	Air quality	There are no properties located within 200m of construction worksites and so no predicted effects from construction dust and emissions. Overall, negligible change in air quality during construction. No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from construction phase noise, and effects on human health. No significant intra-project effects are anticipated on receptors in these wards.
	Landscape and visual	The landscape and visual study area does not extend to these locations. No visual effects on residential receptors in these wards have been identified.	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12: Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. Temporary significant adverse noise effects associated with construction traffic are predicted at receptors on Medebridge Road. No significant construction vibration effects have been identified.	
		No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.	
Surrounding wards within London	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Overall negligible change in air quality during construction No significant effects have been identified.	Adverse effects are likely, particularly on properties where there are combined effects from

Location	Topic	Effects reported on receptors in topic assessment for the construction phase	Assessment of intra-project effects on receptors
Borough of Havering: <ul style="list-style-type: none"> <li>Harold Wood</li> </ul>	Landscape and visual	No visual effects are anticipated for residential receptors in this ward.	construction phase noise, and effects on human health. No significant intra-project effects are anticipated on receptors in this ward.
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	With the application of the mitigation measures detailed in Chapter 12 Noise and Vibration of the ES, no significant noise effects as a result of onsite construction activities are predicted. No significant noise effects associated with construction traffic are predicted. No significant construction vibration effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		
Wards south of the Project in Maidstone District and Tonbridge and Malling District: <ul style="list-style-type: none"> <li>Boxley</li> <li>Aylesford North and Walderslade</li> <li>Burham and Wouldham</li> </ul>	Air quality	The majority of properties are more than 200m from construction worksites and unlikely to be affected by construction dust or emissions. Overall negligible change in air quality during construction No significant effects have been identified.	No significant intra-project effects are anticipated on receptors in these wards.
	Landscape and visual	No visual effects on residential receptors in these wards have been identified	
	Population and human health	No receptor specific effects have been identified in addition to those throughout the study area (see the first rows in Table 16.8).	
	Noise and vibration	Assessment of construction noise (associated with nitrogen deposition compensation works) has been scoped out of the construction assessment due to the limited groundworks and construction plant that would be required. No construction traffic effects have been identified.	
	No additional receptor specific reported effects for geology and soils, and road drainage and water environment assessments.		

**Table 16.9 Intra-project effects on people during the operation phase**

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
Throughout the study area	Geology and soils	Neutral to negligible effects on human health from contamination during operation of the Project.	These effects have been incorporated into the intra-project effects assessment presented for each ward in the rows below.
	Population and human health (see below for additional receptor specific effects)	Some residents may experience negative health outcomes from anxiety or stress associated with perceptions of environmental change as a result of a major road project.  Positive health outcomes may be experienced in relation to accessibility improvements, better access to jobs and training, and to open spaces.	These effects have been incorporated into the intra-project effects assessment presented for each ward in the rows below.
Throughout the study area	Road drainage and water environment	There would be an overall neutral to minor beneficial effect on flood risk during operation of the Project.	These effects have been incorporated into the intra-project effects assessment presented for each ward in the rows below.
Throughout the study area	Climate	Neutral health outcomes would be experienced in relation to GHG emissions and the vulnerability of the Project to climate change.	As the effects associated with climate are neutral these have not been further considered in the intra-project effects assessment presented for each ward in the rows below.
Shorne, Cobham and Luddesdown ward	Air quality	Receptors close to the A2 and Gravesend Road are predicted to experience a minor worsening in air quality for nitrogen dioxide (NO <sub>2</sub> ).  No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.  Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Residential receptors on the eastern edge of Gravesend where adverse visual effects would combine with adverse road traffic noise effects, deterioration in air quality and human health</li> </ul>
	Landscape and visual	Visual effects on residential receptors ranging from large adverse to neutral effects in opening year reducing to moderate adverse to slight beneficial in design year following the establishment of mitigation.	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<ul style="list-style-type: none"> <li>• Significant adverse effects on residential receptors in opening year have been identified as follows:</li> <li>• Large and moderate adverse effects on some residential properties on the eastern edge of Gravesend</li> <li>• Large and moderate adverse effects on some residential properties in and around Thong village</li> <li>• Moderate adverse effects on some residential receptors in design year in Thong village</li> </ul>	<p>effects. These effects would be no worse than the large adverse effects identified for visual effects in relation to some receptors at this location during opening year. Visual effects would reduce in significance in design year to slight adverse, reducing the overall combined effects</p> <ul style="list-style-type: none"> <li>• Residential receptors in and around Thong village where adverse visual effects would combine with adverse road traffic noise effects, deterioration in air quality and human health effects. These effects would be no worse than the large adverse effects identified for visual effects in relation to some receptors at this location during opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</li> <li>• Residential receptors to the south of the A2 around Henhurst where adverse visual effects would combine with adverse road traffic noise effects and deterioration in air quality. These effects would be moderate adverse for some receptors.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Significant adverse noise effects would be experienced by receptors at the following locations:</p> <ul style="list-style-type: none"> <li>• Close to the alignment of the A122 on the eastern edge of Gravesend</li> <li>• To the south of the A2 around Henhurst</li> </ul> <p>There would be significant beneficial noise effects in locations, close to the A2.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
Higham ward	Air quality	Receptors close to the east of the M2 junction 1 and off Gravesend Road, west of the A226/A289 junction are predicted to experience a minor worsening in air quality for NO <sub>2</sub> . No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>Residential receptors located east of the M2 junction 1 on the western edge of Strood where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year, reducing the overall combined effects.</li> </ul>
	Landscape and visual	Significant moderate adverse visual effects on some residential receptors on the western edge of Strood in opening year reducing to slight adverse to neutral in design year following the establishment of mitigation.	
	Noise and vibration	There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward. No significant adverse changes in road traffic noise have been identified. Significant beneficial changes in road traffic noise at residential properties in Old Watling Street are predicted. No significant operational vibration effects are predicted.	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Singlewell ward	Air quality	Receptors close to the existing A2 are predicted to experience a minor worsening in air quality for NO <sub>2</sub> . No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.



Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
	Landscape and visual	<p>Visual effects on residential receptors ranging from moderate adverse to slight adverse effects in opening year with moderate adverse to slight adverse effects in design year following the establishment of mitigation.</p> <p>Significant moderate adverse effects on some residential receptors on the southern edge of Gravesend during both opening year and design year.</p>	<p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Residential receptors located on the southern edge of Gravesend close to the existing A2 where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in both opening year and design year.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>Significant beneficial changes in road traffic noise at residential properties to the north of the A2 including around Watling Street, Sheldon Heights and Mackenzie Way are predicted.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Riverview ward	Air quality	<p>Receptors along Thong Lane are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
	Landscape and visual	<p>Visual effects on residential receptors ranging from moderate adverse to slight beneficial effects in opening year with moderate adverse to slight adverse effects in design year following the establishment of mitigation.</p> <p>Significant moderate adverse effects on some residential receptors along Thong Lane during both opening year and design year.</p>	<p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Residential receptors located along Thong Lane where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>There would be significant increases in road traffic noise levels for receptors on Thong Lane, Vigilant Way, Astra Drive and Imperial Drive, close to the South Portal and the new A122.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Westcourt ward	Air quality	<p>Receptors along the eastern edges of Thong Lane and Rochester Road are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Residential receptors located along the eastern edge of Gravesend at Thong Lane and</li> </ul>
	Landscape and visual	<p>Visual effects on residential receptors ranging from moderate adverse to slight adverse effects in opening year with moderate adverse to slight</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>adverse effects in design year following the establishment of mitigation.</p> <p>Significant moderate adverse effects on some residential receptors along the eastern edge of Gravesend during both opening year and design year.</p>	<p>Rochester Road where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</p>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>Significant beneficial changes in road traffic noise at residential properties on Valley Drive are predicted.</p> <p>No significant operational vibration effects are predicted.</p>	
		<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>	
Chalk ward	Air quality	<p>Receptors along Castle Lane and Rochester Road are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	<p>Visual effects on residential receptors ranging from slight adverse to neutral effects in opening year with slight adverse to neutral effects in design year following the establishment of mitigation.</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		No significant effects during opening year or design year.	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant changes in road traffic noise have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
		No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.	
East Tilbury ward	Air quality	<p>Receptors along Muckingford Road are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Residential receptors located along the southern edge of East Tilbury where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design</li> </ul>
	Landscape and visual	<p>Visual effects on residential receptors ranging from large adverse to neutral effects in opening year reducing to moderate adverse to neutral effects in design year following the establishment of mitigation.</p> <p>Significant adverse effects on residential receptors in opening year have been identified as follows:</p> <ul style="list-style-type: none"> <li>Large and moderate adverse effects on some residential receptors on the southern edge of East Tilbury</li> </ul>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<ul style="list-style-type: none"> <li>• Moderate adverse effects on some residential receptors on the western edge of East Tilbury and Linford</li> <li>• Moderate adverse effects on some residential receptors on the eastern edge of West Tilbury</li> <li>• Moderate adverse effects on some residential receptors on and around Muckingford Road</li> <li>• Moderate adverse effects on some residential receptors near Low Street Lane</li> </ul> <p>Moderate adverse effects in design year on the following:</p> <ul style="list-style-type: none"> <li>• Some residential receptors on the southern edge of East Tilbury</li> <li>• Some residential receptors on the western edge of East Tilbury and Linford</li> <li>• Some residential receptors on the eastern edge of West Tilbury</li> <li>• Some residential receptors on and around Muckingford Road</li> <li>• Some residential receptors near Low Street Lane</li> </ul>	<p>year to moderate adverse, reducing the overall combined effects.</p> <ul style="list-style-type: none"> <li>• Residential receptors located along the western edge of East Tilbury and Linford where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> <li>• Residential receptors located along the eastern edge of West Tilbury where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> <li>• Residential receptors located on and around Muckingford Road where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Significant adverse road traffic noise effects are predicted at:</p> <ul style="list-style-type: none"> <li>• Receptors on the southern edge of East Tilbury</li> </ul>	<ul style="list-style-type: none"> <li>• Residential receptors located near Low Street Lane where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> </ul>

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<ul style="list-style-type: none"> <li>• Receptors on the western edge of East Tilbury and Linford</li> <li>• Receptors on the eastern edge of West Tilbury</li> <li>• Receptors on and around Muckingford Road</li> </ul> <p>No significant operational vibration effects are predicted.</p>	
		<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>	
Tilbury Riverside and Thurrock Park ward	Air quality	No noticeable air quality effects have been identified on receptors in this ward.	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	Neutral effect on residential receptors in opening year and design year.	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
		<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>	
Tilbury St Chads ward	Air quality	No noticeable air quality effects have been identified on receptors in this ward.	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p>
	Landscape and visual	Neutral effect on residential receptors in opening year and design year.	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	No significant intra-project effects are anticipated on receptors in this ward.
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Chadwell St Mary ward	Air quality	<p>Receptors along Brentwood Road and Chadwell Hill are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>• Residential receptors located on the northern and north-eastern edge of Chadwell St Mary where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> <li>• Residential receptors located to the north of Orsett Heath where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this</li> </ul>
	Landscape and visual	<p>Visual effects on residential receptors ranging from large adverse to neutral effects in opening year with large adverse to neutral effects in design year following the establishment of mitigation.</p> <p>Significant adverse effects on residential receptors in opening year have been identified as follows:</p> <ul style="list-style-type: none"> <li>• Large and moderate adverse effects on some residential receptors on the northern and north-eastern edge of Chadwell St Mary</li> <li>• Large and moderate adverse effects on some residential receptors to the north of Orsett Heath</li> <li>• Large adverse effects on some residential receptors on High House Lane</li> </ul>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>Significant adverse effects on residential receptors in design year have been identified as follows:</p> <ul style="list-style-type: none"> <li>• Large and moderate adverse effects on some residential receptors on the northern and north-eastern edge of Chadwell St Mary</li> <li>• Moderate adverse effects on some residential receptors to the north of Orsett Heath</li> <li>• Moderate adverse effects on some residential receptors on High House Lane</li> </ul>	<p>location in opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</p> <ul style="list-style-type: none"> <li>• Residential receptors located on High House Lane where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Significant adverse road traffic noise effects are predicted at residential receptors on the northern and north-eastern edge of Chadwell St Mary.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Little Thurrock Blackshots ward	Air quality	<p>Receptors within the ward are predicted to experience imperceptible changes in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	Slight adverse and neutral effects on residential receptors in opening year and design year.	
	Noise and vibration	There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs,	



Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>Significant beneficial changes in road traffic noise at residential properties on Lodge Lane are predicted.</p> <p>No significant operational vibration effects are predicted.</p>	
		<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>	
Stifford Clays ward	Air quality	<p>Receptors in the ward are predicted to experience either a negligible change or minor improvement in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	<p>Neutral effect on residential receptors in opening year and design year.</p>	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>Significant beneficial changes in road traffic noise at residential properties on Stifford Clays Road are predicted.</p> <p>No significant operational vibration effects are predicted.</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.	
Orsett ward	Air quality	Receptors close to the A1089 and Baker Street, along Stifford Clays Road and along the Stanford Road A1013 are predicted to experience increases in NO <sub>2</sub> .  No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.  Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>• Residential receptors located in and around Baker Street where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</li> <li>• Residential receptors located on Hornsby Lane where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</li> <li>• Residential receptors located at the Whitecroft where adverse air quality, noise, visual and human health effects would combine. These</li> </ul>
	Landscape and visual	Visual effects on residential receptors ranging from large adverse to neutral effects in opening year reducing to moderate adverse to neutral effects in design year following the establishment of mitigation.  Significant adverse effects on residential receptors in opening year have been identified as follows: <ul style="list-style-type: none"> <li>• Large and moderate adverse effects on some residential receptors in and around Baker Street</li> <li>• Large and moderate adverse effects on some residential receptors on Hornsby Lane</li> <li>• Large adverse effects on some residential receptors at the Whitecroft</li> <li>• Moderate adverse effects on some residential receptors at the western edge of Orsett</li> <li>• Moderate adverse effects on some residential receptors on Stifford Clays Road</li> <li>• Moderate effects on some residential receptors to the north of the ward</li> </ul>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>Significant adverse effects on residential receptors in design year have been identified as follows:</p> <ul style="list-style-type: none"> <li>• Moderate adverse effects on some residential receptors in and around Baker Street</li> <li>• Moderate adverse effects on some residential receptors on Hornsby Lane</li> <li>• Moderate adverse effects on some residential receptors at the Whitecroft</li> <li>• Moderate adverse effects on some residential receptors on Stifford Clays Road</li> <li>• Moderate effects on some residential receptors to the north of the ward</li> </ul>	<p>effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to moderate adverse, reducing the overall combined effects.</p> <ul style="list-style-type: none"> <li>• Residential receptors located at the western edge of Orsett where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year, reducing the overall combined effects.</li> <li>• Residential receptors located on Stifford Clays Road where adverse air quality, noise, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> <li>• Residential receptors located to the north of the ward where adverse air quality, visual and human health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year and design year.</li> </ul>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Significant adverse noise effects are predicted at residential receptors on Fen Lane, Stifford Clays Road and Green Lane have been identified.</p> <p>Significant beneficial effects would be experienced by residential receptors in the north of the ward on Stanford Road, Stifford Clays Road and Baker Street.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
Belhus ward	Air quality	Receptors in the ward are predicted to experience a negligible change in air quality for NO <sub>2</sub> . No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to and visibility of the Project. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	No relevant residential receptors identified within the ward.	
	Noise and vibration	There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.  Significant beneficial effects would be experienced by residential receptors to the west of South Ockendon on Hamble Lane, Irvine Gardens, Humber Avenue and Gatehope Drive.  No significant adverse changes in road traffic noise have been identified.  No significant operational vibration effects are predicted.	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Ockendon ward	Air quality	Receptors in the ward are predicted to experience an imperceptible change in air quality for NO <sub>2</sub> . No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li data-bbox="1397 1251 2060 1342">Residential receptors located around the northern edge of South Ockendon where adverse visual and human health effects would</li> </ul>
	Landscape and visual	Visual effects on residential receptors ranging from large adverse to neutral effects in opening year reducing to slight adverse to neutral effects in design year following the establishment of mitigation.	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>Significant adverse effects on some residential receptors in opening year have been identified as large and moderate adverse effects around the northern edge of South Ockendon</p> <p>No significant effects have been identified in design year.</p>	<p>combine. These effects would be no worse than the large adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to not significant, reducing the overall combined effects.</p>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>There would be increases in traffic noise along the A122, but these would not be significant.</p> <p>Significant beneficial effects would be experienced by residential receptors on Dennises Lane and Erriff Drive.</p> <p>No significant operational vibration effects are predicted.</p>	
		<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>	
Upminster ward	Air quality	<p>Receptors close to the proposed A122 Lower Thames Crossing/M25 junction, off Ockendon Road and along St Marys Lane are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>Residential receptors located around St Marys Lane and around the A122 Lower Thames Crossing/M25 junction and Ockendon Road where adverse air quality, visual and human</li> </ul>
	Landscape and visual	<p>Visual effects on residential receptors ranging from moderate adverse to neutral effects in opening year reducing to slight adverse to slight beneficial</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>effects in design year following the establishment of mitigation.</p> <p>Significant adverse effects on residential receptors in opening year have been identified as moderate adverse effects on some residential receptors on St Marys Lane and Ockendon Road.</p> <p>No significant effects have been identified in design year.</p>	<p>health effects would combine. These effects would be no worse than the moderate adverse effects identified from visual effects in relation to some receptors at this location in opening year. Visual effects would reduce in significance in design year to not significant, reducing the overall combined effects.</p>
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse effects have been identified.</p> <p>Significant beneficial effects would be experienced by residential receptors on St Marys Lane, Ockendon Road, Pike Lane, Church Lane and Pea Lane are predicted.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Cranham ward	Air quality	<p>Receptors close to the A127 Southend Arterial Road junction and the north part of Front Lane are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
	Landscape and visual	Slight adverse and neutral effects on residential receptors in opening year and design year.	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Significant beneficial effects would be experienced by residential receptors on Folkes Lane.</p> <p>No significant adverse effects have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, road drainage and water environment, and climate topic assessments.		
Warley ward	Air quality	<p>Receptors close to the A127 Southend Arterial Road are predicted to experience a minor worsening in air quality for NO<sub>2</sub>.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	Slight adverse and neutral effects on residential receptors in opening year and design year.	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse changes in road traffic noise have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.	
South Weald ward	Air quality	Receptors close to the east of the M25 are predicted to experience a minor worsening in air quality for NO <sub>2</sub> . No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	No visual effects are anticipated for residential receptors in this ward.	
	Noise and vibration	There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward. No significant adverse changes in road traffic noise have been identified. No significant operational vibration effects are predicted.	
		No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.	
Surrounding wards within Medway: <ul style="list-style-type: none"> <li>• Cuxton and Halling</li> <li>• Strood South</li> <li>• Strood North</li> <li>• Strood Rural</li> <li>• Rochester West</li> </ul>	Air quality	There are four receptors adjacent to the A228 which are predicted to exceed the annual mean NO <sub>2</sub> AQS objective in the absence of the Project, and five that would exceed it with the operation of the Project.  There would be minor increases in NO <sub>2</sub> at other receptors along the A228 and A2, and close to the M2, but these would not exceed the AQS objective.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project. Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>• Along the A228 in Cuxton and Halling ward where adverse air quality and noise would</li> </ul>



Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		No significant effects have been identified.	combine. These effects are predicted to be moderate adverse for some receptors.
	Landscape and visual	The landscape and visual study area does not extend to these locations. No visual effects are anticipated for receptors in these wards.	
	Noise and vibration	Due to predicted minor increases in traffic noise along the A228 in Cuxton and Halling ward. These effects would be significant for some receptors in the opening year but would reduce to negligible in the longer term.  No significant operational vibration effects are predicted.	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Surrounding wards within Gravesham: <ul style="list-style-type: none"> <li>• Woodlands</li> <li>• Riverside</li> <li>• Northfleet South</li> <li>• Istead Rise</li> <li>• Painters Ash</li> </ul>	Air quality	Within Woodlands ward, close to the north of the A2, it is predicted there would be a negligible change in the air quality for NO <sub>2</sub> .  Receptors on East Milton Road in Riverside ward would experience a negligible change in the air quality for NO <sub>2</sub> .  Receptors in Northfleet South and Painters Ash wards, close to the existing A2, that would experience a minor improvement in air quality for NO <sub>2</sub> .  Receptors in Istead Rise would experience negligible changes in air quality for NO <sub>2</sub> .  No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity and visibility of the Project.  Locations likely to experience significant intra-project effects are: <ul style="list-style-type: none"> <li>• Some receptors in Painter’s Ash ward where beneficial air quality and noise effects would combine. These effects are predicted to be moderate beneficial for some receptors.</li> </ul>
	Landscape and visual	Visual effects on residential receptors within the wards, ranging from slight adverse to neutral	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
		<p>effects in opening year reducing to neutral effects in design year following the establishment of mitigation.</p> <p>No significant effects have been identified.</p>	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>No significant adverse effects have been identified.</p> <p>Within Painters Ash ward there would be significant beneficial effects on night-time traffic noise at receptors on Dene Holme Road, Gainsborough Drive and Painters Ash Lane.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
<p>Surrounding wards within Dartford:</p> <ul style="list-style-type: none"> <li>• Newtown</li> <li>• Stone Castle</li> <li>• Stone House</li> <li>• Bridge</li> <li>• Temple Hill</li> </ul>	Air quality	<p>Slight improvements or imperceptible change to air quality is predicted for receptors in these wards.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project.</p> <p>No significant intra-project effects are anticipated on receptors in these wards.</p>
Landscape and visual	<p>The landscape and visual study area does not extend to these locations. No visual effects are anticipated for receptors in these wards.</p>		
Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p>		

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
<ul style="list-style-type: none"> <li>• Wilmington, Sutton-at-Hone and Hawley</li> <li>• Darenth</li> <li>• Bean and Village Park</li> <li>• Longfield, New Barn and Southfleet</li> <li>• Ebbsfleet</li> <li>• Brent</li> </ul>		<p>Changes in road traffic noise for receptors in these wards would be beneficial.</p> <p>No significant adverse effects have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
<p>Surrounding wards within Thurrock:</p> <ul style="list-style-type: none"> <li>• Little Thurrock Rectory</li> <li>• Chafford and North Stifford</li> <li>• West Thurrock and South Stifford</li> <li>• Stanford-le-Hope West</li> <li>• Stanford East and Corringham Town</li> </ul>	Air quality	<ul style="list-style-type: none"> <li>• Within Chafford and North Stifford ward, minor improvements or imperceptible reductions in air quality are predicted.</li> <li>• Within West Thurrock and South Stifford ward, minor improvements in air quality are predicted.</li> <li>• Within Little Thurrock Rectory ward a minor worsening in air quality close to the Dock Approach Road is predicted.</li> <li>• Within Stanford-le-Hope West minor worsening in air quality is predicted along Stanford Road and The Manorway.</li> <li>• Within Stanford East and Corringham Town ward, there would be minor worsening in air quality along The Manorway and Southend Road.</li> </ul>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project.</p> <p>No significant intra-project effects are anticipated on receptors in these wards.</p>

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
<ul style="list-style-type: none"> <li>The Homesteads</li> <li>Corringham and Fobbing</li> </ul>		<ul style="list-style-type: none"> <li>Within The Homesteads ward, there would be minor worsening in air quality along Southend Road.</li> <li>Within Corringham and Fobbing ward, there would be imperceptible changes in air quality.</li> </ul> <p>No significant effects have been identified in any of these wards</p>	
	Landscape and visual	The landscape and visual study area does not extend to these locations. No visual effects are anticipated for receptors in these wards.	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Changes in road traffic noise for receptors in these wards would be beneficial.</p> <p>No significant effects on residential receptors have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
	No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.		
Surrounding wards within London Borough of Havering: <ul style="list-style-type: none"> <li>Harold Wood</li> </ul>	Air quality	Receptors close to Colchester Road are predicted to experience imperceptible changes in air quality. No significant effects have been identified.	Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project. No significant intra-project effects are anticipated on receptors in this ward.
	Landscape and visual	No visual effects are anticipated for receptors in this ward.	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
	<p>Noise and vibration</p>	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Changes in road traffic noise for receptors in this ward would be beneficial.</p> <p>No significant adverse effects have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
	<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>		
<p>Wards south of the Project in Maidstone District and Tonbridge and Malling District:</p> <ul style="list-style-type: none"> <li>• Boxley</li> <li>• Aylesford North and Walderslade</li> <li>• Burham and Wouldham</li> <li>• Aylesford South</li> <li>• Ditton</li> <li>• Larkfield South</li> </ul>	<p>Air quality</p>	<p>Along the A228 and A229 a perceptible worsening in air quality is predicted.</p> <p>Improvements in air quality are predicted for residential receptors along the M20 corridor in these wards.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project.</p> <p>Locations likely to experience significant intra-project effects are:</p> <ul style="list-style-type: none"> <li>• Along the A228 and A229 in and around Aylesford North and Walderslade ward and Snodland East and Ham Hill ward where adverse air quality and noise effects would combine. These effects are predicted to be moderate adverse for some receptors.</li> </ul>
	<p>Landscape and visual</p>	<p>No adverse visual effects on residential receptors have been identified.</p> <p>Effects on residential receptors in opening year would be neutral.</p> <p>Effects on residential receptors in design year ranging from moderate beneficial to neutral in opening year.</p> <p>Significant moderate beneficial effects in design year on some residential receptors located off Bell Lane</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
<ul style="list-style-type: none"> <li>• West Malling and Leybourne</li> <li>• Downs and Mereworth</li> <li>• Wrotham, Ightham and Stansted</li> <li>• Snodland East and Ham Hill</li> </ul>	<p>Noise and vibration</p>	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the wards.</p> <p>Significant road traffic noise effects on receptors are predicted at:</p> <ul style="list-style-type: none"> <li>• Adverse short-term effects on receptors located on Rochester Road and on the A229 around Kits Coty</li> <li>• Adverse short-term effects on receptors on the A228</li> <li>• Beneficial short term effects on receptors along the M20 corridor</li> </ul> <p>No significant operational vibration effects are predicted.</p>	
	<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>		
<p>Surrounding wards within Sevenoaks district:</p> <ul style="list-style-type: none"> <li>• Fawkham and West Kingsdown</li> <li>• Ash and New Ash Green</li> </ul>	<p>Air quality</p>	<p>Improvements to air quality are predicted for receptors in these wards. No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project. No significant intra-project effects are anticipated on receptors in these wards.</p>
	<p>Landscape and visual</p>	<p>The landscape and visual study area does not extend to these locations. No visual effects are anticipated for receptors in these wards.</p>	
	<p>Noise and vibration</p>	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p>	

Locations	Topic	Effects reported on receptors in topic assessment for the operation phase	Assessment of intra-project effects on receptors
<ul style="list-style-type: none"> <li>Farningham, Horton Kirby and South Darenth</li> <li>Swanley Christchurch and Swanley Village</li> </ul>		<p>Changes in road traffic noise for receptors in these wards would be beneficial.</p> <p>No significant effects on residential receptors have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
	<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>		
<p>Surrounding wards within Brentwood:</p> <ul style="list-style-type: none"> <li>Herongate, Ingrave and West Horndon</li> </ul>	Air quality	<p>Improvements to air quality are predicted for receptors in this ward.</p> <p>No significant effects have been identified.</p>	<p>Permanent adverse and beneficial effects are likely on residential receptors depending on location and proximity to the Project.</p> <p>No significant intra-project effects are anticipated on receptors in this ward.</p>
	Landscape and visual	<p>The landscape and visual study area does not extend to this location. No visual effects are anticipated for residential receptors in this ward.</p>	
	Noise and vibration	<p>There would be indirect noise impacts as a result of changes in traffic flow, the number of HGVs, and traffic speed on the existing road network within the ward.</p> <p>Changes in road traffic noise for receptors in these wards would be beneficial.</p> <p>No significant effects on residential receptors have been identified.</p> <p>No significant operational vibration effects are predicted.</p>	
	<p>No additional receptor specific reported effects for geology and soils, population and human health, and road drainage and water environment assessments.</p>		

- 16.5.5 The intra-project effects assessment has concluded that multiple effects are likely to combine throughout the Project during construction and operation phases.
- 16.5.6 32 locations have been identified where some receptors would experience significant adverse intra-project effects during construction. 26 locations have been identified where some receptors would experience significant adverse intra-project effects during the operational phase. Significant intra-project effects would not be experienced by all receptors within these locations. No mitigation measures have been proposed for either construction or operation stages in addition to those already identified within the topic assessments.
- 16.5.7 No significant beneficial intra-project effects have been identified during the construction phase. Significant beneficial intra-project effects have been identified in one location during the operation phase. Beneficial intra-project effects would arise in other locations but cumulatively these are not considered to be significant.
- 16.5.8 The intra-project effects assessment has concluded that there are 11 wards (or wider locations) within the study area where no receptors are anticipated to experience significant intra-project effects during construction. 14 wards (or wider locations) have been identified within the study areas where it is anticipated that there would be no significant intra-project effects during the operation phase.

### Inter-project effects assessment

- 16.5.9 Inter-project cumulative effects have been assessed in the shortlist of other developments (Application Document 6.3, Appendix 16.2). Each development that was identified in the inter-project effects assessments as having likely moderate or greater residual cumulative effects when combined with the Project (with the exception of cumulative effects on material assets and waste receptors, as described in the following paragraph), is summarised in Table 16.10.
- 16.5.10 The assessment for material assets and waste (Chapter 11) concluded that during the construction phase, the Project is anticipated to have a **moderate adverse** effect in relation to the permanent reduction in regional landfill capacity. This is based on the assumption that it is likely that the shortlisted developments would utilise the same regional waste management facilities as the Project due to their locations. It is anticipated that any development undertaken within the material assets and waste Zol for the Project would, further contribute to a permanent reduction in regional landfill capacity as a result of using the same landfill facilities. It has been considered that all developments included in the shortlist would result in **significant** inter-project effects in relation to a further reduction in regional landfill capacity, and so these have not been listed below in Table 16.10.



**Table 16.10 Inter-project cumulative effects on receptors**

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>Thurrock Flexible Generation Plant (TFGP) (NSIP) - Reference: EN010092 (within Order Limits and approximately 960m from ARN)</p> <p>Local Authority area: Thurrock Council</p>	<p>Thurrock Power Limited - Flexible generation plant providing up to 600 MW of electrical generation capacity and up to 150 MW of battery storage capacity.</p>	<p>Landscape: Construction works for the TFGP, including associated earth reprofiling and utilities works, would occur adjacent to and partially within the Project's Order Limits. The majority of the works for the TFGP would be located immediately north of the former Tilbury Power Station site, to the west of the Project's northern tunnel entrance compound. There would therefore be cumulative landscape effects with the Project on the Tilbury Marshes Local Landscape Character Area (LLCA). However, such construction effects would be limited, as the construction works would occur in an area already strongly influenced by existing development, including waste water, energy and transport infrastructure.</p> <p>Visual Amenity: There would be cumulative visual effects as a result of construction works for the TFGP and the Project, which would be apparent in a greater proportion of some views. This would include views from the eastern edge of Tilbury, Two Forts Way Coastal Path/footpath 146 and National Cycle Network</p>	<p>Landscape: The operational TFGP would be adjacent to and partially within the Project's Order Limits to the north of the former Tilbury Power Station site. There would therefore be cumulative landscape effects with the operational Project on the Tilbury Marshes LLCA, however, such operational effects would be limited, as both developments would be in an area already strongly influenced by existing development, including waste water, energy and transport infrastructure.</p> <p>Visual Amenity: There would be cumulative visual effects due to visibility of the TFGP and the operational Project. This would include views from the eastern edge of Tilbury, Two Forts Way Coastal Path/footpath 146 and NCN Route 13, Fort Road, and Coopers Shaw Road. There are also likely to be glimpsed views from Tilbury Fort. However, such operational effects would be limited, as both developments would occur in the context of existing development, including waste water, energy and transport infrastructure.</p>	<p>Landscape and Visual Amenity - <b>Moderate Adverse</b> and <b>significant effect</b> (Construction)</p> <p>Landscape and Visual Amenity - Slight Adverse and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
		(NCN) Route 13, Fort Road, and Coopers Shaw Road. There are also likely to be glimpsed views from Tilbury Fort. However, such effects would be limited, as construction works would occur in the context of existing development, including waste water, energy and transport infrastructure.		
The London Resort (NSIP) - Reference: BC080001 (adjacent to Order Limits and adjacent to ARN)  Gravesham District Council Dartford District Council	London Resort Company Holdings - Entertainment resort comprising an entertainment street, water park, theme park, events space, sporting facilities, events and conference, creative spaces, service buildings and a staff training academy, as well as approximately 5,000 hotel rooms and substantial improvements to transport infrastructure. This will include a transport link Ebbsfleet International Station with the resort, a new direct road connection from the A2, a coach station and river bus facilities.	Population and Human Health: During construction there is potential for a cumulative beneficial effect with the Project in relation to employment. There is potential for cumulative adverse construction effects on residential amenity. Potential adverse effects on human health in relation to environmental changes, including noise, visual impact and other factors during construction.	Population and Human Health: Potential slight adverse effects on human health in relation to air quality changes and changes in noise levels during operation. Moderate beneficial effects anticipated during scheme operation in terms of potential increased accessibility for businesses and employment.	Residential Amenity - Slight Adverse and not significant effect. Human Health - <b>Moderate Adverse</b> and <b>significant effect</b> . Employment - <b>Moderate Beneficial</b> and <b>significant effect</b> (Construction)  Human Health - Slight Adverse and not significant effect. Employment - <b>Moderate Beneficial</b> and <b>significant effect</b> (Operation)
		Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse</b> and <b>significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
		where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.		
East Anglia Green Energy Enablement (NSIP) - not yet registered with the Planning Inspectorate (within Order Limits and adjacent to ARN)  Thurrock Council Brentwood District Council Basildon District Council	National Grid - A new high voltage network reinforcement between Norwich, Bramford and Tilbury.	Cultural Heritage: The site would impact buried archaeology of low - high value between Brentwood Road and Tilbury substation, resulting in moderate adverse cumulative effects with the Project, and affecting a greater proportion of the archaeology in this specific area. Additionally, there would be cumulative effects to West Tilbury Conservation Area, and associated listed buildings, and the scheduled causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place, from additional modern infrastructure further altering their settings. There is also potential for cumulative effects to East Tilbury Conservation Area during construction.	Cultural Heritage: Moderate adverse effects during operation would comprise cumulative changes to the settings of heritage assets from overhead lines in combination with the Project and the existing and realigned overhead lines already present connecting to Tilbury substation.	<b>Moderate Adverse and significant effect (Construction)</b>  <b>Moderate Adverse and significant effect (Operation)</b>
		Landscape: Construction activity for the potential 400kV overhead line connection to Tilbury substation in conjunction with construction of the Project would result in a cumulative effect on local landscape character. Visual Amenity: Cumulative effects on visual receptors from construction of the new 400kV	Landscape: A new 400kV overhead line connection to Tilbury substation in conjunction with the operational Project road, including embankments, highway infrastructure, moving vehicles and sculptural landscape mounding at Tilbury Fields, would result in a	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b>  Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Operation)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
		overhead line in conjunction with the construction of the Project would be widely visible from the surrounding landscape and would be prominent in close-range views.	cumulative effect on local landscape character. Visual Amenity: New 400kV overhead line would be widely visible from the surrounding landscape in conjunction with the operational Project road and would be prominent in close-range views.	
		Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
A229 Blue Bell Hill Junction Improvement – Reference: 22/00113/OAEA (located approximately 150m from Order Limits and adjacent to ARN)  Tonbridge and Malling District Council	Improvements to section of dual carriageway which runs between Junction 6 of the M20 in Maidstone and Junction 3 of the M2 at Blue Bell Hill village. Improvements required to improve journey time reliability, reduce delays and improve road safety.	Geology: Based on the nature of the development and the fact that limited earthworks are proposed for the Project then no significant potential impact to geology resources is expected. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which	Geology: No cumulative effects likely during operational phase as no significant earthworks proposed and if encountered contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
Maidstone District Council		has the potential to be best and most versatile land.		
Land Between Roman Way And Knight Road East Of The Medway Valley Railway Line (Temple Waterfront) Strood Rochester Kent - Reference: MC/16/0600 MC/09/0417 (approximately 2.5km from Order Limits and approximately 700m from ARN)  Medway Council area	Application for approval of Reserved Matters, including layout, landscaping, scale, appearance and access for 210 new dwellings of Phase 1A of Outline Permission (MC/09/0417) - Outline application for planning permission providing up to 620 units; up to 10,300m <sup>2</sup> of employment floorspace ; up to 1,800m <sup>2</sup> of retail floorspace; up to 200m <sup>2</sup> community facilities; strategic landscaping, improvements to open space, parking and related infrastructure including works in relation to site preparation, flood defence and land raising.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)
Land South Of Berwick Way, East Of Frindsbury Hill And North And West Of Parsonage Lane (known As Manor Farm) Frindsbury Rochester Medway. Reference: MC/21/0302	Hybrid application seeking: Full planning permission for the construction of a new three-storey secondary school with sixth form and sports block with vehicular and pedestrian access from Frindsbury Hill, together with	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>(approximately 2.8km from Order Limits and 1km from ARN)</p> <p>Medway Council are</p>	<p>associated car parking and drop off area, multi-use games area, sports pitches, landscaping and other associated works.</p> <p>Full planning permission for the part conversion and extension of Grade I Listed Manor Farm Barn and change of use to a wedding venue and conference facility, including conversion and extension of former cattle byres to provide overnight accommodation, construction of single storey detached building for management facilities and construction of a new building to provide additional tourist accommodation with vehicular and pedestrian access from Berwick Way, car parking, landscaping and other associated works.</p> <p>Outline permission for the construction of up to 181 residential dwellings, together with Parsonage Lane access, parking, landscaping and associated works.</p>			

Development	Description	Construction	Operation	Residual Cumulative Effect
	Area covering all together 11,054.5m <sup>2</sup> .			
Gibraltar Farm Ham Lane Hempstead Gillingham Medway ME7 3JJ - Reference: MC/21/1296 (approximately 1.4km from Order Limits and 960m from ARN)  Medway Council area	Outline Application (with all matters reserved except access) for the erection of up to 450 market and affordable dwellings, nursery and supporting retail space up to 85m <sup>2</sup> , with provision of main access to Ham Lane; estate roads; cycle and pedestrian routes; residential and community open space and landscaping; new junction for Lidsing Road/Hempstead Road and realignment and widening of Lidsing Road. Off-site related highway works to Westfield Sole Road, Shawstead Road, Hempstead Road, Chapel Lane, Hempstead Valley Drive, Hoath Way roundabout, Hoath Way and M2 Junction 4 - Re-submission of MC/19/0336.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)
Chattenden, Hoo Development Framework	Potential to deliver new homes, a strategic green corridor, small-scale retail, a relocated and	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on	Soils: No cumulative effects likely during operational phase;	<b>Very Large Adverse and significant effect (Construction)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
(approximately 2.7km from Order Limits and adjacent to ARN)  Medway Council area	expanded primary school, new footpaths and cycle routes	agricultural land, some of which has the potential to be best and most versatile land.	impacts assessed at construction phase.	Neutral and not significant effect (Operation)
Hoo Highway Improvements. Hoo Peninsula Medway - Reference: MC/21/0436 (approximately 2.6km from Order Limits and overlaps with ARN)  Medway Council area	Request for a scoping opinion for highway improvements over 6 phases: - Phase 1 includes a new junction controlled by traffic signals to link the A289 with Islingham Farm Road, plus improvements to Higham Road and Woodfield Way. - Phase 2 includes a new relief road, connecting Upchat roundabout to the A228. A new spur link road and roundabout will also be introduced to ease congestion. - Phase 3 entails improvements to the existing Bell's Lane roundabout to accommodate traffic growth. - Phase 4 shows the measures to be implemented at Ropers Lane roundabout to accommodate the new rail station. - Phase 5 consists of improvements to Four	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)



Development	Description	Construction	Operation	Residual Cumulative Effect
	Elms roundabout. - Phase 6 involves upgrading the existing A289 Wulfere Way and Sans Pareil roundabout to ease network congestion.			
<p>Future Hoo - (approximately 2.2km from Order Limits and adjacent to ARN)</p> <p>Medway Council area</p>	<p>Environmental and infrastructure improvements on the Hoo Peninsula via the Housing Infrastructure Fund.</p> <ul style="list-style-type: none"> <li>- Strategic Environmental Management Scheme (SEMS) to deliver largescale new publicly accessible (where appropriate) open spaces, covering 300 hectares (740 acres) of community parkland, woodland and nature reserves, managed for both wildlife and for public access</li> <li>- Investment in a new train station and reinstated passenger service on the Grain branch line</li> <li>- Upgrade of the existing road network with the provision of new infrastructure including slip roads, junctions and</li> </ul>	<p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p><b>Very Large Adverse and significant effect (Construction)</b></p> <p>Neutral and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
	interchanges on the A228 and A289 and wider highway improvements, as well as a new relief road to access the peninsula via Woodfield Way (included as separate development - MC/21/0436).			
Development Site Bushey Wood Phase 1 Bull Lane Eccles Aylesford Kent – Reference: 22/00113/OAEA (located approximately 1.5km from Order Limits and 760m from ARN)  Tonbridge and Malling Borough Council area	Residential development of up to 950 dwellings, provision of a mixed-use local centre (including Class E, F and C3 with potential for retirement homes) provision of land to accommodate a new primary school, replacement sports pitches with changing facilities; associated green infrastructure including landscaping, public open space, allotments, sustainable urban drainage systems, biodiversity enhancements; new accesses from Bull Lane; new access and road/cycleway/ footpath link to New Court Road.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: Impact on agricultural land, some of which has the potential to be best and most versatile land. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect</b> (Construction)  Neutral and not significant effect (Operation)
Albion Waterside Canal Basin Gravesend Kent	Hybrid planning application comprising: Part A - Full planning application for demolition	Landscape: Construction activity for the Albion Waterside Canal Basin in conjunction with construction of the Project would	Landscape and Visual Amenity: Given the existing urban context and the distance between the Albion Waterside Canal Basin	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect</b> (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>DA12 2RN - Reference: 20210270 (approximately 450m from Order Limits and 320m from ARN)</p> <p>Gravesham Borough Council area</p>	<p>of existing buildings and structures, construction of a mixed use development comprising C3 and C2 Residential Uses and commercial floorspace (Use Class E), a new river wall, works to Swing Bridge, highway junction improvements at Milton Road and Ordnance Road, associated new public open spaces and public realm improvements, car and cycle parking, landscaping, infrastructure and earthworks and ancillary works; and Part B - Outline planning application with all matters reserved (apart from access) for demolition of all existing buildings and structures and the construction of a mixed use development with associated vehicular access, car parking, landscaping, associated infrastructure and earthworks and ancillary works. (The proposed development would consist of up to 1,500</p>	<p>result in a cumulative effect on the marine character of the Thames Estuary, including high-rise building at Albion Waterside Canal Basin and the Project segment factory and concrete batching plant on the former Tilbury Power Station site and sculptural landscape mounding at Tilbury Fields. However, construction activity would take place in the context of industrial buildings and infrastructure to the north and south of the River Thames and Tilbury Docks.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from construction of Albion Waterside Canal Basin in conjunction with the Project, would primarily be seen from Tilbury Fort, elevated areas of Gravesend such as at Windmill Hill, the River Thames frontage, Saxon Shore Way Long Distance Path and Two Forts Way. Construction works would be viewed in the context of industrial buildings and infrastructure along the River Thames and Tilbury Docks.</p>	<p>and the sculptural landscape mounding at Tilbury Fields comprising the most prominent Project feature along the River Thames, there would not be any notable cumulative landscape or visual effects.</p>	<p>Landscape and Visual Amenity – Slight Adverse and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
	homes and up to 4,500 m <sup>2</sup> (GIA) of commercial floorspace).			
<p>The Charter (formerly known as Land At Market Square And Horn Yard Car Parks New Swan Yard Gravesend) - Reference: 20200343 (approximately 1.5km from Order Limits and 2.3km from ARN)</p> <p>Gravesham Borough Council area</p>	<p>Erection of 242no. residential units for Build to Rent (C3 Use Class), within three blocks ranging from 3 to 10 storeys, together with multi-storey car park as well as access, pedestrian links, landscaping, highway and other associated works.</p>	<p>Landscape: Although this development lies outside of the Project's landscape and visual Zol, construction activity for The Charter in conjunction with construction of the Project would result in a cumulative effect on the marine character of the Thames Estuary, including high-rise building at The Charter and the Project segment factory and concrete batching plant on the former Tilbury Power Station site and sculptural landscape mounding at Tilbury Fields. However, construction activity would take place in the context of industrial buildings and infrastructure to the north and south of the River Thames and Tilbury Docks.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from construction of The Charter in conjunction with the Project, would primarily be seen from Tilbury Fort, the River Thames frontage, elevated areas of Gravesend such as at Windmill Hill, Saxon Shore Way Long Distance Path and Two Forts Way. Construction works would be viewed in the context of industrial buildings and</p>	<p>Landscape and Visual Amenity: Given the existing urban context and the distance between The Charter and the sculptural landscape mounding at Tilbury Fields comprising the most prominent Project feature along the River Thames, there would not be any notable cumulative landscape or visual effects.</p>	<p>Landscape and Visual Amenity - <b>Moderate Adverse and significant effect</b> (Construction)</p> <p>Landscape and Visual Amenity – Slight Adverse and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
		infrastructure along the River Thames and Tilbury Docks.		
Land Adjacent to Higham Station – Reference: GB05 (approximately 1.5km from Order Limits and 1.7km from ARN)  Gravesham Borough Council area	Site allocation for 0.9ha commercial use.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)
Land West of Norwood Lane, Meopham (Churchways, Meopham) – Reference: GB36 (approximately 2.7km from Order Limits and 700m from ARN)  Gravesham Borough Council area	Site Allocation for 150 dwellings	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)
Land north of Camer Road, Hook Green, Meopham – Reference: GBS-E (approximately 2.8km from Order Limits and 500m from ARN)  Gravesham Borough Council area	Site Allocation for 520 dwellings.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)
Clifton Slipways, West Street Gravesend Kent – Reference: 20160046	Erection of two buildings to provide a total of 133no. dwellings with associated vehicle parking, highway works	Landscape: Although this development lies outside of the Project landscape and visual Zol, construction activity for Clifton Slipways in conjunction	Landscape and Visual Amenity: Given the existing urban context and the distance between Clifton Slipways and the sculptural landscape mounding at Tilbury	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
(approximately 2km from Order Limits and 1.5km from ARN)  Gravesham Borough Council area	and landscaping, comprising erection of a thirteen storey building on the north side of West Street to provide 54no. dwellings and one ground floor B1(a) unit and a second building ranging in height from four storeys to nine storeys on the south side of West Street to provide 79no. dwellings; and the restoration and adaptation of the existing two-level pier structure to provide public and private amenity space to include erection of a glazed pavilion.	with construction of the Project would result in a cumulative effect on the marine character of the Thames Estuary, including high-rise building at Clifton Slipways and the Project segment factory and concrete batching plant on the former Tilbury Power Station site and sculptural landscape mounding at Tilbury Fields. However, construction activity would take place in the context of industrial buildings and infrastructure to the north and south of the River Thames and Tilbury Docks.  Visual Amenity: The main cumulative effects on visual receptors from construction of Clifton Slipways in conjunction with the Project, would primarily be seen from Tilbury Fort, the River Thames frontage, elevated areas of Gravesend such as at Windmill Hill, Saxon Shore Way Long Distance Path and Two Forts Way. Construction works would be viewed in the context of industrial buildings and infrastructure along the River Thames and Tilbury Docks.	Fields comprising the most prominent Project feature along the River Thames, there would not be any notable cumulative landscape or visual effects.	Landscape and Visual Amenity – Slight Adverse and not significant effect (Operation)
Land to the north, east and west of Three Crutches - Reference: GBS-K (adjacent to Order Limits and ARN)	Site Allocation for 1,385 dwellings	Landscape: Construction activity for the housing to the north, east and west of Three Crutches in conjunction with construction of the Project would result in a cumulative effect on local	Landscape: The housing to the north, east and west of Three Crutches would result in a combined change in local landscape character of the Higham Arable Farmland (sub	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect</b> (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
Gravesham Borough Council area		landscape character of the Higham Arable Farmland (sub area Gadshill) LLCA. Visual Amenity: The main cumulative effects on visual receptors from construction of the housing in conjunction with construction of the Project, would primarily be seen from residential properties on Old Watling Street in Strood.	area Gadshill) LLCA in conjunction with the Project. Visual Amenity: The housing to the north, east and west of Three Crutches would primarily be seen in conjunction with the Project from residential properties on Old Watling Street in Strood.	Landscape – <b>Moderate Adverse</b> and <b>significant effect</b> . Visual Amenity – Slight Adverse and not significant effect (Operation)
		Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse</b> and <b>significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Rose Farm, Downs Road, Istead Rise - Reference: GBS-L (approximately 1.5km from Order Limits and 500m from ARN)  Gravesham Borough Council area	Site Allocation for 165 dwellings.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse</b> and <b>significant effect</b> (Construction)  Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>Cascades Leisure Centre, Thong Lane, Shorne - Reference: GBS-R (within Order Limits and approximately 270m from ARN)</p> <p>Gravesham Borough Council area</p>	<p>Site Allocation for 170 dwellings</p>	<p>Landscape: Construction activity for the Cascades Leisure Centre housing site in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Higham Arable Farmland (sub area Chalk) LLCA.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from construction of housing in conjunction with construction of the Project, would primarily be seen from residential properties along Thong Lane in Riverview Park, Thong Lane and the sports fields on Thong Lane.</p>	<p>Landscape: The housing east of Thong Lane would result in a combined change in local landscape character of the Higham Arable Farmland (sub area Chalk) LLCA in conjunction with the Project.</p> <p>Visual Amenity: The housing east of Thong Lane would primarily be seen in conjunction with the Project from residential properties along Thong Lane in Riverview Park, Thong Lane and the sports fields on Thong Lane.</p>	<p>Landscape and Visual Amenity - <b>Large Adverse and significant effect</b> (Construction)</p> <p>Landscape and Visual Amenity - Slight Adverse and not significant effect (Operation)</p>
<p>Canal Road/Norfolk Road Gravesend – Reference: GBS-UA (adjacent to Order Limits and approximately 180m from ARN)</p> <p>Gravesham Borough Council area</p>	<p>Site Allocation for 1,460 dwellings and commercial</p> <p>Developable area 6.07ha</p> <p><i>Note: Due to the volume of residences stated, it is assumed constructed buildings would comprise multiple storeys.</i></p>	<p>Landscape: Although this development lies outside of the Project landscape and visual Zol, construction activity for the Canal Road/Norfolk Road site in conjunction with construction of the Project would result in a cumulative effect on the marine character of the Thames Estuary, including assumed high-rise building at the Canal Road/Norfolk Road site and the Project segment factory and concrete batching plant on the former Tilbury Power Station site and sculptural landscape mounding at Tilbury Fields. However, construction activity would take place in the context</p>	<p>Landscape and Visual Amenity: Given the existing urban context and the distance between the Canal Road/Norfolk Road site and the sculptural landscape mounding at Tilbury Fields comprising the most prominent Project feature along the River Thames, there would not be any notable cumulative landscape or visual effects.</p>	<p>Landscape and Visual Amenity – <b>Moderate Adverse and significant effect</b> (Construction)</p> <p>Landscape and Visual Amenity – Slight Adverse and not significant effect (Operation)</p>



Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>of industrial buildings and infrastructure to the north and south of the River Thames and Tilbury Docks.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from construction of the Canal Road/Norfolk Road site in conjunction with the Project, would primarily be seen from Tilbury Fort, the River Thames frontage, Saxon Shore Way Long Distance Path and Two Forts Way. Construction works would be viewed in the context of industrial buildings and infrastructure along the River Thames and Tilbury Docks.</p>		
<p>Land Off Foxhounds Lane Southfleet Kent - Reference: 22/00476/SCREEN (approximately 1.1km from the Order Limits and 50m from ARN)</p> <p>Dartford Borough Council area</p>	<p>Request for screening opinion for formation of 300MW battery energy storage system and associated infrastructure.</p>	<p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p><b>Very Large Adverse and significant effect (Construction)</b></p> <p>Neutral and not significant effect (Operation)</p>
<p>Sevenoaks Quarry Bat And Ball Road Sevenoaks Kent TN14 5SR - Reference: 22/00512/OUT (approximately 1.7km from Order Limits and 440m from ARN)</p>	<p>An outline planning application for: up to 800 residential dwellings (Class C3), up to 150 residential institutional units (Class C2), business, retail, leisure</p>	<p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p><b>Very Large Adverse and significant effect (Construction)</b></p> <p>Neutral and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
Sevenoaks area	and sports uses (Class E); new primary school (Class F1); community uses (Class F2), re-use of former Oast House and existing barn off Childsbridge Lane, green open spaces including parks, play spaces, ecological areas and woodlands; vehicular accesses from Bat and Ball Road, Childsbridge Lane and Farm Road; associated infrastructure, groundworks and demolition; with all matters reserved.			
A2 Bean and Ebbsfleet Junction Improvements Scheme - (approximately 500m from Order Limits and overlaps with ARN)  Dartford District Gravesham District	National Highways - The change includes the redesign of the Bean junction north roundabout to keep the A2 eastbound off slip in its existing location. There are also some minor adjustments to positioning and orientation of the roundabout itself and the north side entry / exit roads.	Geology: Based on the nature of the development and the fact that limited earthworks are proposed for the Project then no significant potential impact to geology resources is expected. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as no significant earthworks proposed and if encountered contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Thames Freeport (Lower Thames Crossing falls within the Thames Freeport area)	Thurrock Council has indicated that the local plan projections for this site includes the following for further	Cultural Heritage: There would be significant overlap between areas of physical impact to buried archaeology from Thames Freeport and the	Cultural Heritage: The area surrounding Tilbury Fort is already industrialised and during operation the Project is not predicted to cause significant	<b>Moderate Adverse and significant effect</b> (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
Thurrock Council	development associated with the Port of Tilbury: approx. 680,000m <sup>2</sup> employment floorspace B8 use with approx. 6,900 jobs	Project. However, the impact could only occur once, by whichever development occurs first, as once archaeology has been removed it cannot be impacted a second time. Therefore, this would not cause cumulative effects. The extensive construction activity would create cumulative effects for Tilbury Fort and West Tilbury Conservation Area due to proximity of both schemes during construction.	effects. During operation there would be a moderate adverse effect to West Tilbury Conservation Area. With the limited information regarding design of the Thames Freeport currently available it is unclear how visible the development would be or how greatly it would change the character of the area within its boundary that is currently undeveloped.	<b>Moderate Adverse and significant effect (Operation)</b>
		Landscape: Insufficient information available to provide assessment commentary. However, the combined landscape effects on the marine character of the Thames Estuary and Tilbury Marshes LLCA are likely to be significant given the scale of the Thames Freeport development.  Visual Amenity: Insufficient information available to provide assessment commentary, but the combined visual effects on the Two Forts Way are likely to be significant given the scale of the Thames Freeport development.	Landscape and Visual Amenity: Insufficient information available to provide assessment commentary. However, the combined landscape and visual effects on the marine character of the Thames Estuary and Tilbury Marshes LLCA and views from Two Forts Way are likely to be significant given the scale of the Thames Freeport development.	Landscape and Visual Amenity – <b>Moderate Adverse and significant effect (Construction)</b>  Landscape and Visual Amenity – <b>Moderate Adverse and significant effect (Operation)</b>
		Terrestrial Biodiversity: There is considerable overlap between the Thames Freeport and the Project. Potential cumulative	Terrestrial Biodiversity: Operation of the Thames Freeport has the potential to have a disturbance effect upon	<b>Moderate Adverse and significant effect (Construction)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>effects on water vole, reptiles, badger, terrestrial invertebrates and birds are considered further. Water vole and badger are a licensable ecological receptor, and therefore all effects have to be mitigated to ensure there is no detrimental effect on these receptors before NE will issue a licence. An effect on birds on the river Thames from construction of Thames Freeport is possible, and the Projects having a minor adverse effect on this receptor, therefore a slight adverse cumulative effect is predicted. Reptile and terrestrial invertebrate habitat will be lost as part of both projects; however, it is anticipated that Thames Freeport will mitigate for these losses with habitat creation, and the Project has put in place habitat creation to mitigate for these losses. The residual effect on the nationally important terrestrial invertebrates in this area from the Project was moderate and adverse, and the cumulative effect of both of these projects is considered to be moderate adverse, as although there is a temporary effect from the habitat loss and the delay to establishment of the mitigation</p>	<p>birds north of the River Thames. The Project would have a slight adverse effect on birds in this area. As such, it is considered likely that a slight adverse cumulative effect on birds in this area will occur. The Project has no operational effect on birds using the River Thames, therefore no cumulative effects on birds on the River Thames are considered likely.</p>	<p>Slight Adverse and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>habitat, the integrity of the resource will be maintained.</p> <p>Population and Human Health: Noise impacts assessed as neutral, with Air Quality assessment not possible due to lack of information. During construction there is potential for a cumulative beneficial effect with the Project in relation to employment. There is potential for cumulative adverse construction effects on residential amenity and access to areas of open space. During construction there may be adverse effects on accessibility to services and facilities as a result of the scheme being developed during the same timescale as the Project.</p>	<p>Population and Human Health: Moderate beneficial effects anticipated during scheme operation in terms of potential increased accessibility for businesses and employment.</p>	<p>Access to services and facilities - <b>Moderate Adverse and significant effect.</b></p> <p>Residential Amenity and access - Slight Adverse and not significant effect.</p> <p>Employment - <b>Moderate Beneficial and significant effect</b> (Construction)</p> <p>Employment - <b>Moderate Beneficial and significant effect</b> (Operation)</p>
<p>Land adjacent Tilbury Power Station, Fort Road Tilbury Essex - Reference: 19/00051/CV (within Order Limits and adjacent to ARN)</p> <p>Thurrock Council area</p>	<p>Application for the variation of condition no 9 (Timescales) [to Extend time period for completion from 31.12.2019 to 31.12.2032] and condition no 11 (Plans) [To alter phasing of restoration] of planning permission ref 17/00412/FUL (Continued re-profiling of the site to 9 metres AOD using inert reclamation</p>	<p>Landscape: The proposed re-profiling of the site and subsequent restoration works in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Tilbury Marshes LLCA.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from the proposed re-profiling of the site and subsequent restoration works in conjunction with the construction of the Project, are likely to be</p>	<p>Landscape and Visual Amenity: The re-profiling of the site and subsequent restoration works are likely to be complete by the start of Project operation. It is therefore unlikely there would be any cumulative landscape or visual effects with the operational Project.</p>	<p>Landscape and Visual Amenity – <b>Moderate Adverse and significant effect</b> (Construction)</p> <p>Landscape and Visual Amenity – Neutral and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
	material imported by river, in place of Pulverised Fuel Ash from the adjacent now redundant Power Station)	primarily seen from Two Forts Way, the edges of Tilbury and East Tilbury, Fort Road and Coopers Shaw Road.		
Thames Estuary 2100 - the long-term strategy for managing tidal flood risk in the Thames Estuary - (within Order Limits and adjacent to ARN)  Multiple local authority areas	Environment Agency - Phase 1 would take place between 2019 and 2035 and would involve: - maintaining and proving current flood risk assets including walls, gates, embankments and pumps. - protect land needed for future improvements to flood defences - monitor how the estuary is changing.	Road Drainage and Water Environment - Groundwater: During the construction phase of TE2100 potential cumulative effects could occur, both in relation to groundwater resources quality and quantity, as a result of flood defence works that would affect the superficial and deep aquifers. However, it is assumed the construction of the flood defence would be designed in consultation with the EA to avoid creation of a barrier to groundwater flow in the Chalk aquifer and the River Terrace Deposits aquifer. Surface water: It is expected that the design of the infrastructure would have been subjected to detailed assessments with regard to managing flood risk and water quality during its construction.	Road Drainage and Water Environment - Groundwater: During the operational phase, potential cumulative effects could occur, both in relation to groundwater resources quality and quantity, as a result of flood defences that would affect the superficial and deep aquifers. It is assumed that the flood defence would be designed in consultation with the EA to avoid creation of a permanent barrier effect to groundwater in the Chalk aquifer and the River Terrace Deposits aquifer. Surface water: It is expected that the design of the infrastructure would have been subjected to detailed assessments with regard to managing flood risk, and the project may deliver cumulative beneficial effects during its operation.	Groundwater and surface water – Neutral and not significant effect (Construction)  Groundwater – Neutral and not significant effect Surface water – <b>Moderate Beneficial and significant effect</b> (Operation)
Kings Farm Parkers Farm Road Orsett Essex RM16 3HX - Reference: 20/00186/SCO (approximately 750m from	Request for an EIA Scoping Opinion: Proposed application for outline planning permission with all	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which	Soils: no cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect</b> (Construction)  Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
Order Limits and adjacent to ARN)  Thurrock Council area	matters reserved apart from access for a mixed-use development comprising 750 no. residential dwellings, medical facility, retail and commercial units together with ancillary development.	has the potential to be best and most versatile land.		
Langdon Hills Golf and Country Club, Lower Dunton Road Bulphan Essex - Reference: 19/01662/FUL (approximately 2.5km from Order Limits and adjacent to ARN)  Thurrock Council area	Hybrid application for redevelopment of Langdon Hills Golf and Country Club. Detailed approval sought for: a new golf academy and a redesigned club house. The creation of a new health led community to include, 85 no. bungalows for the over 55s (Use Class C2) 36 no. apartments for the over 55s (use Class C2) 42 no. extra care apartments and a 64-bed care home (Use Class C2), and 4 no. key worker apartments. Demolition of existing buildings (clubhouse, hotel and green keepers building) and supporting infrastructure to include, a reconfigured main car park, a new car park for the golf academy, new vehicular access from	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect (Construction)</b>  Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
	Lower Dunton Road, landscaping, new bowling green, new walkways, a new bus stop to serve Langdon Hills Golf Club and St Luke's Hospice, erection of a security gatehouse and surveillance. Outline approval sought for, a new quick play golf course, up to 12 no. apartments (Use Class C3) and a new redesigned greenskeeper's building.			
Gothards Field Rear Of The George And Dragon East Tilbury Road Linford - Reference: 21/01812/FUL (approximately 170m from Order Limits and 420m from ARN)  Thurrock Council area	Detailed planning application for the construction of 230 affordable dwellings with associated parking, access, landscaping, open space and infrastructure.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.  Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.  Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Star Industrial Estate Linford Road Chadwell St Mary Essex - Reference: 16/00412/OUT	Up to 203 dwellings.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which	Geology: No cumulative effects likely during operational phase as contamination impacts would	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)



Development	Description	Construction	Operation	Residual Cumulative Effect
(approximately 250m from Order Limits and 230m from ARN)  Thurrock Council area		would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	be resolved during the construction phase. Soils: no cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology and Soils - Neutral and not significant effect (Operation)
Land Adjacent Fen Farm Judds Farm and Part Of Bulphan Fen Harrow Lane Bulphan Essex - Reference: 21/00077/Ful (Adjacent to Order Limits and approximately 360m from ARN)  Thurrock Council area	Solar Farm for the generation of renewable energy and battery energy storage. Area covering 143 hectares, Installation of renewable led energy generating station comprising ground-mounted photovoltaic solar arrays and battery-based electricity storage containers together with substation, inverter/transformer stations, site accesses, grid connection cable, internal access tracks, security measures, access gates, other ancillary infrastructure, landscaping and biodiversity enhancements.	Cultural Heritage: There would be no significant effects to designated heritage assets in the Orsett Fen area resulting from the Lower Thames Crossing and therefore no cumulative effects. However, there would be cumulative effects due to increased impacts to buried archaeology from all three developments and increased change to the nature of the historic landscape in the area, resulting in moderate adverse effects.  Landscape: Construction activity for the solar farm in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA.	Cultural Heritage: The operational effects of both projects would result in moderate adverse effects to the historic landscape of Orsett Fen due to large scale change in land use and character.  Landscape: The solar farm would result in a combined change in local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA in conjunction with the operational Project. Visual Amenity: The solar farm would primarily be seen in	<b>Moderate Adverse and significant effect (Construction)</b>  <b>Moderate Adverse and significant effect (Operation)</b>  Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b>  Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Operation)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>Visual Amenity: The main cumulative effects on visual receptors from construction of the solar farm in conjunction with construction of the Project, would primarily be seen from the local PRow network between Bulphan and the Project, including views from the Mardyke Way, scattered residential properties, and from parts of Fen Lane, Harrow Road and Top Meadow Golf Course.</p> <p>Combined assessment with other solar farms: There would be significant cumulative landscape and visual effects during the construction of the Bulphan solar farm, with Medebridge solar farm and the Project, including on views from the local PRow network, scattered residential properties, Fen Lane and Top Meadow Golf Course.</p>	<p>conjunction with the operational Project from the local PRow network between Bulphan and the Project, including views from the Mardyke Way, scattered residential properties, and from Fen Lane, Harrow Road and Top Meadow Golf Course.</p> <p>Combined assessment with other solar farms: There would be significant cumulative operational landscape and visual effects due to the presence of Bulphan solar farm, with Medebridge solar farm and the operational Project, including on views from the local PRow network, scattered residential properties, Fen Lane and Top Meadow Golf Course.</p>	
		<p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p><b>Very Large Adverse and significant effect (Construction)</b></p> <p>Neutral and not significant effect (Operation)</p>
<p>Land Part Of Little Thurrock Marshes Thurrock Park Way Tilbury Essex -</p>	<p>161 new dwellings with vehicular access from Churchill Road;</p>	<p>Geology: During the construction phase, good practice would be followed; regulatory approval</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would</p>	<p>Geology - Neutral and not significant effect.</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
Reference: 19/01058/OUT (approximately 1km from Order Limits and approximately 750m from ARN)  Thurrock Council area	construction of 7,650m <sup>2</sup> of flexible employment floorspace with vehicular access from Thurrock Park Way; provision of open space including landscaping and drainage measures; new pedestrian / cycle links; and associated parking and access.	prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Thames Park School Chadwell Road Grays Essex - Reference: 20/01273/FUL (adjacent to Order Limits and ARN)  Thurrock Council area	Development of a new 6 form entry (FE) secondary school with associated sports facilities, access, parking, drainage and landscaping. Area covering 7.20 hectares.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Land Adjacent and East Of M25 and North Of Stifford Road Aveley Essex - Reference: 20/00563/FUL (approximately 2.8km from Order Limits and adjacent to ARN)	Remediation and restoration, with associated works, of former landfill site to create a new public open space including community woodland	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	<b>Very Large Adverse and significant effect</b> (Construction)  Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
Thurrock Council area	Area covering 5.50 hectares.			
London Distribution Park 2, Tilbury (Exact locations are unknown –within 3km from Order Limits and within approximately 400m from ARN)  Thurrock Council area	Approx. 120,000m <sup>2</sup> floorspace of employment use B8, potentially 1560 jobs	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: Potential impact on agricultural land, some of which may be best and most versatile land (Subject to knowing exact location). Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Operation) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection Aveley (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)  Thurrock Council area	Potential delivery for 2700 homes by 2041; and Potential delivery of approx. 167,766 m <sup>2</sup> of B2/B8 employment uses with approx. 2,090 jobs.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
Local Plan Projection Lakeside (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)  Thurrock Council area	Potential delivery for 3800 homes by 2041 or 1200 homes and approx. 116,130m <sup>2</sup> of employment floorspace, B8 use with approx. 1,660 jobs.  Development could extend beyond plan period (beyond 2041)	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection South Ockendon (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)  Thurrock Council area	Potential delivery for 9,800 homes by 2041. Development could extend beyond plan period (beyond 2041) Potential delivery of 33,965m <sup>2</sup> floorspace of B1/B2/B8 employment uses with approx. 440 jobs.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection West Horndon (Exact locations are unknown – may fall	Potential delivery for 7,000 homes by 2041.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which	Geology: No cumulative effects likely during operational phase as contamination impacts would	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>within 3km of Order Limits and 400m of ARN)</p> <p>Thurrock Council area</p>		<p>would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>knowing exact location) (Construction)</p> <p>Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Local Plan Projection North Grays (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)</p> <p>Thurrock Council area</p>	<p>Potential delivery for 925 homes by 2041.</p>	<p>Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology - Neutral and not significant effect.</p> <p>Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)</p> <p>Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Local Plan Projection Chadwell St Mary (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)</p> <p>Thurrock Council area</p>	<p>Potential delivery for 5,400 homes by 2041. Development could extend beyond plan period (beyond 2041).</p>	<p>Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase;</p>	<p>Geology - Neutral and not significant effect.</p> <p>Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
		causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	impacts assessed at construction phase.	Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection East Tilbury (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)  Thurrock Council area	Potential delivery for 3,775 homes by 2041. Development could extend beyond plan period (beyond 2041)	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection Stanford-le-Hope (Exact locations are unknown – may fall within 3km of Order Limits and 400m of ARN)  Thurrock Council area	Potential delivery for 2,250 homes by 2041.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
		soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.		
Local Plan Projection Corringham and Fobbing (Exact locations are unknown – unlikely to fall within 3km of Order Limits and may fall within 400m of ARN)  Thurrock Council area	Potential delivery for 5,650 homes by 2041. Development could extend beyond plan period (beyond 2041).	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection Horndon (Exact locations are unknown – unlikely to fall within 3km of Order Limits and may fall within 400m of ARN)  Thurrock Council area	Potential delivery for 925 homes by 2041.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)



Development	Description	Construction	Operation	Residual Cumulative Effect
		has the potential to be best and most versatile land.		
Local Plan Projection Orsett and Baker Street (Exact locations are unknown – unlikely to fall within 3km of Order Limits and may fall within 400m of ARN)  Thurrock Council area	Potential delivery for 1,400 homes by 2041.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Local Plan Projection Bulphan (Exact locations are unknown – unlikely to fall within 3km of Order Limits and may fall within 400m of ARN)  Thurrock Council area	Potential delivery for 2,650 homes by 2041.	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (subject to knowing exact location) (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Tilbury Link Road	Possible future connecting road onto the	Cultural Heritage: There would be significant overlap between	Cultural Heritage: The area surrounding Tilbury Fort is	<b>Moderate Adverse and significant effect</b> (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
(within Order Limits and adjacent to ARN)  Area: Thurrock	A122 Lower Thames Crossing close to Tilbury, that would provide improved connectivity to the area	areas of physical impact to buried archaeology from Tilbury Link Road and the Project. However, the impact could only occur once, by whichever development occurs first, as once archaeology has been removed it cannot be impacted a second time. Therefore, this would not cause cumulative effects. The extensive construction activity would create cumulative effects for Tilbury Fort and West Tilbury Conservation Area due to proximity of both schemes during construction.	already industrialised and during operation the Project would not cause significant effects. The Project would cause a moderate adverse impact to West Tilbury Conservation Area. With the level of design information, it is unclear how visible the Tilbury Link Road would be; however, it would introduce further modern infrastructure into the setting of Tilbury Fort and West Tilbury Conservation Area, potentially resulting in a moderate adverse effect.	<b>Moderate Adverse and significant effect (Operation)</b>
		Landscape: Construction activity for the Tilbury Link Road in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Tilbury Marshes LLCA. Visual Amenity: The main cumulative effects on visual receptors from construction of the Tilbury Link Road in conjunction with the construction of the Project, are likely to be primarily seen from Walton Common open access land, Fort Road and potentially from parts of the south-east Tilbury urban edge.	Landscape: Tilbury Link Road would result in a combined change in local landscape character of the Tilbury Marshes LLCA in conjunction with the operational Project road. Visual Amenity: Tilbury Link Road would primarily be seen in conjunction with the operational Project road from Walton Common open access land, Fort Road and potentially from parts of the south-east Tilbury urban edge.	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b>  Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Operation)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology - Neutral and not significant effect.</p> <p>Soils - <b>Very Large Adverse and significant effect</b> (Construction)</p> <p>Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Land Adjacent Tilbury Power Station Fort Road Tilbury Essex - Reference: 18/01307/FUL (within Order Limits and adjacent to ARN)</p> <p>Thurrock Council area</p>	<p>The recovery of Pulverised Fuel Ash from Area C1 and C2 of Ash Fields using the temporary load out area and access to Station Road (Permitted under consent 18/00458/FUL) and the access via the Power Station Complex (when available).</p>	<p>Geology: Assume work would be undertaken under appropriate permits / protocols - no cumulative effects anticipated</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology - Neutral and not significant effect.</p> <p>Soils - <b>Very Large Adverse and significant effect</b> (Construction)</p> <p>Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Land Off And Adjacent To School Manor Road Grays - Reference: 15/00234/FUL (approximately 1.5km from Order Limits and 700m from ARN)</p> <p>Thurrock Council area</p>	<p>Proposed development of 87 dwellings consisting of apartments, terraced, semi-detached and detached houses with amenity space and access road.</p>	<p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p><b>Very Large Adverse and significant effect</b> (Construction)</p> <p>Neutral and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
Medebridge Solar Farm - Reference: 21/02159/FUL (within the Order Limits and adjacent to ARN)  Thurrock Council area	Installation of renewable energy generating station comprising ground- mounted photovoltaic solar arrays together with substation, inverter/transformer stations, site accesses, grid connection cables, internal access tracks, security measures, access gates, other ancillary infrastructure and landscape and biodiversity enhancements. Land Off Fen Lane And Medebridge Road South Ockendon Essex	Cultural Heritage: There would be no significant effects to designated heritage assets in the Orsett Fen area resulting from the Project and therefore no cumulative effects. However, there would be cumulative effects due to increased impacts to buried archaeology from both developments and increased change to the nature of the historic landscape in the area, resulting in moderate adverse effects.	Cultural Heritage: The operational effects of both projects would result in moderate adverse effects to the historic landscape of Orsett Fen due to large scale change in land use and character.	<b>Moderate Adverse and significant effect (Construction)</b>  <b>Moderate Adverse and significant effect (Operation)</b>
		Landscape: Construction activity for the solar farm in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA. Visual Amenity: The main cumulative effects on visual receptors from construction of the solar farm in conjunction with construction of the Project, would primarily be seen in glimpsed views from the Mardyke Way and from the adjoining Top Meadow Golf Course.  Combined assessment with other solar farms: There would be significant cumulative	Landscape: The solar farm would result in a combined change in local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA in conjunction with the Project. Visual Amenity: The solar farm would primarily be seen in conjunction with the Project in glimpsed views from the Mardyke Way and from the adjoining Top Meadow Golf Course.  Combined assessment with other solar farms: There would be significant cumulative landscape and visual effects due to the presence of Medebridge solar farm, Bulphan solar farm and the Project, including on	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b>  Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Operation)</b>

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>landscape and visual effects during the construction of the Medebridge solar farm, with Bulphan solar farm and the Project, including on local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA and views from the local PRow network between Bulphan and the Project, Medebridge, scattered residential properties, Fen Lane and Top Meadow Golf Course.</p>	<p>local landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA and views from the local PRow network between Bulphan and the Project, the Mardyke Way, scattered residential properties, Fen Lane and Top Meadow Golf Course.</p>	
		<p>Geology: Based on the nature of the development and the fact that limited earthworks are proposed for the Project then no significant potential impact to geology resources is expected. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Geology: No cumulative effects likely during operational phase as no significant earthworks proposed and if encountered contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Tevva Motors, London Distribution Park - Reference: 22/00430/SCR (approximately 0.6km from Order Limits and adjacent to ARN)  Thurrock Council area</p>	<p>Request for Environmental Impact Assessment (EIA) Screening Opinion: Proposed retrospective change of use from Use Class B8 (storage and distribution) to Use Class E(g)(iii) (Light Industrial) / B8 (storage and</p>	<p>Geology: Based on the nature of the development and the fact that limited earthworks are proposed for the Project then no significant potential impact to geology resources is expected. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on</p>	<p>Geology: No cumulative effects likely during operational phase as no significant earthworks proposed and if encountered contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase;</p>	<p>Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
	distribution), installation of two new exterior doors, provision of an additional 50 car parking spaces and a demountable office space (Use Class E(g)(i)).   Unit 1 London Distribution Park Windrush Road Tilbury Essex RM18 7AN.	agricultural land, some of which has the potential to be best and most versatile land.	impacts assessed at construction phase.	
Medina Farm - Reference: P1865.19 (approximately 250m from Order Limits and 250m from ARN)  London Borough of Havering area	Extraction of minerals and reclamation material and importation of inert materials assets and waste, ancillary plant and buildings with restoration back to agriculture	Geology: Assume extraction / restoration undertaken under appropriate permits / good practice. Inert material to reclaim land so risk of contamination low. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
Childerditch Industrial Estate - Reference: 112D & 112E (approximately 1.2km Order Limits and 600m from ARN)  Brentwood Borough Council area	Employment site: Childerditch Industrial Estate 3.52ha.	Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.  Population and Human Health: Effects during construction may depend on timescale for the proposal coming forward, as	Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.  Population and Human Health: Moderate beneficial effects anticipated during scheme operation in terms of potential	<b>Very Large Adverse and significant effect</b> (Construction)  Neutral and not significant effect (Operation)  Residential Amenity and Access - Slight Adverse and not significant effect (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
		adverse effects may be experienced in relation to amenity and accessibility as a result of increased construction traffic movements.	increased accessibility for businesses and employment.	Employment - <b>Moderate Beneficial and significant effect</b> (Operation)
Upminster Trading Park- Reference: 111 (adjacent to Order Limits and approximately 400m of ARN)  Brentwood Borough Council area	Employment site: Upminster Trading Park 2.6ha.	Population and Human Health: Effects during construction may depend on timescale for the proposal coming forward, as adverse effects may be experienced in relation to amenity and accessibility as a result of increased construction traffic movements.	Population and Human Health: Moderate beneficial effects anticipated during scheme operation in terms of potential increased accessibility for businesses and employment.	Residential Amenity and Access - Slight Adverse and not significant effect (Construction)  Employment - <b>Moderate Beneficial and significant effect</b> (Operation)
Land Opposite Upminster Trading Park Warley Street Great Warley Essex - Reference: 22/00587/FUL (within Order Limits and adjacent to ARN)  Brentwood Borough Council area	Application seeking full planning permission for engineering works on land situated to the south of Brentwood Enterprise Park, west of the B186 (Warley Street), north of the railway line and east of the M25 Motorway. Works to comprise the stripping and storage of topsoil, the movement, spreading and compacting of earthworks material from the adjacent Brentwood Enterprise Park development, and the respreading and levelling of the stored topsoil.	Landscape: Earthworks activity for Land Opposite Upminster Trading Park in conjunction with construction of the Project would result in a cumulative effect on landscape character of the Thurrock Reclaimed Fen (sub area Mardyke) LLCA. Visual Amenity: The main cumulative effects on visual receptors from earthworks south of the proposed Brentwood Enterprise Site in conjunction with construction of the Project, would primarily be seen from scattered residential properties along Warley Street, the local PRow network between Warley Street and the M25, Warley Street and the Upminster to Basildon railway line.	Landscape and Visual Amenity: During operation, the areas used for the spreading of material south of Brentwood Enterprise Site would have been restored to agricultural use, with ground levels not appearing notably different to existing. No cumulative landscape and visual effects are therefore anticipated in conjunction with the Project.	Landscape – Slight Adverse and not significant effect. Visual Amenity – <b>Moderate Adverse and significant effect</b> (Construction)  Landscape and Visual Amenity – Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology - Neutral and not significant effect.</p> <p>Soils - <b>Very Large Adverse and significant effect</b> (Construction)</p> <p>Geology and Soils - Neutral and not significant effect (Operation)</p>
<p>Entire Land East Of A128 South Of A127 Tilbury Road West Horndon Essex. Also known as Dunton Hills, Brentwood</p> <p>- Reference: 21/01525/OUT (approximately 4km from Order Limits and adjacent to ARN)</p> <p>Brentwood Borough Council area</p>	<p>Outline application with all matters reserved apart from Access, for: the construction of a Garden Community which includes up to 3,700 dwellings, 3 care homes, 5 gypsy/travellers pitches, secondary and primary schools, children's nurseries and creches. Employment hub, village centre and neighbourhood hubs, mobility hub, community sports hub, football, hub, cricket ground, green and blue infrastructure, sustainable drainage system, accesses to</p>	<p>Population and Human Health: Effects during construction may depend on timescale for the proposal coming forward, as adverse effects may be experienced in relation to residential amenity and accessibility as a result of increased construction traffic movements.</p>	<p>Population and Human Health: Slight beneficial effects anticipated during scheme operation in terms of potential increased accessibility for employment and access to community facilities.</p>	<p>Residential Amenity and Access - Slight Adverse and not significant effect (Construction)</p> <p>Employment and Access - <b>Slight Beneficial and significant effect</b> (Operation)</p>



Development	Description	Construction	Operation	Residual Cumulative Effect
	A128 Tilbury Road, footpath and cycle link to the A127 and other associated infrastructure and works including noise barrier, demolition of structures and undergrounding of the overhead lines.			
Codham Hall Farm – Reference: E10 (adjacent to Order Limits and ARN)  Brentwood Borough Council area	9.6 ha of employment land (principally use classes B1, B2, B8 and any associated employment generating sui generis uses); and b. 8.0 ha of land to provide for landscaping, amenity, access and ancillary uses to support the sustainability of the site.	Landscape: Construction activity for employment buildings at Codham Hall Farm in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Brentwood Wooded Hills LLCA. Visual Amenity: The main cumulative effects on visual receptors from construction of employment buildings at Codham Hall Farm in conjunction with construction of the Project, would primarily be seen from the local PRoWs skirting the allocated employment land, in the context of existing employment development.	Landscape: The employment buildings at Codham Hall Farm would result in a combined change in local landscape character of the Brentwood Wooded Hills LLCA in conjunction with the Project. Visual Amenity: The employment buildings at Codham Hall Farm would primarily be seen in conjunction with the Project from the local PRoWs skirting the allocated employment land, in the context of existing employment development.	Landscape and Visual Amenity - <b>Moderate Adverse and significant effect</b> (Construction)  Landscape and Visual Amenity - Slight Adverse and not significant effect (Operation)
		Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase;	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)

Development	Description	Construction	Operation	Residual Cumulative Effect
		<p>causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>impacts assessed at construction phase.</p>	
<p>Brentwood Enterprise Park - Reference: 22/00402/FUL (within Order Limits and adjacent to ARN)</p> <p>Brentwood Borough Council area</p>	<p>Hybrid application seeking outline planning permission for M25 to B186 link Road (Phase 2) and detailed planning permission for demolition of existing buildings and structures; ground works to enable creation of development plots; highways works including construction of new A127 overbridge, access from B186, site roads and construction of M25 J29 to B186 link road (Phase 1); erection of buildings for Class B8 (storage &amp; Distribution) and/or Class B2 (general Industrial) use, with ancillary office space (within Class E); landscaping; infrastructure and enabling works including diversion of public rights of way   Land South Of</p>	<p>Landscape: Construction activity for Brentwood Enterprise Park in conjunction with construction of the Project would result in a cumulative effect on local landscape character of the Brentwood Wooded Hills LLCA. However, such effects would be limited, as construction activity would occur in an area already strongly influenced by a combination of the M25 corridor and industrial and commercial development to the north and south of the A127 corridor.</p> <p>Visual Amenity: The main cumulative effects on visual receptors from construction of Brentwood Enterprise Park in conjunction with the Project, would primarily be seen from scattered residential properties along B186 Warley Street, the local PRoWs skirting the proposed employment development, the Upminster to Basildon railway line, and from Warley Street. However, effects</p>	<p>Landscape and Visual Amenity: In the opening year of the Project, parts of the M25 corridor and M25 junction 29 would be more apparent due to vegetation loss. This would result in some cumulative landscape and visual effects, including on scattered residential properties along Warley Street, the local PRoWs skirting the proposed employment development, the Upminster to Basildon railway line, and from Warley Street. However, on establishment of Project mitigation planting, the M25 corridor and M25 junction 29 would appear similar to existing, therefore no notable cumulative landscape or visual effects would be likely.</p>	<p>Landscape and Visual Amenity - <b>Moderate Adverse and significant effect (Construction)</b></p> <p>Landscape and Visual Amenity - Slight Adverse and not significant effect (Operation)</p>

Development	Description	Construction	Operation	Residual Cumulative Effect
	A127 East Of M25 Junction 29 Codham Hall Codham Hall Lane Great Warley Essex	would be limited, as construction activity would occur in an area already strongly influenced by a combination of the M25 corridor and industrial and commercial development to the north and south of the A127 corridor.		
		Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated. Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.	Geology: No cumulative effects likely during operational phase as contamination impacts would be resolved during the construction phase. Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)  Geology and Soils - Neutral and not significant effect (Operation)
		Population and Human Health: Effects during construction may depend on timescale for the proposal coming forward, as adverse effects may be experienced in relation to amenity and accessibility as a result of increased construction traffic movements.	Population and Human Health: Moderate beneficial effects anticipated during scheme operation in terms of potential increased accessibility for businesses and employment.	Residential Amenity and Access - Slight Adverse and not significant effect (Construction)  Employment - <b>Moderate Beneficial and significant effect</b> (Operation)
Future application for Community Woodland at Hole Farm	Application to be made by Forestry England in partnership with National	Geology: During the construction phase, good practice would be followed; regulatory approval prior to commencement which	Geology: No cumulative effects likely during operational phase as contamination impacts would	Geology - Neutral and not significant effect. Soils - <b>Very Large Adverse and significant effect</b> (Construction)

Development	Description	Construction	Operation	Residual Cumulative Effect
<p>(located within Order Limits and adjacent to ARN)</p> <p>Brentwood Borough Council area</p>	<p>Highways - which is the landowner.</p> <p>Application is for buildings, car park and other infrastructure as part of the proposed development. Proposed tree planting as part of the creation of the community woodland also forms part of mitigation/ compensation for the DCO and would not be subject to the TCPA Application. Some of the mitigation planting is anticipated in advance of the DCO. Assessment of the mitigation planting is included in the assessment of the Project proposals and so would not result in cumulative effects.</p>	<p>would mitigate impacts from historic contamination at the site and reduce the risk of works causing contamination. No cumulative effects anticipated.</p> <p>Soils: Construction works should follow good practice in relation to soil handling and reinstatement where applicable. Impact on agricultural land, some of which has the potential to be best and most versatile land.</p>	<p>be resolved during the construction phase.</p> <p>Soils: No cumulative effects likely during operational phase; impacts assessed at construction phase.</p>	<p>Geology and Soils - Neutral and not significant effect (Operation)</p>

### Inter-project effects by topic

- 16.5.11 The potential for inter-project effects between each of the shortlisted developments and the Project was individually assessed as described above. An assessment was then undertaken of the effects on the receptors relevant to each topic, to identify the likely significance of the effects, should all developments be progressed.

#### Air quality

- 16.5.12 Based on the data available on the other development proposals, the cumulative effects assessment identified that any inter-project effects on air quality receptors within the areas surrounding the Project would be **not significant**, both during construction and operation.
- 16.5.13 The inter-project assessment for air quality identified that all but two of the shortlisted developments are likely to have neutral and **not significant** inter-project effects on air quality receptors within the areas surrounding the Project, during both construction and operation. The two exceptions have been identified as likely to contribute to slight beneficial and **not significant** inter-project effects on air quality receptors within the areas surrounding the Project during operation.
- 16.5.14 Air Quality Modelling undertaken for the Project has indicated that pollutant concentrations at modelled air quality receptors in the vicinity of the Project and the proposed shortlisted development sites are expected to be well below the Air Quality Strategy (AQS) objective for annual mean NO<sub>2</sub>. As such exceedances of the AQS objective are unlikely to arise from the shortlisted developments in combination with the construction and operation of the Project. Any inter-project effects on local air quality and AQS objectives are therefore anticipated to be **not significant** during both construction and operation.
- 16.5.15 No additional mitigation measures beyond those proposed in Chapter 5: Air Quality have therefore been identified.

#### Cultural heritage

- 16.5.16 Based on the data available on the other development proposals, the cumulative effects assessment identified five shortlisted developments with the potential to cause significant adverse inter-project effects for cultural heritage receptors, during both construction and operation.
- 16.5.17 The extensive construction activity around the Tilbury area of the Project and from the Tilbury Link Road and Thames Freeport developments would create cumulative effects for Tilbury Fort scheduled monument and the West Tilbury Conservation Area due to the proximity of these developments during construction. Inter-project effects on Tilbury Fort and the West Tilbury Conservation Area and to the settings of surrounding heritage assets in these locations have been identified as moderate adverse and **significant** during construction. Given the already industrialised setting surrounding Tilbury Fort, the effects of the Project during operation are expected to be **not significant** on this heritage asset. Inter-project effects on this heritage asset during operation, however, have the potential to be moderate adverse and **significant** due to the potential for further modern infrastructure to be introduced into this setting. The change to the setting of West Tilbury Conservation Area during operation of the Project would result in a moderate adverse and

**significant** effect on its value. Consequently, inter-project effects on the West Tilbury Conservation Area during operation have the potential to be moderate adverse and **significant**.

- 16.5.18 Further moderate adverse and **significant** inter-project effects are anticipated with the East Anglia Green development on the West Tilbury Conservation Area and associated heritage assets in this area (including listed buildings, the scheduled causewayed enclosure and Anglo-Saxon cemetery) during construction. There is also potential for inter-project effects on the East Tilbury Conservation Area during construction, which would be **significant**. Moderate adverse and **significant** inter-project effects are subsequently expected to occur during operation from cumulative changes to the settings of these heritage assets at this location.
- 16.5.19 Where buried archaeological assets are anticipated to experience an impact in an area of overlap between the Project and any of the shortlisted developments it is noted that the impact could only occur once, by whichever development occurs first, as once archaeology has been removed it cannot be impacted a second time. Therefore, this would not cause cumulative effects on any single archaeological asset within the Order Limits. Inter-project effects on archaeological assets in areas of overlap would therefore be **not significant** during both construction and operation.
- 16.5.20 Moderate adverse and **significant** inter-project effects on buried archaeology and the historic landscape are, however, anticipated in relation to the construction of the East Anglia Green, Medebridge Solar Farm and the proposed Bulphan solar farm, developments. The combination of these developments would result in a greater proportion of the important archaeological resource of the area being affected during construction, and increased change to the nature of the historic landscape in this area than the construction of the Project in isolation. Moderate adverse and **significant** inter-project effects to the historic landscape would remain during operation due to the increased scale of change from the multiple developments.
- 16.5.21 Although the assessment has concluded likely significant effects, no additional mitigation measures beyond those proposed in Chapter 6: Cultural Heritage have been identified. Mitigation of effects on setting through screening can cause a change to the setting that is harmful to the value of the heritage asset in itself. The physical impacts on buried archaeology identified can only occur once, after which event, the archaeology is removed. On that basis, whichever development occurs first must implement its mitigation for physical impacts.

#### **Landscape and visual**

- 16.5.22 A substantial number of significant landscape and visual effects associated with the Project have been identified, as reported in Chapter 7: Landscape and Visual. These are due to the large size and scale of the Project at both construction and operation phases. Based on the data available on the other development proposals, the cumulative effects assessment identified 16 shortlisted developments with the potential to contribute to significant inter-project effects for landscape and visual receptors, during construction and operation.

- 16.5.23 There are a number of site allocations and third-party development projects along the Project route that have the potential to contribute to significant inter-project effects on landscape character and visual receptors within the Zol, summarised from broadly south to north of the Project route as follows:
- 16.5.24 Gravesham Borough Council site allocations for mixed use and residential development on land east and west of Three Crutches, land at Cascades Leisure Centre and land at Canal Road/Norfolk Road have the potential for moderate and large adverse and **significant** inter-project effects on both landscape receptors (marine landscape character of the River Thames, Higham Arable Farmland (sub area Chalk) LLCA and the Tilbury Marshes LLCA) and visual receptors within the Zol at these locations during construction of the Project, including housing on the edge of Riverview Park, Gravesend, Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path. Cumulative effects with these shortlisted developments during operation of the Project are anticipated to be slight adverse and **not significant** for both landscape and visual receptors at these locations, with the exception of a moderate adverse and **significant** inter-project landscape effect on the Higham Arable Farmland (sub area Gadshill) LLCA from the residential land allocation at Three Crutches.
- 16.5.25 While at some distance from the Project, the high-rise nature of some proposed mixed use and residential developments on the Gravesend waterfront has the potential for moderate adverse and **significant** inter-project effects on both landscape and visual receptors within the Zol at this location during construction. These effects are anticipated given the likely use of tall cranes, albeit within the context of existing industrial buildings and infrastructure. In addition, the grouping of proposed third party development projects along the Gravesend waterfront has the potential to result in a greater overall significance of inter-project effects for landscape (marine landscape character of the River Thames and the Tilbury Marshes LLCA) and visual receptors within the Zol at this location including Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path, when considering the construction of the Albion Waterside Canal Basin, The Charter and Clifton Slipways together. During operation, there would not be any notable inter-project effects on landscape or visual receptors at this location given the existing urban context of the waterfront and distance from the Project. As such inter-project effects with these shortlisted developments during operation of the Project are anticipated to be slight adverse and **not significant** for both landscape and visual receptors at these locations.
- 16.5.26 The proposed new high voltage network reinforcement between Norwich, Bramford and Tilbury (East Anglia Green Energy Enablement) has the potential for moderate adverse and **significant** inter-project effects on both landscape and visual receptors within the Zol during the construction and operation of the Project. Other shortlisted developments in the vicinity of Tilbury have the potential for moderate adverse and **significant** inter-project effects on landscape (marine character of the Thames Estuary and Tilbury Marshes LLCA) and visual receptors including the eastern edge of Tilbury, Two Forts Way Coastal Path and National Cycle Network Route 13 during the construction and operation of the Project. These developments include the proposed Tilbury Link Road and the Thames Freeport and during construction only, Thurrock Flexible Generation Plant and land raising using material excavated from the Project.

- 16.5.27 Thurrock Council site allocations for mixed use or residential development at East Tilbury, Chadwell St Mary, North Grays, Orsett and Baker Street and South Ockendon have the potential to generate **significant** inter-project effects on landscape (West Tilbury Urban Fringe LLCA, White Croft/Orsett Heath LLCA, Orsett Lowland Farmland LLCA and Belhus Lowland Quarry Farmland LLCA) and visual receptors within the Zol during construction and operation, given the scale of the proposals in proximity to the Project.
- 16.5.28 There would be moderate adverse and **significant** inter-project effects on landscape (Thurrock Reclaimed Fen (sub area Mardyke) LLCA) and visual receptors within the Zol including views from the Mardyke Way, during both the construction and operation of Medebridge solar farm and Bulphan solar farm, grouped together in proximity to the Project.
- 16.5.29 Proposed employment development at Codham Hall Farm, Brentwood Enterprise Park and engineering works on land opposite Upminster Trading Park have the potential for moderate adverse and **significant** inter-project landscape and visual effects during construction of the Project. However, during operation of the Project these third-party projects would be seen in conjunction with existing employment development and the engineering works opposite Upminster Trading Park would be restored to agricultural use and therefore inter-project effects during operation of the Project would be slight adverse and **not significant**.
- 16.5.30 The potential for significant inter-project cumulative landscape visual effects would therefore be typically concentrated in the vicinity of the existing urban areas of Gravesend, Tilbury, East Tilbury, Chadwell St Mary, North Grays, Orsett and Baker Street, South Ockendon and Upminster. The main exceptions are the proposed solar farms on predominantly agricultural land between South Ockendon and Bulphan.
- 16.5.31 No additional mitigation measures beyond those proposed in Chapter 7: Landscape and Visual have been identified.

#### Terrestrial biodiversity

- 16.5.32 Based on the data available on the other development proposals, the cumulative effects assessment identified one shortlisted development with the potential to cause significant inter-project effects for terrestrial biodiversity receptors, during construction.
- 16.5.33 The majority of the shortlisted developments would have no inter-project effects with the construction and operation of the Project on terrestrial biodiversity, either due to the distance from the Order Limits and the ARN, or due to a lack of notable ecological receptors within the Zol of these developments.
- 16.5.34 There are a number of developments along the River Thames which have the potential to disturb birds using the River Thames; however, the Project's impacts on this receptor would be mitigated through habitat creation and good practice. As a result, the residual inter-project effects on this receptor are predicted to be slight adverse and **not significant** during both construction and operation.



- 16.5.35 The old Tilbury Power Station site is subject to a number of planning applications, including the Thames Freeport and the Thurrock Flexible Generation Plant which have the potential to lead to cumulative loss of reptile and terrestrial invertebrate habitat during construction. There would also be a delay between establishment of any habitat created as mitigation and habitat loss initiated by construction. As the Project is predicted to have a temporary moderate adverse impact on nationally important terrestrial invertebrates at this location, a moderate adverse and **significant** inter-project effect for terrestrial invertebrates and reptiles in this area is predicted during the construction of the Project.
- 16.5.36 The inter-project assessment identified that any inter-project effects with the shortlisted developments for terrestrial biodiversity receptors (including but not limited to terrestrial invertebrates and reptiles) during operation would be neutral and **not significant**.
- 16.5.37 No additional mitigation measures beyond those proposed in Chapter 8: Terrestrial Biodiversity have been identified.

#### Marine biodiversity

- 16.5.38 Based on the data available on the other development proposals, the cumulative effects assessment identified that any inter-project effects with the shortlisted developments for marine biodiversity receptors within the areas surrounding the Project would be neutral and **not significant**, both during construction and operation.
- 16.5.39 No additional mitigation measures beyond those proposed in Chapter 9: Marine Biodiversity have therefore been identified.

#### Geology and soils

- 16.5.40 Based on the data available on the other development proposals, the cumulative effects assessment identified 50 shortlisted developments with the potential to cause significant inter-project effects for soils receptors, during construction.
- 16.5.41 These potential inter-project effects on soils relate to the extent of permanent loss of best and most versatile (BMV) land during construction, which are assessed as very large adverse and **significant**. Inter-project effects on BMV land during operation are assessed as neutral and **not significant** as the loss would have already occurred during the construction phase. The Project has a large adverse effect on its own on BMV land; any further loss of BMV land associated with the shortlisted developments will be cumulatively significant. As this relates to the permanent loss of agricultural land there are no additional mitigation measures available besides those identified in Chapter 10: Geology and Soils.
- 16.5.42 No geology inter-project effects have been identified for the construction or operation of the Project cumulatively with other shortlisted developments within the ZOI. The inter-project effects on geology are therefore anticipated to be neutral and **not significant**.

### Material assets and waste

- 16.5.43 Based on the data available on the other development proposals, the cumulative effects assessment identified that any inter-project effects with the shortlisted developments for material assets (mineral reserves within the Order Limits or use of recycled aggregate) would be slight adverse and **not significant**, during both the construction and operation of the Project.
- 16.5.44 The construction of the Project has been assessed to have a moderate adverse and **significant** cumulative effect with the shortlisted developments on regional landfill capacity. The construction of any shortlisted development within the material assets and waste Zol would further contribute to a permanent reduction in regional landfill capacity as a result of using the same landfill facilities.
- 16.5.45 Slight adverse and **not significant** inter-project effects on waste receptors are anticipated during operation.
- 16.5.46 For this reason, mitigation measures have been proposed in Chapter 11: Material Assets and Waste, to divert the majority of the Project waste from landfill through the application of the waste hierarchy to lessen any reduction to landfill capacity. The assessment reported in Chapter 11: Material Assets and Waste, demonstrates that an adverse effect on the capacity of existing waste management facilities, as a whole to deal with other waste arising in the area would not occur.
- 16.5.47 Although the assessment has concluded likely significant effects, no additional mitigation measures beyond those proposed in Chapter 11: Material Assets and Waste, have been identified. While each of the other developments would implement their own mitigation, effects on the capacity at waste facilities is an inevitable consequence of major projects.

### Noise and vibration

- 16.5.48 Based on the data available on the other development proposals, the cumulative effects assessment identified that any inter-project effects with the shortlisted developments for noise and vibration receptors within the areas surrounding the Project would be **not significant**, both during construction and operation.
- 16.5.49 For construction activities, any noise and vibration impacts are often very localised, and it is unlikely that cumulatively the Project and any of the shortlisted developments would contribute to anything more than a slight adverse and **not significant** inter-project effect on nearby noise and vibration receptors within the 300m Zol.
- 16.5.50 Considering impacts from construction traffic, it is possible that other shortlisted developments could add construction traffic to some of the same roads as the Project. However, given the level of existing traffic on the nearby roads surrounding the Project, inter-project effects from construction traffic on nearby noise and vibration receptors within the 300m Zol are predicted to be no more than slight adverse and **not significant**.
- 16.5.51 Operational traffic noise inter-project effects may occur for noise receptors within the 600m Zol when another development adds traffic to a road where the Project is also adding traffic. However, given the level of existing traffic on the nearby roads surrounding the Project, inter-project effects from operational traffic on nearby noise receptors within the 600m Zol are predicted to be no more than slight adverse at worst and **not significant**.

- 16.5.52 No additional mitigation measures beyond those proposed in Chapter 12: Noise and Vibration have been identified.

#### Population and human health

- 16.5.53 Based on the data available on the other development proposals, the cumulative effects assessment identified five shortlisted developments with the potential to cause significant inter-project effects for population and human health receptors, during both construction and operation.
- 16.5.54 Principal cumulative effects that are likely to occur relate to the construction phases of developments overlapping with the Project, resulting in impacts on residential amenity and access to services and facilities. This has the potential to lead to temporary slight adverse and **not significant** inter-project effects in certain locations depending on the nature and type of development. This is primarily due to the likely timescales and phasing of construction activities being different, together with the implementation of good practice mitigation measures by individual developments. Potential for a temporary moderate adverse and **significant** inter-project effect on access to services and facilities has been identified for receptors in relation to the Thames Freeport development during construction of the Project. The inter-project assessment also identified potential for temporary moderate beneficial and **significant** cumulative effects in relation to employment creation during construction.
- 16.5.55 The inter-project assessment also identified potential for temporary moderate adverse and **significant** inter-project effects on human health in relation to environmental changes, including noise, visual impact and other factors associated with the London Resort during construction of the Project.
- 16.5.56 Inter-project effects relating to the operation of specific projects are primarily concerned with human health outcomes as a result of new residential developments (and thereby new populations) in proximity to the Project. Permanent negligible to slight and **not significant** inter-project effects on health outcomes may be experienced with residential schemes located close to the Project. Effects may relate to potential negative health outcomes associated with road traffic noise levels arising from the Project as well as positive health outcomes arising from the potential to create new green infrastructure that forms part of the wider network for walking and cycling opportunities.
- 16.5.57 Permanent moderate beneficial and **significant** inter-project effects have been identified in relation to proposals for new employment sites and the associated potential increased accessibility for businesses and employment during the Project operation phase.
- 16.5.58 No additional mitigation measures besides those identified in Chapter 13: Population and Human Health have been proposed.

#### Road drainage and water environment

- 16.5.59 Based on the data available on the other development proposals, the cumulative effects assessment identified one shortlisted development with the potential to cause significant inter-project effects for road drainage and water environment receptors, during both construction and operation.

- 16.5.60 Inter-project effects on the groundwater environment have been identified as neutral, with a worst case of slight adverse and **not significant** effect for groundwater receptors within the areas surrounding the Project, during both construction and operation. For groundwater, the main inter-project effect is on the potential to reduce rainfall recharge to the ground and to underlying aquifers, where developments add to impermeable land cover (replacing permeable land).
- 16.5.61 There is the potential for several shortlisted developments to temporarily lower groundwater levels due to dewatering, including one undecided proposed mineral extraction site. However, these developments would be subject to Environment Agency planning conditions and environmental permitting regulations, so any inter-project effects with the Project on groundwater resources are anticipated to be slight adverse and **not significant**.
- 16.5.62 Inter-project effects on the surface water environment have been identified as neutral, with a worst case of slight adverse and **not significant** effect for surface water receptors within the areas surrounding the Project, during both construction and operation. For surface water, the main inter-project cumulative effect is on the land drainage regime. This is where developments would add to impermeable land cover (replacing permeable land), which reduces infiltration and increases rates and volumes of rainfall runoff, in turn increasing the risk of surface water and river flooding.
- 16.5.63 The Thames Estuary 2100 project is assessed as having a potential inter-project effect of moderate beneficial and **significant** cumulatively with the Project during operation, for receptors located on the defended floodplain of the River Thames.
- 16.5.64 There is also potential for individual losses of floodplain storage to add up to increase flood risk from rivers during construction and operation. This is applicable to development north of the River Thames in the catchment of the Mardyke and West Tilbury Main. However, each development would be expected to compensate for their losses, so that cumulatively there should be no net loss, and a negligible and **not significant** inter-project effect on floodplain storage overall.
- 16.5.65 With suitable measures in place at each development, as required under local and national planning policy, such as Sustainable Drainage Systems, the significance of inter-project effects on the groundwater and surface water environments would be no more than slight adverse. No additional mitigation measures besides those identified in Chapter 14: Road Drainage and Water Environment have been proposed.

### Climate

- 16.5.66 As reported in Section 16.3, the climate assessments of the Project's GHG emissions is already cumulative with other developments and a detailed inter-project effects assessment for each development has therefore not been undertaken. The assessment of GHG comprised:
- a comparison of the estimated Project's GHG emissions with UK carbon budgets, from which it was assessed that the GHG emissions would constitute 0.058% of the fourth budget period and less in the fifth and sixth budget periods

- b. an evaluation against the recent IEMA guidance on assessing GHG emissions and their significance (IEMA, 2022), which indicated that the Project is compatible with the budgeted science-based 1.5°C trajectory (in terms of rate of emissions reduction) and both complies with and exceeds up-to-date policy and ‘good practice’ reduction measures. The Project emissions would therefore have a **not significant** impact within the meaning of the IEMA guidance.

16.5.67 Consequently, the assessment concluded that the effects of the GHG emissions would be slight adverse and **not significant**.

16.5.68 The climate vulnerability assessment concludes that the Project would improve the resilience of the strategic road network to the effects of climate change. It would do this by providing additional road capacity and improving accessibility within the study area; thereby improving the flow of traffic. In operation, the Project would enhance the resilience of the regional transport network to respond to cumulative climate vulnerability effects, such as failures of surrounding local and regional transport networks.

16.5.69 Potential inter-project cumulative effects on resilience to climate change arising from the Project in combination with other development schemes during the construction and operational phases (traffic congestion on the strategic road network) would therefore be **not significant**.

## 16.6 Monitoring

16.6.1 Proposals for monitoring are outlined in the relevant topic chapters. The CEA did not identify the need for additional monitoring further to that already set out in Chapters 5 to 15 of the ES.

## 16.7 Summary

### Intra-project effects summary

16.7.1 Intra-project effects for the following receptor groups are reported within the relevant topic chapters:

- a. Community land and assets - Chapter 13: Population and Human Health
- b. Development land and businesses - Chapter 13: Population and Human Health
- c. Agricultural land holdings - Chapter 13: Population and Human Health
- d. Walkers, cyclists and horse riders - Chapter 13: Population and Human Health
- e. Biodiversity receptors - Chapters 8: Terrestrial Biodiversity and 9: Marine Biodiversity
- f. Heritage assets - Chapter 6: Cultural Heritage
- g. Landscape and visual receptors - Chapter 7: Landscape and Visual

- h. Groundwater and surface water receptors - Chapter 14: Road Drainage and the Water Environment
- i. Climate - Chapter 15: Climate

16.7.2 The effects on people (including local residents and nearby communities) reported in relevant topic chapters have been assessed to identify the likely significant intra-project cumulative effects. The effects have been assessed for the geographic locations of the Project. Table 16.11 provides a summary of the significant intra-project effects identified for both construction and operation phases.

**Table 16.11 Intra-project effects summary**

Location	Effects on groups of receptors	Cumulative Effect	Significance
<b>Construction</b>			
Shorne, Cobham and Luddesdown ward	Receptors in the area immediately around the M2/A2/A122 Lower Thames Crossing junction where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors within the residential areas on the eastern edge of Gravesend where temporary adverse construction phase dust and emissions, noise and visual effects would combine.	Very large adverse*	Significant
	Receptors along Thong Lane and Thong village where permanent loss of property and effects on access would combine with temporary adverse construction phase dust and emissions, noise and visual effects.	Very large adverse*	Significant
	Receptors to the west and south-west of Shorne where temporary adverse construction phase dust and emissions, noise and visual effects would combine.	Large adverse*	Significant
	Receptors along A226 Gravesend Road where temporary adverse construction phase dust and emissions, noise and visual effects would combine.	Large adverse*	Significant
Higham ward	Receptors on the western edge of Strood and east of the M2 junction 1 where temporary adverse construction phase dust and emissions, noise and visual effects would combine.	Moderate adverse*	Significant
Singlewell ward	Receptors located along the southern edge of Singlewell, close to the A2 where there would be demolition, changes to access during construction combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Riverview ward	Receptors located on the eastern edge of Riverview Park where there would be combined temporary adverse construction phase dust and emissions, noise and visual effects.	Large adverse*	Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Westcourt ward	Receptors located on and around Thong Lane where there would be combined temporary adverse construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Chalk ward	Receptors located along the eastern side of Chalk, Lower Higham Road and Church Lane where there would be combined temporary adverse construction phase dust and emissions, noise, visual and human health effects.	Moderate adverse*	Significant
East Tilbury ward	Receptors located to the west of East Tilbury and Linford where there would be direct effects on access, combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
	Receptors located on the southern edge of East Tilbury where there would be direct effects on access, combined with temporary adverse construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
	Receptors located on the eastern edge of West Tilbury where there would be combined adverse effects from construction phase dust and emissions, noise, visual and human health effects.	Moderate adverse*	Significant
	Receptors located around Church Road where there would be combined adverse effects from construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Tilbury Riverside and Thurrock Park ward	Receptors located around Ferry Road, Calcutta Road and Dock Road where construction phase air quality, noise, visual and human health effects combine.	Moderate adverse	Significant
Tilbury St Chads ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Chadwell St Mary ward	Receptors on the northern and north-eastern edge of Chadwell St Mary where there would be combined adverse effects from construction phase dust and emissions, noise, vibration, visual and human health effects.	Large adverse*	Significant
	Receptors to the north of Orsett Heath where there would be adverse effects from changes to access combined with construction phase dust and emissions, noise, vibration, visual and human health effects.	Large adverse*	Significant



Location	Effects on groups of receptors	Cumulative Effect	Significance
	Receptors on High House Lane where there would be adverse effects from changes to access combined with construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Little Thurrock Blackshots ward	Receptors located on the northern and eastern edge of Grays where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Moderate adverse*	Significant
Stifford Clays ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Orsett ward	Receptors in and around Baker Street where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine.	Very large adverse*	Significant
	Receptors on Stanford Road where demolition, adverse effects on access, and adverse construction phase dust and emissions, noise, visual and human health effects would combine.	Very large adverse*	Significant
	Receptors on Stifford Clays Road where demolition and adverse construction phase dust and emissions, noise, visual and human health effects would combine.	Very large adverse*	Significant
	Receptors on Hornsby Lane where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
	Receptors at the Whitecroft where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
	Receptors at the western edge of Orsett where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Moderate adverse*	Significant
	Receptors located to the north of the ward where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Belhus ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Ockendon ward	Receptors around the northern edge of South Ockendon where there would be adverse effects from changes to access combined with construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
	Receptors around North Road and Dennis Road where there would be adverse effects from combined construction phase dust and emissions, noise, and human health effects.	Moderate adverse	Significant
Upminster ward	Receptors on Ockendon Road where demolition, changes to access and adverse construction phase dust and emissions, noise, visual and human health effects would combine.	Very large adverse*	Significant
	Receptors in and around North Ockendon where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Moderate adverse*	Significant
	Receptors on St Marys Lane where there would be adverse combined effects from construction phase dust and emissions, noise, visual and human health effects.	Large adverse*	Significant
Cranham ward	Receptors located on the northern and eastern edge of Cranham where there would be adverse combined effects from construction phase dust and emissions, noise and visual effects.	Moderate adverse*	Significant
Warley ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
South Weald ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Surrounding wards within Medway: <ul style="list-style-type: none"> <li>• Cuxton and Halling</li> <li>• Strood South</li> <li>• Strood North</li> <li>• Strood Rural</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
Surrounding wards within Gravesham:	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
<ul style="list-style-type: none"> <li>• Woodlands</li> <li>• Riverside</li> <li>• Northfleet South</li> <li>• Istead Rise</li> <li>• Painters Ash</li> </ul>			
<p>Surrounding wards within Dartford:</p> <ul style="list-style-type: none"> <li>• Newtown</li> <li>• Stone Castle</li> <li>• Stone House</li> <li>• Bridge and Temple Hill</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
<p>Surrounding wards within Thurrock:</p> <ul style="list-style-type: none"> <li>• Little Thurrock Rectory</li> <li>• Chafford and North Stifford</li> <li>• West Thurrock and South Stifford</li> <li>• Stanford-le-Hope West</li> <li>• Stanford East and Corringham Town</li> <li>• The Homesteads</li> <li>• Corringham and Fobbing</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Surrounding wards within London Borough of Havering: <ul style="list-style-type: none"> <li>Harold Wood</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
Wards south of the Project: <ul style="list-style-type: none"> <li>Boxley</li> <li>Aylesford North and Walderslade</li> <li>Burham and Wouldham</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
<b>Operational effects</b>			
Shorne, Cobham and Luddesdown ward	Receptors on the eastern edge of Gravesend where adverse visual effects would combine with adverse road traffic noise effects, deterioration in air quality and human health effects.	Large adverse*	Significant
	Receptors in and around Thong village where adverse visual effects would combine with adverse road traffic noise effects, deterioration in air quality and human health effects.	Large adverse*	Significant
	Receptors to the south of the A2 around Henhurst where adverse visual effects would combine with adverse road traffic noise effects and deterioration in air quality.	Moderate adverse	Significant
Higham ward	Receptors located east of the M2 junction 1 on the western edge of Strood where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Singlewell ward	Residential receptors located on the southern edge of Gravesend close to the existing A2 where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Riverview ward	Receptors located along Thong Lane where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Westcourt ward	Residential receptors located along the eastern edge of Gravesend at Thong Lane and Rochester Road where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Chalk ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
East Tilbury ward	Receptors located along the southern edge of East Tilbury where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located along the western edge of East Tilbury and Linford where adverse air quality, noise, visual and human health effects would combine.	Moderate adverse*	Significant
	Receptors located along the eastern edge of West Tilbury where adverse air quality, noise, visual and human health effects would combine.	Moderate adverse*	Significant
	Receptors located on and around Muckingford Road where adverse air quality, noise, visual and human health effects would combine.	Moderate adverse*	Significant
	Receptors located near Low Street Lane where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Tilbury Riverside and Thurrock Park ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Tilbury St Chads ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Chadwell St Mary ward	Receptors located on the northern and north-eastern edge of Chadwell St Mary where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located to the north of Orsett Heath where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located on High House Lane where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
Little Thurrock Blackshots ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Stifford Clays ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	

Location	Effects on groups of receptors	Cumulative Effect	Significance
Orsett ward	Receptors located in and around Baker Street where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located on Hornsby Lane where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located at the Whitecroft where adverse air quality, noise, visual and human health effects would combine.	Large adverse*	Significant
	Receptors located at the western edge of Orsett where adverse air quality, noise, visual and human health effects would combine.	Moderate adverse*	Significant
	Receptors located on Stifford Clays Road where adverse air quality, noise, visual and human health effects would combine.	Moderate adverse*	Significant
	Receptors located to the north of the ward where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Belhus ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Ockendon ward	Receptors located around the northern edge of South Ockendon where adverse visual and human health effects would combine.	Large adverse*	Significant
Upminster ward	Receptors located around St Marys Lane and around the A122 Lower Thames Crossing/M25 junction and Ockendon Road where adverse air quality, visual and human health effects would combine.	Moderate adverse*	Significant
Cranham ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Warley ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
South Weald ward	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
Surrounding wards within Medway: <ul style="list-style-type: none"> <li>• Cuxton and Halling</li> <li>• Strood South</li> <li>• Strood North</li> <li>• Strood Rural</li> </ul>	Along the A228 in Cuxton and Halling ward where adverse air quality and noise would combine.	Moderate adverse	Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Surrounding wards within Gravesham: <ul style="list-style-type: none"> <li>• Woodlands</li> <li>• Riverside</li> <li>• Northfleet South</li> <li>• Istead Rise</li> <li>• Painters Ash</li> </ul>	Some receptors in Painter’s Ash ward where beneficial air quality and noise effects would combine.	Moderate beneficial	Significant
Surrounding wards within Dartford: <ul style="list-style-type: none"> <li>• Newtown</li> <li>• Stone Castle</li> <li>• Stone House</li> <li>• Bridge</li> <li>• Temple Hill</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
Surrounding wards within Thurrock: <ul style="list-style-type: none"> <li>• Little Thurrock Rectory</li> <li>• Chafford and North Stifford</li> <li>• West Thurrock and South Stifford</li> <li>• Stanford-le-Hope West</li> <li>• Stanford East and Corringham Town</li> <li>• The Homesteads</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant

Location	Effects on groups of receptors	Cumulative Effect	Significance
Corringham and Fobbing			
Surrounding wards within London Borough of Havering: <ul style="list-style-type: none"> <li>• Harold Wood</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
Wards south of the Project in Maidstone District and Tonbridge and Malling District: <ul style="list-style-type: none"> <li>• Boxley</li> <li>• Aylesford North and Walderslade</li> <li>• Burham and Wouldham</li> <li>• Aylesford South</li> <li>• Ditton</li> <li>• Larkfield South</li> <li>• West Malling and Leybourne</li> <li>• Downs and Mereworth</li> <li>• Wrotham, Ightham and Stansted</li> <li>• Snodland East and Ham Hill</li> </ul>	Along the A228 and A229 where adverse air quality and noise would combine.	Moderate adverse	Significant



Location	Effects on groups of receptors	Cumulative Effect	Significance
Surrounding Wards within Sevenoaks district: <ul style="list-style-type: none"> <li>• Fawkham and West Kingsdown</li> <li>• Ash and New Ash Green</li> <li>• Farningham, Horton Kirby and South Darenth</li> <li>• Swanley Christchurch and Swanley Village</li> </ul>	No significant intra-project effects are anticipated on receptors in these wards.	N/A	Not Significant
Surrounding Wards within Brentwood: <ul style="list-style-type: none"> <li>• Herongate, Ingrave and West Horndon</li> </ul>	No significant intra-project effects are anticipated on receptors in this ward.	N/A	Not Significant
*Equivalent to the ‘worst-case’ effect identified for a single topic. It should be noted that this ‘worst-case’ effect will not relate to all receptors at that location, as set out within Table 16.8 and Table 16.9.			

## Inter-project effects summary

- 16.7.3 The likelihood of significant effects as a consequence of the Project and ‘other developments’ within the study area has been considered within the inter-project effects assessment.
- 16.7.4 The assessment identified 209 other developments that have the potential for moderate adverse (or above) inter-project effects when combined with the Project. An assessment was then undertaken of the effects on the receptors relevant to each topic in order to identify the likely significance of the effects, should all developments be progressed. These inter-project effects are summarised in Table 16.12.
- 16.7.5 Mitigation measures proposed in the relevant topic chapters would minimise cumulative impacts as far as practicable and therefore no additional mitigation has been proposed. No monitoring in addition to that already proposed within the relevant topic chapters has been identified.

**Table 16.12 Inter-project effects summary**

Topic	Inter-project effects	Effect	Significance
<b>Construction</b>			
Air quality	Neutral inter-project effects in relation to effects on local air quality receptors and AQS objectives.	Neutral	Not Significant
Cultural heritage	Moderate adverse inter-project effects on designated heritage assets, due to changes to the settings of heritage assets that affect their value. The assets affected comprise Tilbury Fort scheduled monument, Causewayed Enclosure and Anglo-Saxon Cemetery 500m ENE of Heath Place scheduled monument, West Tilbury Conservation Area, East Tilbury Conservation Area, listed buildings located within and near the conservation areas.	Moderate adverse	Significant
	Moderate adverse inter-project effects on archaeology and historic landscapes adjacent to the Project and physically impacted by the short-listed developments, due to a greater proportion of the important archaeological resource of the area being removed during construction and increased change to the nature of the historic landscape in this area than caused by the construction of the Project in isolation.	Moderate adverse	Significant
	Not significant inter-project effects on archaeology within the Project Order limits, as the impact could only occur once by whichever development occurs first. Once archaeology has been removed it cannot be impacted a second time.	Neutral	Not Significant
Landscape and visual	Moderate and Large adverse inter-project effects on landscape receptors (marine landscape character of the River Thames, Higham Arable Farmland (sub area Chalk) LLCA and the Tilbury Marshes LLCA) and visual receptors within the Zol, including housing on the edge of Riverview Park, Gravesend, Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path due to combined landscape and visual impact.	Moderate and Large adverse	Significant
	Moderate adverse inter-project effects on both landscape and visual receptors within the Zol of the Gravesend waterfront location, including the marine landscape character of the River Thames and the Tilbury Marshes LLCA and visual receptors along Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path.	Moderate adverse	Significant
	Moderate adverse inter-project effects on both landscape and visual receptors within the Zol in the vicinity of Tilbury, including the marine character of the Thames Estuary and Tilbury Marshes LLCA and visual receptors along the eastern edge of Tilbury, Two Forts Way Coastal Path and National Cycle Network Route 13.	Moderate adverse	Significant

Topic	Inter-project effects	Effect	Significance
	Potential for Thurrock Council site allocations for mixed use or residential development to generate adverse inter-project effects on landscape (West Tilbury Urban Fringe LLCA, White Croft/Orsett Heath LLCA, Orsett Lowland Farmland LLCA and Belhus Lowland Quarry Farmland LLCA) and visual receptors within the Zol, given the scale of the proposals in proximity to the Project.	Undefined –due to limited available information for the development	Significant
	Moderate adverse inter-project effects on landscape (Thurrock Reclaimed Fen (sub area Mardyke) LLCA) and visual receptors within the Zol (including views from the Mardyke Way), during both the construction and operation of Medebridge solar farm and Bulphan solar farm, grouped together in proximity to the Project.	Moderate adverse	Significant
	Moderate adverse inter-project landscape and visual effects for receptors in the Zol in relation to the proposed development at Codham Hall Farm, Brentwood Enterprise Park and engineering works on land opposite Upmminster Trading Park.	Moderate adverse	Significant
Terrestrial biodiversity	Slight adverse inter-project effects on birds using the River Thames.	Slight adverse	Not Significant
	Moderate adverse inter-project effects due to the loss of reptile and terrestrial invertebrate habitat.	Moderate adverse	Significant
Marine biodiversity	Neutral inter-project effects in relation to effects on marine biodiversity receptors.	Neutral	Not Significant
Geology and soils	Very large adverse inter-project effects due to permanent loss of BMV agricultural land from construction of the Project and other developments.	Very large adverse	Significant
	Neutral inter-project effects in relation to effects on geology receptors.	Neutral	Not Significant
Material assets and waste	Slight adverse inter-project effects for material assets (mineral reserves within the Order Limits or use of recycled aggregate).	Slight adverse	Not Significant
	Moderate adverse inter-project effects due to a permanent reduction in regional landfill capacity.	Moderate adverse	Significant
Noise and vibration	Slight adverse inter-project effects on nearby noise and vibration receptors due to localised increases in noise and vibration levels as a result of construction activities.	Slight adverse	Not Significant

Topic	Inter-project effects	Effect	Significance
	Slight adverse inter-project effects on nearby noise and vibration receptors due to increased construction traffic on nearby roads.	Slight adverse	Not Significant
Population and human health	Slight adverse inter-project effects due to impacts on residential amenity and access to services and facilities.	Slight adverse	Not Significant
	Potential moderate adverse inter-project effects due to impacts on access to services and facilities.	Moderate adverse	Significant
	Potential moderate beneficial inter-project effects in relation to employment creation.	Moderate beneficial	Significant
	Potential moderate adverse inter-project effects on human health in relation environmental changes, including noise, visual impact and other factors.	Moderate adverse	Significant
Road drainage and water environment	Slight adverse inter-project effects on the groundwater receptors within the areas surrounding the Project, due to the potential to reduced rainfall recharge of groundwater aquifers, where developments add to impermeable land cover.	Slight adverse	Not Significant
	Slight adverse inter-project effects in relation to effects on groundwater resources in relation to potential for temporary lowering of groundwater levels due to dewatering.	Slight adverse	Not Significant
	Slight adverse inter-project effects on the surface water receptors within the areas surrounding the Project, due to changes in the land drainage regime and increases to flood risk where developments add to impermeable land cover.	Slight adverse	Not Significant
	Negligible inter-project effects in relation to potential loss of floodplain storage in relation to development north of the River Thames in the catchment of the Mardyke and West Tilbury Main.	Negligible	Not Significant
Climate	The assessments concluded potential for slight adverse inter-project effects on GHG emissions.	Slight adverse	Not Significant
	Potential inter-project effects on resilience to the effects of climate change (traffic congestion on the strategic road network)	Negligible	Not Significant
<b>Operation</b>			
Air quality	Neutral inter-project effects in relation to effects on local air quality receptors and AQS objectives.	Neutral	Not Significant
	Slight beneficial inter-project effects on air quality receptors due to decreases in NO <sub>2</sub> concentrations.	Slight beneficial	Not Significant

Topic	Inter-project effects	Effect	Significance
Cultural heritage	Moderate adverse inter-project effects on designated heritage assets, due to changes to the settings of heritage assets that affect their value. The assets affected comprise Tilbury Fort scheduled monument, Causewayed Enclosure and Anglo-Saxon Cemetery 500m ENE of Heath Place scheduled monument, West Tilbury Conservation Area, East Tilbury Conservation Area, listed buildings located within and near the conservation areas.	Moderate adverse	Significant
	Moderate adverse inter-project effects on the historic landscape would remain in the Orsett Fen area, due to the increased scale of change from the multiple developments.	Moderate adverse	Significant
	Not significant inter-project effects on archaeology within the Project Order limits, as the impact could only occur once by whichever development occurs first. Once archaeology has been removed it cannot be impacted a second time.	Neutral	Not Significant
Landscape and visual	Slight adverse inter-project effects on landscape receptors (marine landscape character of the River Thames and the Tilbury Marshes LLCA) and visual receptors within the Zol, including housing on the edge of Riverview Park, Gravesend, Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path due to combined landscape and visual impact.	Slight adverse	Not Significant
	Moderate adverse inter-project effects on landscape character of the Higham Arable Farmland (sub area Chalk) LLCA.	Moderate adverse	Significant
	Slight adverse inter-project effects on both landscape and visual receptors within the Zol of the Gravesend waterfront location, including the marine landscape character of the River Thames and the Tilbury Marshes LLCA and visual receptors along Saxon Shore Way Long Distance Path and Two Forts Way Coastal Path.	Slight adverse	Not Significant
	Moderate adverse inter-project effects on both landscape and visual receptors within the Zol in the vicinity of Tilbury, including the marine character of the Thames Estuary and Tilbury Marshes LLCA and visual receptors along the eastern edge of Tilbury, Two Forts Way Coastal Path and National Cycle Network Route 13.	Moderate adverse	Significant
	Potential for Thurrock Council site allocations for mixed use or residential development to generate adverse inter-project effects on landscape (West Tilbury Urban Fringe LLCA, White Croft/Orsett Heath LLCA, Orsett Lowland Farmland LLCA and Belhus Lowland Quarry Farmland LLCA) and visual receptors within the Zol, given the scale of the proposals in proximity to the Project.	Undefined –due to limited available information for the development	Significant

Topic	Inter-project effects	Effect	Significance
	Moderate adverse inter-project effects on landscape (Thurrock Reclaimed Fen (sub area Mardyke) LLCA) and visual receptors within the Zol (including views from the Mardyke Way), during both the construction and operation of Medebridge solar farm and Bulphan solar farm, grouped together in proximity to the Project.	Moderate adverse	Significant
	Slight adverse inter-project landscape and visual effects for receptors in the Zol in relation to the proposed development at Codham Hall Farm, Brentwood Enterprise Park and engineering works on land opposite Upminster Trading Park.	Slight adverse	Not Significant
Terrestrial biodiversity	Slight adverse inter-project effects on birds using the River Thames.	Slight adverse	Not Significant
	Neutral inter-project effects in relation to effects on terrestrial biodiversity receptors.	Neutral	Not Significant
Marine biodiversity	Neutral inter-project effects in relation to effects on marine biodiversity receptors.	Neutral	Not Significant
Geology and soils	Neutral inter-project effects in relation to effects on soils (including BMV land).	Neutral	Not Significant
	Neutral inter-project effects in relation to effects on geology receptors.	Neutral	Not Significant
Material assets and waste	Slight adverse inter-project effects for material assets (mineral reserves within the Order Limits or use of recycled aggregate).	Slight adverse	Not Significant
	Slight adverse inter-project effects on waste receptors.	Slight adverse	Not Significant
Noise and vibration	Slight adverse inter-project effects on nearby noise receptors due to localised minor increases in road traffic noise levels.	Slight adverse	Not Significant
Population and human health	Potential negative inter-project effects on human health outcomes associated with road traffic noise levels.	Negligible to Slight adverse	Not Significant
	Potential positive inter-project effects on human health outcomes arising from the potential to create new green infrastructure for walking and cycling opportunities.	Negligible to Slight beneficial	Not Significant
	Moderate beneficial inter-project effects in relation to proposals for new employment sites and potential increased accessibility for businesses and employment.	Moderate beneficial	Significant

Topic	Inter-project effects	Effect	Significance
Road drainage and water environment	Slight adverse inter-project effects on the groundwater receptors within the areas surrounding the Project, due to the potential to reduced rainfall recharge of groundwater aquifers, where developments add to impermeable land cover.	Slight adverse	Not Significant
	Slight adverse inter-project effects on the surface water receptors within the areas surrounding the Project, due to changes in the land drainage regime and increases to flood risk where developments add to impermeable land cover.	Slight adverse	Not Significant
	Moderate beneficial inter-project effects to flood risk in combination with the TE2100 project for receptors located on the defended floodplain of the River Thames.	Moderate beneficial	Significant
	Negligible inter-project effects in relation to potential loss of floodplain storage in relation to development north of the River Thames in the catchment of the Mardyke and West Tilbury Main.	Negligible	Not Significant
Climate	The assessments concluded potential for slight adverse inter-project effects on GHG emissions.	Slight adverse	Not Significant
	Potential inter-project effects on resilience to the effects of climate change (traffic congestion on the strategic road network)	Negligible	Not Significant



- 16.7.6 Mitigation measures have been considered to address inter-project effects in addition to those proposed in the relevant topic chapters. No additional mitigation has been proposed. In the same way as the Project, each of the identified reasonably foreseeable developments would be responsible for mitigating the adverse impacts of their proposals to avoid or reduce their own adverse effects on the environment and comply with the relevant legislative requirements.
- 16.7.7 No monitoring in addition to that already proposed within the relevant topic chapters of this ES has been identified.

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