

M20 Junction 10a

TR010006

Environmental Statement

Chapter 15 Consideration of Combined and Cumulative Effects

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TR010006

Environmental Statement

Chapter 15 Consideration of Combined and Cumulative Effects

Volume 6.1

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15 Consideration of Combined and Cumulative Effects

15.1 Introduction

15.1.1 This chapter presents the assessment of combined and cumulative effects for both the Main and the Alternative Scheme. This assessment draws upon the guidance provided within the DMRB Volume 11 Section 2 Part 5: Assessment and Management of Environmental Effects¹ and the recently published Planning Inspectorate (PINS) 'Advice Note Seventeen: Cumulative Effects Assessment'².

15.1.2 Combined and cumulative effects result from multiple actions on receptors over time and are generally additive or interactive (synergistic) in nature. They can also be considered as effects resulting from incremental changes caused by other past, present or reasonably foreseeable actions together with the project, identified as:

- Combined effects from a single project (the inter-relationship between different environmental factors).
- Cumulative effects from different projects (with the project being assessed).

15.2 Legislative and Policy Framework

15.2.1 The requirement to address the combined and cumulative effects of a project is set out in Article 5(1) of the Environmental Impact Assessment (EIA) Directive³. With respect to Nationally Significant Infrastructure Projects (NSIPs) under the Planning Act 2008 (as amended), the requirements of the EIA Directive are implemented through the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) ("the EIA Regulations")⁴.

15.2.2 The need to consider cumulative effects in planning and decision making is set out in planning policy, in particular the National Policy Statement for National Networks (NPSNN)⁵; Paragraph 4.16 states that "*When considering*

¹ The Highways Agency (2008) Design Manual for Roads and Bridges Volume 11, Section 2, Part 5 'Assessment and Management of Environmental Effects'.

² The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

³ Environmental Impact Assessment (EIA) Directive (85/337/EEC) as amended by the Council Directives 97/11/EC and 2003/31/EC and codified by 2011/92/EU.

⁴ Statutory Instrument (2009) Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 as amended.

⁵ Department for Transport (2014) National Policy Statement for National Networks: Presented to Parliament pursuant to Section 9 (8)

significant cumulative effects, any Environmental Statement should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence)".

15.3 Method of Assessment

Study Area

Combined Effects

15.3.1 The study area for the assessment of combined effects of both the Main and Alternative Schemes reflects the study areas, also termed the spatial Zones of Influence (ZOI), identified within the relevant topic chapters of this ES (Chapters 5 to 14, Volume 6.1), ranging from 200m (for Air Quality) to 2km (for Nature Conservation).

Cumulative Effects

15.3.2 The study area for the identification of 'other developments' for inclusion in the assessment of cumulative effects has been influenced by 2 separate study areas that have been combined to produce 1 overall study area, as shown in Figure 15.1, Volume 6.2. These are as follows:

1. A 2km ZOI around the DCO boundary for the Main and Alternative Scheme.
2. The study area used in the Traffic Model.

15.3.3 The first study area is based on the maximum ZOI identified by a topic chapter within this ES, in this instance 2km as identified within Chapter 7 Nature Conservation, Volume 6.1.

15.3.4 The second study area reflects that used in the Traffic Model, ensuring that the list of 'other developments' included in the assessment of cumulative effects aligns with the 'other development' included within the Traffic Model.

15.3.5 The study area used for the assessment of cumulative effects during both construction and operation reflects the individual ZOIs of the topic chapters, outlined in Table 15.1 below. These ZOIs have also been represented graphically in Figure 15.2, Volume 6.2. It should be noted that the ZOI for Material Assets (construction phase), Noise and Vibration (construction phase), and Air Quality (operation phase) have not been included within Figure 15.2, Volume 6.2, due to the difficulties associated with presenting the ZOIs for these topics graphically for Material Assets and Noise and Vibration,

and Section 5 (4) of the Planning Act Department for Transport (2008) National Policy Statement for National Networks. [online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf (Last Accessed April 2016).

and due to the study area for Air Quality being representative of the traffic model.

15.3.6 As such, the assessment of cumulative effects has been undertaken on a topic-by-topic basis, with the assessment of ‘other developments’ in combination with both the Main and Alternative Schemes only undertaken where the ZOIs for the same topic chapter overlap. For example, the assessment of cumulative effects on Landscape has only been undertaken for 6 of the 16 ‘other developments’, as the 1km Landscape ZOI for these 6 ‘other developments’ overlap with the 1km ZOI for both the Main and Alternative Schemes, as listed in Table 15.7 of this chapter.

Table 15.1 ZOI Summary Table for both the Main and the Alternative Schemes

Environmental Topic	Zone of Influence (ZOI)
Air Quality	<ul style="list-style-type: none"> • Construction: 200m ZOI for construction dust and emissions. • Operation: The ‘affected roads’ as a ZOI, as described in Chapter 5 ‘Air Quality’, for operation emissions. For the purposes of the cumulative effects assessment, this has been taken to be representative of the Traffic Model study area. • See Chapter 5 Air Quality, Volume 6.1, for further information.
Cultural Heritage	<ul style="list-style-type: none"> • Construction and Operation: A 1km ZOI which is the maximum ZOI extent used within the Cultural Heritage assessment: <ul style="list-style-type: none"> ○ 1km ZOI for designated assets; and, ○ 500m ZOI for non-designated assets. • See Chapter 6 Cultural Heritage, Volume 6.1, for further information.
Landscape	<ul style="list-style-type: none"> • Construction and Operation: 1km ZOI for landscape and visual impacts (and a 4.5km ZOI for views from elevated ground in the Kent Downs AONB). • See Chapter 7 Landscape, Volume 6.1, for further information.
Nature Conservation	<ul style="list-style-type: none"> • Construction and Operation: A 2km ZOI which is the maximum ZOI extent used within the Nature Conservation assessment: <ul style="list-style-type: none"> ○ 2km ZOI for designated sites likely to be impacted. ○ 100m ZOI for invasive species, hedgerows, breeding and wintering birds, and buildings / trees with roosting potential for bats. ○ 250m ZOI for dormice, badgers, bats (activity), and reptiles. ○ 500m ZOI for Great Crested Newt (GCN). ○ The Aylesford Stream corridor as a ZOI for river habitats, water voles, otters, and white clawed crayfish. • See Chapter 8 Nature Conservation, Volume 6.1, for further information.
Geology and Soils	<ul style="list-style-type: none"> • Construction and Operation: All locations where physical works and ground disturbance would take place, plus a 250m buffer. • See Chapter 9 Geology and Soils, Volume 6.1, for further information.
Materials	<ul style="list-style-type: none"> • Construction: ZOI defined by the influence of the Main and Alternative Schemes rather than through a set geographical location – quantity of materials required and generation of waste. The ZOI for Materials during the construction phase is not shown on Figure 15.1 (Volume 6.2) due to the difficulties with showing this study area graphically. • Operational phase not assessed.

Environmental Topic	Zone of Influence (ZOI)
	<ul style="list-style-type: none"> See Chapter 10 Materials, Volume 6.1, for further information
<p>Noise and Vibration</p>	<ul style="list-style-type: none"> Construction: ZOI for temporary impacts includes areas where the calculated total noise exceeds baseline noise levels by 5dB or more (subject to thresholds). Operation: 1km ZOI for permanent (operational) impacts including any sensitive receptors (outside the 1km ZOI) identified adjacent to roads where the change in received road traffic noise level would increase or decrease by at least 1dB LA_{10 18hr} on opening or 3dB in the long term. See Chapter 11 Noise and Vibration, Volume 6.1 for further information.
<p>Effects on All Travellers</p>	<ul style="list-style-type: none"> Construction and Operation: A 250m ZOI which is the maximum ZOI extent used within the Effects on All Travellers assessment: <ul style="list-style-type: none"> 250m ZOI for Public Rights of Way (PRoWS), footpaths, cycleways, bridleways, restricted byways, and Non-Motorised Users (NMU) crossings as well as roads (and subsequent impact on Driver Stress). A ZOI of all vehicles and non-motorised vehicles that use, meet or cross the scheme extents. See Chapter 12 Effects on All Travellers, Volume 6.1, for further information.
<p>Community and Private Assets</p>	<ul style="list-style-type: none"> Construction and Operation: 250m ZOI for private assets, community land, development land, agricultural land, and community severance. Construction and Operation: County Level of Kent ZOI for economic development. See Chapter 13 Community and Private Assets, Volume 6.1, for further information.
<p>Road Drainage and the Water Environment</p>	<ul style="list-style-type: none"> Construction and Operation: 1km ZOI for waterbodies (downstream adjacent Water Framework directive (WFD) waterbodies were also included) and flood risk. For groundwater bodies, the ZOI is the potential zone of impact. See Chapter 14 Road Drainage and the Water Environment, Volume 6.1, for further information.

Assessment Methodology

Combined Effects

15.3.7 The assessment methodology for combined effects involves the identification of impact interactions associated with both the Main and Alternative Schemes upon separate environmental receptors, in order to better understand the overall environmental effect of the proposed schemes. The significance of construction and operational phase environmental effects are brought forward from the preceding chapters of this ES into matrices for the Main and Alternative Schemes, providing an overview the potential effects on individual receptors. The significance of combined effects upon each environmental resource has then been made based upon the balance of scores and using professional judgement.

- 15.3.8 The methodology for the assessment of combined effects follows DMRB Volume 11 Section 2 Part 5: Assessment and Management of Environmental Effects. For the purposes of this assessment, combined effects of Moderate Adverse or Beneficial and above are considered significant. However, those that do not score as significant are still considered worthy of note.

Cumulative Effects

- 15.3.9 The assessment methodology for cumulative effects involves the identification of incremental changes likely to be caused by 'other developments' together with both the Main and the Alternative Scheme.

- 15.3.10 This assessment follows the methodology outlined in the recently published PINS 'Advice Note Seventeen: Cumulative Effects Assessment'⁶ with the 4 stages of assessment followed:

- Stage 1: Establish the ZOI and a Long List of 'Other Development'.
- Stage 2: Identify a Short List of 'Other Development' for assessment.
- Stage 3: Information Gathering.
- Stage 4: Assessment.

- 15.3.11 As part of establishing the ZOI within Stage 1 (as described in the 'Study Area' section of 15.3 Methodology), the assessment of cumulative effects has been based on the following traffic scenarios included in the Traffic Model, ensuring that only the developments included in the Traffic Model falling within these scenarios have been assessed for both the Main and Alternative Schemes.

- **Main Scheme - Core Scenario:**
 - This Scenario contains development demand from 'other developments' that are 'Near Certain' or 'More Than Likely' (see Section 15.3.14 and Table 15.3 for descriptions), excluding any development that Ashford Borough Council (ABC) considers are dependent on the construction of the M20 junction 10a (the Main or Alternative Scheme).
 - This scenario contains part of Stour Park development Phase 1 (421 out of 1275 jobs).
- **Alternative Scheme - Realistic-plus-Sevington Scenario:**
 - This Scenario contains the Realistic Scenario demand plus all of Stour Park development not included in the Core Scenario (i.e. all of Phase 2).

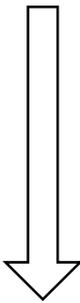
⁶ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

- It should be noted that the Realistic Scenario contained all developments that are Near Certain or More Than Likely, including any dependent development that is M20 junction 10a-dependent. The Realistic Scenario contains all of Stour Park Phase 1.
- 15.3.12 For further information on the Traffic Model, reference should be made to Section 9.2 of Chapter 2 The Proposed Scheme, Volume 6.1, and the Transport Assessment (DCO submission document number 7.2).
- 15.3.13 For the purposes of this assessment, the following criteria, based on the type and scale of potential effects generated by a proposed development, were used to determine 'other developments'. This criterion is based on the revised Screening Criteria which was changed as part of the amendments to the Town and Country Planning (Environmental Impact Assessment) Regulations 2011⁷. This criteria has been selected as the majority of 'other developments' being considered fall under the Town and Country Planning regime.
- The development includes more than 1 hectare of development which is not dwellinghouse development; or,
 - The development includes more than 150 dwellinghouses; or,
 - The area of the development exceeds 5 hectares.
- 15.3.14 It is important to note that proposed developments that are close to the threshold limits but have characteristics likely to give rise to significant cumulative effects, or for which could give rise to a cumulative effect by virtue of its proximity to the proposed Main and Alternative Schemes, have also been considered in this assessment, as recommended by PINS 'Advice Note Seventeen: Cumulative Effects'⁸.
- 15.3.15 The 'other developments' are grouped into tiers, reflecting the likely degree of certainty attached to each development, with Tier 1 being the most certain, as shown in Table 15.2. 'Other development' falling into Tier 3 is least certain and most likely to have limited publicly available information to inform assessments.

⁷ Statutory Instrument (2011) The Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

⁸ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

Table 15.2 Likely degree of certainty assigned to each tier

Tier	Likely Degree of Certainty	
Tier 1	<ul style="list-style-type: none"> Under construction*. Permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented. Submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined. 	<p>Decreasing level of detail likely to be available</p> 
Tier 2	<ul style="list-style-type: none"> Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has been submitted. 	
Tier 3	<ul style="list-style-type: none"> Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has not been submitted. Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as the move closer to adoption) recognising that much information on any relevant proposals will be limited. 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. 	

* Where other projects are expected to be completed before construction of the proposed NSIP and the effects of those projects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment.

Source: Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2015).

15.3.16 In addition to the tier system outlined in Table 15.2 above, the Traffic Model includes a scoping criteria that was used to decide which developments should be included within the Traffic Model, based on the certainty of outcome, shown in Table 15.3 below.

15.3.17 In order to align with the Traffic Model, the cumulative effects assessment includes only those developments that are considered as being 'Near Certain' and 'More Than Likely'. However, it is important to note that Stour Park Phase 2, with a certainty of 'Hypothetical' has been included in the assessment for the Alternative Scheme, as this development is dependent on the construction of the Alternative Scheme, as requested by ABC (see Table 15.6).

Table 15.3 Certainty of Outcome and Development Status

Certainty of Outcome	Development Status
Near Certain: The outcome will happen or there is a high probability of it occurring.	<ul style="list-style-type: none"> Intent announced by proponent to regulatory agencies. Approved development proposals. Projects under construction.
More Than Likely: The outcome is likely to happen but some uncertainty.	<ul style="list-style-type: none"> Development application within the consent process and in accordance with development plan.
Reasonably Foreseeable: The outcome may happen but significant uncertainty.	<ul style="list-style-type: none"> Identified within a development plan and, although not directly associated with the project, may occur if the project is implemented.

Certainty of Outcome	Development Status
<p>Hypothetical: There is considerable uncertainty whether the outcome would ever happen.</p>	<ul style="list-style-type: none"> • Conjecture based upon currently available information. • Discussed on a conceptual basis. • One of a number of possible inputs in an initial consultation process.

15.3.18 Rather than reporting every interaction, the methodology for the assessment of cumulative effects concentrates on the main significant effects, and aims to differentiate between permanent, temporary, direct, indirect and secondary effects, positive or negative.

15.3.19 Where significant cumulative effects, beyond those identified as residual effects from the proposed Main or Alternative Scheme in isolation, have been identified, additional mitigation measures are recommended.

15.3.20 The significance of cumulative effects upon each environmental resource has then been made based on the balance of scores and using professional judgement. An on balance approach has also been taken when identifying the overall cumulative effect for both the Main and Alternative Schemes in conjunction with the other developments.

Significance Criteria

15.3.21 The assessment of significance of the combined and cumulative effects has been determined in accordance with the significance criteria contained in Table 15.4 of DMRB Volume 11, Section 2, Part 5 (HA 205/08), which is described in more detail under Chapter 4 EIA Methodology (see 'Significance of Effects' under Section 4.3 Requirements of DMRB), Volume 6.1. Typically, the greater the environmental sensitivity or value of the receptor or resource, and the greater the magnitude of impact, the greater the effect. In this way, the consequences of a highly valued resource suffering a major detrimental impact would be a very large adverse effect, as shown in Table 4.1 of this ES and outlined in DMRB Volume 11, Section 2, Part 5 (HA 205/08).

15.3.22 For the purposes of this cumulative effects assessment, the value of a resource and magnitude of impact is determined according to the criteria set within the preceding chapters of this ES. The significance of effect is then carried forward from preceding chapters to enable an on balance assessment of combined significance upon environmental receptors, as well as to identify the significance of cumulative effects with other developments. Typical descriptors of cumulative significance are included within Table 15.4, which reflects this on balance approach. Overall significance is determined with mitigation included, as shown in Table 15.5 below.

15.3.23 Significance descriptors have also been aligned with the considerations included within PINS 'Advice Note Seventeen: Cumulative Effects'⁹. Accordingly, where impacts are likely to be temporary, the overall significance of effect is considered to be reduced from a permanent impact on a receptor of the same value. Equally, localised and infrequent impacts are likely to be of lower magnitude than those that cover a greater geographical scale and / or regularly occur, resulting in a reduced significance of effect. Effects can be additive (such as the loss of 2 pieces of woodland of 1ha, resulting in 2ha cumulative woodland loss) or synergistic (2 discharges combining to have an effect on a species not affected by discharges in isolation).

15.3.24 Where an effect is Moderate or above (Adverse or Beneficial), it is deemed to be significant.

Table 15.4 Combined and Cumulative Effects Significance Definitions

Significance category	Typical Descriptors of Effect
Very Large (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain future major development upon an individual or collection of environmental receptors would be very highly significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of very high value.
Large (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major future developments upon an individual or collection of environmental receptors would be highly significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of high value. • Localised for a receptor of very high value. • Temporary for receptor of very high value.
Moderate (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major future developments upon an individual or collection of environmental receptors would be significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of medium value. • Localised for receptors of high value. • Temporary for a receptor of high value.
Slight (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major development 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"> • Permanent and far reaching for receptors of low value. • Localised for receptors of medium value. • Temporary for a receptor of medium value.

⁹ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

Significance category	Typical Descriptors of Effect
Neutral	Where the positive or negative effects of the Scheme or the combined effects of the Scheme in association with other existing or more than likely / near certain future major developments would balance.

Source: Based on Table 2.3 of DMRB Volume 11 Section 2 Part 5 HA 205/08

Table 15.5 Matrix for the Assessment of Significance of Effects

Value / Sensitivity	Magnitude of Impact				
	No change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Large or Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Slight or Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Consultation

15.3.25 A Scoping Opinion was received from the PINS in March 2015. This included comments from Ashford Borough Council (ABC), Natural England (NE) and Canterbury City Council (CCC) on the assessment of combined and cumulative effects. A summary is provided in Table 15.6 below, with a brief explanation as to how each have been addressed within the assessment.

Table 15.6 Summary of Scoping Opinions

Scoping Opinion	How this has been addressed in the assessment
Canterbury City Council: <i>“The council wish any future Environmental Statement to consider the following strategic sites that are being proposed as part of Canterbury City Council’s emerging local plan. These include Site 1 (South Canterbury including a new junction to the A2), Site 9 (Land at Howe Barracks) and Site 10 (Land at Kent and Canterbury Hospital)”.</i>	The suggested sites for inclusion in the assessment of combined and cumulative effects lie approximately 20km from both the Main and Alternative Schemes. These developments lie outside the study area for this assessment (ZOI and Traffic Model study area). Any effects associated with these strategic sites are therefore not anticipated to interact with the environmental effects associated with the Main and Alternative Schemes.
Ashford Borough Council: <i>“Sevington [now referred to as Stour Park] Phase 2 is not within the current U19 policy allocation under the Adopted Urban Site and Infrastructure DPD2012. Other schemes beyond the Ashford Borough Council’s boundaries such as the Lydd Airport Expansion development may need to be considered”.</i>	Stour Park Phase 2 has been included in the assessment of cumulative effects for the Alternative Scheme. Lydd Airport Expansion lies over 25km from both the Main and Alternative Schemes. This development lies outside the study area for this assessment (ZOI and Traffic Model study area). Any effects associated with Lydd Airport expansion are therefore not anticipated to interact with the environmental effects associated with the Main and

Scoping Opinion	How this has been addressed in the assessment
<p>Natural England: <i>“The ES should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):</i></p> <ul style="list-style-type: none"> (a) Existing or completed projects; (b) Approved but uncompleted projects; (c) Ongoing activities; (d) Plans or projects for which an application has been made and which are under consideration by the consenting authorities; and, (e) Plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects”. 	<p>Alternative Schemes.</p> <p>Existing or completed projects have already been included as part of the baseline information within the ES where relevant. All other points have been incorporated within the methodology for combined and cumulative effects described in Section 15.3 of this chapter.</p>
<p>English Heritage: <i>Cumulative impacts of development will also need to be considered (and not only in relation to archaeological sites as implied at 7.8.2), so the effects of the road on the above assets are not considered in isolation from, for example, the major new development at Sevington associated within it and upon which we have been consulted by the Local Planning Authority on an application for planning permission.</i></p>	<p>Following the PINS ‘Advice Note Seventeen: Cumulative Effects Assessment’¹⁰, cumulative effects on local archaeology and built heritage assets as a result of the Main and Alternative Schemes in conjunction with other developments (including Stour Park Phase 2) have been assessed to ensure that any adverse residual cumulative effects on archaeology and built heritage assets can be avoided wherever possible, and suitable mitigation in place.</p>

15.4 Assumptions and Limitations

15.4.1 There are several general assumptions and limitations associated with this assessment.

15.4.2 This assessment is made using professional judgement and based on currently available information. It is likely that some of the environmental effects within this chapter will be superseded as detailed design for the major developments included in this assessment continues. Furthermore, it should be highlighted that additional major developments may be proposed following the submission of this ES.

¹⁰ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

- 15.4.3 Where an assessment has not been undertaken for certain environmental topics for a proposed development, an assumption has been made as to the likely significance environmental effect, based on an understanding of the local area, as well as the predicted significance of environmental effects identified in assessments for developments located close by. In these instances a brief desktop study has been undertaken and a 'worst case' 'most likely' approach adopted. However, for developments that have been subject to an EIA, it has been assumed that the environmental topics missing from the ES have been previously scoped out because no environmental impacts are predicted, and as such, Neutral effects have been assigned to these environmental disciplines.
- 15.4.4 It should also be noted that the assessment of likely significant environmental effects will differ slightly across the proposed developments as a result of assessments being undertaken by multiple parties with variations in professional opinion. In addition, some assessments may have taken a balanced approach to the assessment of effects, whilst other assessments may take a worst-case approach.
- 15.4.5 It is important to note that the overall conclusions have been carried forward from the ESs of the 'other developments' and have not been altered or challenged. An example is for Stour Park where the assessment of construction stage effects takes into consideration operational mitigation measures (i.e. it assumes that planting would provide instant mitigation rather than the assumption that the benefits would not be realised until planting has established and matured).
- 15.4.6 In some instances, the construction start and finish dates are not available for the 'other developments', and despite consultation with ABC, have not been confirmed. In these instances, it has been assumed that either part or all of the construction phase will fall within both the Main and Alternative Scheme's construction phase, reflecting a worst-case scenario approach.
- 15.4.7 This assessment has used the most up-to-date information wherever possible, through consultation with ABC. As such, where changes have been made to developments since their inclusion in the Traffic Model, these have been reflected in this assessment. This has been the case for 'Ashford Town Centre', a site located in the Town Centre Area Action Plan¹¹. Following consultation with ABC, recent planning applications associated with this site have been provided, and as such these developments have been included rather than the previous 'Ashford Town Centre' site identified in the Town Centre Area Action Plan.

¹¹ Ashford Borough Council (2010) Town Centre Area Action Plan. [online] Available at <http://www.ashford.gov.uk/town-centre-area-action-plan> (Last accessed May 2016).

15.4.8 In addition to these, there are a number of assumptions and limitations specific to the other developments, as detailed below in Table 15.7.

Table 15.7 Assumptions and Limitations for 'Other Developments'

'Other Development'	Assumptions and Limitations
<p>Land at Willesborough Lees</p> <p>Policy U14, Urban Sites Infrastructure Development Plan Document¹²</p>	<p>Land at Willesborough Lees does not have any planning applications associated with it at present. As such, information has been taken from the relevant Sustainability Appraisal (SA)¹³. Due to the high level nature of this assessment, the SA only provides an indication of the likely environmental effects associated with the operation of the proposed development, and does not consider the construction stage effects. Due to the lack of details associated with these developments, a desk study and use of professional knowledge has not been applied and effects on some environmental receptors have not been completed for these developments. In addition, the construction stage of these developments have been scoped out of this assessment, as the SA only assesses the likely environmental effects associated with the completed development.</p>
<p>Stour Park (Phases 1 and 2)</p> <p>14/00906/AS</p>	<p>The full release of development at this site is dependent on the provision of the Alternative Scheme. As such, prior to the principal access being available, only a limited scale of development (approximately 11,920 sq m) at the southern end of the site may come forward via access from the Church Road junction off the A2070. The ES for Stour Park takes into consideration the whole of Stour Park and does not assess each phase separately. As such, the assessment for Stour Park Phase 1 reflects the assessment undertaken for the whole of Stour Park, and thus represents a precautionary approach to the assessment for Stour Park.</p> <p>Stour Park Phase 2 is dependent on the Alternative Scheme. However, because the ES for Stour Park does not provide an assessment that has been split by phase, the assessment of cumulative effects for Stour Park Phase 2 would be a reflection of the assessment undertaken for Stour Park Phase 1 for the Main Scheme cumulative effects assessment. As such, the assessment of cumulative effects for the Alternative Scheme has been anticipated to be the same as that undertaken for the Main Scheme.</p> <p>Applying the Precautionary Principle and Historic England's letter dated 15 February 2016 (ref. P00434887) (Appendix 5.1, Volume 6.3) documenting their serious concerns over the assessment of effect on the setting of St Marys Church as a result of Stour Park, the residual effects on cultural heritage as a result of the Stour Park development have been assessed as having an on balance Moderate Adverse effect during both construction and operation, rather than relying on the Slight Adverse effects reported in the Stour Park development ES chapter.</p>
<p>Newtown Works, Phases 2-4</p> <p>05/01798/AS</p>	<p>This large development has been split into several phases, although an Outline Planning Application including an ES has been produced covering all of the proposed phases. Phase 1 of the development has been constructed, whilst it has been confirmed during consultation with ABC that Phases 2 - 4 of the development require fresh planning applications that are due to be submitted in the coming months. As such, the environmental effects for Phases 2 - 4 have been based on the original ES, and therefore is not fully representative of just Phases 2 - 4, and may in some instances reflect a worst-case approach, whilst in other instances not be specific to these upcoming phases.</p>

¹² Ashford Borough Council (2012) Urban Sites Infrastructure Development Plan Document. [online] Available at: <http://www.ashford.gov.uk/urban-sites-dpd> (Last accessed May 2016).

¹³ Ashford Borough Council (2010) Sustainability Appraisal Urban Sites and Infrastructure DPD – Reg 27 Publication Version.

'Other Development'	Assumptions and Limitations
Waterbrook 12/00471/AS	A planning application for this area of land was submitted in April 2012 but has since been withdrawn. Waterbrook is included in the Local Development Framework Core Strategy ¹⁴ and has therefore been subject to a SA. However, given the high level nature of the SA, and the more detailed nature of the environmental assessments undertaken for the withdrawn planning application, the latter have been used to assess potential environmental effects associated with this development. It should be highlighted, however, that the revised planning application (if submitted) may differ slightly in terms of design and environmental assessment, and as such reported effects associated with Waterbrook may change slightly if the design of the Scheme is altered.
K College, Jemmett Road 11/00757/AS	It has been confirmed through consultation with ABC that K College is currently under construction. Given that the construction of both the Main and Alternative Schemes is not due to commence until 2018, it has been assumed that construction of K College will have been completed prior to commencement of construction for the Main or Alternative Scheme. As such, just the operation phase of K College is being taken forward in the assessment of cumulative effects.
Former Rowcroft and Templer Barracks 02/01565/AS	This development has been split into a number of different phases, with a number of land parcels already in the construction phase, and a number due to be approved shortly (as confirmed by Ashford Borough Council in May 2016). However, the assessment of environmental effects has been based on the whole site, and as such effects may represent worst case scenarios for some aspects.

15.5 Baseline Information

Combined Effects

15.5.1 The baseline for each environmental topic is described in detail for Air Quality, Cultural Heritage, Landscape, Nature Conservation, Geology and Soils, Materials, Noise and Vibration, Effects on All Travellers, Community and Private Assets, and Road Drainage and Water Environment in the preceding chapters (Chapters 5 to 15, Volume 6.1) of this ES.

Cumulative Effects

15.5.2 As part of Stage 1 (see Paragraph 15.3.10 for a description of the stages of assessment), numerous 'other developments' have been identified using ABC's Planning Application Interactive Map System¹⁵, ABCs Adopted Core Strategy (Ashford Borough Council, 2008)¹⁶, ABCs 2012 Local Development Framework Urban Sites and Infrastructure Development Plan Document¹⁷, and through consultation with ABCs Planning Team. These developments are

¹⁴ Ashford Borough Council (2008) Local Development Framework Core Strategy. [online] Available at: <http://www.ashford.gov.uk/core-strategy-2008>

¹⁵ <http://newmaps.ashford.gov.uk/EXTPlanningMap/default.aspx>, accessed 28/07/2015

¹⁶ Ashford Borough Council's Local Development Framework, Core Strategy, Adopted 2008, available online at <http://www.ashford.gov.uk/core-strategy-2008>, accessed 28/07/2015.

¹⁷ Ashford Borough Council's Local Development Framework, Urban Sites and Infrastructure Development Plan Document, available online at <http://www.ashford.gov.uk/urban-sites-dpd>, accessed 28/07/2015.

identified in Table 15.8 under 'Stage 1' and represent the Long List of 'other developments'.

15.5.3 As part of Stage 2 (see 'Assessment Methodology' section under 15.3 'Method of Assessment'), the Long List of 'other developments' identified in Stage 1 has been reduced to a Short List using the inclusion / exclusion criteria described above in Paragraph 15.3.13, Table 15.2 and Table 15.3. Table 15.8 also identifies that Stour Park Phase 2 is dependent on the Alternative Scheme, however, as stated in the Section 15.4 'Assumptions and Limitations', this assessment has been unable to distinguish between the effects associated with Stour Park Phase 2 due to the Stour Park ES assessing the environmental effects associated with the entire Stour Park development.

Table 15.8 'Other Developments' identified at Stage 1 and the inclusion of developments in the Short List at Stage 2

ID	Long List of 'other developments' identified at Stage 1 Other development name and reference	Short List of 'other developments' identified at Stage 2	Included in assessment for the Main Scheme?	Included in assessment for Alternative Scheme?
1	Stour Park, 14/00906/AS*	Yes	Yes	Yes
2	Newtown Works Phases 2-4, 05/01798/AS	Yes	Yes	Yes
3	Land at Willesborough Lees, Policy U14	Yes	Yes	Yes
4	Henwood, Policy U15	No		
5	Orbital Park, Policy U16	No		
6	Cheeseman's Green, 2/00278/AS	Yes	Yes	Yes
7	Waterbrook, Policy CS5	Yes	Yes	Yes
8	Conningbrook Strategic Park, 12/01245/AS	Yes	Yes	Yes
9	Land at Chart Industrial Estate, Policy U3	No		
10	K College, Jemmett Road, 11.00757/AS	Yes	Yes	Yes
11	Former Ashford South Primary School, 11/00757/AS	No		
12	Eureka Business Park, 04/0044/AS	Yes	Yes	Yes
13	Chilmington Green, 12/00400/AS	Yes	Yes	Yes
14	Tannery Lane, 13/00713/AS	Yes	Yes	Yes
15	Victoria Quarter, 15/01671/AS	Yes	Yes	Yes
16	Former Site of Ashford Market, 15/011	Yes	Yes	Yes
17	Land Opposite Elwick Road, 15/01282/AS	Yes	Yes	Yes
18	Dover Place, 16/00554/AS	Yes	Yes	Yes
19	Victoria Road,	No		

Long List of 'other developments' identified at Stage 1		Short List of 'other developments' identified at Stage 2	Included in assessment for the Main Scheme?	Included in assessment for Alternative Scheme?
ID	Other development name and reference			
	16/00002/EIA			
20	Ashford Designer Outlet, 14/01402/AS	Yes	Yes	Yes
21	Former Rowcroft and Templar Barracks 02/01565/AS	Yes	Yes	Yes

*Due to the limitations associated with Stour Park (see Section 15.4 'Assumptions and Limitations', and Table 15.7), the cumulative effects associated with Phase 2 of Stour Park and the Alternative Scheme are reflective of the assessment of cumulative effects undertaken for Stour Park Phase 1 and the Main Scheme.

15.5.4 Appendix 15.2, Volume 6.3, builds on the information given in Table 15.8, identifying the Long List of proposed developments identified at Stage 1, and shows the sifting process undertaken to develop a Short List at Stage 2. This table format has been advised within the PINS 'Advice Note Seventeen: Cumulative Effects Assessment'¹⁸.

15.5.5 Figure 15.1, Volume 6.2, shows the locations of these 'other developments' contained within the Short List in relation to the overall study area for cumulative effects (consisting of the 2km ZOI around the DCO boundary for the Main and Alternative Schemes, and the Traffic Model ZOI) used in this assessment. Figure 15.3 (Sheets 1 to 16), Volume 6.2, show the location of each of the 'other developments' in relation to the Main and Alternative Schemes, and the respective ZOIs that these 'other developments' fall into.

15.6 Predicted Effects

Combined Effects – Main Scheme

Construction

15.6.1 The overall significance of the combined effects for the Main Scheme during the construction phase has been assessed as being Slight to Moderate Adverse, taking into consideration any proposed mitigation from the preceding chapters of this ES. Table 1.1 contained in Appendix 15.2, Volume 6.3, provides further details of how these effects have been combined as a result of their individual significance on receptors during construction.

15.6.2 In terms of the geology and soils of the local area, on balance a combined Slight Adverse effect would be anticipated during construction. Slight Adverse effects have been reported as a result of the permanent removal of soils

¹⁸ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

- where excavation works are carried out during earthworks and foundation construction, as well as the potential for soil deterioration and consolidation due to material storage and vehicle usage on site. This combined on balance effect also takes into consideration the Slight Adverse effects predicted on agricultural land within Chapter 13 Community and Private Assets, Volume 6.1, and the Neutral effects anticipated on potential for pollutant leaches within Chapter 14 Road Drainage and the Water Environment, Volume 6.1.
- 15.6.3 A combined Slight Adverse effect would be anticipated on the landscape/townscape of the area during construction of the Main Scheme, with the local landscape character likely to be adversely impacted through the temporary presence of construction traffic, plant and equipment, and the loss of vegetation; effects would not be anticipated to be significant, however, due to the presence of the existing motorway and / or the limited visual connectivity as a result of topography and intervening vegetation for the majority of the surrounding Landscape Character Areas (LCAs). The historic landscape would also experience Slight Adverse effects on balance during construction as a result of the preceding factors, although it is important to note that, despite the on balance effect being Slight Adverse, effects on St Marys Church are anticipated to be Moderate to Large Adverse.
- 15.6.4 During construction, the combined effects upon cultural features are expected to be Slight to Moderate Adverse, due to the potential disturbances to archaeological remains within the footprint of the Main Scheme. In addition, construction activities associated with the Main Scheme are expected to have significant adverse effects to the setting of designated historic assets for a temporary period, as reported in Chapter 6 Cultural Heritage, Volume 6.1.
- 15.6.5 A combined Moderate Adverse effect would be anticipated on community receptors during the construction phase of the Main Scheme. Predicted impacts on communities include the potential for Moderate Adverse effects on visual receptors for a temporary period, as reported in Chapter 7 Landscape, Volume 6.1. Slight Adverse effects would be anticipated for Non-Motorised Users (NMUs), as well as effects associated with noise and vibration as a result of construction activities. Not Significant Adverse effects would be anticipated as a result of effects to the local air quality during construction.
- 15.6.6 Overall, for Community and Private Assets, an on balance Moderate Adverse effect is identified, taking into consideration the Slight Adverse effects anticipated on community land, development land and community severance, in combination with the Major Adverse effects reported for private property and land take. It is also important to note that, for individual farm businesses, seven of the farms assessed are anticipated to have either a neutral or Slight Adverse effect, with one farm (Farm ID 04) having a Large Adverse effect. The on balance effects on individual farm businesses has therefore been reported as Moderate Adverse due to the farm likely to be rendered unviable and due to its High Sensitivity. Therefore, an on balance combined Moderate

- Adverse effect on communities is predicted during the construction phase of the Main Scheme.
- 15.6.7 A combined Slight Adverse effect would be anticipated for vehicle travellers as a result of the Main Scheme, due to the presence of traffic management and diversions leading to expected Driver Stress, although not at levels deemed significant, throughout the duration of the works for a temporary period.
- 15.6.8 A combined Slight Adverse effect would be anticipated on the water environment during the construction phase of the Main Scheme. Despite Neutral effects reported within Chapter 14 Road Drainage and the Water Environment (Volume 6.1) on the Aylesford Stream, East Stour, Great Stour, the existing attenuation pond, and the Kent Greensand Eastern Groundwater, there is the potential for contaminated land to result in an impact upon the water environment, as reported within Chapter 9 Geology and Soils (Volume 6.1). In addition, Slight Adverse effects are reported within Chapter 8 Nature Conservation that for aquatic environments.
- 15.6.9 A combined Slight Adverse effect would be anticipated on ecological receptors during the construction period for the Main Scheme. There would be a mixture of Neutral and Slight Adverse effects to Statutory and Non-Statutory designations, and similarly for habitats and protected species in the study area. However, it is important to note that Neutral effects during construction would be anticipated on the Aylesford Stream, East Stour and Great Stour, as reported in Chapter 14 Road Drainage and the Water Environment, Volume 6.1.
- 15.6.10 In summary, the potential temporary combined effects as a result of the Main Scheme are considered to be, on balance, Slight to Moderate Adverse and therefore not significant.

Operation

- 15.6.11 The overall significance of the combined effects for the Main Scheme during operation has been assessed as Slight Adverse at Year 1 and Neutral at Year 15, taking into consideration any proposed mitigation from the preceding chapters of this ES. Table 1.2 in Appendix 15.3 (Volume 6.3) provides further details of how these effects have been combined as a result of their individual significance on receptors during operation.
- 15.6.12 In terms of geology and soils, a combined Slight Adverse effect would be anticipated once the Main Scheme is in operation. This on balance combined effect has been reached because although Chapter 9 Geology and Soils predicts a Neutral effect during construction, effects on agricultural land are anticipated to be Slight Adverse during operation, as reported in Chapter 13 Community and Private Assets, Volume 6.1.

- 15.6.13 Once operational, an on balance Slight Adverse effect would be anticipated on the local landscape as a result of the Main Scheme at Year 1. Slight Adverse effects would be predicted for the landscape character due to the loss of vegetation following the completion of construction. In terms of the historic setting of the landscape, Slight Adverse effects are anticipated largely as a result of Neutral or Slight Adverse effects for cultural assets, although it is important to note that a Slight to Moderate effects on St Marys Church has been reported during operation (see Chapter 6 Cultural Heritage, Volume 6.1). In addition, as described in Chapter 8 Nature Conservation, Volume 6.1, and with the implementation of mitigation described in Chapter 8, the effect of the loss of habitats including vegetative corridors would be Neutral upon Scheme opening, improving to Slight Beneficial following the maturation of planting. It is important to note that landscape effects as a result of the Main Scheme are anticipated to reduce to a Neutral effect following the maturation of planting and the restoration of wildlife corridors. Therefore, the overall combined effects on landscape during operation would be anticipated to be Slight Adverse during Year 1, with the potential to reduce to Neutral by Year 15.
- 15.6.14 During operation, the combined effects upon cultural features would be expected to be on balance Moderate Adverse, largely as a result of additional visual and noise impacts on the setting of the assets from vehicle movements and street lighting, and the residual effects anticipated on St Marys Church, as reported in Chapter 6 Cultural Heritage, Volume 6.1.
- 15.6.15 Once operational, the combined effects upon communities are considered to be on balance Neutral at Year 1, and improving to a combined Slight Beneficial effect by Year 15. At Year 1, Moderate Adverse effects are anticipated for many sensitive visual receptors, as well as a Slight Adverse effect predicted on receptors as a result of a change to the local air quality. Neutral effects are reported in Chapter 9 Geology and Soils and Chapter 12 Effects on All Travellers (both contained in Volume 6.1) with respect to effects on NMUs. Beneficial effects are anticipated to result for receptors in terms of a reduction in noise at locations closest to the proposed Main Scheme, as well as a reduction in flood risk anticipated to have a Slight Beneficial effect. In terms of Community and Private Assets, the Slight Adverse effects reported on farm businesses, and Neutral effect anticipated community land are combined with the Large Adverse effect anticipated on private property and land take, the Moderate Beneficial effect anticipated on development land, and the Moderate to Large Beneficial effect reported on economic development. As such, effects on the 'communities' receptor reported within Chapter 13 Community and Private Assets chapter are considered to be Slight to Moderate Beneficial which, in combination with other effects for the communities receptor, would lead to an anticipated Neutral effect during Year 1.

- 15.6.16 Effects on the 'communities' receptor at Year 15 would be anticipated to be Slight Beneficial, due to anticipated improvements for visual receptors as mitigation planting matures to provide screening.
- 15.6.17 Once operational, combined effects on vehicle travellers would be expected to be Neutral, with no Adverse effects anticipated on Driver Stress, as reported in Chapter 12 Effects on All Travellers, Volume 6.1.
- 15.6.18 In terms of the water environment, an on balance Neutral effect is anticipated during operation of the Main Scheme. Slight Adverse effects would be anticipated on the Aylesford Stream, East Stour and Great Stour, as well as several attenuation ponds within the study area, due to the potential for surface water run-off causing pollution events during the operation of the Main Scheme. Effects reported in Chapter 9 Geology and Soils, and Chapter 8 Nature Conservation (both contained in Volume 6.1), also report Neutral effects on the water environment.
- 15.6.19 An on balance Neutral effect would be anticipated on ecological receptors as a result of the operation phase for the Main Scheme. Effects on Hatch Park Site of Special Scientific Interest (SSSI) associated with the airbourne pollutants and nitrogen deposition are anticipated to result in an overall Slight Adverse effect. However, operational effects on the other designated areas, habitats and protected species are anticipated to have an on balance Neutral effect. As such, ecological effects are anticipated to be Neutral in the short term, with the potential for Slight Beneficial effects associated with habitat creation and enhancement measures over the longer term, following the proper establishment of vegetation.
- 15.6.20 The potential permanent combined effects as a result of the Main Scheme are considered to be, on balance, Slight Adverse at Year 1, and Neutral at Year 15, and therefore not significant.

Combined Effects – Alternative Scheme

Construction

- 15.6.21 The combined effects as a result of the Alternative Scheme are anticipated to be the same as those reported above for the Main Scheme during construction.

Operation

- 15.6.22 The combined effects as a result of the Alternative Scheme are anticipated to be the same as those reported above for the Main Scheme during operation.

Cumulative Effects – Main Scheme

- 15.6.23 The assessment of cumulative effects with the Main Scheme for both construction and operation can be found in Table 1.1 contained in Appendix 15.4 (Volume 6.3). Only those developments that have been included in the Short List (Stage 2) have been brought through to the assessment of cumulative effects, which represents Stages 3 and 4 of the methodology outlined in the PINS 'Advice Note Seventeen: Cumulative Effects'¹⁹ (see Paragraph 15.3.10 for a description of the stages of assessment). The assessment has been split by environmental topic, and the effects of the 'other developments' have been assessed with the Main Scheme where the ZOIs for each environmental topic overlaps.
- 15.6.24 Table 15.9 below provides a summary of the residual effects for each of the 'other developments' and the relevant environmental topics during construction, and Table 15.10 below summarises the residual cumulative effects during operation.
- 15.6.25 An overall cumulative effect of Slight Adverse is anticipated as a result of all of the 'other developments' with the Main Scheme during construction, largely as a result of the cumulative effects anticipated for cultural heritage, landscape, noise and vibration, and effects associated with Community and Private Assets. As such, no further mitigation is required as there are no significant cumulative effects predicted.
- 15.6.26 An overall cumulative residual effect of Neutral is anticipated as a result of all of the 'other developments' with the Main Scheme during operation, largely due to the significant Moderate Beneficial effect anticipated for Community and Private Assets, in combination with the other Neutral and Slight Adverse, and therefore not significant effects, anticipated for all other environmental topics. As such, no further mitigation is required as there are no significant cumulative effects predicted.

Cumulative Effects – Alternative Scheme

- 15.6.27 The assessment of cumulative effects with the Alternative Scheme for both construction and operation can be found in Table 1.1 contained in Appendix 15.4, Volume 6.3. The cumulative effects associated with the Alternative Scheme are anticipated to be the same as those reported above for the Main Scheme, and have been summarised in Table 15.9 and Table 15.10 below. Due to the limitations associated with Stour Park (see Section 15.4 'Assumptions and Limitations, and Table 15.7) the environmental effects associated solely with Stour Park Phase 2 (development that is dependent on

¹⁹ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

the Alternative Scheme) are not available, and as such the cumulative effects arising as a result of Phase 2 and the Alternative Scheme reflect those assessed for Stour Park (Phase 1) with the Main Scheme.

- 15.6.28 In addition to the assessment undertaken in Appendix 15.4, Volume 6.3, additional assessments have been undertaken for cumulative effects associated with Noise and Vibration and Air Quality for the Alternative Scheme and the Stour Park development dependent on the Alternative Scheme (Phase 2). These cumulative assessments are contained in Appendix 15.5, Volume 6.3.
- 15.6.29 The assessment of cumulative effects on air quality for the Alternative Scheme with Stour Park (Phase 2) (see Appendix 15.5 of Volume 6.3) has concluded that the Alternative Scheme would not have a significant cumulative effect on the local air quality, and as such no additional mitigation measures are proposed.
- 15.6.30 The assessment of cumulative effects on noise and vibration for the Alternative Scheme with Stour Park (Phase 2) (see Appendix 15.5 of Volume 6.3) has concluded that there will be residual properties at, or above the Significant Observed Adverse Effect Level (SOAEL), but that these are adjacent to the existing road network. These effects are not considered significant, and as such additional mitigation is not deemed necessary.

Table 15.9 Summary of the cumulative residual effects for the 'other developments' with the Main Scheme and the Alternative Scheme during construction

ID	'Other Development' name	Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic during construction								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on Travellers	All Community and Private Assets	Road Drainage and the Water Environment
1	Stour Park (Phase 1) (Main and Alternative Scheme) Stour Park (Phase 2) (Alternative Scheme only)	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Moderate Adverse Archaeology: Moderate Adverse	Landscape Character: Slight Adverse Visual Effects: Slight Adverse	Neutral	Slight Adverse	Slight Adverse	Slight Adverse	Agricultural Land: Moderate Adverse Community and Private Assets: Neutral	Water Environment: Slight Adverse Flood Risk: Neutral
2	Newtown Works (Phases 2 - 4)		Built Heritage: Neutral Archaeology: Neutral	Landscape Character: Neutral Visual Effects: Neutral	Slight Adverse					Water Environment: Neutral Flood Risk: Neutral
3	Land at Willesborough Lees									
6	Cheeseman's Green	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse Archaeology: Neutral	Landscape Character: Slight Adverse Visual Effects: Slight Adverse	Slight Adverse	Neutral		Neutral	Agricultural Land: Slight Adverse Community and Private Assets: Slight to Moderate Adverse	Water Environment: Neutral Flood Risk: Neutral
7	Waterbrook	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse Archaeology:	Landscape Character: Slight Adverse Visual	Neutral	Neutral		Neutral		Water Environment: Neutral Flood Risk: Neutral

ID	'Other Development' name	Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic during construction								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on Travellers	All Community and Private Assets	Road Drainage and the Water Environment
			Slight Adverse	Effects: Slight Adverse						
8	Conningbrook Strategic Park		Built Heritage: Slight Adverse Archaeology: Slight Adverse	Landscape Character: Slight Adverse Visual Effects: Slight Adverse	Neutral					Water Environment: Neutral Flood Risk: Neutral
10	K College				Neutral					
12	Eureka Business Park				Neutral					
13	Chilmington Green									
14	KWG Site				Neutral					
15	Victoria Quarter (former Powergen site)				Neutral					
16	Former site of Ashford Market (Elwick Road Phase 1)				Neutral					
17	Land Opposite Elwick Road (Elwick Road Phase 2)				Neutral					
18	Dover Place				Neutral					
20	Ashford Designer Outlet				Neutral					
22	Former				Neutral					

ID	'Other Development' name	Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic during construction								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on Travellers	All Community and Private Assets	Road Drainage and the Water Environment
	Rowcroft and Templar Barracks									
	Overall Cumulative Effects for each environmental topic	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse Buried Archaeology: Slight Adverse	Landscape Character: Slight Adverse Visual Effects: Slight Adverse	Neutral	Neutral	Slight Adverse	Neutral	Agricultural Land: Slight Adverse Community and Private Assets: Slight Adverse	Water Environment: Neutral Flood Risk: Neutral
	Overall Cumulative Effect during construction for the Main Scheme and the Alternative Scheme	Slight Adverse								

Table 15.10 Summary of the cumulative residual effects for the 'other developments' with the Main Scheme and the Alternative Scheme during operation

ID 'Other' Development		Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on All Travellers	Community and Private Assets	Road Drainage and the Water Environment
1	Stour Park (Phase 1) (Main and Alternative Scheme) Stour Park (Phase 2) (Alternative Scheme only)	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Moderate Adverse (Year 1), Slight to Moderate Adverse (Year 15)	Landscape Character: Neutral (Year 1), Neutral (Year 15) Visual Effects: Moderate Adverse (Year 1), Slight Adverse (Year 15)	Neutral	Neutral	Neutral	Neutral	Agricultural Land: Slight to Moderate Adverse Local Community and Private Assets: Moderate Beneficial	Water Environment: Slight Beneficial Flood Risk: Slight Beneficial
2	Newtown Works (Phases 2 - 4)	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse	Landscape Character: Slight Adverse (Year 1), Slight Adverse (Year 15) Visual Effects: Slight Adverse (Year 1), Neutral (Year 15)	Neutral		Neutral			Water Environment: Neutral Flood Risk: Neutral
3	Land at Willesborough Lees	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse	Landscape Character: Neutral (Year 1),	Slight Adverse		Neutral	Neutral	Agricultural Land: Slight Adverse Community and	Water Environment: Neutral Flood Risk:

ID 'Other' Development		Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on All Travellers	Community and Private Assets	Road Drainage and the Water Environment
		Neutral		Neutral (Year 15) Visual Effects: Moderate Adverse (Year 1), Slight Adverse (Year 15)					Private Assets: Slight Beneficial	Neutral
6	Cheeseman's Green	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse	Landscape Character: Slight Adverse (Year 1), Neutral (Year 15) Visual Effects: Slight Adverse (Year 1), Neutral (Year 15)	Neutral	Neutral	Neutral	Neutral	Agricultural Land: Slight Adverse Community and Private Assets: Moderate Beneficial	Water Environment: Neutral Flood Risk: Neutral
7	Waterbrook	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse	Landscape Character: Slight Adverse (Year 1), Neutral (Year 15) Visual Effects: Slight Adverse	Neutral	Neutral	Slight Adverse	Neutral		Water Environment: Neutral Flood Risk: Neutral

ID 'Other' Development		Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on Travellers	All Community and Private Assets	Road Drainage and the Water Environment
				(Year 1), Neutral (Year 15)						
8	Conningbrook Strategic Park	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Neutral	Landscape Character: Neutral (Year 1), Neutral (Year 15) Visual Effects: Slight Adverse (Year 1), Neutral (Year 15)	Neutral		Neutral			Water Environment: Neutral Flood Risk: Neutral
10	K College	Dust: Neutral Traffic Emissions: Neutral			Neutral					
12	Eureka Business Park	Dust: Neutral Traffic Emissions: Neutral			Neutral					
13	Chilmington Green	Dust: Neutral Traffic Emissions: Neutral								
14	KWG Site	Dust: Neutral Traffic			Neutral					

ID 'Other' Development		Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on Travellers	All Community and Private Assets	Road Drainage and the Water Environment
		Emissions: Neutral								
15	Victoria Quarter (former Powergen site)	Dust: Neutral Traffic Emissions: Neutral			Neutral					
16	Former site of Ashford Market (Elwick Road Phase 1)	Dust: Neutral Traffic Emissions: Slight Adverse			Neutral					
17	Land Opposite Elwick Road (Elwick Road Phase 2)	Dust: Neutral Traffic Emissions: Slight Adverse			Neutral					
18	Dover Place	Dust: Neutral Traffic Emissions: Neutral			Neutral					
20	Ashford Designer Outlet	Dust: Neutral Traffic Emissions: Negligible Adverse			Neutral					
22	Former Rowcroft and Templar Barracks	Dust: Neutral Traffic Emissions:			Neutral					

ID	'Other' Development	Residual Cumulative Effects of 'other development' with the Main Scheme for each environmental topic								
		Air Quality	Cultural Heritage	Landscape	Nature Conservation	Geology and Soils	Noise and Vibration	Effects on All Travellers	Community and Private Assets	Road Drainage and the Water Environment
		Neutral								
	Overall Cumulative Effects for each environmental topic	Dust: Neutral Traffic Emissions: Neutral	Built Heritage: Slight Adverse	Landscape Character: Slight Adverse (Year 1), Neutral (Year 15) Visual Effects: Slight Adverse (Year 1), Negligible Adverse (Year 15)	Neutral	Neutral	Neutral	Neutral	Agricultural Land: Slight Adverse Local Community and Economy: Moderate Beneficial	Water Environment: Neutral Flood Risk: Neutral
	Overall Cumulative Effect during operation for the Main Scheme and the Alternative Scheme	Neutral								

15.7 Conclusion

- 15.7.1 The assessment for combined effects involved the identification of impact interactions associated with both the Main and Alternative Schemes upon separate environmental receptors. The methodology for the assessment of combined effects followed DMRB Volume 11 Section 2 Part 5: Assessment and Management of Environmental Effects.
- 15.7.2 In summary, the residual combined effect during construction for both the Main Scheme and Alternative Scheme is anticipated to be Slight to Moderate Adverse and therefore not significant. The residual combined effect during operation for both the Main Scheme and the Alternative Scheme is anticipated to be Slight Adverse and therefore not considered to be significant.
- 15.7.3 The assessment for cumulative effects has involved the identification of incremental changes likely to be caused by 'other developments' together with both the Main and the Alternative Scheme. This assessment has followed the methodology outlined in the recently published PINS 'Advice Note Seventeen: Cumulative Effects Assessment'.
- 15.7.4 The residual cumulative effects during construction as a result of all of the 'other developments' with both the Main Scheme and the Alternative Scheme would be anticipated to be Slight Adverse. During operation, residual cumulative effects for both the Main and Alternative Schemes would be anticipated to be Neutral and therefore not significant.